

Critical Release Notice

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

Bookmarks used in this NTP highlight the changes between the NA015 baseline and the current release. The bookmarks provided are color-coded to identify release-specific content changes. NTP volumes that do not contain bookmarks indicate that the NA015 baseline remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to content for the NA015 baseline that is valid through the current release.

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

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

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

Attention!

Adobe Acrobat Reader 5.0 is required to view bookmarks in color.

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September 2003

For the SN06 (DMS) release, 03.01, updates were made according to CR Q00270160, Q00319430, Q00527425-03, and Q00626953.

297-5161-021

DMS-100 Family

Advanced Intelligent Network Essentials Service Implementation Guide

Issue: 02.03 Status: Standard Date: July 1998 Release: NA009 and up

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Publication history

July 1998

02.03 is the third release of 297-5161-021, *Advanced Intelligent Network Essentials Service Implementation Guide* for Release NA009.

The following logs were updated:

- AIN500
- AIN501
- AIN600
- AIN601
- AIN602

The following tables were updated:

- Table 7, “AIN trunk trigger support”
- Table 42, “Applicable serial triggering scenarios (AIN Primer followed by AIN Essentials)”
- Table 43, “Applicable serial triggering scenarios (AIN Essentials followed by AIN Primer)”
- Table 45, “Population of subsequent AIN Essentials query parameters—guidelines
- Table 46, “Population of subsequent AIN Primer query parameters”

The page numbering was revised.

Various editorial corrections were also made.

June 1998

02.02 is the second release of 297-5161-021, *Advanced Intelligent Network Essentials Service Implementation Guide* for Release NA009.

The following chapters were deleted (version 02.01 chapter numbers):

- Chapter 49: “Data required for AIN response processing”
- Chapter 50: “Routing characteristics name”

- Chapter 51: “Routing characteristics”
- Chapter 52: “Translation mapping”
- Chapter 53: “Translator name”
- Chapter 54: “Line and trunk attributes”
- Chapter 55: “Pretranslator mapping”
- Chapter 56: “Number service code definitions”
- Chapter 57: “Translating call types”
- Chapter 58: “10-digit dialing in the home numbering plan area”
- Chapter 59: “Route mapping tables”
- Chapter 62: “Summary of additional datafill required”
- Chapter 63: “TRAVER enhancements for the Response Translation Simplification”
- Chapter 64: “Sample TRAVERs for the generic SSP”
- Chapter 65: “Sample TRAVERs with Response Translation Simplification”
- Chapter 71: “TrnslVf tool”

The following chapters replace the old chapters 49 to 59 and 62 to 65 noted above:

- Chapter 49: “Overview of AIN response translations”
- Chapter 50: “AIN response translations for public agents”
- Chapter 51: “AIN simplified response translations for public agents”
- Chapter 52: “AIN response translations for private agents”
- Chapter 53: “AIN simplified response translations for private agents”

The following sections were added:

- Section 12.1, “Attendant console display”
- Section 22.1.3, “AIN_OFFICE_TRIGGRP”

The following new logs were added:

- AIN600
- AIN601
- AIN602

The following chapters were updated:

- Chapter 17: “Messaging requirements”
- Chapter 21: “Software optionality control”

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- Chapter 25: “Trigger item provisioning interface”
 - Chapter 33: “Public Office Dialing Plan trigger”
 - Chapter 34: “N11 trigger”
 - Chapter 37: “Automatic flexible routing trigger”
 - Chapter 59: “AIN message tracing tool”
 - Chapter 61: “Test Queries tool”

The following sections were updated:

- Section 12.2, “Limitations”
- Section 14.3.1.11, “NO_OF_HUGE_EXT_BLKs”
- Section 19.5.2, “Trigger subscription tables”
- Section 20.1.6, “Table TRIGITM”
- Section 20.5.8, “Table OFCTIID”
- Section 27.2.2, “Modifying activation state code with the update message”
- Section 27.4, “Datafilling for default routing”

The following tables were updated:

- Table 50, “Attendant console features”
- Table 105, “Fields from table TRIGINFO”
- Table 148, “Trigger definition and subscription summary”
- Table 347, “Example TRAVER output using AINCHG option”

The following figures were updated:

- Figure 29, “Datafill hierarchy and indexing”

Various editorial corrections were also made.

February 1998

02.01 is the first release of 297-5161-021, *Advanced Intelligent Network Essentials Service Implementation Guide* for Release NA009.

The following chapters were added:

- Chapter 12: “Attendant console interactions”
- Chapter 25: “Trigger item provisioning interface”

The following sections were added:

- Section 4.1.5.1, “Interactions with attendant console features”
- Section 8.2.57, Toll restriction features”
- Section 8.3, “Local Number Portability”

- Section 14.3.1.9, “NO_OF_MEDIUM_EXT_BLKs”
- Section 14.3.1.10, “NO_OF_X_LARGE_EXT_BLKs”
- Section 14.3.1.11, “NO_OF_HUGE_EXT_BLKs”
- Section 33.2.1, “Trigger item provisioning interface”
- Section 37.2.4.6, “Trigger item provisioning interface for an office”
- Section 37.2.5, “Sample AFR datafill”
- Section 70.2, “TRAVER command”
- Section 70.7, “TRAVER enhancements for the DMS trigger item interface”
- Section 73.2, “Line query tool support for the DMS trigger item interface”
- Section 82.12, “NA009 development”

The following new logs were added:

- AIN500
- AIN501

The following chapters were updated:

- Chapter 20: “Data schema”
- Chapter 68: “Operational measurements”
- Chapter 72: “Test Queries tool”

The following sections were updated:

- Section 14.2, “Hardware limitations”
- Section 17.2, “Generic SSP query message processing”
- Section 70.1: “Limitations”
- Section 70.4, “AINMQG option”

The following tables were updated:

- Table 3, “AIN line trigger support for plain ordinary telephone service (POTS)”
- Table 4, “AIN line trigger support for Residence Enhanced Services (RES)”
- Table 5, “AIN line trigger support for Integrated Business Network (IBN) lines”
- Table 6, “AIN DN trigger support”
- Table 7, “AIN trunk trigger support”
- Table 15, “Supported features”

Various editorial corrections were also made.

November 1997

01.02 is the second release of 297-5161-021, *Advanced Intelligent Network Essentials Service Implementation Guide* for Release NA008.

The following part title was changed:

- Part IX, “Requirements and support” from “Development and support”

The following chapters were added:

- Chapter 54, “Number service code definitions”
- Chapter 58, “Monitor resources feature”
- Chapter 61, “TRAVER enhancements for the Response Translation Simplification feature”
- Chapter 63, “Sample TRAVERs with Response Translation Simplification”

An index was added.

The following chapters were moved:

- Chapter 6, “Error handling” from Part IV to Part II
- Chapter 7, “Limitations” from Part IV to Part II
- Chapter 19, “Data schema” within Part V
- Chapter 62, “Sample TRAVERs for the generic SSP” within Part V
- Chapter 70, “Test Queries tool” within Part VII

The following chapter titles were changed:

- Chapter 15, “SSP engineering” from “Technical specification”
- Chapter 27, “Datafilling for triggers” from “Provisioning for triggers”
- Chapter 62, “Sample TRAVERs for the generic SSP” from “Essentials sample TRAVERs for the generic SSP”
- Chapter 64, “Billing” from “Automatic message accounting”
- Chapter 65, “AMA structures and modules” from “AIN Essentials SSP AMA structures and modules”

The following sections were added:

- Section 8.2.40, “Monitor resources feature”
- Section 8.4.17, “Monitor resources feature limitations and restrictions”
- OM group AINACG with registers BLKCASCP, BLKCASMS, SCPOVLDO, SMSOVLDO, and CTRLCHA has been added to Chapter 62, “Operational measurements”.

- Log AIN612 has been added to Chapter 72, “Logs”.

The following sections were revised:

- Section 5.1.6.2, “Send to resource conversation”
- Section 13.2.1.16, “Table TCAPTRID”
- Section 19.7.6, “TCAPTRID—TCAP Transaction and Component ID table”
- Section 21.2, “Datafilling for TCAP in table TCAPTRID”

The following tables were revised:

- Table 78, “Monitor_For_Change message parameters”
- Table 182, “Selectors supported for tables OFRT, OFR2, OFR3, and OFR4”
- Table 183, “Selectors supported for tables IBNRTE, IBNRT2, and IBNRT4”

Various editorial corrections were also made.

August 1997

01.01 is the first release of 297-5161-021, *Advanced Intelligent Network Essentials Service Implementation Guide* for Release NA008.

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About this document

When to use this document

This document is a source of information for the NA009 AIN Essentials product.

The document is a response to customer requests that descriptive information for previous AIN Essentials releases was often duplicated and spread over too many documents, making searches difficult. This document gathers up the information under one cover from all the documents associated with previous releases, and yet is designed to maintain the nature of the documents most frequently used in the past, especially those related to provisioning the AIN Essentials SSP for triggers, responses, and post-response translations.

How to check the version and issue of this document

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

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

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

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

Structure of this document

The document is structured as follows:

Part: Introduction. This part provides an overview of the AIN Essentials product, the call model, and agents supported by the NA009 release.

Part: Functional description. This part describes AIN Essentials trigger and response processing.

Part: Interactions. This part provides a list of DMS features that are supported by AIN, networking between AIN Essentials and AIN Primer, networking between AIN Essentials and E800, and unsupported DMS features.

Part: Planning and engineering. This part describes AIN hardware requirements and software components for this release, outlines the technical specifications such as standards, performance measurements, and capacity allocation, messaging requirements, and error handling.

Part: Provisioning. This part contains the provisioning information formerly contained in the Provisioning Cookbook and the Response Translations Guide. Since these documents were widely used successfully in previous releases, they have been incorporated in the same format into this Implementation Guide. The chapters in this section provide examples of trigger, response, and post-response translations datafill.

Part: Billing. This part describes Automatic Message Accounting as it applies to AIN and illustrates the modules codes.

Part: Operations, administration, and maintenance procedures (OAMP). This part describes the OMs and logs that are supported by the AIN Essentials NA009 release.

Part: PRI looparounds. This part provides an overview of the reasons for using primary rate interface (PRI) looparound trunks and information for provisioning these trunks.

Part: Requirements. This part presents the mapping of AIN Essentials to the Bellcore specifications, provides a product developments summary since BCS36, and describes some elements of product support such as loadbuild requirements and documentation.

References in this document

The following documents are referred to in this document:

- 297-1001-455, *Office Parameters Reference Manual (volumes 1—2)*
- 297-1001-825, *DMS-100 Glossary*
- 297-1411-350, *E911 Emergency Service*
- 297-1421-010, *Subscriber Services Product Guide*
- 297-2051-104, *MDC SMDI Setup and Operation*
- 297-2401-360, *ISDN Primary Rate Interface Translation Guide*

- 297-5161-022, *Advanced Intelligent Network Service Enablers Service Implementation Guide*
- 297-5161-510, *AIN Release 0.1 SSP Complete Maintenance Guide*
- 297-8003-350, *NA DMS-100 Translations Guide*
- 297-8003-808, *NA DMS-100 Service Order Reference Manual*
- 297-8003-814, *NA DMS-100 Operational Measurements Reference Manual*
- 297-8003-840, *NA DMS-100 Log Reports Reference Manual*
- 297-8003-855, *NA DMS-100 Office Parameters Reference Manual*
- 297-8981-021, *DMS-100/200 LRN-LNP Service Implementation Guide*

What precautionary messages mean

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

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

Examples of 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.

CAUTION

Possibility of equipment damage

**CAUTION****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

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:

Manually busy the CTRL on the inactive plane by typing:

>BSY CTRL ctrl_no

and pressing the enter key.

where

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

Example of a MAP response:

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

FP 3 Busy CTRL 0: Command passed.

Introduction

Part : “Introduction” consists of the following chapters:

- Chapter 1.: “Product overview”
- Chapter 2.: “Call model”
- Chapter 3.: “Agent support”

1. Product overview

Nortel has three AIN products:

- AIN Primer
- AIN Essentials
- AIN Service Enablers

1.1 AIN Primer

AIN Primer is Nortel's first AIN product, and is based on AIN Primer. This product was released in BCS34 (Batch Change Supplement 34). This product does not use the Bellcore AIN call model.

1.2 AIN Essentials

AIN Essentials is Nortel's second AIN product, and is used to offer AIN Essentials functionality to the operating companies. AIN Essentials is largely based on:

- *Advanced Intelligent Network (AIN) 0.1 Switch-Service Control Point (SCP) Application Protocol Interface Generic Requirements*. TR-NWT-001285, Issue 1. Bellcore, August 1992.
- *Advanced Intelligent Network (AIN) 0.1 Switching Systems Generic Requirements*. TR-NWT-001284, Issue 1. Bellcore, August 1992.

AIN Essentials was first released in BCS36 and the releases are planned until the NA009 time frame.

1.3 AIN Service Enablers

AIN Service Enablers is Nortel's third AIN product, and is used to offer AIN 0.2 functionality to the operating companies. This product is based on:

- GR-1298-CORE, *AINGR: Switching Systems*, Issue 3, Revision 1, Bellcore, November 1996
- GR-1299-CORE, *AINGR: Switch—Service Control Point (SCP)/Adjunct Interface*, Issue 3, Revision 1, Bellcore, November 1996

- GR-1129-CORE, *AINGR: Switch—Intelligent Peripheral Interface (IPI)*, Issue 2, Bellcore, July 1996
- GR-2892-CORE, *Switching and Signaling Generic Requirements for Toll-Free Service using Advanced Intelligent Network*, Issue 1, Bellcore, April 1995

1.4 Overview of AIN Essentials

This product is based on the requirements outlined in the following documents:

- TR-NWT-001284 *AIN 0.1 Switching Systems Generic Requirements*, Issue 1, January 1992
- TR-NWT-001285 *AIN 0.1 Switch-Service Control Point (SCP) Application Protocol Interface Generic Requirements*, Issue 1, January 1992
- *ServiceSet Service Switching Point Commercial Specifications* Issue1, September 1991
- *ServiceSet Service Switching Point Commercial Specifications Addendum*, May 28, 1992

Development of the AIN Essentials SSP is targeted for the following DMS switches: DMS-100 and DMS-100/200. A DMS switch equipped with AIN Essentials SSP software may be called a DMS AIN Essentials SSP.

The development of AIN Essentials software allows operating companies to intercept a call and provide a service to that call. When a call is intercepted, the AIN Essentials SSP can send information about the call to an off-board processor such as a service control point (SCP) or adjunct. The off-board processor uses the information to perform a service provided by the operating company. The off-board processor sends a message to the SSP with instructions on how to proceed with the call. These instructions can be one of the following: reroute the call to a specified route, play an announcement, collect more digits or disconnect the call. Detailed functionality of the AIN Essentials SSP is outlined in subsequent sections.

The emergence of other intelligent network applications, such as Virtual Network Services (VNS), and Adjunct System Architecture (ASA), makes it necessary to provide a generic AIN SSP platform. The purpose of the generic AIN SSP platform is to provide common functionality and software reuse for all AIN applications. Since AIN Essentials SSP is the first of these applications to be developed for the DMS, a generic platform was developed in parallel with the development of AIN Essentials SSP software. Therefore, in addition to AIN Essentials SSP, the generic platform is described and is referred to in this document as the AIN SSP Platform.

1.5 General description

AIN Essentials SSP is a software product residing in the DMS switch and it is built on top of the call-processing software in the SSP. Services provided by the operating company reside in an off-board processor such as a service control point (SCP) or adjunct. AIN Essentials SSP allows a call to access these services by suspending a call at various stages. The SSP sends a query to the off-board processor where, after processing the query, it sends a response back to the SSP providing instructions for the resumption of call processing.

An overview of the functionality provided by AIN Essentials SSP software in BCS36, NA002, NA003, NA004B, NA005B, NA006B, NA007, NA008, and NA009 releases, is as follows:

- **Call model** —AIN Essentials SSP supports the originating and terminating basic call models defined in TR-NWT-001284. The basic call model (BCM) defines stages in a two-party call where a query may be sent to an off-board processor.
- **Triggers** —AIN Essentials SSP supports nine triggers defined in TR-NWT-001284. Triggers are used by the SSP to determine if a call in progress should be suspended and a query sent to an off-board processor.
- **Response processing** —The SSP can interpret and carry out instructions received in a response message from an off-board processor. There are various types of responses. For example, a response message can instruct the SSP to reroute the call to a specified address.
- **Billing** —The off-board processor can instruct the SSP to generate a billing record using Bellcore automatic message accounting (AMA) call codes.
- **Traffic and maintenance measurements** —The SSP provides traffic and maintenance measurements such as resource failures and invalid response messages.
- **Error handling** —The SSP can process and report errors found in response messages received from a off-board processor. This may involve continuing call processing or taking down the call and issuing final treatment.
- **Interface to a SCP using CCS7** —The SSP has the capability to send and receive transaction capabilities application part (TCAP) messages to and from an SCP through a Common Channel Signaling Number 7 (CCS7) link. TCAP is based on the *Draft Proposed American National Standard for Telecommunications for SS7 TCAP*, Issue 2 of T1.114.
- **Interface to an adjunct using TCP/IP** — The SSP has the capability to send and receive TCAP messages to and from an adjunct through a transport control protocol/internet protocol (TCP/IP) link. TCAP is based on the Draft Proposed American National Standard for

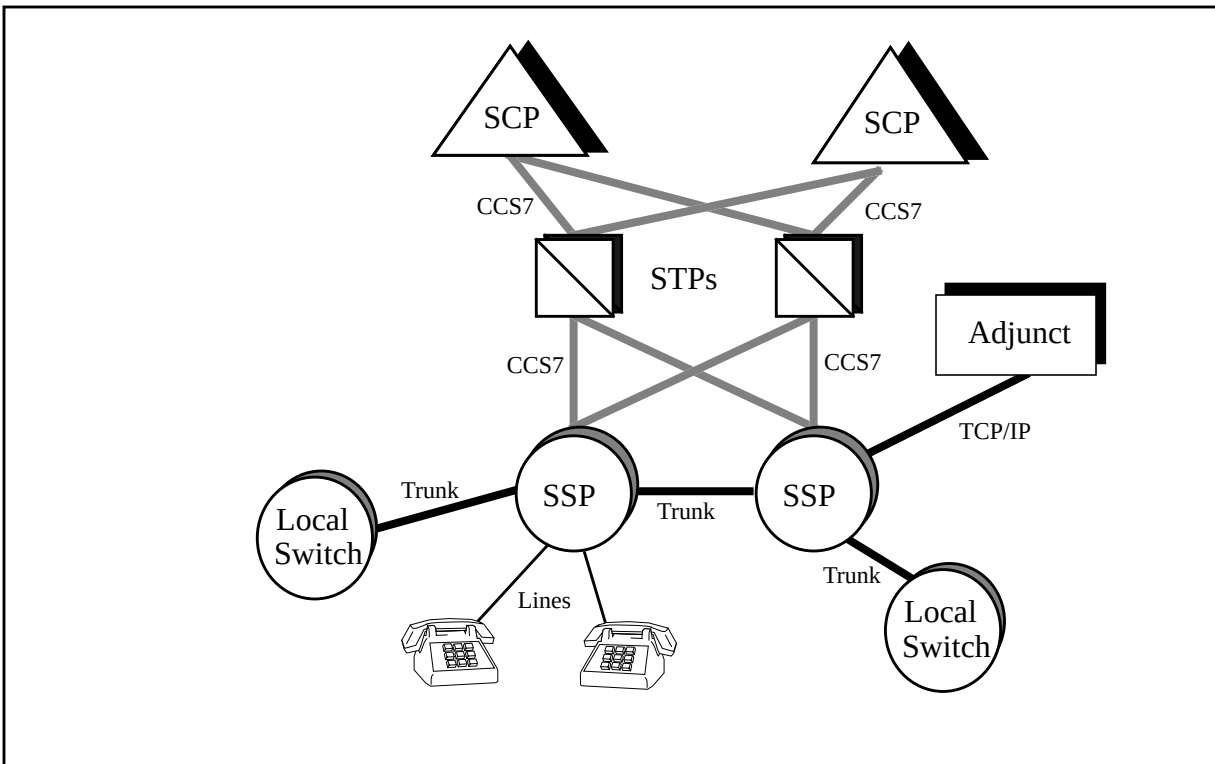
Telecommunications for SS7 TCAP, Issue 2 of T1.114. This interface is provided for lab trials; it is not intended to be used in live offices.

- **Other operations, administration, and maintenance (OAM) functions** —AIN Essentials SSP provides tools for the craftsperson to provision triggers, perform routing determination checks, and test queries that are sent to an off-board processor.
- **AIN platform** —AIN SSP platform provides a framework and generic software base for future AIN applications. The platform eases the addition of new functionality, simplifies interworking, and provides software reuse.

1.6 System architecture

AIN Essentials SSP is a network node in the AIN Essentials architecture. Figure 1 shows the relationship between the AIN Essentials SSP and the other network nodes in the AIN Essentials architecture. Only the nodes that have interaction with AIN Essentials SSP are presented, for example, the SMS, and the IP are explicitly excluded for simplicity.

Figure 1 AIN Essentials network-level architecture



An AIN Essentials SSP allows subscribers directly connected to the SSP to make an AIN call. The AIN Essentials SSP can also receive and process AIN calls from a local switch that does not have AIN functionality. The local switch may or may not be able to recognize calls that require AIN processing.

When an AIN Essentials SSP determines that an AIN call has met the trigger criteria, the AIN Essentials SSP may send a query to one of the SCPs via a Common Channel Signaling Number 7 (CCS7) signaling link or to an adjunct via an Ethernet link with TCP/IP protocol. The AIN Essentials SSP will process the response coming back from the SCP or adjunct.

1.7 Scope

AIN Essentials SSP provides an operating company with the functionality for creating its own network services which involves communicating and processing among various network nodes as described in section Section 1.6 “System architecture” on page 66. This document addresses only the AIN Essentials software contained in the SSP node and discusses its interface with the AIN Essentials SCP and adjunct products.

With the AIN Essentials SSP functions, the operating companies will be able to:

- **Develop network services on an off-board processor** —The operating companies can use their own processing platforms on their off-board processors to implement network services.
- **Achieve an open architecture** —Since the interface between the SSP and the off-board processor (for example, SSP–SCP interface) is a standard, it is possible for multiple vendors to develop services for an off-board processor that can be used with multiple SSPs and vice versa.
- **Gain faster turnaround and better control of network services deployment** —Since network services are developed by operating companies, the operating companies have full control of what services will be available for deployment and when they will be deployed.

The market application for AIN Essentials SSP enables operating companies to develop new network services in the off-board processor. They can develop and deploy these new network services according to their own time frame. This would allow operating companies to confirm the benefits of AIN as outlined in the above paragraphs.

1.8 AIN Software Optionality Control

AIN Software Optionality Control (ASOC) introduces five options. These options collectively control the activation and deactivation of the AIN Essentials SSP software. Each ASOC option can be in either the ON or IDLE state. A description of the ASOC options follows.

- AIN Primer option (AIN00001): This is a track option associated with AIN Primer.
- AIN Essentials option (AIN00002): This option activates/deactivates the basic AIN call processing capability. Its state determines whether AIN is considered active in the office.

- AIN Call Management option (AIN00006): This option controls the activation and deactivation of all AIN Essentials SSP related capability. It is dependent on the AIN00002 ASOC option. Thus, these two ASOC options (AIN00002 and AIN00006) must be in the ON state in order for AIN Essentials SSP software to function.
- AIN Call Model Control option (AIN00007): This is a track option associated with features that are brought forward to enhance AIN Essentials functionality in NA004.
- AIN Display Services option (AIN00008): This option controls the “Display Text to Terminating RES and MDC agents” functionality. It is dependent on AIN00007.
- AIN Services Supporting Option (AIN00009): This is a track option associated with features that provide support for services on AIN.
- AIN Default Routing option (AIN00010): This option controls the Default Routing functionality. It is dependent on the AIN00006 option.
- AIN SSP Service Enhancement option (AIN00011): This is a track option associated with features delivered in NA005 to enhance SSP functionality.
- AIN Network Services Enhancements option (AIN00015): This is a track option associated with features that Enhances network Services.
- AIN ACB/AR Premium option (AIN00018): This option controls the “ACB/AR” enhanced functionality. It is dependent on the AIN00007 option.
- AIN STR to STD announcement option (AIN00021): This is a track option associated with features that allow AIN to use Standard announcements in Send To Resource response.
- AIN Maintenance Enhancement option (AIN00022): This is a track option associated with features that enhances maintenance.
- AIN legacy CPC LNP option (AIN00025): This option controls the Carrier Portability Code(CPC) Local Number Portability(LNP) functionality. It is dependent on the AIN00009 option.
- AIN Translations Simplification option (AIN00026): This option controls the response translations simplification functionality. It is dependent on AIN00009.
- AIN Office Trigger Flex option (AIN00027): This is a track option associated with the response translation enhancement feature.

Please refer to Chapter 21.: “Software optionality control” on page 415 for more information on turning the options ON.

2. Call model

AIN Essentials SSP defines a basic call model (BCM) that defines stages of the call where call processing is performed and stages of the call where the SSP may suspend the call and query an off-board processor. The AIN Essentials BCM is illustrated in Table 1 and 2 . The originating BCM describes the call processing required to set up a call by the originating party. The terminating BCM describes the processing required by the terminating party to terminate an incoming call.

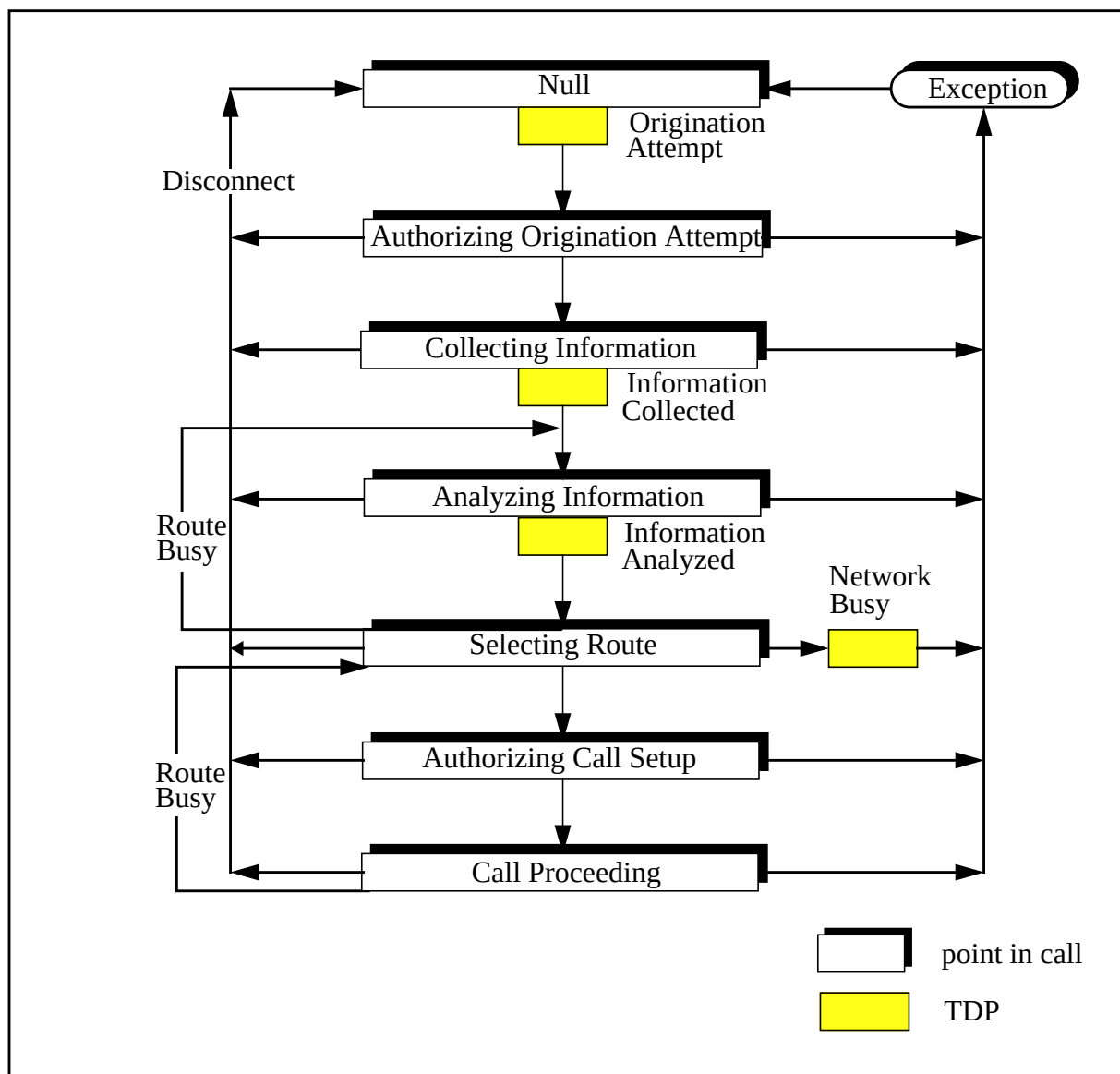
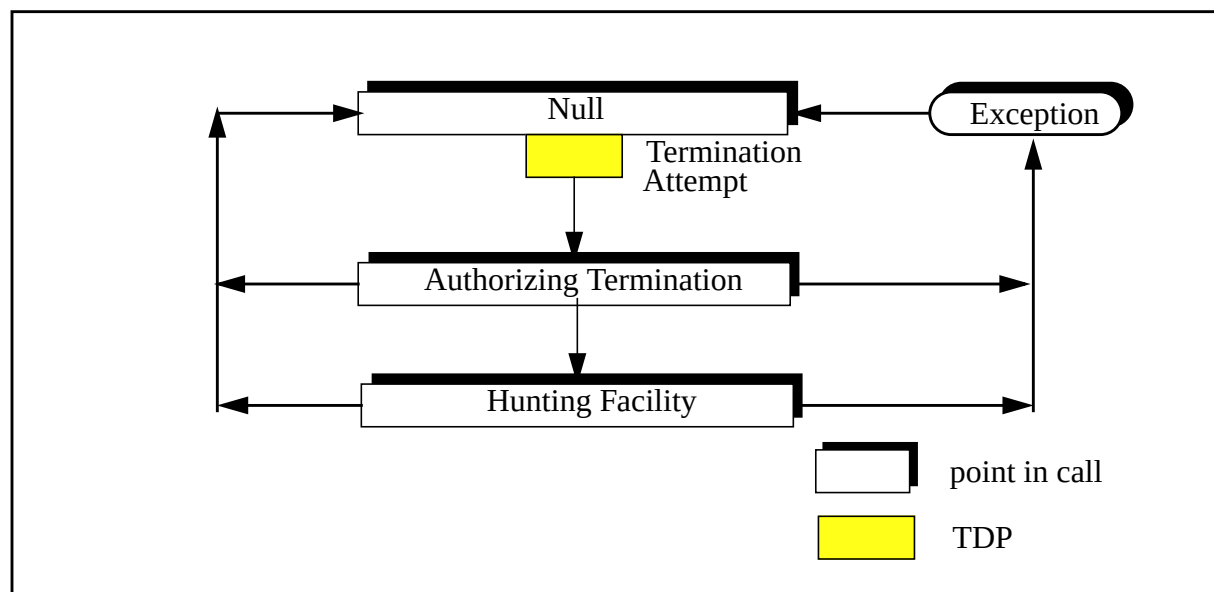
Figure 2 Originating basic call model

Figure 3 Terminating basic call model



The BCM is partitioned into blocks termed Points In Call. A point in call describes what part of call processing is performed at this stage of the call and what information about the call has been gathered. Also shown in the BCM are the trigger detection points (TDPs) defined by AIN Essentials SSP. TDPs are stages in the call where the SSP determines if it needs to query an off-board processor. If no query needs to be performed, call processing resumes to the next point in call. Table 1 and 2 describe the points in call in the originating and terminating BCMs. If applicable, TDPs that may be encountered upon exiting the point in call are also given.

Table 1 Originating BCM points in call

Point in call	Description	Applicable TDP
Null	The call is idle and no connection exists. The agent goes off hook and attempts to originate a call.	Origination Attempt
Authorizing Origination Attempt	The authority of the originating agent to place a call is verified.	N/A
Collecting Information	Complete initial address information is collected from the originating agent (for example, access code, dialed digits).	Information Collected
Analyzing Information	Digits collected are translated according to the agent's dial plan. CalledPartyID, type of call and carrier are determined.	Information Analyzed
Selecting Route	The SSP attempts to route the call to the route specified in routing tables.	Network Busy
Authorizing Call Setup	The SSP verifies the authority of the calling party to place the call (for example, toll denied).	N/A
Call Proceeding	The SSP sends a message to the terminating resource indicating a desire to set up the call.	N/A

Table 2 Terminating BCM points in call

Point in call	Description	Applicable TDP
Null	The call is idle and no connection exists.	Termination Attempt
Authorizing Termination	The SSP verifies the authority to route the call to the terminating resource.	N/A
Hunting Facility	The busy/idle status of the terminating agent is determined.	N/A

3. Agent support

Users can access AIN Essentials SSP services through lines, trunks, and DN. The line, DN, and trunk agents supported, as well as the level of support for each trigger by line class code (LCC), is shown in Table 3 through Table 7.

Table 3 indicates the support for plain ordinary telephone service (POTS) line agents.

Table 3 AIN line trigger support for plain ordinary telephone service (POTS)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
BASIC	1FR	S	S	N/A	N/S	S	S	S	S	S
	1MR	S	S	N/A	N/S	S	S	S	S	S
PBX	PBX	S	S	N/A	N/S	S	S	S	S	S
	PBM	S	S	N/A	N/S	S	S	S	S	S

Table 3 AIN line trigger support for plain ordinary telephone service (POTS) (Continued)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
COIN	CCF	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	CDF	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	CFD	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	CSP	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	ZMD	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	ZMZPA	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
WATS	2WW	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	EOW	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	ETW	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	INW	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
	OWT	N/S	PRIL	N/A	N/S	S	S	S (Note)	S	N/S
PARTY	2FR	S	S	N/A	N/S	S	S	P	S	N/S
	4FR	S	S	N/A	N/S	S	S	P	S	N/S
	8FR	N/S	PRIL	N/A	N/S	PRIL	PRIL	PRIL	S	N/S
	10FR	N/S	PRIL	N/A	N/S	PRIL	PRIL	PRIL	S	N/S

Table 3 AIN line trigger support for plain ordinary telephone service (POTS) (Continued)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
N/A— not applicable N/S— not supported P— partially supported PRIL— supported via primary rate interface (PRI) looparound trunks S— supported Note: Group based subscription and individual subscription are not applicable.										

Table 4 indicates the support for Residence Enhanced Services (RES) line agents.

Table 4 AIN line trigger support for Residence Enhanced Services (RES)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
BASIC	1FR	S	S	S	S	S	S	S	S	S
	1MR	S	S	S	S	S	S	S	S	S

Table 4 AIN line trigger support for Residence Enhanced Services (RES) (Continued)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
COIN	CCF	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
	CDF	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
	CFD	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
	CSP	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
	ZMD	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
	ZMZPA	N/S	S	P (Note 1)	S	S	S	P (Note 2)	S	S
WATS	2WW	N/S	S	S	S	S	S	P (Note 2)	S	S
	EOW	N/S	S	S	S	S	S	P (Note 2)	S	S
	ETW	N/S	S	S	S	S	S	P (Note 2)	S	S
	INW	N/S	S	S	S	S	S	P (Note 2)	S	S
	OWT	N/S	S	S	S	S	S	P (Note 2)	S	S

Table 4 AIN line trigger support for Residence Enhanced Services (RES) (Continued)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
N/A— not applicable N/S— not supported P— partially supported PRIL— supported via primary rate interface (PRI) looparound trunks S— supported Note 1: Only Access Code (AC) is supported. Feature Access Code and Intercom/Extension are not supported. Note 2: Only office based subscription is supported. Individual subscription and group based subscription are not supported.										

Table 5 indicates the support for Integrated Business Network (IBN) line agents.

Table 5 AIN line trigger support for Integrated Business Network (IBN) lines

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
BASIC	IBN	S	S	S	N/A	S	S	S	S	S
	M5009	S	S	S	N/A	S	S	S	S	S
	M5112	S	S	S	N/A	S	S	S	S	S
	M5209	S	S	S	N/A	S	S	S	S	S
	M5212	S	S	S	N/A	S	S	S	S	S
	M5312	S	S	S	N/A	S	S	S	S	S
	PSET	S	S	S	N/A	S	S	S	S	S
OTHER	DATA	S	S	P	N/A	S	S	P (Note 1)	S	S
	PDATA	S	S	P	N/A	S	S	P (Note 1)	S	S
	VLN (for RCF)	N/A	N/A	N/A	N/A	S	S	P (Note 1)	S	N/A
	ISDNKSET-MFT	S	S	S	N/A	S	S	S	S	S
	ISDNKSET-BRI	S	S	S	S	S	S	P (Note 1)	S	S
	AC (Note 2)	N/S	PRIL	PRIL	N/A	P	P	PRIL	P	N/S

Table 5 AIN line trigger support for Integrated Business Network (IBN) lines (Continued)

Agent		Trigger								
Type	Line class code (LCC)	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
N/A— not applicable N/S— not supported P— partially supported PRIL— supported via primary rate interface (PRI) looparound trunks S— supported Note 1: Only office based subscription is supported. Individual subscription and group based subscription are not supported. Note 2: In this document, Attendant Console (AC) refers to the Nortel Meridian Digital Centrex (MDC) Attendant Console. AC support for Public Office Dialing Plan (PODP), N11, and Encounter Termination Attempt (TERMATT) triggers does not support the Send_To_Resource (STR) response. Calls with an STR response are sent to AIN final treatment. Mini Consoles are not supported.										

Table 6 indicates support for AIN triggers on the processing of the destination digits of the direct inward system access (DISA) feature and the virtual directory number (VDN) feature.

Table 6 AIN DN trigger support

Agent		Trigger								
Type	Class	Off-hook immediate (OFFHKIMM)	Off-hook delay (OFFHKDEL)	Customized dialing plan (CDP)	Public Office Dialing Plan Feature Code (PODPFEAT)	Public Office Dialing Plan (PODP)	N11	Automatic flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	Subscribe to Termination Attempt (TERMATT)
DISA	IBN	N/S	N/A	S	S	S	S	S	S	N/S
AIN VDN	IBN	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S
AIN VDN	NON-IBN	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S
N/A — not applicable N/S — not supported P — partially supported PRIL — supported via primary rate interface (PRI) looparound trunks S — supported										

Table 7 indicates AIN support for trunk agents.

Table 7 AIN trunk trigger support

Agents	Trunk group type	Trigger							
		Off-hook delay (OFFHKDEL)	Shared inter-office trunk	Customized dialing plan (CDP)	Public Office Dialing Plan (PODP)	N11	Automatic Flexible routing (AFR)	Encounter Termination Attempt (TERMATT)	
Integrated Business Network	IBNT1	S	N/A	S	S	S	S	S	
Integrated Business Network	IBNT2	S	N/A	S	S	S	S	S	
Primary rate interface	PRA	S	N/A	S	S	S	S	S	

Table 7 AIN trunk trigger support (Continued)

Agents	Trunk group type	Trigger						
		Off-hook delay (OFFHKDEL)	Shared inter-office trunk	Customized dialing plan (CDP)	Public Office Dialing Plan (PODP)	N11	Automatic Flexible routing (AFR)	Encounter Termination Attempt (TERMATT)
Inter toll	IT (Note 1)	N/A	P	S	S	S	S	S
Incoming end office	TI (Note 1)	N/A	N/A	S	S	S	S	S
Two-way end office	T2 (Note 1)	N/A	N/A	S	S	S	S	S
Access to carrier	ATC	N/A	N/A	N/A	S	S	S	S
PBX/DID	P2	N/A	N/A	N/A	S	S	P (Note 2)	S
PBX/DID	PX	N/A	N/A	N/A	S	S	P (Note 2)	S
SuperCAMA	SC (Note 3)	N/A	N/S	N/A	S	S	N/S	S
OutgoingCAMA	OC (Note 4)	N/A	N/S	N/A	S	S	PRIL	S
Cellular 2A (MF)	CELL	S	N/S	N/A	S	P (Note 5)	P (Note 2) (Note 6)	S
Cellular 2A (ISUP)	ISUP IT (CELL 2A option)	S	N/S	N/A	S	P (Note 5)	P (Note 2) (Note 6)	S
Cellular 1/2B (MF)	PX (LOCALCMC=Y)	N/A	N/S	N/A	S	S (Note 5)	P (Note 2) (Note 6)	S
Cellular 1/2B (ISUP)	ISUP IT (CELL 2B option)	S	N/S	N/A	S	P (Note 5)	P (Note 2) (Note 6)	S
Virtual access to private network	VAPN	S	N/A	P (Note 7)	S	N/S	P (Note 2)	S
Enhanced 911	E911	N/A	N/A	N/A	N/S	N/S	N/S	S
Operator	OP (Note 4)	N/A	N/A	N/A	S	S	N/S	S
Operator incoming	OI (Note 4)	N/A	N/A	N/A	S	S	N/S	S

Table 7 AIN trunk trigger support (Continued)

Agents	Trunk group type	Trigger						
		Off-hook delay (OFFHKDEL)	Shared inter-office trunk	Customized dialing plan (CDP)	Public Office Dialing Plan (PODP)	N11	Automatic Flexible routing (AFR)	Encounter Termination Attempt (TERMATT)
N/A— not applicable N/S— not supported P— partially supported PRIL— supported via primary rate interface (PRI) looparound trunks S— supported Note 1: An ISUP IT/TI/T2 trunk call with an MBG parameter can encounter a CDP trigger. Note 2: Only office based subscription is supported. Individual subscription and group based subscription are not supported. Note 3: When the call involves SuperCAMA LEAS and AIN, the SuperCAMA trunk must be datafilled to carry equal access (EA) traffic. See document NTX710AA, LATA Equal Access System, Digital Switching Systems DMS* - 100 Family General Feature Description for LEAS provisioning. If the SCP returns a Charge Number in its response after triggering, then the Charge Number must also be datafilled in table TRKLATA. Furthermore, if the response is to route the call directly to a DN, then table DNPIC or DNLPICT must also be datafilled depending on whether the call is INTER LATA or INTRA LATA. N11 triggering is not supported for SuperCAMA trunks when it is datafilled as a LEAS trunk. Note 4: Operator Verification calls on Outgoing CAMA (OC), Operator (OP) and Operator Incoming (OI) trunks will be blocked from triggering on any of the AIN triggers. In addition, Operator Number Identification (ONI) calls are also blocked from triggering on any of the AIN triggers. When an incoming OP, OC, or OI call triggers N11, all versions of Analyze Route responses are supported except the one which directs the call to be routed to an IXC. Note 5: Returning a carrier in the Analyze Route response after triggering at N11 is supported for the type 2B MF CELL trunks only. Note 6: Returning a carrier in the Analyze Route response after triggering at AFR is supported for the type 2B MF CELL trunks only. Note 7: CDP Access Code (AC) is supported. CDP Intercom/Extension does not apply to VAPN trunks. CDP Feature Access Code (FAC) is not supported.								

The support of trunk agents allow the AIN Essentials SSP to receive and process calls from a non-AIN switch, such as a Network Access Point (NAP), to access AIN 0.1 services.

Functional description

Part : “Functional description” consists of the following chapters:

- Chapter 4.:“Trigger Processing”
- Chapter 5.:“Response Processing”
- Chapter 6.:“Error handling”
- Chapter 7.:“Limitations”

4. Trigger Processing

4.1 Trigger detection points and triggers

As previously mentioned, trigger detection points (TDPs) are stages in the call where the SSP determines if it needs to send a query to an off-board processor. The SSP uses triggers at TDPs to analyze whether a query should be sent. Triggers define the conditions that must be met in order for a query to be sent to the off-board processor. A call will trigger and send a query when all the following conditions are met:

- the call has reached the TDP
- the trigger is subscribed by one of the following:
 - individual (line or trunk group)
 - group (customer group)
 - office
 - DN
- trigger criteria is met and the trigger is active

Note: Individual line subscription is on a LEN basis for individual lines and on a LEN+key basis for keysets.

Several triggers may be associated with one TDP. A call may trigger a maximum of N times during a call leg (counter is reset during call forwarding and Forward_Call), where N is a number between 1 and 25, inclusive. This number is datafilled and the default is set to 6.

Note: TR-NWT-001284 specifies 6 to be the default number of times a call may trigger. However, for flexibility, this implementation of AIN Essentials allows operating companies to specify the maximum number of times a call may trigger to be in the range of 1 to 25.

A trigger may contain one or more criteria types. In order for a call to trigger, all criteria specified must be met. The different criteria types are

- **Call Type** — used to specify which type of calls (that is, voice, data) may trigger and send a query message

- **Digits Dialed**— used to specify which digits must be dialed in order for a call to trigger and send a query message.
- **Escape Code**— used to specify that only calls in which an escape code has not been dialed may trigger and send a query message.
- **Escape Coin** — used to specify which call types (NP, DD, OA) should escape this trigger. This option only affects coin line originated calls, and may only be datafilled for the PODP trigger.
- **Escape Equal Access**— Used to specify that equal access calls should escape the trigger. It may only be used for PODP trigger.
- **Escape Operator**— Used to specify that a call to the operator should escape the trigger. It may only be used for PODP trigger.
- **Escape DN Resident**— Used to specify that if the DN dialed is resident on the switch, the trigger should be escaped. It may only be used for the PODP trigger.

Not all the above criteria types are applicable to all AIN Essentials SSP triggers. For certain triggers, some criteria types are mandatory and are indicated in Table 8 by (M). All other criteria types are optional.

When a line, trunk group, customer group, DN or office subscribes to an AIN Essentials SSP trigger, it actually subscribes to an instance of the AIN Essentials SSP trigger. An instance of an AIN Essentials SSP trigger specifies the criteria that must be met in order for the call to trigger. Thus, several subscribers may subscribe to the same AIN Essentials SSP trigger but each subscriber may have a different set of criteria that must be met in order for the call to trigger. For example, Customer Group A and Customer Group B both subscribe to the Customized Dialing Plan (CDP) trigger. The instance of the CDP trigger subscribed by Customer Group A specifies that digits 222 must be dialed in order to trigger. The instance of the CDP trigger subscribed by Customer Group B specifies that the call will only trigger if digits 234 are dialed.

Each subscribed instance of an AIN Essentials SSP trigger has an activation state that is either set to active or inactive. In order for a call to trigger, the activation state must be active. Currently, the activation state is always set to active for all triggers other than Off-Hook Immediate, Off-Hook Delay, and Termination Attempt. However, for subscribers to the aforementioned triggers, a set of activation states is stored for each AIN agent subscription. Thus, when a line, trunk group, or DN subscribes to an Off-Hook Immediate, Off-Hook Delay, or Termination Attempt trigger, there is a corresponding set of activation states that control whether or not these triggers are active or inactive for the subscriber.

The activation states for a given AIN subscriber to the Off-Hook Immediate, Off-Hook Delay, and Termination attempt triggers can be administered via the Update Request Off-board Processor-to-SSP message, or by the craftsperson using the CHANGESTATE command in the AINCI directory.

AIN Essentials SSP TDPs, triggers, and criteria types are summarized in Table 8.

Table 8 AIN Essentials SSP TDPs and triggers

TDP	Trigger	Criteria	Subscription
Origination Attempt	Off-Hook Immediate	Call Type	line
Information Collected	Off-Hook Delay	Call Type Escape Code (M)	linetrunk group
	Shared Interoffice Trunk	Call Type Digits Dialed (M) Escape Code	trunk group
Information Analyzed	3 to 10 Digit Public Office Dialing Plan	Call Type Digits Dialed (M)	office
	N11	Call Type Digits Dialed (M)	office
	Customized Dialing Plan	Call Type Digits Dialed (M)	customer group
	PODP Feature Code	Call Type Digits Dialed (M)	RES and ISDN BRI line
Network Busy	AFR	Call Type	line trunk group customer group office
Termination Attempt	Termination Attempt	Call Type	DN

AIN Essentials SSP TDPs and triggers are described further in the sections that follow.

4.1.1 Origination Attempt TDP

The Origination Attempt TDP is situated in the Originating BCM between the Null point in call and Authorizing Origination Attempt point in call. There is only one trigger applicable to this TDP:

Off-Hook Immediate — This trigger is meant to formulate and send a query to an off-board processor as soon as the associated line goes off-hook. It is subscribed on a line basis. The only valid criteria type for this trigger is call type which may be optionally specified.

4.1.2 Information Collected TDP

This TDP is situated in the Originating BCM between the Collecting Information and Analyzing Information points in call. There are two triggers applicable to this TDP:

- **Off-Hook Delay** — With this trigger, the decision to send a query to the off-board processor is made only after translation of the dialed digits collected from the line that subscribes to this trigger. This trigger applies to all calls from subscribing lines or trunk groups, except calls where an “escape” code has been dialed or the dialed digits correspond to the activation, deactivation or access to a switch based feature. The valid criteria types for this trigger are Call Type and Escape Code. Call Type criteria is optional. Escape Code criteria is mandatory. For more information regarding Escape Codes, please refer to Section 4.3 “AIN Essentials Escape codes” on page 93.
- **Shared Interoffice Trunk** — This trigger is assignable to individual public trunk groups for calls routed to an AIN Essentials SSP from an Equal Access End Office (EAEO). The identification of an AIN call is based on the 0ZZ-XXX digits (or 0ZZ-XXXX if 4-digit carrier codes are in use) that are conveyed by the EAEO to the AIN SSP. This trigger is supported on the public trunk group using the equal access multifrequency (EAMF) and CCS7 facilities. This trigger applies to calls whose called digits are not datafilled as an “escape” code. The valid criteria types for this trigger are Call Type, Escape Code, and Digits. The Call Type criterion is optional. The Escape Code criterion is optional. The Digits criterion is mandatory.

4.1.3 Information Analyzed TDP

The Information Analyzed TDP is located in the Originating BCM between the Analyzing Information and Selecting Route points in call. There are four triggers applicable to this TDP:

- **3- to 10-Digit Public Office Dialing Plan** — Triggering is based on a number in a national numbering plan (NPA). If the user dials 7 digits, the NPA is prepended and triggering is attempted based on 10 digits. If the user dials 101XXXX+1+10 digits, the carrier access code is stripped off and triggering is based on 10 digits. In all cases, an attempt is made to convert

the number dialed into a 10-digit national number and then to use this number to trigger. Depending on the number of digits that match what we have datafilled in Table TRIGDIG, triggering may occur on NPA, NPAN, NPANX, NPANXX, NPANXXX, NPANXXXX, NPANXXXXX, or NPANXXXXXXX. If the user is a private facility agent that dials a number in his private dial plan (e.g. extension dialing), this trigger cannot be encountered. Similarly, if the user dials an international number, this trigger is not encountered. The number must be convertible into a national number format in order to trigger.

- **N11** — This trigger is office based and applicable to any facility with access to the Public Office Dialing Plan. The trigger criteria is met when a designated N11 code is dialed. The valid criteria types for this trigger are Call Type and Digits. Call Type criteria is optional. Digits criteria is mandatory. This trigger is not applicable to international calls.
- **Customized Dial Plan** — This trigger can be subscribed by a customer group assigned to a customized dialing plan. This triggering criteria is met when an access code, or an extension number within a customized dialing plan is dialed. The valid criteria types for this trigger are Call Type and Digits. Call Type criteria is optional. Digits criteria is mandatory.
- **PODP Feature Code** — This trigger is subscribed on an individual basis and is currently applicable to RES lines and ISDN BRI lines. The triggering criteria is met when the mandatory SCP vertical service code is dialed. Call Type criteria is optional.

4.1.4 Network Busy TDP

The Network Busy TDP is located in the Originating BCM after the Selecting Route point in call. This TDP will be reached only when all routes in the routing list are busy. There is one trigger applicable to this TDP:

Automatic Flexible Routing (AFR) — This trigger can be subscribed on an individual, group, or office basis. The AFR trigger is an entry in the route list. The trigger occurs when none of the previous routes listed in the Automatic Route Selection (ARS) pattern are available (that is, all routes busy). The valid criteria type for this trigger is Call Type and it is optional. This trigger is not supported for the following trunk originators: SC, OC, OP, and OI.

4.1.5 Termination Attempt TDP

The Termination Attempt TDP is located in the Terminating BCM between the Null point in call and Authorizing Termination point in call. There is one trigger applicable to this TDP:

Termination Attempt — This trigger is assignable on a directory number (DN) basis. With this trigger, a query is sent to an off-board processor when a call attempts to terminate on the DN that subscribes to this trigger. The only valid criteria type for this trigger is Call Type and it is optional.

When an originating agent terminates on a DN that has subscribed to TERMATT, the originating agent must be either fully AIN supported or AIN TERMATT supported to trigger TERMATT. Agents which are TERMATT supported only, may originate calls which encounter the termination attempt trigger, but are otherwise not AIN supported. For more information see Chapter 3.: “Agent support” on page 73.

4.1.5.1 Interactions with attendant console features

The Attendant Busy Verification feature and the Attendant Emergency Override feature have precedence over the terminating switch features and all triggers located in the Terminating BCM.

See also Section 12.2 “Limitations” on page 296 for additional details on attendant console interactions with the Termination_Attempt trigger.

4.2 Trigger processing and precedence

When a call encounters a TDP at which triggers may be subscribed by a line, trunk group, DN, customer group or office, the SSP checks for trigger subscription in the following order of precedence:

- **line, trunk group, or DN** — The SSP checks the subscription tables to determine if any triggers at the current TDP are subscribed to by the line or trunk group.

If the SSP determines that the line or trunk group subscribes to one or more triggers at the current TDP, the SSP sequentially searches trigger tables to find a trigger subscribed to by the line or trunk group and performs criteria checking. If the criteria is met, the call will trigger and a query message is sent. If the criteria is not met, the SSP continues to search the trigger table to find another trigger subscribed to by the line or trunk group and checks its criteria. The SSP will continue to search the trigger tables until a subscribed trigger is found and its criteria are met or until no more subscribed triggers are found.

- **customer group** — If the line or trunk group does not subscribe to any triggers at the current TDP, or, if all triggers subscribed on a line or trunk group basis did not pass criteria checking, the SSP searches the subscription tables to determine if any triggers at the current TDP are subscribed to by the agent’s customer group.

If the SSP determines the customer group subscribes to one or more triggers at the current TDP, the SSP will determine if the call will trigger using the method described in 1. above, on the basis of customer group subscription.

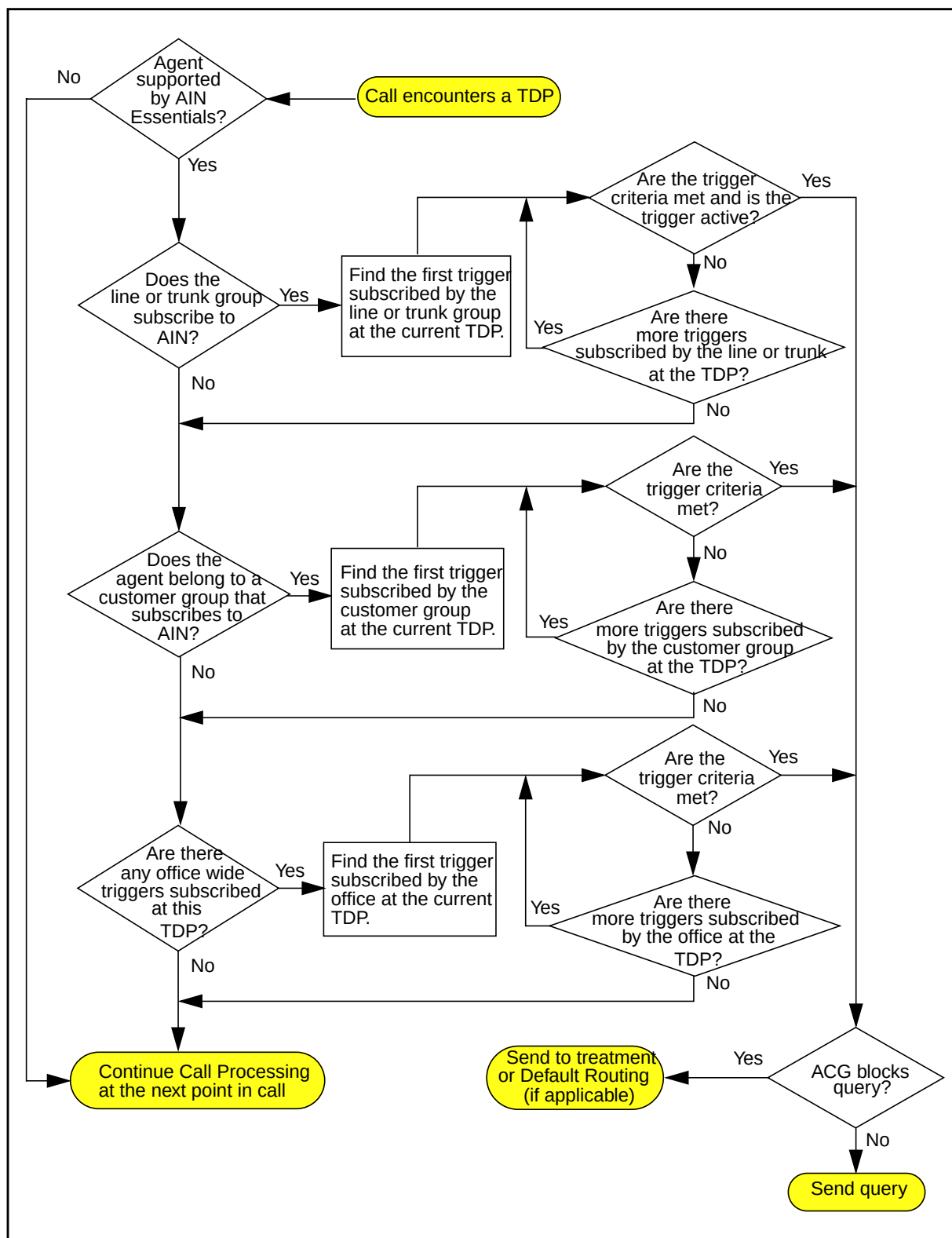
- **office** — If none of the triggers at the current TDP are subscribed to by the line, trunk group, or customer group, or if trigger subscription was found but the call did not trigger because criteria was not met, the SSP will search

the subscription tables to determine if any triggers at the current TDP are subscribed to by the office.

If the SSP determines that the office subscribes to one or more triggers at the current TDP, the SSP will determine if the call will trigger using the method described in 1. above, on a office subscription basis.

Figure 4 shows the logical flow of precedence checking.

Figure 4 Trigger checking flow diagram



There is no subscription precedence required for triggers subscribed to on a DN basis since the Termination Attempt TDP contains only one trigger that can only be subscribed to by DNs.

4.3 AIN Essentials Escape codes

Escape codes provide a way for subscribers, capable of triggering at the Information Collected TDP, to make calls without triggering. The SSP maintains separate lists of escape codes for the Off-Hook Delay and Shared Interoffice Trunk triggers.

4.3.1 Escape codes for the Off-Hook Delay trigger

To escape the Off-Hook Delay trigger, the escape code must be a valid NANP number or a N11 service code.

Escape from the Off-Hook Delay trigger occurs in the following situations:

- a call from a line or trunk group using a public office dialing plan where the dialed digits correspond to a number on the administered escape code list.
- a call from a line or trunk group using a private dialing plan where the dialed digits correspond to an access code that results in the call being routed over the public network plus a number on the administered escape code list.

If escape from the Off-Hook Delay trigger occurs, triggering will not take place, no query will be sent, and call processing continues. Subsequent triggering may take place at subsequent TDPs. For example, if the user dials 101XXXX +1+NPA-NXX-XXXX, the 101XXXX +1 is stripped off, and the table search is based on NPA-NXX-XXXX only.

Note: If several variations of a number on the escape code list may be dialed, all variations of that number must occur in the list. For example, if NXX-XXXX is on the escape code list and users may optionally dial the NPA, then NPA-NXX-XXXX should also occur on the escape code list.

4.3.2 Escape code for the Shared Interoffice Trunk trigger

To escape the Shared Interoffice Trunk trigger, the escape code may be any sequence of 1 to 10 digits with a value between 0 and 9.

Escape from the Shared Interoffice Trunk trigger occurs when the following conditions are met:

- a call arrives at an AIN SSP via FGD signaling
- the 0ZZXXX(X) digits sent in the FGD protocol subscribe to the Shared Interoffice Trunk trigger
- the XXX(X) carrier digits correspond to carrier 110/0110

- any of the first ten digits, called party digits, are datafilled as an escape code

If escape from the Shared Interoffice Trunk trigger occurs, triggering will not take place, no query will be sent and call processing continues. Subsequent triggering may take place at subsequent TDPs. For example, the Public Office Dial Plan trigger may be encountered if subscribed.

4.4 AIN Essentials SSP Treatments

There are two treatments introduced specifically for AIN Essentials SSP:

- **AIN Final Treatment** — This treatment is applied for the majority of AIN specific fatal errors.
- **AIN Disconnect Call** — This treatment is applied when the off-board processor sends the Disconnect message to the SSP to disconnect the call. The call is cleared as normal. For ISUP users, the treatment should be mapped to Normal Clearing in the Treatment Map table (TMTMAP).

AIN Essentials SSP calls may be sent to treatments other than these two depending on the error condition. Most standard DMS treatments apply, such as no software resources (NOSR) when insufficient AIN resources have been provisioned or PDIL for partial dialing.

If a TCAP message is being decoded (at the GAME level) and there are not enough extension blocks available, the treatment for the call is AINF (not NOSR).

5. Response Processing

The SSP receives and processes response messages from an off-board processor. There are several different response types that can be received. Each response type is handled differently according to the information contained in the response. Should the SSP receive a message requesting return on error, or should the T1 timer expire for the SSP messages sent to the SCP/adjunct, the SSP may provide default routing procedures as described in Section 5.2 “Response processing with Default Routing” on page 101.

5.1 Response types

This section describes the different response types and how they are handled.

5.1.1 Authorize Termination

The Authorize Termination response message, which can only be received in response to the Termination Attempt trigger, instructs the SSP to continue processing at the Authorizing Termination point in call. Hence, normal termination will occur for the DN/call type that subscribes to this trigger.

5.1.2 Analyze_Route

The Analyze_Route response message can be received in response to any trigger except Termination Attempt. This message instructs the SSP to terminate on a specified address. Addresses may be presented in the following forms:

- routing list (up to 3 routing lists may be specified)
- carrier (up to 3 carriers may be specified)
- called party number (must be specified if routing list and carrier are not present)

It is possible for the SSP to receive an Analyze_Route response that includes one or more routing lists, one or more carriers, and a called party number. In this situation, the SSP will first attempt to route the call over one of the route lists. If all route lists are busy, the SSP will attempt to route the call over one of the carriers. If all the carriers are busy, the SSP will attempt to terminate the call on the called party number.

If the Analyze_Route response contains one or more routing lists, call processing resumes at the Selecting Route point in call. However, if the originator is a CELL, PX, or P2, only the first address will be attempted. If the SSP attempts to route the call over a route list that is busy, then, depending upon other information contained in the message, the SSP will do one of the following:

- route the call over the next address in the message
- route the call to treatment

If the address is in the form of a carrier, call processing resumes at the Analyzing Information point in call. As the call proceeds to the Selecting Route point in call it encounters the Information Analyzed TDP. The call will skip this TDP if the carrier specified is an interexchange carrier. If the SSP attempts to route the call over a carrier that is busy, the call will try to terminate on the next carrier. If all carriers are busy, the call is routed to treatment.

If the SSP attempts to terminate the call to the called party number contained in the Analyze_Route message, call processing resumes at the Analyzing Information point in call.

If an Analyze_Route response is received with no carrier specified, that is, without a PrimaryCarrier, AlternateCarrier or SecondAlternateCarrier parameter, and with no trunk group information specified, the equal access Carrier Access Code (CAC) dialed by the user is used to translate and route the response.

If an Analyze_Route response without a carrier is received following an Analyze_Route response with a carrier, the carrier from the last SCP/adjunct response is used, rather than the carrier originally dialed by the user. If more than one carrier is specified in the previous response, the carrier which is used to route the call before triggering will be used to route the call for any subsequent responses until a new carrier is specified by the SCP/adjunct. However, if the carrier specified in the last Analyze_Route response is a local exchange carrier (LEC), the default carrier will not be used in any subsequent response to route the call.

In the case where the carrier, as specified by the user dialed carrier access code (CAC) or by the last SCP/adjunct response, cannot handle the traffic (for example, the user dialed carrier can only handle INTERLATA traffic whereas the call routing specified by the current SCP/adjunct Analyze_Route response requires an INTRALATA carrier), the call is routed using the user's pre-subscribed carrier (either primary interexchange carrier (PIC) or local primary interexchange carrier (LPIC), depending on the nature of the call). If the user does not have a pre-subscribed carrier, the office default carrier (specified by entry Default_Carrier_Or_Treat in table OFCENG) is used to route INTERLATA traffic while the Regional Bell Operating Company

(RBOC) is responsible to route the INTRALATA traffic. However, if the call specified by the response is a local call, then no carrier is used to route the call. See Table 9 for an example.

Table 9 Result carrier determination rules

Nature of the response (INTER/INTR A/LOCAL) (Note 1)	AIN default carrier (Note 2) Characteristics (INTER/INTRA)	User presubscription status (Y/N) (Note 3)		Result carriers
		LPIC	PIC	
LOCAL	X (Note 4)	X	X	None
INTER	INTER	X	X	AIN default carrier
INTER	INTRA	X	Y	User's PIC
INTER	INTRA	X	N	Office default carrier
INTRA	INTER	Y	X	User's LPIC
INTRA	INTER	N	X	RBOC
INTRA	INTRA	X	X	AIN default carrier
Note 1: INTER: INTERLATA calls, INTRA: INTRALATA calls. Note 2: AIN default carrier is defined as either the user-dial carrier or the carrier specified in the last SCP/adjunct Analyze_Route response, whichever comes last. Note 3: Y: Option is subscribed, N: Option is not subscribed Note 4: X: Either				

5.1.3 Forward Call

A Forward Call message can only be received in response to the Termination Attempt trigger. It is similar to the Analyze Route response in that it instructs the SSP to terminate the call on a specified address. Addresses are presented in the same format as in Analyze Route. Using the new address information, the terminator originates a new leg in the call. Processing of the new leg begins at the Selecting Route point in call if a routing list is specified. If no routing list is specified processing begins at the Analyzing Information point in call. Processing at these points in call work similar to Analyze_Route. If triggering subsequently occurs in the Originating Call Model of this new leg, it will take place against the terminating DN (that is, the DN to which the Termination Attempt trigger was assigned). It should be noted that most AIN Essentials TERMATT supported trunk agents will not trigger at the Network Busy trigger detection point on the second leg of the call. The only AIN Essentials

TERMATT supported trunk agent that will trigger at Network Busy is an ISUP ATC trunk

5.1.4 Disconnect

The Disconnect response message instructs the SSP to disconnect the call. The call is given the AIN Disconnect treatment.

5.1.5 Continue

The Continue response message can only be received at the Information Analyzed TDP. It instructs the call to continue at the Information Analyzed TDP and process subsequent triggers. If no more triggers are found, the SSP will attempt to route the call. If there is not enough information to perform normal routing, the call is sent to treatment.

5.1.6 Send_To_Resource

The Send to Resource message may be received in response to any of the AIN Essentials SSP triggers. There are two flavors to this message:

- Send_To_Resource Response
- Send to Resource Conversation

5.1.6.1 Send_To_Resource Response

The SSP plays the designated customized or standard announcement specified in the Send to Resource (STR) message to the calling party. The SSP can also be instructed to pronounce digits specified in the message. Any digits the caller dials are ignored. If the SSP cannot play the announcement because the requested resource is busy or not available, reorder treatment is applied to the calling user. If the caller abandons while the announcement is being played, the SSP clears the call. If the AnswerIndicator parameter is present in the Send to Resource response message, AMA timing is started before playing the terminating announcement.

5.1.6.2 Send to Resource Conversation

The SSP plays the designated customized announcement to the calling party and, if specified in the Send to Resource message, collect digits. The Send to Resource message can also instruct the SSP to pronounce certain digits in the announcement. The announcement may be interruptible or non-interruptible. When the SSP receives all the digits, or if no digit collection is required and the announcement has finished playing, the SSP sends a message (called a Resource Clear message) to the off-board processor. If the SSP cannot play the announcement or collect digits because the appropriate resources are not available, or if the caller abandons the call before a message is sent, the SSP sends a Resource Clear message to the off-board processor indicating the situation. AMA timing is never started for a Send to Resource in a Conversation package, even if the AnswerIndicator parameter is present.

In addition to announcements, a number of tones can be requested in Send to Resource. To make use of these tones the following conditions must be met:

- one of the supported tone IDs must be supplied in the STR conversation or response package
- the custom announcement with ID corresponding to the tone ID must not be datafilled in table AINANNS

If there is an announcement with the requested ID datafilled in table AINANNS it will be played instead of the tone. This activity does not change functionality in case when the ID supplied in STR conversation package does not correspond to any of the tone IDs supported in the specified context (that is, as interruptible, uninterruptible terminating, or uninterruptible non-terminating). In such a case the call will still be sent to the AINF treatment and a Resource Clear message with application error code will be sent back to the SCP.

Table 10 shows the tones that can be requested using this mechanism.

Table 10 Tones available to Send to Resource requests

Tone	STR ID	Interruptible (Note 1)	Uninterruptible non-terminating (Note 2)	Uninterruptible terminating (Note3)
Silent (Nil) Tone	5	YES	NO	YES
Special Dial Tone	6	YES	NO	YES
Confirmation Tone (Note 4)	12	NO (Note 5)	YES	YES
Reorder Tone	13	NO	NO	YES
Dial Tone	14	YES	NO	YES
Note 1: Interruptible in this table excludes interruptible with fixed digit collection - collect no digits which is considered a special case. Note 2: In conversation package. Note 3: In response package. Note 4: Confirmation Tone is the only example of a non-continuous tone. Non-Continuous tones will be followed by DISC treatment. Continuous tones will not time out. Note 5: NO means that the tone is not supported in the particular context (e.g. as interruptible); in this case the call will be sent to RODR treatment and a Resource Clear message will be sent back to the SCP indicating Application Error				

For both flavors of the Send to Resource messages, the AnswerIndicator parameter is optional. If this parameter is present, it indicates that the SSP should send answer indication along the originating facility at the start of the Send to Resource operation, if it had not previously done so. As well, under any one of the following conditions, answer indication will be sent to the originating agent (if it had not been previously sent), without regard to the presence or absence of the AnswerIndicator parameter:

- if the originating agent is a PTS trunk and a non-zero number of digits are to be collected
- if the originating agent is an ISUP trunk, the call is not end-to-end SS7, and a non-zero number of digits are to be collected

5.1.6.3 Cancel Resource

The Cancel Resource message can only be received after the SSP has received a Send to Resource Conversation message that requests digit collection. Cancel Resource instructs the SSP to stop playing the announcement. The SSP then sends a message to the off-board processor indicating it has carried out the instructions. The SSP will discard any Cancel Resource message that is received after the Resource Clear message has been sent.

Table 11 illustrates the relationship between the AIN Essentials SSP triggers and AIN 0.1 SSP Response messages.

Table 11 AIN response – TDP relationship

TDP	Response message						
	Analyze Route	Continue	Authorize Termination	Forward Call	Disconnect	Send to Resource	Cancel Resource
Origination Attempt	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Collected	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Analyzed	Res.	Res.	N/A	N/A	Res.	Res./ Conv.	N/A
Network Busy	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Termination Attempt	N/A	N/A	Res.	Res.	Res.	Res./ Conv.	N/A
Legend: Res. — Response Conv — Conversation							

5.2 Response processing with Default Routing

Default Routing functionality is provided for the SSP return on error, T1 timer expiry messages, and ACG gapped calls.

Please ensure that the Default Routing Option (AIN00010) is in the ON state. This is required for Default Routing to function. Please refer to Chapter 21.: “Software optionality control” on page 415 for details.

Default Routing functionality can be applied to PODP, N11, and Termination Attempt triggers but is not restricted for all other triggers. Whether or not a trigger subscribes to Default Routing, AIN Final Treatment will be applied if the call encounters either of the two errors that would invoke Default Routing.

Default Routing can be subscribed on a per trigger basis via the options field in tables TRIGDIG (PODP and N11 triggers) and TRIGINFO (Termination Attempt trigger). Datafill this field with DFLTRT to subscribe a trigger to Default Routing. The fields that are associated with DFLTRT are as follows:

- **ANN**

This specifies that an announcement should be played once default routing applies. If datafilled, the following fields apply:

- **ANNIDX**

This field indicates the index of the announcement in table AINANNS to be played.

- **DN**

This field indicates that the call should route to the DN specified. If datafilled, the following field applies:

- **DN**

The digits field can contain a DN of 3, 7, or 10 decimal digits and if no digits are required then “\$” will be entered in place of the digits. If no digits are specified, the call is to continue processing. If an inappropriate number of digits is specified or a hex digit is specified, the data entered is rejected.

- **ANNDN**

If this option is datafilled, then all of the fields above apply and must be datafilled.

6. Error handling

There are four basic types of errors detected by the AIN Essentials SSP: protocol errors, application errors, resource failures and AIN call processing failures.

- **Protocol errors** occur when the TCAP format of a received message is incorrect.
- **Application errors** occur when the TCAP message is correct (that is, no protocol error occurred) but the application does not know how to handle the message because it is logically inconsistent or the message is received after the response timer expired.
- **Resource failures** occur when the SSP is unable to process a response from an off-board processor because of the state of the resources required to process the message.
- **AIN call processing failures** occur when the SSP is unable to complete the call under the current conditions and the call is routed to treatment.

Depending upon the type and cause of an error, protocol errors, application errors and resource failures may be treated as fatal or non-fatal.

- **Fatal errors** occur when a message received from an off-board processor cannot be processed or because the response message timer expired. When the SSP detects a fatal error, it may or may not report the error to the off-board processor.
- **Nonfatal errors** occur when the operation requested by a received message can be performed using normal procedures, in spite of the error. A non-fatal error is reported to the off-board processor only when the message from the off-board processor causes a transaction to remain open.

6.1 Protocol errors

The following table lists protocol errors supported by AIN Essentials. The details of detection and causes of protocol errors are considered specific to the TCAP protocol and beyond the scope of this document. Please refer to Section

4 of TR-NWT-001285 for more information on these errors. A list of protocol errors and their effect is shown in Table 12.

Table 12 Protocol errors

Protocol error	Error type
Badly Structured Component Portion	fatal
Badly Structured Transaction Portion	fatal
Incorrect Component Portion	fatal
Incorrect Parameter	non-fatal
Incorrect Transaction Portion	fatal
Missing Mandatory Parameter	fatal (Note)
Underivable Transaction ID	fatal
Unrecognized Component Type	fatal
Unrecognized Correlation ID	fatal
Unrecognized Operation Code	fatal
Unrecognized Package Type	fatal
Unrecognized Transaction ID	fatal
Note: When a missing mandatory parameter fatal protocol error is detected by the SSP, the SSP maps it to incorrect parameter and reports the error as a fatal protocol incorrect parameter error.	

When a fatal protocol error is detected anywhere in a received message, the SSP discards the entire received message and applies AIN final treatment. The SSP will report the error to the off-board processor if the message was received in a Query or Conversation package. The error is reported to the off-board processor in an Abort package if the fatal protocol error is detected in the transaction portion of the message, or in a Response package if the fatal protocol error is detected in the component portion of the message. Protocol errors detected in a Response, Abort or Unidirectional package are not reported to the off-board processor.

When a non-fatal protocol (incorrect parameter) error is detected by the SSP, the SSP will discard the incorrect optional parameter and continue normal call processing.

6.2 Application errors

The AIN Essentials SSP checks for application errors after checking for protocol errors. The following table lists application errors supported by AIN Essentials SSP. A list of application errors and their effect is shown in Table 13.

Table 13 Application errors

Application error	Error type
Unexpected Message Sequence	fatal
Unexpected Parameter Sequence	fatal
Unexpected Communication	fatal or non-fatal
Unexpected Message	fatal
Erroneous Data Value	fatal or non-fatal
Missing Conditional Parameter	fatal or non-fatal
Response Message Timer Expired	fatal

- **Unexpected Message Sequence** — The SSP receives a TCAP package that contains a call related message from the SCP, and that call-related message is not the first message in the TCAP package.
- **Unexpected Parameter Sequence** — The SSP receives a message from the off-board processor and the parameters in the message do not appear in the required sequence. This is a fatal error.
- **Unexpected Communication** — This error may be fatal or non-fatal depending upon these conditions:
 - Fatal: The SSP receives a message in a TCAP package that is NOT allowed for that message (for example, Analyze Route message received in a Query package).
 - Fatal: The SSP receives a message in a Response package, where the type of message is allowed for a Response package but it should have been sent in a Conversation package (for example, a Send to Resource message that requests digit collection).
 - Non-fatal: The SSP receives a message in a Conversation package, where the message is allowed for a Conversation package but it should have been sent in a Response package (for example, a Send to Resource message that requests an announcement to be played followed by a disconnect).
- **Unexpected Message** — This error is always fatal and occurs under the following conditions:

- The SSP receives a response that is not allowed for the previously sent query message.
- The TCAP package received contains more than one call related message.
- The TCAP package received contains more than one message of the same type.
- **Erroneous Data Value** — The SSP receives a message that contains an invalid parameter value. The SSP will drop the invalid parameter. If dropping the invalid parameter does not allow further response processing to be performed, this is a fatal error. Otherwise, the error is treated as non-fatal. The invalid parameter may be mandatory or optional.
- **Response Message Timer Expired** — The response message timer timed out before the message was received by the SSP. This is a fatal error.
- **Missing Conditional Parameter** — The response received cannot be processed because of a missing conditional parameter. If response processing cannot continue without the missing parameter, the error is treated as a fatal error. Otherwise, the SSP treats the error as non-fatal.

A list of the optional parameters whose presence is mandatory when certain other parameters are present in the same message, is shown in Table 14.

Table 14 Missing conditional parameters check

Missing conditional parameter	Parameter present
PrimaryTrunkGroup	PrimaryBillingIndicator
PrimaryCarrier	OverflowBillingIndicator
AlternateTrunkGroup	AlternateBillingIndicator
AlternateCarrier	OverflowBillingIndicator
SecondAlternateTrunkGroup	SecondAlternateBillingIndicator
SecondAlternateCarrier	OverflowBillingIndicator
PrimaryTrunkGroup	AlternateTrunkGroup
AlternateTrunkGroup	SecondAlternateTrunkGroup
PrimaryCarrier	AlternateCarrier
AlternateCarrier	SecondAlternateCarrier

When a fatal application error is detected by the SSP, the SSP shall discard the component in error and continue processing other components, if present. If a fatal application error is detected in the call-related component, the SSP will apply AIN Final Treatment to the call.

The SSP reports the fatal application error to the off-board processor if the message was received in a Query, Conversation, or Response package. If the TCAP transaction is open and the fatal application error is detected in the call-related component, the error is reported in a Response package with a Return Error component. If the TCAP transaction is open and the fatal application error is detected in a non-call-related component of a multicomponent message, the error is reported in a Conversation package with a Return Error component. If the TCAP transaction is closed, the fatal application error is reported in a Unidirectional package with an Invoke (Last) component and a Report Error operation code.

When a non-fatal application error is detected by the SSP, the SSP will ignore the error and continue normal call processing.

6.3 Resource failures

Resource failures occur when the SSP receives a message from an off-board processor that contains no protocol or application errors but the SSP cannot process the message due to the unavailability or failure of switch hardware or software resources.

There are two resources considered here: announcements and AIN Essentials software resources.

6.3.1 Announcements

- If the System Announcement Identifier received in the StrParameterBlock parameter of the Send to Resource message corresponds to an announcement that is unavailable, the SSP will do the following:
 - If the unavailable resource occurred when the Send to Resource message was received with a Conversation package type, the SSP will send a Resource Clear message in a Conversation package to the off-board processor indicating the announcement is unavailable. The SSP will wait for a response from the off-board processor.
 - If the unavailable resource occurred when the Send to Resource message was received in a Response package, reorder treatment is applied.
- If the System Announcement Identifier received in the StrParameterBlock parameter of the Send to Resource message does not correspond to an index defined in table AINANNS, the SSP will do one of the following:
 - If the erroneous data occurred when the Send to Resource message was received in a Conversation package, the SSP will return an Application Error to the off-board processor indicating the error. AIN final treatment is applied to the calling party.

- If the erroneous data occurred when the Send to Resource message was received in a Response package, the SSP will apply final treatment to the calling party.
- If the StrParameterBlock contains digits that should be pronounced to the calling party and the customized announcement is not datafilled to pronounce digits, then the digits received will be discarded and the playing of the announcement will continue.
- If the StrParameterBlock does not contain digits that should be pronounced to the calling party and the customized announcement specifies that digits are to be pronounced, then only the announcement will be played.
- In addition to announcements, a number of tones can be requested in Send to Resource. Refer to Chapter 5.: “Response Processing” on page 95.

6.3.2 AIN software failures

- If there is a failure to allocate sufficient feature data blocks, history data blocks, history control blocks, or AIN extension blocks query and response processing, a No Software Resource (NOSR) treatment will be applied to the call.
- If the SSP is unable to supply mandatory parameters for a message, the call is routed to AIN final treatment.

6.4 AIN call processing failures

AIN call processing failures occur when the SSP is unable to complete the call under the current conditions and the call is routed to treatment. Call processing failures related to AIN Essentials SSP are as follows:

- If digits dialed during processing of a Send to Resource response are incomplete or invalid, the SSP will not send a Resource Clear message and AIN final treatment will be applied.
- If a call attempts to trigger more times than specified by the office parameter AIN_MAX_SERIAL_TRIGGERS, the call is given AIN final treatment.
- If the SSP receives an Analyze Route or Forward_Call message and
 - the call cannot get the routing characteristic extension block, the call is routed to NOSR treatment
 - an error is encountered during translations, the call is routed to the appropriate treatment
 - all the possible routes are busy, the call is routed to Generalized No Circuit treatment
- If a Continue message is received from the off-board processor in response to Information Analyzed query message and the SSP does not have sufficient information to terminate the call (for example, the call triggered

on a vertical service code so the SSP does not have any routing information), the call is routed to AIN final treatment

6.4.1 Non-call related failures

Two resources failures are associated with non-call related features:

- The rateTooHigh resource failure is sent to an off-board processor when an SSP receives more Update_Request messages than it can handle.
- The unavailableResources failure is sent to an off-board processor when an Update_Request message attempts to activate or deactivate a trigger for an unsubscribed user.

7. Limitations

This section describes the restrictions and limitations of AIN Essentials SSP as an entire product. That is, restrictions and limitations that affect external components, systems or users that interact with the AIN Essentials SSP product.

AIN Essentials SSP is a product for the DMS/SuperNode only. NT40 is not supported.

The current AIN Essentials SSP product supports subscription of AIN Essentials SSP triggers to only the lines and trunk groups listed in Table 3 on page 73, Table 4 on page 75, Table 5 on page 78, and Table 7 on page 80.

AIN Essentials software on the DMS supports only the Link Peripheral Processor (LPP) and associated application-specific units (ASU), for communicating with off-board processors over SS7 links. That is, AIN Essentials software will not be able to communicate with off-board processors unless an LPP has been installed on the DMS switch.

Equal Access Overlap Carrier Selection (OCS) is not used on calls in which the originating agent subscribes to AIN. If an Equal Access call is made by an AIN subscriber and call processing translations dictate that OCS is used, the call will proceed without using OCS.

In the case where an office wide trigger is defined, any AIN supported originating agent is considered an AIN subscriber. An office wide trigger is declared in table OFCVAR as follows:

TABLE: OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG

The AIN_OFFICE_TRIGGRP parameter may be either NIL, the name of a trigger group datafilled in table TRIGGRP that defines a set of office-based triggers, or the trigger item identification description in the TRIGITM table. Therefore, in the case of an AIN supported agent originating an Equal Access call, and an office wide trigger (such as LRN-LNP) is defined, AIN servicing will override Equal Access Overlap Carrier Selection.

Triggering will not occur at the Termination Attempt TDP if the originating agent is not an AIN-supported agent or a Termination Attempt supported agent. Please refer to Table 3 on page 73, Table 4 on page 75, Table 5 on page 78, and Table 7 on page 80 for more information.

Interactions

Part : “Interactions” consists of the following chapters:

- Chapter 8.:“Trigger interactions”
- Chapter 9.:“Untested and unsupported features”
- Chapter 10.:“AIN Essentials and AIN Primer interworking”
- Chapter 11.:“AIN Essentials and E800 interworking”
- Chapter 12.:“Attendant console interactions”
- Chapter 13.:“Other interactions”

8. Trigger interactions

AIN Essentials supports interactions with a limited set of DMS features. This chapter provides a list of those features that have been supported to interwork with AIN Essentials.

8.1 List of supported features

This list categorizes the support for each feature as “Category A” or “Category B”. Some restrictions may apply to both categories of features. For details on the restrictions and the behavior of a feature supported by AIN Essentials, please refer to the individual feature descriptions in this chapter.

The features shown in Table 15 are supported to interwork with AIN Essentials. Any feature not mentioned in this list is unsupported by AIN Essentials and should not be used in conjunction with AIN Essentials.

Chapter 9: “Untested and unsupported features” addresses many features that are not supported by AIN Essentials.

8.1.1 Category A features

Generally, features that belong to “Category A” behave as follows:

- The feature occurs at the correct point in call (PIC) in either the originating or terminating basic call model.
- The feature is reflected appropriately in AIN Essentials queries, and/or the feature takes appropriate action based on AIN Essentials responses.
- Documented restrictions apply in each case.

8.1.2 Category B features

Features that belong to “Category B” have more significant limitations. For example, certain trigger detection points may not be encountered by this feature or the feature itself may be blocked in certain AIN Essentials scenarios. These features are supported to work as documented.

8.1.3 Supported features

Table 15 lists the features that are supported by this AIN Essentials release.

Table 15 Supported features

Feature name	Category A	Category B
Analog Display Services Interface (ADSI) features		
Spontaneous Call Waiting Identification (SCWID)		X
SCWID with Disposition (DSCWID)		X
AIN Primer		X
Automatic Call Distribution (ACD) features		
ACD 2500 Set Feature Assignment	X	
ACD Call Transfer/3WC		X
ACD Incalls Key	X	
ACD Terminations		X
Automatic Line (AUL)	X	
Bearer capability (BC)	X	
Billing features		
Account Codes	X	
Customer Dialed Account Recording (CDAR)	X	
Station Message Detail Recording (SMDR)	X	
Terminating Billing Option (TBO)	X	
Basic rate interface (BRI) specific features		
Additional Call Offering Unrestricted (ACOU)	X	
Additional Functional Call (AFC)	X	
Flexible Calling (FC)		X
Busy Override features		
Executive Busy Override (EBO)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Call forwarding (CFX) features	X	
Call Forwarding on a Per Key Basis (CFK)	X	
Call Forwarding All Calls (CFW)	X	
Call Forwarding Busy Block Intragroup (CBI)	X	
CFB Exclude External Originators/Unrestricted Forwarding (CBECBU)	X	
CFB Exclude Intragroup (CBE)	X	
Call Forwarding Busy Line (CFBL)	X	
Call Forwarding Busy Intragroup Deny Unrestricted (CBICBU)	X	
Call Forwarding Call Waiting (CFCW)	X	
Call Forwarding Don't Answer for IBN (CFD)	X	
CFD Exclude External Originators/Unrestricted Forwarding (CDECUDU)	X	
Call Forwarding Don't Answer Intragroup Deny Unrestricted (CDICDU)	X	
Call Forwarding Don't Answer Exclude Intragroup (CDI)	X	
Call Forwarding Don't Answer Exclude Intergroup (CDE)	X	
Call Forwarding Don't Answer for POTS and RES (CFDA)	X	
Call Forwarding Fixed (CFF)	X	
Call Forwarding Group Don't Answer (CFGD, CFGDA)	X	
Call Forwarding Intragroup (CFI)	X	
Call Forwarding Programming with Courtesy Call (CFWP) for POTS	X	
Call Forwarding Remote Access (CFRA)	X	
Call Forwarding Timed (CFT)	X	
Call Forwarding Universal (CFU)	X	
Call Forwarding Validation (CFWVAL)	X	
Controlled Multiple Call Forwarding (CMCF)	X	
IBN Call Forwarding Busy Unrestricted (CBU)	X	
IBN Call Forwarding Simultaneous/Screening (CFS)	X	
Internal External Call Forwarding Busy Denied (IECFB)	X	
Internal External Call Forwarding Busy Unrestricted (IECFBCBU)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Call forwarding (CFX) features (continued)	X	
Internal External Call Forwarding Don't Answer Denied (IECFD)	X	
Internal External Call Forwarding Don't Answer Unrestricted (IECFDCDU)	X	
Multiple Call Forwarding for CFU/CFI (MULTICFA)	X	
Multiple Call Forwarding Don't Answer (MULTICFD)	X	
Multiple Call Forwarding Busy (MULTICFB)	X	
Personal Communications Service (PCS) of Call Forwarding	X	
Remote Call Forwarding (RCF)	X	
Selective Call Forwarding (SCF)	X	
Subscriber Programmable Ringing for CFRA on RES (SPRING)	X	
Universal Access to Call Forwarding on RES (CFXU)	X	
Call Messenger features for RES		
Intentional Call Messenger (ICMSG)		X
Standard Call Messenger (SCMSG)		X
Call Park (CPK)/Call Pickup (CPU) features		
Call Park (CPK)	X	
Directed Call Park (DCPK)	X	
Directed Call Pickup (DCPU)	X	
Security Code (Directed Call Park)	X	
Call Park Recall Identification	X	
Call Pickup (CPU)	X	
Directed Call Pickup with bargein (DCBI)	X	
Directed Call Pickup with Non bargein (DCBU)	X	
Trunk Answer From Any Station (TAFAS)		
Call Transfer (CXR) features		
Blind Transfer Recall		X
Blind Transfer Identification		X
Call Transfer (CXR)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Call Waiting (CWT) features		
Dial Call Waiting (CWD)	X	
Call Waiting (CWT)	X	
Call Waiting Chaining (CWC)	X	
Call Waiting Intragroup (CWI)	X	
Call Waiting Originating (CWO)	X	
Cancel Call Waiting (CCW)	X	
Dial Call Waiting (CWD)	X	
CLASS features		
CLASS—Anonymous Caller Rejection (ACRJ)	X	
CLASS—Automatic Call Back (ACB) — MDC and RES	X	
CLASS—Automatic Recall (AR) — MDC and RES	X	
CLASS—Automatic Recall Limited to 1	X	
CLASS—Auto Recall Blocking of Private Calls (CABOP)	X	
CLASS—Bulk Calling Line Identification (BCLID)	X	
CLASS—Calling Name and Number Blocking (CNNB) — RES	X	
CLASS—Calling Name and Number Display (CNND) — RES (Note)	X	
CLASS—Calling Name Delivery (CNAMD) - TR1188 TCAP:MDC and RES	X	
CLASS—Calling Name Delivery (CNAMD) - Nodal — RES	X	
CLASS—Calling Number Blocking (CNB) — RES	X	
CLASS—Calling Number Delivery (CND) — RES	X	
CLASS—Calling Number Delivery Blocking (CNDB) — RES	X	
CLASS—Customer Originated Trace (COT) — MDC and RES	X	
CLASS—Dialable Directory Number Delivery — RES	X	
CLASS—Distinctive Ringing/Call Waiting (DRCW)	X	
CLASS—Long Distance Indicator Enhancement (LDI)	X	
CLASS—Message Waiting Indicator (CMWI)	X	
CLASS—Selective Call Acceptance (SCA) — MDC and RES	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
CLASS features (continued)		
CLASS—Selective Call Forwarding (SCF) — MDC and RES	X	
CLASS—Selective Call Rejection (SCRJ) — MDC and RES	X	
Class of Service features		
Automatic Number Identification (ANI)	X	
Flexible ANI (FANI)	X	
Hotel/Motel (HOT)	X	
Restricted Sent Paid (RSP)	X	
Conference features		
Executive Conference (MMCONF 150)	X	
Meet-me Conference	X	
Six-Port Conference (CNF6)	X	
Super Conferencing (CNF30)	X	
Station Controlled Conference (CNF)	X	
Cutoff on Disconnect (COD)	X	
Denied Origination (DOR)	X	
Direct Dialing Overseas—Local (DDO)	X	
Direct Inward System Access (DISA) features		
Direct Inward System Access (DISA)		X
Reset Dialing		X
Display features		
Automatic Display (AUTODISP)		X
Calling Line Number Display (CLIDSP)		X
Calling Name Display - CENTREX - NETWORK		X
Calling Name Delivery Blocking (CNAB)	X	
Calling Name Delivery for MDC (TCAPNM for MDC)	X	
Name and Reason Display		X
Display Text		X

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Distinctive Ringing features		
AIN Distinctive Alerting	X	
AIN Distinctive Alerting/Call Waiting	X	
Distinctive Ringing (DRING)	X	
Emergency service features		
911 calls	X	
E911 Ringback		X
Emergency Service Line (ESL)		X
Enhanced 911 Emergency Service (E911)		X
Feature groups		
Feature group A (FGA)	X	
Feature group B (FGB)	X	
Feature group C (FGC)	X	
Feature group D (FGD)	X	
Flash Ignore (FIG)	X	
Hold features		
Call Hold (CHD)	X	
Key Set Music on Hold (KSMOH)	X	
Hotline features		
Automatic Dialing (AUD)	X	
Custom IBN Disconnect Treatment (CDT)	X	
Manual Line (MAN)		X

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Hunt Groups		
Bridged Night Number (BNN)	X	
Directory Number Hunt (DNH)	X	
Distributed Line Hunt (DLH)	X	
Key-Set Short Hunt Group (KSH)	X	
Multiline Hunt (MLH)	X	
Multiple Position Hunt (MPH)	X	
Night Service Directory Number (NSDN)	X	
Stop Hunt (SHU)	X	
Terminating Billing Option - Hunt Groups (TRMBOPT)	X	
Hunt Group Overflow Routing		
Line Overflow to DN (LOD)		X
Line Overflow to Route (LOR)		X
Intercept features		
Flexible Intercept (FLEXI)	X	
Intercom features		
Group Intercom (GIC)	X	
Group Intercom All Call (GIAC)	X	
MBS Intercom (ICM)	X	
Single Party Revertive Calling (INT)		X
Last Number Redial (LNR)		X
Local Coin Overtime (LCO)		X
Long Distance Signal (LDS)/Toll Alert	X	
Long Distance Alert Enhancements (LDAE)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Messaging features		
Call Request Activate (CRA)	X	
Call Request Delete All (CRDA)	X	
Call Request Delete Specific (CRDS)	X	
Call Screening/Monitoring Intercept (CSMI)	X	
Executive Message Waiting (EMW)		X
FAX-Thru Service (FTS)	X	
In-Session Activation (ISA)	X	
Selective Call Messaging (SCM)	X	
Special Delivery Service (SDS)	X	
Station Message Waiting (MWT)		X
Universal Voice Messaging (UVM)		X
Monitor resources feature		X
Multiple Appearance DirectorMADN Terminations		
Electronic Key Telephone Service Hold (EKTS Hold)	X	
Executive Busy Override on MADN (EBOM)	X	
MADN Extension Bridging (EXB)	X	
MADN Hold	X	
MADN Lamp (MLAMP)	X	
MADN Privacy (PRV)	X	
MADN Release (MREL)	X	
Number (MADN) features		
MADN Terminations	X	
Privacy Release (PRL)	X	
Secondary MADN Call Forwarding (CFMDN)	X	
No Double Connection (NDC)	X	
O A and M features		
Customer Data Change (CDC)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Primary Carrier		
Primary inter-LATA Carrier (PIC)	X	
Primary intra-LATA Carrier (LPIC)	X	
Restrictions to dialing privileges		
Authorization Codes	X	
Authorization Code Immediate Dialing	X	
Code Restrictions (CRL)	X	
Station Origination Restrictions (SOR)	X	
Station Specific Authorization Codes (SSAC)	X	
Suspend / Request Suspension (SUS / RSUS)	X	
Ring Again features		
Call Back Queuing (CBQ)		X
Network Ring Again (NRAG)		X
Ring Again (RAG)		X
Routing features		
Expensive Route Warning Tone (ERWT)		X
International Direct Distance Dialing via Automatic Route Selection (IDDD via ARS)	X	
Time of Day Routing (TOD)	X	
Secondary Language (SL)	X	
Series Completion (SCMP)	X	
Simplified message desk interface (SMDI)	X	
Single Line Variety Package (SLVP)—RES	X	
Softkey Display features		
Softkey Transfer (SKDISP)		X
Speech Activated Intelligent Dialing features		
Speech Activated Intelligent Dialing (SAID)	X	
SAID Stringing of Digits (SOD)		X

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Speed Calling features		
MDC Speed Calling Group User (SCU)	X	
Network Speed Calling (NSC)	X	
Speed Calling	X	
Speed Call Pause Insertion (SCPAUSE)/End to End signaling	X	
Speed Call Programming (Long), (SC2 and SCL)	X	
Speed Call Programming (Short), (SC1 and SCS)	X	
Suppressed Ringing features		
Suppressed Ringing Access (SRA)	X	
Suppressed Ringing for Telemetry (UTS)	X	
Suppress Line Identification (SUPPRESS)	X	
Teen Service features		
Teen Service (SDN)	X	
Teen Service on MDC	X	
Secondary Directory Number Identification (SDNID)	X	
Termination Restrictions		
Denied Incoming (DIN)		X
Denied Termination (DTM)	X	
Do Not Disturb (DND)	X	
Make Busy Key (MBK)	X	
Make Set Busy (MSB)	X	
Make Set Busy Intragroup (MSBI)	X	
Random Make Busy (RMB)	X	
Three-way Calling (3WC) features		
Three-way Calling (3WC)	X	
Three-way Calling (3WC) Consultation Hold	X	
Usage Sensitive Three-way Calling (U3WC)	X	

Table 15 Supported features (Continued)

Feature name	Category A	Category B
Toll restriction features		
Carrier Toll Denial (CTD)		X
Equal Access Enhanced Carrier Toll Denial		X
InterLATA Full Carrier Toll Denial (FCTDNTER)		X
Toll Denial (TDN)		X
Toll Diversion (TDV)		X
Virtual Facility Group (VFG) features		
Virtual Facility Group (VFG)	X	
Virtual Facility Group Look Ahead (VFGLA)	X	
Wide area telephone service (WATS) features		
Enhanced WATS Access Line (EWAL)		X
Zone Screening		X
800 features		
Enhanced 800 (E800)	X	
Note: CNND is a feature activated by the user which indicates that the user's name and directory number may be displayed at the terminating set. Note that Calling Name Display is not supported by AIN Essentials		

8.2 Feature interactions

The behavior of the features supported by AIN Essentials are described in the following sections.

8.2.1 Analog Display Services Interface (ADSI) features

The ADSI features, Spontaneous Call Waiting Identification (SCWID) and Spontaneous Call Waiting Identification with Disposition (DSCWID), are allowed to interact with the advanced intelligent network Essentials (AIN Essentials) feature for Residence Enhanced Services (RES) lines and Integrated Business Network (IBN) lines.

SCWID and DSCWID provide delivery of calling party information to Custom Local Area Signaling Service (CLASS) display subscribers when a call is waiting. If the SCWID or DSCWID subscriber has the Calling Number Delivery (CND) and Calling Name Delivery (CNAMD) features, then during call wait alerting, the subscriber will receive the calling name and number of the waiting call.

Any agent which subscribes to any of the following AIN Essentials triggers can terminate to a SCWID or DSCWID subscriber while they are in the talk mode.

- off-hook immediate (OFFHKIMM)
- off-hook delay (OFFHKDEL)
- shared inter-office trunk
- 3- to 10-digit Public Office Dialing Plan (PODP)
- Public Office Dialing Plan feature (PODPFEAT) code
- N11
- customized dialing plan (CDP)
- automatic flexible routing (AFR) network busy
- termination attempt (TAT)

There are indirect interworking interactions with AIN Essentials and SCWID/DSCWID, since the service control point (SCP) can respond with Analyze Route, Authorize Termination, or Forward Call with optional parameters CallingPartyID, ControllingLegTreatment, or PassiveLegTreatment. These parameters may alter the display and ringing/alerting patterns that would be applied to the terminating ADSI phone.

8.2.2 Automatic Call Distribution (ACD) features

Automatic Call Distribution permits calls to be evenly distributed to a number of designated ACD agent positions. If all these positions are busy, new calls are queued and a ringing tone or announcement may be returned to the caller.

AIN Essentials supports the following Automatic Call Distribution (ACD) features:

- ACD 2500 Set Feature Assignment
- ACD Call Transfer/3WC
- ACD Incalls Key
- ACD Terminations

Refer to Display features for details on the impact of Automatic Call Distribution (ACD).

8.2.2.1 Automatic Call Distribution (ACD) Call Transfer (CXR)/Three-way Call (3WC)

AIN Essentials provides support for an agent to transfer an ACD call to the incalls key of another ACD agent. The issues of queuing and call transfer recall have not yet been addressed.

8.2.2.2 Automatic Call Distribution (ACD) terminations

A call can hit Originating Triggers and route the call to an ACD DN, and also a call can encounter the Termination Attempt Trigger and forward the call to an ACD DN. However, when ACD routes a call to an ACD agent position with the Termination Attempt Trigger assigned, the trigger is not encountered.

Note: The ACD agent position is known as the INCALL key.

The Termination Attempt Trigger is encountered when the ACD agent position is dialed directly. Behaviors differ depending on the ACD agent position type and the response. Please refer to Table 16.

Table 16 Behavior of call when encountering Termination Attempt Trigger through dialing ACD agent position directly

ACD agent position set type	Authorize termination response	Forward Call response
MBS	Call is sent to treatment	Call can be forwarded to another DN successfully
500/2500	Call will Terminate on ACD agent position	Call can be forwarded to another DN successfully
MFT	Call is sent to treatment	Call can be forwarded to another DN successfully

The behavior outlined in Table 16 is consistent with normal ACD behavior.

Note: AINDN option cannot be assigned to an ACD DN.

8.2.3 Automatic Line (AUL)

The digits datafilled as the AUL_DN against a directory number (DN) are substituted for the dialed digits and the call proceeds normally. This feature may interact with the triggers that normally apply to an originating line. The Automatic Line (AUL) feature is not encountered if the call triggers at the Offhook Immediate trigger.

8.2.4 Bearer capability (BC)

The bearer capability (BC) determines the type of transmission service accessible to the user.

The bearer capability parameter contains the bearer capability of the call that encounters the trigger. This is a mandatory parameter in all outgoing messages, including AIN Essentials query messages.

The value of the bearer capability used in the AIN Essentials query depends upon the originating agent of the call that encounters the trigger. Table 17

indicates how the incoming bearer capability is derived for the different agent types.

Table 17 Bearer capability determination by agent

Originating agent	Incoming bearer capability
POTS line	office default bearer capability (table OFCENG)
IBN line	the bearer capability value set via the BC feature (if applicable); otherwise the office default bearer capability
non-SS7 trunk	the bearer capability assigned to the trunk group (if present in table TRKGRP); otherwise the office default bearer capability
ISUP and PRI trunk	the bearer capability in the incoming SETUP message (mandatory)
MBS	office default bearer capability (table OFCENG)
MFT	office default bearer capability (table OFCENG)
BRI	the bearer capability in the incoming SETUP message (mandatory)

The incoming bearer capability is then mapped to the AIN bearer capability using the relationship in Table 18.

Table 18 Bearer capability value in AIN query

Incoming bearer capability	AIN bearer capability
Speech	Speech
3.1 kHz audio	f31kHzaudio
7kHz	f7kHz audio
unrestricted digital information with rate adaption	b56kbps
unrestricted digital information without rate adaption	b64 kbps

The bearer capability of the call is not altered by AIN Essentials response processing. Thus, the bearer capability routing characteristic is maintained.

8.2.5 Billing features

This section addresses the following billing features:

- Account Codes
- Customer Dialed Account Recording (CDAR)
- Special Billing (SPB)
- Station Message Detail Recording (SMDR)
- Terminating Billing Option (TBO)

These features are discussed in the following section.

8.2.5.1 Account Codes

Account Codes are collected during the CollectingInformation PIC, before triggers at the InformationCollected or Information_Analyzed TDPs are encountered.

The digits of the Account Code are not sent to the SCP. The AIN Essentials' trigger criteria checking is accomplished using the Called_Party DN that is dialed, and not the Account Code dialed.

Once the call progresses to a stable talking state, the user is able to flash and dial the feature access code (FAC) for the Account Code First (Voluntary) feature without any triggering occurring.

If the OFFHKIMM trigger is assigned to a line that also is assigned the Account Code feature, then the Account Code feature will be bypassed for any originations from this line. This includes Account Codes First features, as the origination of a new call, or a hookflash from a call in the talking state will result in the OFFHKIMM trigger to be hit.

When the Account Code feature user goes off-hook to originate a call, and then dials the switch-based feature access code (FAC) that corresponds to the activation of Account Codes First feature, the call will escape the OFFHKDEL trigger. After the user enters in the Account Code, and then the called number, the OFFHKDEL trigger will be encountered, if applicable to this call.

When the Account Code feature user flashes during an active call, and then dials the switch-based feature access code (FAC) that corresponds to the activation of Account Codes First feature, the call will escape the OFFHKDEL trigger. After the user enters in the Account Code, the OFFHKDEL trigger is not encountered. The user may then hookflash back to the active call.

The previous two paragraphs also apply for the PODP, N11, and CDP triggers and PODPFEAT.

When the Account Code Last (ACR) feature user dials a number, the OFFHKDEL trigger is not encountered until after the Account Code has been collected. This also applies for the PODP, N11, and CDP triggers.

When the Account Code Last (ACR) feature user dials a number, the PODPFEAT trigger does not apply. The trigger will not occur, since the user dialed a regular number. If the Account Code Last (ACR) feature user dials a PODP Feature Code, the PODPFEAT trigger will be encountered, and **no** Account Codes will be collected.

If an OFFHKDEL subscriber makes a call with the Account Code First (Voluntary) feature and the call hits the OFFHKDEL trigger with an Analyze_Route response returned from the SCP, the “CLD NO” field in the SMDR record (if applicable) will have the digits contained in the CalledPartyID response parameter.

However, if the Account Code Last feature is used in the above scenario, then the “CLD NO” field in the SMDR record (if applicable) will contain the user dialed digits.

8.2.5.2 Customer Dialed Account Recording (CDAR)

Customer Dialed Account Recording allows variable length account codes to be entered on a per-call basis, along with predefined prefix digits to be prefixed to the called number. This feature is not compatible with the Off Hook Immediate trigger.

8.2.5.3 Special billing (SPB)

A special billing number may be datafilled against a line using the special billing (SPB) option.

For an AIN call originated by a line with the SPB option, the ChargeNumber in the query message is populated with the special billing number datafill, if it exists. If a seven digit SPB number is datafilled, then the numbering plan area (NPA) of the originating facility is used to obtain a ten-digit charge number.

If the SPB option is not present, then the calling DN is used to populate the ChargeNumber.

8.2.5.4 Station Message Detail Recording (SMDR)

If a Centrex line or trunk originates a call that requires a SMDR call record based on the originating line or trunk group data, or IBN translation datafill, the SMDR record will be generated regardless of whether or not the call is an AIN call.

A DF04 extension record is generated for AIN R0.1 calls through the AIN01 option in customer group data fill in table CUSTSMDR. This SMDR extension is only generated if the SCP response message contains

- an AMAslpID
- at least one of the following:
 - AMAAlternateBillingNumber
 - AMABusinessCustomerID
 - AMADigitsDialedWC

An SMDR record is generated for each call leg and DF04 extension record provided for each trigger encountered containing billing parameters from SCP response. The SMDR call record generated is a result of the dialed digits. With the exception of the OFFHKIMM, OFFHKDEL, CDP, and PODPFEAT (for ISDN BRI) feature access code triggers, the “CLD NO” field of the SMDR call record will contain the number dialed by the originator, not the routing number returned by the off-board processor. For the OFFHKIMM, OFFHKDEL, CDP, and PODP (for ISDN BRI) feature access code triggers, the “CLD NO” field of the SMDR call record will be overwritten by the 10-digit number returned in the SCP response.

In the case of virtual DN TERMATT trigger with a Forward Call response, the CLD NO field of the SMDR records (dialed digit) will always be overwritten by the 10 digits of the virtual DN. In other words, if the originating agent in the same customer group dials the extension number, it is not the extension number that will be filled in the “CLD NO” field, it will be the full 10-digit DN.

For interactions with Authorization Codes refer to Section 8.2.42.1 “Authorization Codes” on page 200. For interactions with Account Codes, refer to Section 8.2.5.1 “Account Codes” on page 130.

8.2.5.4.1 Feature flow diagram

Figure 5 graphically describes the AIN Essentials and SMDR interworking. Following is the description of all decision boxes:

- **SMDR Req'd:** TRUE if the SMDR option is set in IBNXLA (IBNXL.SMDR) or if the originating IBN line has the SMDR option datafilled.

Note: The SMDR_OFFICE office parameter needs to be set to YES.

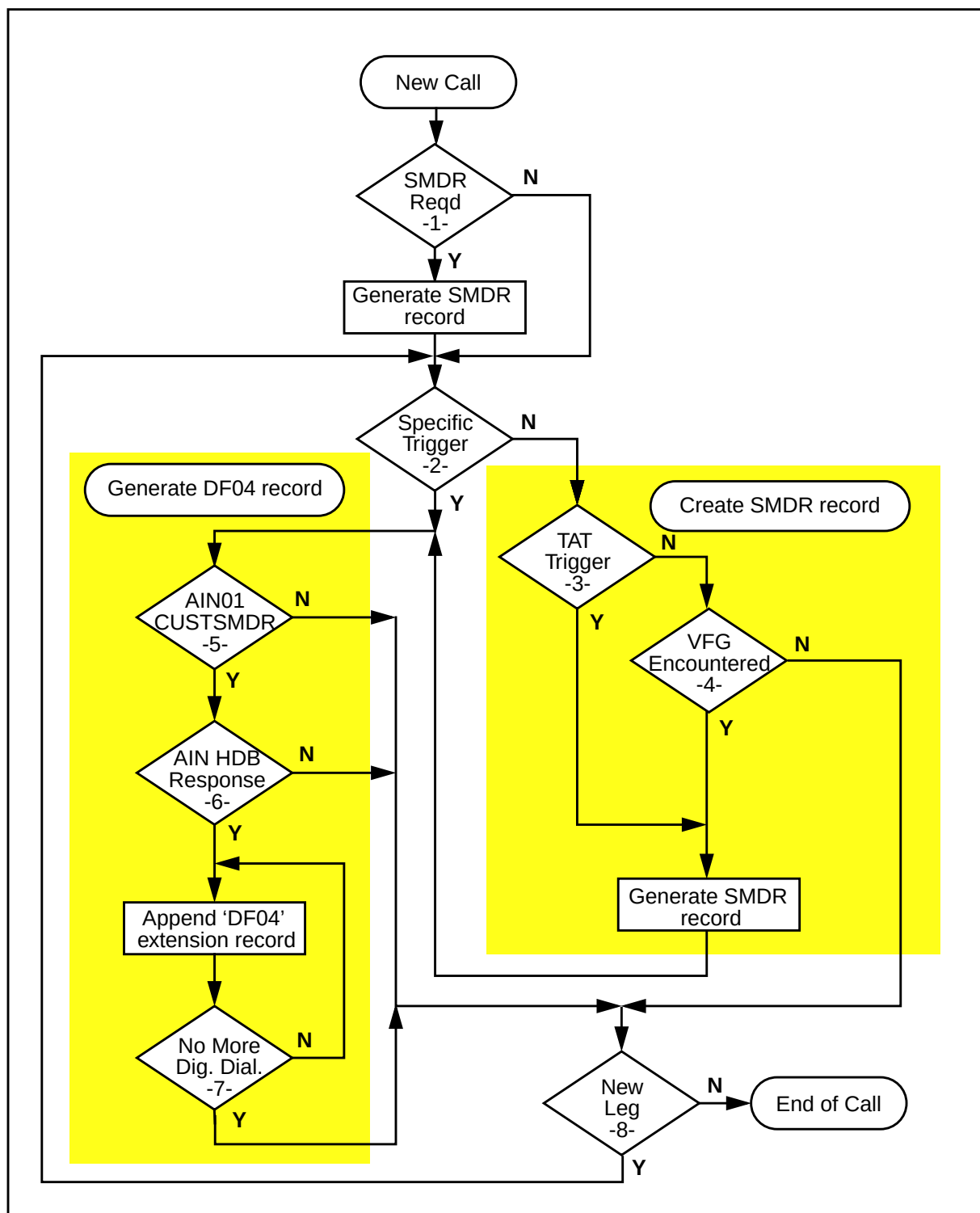
- **Specific Trigger:** TRUE when any of the following AIN Essentials triggers are hit with their associated response message shown in the following table:

Table 19 AIN Essentials triggers and responses

Trigger name	Response message
Off Hook Immediate	Analyze_Route
Off Hook Delay	Analyze_Route
Shared Interoffice Trunk	Analyze_Route
PODP	Analyze_Route Continue
Customized Dialing Plan	Analyze_Route Continue
PODPFEAT	Analyze_Route
N11	Analyze_Route Continue
Automatic Flexible Routing	Analyze_Route
Terminating Attempt	Authorize_Termination

- **AIN Essentials Forward Call:** TRUE if the call terminates on a TAT trigger that has the SMDR option and a Forward_Call response is received.
- **VFG Encountered:** TRUE if the call is routed through a VFG and if the SMDR option is datafilled for that VFG.
- **AIN01 CUSTSMDR:** TRUE if the AIN01 option is datafilled in table CUSTSMDR for the originating MDC customer group.
- **AIN HDB response:** TRUE if an AIN Response HDB can be found on the call and that there is at least one billing indicator.
- **No More Dig. Dial.:** TRUE when all the DIGITS_DIALED digit register are stored in a DF04 extension record.
- **New Leg:** TRUE if the call is retranslated in any way (VFG, Call forward, Re-Route, AIN routing).

Figure 5 AIN Essentials and SMDR interworking



For explanation of decision boxes, see Section 8.2.5.4.1 “Feature flow diagram” on page 132.

8.2.5.5 Terminating Billing Option (TBO)

The TBO feature allows the operating company to generate automatic message accounting (AMA) records for calls terminating to lines.

The TBO feature interacts properly with the AIN Essentials TERMATT trigger. The TBO trigger is hit and processed properly on lines with the TBO option. On lines with the AINDN option, the AMA Call Code datafilled when adding TBO is used for the TBO AMA record. AIN AMA is unaffected by the presence of the TBO option.

8.2.6 Basic rate interface (BRI) specific features

This section addresses the following BRI specific features.

- Additional Functional Call (AFC)
- Additional Call Offering Unrestricted (ACOU)
- Flexible Calling (FC)

Off-Hook Immediate (OFFHKIMM), Off-Hook Delay (OFFHKDEL), Public Office Dialing Plan feature (PODPFEAT), and Termination Attempt (TAT) triggers are supported for both AFC and FC BRI features.

8.2.6.1 Additional functional call (AFC)

ISDN BRI supports additional functional call (AFC) for PODP and N11, CDP on a group basis and AFR on an office and group basis. Analyze_Route, Continue, Disconnect and Send_To_Resource are all supported responses.

8.2.6.2 Additional Call Offering Unrestricted (ACOU)

The ACOU feature is assigned to a directory number (DN) on a basic rate access functional set (BRAFS) agent to allow incoming calls to be presented to idle additional functional call (AFC) keys when the SFC key is not available.

8.2.6.3 Flexible Calling (FC)

ISDN BRI supports Flexible Calling (FC) for PODP and N11, CDP on a group basis and AFR on an office and group basis. Analyze_Route, Continue, Disconnect are all supported responses. Send_To_Resource remains unsupported when the Noninterruptable parameter is present.

8.2.7 Busy Override features

This section addresses the following Busy Override feature.

8.2.7.1 Executive Busy Override (EBO)

Because EBO is a customer group based feature, any calls going outside the customer group cannot be barged-in on. Any calls that are not considered

INTRAGROUP as defined in IBN translations cannot be barged-in on even if the originator and terminator are in the same customer group.

Originating Call Model TDPs all trigger and respond properly. They do not affect the functionality of EBO.

Terminating Call Model TDPs all trigger and respond properly. An Authorize_Termination response does not affect EBO functionality. However, if a Forward_Call response is received on a call EBO cannot be used to bargein on the call. This is similar to EBO interactions with switch based call forwarding. EBO is not allowed to bargein on a call that has encountered switch-based call forwarding.

EBO will only bargein on calls in conversation, but conversation with an announcement reached via a Send_To_Resource reply cannot be barged in on.

Note: When a new CallingPartyID is returned in a response, the terminating agent displays the new CallingPartyID returned, but when using the EBO feature, the original CallingPartyID is displayed.

8.2.8 Call forwarding (CFX) features

This section addresses the following call forwarding features:

- Call Forwarding on a Per Key Basis (CFK)
- Call Forwarding All Calls (CFW)
- Call Forwarding Busy (CFB)
- Call Forwarding Busy Block Intragroup (CBI)
- CFB Exclude External Originators/Unrestricted Forwarding (CBECEBU)
- CFB Exclude Intragroup (CBE)
- Call Forwarding Busy Line (CFBL)
- Call Forwarding Busy Intragroup Deny Unrestricted (CBICBU)
- Call Forwarding Call Waiting (CFCW)
- Call Forwarding Don't Answer for IBN (CFD)
- CFD Exclude External Originators/Unrestricted Forwarding (CDECUDU)
- Call Forwarding Don't Answer Intragroup Deny Unrestricted (CDICUDU)
- Call Forwarding Don't Answer Exclude Intragroup (CDI)
- Call Forwarding Don't Answer Exclude Intergroup (CDE)
- Call Forwarding Don't Answer for POTS and RES (CFDA)
- Call Forwarding Fixed (CFF)
- Call Forwarding Group Don't Answer (CFGD, CFGDA)

-
- Call Forwarding Intragroup (CFI)
 - Call Forwarding Programming with Courtesy Call (CFWP) for POTS
 - Call Forwarding Remote Access (CFRA)
 - Call Forwarding Timed (CFT)
 - Call Forwarding Universal (CFU)
 - Call Forwarding Validation (CFWVAL)
 - Controlled Multiple Call Forwarding (CMCF)
 - IBN Call Forwarding Busy Unrestricted (CBU)
 - IBN Call Forwarding Don't Answer Unrestricted (CDU)
 - IBN Call Forwarding Simultaneous/Screening (CFS)
 - Internal External Call Forwarding Busy Denied (IECFB)
 - Internal External Call Forwarding Busy Unrestricted (IECFBCBU)
 - Internal External Call Forwarding Don't Answer Denied (IECFD)
 - Internal External Call Forwarding Don't Answer Unrestricted (IECFDCDU)
 - Multiple Call Forwarding for CFU/CFI (MULTICFA)
 - Multiple Call Forwarding Don't Answer (MULTICFD)
 - Multiple Call Forwarding Busy (MULTICFB)
 - Personal Communications Service (PCS) of Call Forwarding
 - Remote Call Forwarding (RCF)
 - Selective Call Forwarding (SCF)
 - Subscriber Programmable Ringing for CFRA on RES (SPRING)
 - Universal Access to Call Forwarding on RES (CFXU)

The TDPs and triggers supported during call forwarding features are shown in Table 20.

Table 20 AIN Essentials TDPs/triggers supported during call forwarding and POTS CFWP

TDP	Triggers supported on forwarded leg	Forwarding agent types supported
Information Collected	Off Hook Delay	POTS, RES, IBN
Information Analyzed	3- to 10-digit Public Office Dial Plan	POTS, RES, IBN, RCF DN
	Customized Dial Plan	IBN, RES
	N11 (Note 1)	POTS, RES, IBN, RCF DN
Network Busy	Automatic Flexible Routing	POTS, RES, IBN, RCF DN (Note 2)
Termination Attempt	Termination Attempt	POTS, RES, IBN, RCF DN

Note 1: Please refer to Section 8.5.4 “Call Forwarding (CFX) feature limitations and restrictions” on page 222 for restrictions that apply when forwarding to N11 numbers.

Note 2: RCF DN is only supported for the office-wide version of Network Busy.

8.2.8.1 Query handling

Since originating triggers take place on behalf of the base station, certain query message parameters are populated on the basis of the base station, not the originating station. Thus, call forwarding redirection is considered to have taken place at the beginning of the call forwarding feature.

Note: Redirection only occurs when switch-based Call Forwarding takes place, an AIN Forward_Call response is received, or an Analyze_Route response with a RedirectingPartyID is received.

Table 21 shows which parameters are populated based on the forwarding station for originating and terminating triggers.

In addition, Table 21 presents the population of the ChargeNumber parameter in the AIN query messages for line-originated calls. For trunk-originated calls without FGD signaling, the RedirectingPartyID or the original called number are used to populate the ChargeNumber, if they are included in the IAM or the PRI setup message. If this information is not provided in the IAM or PRI setup message, then the CallingPartyID is used to populate the ChargeNumber.

Table 21 Triggering after Call Forwarding—intra-switch

Parameter	Originating triggers	Terminating triggers
UserID	Last Forwarding Station	Terminating Station
LATA	Last Forwarding Station	Terminating Station
RedirectingPartyID (Note 1)	Last Forwarding Station	Last Forwarding Station
RedirectionInformation	Last Forwarding Station	Last Forwarding Station
ChargeNumber (Note 2)	Last Forwarding Station	Last Forwarding Station
ChargePartyStationType	Last Forwarding Station	Last Forwarding Station
PrimaryCarrier	Last Forwarding Station	N/A
OriginalCalledPartyID	First Forwarding Station	First Forwarding Station
Note: This parameter is only populated if the call has been forwarded more than once. If the call has been forwarded only once, only the OriginalCalledPartyID is populated with the forwarding station The population of the ChargeNumber parameter is presented here for line-originated calls. The parameter population for trunk-originated calls is as described previously in this section.,		

Table 22 shows how the Redirecting Reason field in the RedirectionInformation parameter is populated based on the type of call forwarding feature encountered.

Table 22 Population of Redirecting Reason based on call forwarding type

Call forwarding type	Redirecting reason
CFU, CFI, CFF, CFW, CFK, SCF, RCF, CFXU	unconditional
CFB, CFBL, CBI, CBU, CBE, CBECBU, CFBL, CBICBU, IECFB, IECFBCBU	user busy
CFD, CFDA, CFGD, CFGDA, CFCW, CDECDDU, CDI, CDE, CFDA, CDU, CDICDU, IECFD, IECFDCCDU	no reply
CMCF, CFS, MULTICFA, MULTICFD, MULTICFB	dependent upon basic call forwarding feature used
Other	unknown/not available

8.2.8.2 Response handling

The following list describes, from a functional point of view, how AIN Essentials response messages are handled after call forwarding has taken place:

- Analyze Route/Forward Call—the call is rerouted according to the response message parameters.
- Disconnect—the call is given AIN disconnect treatment.

Note: For CFD, the caller will hear ringing followed by disconnect treatment. Refer to Section 8.5.4 “Call Forwarding (CFX) feature limitations and restrictions” on page 222 for more details.

- Send to Resource—an announcement is played to the caller and, if necessary, digits are collected, otherwise the call may be disconnected. If the digits dialed are based on a numbering plan, the numbering plan of the base station is used.
- Cancel Resource Event—the processing of the previous Send to Resource message is terminated. A Resource Clear message is sent and the call is given AIN Final treatment (AINF).
- Authorize Termination—the call is terminated to the remote station.
- Continue—if subsequent triggering at the Information Analyzed TDP or Termination Attempt occurs, the call is forwarded based on the final response. If no subsequent triggering takes place, the call will continue to terminate to the remote station.

Note: Redirection only occurs when switch-based Call Forwarding takes place, an AIN Forward_Call response is received, or an Analyze_Route response with a RedirectingPartyID is received.

A call may be routed to another directory number via the AIN Forward_Call response message, the AIN Analyze_Route response message or by some switch-based feature. Table 23 summarizes how these different routing methods impact the switch-based redirection counter and the redirection counter encoded in AIN query messages.

Table 23 Parameter population by station

Routing method	Does routing method affect the switch-based redirection counter?	Does routing method affect the redirection counter in the AIN query message?
AIN Forward_Call response	yes	yes
AIN Analyze_Route response	yes	yes
switch-based call forwarding feature	yes	yes

8.2.8.3 Maximum serial triggers

The maximum serial triggers sent by the local operating company applies to each call leg. For example, if the maximum serial triggers is set to 6, calls may trigger up to 6 times on the first leg (that is, originator to base station) and up to 6 times again on each forwarded leg (that is, base station to remote station).

8.2.8.4 Trigger support during call forwarding programming

AIN Essentials triggering is supported during POTS Call Forwarding Programming (CFWP). AIN triggering during a CFWP call functions as follows:

- The originator goes off-hook and dials the CFWP access code. If the originator subscribes to the Off Hook Delay trigger no triggering will take place because feature access codes escape the Off Hook Delay trigger. A second dial tone is received and the user dials the remote DN. The call attempts to set up a connection with the remote DN. During the call setup, triggers at the Information Collected, Information Analyzed, Network Busy and Termination Attempt TDPs may be encountered.
- If triggering takes place and one of a select set of AIN Essentials responses is received, and the call is answered, then call forwarding is activated. The select set of responses are
 - Analyze Route/Forward Call
 - Authorize Termination
 - Continue
- Call forwarding will not be activated if the call is not answered or the response is one of
 - Disconnect
 - Cancel Resource Event
 - Send to Resource (response)

- if call forwarding was not activated because the call was not answered, or a Disconnect or Send to Resource (response) message was received, call forwarding to the dialed DN may be activated by repeating the call within the CFWP time-out period.
- a user will receive negative acknowledgment (NACK) treatment if trying to program an AIN feature access code during call forwarding programming.

Please refer to Section 8.5.4 “Call Forwarding (CFX) feature limitations and restrictions” on page 222 for a summary of call forwarding restrictions.

8.2.8.5 Trigger support during Call Forwarding Validation (CFWVAL) for IBN and RES

Call Forward Validation (CFWVAL) provides a means of verifying that a line has successfully forwarded when a user activates Call Forwarding. There are two variants of CFWVAL:

- Termination validation - When termination validation is used, a call completes to the forward number. During translation of the call, triggers may be encountered at the Information Collected, Information Analyzed, Network Busy, and Termination Attempt TDPs.
- Routing validation - When routing validation is used, a confirmation tone is heard when the system determines that the call routes successfully and Call Forwarding is activated. With routing validation, triggers may be encountered at the Information Collected, Information Analyzed, Network Busy, and Termination Attempt TDPs. If AIN trigger criteria are met during routing validation, no further routing is performed and no query is sent to the SCP. Call Forwarding is activated and a confirmation tone is heard. If AIN criteria are not met, routing validation continues.

8.2.8.6 Trigger support for Call Forwarding Group Don't Answer (CFGD/CFGDA)

Call Forward Group Don't Answer (CFGD/CFGDA) allows calls to hunt for an idle group member and to be forwarded if the call is not answered within a certain amount of time.

AIN Essentials originating and terminating triggers may be encountered during CFGD and CFGDA. During translation of the forwarding leg, triggers may be encountered at the Information Collected, Information Analyzed, Network Busy, and Termination Attempt TDPs.

AIN query handling and response processing during IBN and RES CFGD/CFGDA is consistent with the AIN and POTS CFGDA interaction.

Note: IBN Internal CFGD takes place within the Hunting Facility PIC in the AIN Essentials terminating basic call model (BCM). Therefore, AIN

triggers are not encountered while forwarding in the IBN Internal CFGD feature.

8.2.8.7 Three-way Call (3WC)/Call Forwarding Don't Answer (CFD/CFDA)/AIN Essentials interactions

This section applies to all variants of Call Forward Don't Answer on POTS, RES, and IBN sets.

If agents with an active Call Forwarding Don't Answer feature are conferenced into a Three-way Call while ringing, the call regresses to the base station if an AIN trigger is encountered on the forwarding leg.

8.2.8.8 Call Forwarding Remote Access (CFRA)

CFRA allows a user with Call Forwarding Universal (CFU), Call Forwarding Intragroup (CFI) or Call Forwarding Fixed (CFF) to activate CFU, CFI or CFF from a remote line through DISA. CFRA is activated when a user dials a DISA DN with the CFRA option, followed by the particular DN, an authorization code, an activation or deactivation code and, if required, the DN to which calls are to be forwarded.

Interaction with AIN is as for DISA, with OCM triggers supported before termination to the DISA-CFRA DN. However, unlike station-based invocation of call forwarding, CFRA does not make courtesy calls (which test the availability of the station or DN to which calls are to be forwarded). Therefore, the Termination Attempt trigger is not involved in CFRA call scenarios

8.2.8.9 Call Forwarding Timed (CFT)

The Call Forwarding Timed (CFT) feature enhances the Call Forwarding Busy (CFB) and Call Forwarding Don't Answer (CFD) features for MDC lines by routing unanswered forwarded calls to treatment after a predetermined time-out period. Treatment may consist of a tone or an announcement.

8.2.8.10 Interworking with AIN Primer and Call Forwarding

This feature does not alter existing interactions between each AIN application and call forwarding. For example the response to an AIN Primer query can route to a call forwarding DN and then to any AIN Essentials trigger. Also, the response to an AIN Essentials query can route to a call forwarding DN and then to only the AIN Primer triggers 3/6/10 PODP and DN.

8.2.8.11 Subscriber Programmable Ringing for CFDA on RES (SPRING)

If the line originating a SPRING call subscribes to OffhookDelay, then OffhookDelay takes precedence over SPRING only if the SPRING DN is not datafilled as an OffhookDelay escape code.

8.2.8.12 Universal Access to Call Forwarding on RES (CFXU)

This feature provides universal access to call forwarding for telephones with a line class code of RES, RES-1FR, and RES-1MR.

The feature uses the same activation and deactivation access codes as the current Call Forward Programming feature. From a subscriber's point of view, Usage Sensitive Call Forward Programming will behave exactly the same as the existing Flat Rate Call Forward Programming.

All existing flat rate CFW feature interactions apply to usage sensitive CFW.

8.2.9 Call Messenger features for RES

The Call Messenger feature allows an end user to access a messaging service after an unsuccessful local or 1+ toll call (call that was not answered or reached a busy destination). The Call Messenger feature routes the end user's call from the end office to either a Traffic Operator Position System (TOPS) switch or an Inter Exchange Carrier's (IEC) service gateway where the messaging service system is connected. The end user can then leave a message for a recipient via the messaging service. The Call Messenger feature can be invoked by two Residence Enhanced Services (RES) access codes. This feature is also known as 1+ MDS and it compliments the 0+ MDS feature.

The following two variants of Call Messenger exist:

- Standard Call Messenger (SCMSG)
- Intentional Call Messenger (ICMSG)

8.2.9.1 Standard Call Messenger (SCMSG)

This feature automatically allows the caller to leave a message to the last party to whom the caller has tried to reach.

Standard Call Messenger relies upon the contents of the Outgoing Call Memory Block. AIN triggers may be encountered on the original call made by the Call Messenger subscriber. If an AIN Essentials query takes place and an Analyze_Route or Forward_Call response is received, then the called party field of the OCM is marked as "DN UNUSABLE". In this case, when Standard Call Messenger is invoked, the call is sent to treatment or is provided with a new Call Messenger error announcement as specified in the CMSG Office Parm.

If an AIN Essentials query takes place and a new CallingPartyID or ChargePartyStationType parameter is received in the response message, this information is not taken into account by the Standard Call Messenger feature. The calling number relayed to the messaging service does not reflect the calling number supplied by the AIN Essentials SCP.

When Standard Call Messenger is invoked, it does not send a query to the AIN 0.1 SCP to obtain information for the calling party or the message recipient.

8.2.9.2 Intentional Call Messenger (ICMSG)

This feature automatically allows the caller to leave a message for the party of their choice. The caller does not have to attempt to reach the message recipient beforehand.

Intentional Call Messenger does not send a query to the AIN Essentials SCP to obtain information for the calling party or the message recipient.

8.2.10 Call Park (CPK)/Call Pickup (CPU) features

AIN Essentials supports the following Call Park/Call Pickup features:

- Call Park (CPK)
- Directed Call Park (DCPK)
- Security Code (Directed Call Park)
- Call Park Recall Identification
- Call Pickup (CPU)
- Directed Call Pickup with Barge-in (DCBI)
- Directed Call Pickup with Non-Barge-in (DCBU)

The Termination Attempt trigger takes precedence over the switch-based Call Pickup/Call Park features. However, if routing continues (that is, the SCP returns an `Authorize_Termination` message), the call can encounter these features.

The Call Park/Pickup originator or any originator, for supported agents, can encounter each Originating and Terminating BCM AIN Essentials trigger until the Call Park/Call Pickup feature is activated. Once the Call Park/Call Pickup feature is activated, no AIN triggers can be encountered.

8.2.10.1 Trunk Answer From Any Station (TAFAS)

This option allows answering of incoming attendant seeking calls from any station, if all attendant positions are unattended, by dialing an answer code in response to a common audible ringing device (bell or buzzer).

If the TAFAS line is used as a terminating feature, the AIN Originating BCM would not apply. However, if the TAFAS line is a member of a MADN group, then the customer can use it as an originating agent and, in this case, the Originating BCM triggers can be encountered.

The Termination Attempt trigger can be assigned to a TAFAS line so that any incoming call can encounter TERMATT. When the TAFAS access code is dialed to pickup this call, no AIN triggers are encountered.

8.2.11 Call Transfer (CXR) features

This section addresses the following call transfer features:

- Blind Transfer Recall/Identification
- Call Transfer (CXR)

Calls that have encountered AIN triggers may subsequently be transferred using call transfer. While being transferred, the new leg of the call may encounter originating or terminating triggers.

Note: If a call is transferred using the MBS single button transfer feature (also known as QCK), no AIN originating triggers are encountered on the new leg of the call.

Refer to Display features for details on the impact of Call Transfer (CXR).

8.2.11.1 Blind Transfer Recall / Identification

On the transfer leg, all AIN TDPs can be hit, and they will trigger and respond properly. If a new CallingPartyID parameter is returned in an AIN response, the display will be updated accordingly on the terminating DN.

If a PassiveLegTreatment, or a ControlLegTreatment is specified in an AIN response, it will apply only while the transferring party is still part of the call. As soon as the transferring party goes onhook, these treatments are no longer applied to the terminating DN.

If a transferred call encounters a PODP trigger with an Analyze_Route or Continue response with an AMASLPID, an AMA record will be generated when the call is answered. This also occurs if the transferred call encounters Termination Attempt with a Forward Call or Authorize Termination response. However, if the transferred call goes unanswered and the transferring party answers on recall, an erroneous AMA record with COMPLETION_IND set to ANSWERED will be generated. Send Notification/Termination Notification (SN/TN) will be affected similarly when the transferred call goes unanswered.

On the recall leg, no AIN TDPs are hit, and no previous AIN response parameters are used/preserved.

8.2.12 Call Waiting (CWT) features

AIN Essentials supports the following switch-based call waiting variants:

- Call Waiting (CWT)
- Call Waiting Chaining (CWC)

- Call Waiting Intragroup (CWI)
- Call Waiting Originating (CWO)
- Dial Call Waiting (CWD)

The Termination Attempt trigger takes precedence over each of these call waiting features. However, if the call triggers at the Termination Attempt trigger, and if the SCP responds with an Authorize_Termination message, call waiting features may be encountered.

For details as to how call waiting interacts with AIN Distinctive Alerting, please refer to Section 8.2.22.3 “AIN Distinctive Alerting /Call Waiting” on page 174.

8.2.12.1 Cancel Call Waiting (CCW)

The Cancel Call Waiting (CCW) feature access code is treated like any other switch-based feature access code. Calls with switch-based vertical service codes or feature access codes escape from the Info Collected TDP.

For details on how calls with switch-based access codes interact with AIN Essentials, please refer to Section 8.4 “General Information” on page 221.

There are two ways of activating CCW. They are described next.

8.2.12.1.1 Activating CCW before establishing a call When activating CCW before establishing a call, the user goes off-hook, dials the CCW access code, waits to receive a confirmation tone, and when received, dials the destination number. After the feature is activated, the call continues with normal call processing. The CCW access code does not trigger at the InformationCollected TDP, but the dialed digits may trigger at this PIC.

Note: The CCW feature is not encountered if the call triggers at the Offhook Immediate trigger.

8.2.12.1.2 Activating CCW while in a talking state When activating CCW while in a talking state, the end user flashes the switch hook, causing the current connection to be placed on hold. A special dial tone is returned and the end user dials the access code. After a 300 ms delay, the original connection is reestablished. The CCW feature access code does not trigger at the Information Collected TDP and the CCW feature is not encountered if the call triggers at the Off-Hook Immediate trigger.

Note: The call does not encounter the off-hook immediate trigger unless the originator subscribes to call transfer, Three-way Calling or other conference options.

8.2.13 CLASS features

This section addresses the following CLASS features:

- CLASS Anonymous Caller Rejection (ACRJ)
- CLASS Automatic Callback (ACB) —MDC and RES
- CLASS Automatic Recall (AR) — MDC and RES
- CLASS Automatic Recall Blocking of Private Calls (CABOP)
- CLASS Bulk Calling Line Identification (BCLID)
- CLASS Calling Name and Number Blocking (CNNB)
- CLASS Calling Name and Number Display (CNND)
- CLASS Calling Name Delivery (CNAMD) - TR1188 TCAP
- CLASS Calling Name Delivery (CNAMD) - Nodal —RES
- CLASS Message Waiting Indicator (CMWI)
- CLASS Calling Number Blocking (CNB)
- CLASS Calling Number Delivery (CND) —RES
- CLASS Calling Number Delivery blocking (CNDB)
- CLASS Customer Originated Trace (COT) —MDC and RES
- CLASS Dialable Directory Number Delivery (DDN) —RES
- CLASS Distinctive Ringing/Call Waiting (DRCW)
- CLASS Long Distance Indicator (LDI)
- CLASS Selective Call Acceptance (SCA) —MDC and RES
- CLASS Selective Call Forwarding (SCF) —MDC and RES
- CLASS Selective Call Rejection (SCRJ) —MDC and RES

For those cases where a CallingPartyID parameter has been received in a response message from the SCP database, this CallingPartyID parameter replaces the original calling number for Custom Local Area Signaling Service (CLASS) features.

8.2.13.1 Incoming call memory block

Several CLASS features rely on the contents of the incoming call memory (ICM) block. The contents of this call memory block are altered if a CallingPartyID parameter is received from an SCP database. Table 24 shows the changes that apply.

Table 24 Incoming call memory block contents

Contents	Values in ICM
Calling DN	If CallingPartyID is less than or equal to 10 digits, it is stored as the calling DN. If CallingPartyID is greater than 10 digits, it is not stored; the calling DN is marked as unavailable.
Network	Network value of PUBLIC is used.
Intraoffice call	Intraoffice value of TRUE is used if the CallingPartyID received corresponds to a valid DN in the office. A value of FALSE is used otherwise.
Interworking encountered	Interworking value of FALSE is used if the CallingPartyID received corresponds to a valid DN in the office. A value of TRUE is used otherwise.
Originating address info	This value is taken from the nature of number information received in the CallingPartyID parameter.
Originating name private	The value of TRUE is used if the CallingPartyID received is different from the Calling Party DN of the originating agent.
Originating DN private	Based on the presentation restriction indicator in the CallingPartyID parameter, the value of FALSE is used if the presentation restriction equals PRESENTATION_ALLOWED; otherwise a value of TRUE is used.
Long distance indicator	This value is determined using reverse translations from the called party to the CallingPartyID digits. If it is necessary to dial 1+7 or 1+10 digits to reach the CallingPartyID, the call is marked as long distance.

8.2.13.2 Outgoing call memory block

Several CLASS features rely on the contents of the outgoing call memory (OCM) block. The content of this call memory block is altered if an interaction with the AIN Essentials is detected. Table 25 shows the changes that apply.

Table 25 Outgoing call memory block contents

Contents	Value in OCM
DN Unusable	AIN00018 option is "ON": If during call processing of the initial call it is detected that an ACB originated call has received a diverting Analyze_Route response, the value of True is used. The same value is used if Disconnect or Send_to_Resource response is received on an initial call. AIN00018 option is "IDLE": If during call processing of the initial call receives an Analyze_Route response, the value of True is used. The same value is used if Disconnect or Send_to_Resource response is received on the initial call.

8.2.13.3 CLASS Anonymous Caller Rejection (ACRJ)

In general, ACRJ uses the name, its PresentationRestriction parameter, and the DN and its PresentationRestriction parameter to determine the anonymity of a caller. Inter-switch calls over PTS trunks do not have the name and number information. In this case the name and DN are considered present and their PresentationRestriction parameter allowed. On all other calls, both name, its PresentationRestriction parameter, and DN with its PresentationRestriction parameter may be available.

If the call encounters AIN, ACRJ uses the CallingPartyID in the SCP response as the originating DN. Assuming conformance to the protocol restrictions in TR-1285, if a CallingPartyID is received then the calling DN is considered present. The CallingPartyID's PresentationRestriction parameter is used by ACRJ to determine if the presentation of the CallingPartyID is allowed.

When the call encounters AIN, the CallingPartyID and the calling party presentation flag received in an AIN response will be used to determine the calling number information. The calling name information may or may not be updated depending on whether the CallingPartyID is the same as the originating DN.

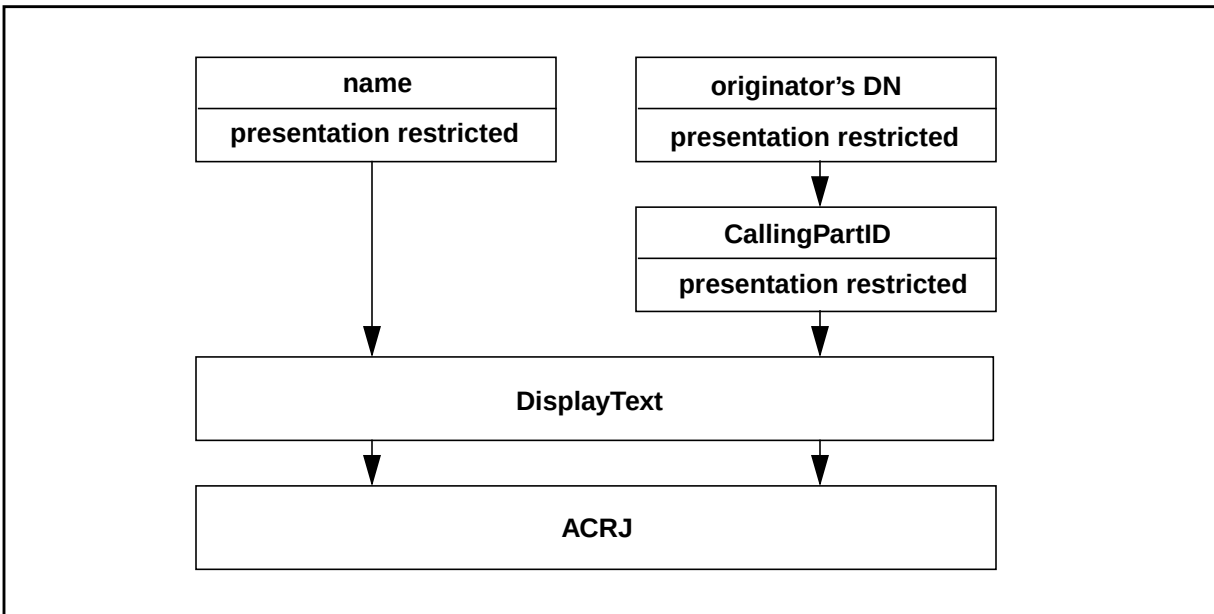
If the CallingPartyID is the same as the originating DN, the calling name information will not be updated. If the calling party presentation is restricted in the AIN response, then the presentation of the calling DN will be restricted; otherwise, presentation will not be restricted. The anonymity of the call will be determined by both name and DN information. Since AIN does not update calling name information, the call might not be anonymous if the calling name is available, even when the calling party presentation is restricted by AIN.

If the CallingPartyID is different from the originating DN, only the calling number will be used to determine the anonymity of the call. In this case, the calling name will not be used. If the calling party presentation is restricted in the AIN response, the call will be considered to be anonymous and should be rejected by the ACRJ subscriber.

If the call encounters TAT with an Authorize_Termination response and the DisplayText parameter is datafilled, the display text information takes precedence over any name and number information previously received. When receiving display text information, ACRJ uses only the display text calling number information to determine the anonymity of the calling party.

Based on the information ACRJ receives, ACRJ logic decides to present or reject the call. Figure 6 demonstrates the flow of information into ACRJ.

Figure 6 Inputs to ACRJ logic



8.2.13.4 CLASS Automatic Callback (ACB)

ACB is a CLASS feature that allows subscribers to redial the last station that they called and be queued against that station if it is busy. When both stations are idle, the calling station is given special ringing and when the calling party answers, the call is set up and the called station is given regular ringing.

Table 26 and Table 27 are used in conjunction to determine the behavior of ACB originated calls. These are based on the triggers associated with a Calling Party DN or Called Party DN and responses plus the response content encountered on the initial call. Shaded areas of Table 26 illustrate the difference between the interaction functionality when the SOC option “AIN ACB Premium” (order code AIN00018) is “IDLE” or “ON”. Additionally, Table 26 shows that the Termination Attempt trigger is allowed and encountered on ACB originated calls.

For an ACB call to be allowed to originate and complete on the dialed DN, both the trigger and the response in all the trigger-response pairs, plus the content of the responses, encountered during the initial call must be allowed.

Internodal ACB may still yield inconsistent results if an Analyze_Route message was received in another node. This information is not transferred over TCAP, so the originating office does not know to block the call. In this scenario, it is likely that the wrong agent is checked for busy/idle status. When this agent becomes idle, the ACB originator attempts to call back the original destination, which may or may not be busy.

Table 26 Trigger Table - ACB interactions with AIN Essentials responses

AIN Essentials triggers	AIN00018 IDLE	AIN00018 ON
OFFHKIM	N/A	N/A
INTEROFF	N/A	N/A
OFFHKDEL	allowed skipped	allowed encountered
PODP	blocked	allowed encountered
N11	blocked	allowed skipped
CDPCODE (Note)	allowed skipped	allowed skipped (except CDPINT)
PODPFEAT (Note)	allowed skipped	allowed skipped
AFR	allowed skipped	allowed encountered
TERMATT	allowed encountered	allowed encountered
Legend: • N/A — Not Applicable • skipped — an ACB originated call skips the corresponding trigger • allowed — origination of an ACB call is allowed when the corresponding trigger or response was received on the initial call • blocked — origination of an ACB call is blocked when the corresponding trigger or response was received on the initial call • encountered — an ACB originated call will encounter the corresponding trigger • shaded areas—illustrate the difference between the interaction functionality when the SOC option “AIN ACB Premium” (order code AIN00018) is “IDLE” or “ON”. Also illustrate that the Termination Attempt trigger is allowed and encountered on ACB originated calls. Note: Calls that trigger at the CDPCODE or PODPFEAT triggers will not encounter the CDPCODE and PODPFEAT AIN Essentials triggers during an ACB origination. CDPINT may be encountered on an ACB origination since it does not require a vertical service code		

Table 27 Response Table - ACB interactions with AIN Essentials responses

Response received when a trigger is encountered on an initial call	AIN00018 IDLE	AIN00018 ON
Analyze_Route not diverting	blocked	allowed
Analyze_Route diverting	blocked	blocked (except CPC LNP calls)
Send_To_Resource conversation	allowed	allowed
Send_To_Resource unidirectional	blocked	blocked
Disconnect	blocked	blocked
Other responses	allowed	allowed
Legend: - allowed — origination of an AR call is allowed when the corresponding trigger or response was received on the initial call - blocked — origination of an AR call is blocked when the corresponding trigger or response was received on the initial call - diverting — when an Analyze_Route message has a different called number, the call is diverted. It is marked as “diverting” - not diverting — when an Analyze_Route message has the same called number, the call is not diverted. It is marked as “not diverting” - shaded areas—illustrate the difference between the interaction functionality when the SOC option “AIN ACB Premium” (order code AIN00018) is “IDLE” or “ON”. Note: For 950-XXXX calls, ACB cannot be invoked, no matter the value of the Nature of Number field of the CalledPartyID parameter in the response message. This applies also to CalledPartyID parameters in responses to LNP queries.		

Attempts to invoke ACB on a call that resulted in a CalledPartyID parameter with Nature of Number field set to “950+Call” in a response message are sent to an announcement or, if the announcement is not available, to No Service Circuits (NOSC) treatment.

8.2.13.5 CLASS Automatic Recall (AR)

AR is a CLASS feature, that allows a subscriber to recall the last station that called and be queued against that station if it is busy. When both stations are idle, the calling station is given special ringing and when the calling party answers, the call is set up and the called station is given regular ringing.

The two tables in this section are used in conjunction to determine behavior of AR originated calls based on the triggers associated with a Calling Party DN or Called Party DN and responses plus the response content encountered on the initial call. Shaded areas of Table 28 illustrate the difference between the interaction functionality when the SOC option “AIN AR Premium” (order code AIN00018) is “IDLE” or “ON”. Additionally, Table 28 shows that all the AIN Essentials triggers are allowed and encountered on AR originated calls when the SOC option is “ON”.

Reverse translations are used to convert the CallingPartyID to a number dialable from the Automatic Recall subscriber. Reverse translations are done using the netname PUBLIC.

For an AR call to be allowed to originate and complete on the dialed DN, both the trigger and the response in all the trigger-response pairs, plus the content of the responses, encountered during the initial call must be allowed.

Table 28 Trigger Table - AR interactions with AIN Essentials responses

AIN Essentials triggers	AIN00018 IDLE	AIN00018 ON
OFFHKIM	N/A	N/A
INTEROFF	N/A	N/A
OFFHKDEL	allowed skipped	allowed encountered
PODP	blocked	allowed encountered
N11 (Note)	blocked	allowed encountered
CDPCODE	allowed skipped	allowed encountered
PODPFEAT	allowed skipped	allowed encountered
AFR	allowed skipped	allowed encountered
TERMATT	allowed encountered	allowed encountered
Legend: • N/A—Not Applicable • allowed—origination of an AR call is allowed when the corresponding trigger or response was received on the initial call • skipped—an AR originated call skips the corresponding trigger • blocked—origination of an AR call is blocked when the corresponding trigger or response was received on the initial call • encountered—an AR originated call will encounter the corresponding trigger • shaded areas—illustrate the difference between the interaction functionality when the SOC option “AIN AR Premium” (order code AIN00018) is “IDLE” or “ON”. Also illustrates that all the AIN Essentials triggers are allowed and encountered on AR originated calls when the SOC option is “ON”. Note: The N11 trigger is not blocked by AIN Essentials software. It is blocked by the AR feature software.		

Table 29 Response Table - AR interactions with AIN Essentials responses

Response received when a trigger is encountered on an initial call.	NA009
Analyze_Route CallingPartyID = 10 dig	allowed
Analyze_Route CallingPartyID if not 10 dig	blocked
Authorize_Termination CallingPartyID = 10 dig	allowed
Authorize_Termination CallingPartyID if not 10 dig	blocked
Forward_Call CallingPartyID = 10 dig	allowed
Forward_Call CallingPartyID if not 10 dig	blocked
Other responses	allowed
Legend: • allowed—origination of an AR call is allowed when the corresponding trigger or response was received on the initial call • blocked—origination of an AR call is blocked when the corresponding trigger or response was received on the initial call Note: For 950-XXXX calls, AR cannot be invoked, no matter the value of the Nature of Number field of the CalledPartyID parameter in the response message. This applies also to CalledPartyID parameters in responses to LNP queries.	

Note: When a trigger is hit, if the CalledPartyID DN received in the response is different from the CalledPartyID DN sent in the query, the call will terminate on the DN received in the response rather than the DN being monitored for idle.

8.2.13.6 CLASS Automatic Recall Limited to one

Because of regional regulations aiming at protecting subscribers from phone harassment related to AR, operating companies can activate AROO to limit to one the number of times AR can be made against received phone calls.

There is no interaction with AIN.

8.2.13.7 CLASS Auto Recall Blocking of Private Calls (CABOP)

The “CLASS Auto Recall Blocking of Private Calls” feature gives the functionality to prevent the disclosure of a “private” directory number (DN) upon an Automatic Recall (AR) activation attempt. A private call is considered to be a call originated from a station that disallows the disclosure of the calling number to a connected party. All AR activated calls that would generate a record of the private number on the AR subscriber's AMA Billing record are blocked, that is, sent to treatment. The set of AR subscribers can include both RES lines and Centrex lines.

If an AIN Essentials query takes place on the original call, and a private CallingPartyID parameter is returned in the response from the SCP, then the privacy of the CallingPartyID is used by CABOP to prevent an attempt to invoke Automatic Recall.

8.2.13.8 CLASS Bulk Calling Line Identification (BCLID)

If the SCP database includes the CallingPartyID parameter in a response, and the call encounters the Bulk Calling Line Identification (BCLID) feature, the number provided by the SCP database is used, provided it is 10 digits in length. If the CallingPartyID is other than 10 digits in length, the CallingPartyID is treated as out of range by the BCLID feature.

8.2.13.9 CLASS Calling Name and Number Blocking (CNNB)

The feature access code for this feature is processed in the Analyzing Information PIC of the originating basic call model. Call processing then returns to the CollectingInformation PIC with the additional dialed digits, and without the feature access code, in order to initiate a call.

Dialing a feature access code to activate CNNB affects the encoding of the CallingPartyID Presentation-Restriction indicator in the AIN Essentials query message. It is one of several factors used to determine whether to encode the field as “presentation restricted” or “presentation allowed”.

For AIN Essentials responses, the value of the presentation restriction indicator received in the CallingPartyID parameter is used to determine whether to display the CallingLineID on residential CLASS sets only.

8.2.13.10 CLASS Calling Name and Number Display (CNND)

CNND is a feature activated by the user which indicates that the user's name and directory number may be displayed at the terminating set.

Note: Calling Name Display is not supported by AIN Essentials.

The feature access code for this feature is processed in the Analyzing Information PIC of the originating basic call model. Call processing then returns to the CollectingInformation PIC with the additional dialed digits, and without the feature access code, in order to initiate a call.

Dialing a feature access code to activate CNND affects the encoding of the CallingPartyID Presentation-Restriction indicator in the AIN Essentials query message. It is one of several factors used to determine whether to encode the field as “presentation restricted” or “presentation allowed”.

For AIN Essentials responses, the value of the presentation restriction indicator received in the CallingPartyID parameter is used to determine whether to display the CallingLineID on residential CLASS sets only.

8.2.13.11 CLASS Calling Name Delivery (CNAMD) - TR1188 TCAP

With TR-1188 Calling Name Delivery (CNAMD), a user's name and related information are stored in a Residential Centralized Data Base for display purposes at a terminating CLASS set. AIN Essentials allows a CallingPartyID parameter in an AIN Essentials response to be used to retrieve the calling party name and related information from the database.

DisplayText name information takes precedence over TR-1188 name information. The name information provided by DisplayText is used if provided. If DisplayText information is not provided, then TR-1188 name display is unaffected and can be used to complement other display information provided by DisplayText.

For details regarding proprietary name display, please refer to Section 8.2.13.12.

8.2.13.12 CLASS Calling Name Delivery (CNAMD) - Nodal - RES

The CLASS CNAMD feature is a terminating RES CPE display call service which allows the called party subscribed to CNAMD to receive the calling party name, date and time during the first silent interval in the ringing cycle.

Please refer to Table 30 for a summary of the functionality of CNAMD.

Table 30 NA009 feature functionality summary for proprietary CNAMD

CallingPartyID parameter	Name Display prior to NA009 functionality	Name Display with NA009 functionality
Present and same as originating Calling Party DN	Blocked	Calling Name is displayed if available
Present and different from originating Calling Party DN	Blocked	Blocked
Not present	Calling Name is displayed if available	Calling Name is displayed if available

DisplayText name information takes precedence over proprietary name information. The name information provided by DisplayText is used if provided. If DisplayText information is not provided, then proprietary name display is unaffected and can be used to complement other display information provided by DisplayText.

Table 31 summarizes the name and number display interactions of proprietary CNAMD in an AIN Essentials Service Environment. These are subject to switch based datafiled presentation restriction options.

Table 31 Proprietary CNAMD and AIN Essentials interactions

CallingPartyID		Switch based resultant presentation restriction (Note 1)	Number display (Note 2)	Name display (Note 3)	
DN	Presentation restriction indicator			Switch based resultant presentation restricted	Switch based resultant presentation allowed
Not present or invalid	irrelevant	presentation allowed	Calling DN	PRIVATE NAME	Calling name, if available
Present and different from originating Calling Party DN	presentation allowed	presentation restricted	Calling-Part yID DN	UNKNOWN NAME	UNKNOWN NAME
Present and different from originating Calling Party DN	presentation allowed	presentation allowed	Calling-Part yID DN	UNKNOWN NAME	UNKNOWN NAME
Present and different from originating Calling Party DN	presentation restricted	presentation restricted	UNKNOWN NUMBER	UNKNOWN NAME	UNKNOWN NAME
Present and different from originating Calling Party DN	presentation restricted	presentation allowed	PRIVATE NUMBER	UNKNOWN NAME	UNKNOWN NAME
Present and same as originating Calling Party DN	presentation restricted	presentation restricted	UNKNOWN NUMBER	PRIVATE NAME	Calling name, if available
Present and same as originating Calling Party DN	presentation restricted	presentation allowed	PRIVATE NUMBER	PRIVATE NAME	Calling name, if available

Table 31 Proprietary CNAMD and AIN Essentials interactions (Continued)

CallingPartyID		Switch based resultant presentation restriction (Note 1)	Number display (Note 2)	Name display (Note 3)	
DN	Presentation restriction indicator			Switch based resultant presentation restricted	Switch based resultant presentation allowed
Present and same as originating Calling Party DN	presentation allowed	presentation restricted	Calling DN	PRIVATE NAME	Calling name, if available
Present and same as originating Calling Party DN	presentation allowed	presentation allowed	Calling DN	PRIVATE NAME	Calling name, if available

Legend:

- Upper case letters— information displayed on the CPE
- Lower case letters— data

Note 1: Resultant switch based presentation restriction for number display is calculated according to the following precedence, where the highest precedence is at the top of the list. The resultant value is determined using switch based options only, that is, the CallingPartyID Presentation Restriction Indicator value returned in the AIN Essentials SCP response is not used in the calculations. Although CNAMD addresses RES lines only, EBS precedence is included for clarity.

- **For RES lines:**
 - CallingPartyID Presentation Restriction field in the AIN Essentials SCP response message
 - per-call invoked switch based options
 - per-line assigned switch based options, for example, CND
- **For EBS sets:**
 - network restrictions
 - Customer or Feature Group restrictions
 - CallingPartyID parameter Presentation Restriction field in the AIN Essentials SCP response message
 - per-call invoked switch based options
 - per-line assigned switch based options, for example, CND

Note 2: Number Display is dependent upon the SCP CallingPartyID DN, CallingPartyID Presentation Restriction Indicator fields in the CallingPartyID parameter, as well as the Switch Based Resultant Presentation Restriction (See note 1).

Note 3: Name Display is only dependent upon CallingPartyID DN and switch based resultant name restrictions in columns 5 and 6

8.2.13.13 CLASS Calling Number Blocking (CNB)

The feature access code for this feature is processed in the Analyzing Information PIC of the originating basic call model. Call processing then returns to the CollectingInformation PIC with the additional dialed digits, and without the feature access code, in order to initiate a call.

Dialing a feature access code to activate CNB affects the encoding of the CallingPartyID Presentation-Restriction indicator in the AIN Essentials query message. It is one of several factors used to determine whether to encode the field as “presentation restricted” or “presentation allowed”.

For AIN Essentials responses, the value of the presentation restriction indicator received in the CallingPartyID parameter is used to determine whether to display the CallingLineID on residential CLASS sets only.

8.2.13.14 CLASS Calling Number Delivery (CND)

The display sent to a CLASS set depends on the contents of the incoming call memory block. The Calling Number Delivery (CND) feature can be used to display the calling number of an AIN call. If a CallingPartyID has been received from an SCP database, it is used to override the original calling number for display purposes.

Note: An exception to this occurs if the CallingPartyID parameter received is not 10 digits in length. It is not displayed using CLASS Calling Number Delivery. The display is shown as UNKNOWN NUMBER in such a case.

When DisplayText provides the calling number information, the number information provided by CND is ignored and the number information provided by DisplayText is used.

8.2.13.15 CLASS Calling Number Delivery Blocking (CNDB)

The feature access code for this feature is processed in the Analyzing Information PIC of the originating basic call model. Call processing then returns to the CollectingInformation PIC with the additional dialed digits, and without the feature access code, in order to initiate a call.

Dialing a feature access code to activate CNDB affects the encoding of the CallingPartyID Presentation-Restriction indicator in the AIN Essentials query message. It is one of several factors used to determine whether to encode the field as “presentation restricted” or “presentation allowed”.

For AIN Essentials responses, the value of the presentation restriction indicator received in the CallingPartyID parameter is used to determine whether to display the CallingLineID on residential CLASS sets only.

8.2.13.16 CLASS Customer Originated Trace (COT)

If a CallingPartyID parameter is received in a response message from an SCP database, it is used in any Customer Originated Trace (COT) log that is generated. The contents of the COT log to be generated are taken from the incoming call memory block.

If the CallingPartyID received is not 10 digits in length, a LINE151 log is generated instead of a LINE150 log.

If the CallingPartyID is less than 10 digits in length, the reason indicated in the LINE151 log is

TRACED DN NOT 7 OR 10 DIGITS.

If the CallingPartyID is greater than 10 digits in length, the reason indicated in the LINE 151 log is

CALLING PARTY ADDRESS NOT AVAILABLE.

8.2.13.17 CLASS Dialable Directory Number (DDN)

The Dialable Directory Number (DDN) feature is an enhancement to the Calling Number Delivery (CND) feature. DDN allows the calling number to be displayed in a format for the user to easily recall the caller. If a CallingPartyID has been received from an SCP database, it is used as the basis for deriving the dialable directory number displayed. Table DNREVLXA is used to derive the dialable number.

When DisplayText provides the calling number information, the number information provided by DDN is ignored and the number information provided by DisplayText is used. The number provided by DisplayText is reverse translated according to datafill in table DNREVLXA, and the number is delivered in DDN format. If translation of the DisplayText number fails, the number is delivered in CND format.

8.2.13.18 CLASS Distinctive Ringing/Call Waiting (DRCW)

The CLASS Distinctive Ringing/Call Waiting (DRCW) feature occurs in the Terminating BCM after the Termination Attempt TDP.

CLASS Distinctive Ringing/Call Waiting is applicable to AIN calls which do not activate AIN Distinctive Alerting or AIN Distinctive Alerting/Call Waiting. The CallingPartyID received from the SCP database is used to determine whether to apply CLASS Distinctive Ringing/Call Waiting. However, when AIN Distinctive Alerting is applicable for a call, the request from the SCP database takes precedence over CLASS Distinctive Ringing/Call Waiting.

If both DisplayText and Distinctive Ringing are subscribed to by a user, DisplayText information can only be delivered if the silent interval of the distinctive ring pattern is equal to or greater than three seconds.

Note: If the CallingPartyID is not a 10-digit number, CLASS Distinctive Ringing/Call Waiting does not apply. The calling number is treated as unavailable.

8.2.13.19 CLASS Long Distance Indicator (LDI)

CLASS Long Distance Indicator (LDI) enhancement indicates if an incoming call is long distance. LDI relies upon the “Long Distance Indicator” field of the incoming call memory block to determine if the call is long distance.

The incoming call memory block is updated if a CallingPartyID is received from the AIN Essentials SCP. The LDI field of the incoming call memory block is determined using reverse translations from the called party to the CallingPartyID digits. If it is necessary to dial 1+7 digits or 1+10 digits to reach this CallingPartyID, then the call is marked as long distance.

When DisplayText information is provided, evaluation of the LDI status is done based on the switch-based number, and not the number provided by DisplayText.

8.2.13.20 CLASS Message Waiting Indicator (CMWI)

Class Message Waiting Indicator is a CLASS feature which allows a Message Waiting (MWT) subscriber equipped with a CLASS set with a message waiting lamp and/or a display device to know if messages have been queued for them.

Please refer to Section 8.2.36.7 “Station Message Waiting (MWT)” on page 191.

8.2.13.21 CLASS Selective Call Acceptance (SCA), Rejection (SCRJ), and Forwarding (SCF)

If an SCP database has supplied a CallingPartyID parameter, it is used in place of the original calling number within the Selective Call Acceptance (SCA), Selective Call Rejection (SCRJ), and Selective Call Forwarding (SCF) features.

Note: If the CallingPartyID is not a 10 digit number, it is not used for the purposes of SCA, SCRJ, or SCF. The calling number is treated as being unavailable.

8.2.14 Class of Service features

AIN Essentials supports the following Class of Service features:

- Automatic Number Identification (ANI)

- Flexible Automatic Number Identification (FANI)
- Hotel/Motel (HOT)
- Restricted Sent Paid (RSP)

Automatic Number Identification (ANI) is Bellcore-defined information digits used to identify the type of originating line, special characteristics of the calling number, or certain service classes. ANI digits include the Hotel/Motel room identification digits and the Restricted Sent Paid (RSP) digits.

Flexible Automatic Number Identification (FANI) are special purpose ANI digits defined by the operating company to identify special types or characteristics of calls that have less widespread applications and are not covered by the general Bellcore definitions. FANI information digits apply to outgoing Equal Access (EA) and EA corridor.

Any two-digit pair ranging from 00 through 99 can be used as FANI information digits, even if the selected digit pair has already been defined by Bellcore as a standard two-digit ANI information digit code.

FANI representation is used to populate ChargePartyStationType or CalledPartyStationType if the FANI option is subscribed. If the FANI option is not subscribed, then ANI is used to populate the ChargePartyStationType or CalledPartyStationType.

With AIN Essentials, a call may receive an Analyze_Route or Forward_Call response from the AIN SCP, which routes the call over an Equal Access (EA) carrier. The ChargePartyStationType parameter represents the ANI or FANI digits associated with the Charge Number.

If a ChargePartyStationType parameter and the ChargeNumber parameter are received in an AIN Essentials response, then the ChargePartyStationType value overwrites the ANI/FANI information for the call.

If these parameters are not present in the AIN Essentials response, then the ANI/FANI information digits are retrieved from the triggering agent, and are outputted over the EA carrier.

8.2.15 Conference features

This section addresses the following conference features:

- Meet-me Conference
- Executive Conference (MMCONF 150)
- Six-Port Conference (CNF6)
- Super Conference (CNF30)

- Station Controlled Conference (CNF)

Meet-me Conference provides a six-port conference bridge and directory number that conference members dial at a specified time in order to hold a conference. This feature takes place in the terminating BCM, after the Termination Attempt TDP. The Meet-me Conference directory number cannot subscribe to the AINDN option and, therefore, cannot subscribe to the Termination Attempt trigger.

For the remaining four conference features, when a user performs a flash hook while in a call, the user encounters the Origination Attempt TDP. This action effectively establishes a new leg of a call, independent of other legs. If the digits dialed initiate a call, the user subsequently encounters the InfoCollected, InfoAnalyzed, Network Busy, and Termination Attempt TDPs.

8.2.16 Cutoff on Disconnect (COD)

AIN Essentials does not affect the functionality of COD.

8.2.17 Denied Origination (DOR)

A line that subscribes to Denied Origination (DOR) does not encounter any triggers except the Off-Hook Immediate trigger, when originating a call. If the call triggers at Off-Hook Immediate, triggers may subsequently be encountered at the InfoAnalyzed, NetBusy, or Termination Attempt trigger detection points (TDP). Calls terminating to a line with DOR encounter the Termination Attempt TDP.

8.2.18 Direct Dialing Overseas (DDO)

Triggers can be encountered on international calls dialed by the user. In response to an AIN Essentials query, the SCP may reroute any call to an international number by assigning the appropriate value to the “Nature of Number” of the AIN Essentials CalledPartyID parameter.

8.2.19 Direct Inward System Access (DISA) features

All applicable OCM triggers subscribed to by the originating party may be encountered before a DISA dial tone has been established, but only Off-Hook Delay (OHD), Public Office Dialing Plan (PODP), N11, Customized Dialing Plan (CDP), and agent-, group-, and office-based Automatic Flexible Routing (AFR) triggers are supported by a DISA DN.

Calls routed by DISA to a DN subscribing to the Termination Attempt trigger and those routed by a DN subscribing to the Termination Attempt trigger to a DISA DN are supported.

Calls to a DISA DN requiring authorization and account code collection from a BRI agent are not supported if there has been an intervening Send_To_Resource message involving digit collection.

Two specific interactions need to be clarified in the case of an AIN call being routed to a DISA number:

- If only the DISA is responsible for generating the originating SMDR record, no DF04 will be generated.
- In the case of a Forward_Call response, if DISA and TERMATT request an SMDR record, two identical SMDR records will be generated.

8.2.20 Display features

This section addresses the following display features:

- Automatic Display (AUTODISP)
- Calling Line Number Display (CLIDSP)
- Calling Name Delivery Blocking (CNAB)
- Calling Name Display - CENTREX - Network
- Name and Reason Display (REASDISP)

A CallingPartyID received in an AIN Essentials Forward_Call, Authorize_Termination or Analyze_Route response may be displayed at an EBS or ISDN BRI set.

Note 1: Display for calls involving 3WC or call transfer features is not fully supported.

Note 2: A CallingPartyID parameter in an AIN Essentials response is not displayed at an EBS set with ACD or MADN options.

Section 8.2.13.12 “CLASS Calling Name Delivery (CNAMD) - Nodal - RES” on page 158 includes further information on proprietary name display.

8.2.20.1 Electronic business set (EBS) display feature interactions

This section outlines the interaction of each of the EBS display features with AIN Essentials. The following interactions are common for each of the display features:

- If the CallingParty DN field in the CallingPartyID parameter sent in an SCP response is the same as the originating party DN with the Presentation Restriction Indicator field set to presentation-allowed or the CallingPartyID parameter is invalid or absent, then the functionality remains unchanged.
- If the CallingPartyID parameter Presentation Restriction Indicator field in the SCP response is set to presentation_restricted and the CallingPartyID DN field is the same as the originating DN then the originating party DN is not displayed but the name is displayed.

- If the CallingPartyID parameter Presentation Restriction Indicator field in the SCP response is set to presentation_allowed but a presentation restriction code has been dialed prior to making the call, the presentation_restriction field in the SCP response has precedence over the switch based restriction. The calling DN is delivered. No calling name is displayed as the SCP response does not contain a calling party name parameter to override the switch based restriction.
- If the Presentation Restriction Indicator field in the SCP response is set to presentation_restricted and the CallingPartyID DN field of the CallingPartyID parameter is different from the originating DN, then the name is not displayed and the DN is not displayed. The message “OUTSIDE CALL” is displayed.
- The DisplayText parameter is not supported for EBS sets.
- Please refer to Table 31 for applicable switch based restrictions for EBS sets.

In addition to the above interactions, the following sections indicate specific interactions associated with each of the display features.

The following limitations and restrictions apply to all the EBS Display Features discussed in this document. In addition, specific exceptions and additional restrictions are documented in the remaining sections which deal with each of the Display Features.

- A call which has been forwarded as a result of an AIN Essentials Forward_Call response is not treated as a forwarded call for display purposes. For example, if Name and Reason Display has been assigned, a call which has been forwarded by a Forward_Call would be displayed only as a direct call, that is, no reason information will be displayed.
- The RedirectingPartyID parameter in an Analyze_Route response is not displayed for calls within the same office.

8.2.20.2 Automatic Display (AUTODISP)

This feature provides the automatic presentation of incoming call information

(calling name, number) on the display of Meridian Business Sets (MBS) as

calls are presented to the set.

- This feature is only available on Electronic Business Sets (EBS), Meridian Sets with display, and ISDN MFT sets.
- If the CallingPartyID DN sent in an SCP response is different from the originating party DN then the name is not displayed. Only the CallingPartyID DN supplied by the SCP is displayed.

8.2.20.3 Calling Line Number Display (CLIDSP)

Option CLIDSP is available only through feature groups and allows the end user to control the format of the calling line address on business set displays.

A feature group is a logical group of individual features which are packaged together to form a group and can be assigned to a line with a single SERVORD option (FTRGRP). CLIDSP is available on Electronic Business Sets (EBS) with display, the Meridian Business Sets (MBS) and ISDN MFT sets.

If the CallingPartyID DN sent in an SCP response is different from the originating party DN then the name is not displayed. Only the CallingPartyID DN supplied by the SCP is displayed in the appropriate format.

Note: Interactions relating to CLIDSP are applicable for all options: that is, STD, ENH, OPT and FULL.

8.2.20.4 Calling Name Delivery Blocking (CNAB)

Calling Name Delivery Blocking (CNAB) is transparent to AIN Essentials.

8.2.20.5 Calling Name Display - CENTREX - Network

This section includes the following display features:

- Network Dial Plan Display
- Network Name Display
- Networked EBS Display

For information regarding CLASS Calling Name Delivery (TR1188 CNAMD or Proprietary CNAMD), please refer to Section 8.2.13 “CLASS features” on page 148.

8.2.20.5.1 Network Dial Plan Display Network Dial Plan Display enhances the existing display capabilities of the Meridian Business Set (MBS) with display by providing the capability to format a calling party's number that is consistent with the customer's dial plan. This reverse translations capability allows the called party to identify calls originating on other nodes and display the calling number in a form that is dialable by the end user.

8.2.20.5.2 Network Name Display Network Name Display enables a MBS with display to show the calling or called party's name for direct calls in addition to the Directory Number (DN). For redirected calls, Network Name Display also displays the name of the party from which or to which the call is being redirected and reason information. This capability is provided to the users of multiple nodes linked by a common channel signaling 7 (CCS7) network to send name and DN information across the network.

This feature is available for the Meridian Business Sets which have 2-line by 24-character displays and for ISDN BRI and MFT sets.

The following summarizes the functionality of the Network Name Display feature in an AIN Essentials Service Environment.

- If the CallingPartyID DN field in the CallingPartyID parameter sent in an SCP response is different from the originating party DN, then the name is not displayed. Only the CallingPartyID DN supplied by the SCP is displayed.

Note: For all calls involving switch based call forwarding except CFB, independent of AIN, the originating agent's display shows only the dialed digits temporarily until termination to the forwarded party. The dialed digits are not displayed in the case of CFB. Upon termination the originator's display then shows the terminator's name and DN, the forwarding reason, as well as the forwarding DN and name.

- If the CallingPartyID DN field of the CallingPartyID parameter sent in an SCP response is different from the originating party DN then
- in the case of calls going over an ISUP trunk using the query method the terminating agent displays the CallingPartyID DN supplied by the SCP and displays the name associated with the originating DN.
 - after Call Transfer and Recall or after Executive Busy Override (EBO), the display shows the originating DN instead of the SCP supplied CallingPartyID DN.
 - although switch datafill indicates that the SETUP method should be used to obtain the name, if the name is not available, then the QUERY method is used for EBS sets.

8.2.20.5.3 Networked EBS Display Networked EBS Display provides address information across a public network and between networks for EBS sets. Network EBS Display is possible through information exchange over a public network with the CCS7 signaling protocol. Address information is available for such features as normal line-to-line call, Call Waiting (CWT), Call Pickup (CPU), Call Transfer (CXR), and Call Forwarding (CFX).

The following summarizes the functionality of the Networked EBS Display feature in an AIN Essentials Service Environment.

If the CallingPartyID DN sent in an SCP response is different from the originating party DN and the Presentation Restriction Indicator field is presentation_restricted then the terminating agent displays the message "OUTSIDE CALL".

Note: For all calls involving switch based call forwarding except CFB, independent of AIN, the originating agent's display shows only the dialed digits temporarily until termination to the forwarded party. The dialed digits are not displayed in the case of CFB. Upon termination the originator's display then shows the terminator's name and DN, the forwarding reason, as well as the forwarding DN and name.

8.2.20.6 Name and Reason Display (REASDISP)

The Name and Reason Display feature allows a name and reason to be displayed for incoming and outgoing calls on a Meridian Business Set (MBS) with display. Parties originating a call are able to see the name of the called party. Parties receiving a call are able to see the name of the calling party.

Name and Reason Display is available for the Meridian Business Sets (MBS) which have 2-line by 24-character displays, and for ISDN BRI and MFT sets.

The following summarizes the functionality of the Name and Reason Display feature in an AIN Essentials Service Environment.

- If the CallingPartyID DN sent in an SCP response is different from the originating party DN and the Presentation Restriction Indicator is presentation-restricted, then the terminating agent displays the message 'OUTSIDE CALL' for EBS sets and 'PRIVATE CALL' for RES lines.
- If the CallingPartyID DN sent in an SCP response is different from the originating party DN and the Presentation Restriction Indicator is presentation-allowed, then the terminating agent displays the CallingPartyID DN, name and reason.
- If the CallingPartyID DN sent in an SCP response is the same as the originating party DN and the Presentation Restriction Indicator is presentation-restricted, then the terminating agent displays the CallingPartyID name and reason.
- If the CallingPartyID parameter CallingPartyID DN field sent in an SCP response is the same as the originating party DN or the CallingPartyID parameter is invalid or absent then:
 - — Switch based call forwarding affects the originating agent's display. The originator's display shows the dialed digits with the exception of CFB. Upon termination to the forwarded agent, the terminator's DN, name, forward reason display, and forwarding agent's DN and name are displayed.
 - — If an Authorize_Termination response is received and switch based call forwarding has taken place, then the originator's display shows the dialed digits with the exception of CFB. Upon termination, to the forwarded agent, the display is not updated.

- If the CallingPartyID DN field in the CallingPartyID parameter sent in an SCP response is the same as the originating party DN and the SCP Presentation Restriction Indicator is presentation-restricted, then the reason is not displayed.

8.2.21 Display Text

The DisplayText parameter contains information to be displayed on the called party's CPE. The DisplayText parameter can provide one or more fields of display information (for example, calling party number is provided in the CallingAddress field) to be sent to the called party.

The following are generic specifications:

- The DisplayText parameter can be received in the Authorize_Termination response at the Termination_Attempt TDP. It will be ignored if received in any other response types.
- Display information received with a tag not allowed for AIN Essentials as defined in TR-NWT-001285 will be ignored.

If the SCP sends calling number information, either actual number or reason for absence, then inclusion in the parameter of the callingAddress field is mandatory and a reason field must immediately follow the callingAddress field if a reason for absence is associated with the calling number.

If the SCP sends calling name information, either actual name or reason for absence, then inclusion in the parameter of the CallingPartyName field is mandatory and a reason field must immediately follow the callingPartyName field if a reason for absence is associated with the calling name.

DisplayText calling number information takes precedence over the number provided in the AIN CallingPartyID parameter when delivering display information to the terminating agent's CPE.

DisplayText applies to RES agents only. DisplayText will not be delivered to agents with an LCC of IBN subscribing to CLASS display options (referred to as CLASS on Centrex).

Note: Delivery to RES agents occurs between the first and second ring. Should the terminating agent answer the call before delivery is complete, no information will be displayed.

8.2.22 Distinctive Ringing features

This section addresses the following Distinctive Ringing features:

- Distinctive Ringing (DRING)
- AIN Distinctive Alerting

- AIN Distinctive Alerting/Call Waiting

8.2.22.1 Distinctive Ringing (DRING)

Distinctive Ringing (DRING) applies a distinctive ringing pattern to the called party.

AIN Distinctive Alerting and AIN Distinctive Alerting/Call Waiting take precedence over any switch-based Distinctive Ringing or Distinctive Ringing/Call Waiting feature, including the following features:

- Distinctive Ringing (DRING)
- CLASS Distinctive Ringing/Call Waiting (DRCW)
- Teen Service
- Teen Service on MDC

8.2.22.2 AIN Distinctive Alerting

When a response message is received from the SCP database, it may contain a ControllingLegTreatment or PassiveLegTreatment parameter. This parameter is used to determine the ringing pattern to be applied to the called party. Table 32 shows the relevant values of this parameter, and the corresponding ringing patterns to be applied.

For AIN Essentials, AIN Distinctive Alerting is applied only for the ControllingLegTreatment or PassiveLegTreatment of values. Other ControllingLegTreatment or PassiveLegTreatment values are ignored. The applicable ones are as follows:

- alertingOnPattern0Normal
- alertingOnPattern1DistinctiveIntergroup
- alertingOnPattern2DistinctiveSpecial
- alertingOnPattern4ReminderRing
- alertingOff

Table 32 Parameter values and ring patterns

ControllingLegTreatment or PassiveLegTreatment parameter values	Ring patterns
alertingOnPattern0Normal	normal alerting, that is, 2 s ringing and 4 s of silence
alertingOnPattern1DistinctiveIntergroup	800 ms of ringing, 400 ms of silence, 800 ms of ringing, and 4 s of silence
alertingOnPattern2DistinctiveSpecial	400 ms of ringing, 200 ms of silence, 400 ms of ringing, 200 ms of silence, 800 ms of ringing, and 4 s of silence
other supported values	normal alerting

MDC lines and customer groups served by an SSP may subscribe to switch-based Distinctive Ringing. Table 33 shows the ring codes and the corresponding ring patterns.

Table 33 Ring codes and ring patterns

Ring code	Ring patterns
1	1.5 s on; 4.5 s off
2	1.5 s on; 0.5 s off; 1.5 s on; 2.5 s off
3	1.5 s on; 0.5 s off; 0.5 s on; 3.5 s off
4	1.5 s on; 0.5 s off; 0.5 s on; 0.5 s off; 0.5 s on; 2.5 s off
5	1.5 s on; 0.5 s off; 0.5 s on; 0.5 s off; 1.0 s on; 2.0 s off
6	1.0 s on; 0.5 s off; 1.0 s on; 3.5 s off
7	0.5 s on; 0.5 s off; 0.5 s on; 0.5 s off; 1.0 s on; 3.0 s off
8	0.5 s on; 0.5 s off; 1.0 s on; 0.5 s off; 0.5 s on; 3.0 s off
Note 1: Ringing cadences are compliant with specifications but the timings are slightly different because of hardware restrictions. Note 2: Ring code 1 supports alertingOnPattern0Normal. Ring code 6 supports alertingOnPattern1DistinctiveIntergroup. Ring code 7 supports alertingOnPattern2DistinctiveSpecial.	

Distinctive Ringing uses coded ringing. If the called party is a party line, or is served by a peripheral that does not support coded ringing, the

ControllingLegTreatment or PassiveLegTreatment parameter is disregarded and switch-controlled alerting is applied.

If the ControllingLegTreatment or PassiveLegTreatment parameter is present, the corresponding Distinctive Ringing pattern in the DMS switch is applied. This value overrides any switch-based Distinctive Ringing feature, including the following features:

- Distinctive Ringing (DRING)
- CLASS Distinctive Ringing/Call Waiting (DRCW)
- Teen Service
- Teen Service on MDC

The ControllingLegTreatment or PassiveLegTreatment is not applied to the second leg of a 3WC scenario once the conference state is established while the terminator is ringing.

If the terminator is a RES line with Calling Name Delivery (CNAMD) option, the ControllingLegTreatment or PassiveLegTreatment parameter is disregarded and switch-controlled alerting is applied.

AIN Distinctive Ringing does not override BRI ringing patterns.

8.2.22.3 AIN Distinctive Alerting /Call Waiting

If an AIN call terminates to a busy line and call waiting is applicable to that line, a distinctive call waiting tone must be applied if the SCP has sent a ControllingLegTreatment or PassiveLegTreatment parameter. Table 34 shows the relationship between ControllingLegTreatment or PassiveLegTreatment parameter values and the call waiting tone to be applied.

Table 34 Distinctive Alerting and Call Waiting tones

ControllingLegTreatment or PassiveLegTreatment	Tone
alertingOnPattern0Normal	300 ms on
alertingOnPattern1DistinctiveIntergroup	100 ms on; 100 ms off; 100 ms on
alertingOnPattern1DistinctiveSpecial	100 ms on; 100 ms off; 100 ms on; 100 ms off; 100 ms on
Other supported values	300 ms on

For AIN Essentials, AIN Distinctive Alerting feature is applied only for the following ControllingLegTreatment or PassiveLegTreatment values:

- alertingOnPattern0Normal

- alertingOnPattern1DistinctiveIntergroup
- alertingOnPattern2DistinctiveSpecial
- alertingOnPattern4ReminderRing
- alertingOff

Other ControllingLegTreatment or PassiveLegTreatment values are ignored.

In order to have access to tones for alertingOnPattern1DistinctiveIntergroup and alertingOnPattern2DistinctiveSpecial, the user must have the appropriate tone circuits datafilled in table STN. The tones that must be datafilled are CWT, ENHCWT1, and ENHCWT2. The enhanced call waiting package must be present in the office in order to use enhanced call waiting tones. If the requested tone is unavailable for any reason, the normal call waiting tone is used.

Note 1: AIN Distinctive Alerting is not supported for re-alert. Switch-based alerting will be applied during the re-alert irrespective of AIN Distinctive Alerting.

Note 2: If a call providing a ControllingLegTreatment or PassiveLegTreatment parameter is attempted to a busy party with Call Waiting (CWT), the ControllingLegTreatment or PassiveLegTreatment is applied only as a distinctive call waiting tone. If the called party goes on hook before answering the waiting call, then the ControllingLegTreatment or PassiveLegTreatment parameter is no longer applied. Instead, the called party receives normal ringing, or switch-based Distinctive Ringing if necessary, reminding the called party of the presence of an unanswered call.

Note 3: AIN Distinctive Alerting/Call Waiting is not supported for MBS or MFT sets.

Note 4: The ControllingLegTreatment or PassiveLegTreatment is not applied on the second leg of a three-way conference call scenario once the Conference state is established while the terminator is ringing.

AIN Distinctive Alerting and AIN Distinctive Alerting/Call Waiting take precedence over any switch-based Distinctive Ringing or Distinctive Ringing/Call Waiting feature, including the following features:

- Distinctive Ringing (DRING)
- CLASS Distinctive Ringing/Call Waiting (DRCW)
- Teen Service
- Teen Service on MDC

If the terminator is a RES line with CNAMD option, the ControllingLegTreatment or PassiveLegTreatment parameter is disregarded and switch-controlled alerting is applied.

8.2.23 Emergency service features

This section addresses the following emergency service features:

- 911 calls
- Emergency Service Line (ESL)
- Enhanced 911 Emergency Service (E911)

8.2.23.1 911 calls

By dialing 911 or other emergency access numbers, callers can report an emergency to the emergency service bureau (ESB). A call where 911 is dialed is mapped to the Originating Basic Call Model and may trigger at any originating trigger, provided that the trigger criteria are met.

8.2.23.2 Emergency Service Line (ESL)

Emergency service may be assigned to POTS lines; these lines have the Emergency Service Line (ESL) line option.

A line with the ESL option may not subscribe to AIN originating or terminating triggers. Subscription is blocked in Servord.

8.2.23.3 Enhanced 911 Emergency Service (E911)

When originating an E911 call, subscribed originating triggers at the Information Collected TDP in the originating office take precedence over E911 features, unless 911 is datafilled as an escape code. A switch-based E911 feature is activated at the Analyzing Information point in call of the originating BCM.

When placing a call to an E911 public safety answering point (PSAP) agent, there are four possible setups:

- originate through an E911 trunk
- translate through a virtual facility group (VFG) where the E911 selector is datafilled
- encounter E911 during pretranslations through datafilled in table STDPRTCT SUB STDPRT after routing using a public trunk
- set up translations to route E911 calls out over a trunk to another office

Of the first three methods, only the third, routing through table STDPRT, is supported with AIN and would be eligible to encounter AIN triggers. If this method is used, the E911 feature is encountered at the Collecting Information point in call of the originating BCM. Triggers subsequently encountered

would use the digits datafilled in table E911ESN. These digits would correspond to the PSAP to determine whether or not to query.

In the fourth method above, the originating office has the option of using the N11 trigger to provide 911 service functionality. It would also be possible to encounter the AFR trigger if the outgoing route to the next office were busy.

Note: Subscription to Termination Attempt for an E911 public safety answering point (PSAP) agent is not currently supported by AIN Essentials. Also, E911 is not compatible with any CLASS feature.

Refer to 297-1411-350, *E911 Emergency Service*, for details on E911.

8.2.23.4 E911 Ringback

E911 Ringback is only supported over incoming E911 trunks and E911 VFGs. If an E911 trunk is used, then the end-office side must also support ORIGHOLD, ES, and OP trunks. If the subscriber goes on-hook during an E911 call, the connection is not taken down and dialing the Ringback feature access code by the E911 attendant may cause the subscriber's set to be rerung. If the attendant uses Ringback while the subscriber is off-hook, Receiver Off-Hook treatment is applied to the subscriber.

E911 Ringback is not supported over IT trunks.

Since Ringback does not cause a new termination, the Termination Attempt trigger would not be encountered during Ringback.

8.2.24 Feature groups

Calls that return a CalledPartyID parameter with the Nature of Number field set to "950+Call" are treated as 950 calls and are considered InterLATA calls that may route either as FGB or FGD to a carrier.

AIN calls that route either as FGB, FGC, or FGD through MF trunks outpulse an ANI spill based on the ChargeNumber and ChargePartyStationType parameters returned in an AIN response.

8.2.24.1 Feature group A (FGA)

AIN Essentials calls may be routed using the feature group A dial plan. These calls may encounter AIN triggers.

8.2.24.2 Feature group B (FGB)

Feature group B (FGB) allows a subscriber to access a carrier by dialing 1950-XXXX.

FGB calls may encounter any applicable trigger after the InfoCollected TDP and also the Automatic Flexible Routing (AFR) trigger. When encountering triggers at the InfoAnalyzed TDP, the NPA of the line attribute of the

originating agent is used as part of the digit criteria. Calls can encounter the Termination Attempt Trigger and receive a Forward Call response to an FGB carrier. Once triggering has taken place, the call is no longer considered a FGB call.

Other non-FGB calls that trigger may receive an Analyze Route response with CalledPartyId of 950XXXX. This causes the call to be routed to the FGB carrier and, as such, it is now considered an FGB call.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” are translated and proceed through the regular equal access outpulsers as an FGB call to the specified (interim) interexchange carrier (IEC). The call from this point is considered a FGB call and is routed according to FGB EA translations. Any FGB billing records (for example, FGB Origination Billing - call code 134) are generated for the call.

8.2.24.3 Feature group C (FGC)

AIN Essentials calls may be routed using the feature group C dial plan. These calls may encounter AIN triggers.

There are some restrictions; please refer to 297-8003-350, *NA DMS-100 Translations Guide*, for details.

8.2.24.4 Feature group D (FGD)

AIN Essentials calls may be routed using the feature group D dial plan. These calls may encounter AIN triggers.

For an Analyze Route containing a Primary Carrier parameter (other than “0110”), the originating POTS line/trunk must have a valid line/trunk attribute in order to complete equal access calls to that carrier. The same restriction applies in absence of AIN for that POTS line/trunk initiating a FGD equal access call to the same carrier.

Calls originating on a POTS trunk which encounter an AIN trigger and receive a Primary Carrier parameter in a response message will be sent to a treatment, if the originating POTS trunk is not using FGD signaling.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” are translated and proceed through the regular equal access outpulsers as a FGD call to the specified (transitional) IEC. The call from this point is considered a FGD call and is routed according to FGD EA translations.

There are some restrictions; please refer to 297-8003-350, *NA DMS-100 Translations Guide*, for details.

8.2.25 Flash Ignore (FIG)

When Flash Ignore is enabled on a line, flashes from the handset are ignored.

All triggers can be hit when a line has FIG. AIN does not affect the functionality of FIG.

8.2.26 Hold features

This section addresses the following hold features:

- Call Hold
- Key Set Music On Hold (KSMOH)

8.2.26.1 Call Hold

Call Hold is activated by flashing and dialing an access code. Because IBN lines perform call transfers on flashes, if an AIN OffhookImmediate trigger is datafilled against an IBN line with CHD, there will be no opportunity to activate the CHD feature, because the OffHookImmediate trigger occurs before dialtone is obtained.

The CHD feature is activated before the Information Collected PIC and, therefore, the OffhookDelay trigger (or any subsequent triggers) are not hit when placing a call on hold, or when retrieving a call from hold.

8.2.26.2 Key Set Music On Hold (KSMOH)

AIN Triggers and KSMOH do not interact. When a party is placed on hold, and retrieved from hold, no AIN triggers are hit.

8.2.27 Hotline features

This section addresses the following hotline features:

- Automatic Dial (AUD)
- Custom IBN Disconnect Treatment (CDT)
- Manual Line (MAN)

8.2.27.1 Automatic Dial (AUD)

The Automatic Dial feature (AUD) allows a Meridian Business Set (MBS) station user to call a frequently dialed number by pressing the assigned feature key.

All the origination triggers except for OffhookImmediate are hit when calls are made using the AUD button and the calls are able to complete properly.

Calls made with the AUD feature that terminate on agents subscribed to the Termination Attempt Trigger behave properly. The trigger is hit and the calls route as specified.

8.2.27.2 Custom IBN Disconnect Treatment (CDT)

The CDT feature allows the operating company to assign a DISConnect treatment to a Meridian Digital Centrex (MDC) line on an individual directory number (DN) basis.

Calls made from a line assigned the CDT option will route to the assigned CDT treatment upon disconnect except calls that receive a DISConnect response from the SCP after triggering. These calls route to AIND treatment. This is the expected functionality.

8.2.27.3 Manual Line (MAN)

MAN is a line option which stands for Manual Service. It is similar to the Automatic Line (AUL) feature, except that the originator is always connected to the operator.

All originating and terminating triggers are ignored for calls originating from a line having the MAN option. No digits can be collected on such lines. The Termination Attempt Trigger on the MAN line behaves normally and calls can terminate on a MAN line as well as can be forwarded from a MAN line.

8.2.28 Hunt groups

This section addresses the following hunt group types:

- Bridged Night Number (BNN)
- Directory Number Hunt (DNH)
- Distributed Line Hunt (DLH)
- Key Short Hunt (KSH)
- Multiline Hunt (MLH)
- Multiple Position Hunt (MPH)
- Night Service Directory Number (NSDN)
- Stop Hunt SHU)
- Terminating Billing Option - Hunt Groups (TRMBOPT)

The Termination Attempt trigger takes precedence over each of these switch-based hunting variants. However, if the SCP returns an Authorize_Termination response message, the call shall terminate to the hunt group. Each of these hunt group features operate within the Hunting Facility PIC of the Terminating BCM.

8.2.28.1 Bridged Night Number (BNN)

The AINDN option can be assigned to the pilot of a BNN hunt group established as an overlay to other hunt group types. These options cannot be assigned to a BNN that is added as only an option to other hunt group types. If

a BNN is created using the EST (Establish) command in SERVORD, the AINDN option may be added the DN as normal. If the BNN is created using the ABNN (Add BNN) command in SERVORD, the addition of the AINDN is disallowed by SERVORD with an appropriate error message.

The AIN and AINDN options are also disallowed from BNNs that are added (using either method above) from hunt groups where the base agent type is an Electronic Business Set (EBS). The message “Could not read IBNLINES or LENLINES” is issued when the AIN or AINDN option is ADOed.

The TERMATT trigger is encountered when terminating on an ESTed BNN as described above. This TERMATT trigger is distinguished from any AIN option that may be applicable to the base hunt group type of the BNN.

8.2.28.2 Directory Number Hunt (DNH)

For directory number (DN) hunting, each DNH group has its own unique DN. The hunt group can be accessed by dialing any DN in the hunt group, but the number of lines hunted depends on the hunting arrangements (that is, circular or sequential) assigned to the DNH group directory number hunt group.

Circular hunting hunts all lines in the hunt group regardless of the starting point, whereas sequential hunting starts at the number dialed and ends at the last number in the hunt group.

8.2.28.3 Distributed Line Hunt (DLH)

Hunting is sequential over all groups until a line is selected in an available group.

8.2.28.4 Key Short Hunt (KSH)

Keyset users may subscribe to the Key Short Hunt (KSH) feature. This feature allows for calls to hunt from one DN to another on the same set.

8.2.28.5 Multiline Hunt (MLH)

With MLH, only a pilot directory number (DN) is associated with the hunt group, and hunting is done sequentially. Sequential hunting starts at the first line assigned to the pilot DN and ends at the last line.

8.2.28.6 Multiple Position Hunt (MPH)

MPH with queue allows the distribution of calls evenly across multiple non-data-link attendant consoles.

The AIN and AINDN options can be assigned to MPH pilots and members. Trigger/Response processing occurred as expected. AIN functionality operated on these types lines similarly to IBN 2500 set AIN functionality.

The MPH queueing feature interacts properly with the TERMATT trigger. TERMATT is hit and processed properly prior to queuing the call to the MPH

group. That is, the TERMATT trigger occurs first and has precedence over the MPH queuing feature.

8.2.28.7 Night Service Directory Number (NSDN)

The NSDN option allows calls to be rerouted either to a predetermined directory number or to a busy signal when a scan point indicates that no console is attended.

The NSDN feature interacts properly with the AIN Essentials TERMATT trigger. The TERMATT trigger is hit and processed properly prior to checking for and initiating the Night Service DN feature. That is, the TERMATT trigger occurs prior to, and has precedence over, the NSDN feature.

8.2.28.8 Stop Hunt (SHU)

Stop Hunt (SHU) provides for a miscellaneous scan point circuit controlled by an external key.

The SHU feature interacts properly with the AIN Essentials TERMATT trigger. The TERMATT trigger is hit and processed properly prior to checking for and initiating the Stop Hunt feature. That is, the TERMATT trigger occurs prior to and has precedence over the SHU feature.

8.2.28.9 Terminating Billing Option - Hunt Groups (TRMBOPT)

The TRMBOPT option allows an automatic message accounting (AMA) record to be generated for each call that terminates on a member of a hunt group that has TRMBOPT assigned.

The TRMBOPT feature interacts properly with the AIN Essentials TERMATT trigger. The TERMATT trigger is hit and processed properly on hunt group lines with the TRMBOPT option. AMA Call Code 131 is produced when using the TRMBOPT option on hunt group lines with the AINDN option. AIN AMA is unaffected by the presence of the TRMBOPT option. Call Code 131 is merged into the AIN AMA record.

8.2.29 Hunt group overflow routing

This section addresses the following types of hunt group overflow routing:

- line overflow to directory number (LOD)
- line overflow to route (LOR)

If a call is unable to terminate to any member of a hunt group, because all members are busy or unavailable, overflow routing may occur.

Calls that encounter LOD/LOR will not encounter further originating triggers, but may encounter the Termination Attempt TDP. If a LOD/LOR call subsequently encounters the Terminations Attempt trigger then the redirection will not be reflected in the AIN Essentials query message.

8.2.29.1 Line overflow to directory number (LOD)

The LOD feature causes a call to be forwarded to a specified DN when all members of a hunt group are busy.

8.2.29.2 Line overflow to route (LOR)

The LOR feature causes a call to be forwarded to a route when all members of a hunt group are busy.

8.2.30 Intercept features

This section addresses the following intercept feature.

8.2.30.1 Flexible Intercept (FLEXI)

This feature allows for the automatic rerouting of calls that cannot be completed because of equipment, imposed restrictions, or dialing irregularities. Calls are routed to the attendant, a tone, or an announcement.

After the call encounters the OffhookImmediate originating trigger with an Analyze_Route response to a FLEXI number, the call goes to treatment specified by FLEXI. However, after triggering on any other originating trigger, the call is routed to the FLEXI number.

The Termination Attempt Trigger is not encountered when it is an IBN line originating the call. When trying to dial a FLEXI number that has Termination Attempt with an Authorize Termination or Forward Call response, the call fails and the call goes to the treatment specified by FLEXI.

The Termination Attempt Trigger is encountered, however, if a 1FR line or a RES line originates the call. If it is a RES line that is calling a FLEXI number with the Termination Attempt Trigger with a Forward_Call response on it, the Termination Trigger is encountered and the call is forwarded successfully to a third, non-FLEXI DN.

8.2.31 Intercom features

This section addresses the following intercom features:

- Group Intercom (GIC)
- Group Intercom All Call (GIAC)
- MBS Intercom (ICM)
- Single Party Revertive Calling (INT)

8.2.31.1 Group Intercom (GIC)

When making a GIC call, the Termination Attempt trigger may be hit if the following criteria are met:

- AIN is active in the office.

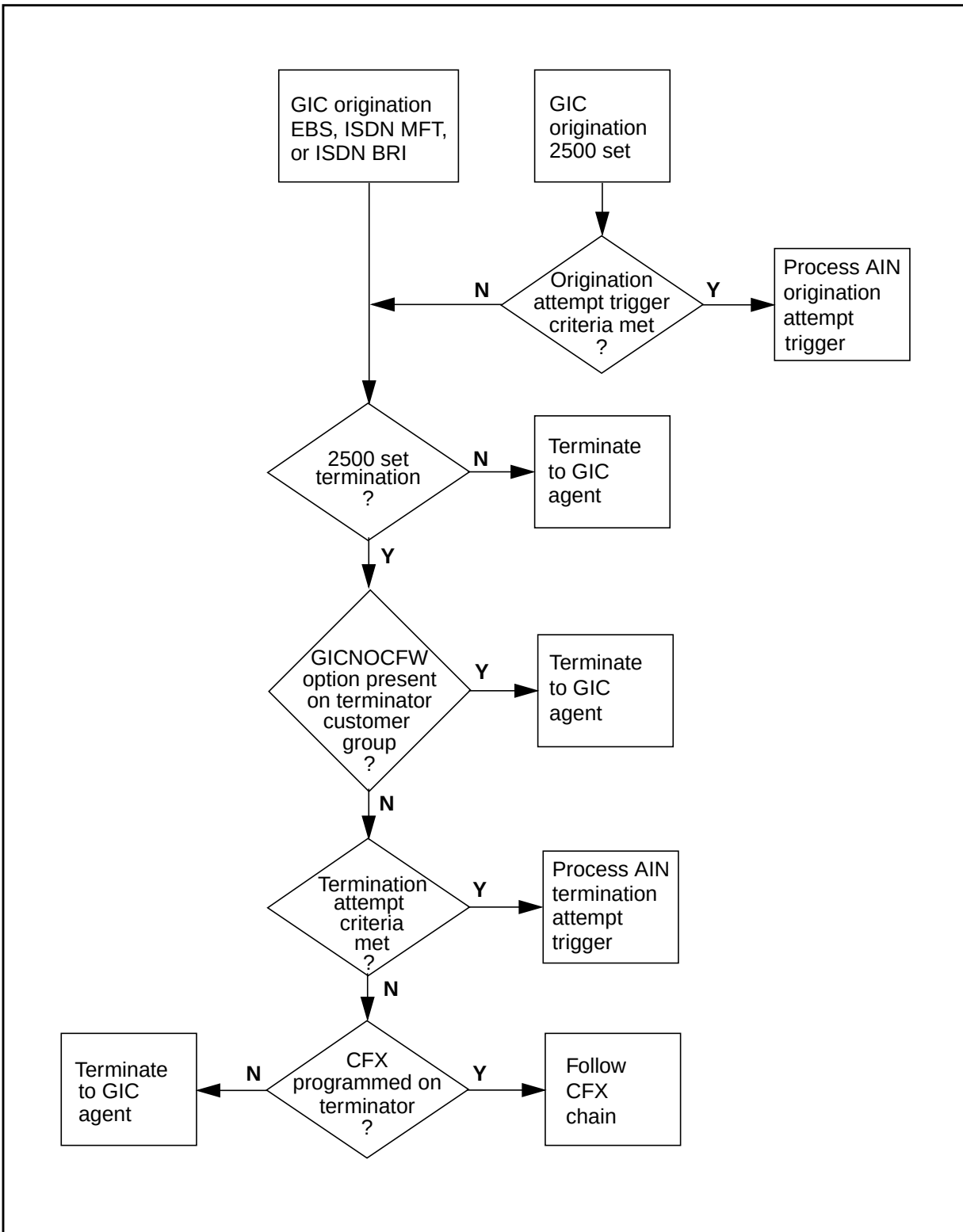
- The terminating GIC agent is a 500/2500 set with Termination Attempt assigned.
- The GICNOCFW option is NOT assigned to the customer group.

No other AIN triggers will be hit on a GIC call originating from a non 500/2500 set. However, if an OffhookImmediate trigger is datafilled against a 500/2500 set with GIC assigned, the OffhookImmediate trigger will take precedence.

If a Forward_Call response is received from a GIC terminating agent, the call leaves the GIC environment, and is able to encounter the Information Analyzed, Network Busy and, Termination Attempt TDPs as a normal call would.

Figure 7 illustrates this GIC interaction.

Figure 7 GIC interactions with AIN



8.2.31.2 Group Intercom All Call (GIAC)

GIAC will not hit any AIN triggers.

8.2.31.3 MBS Intercom (ICM)

Originating and Terminating Call Model TDPs are not hit on ICM calls.

8.2.31.4 Single Party Revertive Calling (INT)

INT takes place in the Terminating Call Model, after the Termination Attempt TDP. Therefore all originating and terminating triggers query properly as INT is not involved.

INT processing is encountered while processing the response from the AIN SCP (either Analyze_Route, Forward_Call, Continue, or Authorize_Termination). If INT is being activated (that is, if the response directs the call to the same line as the originator) following an Analyze_Route or Forward_Call response, the call is sent to FNAL treatment. Authorize_Termination and Continue responses do not affect the functionality of INT.

Note: If a Continue response follows an Analyze_Route or Forward_Call response, FNAL treatment will not be encountered, and the call will terminate properly.

8.2.32 Last Number Redial (LNR) features

If a caller activates last number redial, the dialed digits from the last call originated on that telephone are used. Last number redial calls may subsequently encounter triggers at the Information Collected, Network Busy, or Termination Attempt TDPs. LNR can encounter triggers at the Information Analyzed TDP.

8.2.33 Local Coin Overtime (LCO)

The Local Coin Overtime (LCO) feature allows calls originated by coin lines to be timed. When the allotted time expires, an announcement is played to prompt the caller for more money.

For calls from coin lines that trigger at the Termination Attempt trigger, the Local Coin Overtime timer does not begin until the call actually terminates. If a Send_to_Resource response is returned from the SCP instructing the SSP to play an announcement, the time taken to play the announcement is not included in the time allotted by the LCO feature.

For calls from coin lines that terminate on a trunk, the LCO timer begins when the first indication of answer or termination at the far end is received at the switch serving the coin line. If an AnswerIndicator parameter is received in a Send_to_Resource response from the SCP, then the answer indicator is propagated back to the switch serving the coin line causing the LCO timer to

start. If the LCO timer expires before the AIN announcement is finished playing, the LCO announcement and the AIN announcement will overlap.

Note: If the LCO timer and AIN announcement overlap, the LCO feature will never be encountered.

If the AnswerIndicator parameter is not present in a Send_to_Resource response from the SCP, the LCO timer starts when the call terminates. This behavior is consistent with line to line calls involving LCO.

8.2.34 Long Distance Signal (LDS)/Toll Alert (LDA)

The Long Distance Signal (LDS) feature provides end users with an indication of an incoming toll call by providing distinctive ringing or distinctive call waiting tones to the called line.

LDS is encountered in the terminating call model after Termination Attempt. Therefore, it is possible for a call terminating to an LDS subscriber to have previously encountered AIN triggers in the originating or terminating call model.

LDS Toll detection is determined using the CLID information. Any call encountering AIN trigger detection points may receive a response containing a new CLID substituted for the old one. In this case, the LDS performs long-distance verification based on the new CLID. AIN Distinctive Ringing Alerting and AIN Distinctive Call Waiting tones take precedence over the LDS and any switch-based ringing or call waiting tones. If the AIN off-board processor provides a ControllingLegTreatment parameter, it takes precedence.

For more information on AIN Distinctive Alerting, please refer to Section 8.2.22.3 “AIN Distinctive Alerting /Call Waiting” on page 174.

8.2.35 Long Distance Alert Enhancement (LDAE)

LDAE enhances the Long Distance Signal (LDS) feature by introducing the following functionalities:

- ability to provide LDA as a separate ring or tone line option

Note: This is the only Software Optionality Controlled (SOC) part of LDAE.

- ability to specify the duration of the time-out for call-waited calls
- ability to specify whether distinctive alerting is provided when no Calling Line ID (CLID) is delivered.

Any call that encounters AIN trigger detection points and needs to query an SCP may interact with LDA. If the SCP response contains a new originating CLID substituted for the old one, the LDA performs long distance verification

based on the SCP supplied CLID. AIN features may also decide to provide distinctive alerting (ringing and tones) different than that provided by LDA. In this event AIN distinctive tone/ringing alerting has precedence over LDA distinctive tone/ringing alerting.

For more information see Section 8.2.34.

8.2.36 Messaging features

This section addresses the following types of messaging features:

- Call Screening/Monitoring Intercept (CSMI)
- Executive Message Waiting (EMW)
- FAX-Thru Service (FTS)
- Selective Call Messaging (SCM)
- Station Message Waiting (MWT)
- Special Delivery Service (SDS)
- Universal Voice Messaging (UVM)

8.2.36.1 Call Screening/Monitoring Intercept (CSMI)

The CSMI feature provides subscribers of a Network Based Answering Service (NBAS) with a means of monitoring and intercepting calls that are being handled by the NBAS. The goal of the feature is to enhance the functionality of the NBAS to bring it closer to the functionality that is currently provided with a Telephone Answering Device (TAD).

The CSMI subscriber monitors a forwarded call by going off-hook after receiving a ring splash. As such, the CSMI feature takes precedence over the AIN OffHook Immediate trigger. Similarly, in the pay-per-use CSMI feature where the CSMI user monitors a forwarded call by going off-hook and dialing an access code, the CSMI feature also takes precedence over the AIN OffHook Immediate trigger.

CSMI cannot be used with calls that are forwarded by AIN.

8.2.36.2 Executive Message Waiting (EMW)

Executive Message Waiting consists of three features, they are

- Message Service - Message-List Editing
- Message Service - Leave Message
- Call Request Enhancement

Together, these three features enable end users to leave and retrieve messages at a MBS with display.

All originating triggers can be hit with EMW when it is the original calling party that is subscribed to the triggers. When it is the called party that is subscribed to the triggers, the originating triggers are not hit when the EMW button is pressed to return calls. Messages can be left and returned properly in all cases. AIN does not affect the functionality of EMW.

If the CallingPartyId sent in an SCP response is different from the originating party DN, then the CallingPartyId is displayed when the phone is ringing. Once the message has been left using EMW, then it is the actual originating party's DN that is shown upon pressing the EMW key to return the call. It is to this DN that the call is routed to when the EMW key is used to return the call.

If all three parties have EMW when a Forward_Call is used, then AIN does not affect the functionality of EMW. A caller cannot leave a message for a party that does not have EMW. If party A calls party B and the call is forwarded to party C, it is party C that receives the EMW message left by party A. If the CallingPartyId sent in an SCP response after a Forward_Call is different from the originating party DN, it has no effect on what is displayed in the EMW scenarios. The original calling party's DN is displayed using the EMW button and it is to this DN that the call is routed to when using the EMW button to return the call.

The following limitations and restrictions apply to EMW:

- A message cannot be left in the following scenario: A and C, both with EMW, are in the same customer group. B is in another customer group or is a POTS line. B is subscribed to the Termination Attempt Trigger with a Forward_Call response routing to C. A calls B, gets routed to C, and cannot leave a message.
- The Termination Attempt Trigger will not be encountered when an EMW call is returned. That is, if a party subscribed to the AIN Termination Attempt Trigger calls and leaves a message using EMW, the call cannot be returned using EMW. The AIN Termination Attempt Trigger will not be encountered and the call will be routed to BUSY treatment. CallRequestRetrieval does not interact with the Termination Attempt Trigger.

8.2.36.3 FAX-Thru Service (FTS)

The DMS-100 FAX-Thru Service (FTS) feature is a Special Delivery Service (SDS) enhancement which upon detection of a busy or no-answer condition allows routing of a FAX call to a FAX Messaging Platform (FMP). Please refer to section Section 8.2.36.6 "Special Delivery Service (SDS)" on page 190 for interactions with AIN.

8.2.36.4 In-Session Activation (ISA)

The In-Session Activation (ISA) feature provides callers with a convenient means of accessing a call completion service during unsuccessful call

attempts. Unsuccessful calls are those that are not answered within an operating company's selectable time limit or those that encounter a busy condition.

Throughout this section the following terminology is used:

- **original call** - this is the call made by the caller dialing the called party. AIN may be encountered via an originating or terminating trigger prior to ISA activation.
- **ISA call** - this is the call to the DN specified in table ISAMENU when the selector is set to ROUTDN after the caller has entered a valid entry.

The AIN response information always overrides any default call information. The same applies to the call information specified in table SPINFO when an ISA call is initiated. If an AIN trigger has been encountered after ISA, then the AIN response information overrides previous information provided by ISA. If an ISA call occurs after an AIN trigger has been encountered then the ISA information overrides previous information from the AIN response.

On the original call, ISA has a special interaction with the Termination Attempt trigger. When the trigger is hit, ISA only starts if the response is not to redirect the call to another DN. However, if the call is inter-office, ISA starts in all cases as the originating office does not know about the AIN interaction in the terminating office.

8.2.36.5 Selective Call Messaging (SCM)

The SCM service is an enhancement to the existing Special Delivery Service (SDS). The following functionality is provided under this feature;

SCM allows the telco to optionally offer a message delivery service with universal subscription. A "deny" option is already available on a per-line basis and will be provided on a per-customer group basis. Please refer to Section 8.2.36.6 for interactions with AIN.

8.2.36.6 Special Delivery Service (SDS)

Special Delivery Service (SDS) is a feature that provides the caller with the option to invoke message delivery when the called party is busy or does not answer within an office-defined interval. The service is offered only to the subscribed originator and is requested directly from the End Office (EO) where the call is originating. The actual voice message delivery is then offered from a Voice Message System (VMS) attached to the telephone company's (telco) network.

When the call is not answered within the office-defined interval, an SDS ringing/no-answer announcement is played to inform the calling party that the SDS service is available. The originating switch maintains connection with the

called party during the SDS ringing/no-answer announcement. The caller can accept the SDS service by pressing the SDS acceptance key.

On the portion of the call up to and including termination to the party originally called by the SDS subscriber, any AIN Essentials trigger may be encountered. On the portion of the call which routes the SDS subscriber to the VMS DN, the only triggers which can be encountered are the Termination Attempt and the 3- to 10-digit Public Office Dialing Plan (PODP) triggers, subscribed by the VMS DN.

SDS sets the OriginalCalledID to the called party number, which is used to populate the RedirectingPartyID parameter in the AIN Essentials query messages, and the OriginalRedirectionReason to either user_busy or user_no_reply. These parameters are propagated through SMDI, ISUP, and PRI.

For outpulsing over ISUP, PRI trunks, or SMDI links, the party dialed by the SDS subscriber always appears as the first redirection. In this case, the party which the SDS subscriber originally dialed is provided as the first redirection in the query message.

8.2.36.7 Station Message Waiting (MWT)

The Station Message Waiting feature provides notification to users that a message has been queued against their directory number (DN). The feature permits a user to dial an access code to call back the station user or attendant who activated the station message waiting feature against their DN. This feature also allows the station user to activate station message waiting on another station.

All the originating triggers work properly with MWT and CMWI. Callers that hit the originating triggers can leave a message for the Called Party using the MWT code and these calls can be successfully returned using MWT.

Calls made to an MWT line that is subscribed to the Termination Attempt Trigger with an Authorize_Termination response work properly. Messages can be both left and returned using MWT.

A message cannot be left in the following scenario: A and C, both with MWT, are in the same customer group. B is in another customer group or is a POTS line. B is subscribed to the Termination Attempt Trigger with a Forward_Call response routing to C. A calls B, gets routed to C, and cannot leave a message.

8.2.36.8 Universal Voice Messaging (UVM)

Universal Voice Messaging (UVM) is a voice messaging service offered universally to residential and small business end users through simplified dialing. The service is intended to be universal for several types of originating

and terminating residential and business customers within an operating company's network.

A UVM subscriber may invoke UVM after a call is made which is busy or unanswered.

The UVM service is implemented in the end-office as two features: UVM Deposit and UVM Retrieve. The features are invoked by the end user by dialing “*XX” feature activation codes after going off-hook.

The UVM Deposit feature allows a caller to leave a message for a party of a previously dialed number even when the message recipient is not a subscriber to a Voice Message System (VMS). The UVM Retrieve feature allows the message recipient parties to retrieve messages from their lines.

The UVM features route calls to the VMS connected to the end-office through an UCD/SMDI link or a PRI link. For UVM Deposit, the interface allows the delivery of the calling party and the original called number to the VMS while for UVM Retrieval it provides the calling party with a special billing DN as the forwarded number.

The call to the previously dialed party may encounter any AIN trigger. The UVM call may encounter only the following triggers:

- Public Office Dial Plan (PODP), using the VMS DN
- Automatic Flexible Routing (AFR), while routing to the VMS
- Termination Attempt (TERMATT), if subscribed by the VMS DN

The OffHook Delay trigger is not encountered on the UVM call.

For UVM Deposit, if the DN of the previously dialed party exists in the Outgoing Call Memory block, it is used to populate the RedirectingPartyID parameter of AIN Essentials query messages. In cases where it does not exist (that is, UVM subscriber is a Residential coin line), the VMS DN is used to populate the RedirectingPartyID parameter.

In the case of UVM Retrieve, the special Billing Number will be used to populate the RedirectingPartyID parameter of the AIN Essentials query message. For outpulsing over ISUP, PRI trunks, or SMDI links, the UVM previously dialed party always appears as the first redirection.

8.2.37 Monitor resources feature

For information on this feature, please refer to Chapter 54.: “Monitor resources feature” on page 885.

8.2.38 Multiple Appearance Directory Number (MADN) features

AIN provides support for MADN SCA, MCA, and EXB lines, enabling MADN originating and terminating calls to interwork with AIN. All triggers and responses are supported.

Support for subscription of MADN lines to the AIN option is provided through tables IBNFEAT or KSETFEAT, while subscription to the AINDN option is provided through table DNFEAT.

Since a MADN group may have many members, the MADN is datafilled in table DNATTRS as being non-unique. As a result, a MADN origination is identified as a non-unique national number in the Nature of Number field of the CallingPartyID parameter in the AIN Essentials query message. A MADN termination is identified as a non-unique national number in the Nature of Number field of the OriginalCalledPartyID or RedirectingPartyID parameter.

Note: AIN CallingPartyID is not supported on MADN SCA or MCA. However, it is supported on MADN EXB.

The TRAVER tool will only show AIN Off-Hook Immediate and Off-Hook Delay triggers on a MADN line when AIN is assigned to the primary LEN or LTID.

Refer to Display features for details on the impact of Multiple Appearance Directory Number (MADN).

8.2.38.1 Electronic Key Telephone Service Hold (EKTS Hold)

EKTS is a set of services for ISDN voice terminals on a basic rate interface (BRI). EKTS provides shared DNs and multiple call appearances (MADN SCA) on these DNs.

A call routed via AIN will be able to be placed on hold.

No AIN Essentials triggers are encountered when placing a call on hold or when releasing a held call.

8.2.38.2 Executive Busy Override on MADN (EBOM)

EBOM allows a caller with the EBO feature to barge in on a call involving MADN SCA or MCA, provided the calling and called party are in the same customer group.

A call made from a line with the EBOM option to a MADN encounters all applicable AIN Essentials triggers.

EBOM is permitted with private translations only. EBOM is not permitted when an AIN call terminates to a talking party via Analyze Route or Forward

Call Responses since these responses provide the SSP with public 10-digit numbers. EBOM is not permitted if PODP is encountered.

8.2.38.3 MADN Hold

MADN Hold is the default call hold capability for MADN groups.

A call routed via AIN will be able to be placed on hold.

No AIN Essentials triggers are encountered when placing a call on hold or when releasing a held call.

8.2.38.4 MADN Lamp (MLAMP)

Option MLAMP is recommended for MADN groups that need to know when a call is bridged or on hold and thus available to other MADN group members. When a call is not bridged and the MADN group member invokes autohold, the lamp winks, indicating that the call is on hold and any MADN group member can pick up the call.

All applicable triggers are hit when originating from or terminating to a MADN group with the MLAMP option.

8.2.38.5 MADN Privacy (PRV) and Privacy Release (PRL)

PRV is a feature that applies to all SCA lines that have bridging capability and an initial privacy status of NONPRIVATE. This feature generally applies to MADN EXB.

PRL is a feature that applies to all SCA lines that have bridging capability and an initial privacy status of PRIVATE.

Calls terminating to a MADN group with PRV/PRL option will encounter the AIN Essentials Termination Attempt trigger assigned to the MADN.

No triggers are hit when activating PRV/PRL.

No AIN Essentials triggers are encountered when bridging into a call.

8.2.38.6 MADN Release (MREL)

In a typical MADN SCA call scenario, multiple MADN members are involved in a bridged call with an external party. When the external party disconnects, the MADN members remain in a bridged call. MREL changes this functionality such that when the external party disconnects, the bridge is taken down and the MADN members are automatically disconnected.

Calls to or from a MADN with MREL will encounter all applicable triggers.

8.2.38.7 MADN Ring Forward (MRF)

MRF provides more ringing options to an SCA MADN group. Its purpose is to assure users of thorough telephone-answering coverage.

Calls to or from a MADN with MRF will encounter all applicable triggers.

If an AIN call terminates to a MADN group with MRF and a Controlling or Passive Leg treatment has been received with a distinctive ringing pattern, then this pattern will be applied to the MADN sets, but will not override BRI ringing patterns.

8.2.38.8 Secondary MADN Call Forwarding (CFMDN)

CFMDN enables secondary members of a MADN group to activate/deactivate Call Forwarding (CFW) from their sets. When this feature is activated by any member, the entire key list of the primary MADN member is forwarded to the specified directory number.

Call Forward Validation provides a means of verifying that a DN has been successfully forwarded when Call Forwarding is activated

If termination validation is specified for the customer group, then when a secondary member activates CFMDN, a call is attempted to the forwarded-to DN. In this case, originating AIN Essentials triggers assigned to the secondary are encountered when attempting to validate the call.

8.2.39 No Double Connect (NDC)

The NDC option prevents a line from being connected to a verification, test circuit, or a conference circuit when it is off-hook.

All Originating triggers can be encountered. They do not affect the functionality of NDC.

The Termination Attempt Trigger can be encountered on lines having NDC and Termination Attempt takes precedence over NDC.

8.2.40 Operations, administration and maintenance (OA&M) features

This section addresses the following OA&M features.

8.2.40.1 Customer Data Change (CDC)

The CDC feature allows the operating company to allow end user access to certain DMS table data.

CDC functionality is allowed for both AIN table datafill and AIN SERVORD commands. Tables TRIGINFO, TRIGGRP, TRIGESC, TRIGDIG, and TRGSIESC are accessible to CDC users, given the proper privilege class permissions. The trigger tables are not part of the Partitioned Table Editor

(PTE). That is, if a CDC user has access to the table, then that user has access to all of the tuples within the table.

DN/LEN ownership is enforced for CDC users when adding, changing, or deleting the AIN or AINDN line options.

8.2.41 Primary Carrier

At the Offhook Immediate trigger detection point the PrimaryCarrier parameter for an inter-LATA or intra-LATA call is populated in the AIN query to the SCP with the primary inter-LATA carrier. This applies for both POTS and IBN originated calls. If no inter-LATA carrier is subscribed to by the user, then the office default inter-LATA carrier will be used.

At the Offhook Delay trigger detection points the PrimaryCarrier parameter for an inter-LATA or intra-LATA call is populated in the AIN query to the SCP with the user dialed inter-LATA carrier identification code. This applies to both POTS and IBN originated calls. If no carrier is dialed, then the user's primary inter-LATA carrier will be used.

At the SharedInterOffice trigger, the local exchange carrier (LEC) will be used to populate the PrimaryCarrier. The LEC will also be used at the N11 trigger to populate the PrimaryCarrier if the user does not specify a carrier by casual dialing. Otherwise, the carrier access code (CAC) will be populated as the PrimaryCarrier.

When a PODP Feature Code is dialed, the PrimaryCarrier parameter will only be sent if a carrier is specified using 10XXX or 101XXXX during subsequent digit collection. Neither PIC nor LPIC will ever be used to populate the PrimaryCarrier.

At the CDP trigger, the LEC is always used to populate the PrimaryCarrier except when the call triggers on a public network access code and the caller initiates an IEC call. In this case, the PrimaryCarrier is populated with the carrier which usually services the call.

If the AFR trigger is hit on a private route, LEC will always be used to populate the PrimaryCarrier. For public-trunk-originating calls hitting AFR, the PrimaryCarrier will only be populated for FGD signaling calls with the carrier it was using before the call processing arrived at the AFR trigger. Otherwise, the LEC will be used to populate the PrimaryCarrier.

For the PIC and LPIC features, if a call should be routed over an office default carrier, and no office default carrier exists, then the call will be sent to treatment as determined by the office parameter DEFAULT_CARRIER_OR_TREAT.

The PrimaryCarrier parameter is populated in the AIN query message at the Information Analyzed trigger detection point, and is not populated in the query message at the Termination Attempt trigger detection point. AIN handling of the PrimaryCarrier parameter at the Information Analyzed trigger detection point is discussed in Section 8.2.41.3 and Section 8.2.41.4.

8.2.41.1 Subsequent Call Routing

Following a Continue response from the SCP, the PrimaryCarrier is determined at the Analyze Information Point-In-Call before any triggers can be used in the call. This applies for both the IEC and the LEC.

Following an Analyze_Route or Forward_Call response from the SCP processing a call originating from a line or private trunk, the carrier(s) specified in the SCP response will attempt to carry the call. However, if the carrier identified by the SCP cannot handle that particular call, then the call will be routed to treatment. For example, if the CalledPartyID corresponds to an INTRALATA call but the carrier supplied is an INTERLATA-only carrier or vice versa.

8.2.41.2 Billing records

For line or private-trunk originating calls, a billing record with callcode 110 will be generated whether or not an AMASLPID is specified by the SCP. However, note that for the PODP trigger, if a user dials a Carrier Access Code (CAC) and the call triggers on the digits 10XXX + 10 digits, where the 10 digits matches a PODP triggering pattern and the SCP response specifies another carrier, two 110 records may be generated since there is a requirement for the PODP trigger to generate billing records as two different call legs.

For public-trunk originated calls, billing records with callcode 110 will only be generated when an AMASLPID is included in the response.

8.2.41.3 Primary Inter-LATA Carrier (PIC)

The Primary Inter-LATA Carrier (PIC) feature allows subscribers to specify the preferred carrier for handling interLATA calls as well as whether or not casual dialing (for example 10XXX+) to other carriers is permitted.

For PIC, Table 35 illustrates the PrimaryCarrier parameter population at the Information Analyzed trigger detection point for query processing of Inter-LATA calls.

Table 35 PrimaryCarrier parameter population (inter-LATA)

Call type (inter-LATA/local)	User presubscription status (yes/no/irrelevant)	User dialed inter-LATA carrier (yes/no)	Carrier population
local	irrelevant	no	local exchange carrier
inter-LATA	yes	no	Primary Inter-LATA Carrier
inter-LATA	no	no	office default carrier
inter-LATA	irrelevant	yes	user dialed carrier

Table 36 illustrates the functionality of the use of the default carrier digit with AIN response processing for inter-LATA calls.

Table 36 Response processing of carrier (inter-LATA)

Call type (inter-LATA/local)	User-input carrier (INTER/INTRA/none)	User presubscription status (yes/no/irrelevant)	Carrier used
local	irrelevant	irrelevant	none
inter-LATA	none	yes	user's primary inter-LATA carrier
inter-LATA	none	no	office default carrier (Note)
inter-LATA	inter	irrelevant	user-specified carrier
inter-LATA	intra	yes	user's primary inter-LATA carrier
inter-LATA	intra	no	office default carrier
Note: office default carrier is defined in tuple Default_Carrier_Or_Treat under table OFCENG			

The carrier access code dialed by the user or the carrier information, if it was received on a previous database response, is discarded when an Analyze_Route response is received from the database.

Note: This functionality may cause looping to occur at the Automatic Flexible Routing (AFR) trigger. That is, if the call is inter-LATA and all the ATC or IT trunks for that primary inter-LATA carrier are busy, then the call will encounter the AFR trigger, if subscribed to. If the SCP sends an Analyze Route response without specifying any RouteID or Carrier, then the call may try the same ATC trunk group again and encounter AFR again. This looping will go on until the maximum number of serial triggers is reached. The call will then be sent to AINF treatment.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” are considered InterLATA calls to the interexchange carriers.

950 calls are not affected by the PIC feature and are allowed to complete to the specified carrier independent of the PIC carrier and casual dialing restrictions.

8.2.41.4 Primary Intra-LATA Carrier (LPIC)

For Primary Intra-LATA Carrier (LPIC) Table 37 illustrates the PrimaryCarrier parameter population at the Information Analyzed trigger detection point for query processing of intra-LATA calls.

Table 37 PrimaryCarrier parameter population (intra-LATA)

Call type (intra-LATA/local)	User presubscription status (yes/no/irrelevant)	User dialed intra-LATA carrier (yes/no)	Carrier population
local	irrelevant	no	local exchange carrier
intra-LATA	yes	no	primary intra-LATA carrier
intra-LATA	no	yes	user dialed carrier
intra-LATA	no	no	local exchange carrier

Table 38 illustrates the functionality of the use of the default carrier digit with AIN response processing for intra-LATA calls.

Table 38 Response processing of carrier (intra-LATA)

Call type (intra-LATA/local)	User-input carrier (inter/intra/none)	User presubscription status (yes/no/irrelevant)	Carrier used
local	irrelevant	irrelevant	none
intra-LATA	none	yes	user's primary intra-LATA carrier
intra-LATA	none	no	local exchange carrier
intra-LATA	inter	yes	user's primary intra-LATA carrier
intra-LATA	inter	no	local exchange carrier
intra-LATA	intra	irrelevant	user-specified carrier

The carrier access code dialed by the user or the carrier information, if it was received on a previous database response, is discarded when the Analyze_Route response is received from the database.

Note: This functionality may cause looping to occur at the Automatic Flexible Routing (AFR) trigger. That is, if the call is intra-LATA and all the ATC or IT trunks for that carrier are busy, then the call will encounter the AFR trigger, if subscribed to. If the SCP sends an Analyze Route response without specifying any RouteID or Carrier, then the call may try the same ATC or IT trunk group again and encounter AFR again. This looping will go on until the maximum number of serial triggers is reached. The call will then be sent to AINF treatment.

8.2.42 Restrictions to dialing privileges

This section addresses the following features:

- Authorization Codes
- Authorization Code Immediate Dialing (ACID)
- Code Restriction (CRL)
- Station Specific Authorization Codes (SSAC)
- Station Origination Restrictions (SOR)
- Suspend / Request Suspension (SUS/RSUS)

8.2.42.1 Authorization Codes

Authorization Codes are collected during the CollectingInformation PIC, before triggers at the InformationCollected or Information_Analyzed TDPs are encountered.

The digits of the Authorization Code are not sent to the SCP. AIN Essentials' trigger criteria checking is accomplished using the Called_Party DN that is dialed, and not the Authorization Code dialed.

Once the call progresses to a stable talking state, the user is able to flash and dial the feature access code (FAC) for the Authorization Code First (Voluntary) feature without any triggering occurring.

If the OFFHKIMM trigger is assigned to a line that also is assigned the Authorization Code feature, then the Authorization Code feature will be bypassed for any originations from this line. This includes Authorization Codes First features, as the origination of a new call, or a hook flash from a call in the talking state will result in the OFFHKIMM trigger to be hit.

When the Authorization Code feature user goes off-hook to originate a call, and then dials the switch-based feature access code (FAC) that corresponds to the activation of Authorization Codes First feature, the call will escape the OFFHKDEL trigger. After the user enters in the Authorization Code, and then the called number, the OFFHKDEL trigger will be encountered, if applicable to this call.

When the Authorization Code feature user flashes during an active call, and then dials the switch-based feature access code (FAC) that corresponds to the activation of Authorization Codes First feature, the call will escape the OFFHKDEL trigger. After the user enters in the Authorization Code, the OFFHKDEL trigger is not encountered. The user may then hookflash back to the active call.

The previous two paragraphs also apply for the PODP, N11, and CDP triggers and PODPFEAT.

If an OFFHKDEL subscriber makes a call with the Authorization Code First voluntary feature and the call hits the OFFHKDEL trigger with an Analyze_Route response returned from the SCP, the “CLD NO” field in the SMDR record (if applicable) will have the digits contained in the CalledPartyID response parameter.

When the Authorization Code Last (ACR) feature user dials a number, the OFFHKDEL trigger is not encountered until after the Authorization Code has been collected. This also applies for the PODP, N11, and CDP triggers.

If an OFFHKDEL subscriber makes a call with the ACR feature and the call hits the OFFHKDEL trigger with an Analyze_Route response returned from the SCP, the “CLD NO” field in the SMDR record (if applicable) will contain the user dialed digits.

When the Authorization Code Last (ACR) feature user dials a number, the PODPFEAT trigger does not apply. The trigger will not occur, since the user dialed a regular number. If the Authorization Code Last (ACR) feature user dials a PODP Feature Code, the PODPFEAT trigger will be encountered, and **no** Authorization Codes will be collected.

8.2.42.2 Authorization Code Immediate Dialing (ACID)

The Authorization Code Immediate Dialing (ACID) feature removes the seven second pause between the input of Authorization Codes and second dial tone. When an IBN subscriber dials a correct Authorization Code, including the correct security digits, the ACID feature assumes that no more Authorization Code digits are to be dialed. It then proceeds immediately to the next stage of call processing without waiting for an octothorpe (#) or interdigit time-out.

Please refer to section Section 8.2.42.1 “Authorization Codes” on page 200 for information addressing the interaction with AIN Essentials.

8.2.42.3 Code Restriction (CRL)

The code restriction feature denies or allows selected station lines and network access trunks the ability to complete outgoing exchange network calls based on the dialing pattern. The restricted calls are routed to the attendant, an announcement, or a tone on an individual end user basis.

Any DN that is blocked for the customer group through CRL will not be blocked if a call is routed to that DN by an Analyze Route or Forward Call response.

If the Blocked DN is dialed, the call will not trigger on any triggers and the appropriate treatment will be applied. In this case, the TRAVER tool shows that the call should trigger even though it does not.

8.2.42.4 Station Origination Restrictions (SOR)

The Station Origination Restrictions (SOR) feature determines if the call should be restricted by SOR.

SOR restrictions fall into one of the following four categories:

- calls permitted based on NCOS
- only intragroup calls or calls on an exception list are allowed
- only calls on the exception list are allowed
- no calls are allowed

SOR is checked at the Analyzing_Information PIC (Point In Call) of the AIN 0.1 call model.

Table 39 describes how SOR and AIN Essentials interact.

Table 39 SOR and AIN Essentials response processing interactions

Level	Incoming bearer capability	AIN response processing
0	All calls permitted by the NCOS are allowed	Same
1	Intragroup calls and calls on an on exception list are allowed	Only calls on an exception list are allowed
2	Only intragroup calls are allowed	No calls are allowed
3	Only calls on an exception list are allowed	Same
4	No calls are allowed	Same
Note: SOR is not encountered if the call is forwarded by switch-based call forwarding or by AIN Essentials Forward_Call response from an SCP		

8.2.42.5 Station Specific Authorization Codes (SSAC)

Station Specific Authorization Codes (SSAC) provides the capability of limiting Authorization Code use to a specific station. This restriction increases security since the Authorization Code is linked to the individual's station, and cannot be used from just any location.

Please refer to Section 8.2.42.1 “Authorization Codes” on page 200 for information addressing the interaction with AIN Essentials.

8.2.42.6 Suspend / Request Suspension (SUS/RSUS)

This feature is assigned to a DN appearance when the customer requests suspension of service. If SUS/RSUS is assigned, it is possible to specify the treatments received by calls that originate from and terminate to the customer line.

No digits can be collected on a line having SUS/RSUS, but the OffHkImmediate trigger does get encountered when an SUS/RSUS line goes offhook. Calls cannot terminate on a line having SUS/RSUS. If a line has SUS/RSUS and Termination Attempt, Authorize_Termination will not terminate on the line. However if the response is Forward_Call, then the trigger will be encountered and the call will be forwarded.

Note: Lines with the RSUS feature must have ORSS datafilled as the originating treatment in order to encounter the OFFHKIMM trigger. Otherwise, the call is routed to the treatment specified.

8.2.43 Ring Again features

This section addresses the following Ring Again features:

- Call Back Queuing (CBQ)
- Nodal Ring Again (RAG)
- Network Ring Again (NRAG)

8.2.43.1 Call Back Queuing (CBQ)

If a user attempts to invoke Call Back Queuing on a call that has received an Analyze_Route message or a Forward_Call message as a response to query, the attempt to invoke CBQ is disallowed.

8.2.43.2 Nodal Ring Again (RAG)

If a user attempts to invoke Nodal Ring Again on a call that has received an Analyze Route message or a Forward_Call message as a response to a query, the attempt to invoke RAG is disallowed.

8.2.43.3 Network Ring Again (NRAG)

If the user attempts to invoke Network Ring Again on a call that has received an Analyze_Route or a Forward_Call message in the same office as the originator, the attempt to invoke NRAG will be disallowed. If the call is sent over a PRI looparound trunk before receiving the Analyze_Route or Forward_Call message, the attempt to invoke NRAG will also be disallowed.

8.2.44 Routing features

This section addresses the following routing features:

- Expensive Route Warning Tone (ERWT)
- International Direct Distance Dialing via Automatic Route Selection (IDDD via ARS)
- Time of Day Routing (TOD)

8.2.44.1 Expensive Route Warning Tone (ERWT)

ERWT is given when all of the following conditions are met:

- a route marked as expensive in a route list is chosen by automatic route selection (ARS)
- the call has never been queued
- the end user's NCOS and customer group data are set to receive ERWT

ERWT is not heard after the call has triggered. AFR can be part of the ERWT route list, so when all the previous routes are busy, AFR will be hit and ERWT will be heard.

8.2.44.2 International Direct Distance Dialing via Automatic Route Selection (IDDD via ARS)

It is possible to trigger on the CustomizedDialPlan (CDP) (Access Code) trigger with a Continue response. In this case, the call will continue and will use the customer group's IDDD via ARS translations.

An IDD via ARS call can encounter CDP (Custom Access) and Automatic Flexible Routing (AFR) triggers. The TRAVER for the CDP trigger does not show triggering in the trace section.

Since IDDD via ARS goes out through a trunk, as long as the trunk can hit Termination Attempt Trigger, the call can trigger on Termination Attempt.

It is also possible to trigger with a response to output the number through the trunk that would normally be used for IDDD via ARS. This would not be truly IDDD via ARS, but the result is the same. With a primary trunk group you do not encounter IDDD.

8.2.44.3 Time of Day Routing (TOD)

A user dialing digits that will eventually go through TOD routing will be able to encounter the applicable originating triggers.

A call that has already gone through TOD routing will be able to encounter the Termination Attempt Trigger.

TOD routing utilizes the conditional (CND) selector in the routing tables. CND selector is not supported by AIN response processing. All Analyze Route

responses that output pulse numbers to a route with the CND selector will result in AINF treatment.

When a call triggers, the response is processed using public translations rather than the customer groups private translations. This means that once the call triggers, the customer groups TOD routing will no longer be in effect.

The Automatic Flexible Routing (AFR) trigger can be specified in a CND TOD route list. Calls that hit the AFR trigger will route successfully with the exception of the AFR trigger routing to a CND route, which results in AINF treatment.

8.2.45 Secondary language (SL)

In TABLE OFCENG, there is a parameter OFFICE_LANGUAGE that allows the office to datafill the primary and the secondary languages. If OFFICE_LANGUAGE is not NIL for the secondary language, and if an agent or a customer group has the SL option assigned to it, then AIN will use the language(s) datafilled to play an announcement.

Note: No more than 24 digits may be pronounced for an AIN announcement. Digits beyond the 24th digit up to and including the 32nd digit are ignored. Any digits beyond the 32nd digit will cause an application error of erroneous data value.

8.2.46 Series Completion (SC)

AIN Essentials calls may terminate to a Series Completion group. Series Completion takes place within the Hunting Facility point in call of the Terminating basic call model (BCM). No triggers are encountered while hunting.

8.2.47 Simplified message desk interface (SMDI)

The SCP database can direct calls to lines served by SMDI. For AIN lines terminating on SMDI, the outgoing information is influenced by several different factors. They are described in the following sections.

8.2.47.1 The calling party number

If a CallingPartyID has been received from an SCP database, and it is 10 digits in length, then it is used as the calling number for the SMDI feature. If the CallingPartyID is not 10 digits in length, the calling number is treated as being unavailable. The presentation restriction indicator in the CallingPartyID parameter is used by the SMDI feature to determine whether to display the calling party number.

8.2.47.2 The forwarding station number

Depending on the datafill in table SLLNKDEV, either the first or last RedirectingPartyID is sent to the SMDI link.

The following applies for calls that have been redirected only by AIN. When option LASTFWDN is specified in table SLLNKDEV and AIN comes last, and when a RedirectingPartyID has been received from an SCP database, the ID is used as the forwarding station number in the SMDI outgoing information (as long as it is 10 digits in length). The forwarding station number is treated as being unavailable if the RedirectingPartyID is not 10 digits in length. The presentation restriction indicator in the RedirectingPartyID determines whether or not the forwarding DN is displayed.

When option LASTFWDN is not specified in table SLLNKDEV and AIN comes first, and when a RedirectingPartyID is received from an SCP database, the ID is used as the forwarding station number in the SMDI outgoing information (as long as it is 10 digits in length). The forwarding station number is treated as being unavailable if the RedirectingPartyID is not 10 digits in length. The presentation restriction indicator in the RedirectingPartyID determines whether or not the forwarding DN is displayed.

8.2.47.3 The type of call forwarding

When the forwarding station number is overridden by the AIN RedirectingPartyID, the type of call forwarding in the SMDI outgoing information is call forward all.

Note 1: SMDI is encountered in the Terminating Call Model, after the Termination Attempt trigger takes place.

Note 2: As far as SMDI is concerned, the interactions between AIN redirections and switch-based redirections other than call forwarding are not supported. If the call involves a number of AIN redirections and switch-based redirections other than call forwarding (such as LOD, KSH, SCMP), the order of redirections with respect to AIN is not kept track of at present. Thus, the forwarding DN and the type of call forwarding sent to the SMDI link may not be correct.

Note 3: Redirection only occurs when a new leg of a call is created and termination is attempted. (This applies to both AIN Forward_Call and switch-based call forwarding).

Note 4: A Forward_Call response or an Analyze_Route response with a RedirectingPartyID is considered as an AIN redirection during AIN query parameter processing.

8.2.48 Single Line Variety Package (SLVP)

Single Line Variety Package (SLVP) is a set of services specific for RES lines. A line with the SLVP option has SLVP intercom, SLVP transfer, and SLVP hold services. For all three SLVP services (intercom, transfer, and hold), the only trigger that can be encountered is the Off-Hook Immediate trigger, and if encountered, the SLVP feature is no longer available on the call.

Lines that subscribe to SLVP may still encounter all triggers on non-SLVP calls.

8.2.49 Softkey Display features

This section addresses the following softkey display feature.

8.2.49.1 Softkey Transfer (SKDISP)

The line option AIN is blocked from being subscribed to an MFT set with the Softkey Display option through SERVORD. If AIN is datafilled without using SERVORD, triggers at the Origination Attempt and Information Collected TDPs (OffhookImmediate, and OffhookDelay) will not be hit.

Office-based or group-based AIN triggers at the Information Analyzed and Network Busy TDPs and Terminating AIN triggers will all trigger and respond normally.

8.2.50 Speech Activated Intelligent Dialing (SAID)

This section addresses the following features:

- Speech Activated Intelligent Dialing (SAID)
- SAID Stringing of Digits (SOD)

8.2.50.1 Speech Activated Intelligent Dialing (SAID)

This feature provides Speech Activated Intelligent Dialing (SAID) for subscribers of the DMS-100 or DMS-100/200. This functionality provides a direct connection between a subscriber line and an intelligent peripheral (IP). This ability provides the subscriber access to services provided directly by the IP (that is, Voice Recognition).

When a SAID user also subscribes to the AIN Essentials Off-Hook Immediate Trigger (OFFHKIMM) and the user goes off-hook or flashes to originate a call, the OFFHKIMM trigger will always take precedence over the SAID. The SAID feature will not be invoked for this call.

When a call triggers and the SSP receives a SEND_TO_RESOURCE with conversation response and is instructed to prompt for more digits in order to complete the call, the user cannot use SAID (IP dialing) to enter those digits. The user must enter the digits manually.

Note: The SAID access code is not a valid digit sequence at this point in a call. In other words, a user cannot activate the SAID feature by entering the SAID access code.

8.2.50.2 SAID Stringing of Digits (SOD)

Interaction between SAID SOD and AIN Essentials is currently blocked on a per call basis.

The SOD feature enhances the existing functionality of SAID to allow a SAID trunk to dial certain feature access codes for a subscriber followed by a second digit string. The first digit string, the feature access code, will invoke a feature. The second digit string will be processed by the feature. This eliminates the need for the subscriber to manually dial the second digit string from the telephone set whenever SAID is used to activate a feature.

The switch feature prompts the end user to enter digits to continue the call, as with basic SAID. If the SAID subscriber is not an AIN subscriber then SOD functionality is allowed.

The SAID SOD dialed calls are allowed to interact with the AIN Essentials feature and behave as though they were dialed directly by the SAID subscriber. An intelligent peripheral (IP) dialed SAID SOD call will progress through the originating and terminating call models as a normal AIN Essentials call.

In the following Three-way Calling feature interactions:

- AIN, SAID SOD, Cancel Call Waiting (CCW)
- AIN, SAID SOD, Call Forwarding (CFX)
- AIN, SAID SOD, Calling Name and Number Delivery Blocking (CNNB)
- AIN, SAID SOD, Authorization/Account Code First (Voluntary) Dialing

The SAID SOD feature will function with two digit-string buffers in the case of CCW, CFX, and CNNB. The feature access code will be stored in the first buffer and the destination number will be stored in the second buffer. When an implicit or explicit SAID SOD access is being performed, the IP will return the contents of these two digit-string buffers to the DMS. The access code will be translated and then the destination digits will be translated in order to route the call.

In the case of Authorization/Account Code First (Voluntary) Dialing, the Authorization/Account Code First feature access code will be stored in the first buffer and the authorization/account code will be stored in the second buffer. The Authorization/Account Code First access code will be translated and then the authorization/account code will be validated and if valid the originator will be prompted to enter the destination code in order to route the call.

The off-hook immediate trigger takes precedence over both implicit and explicit activation of the SAID SOD feature. This precedence also applies to the second call leg for features such as Three-way Calling (3WC), call transfer, etc.

The off-hook delay trigger will not be processed until after the explicit or implicit access is made to the IP. When the contents of the digit-string buffers are received from the IP, they are translated and the off-hook delay trigger may

be processed if the digits in the second digit-string buffer are not on the escape code list. If they are on the escape code list, then the off-hook delay trigger is not processed. This functionality also applies to the second call leg for features such as Three-way Calling (3WC), call transfer, etc.

The shared inter-office trunk trigger does not interact with the SAID SOD feature. Also the PODP and CDP feature access code triggers cannot currently be encountered since the trigger access code is not supported as a valid entry for the digit-string buffers.

The 3- to 10-digit PODP, N11, TAT, AFR, and CDP intercom triggers can only be encountered when the second digit-string buffer is being translated.

Note 1: Only Authorization/Account Code First (Voluntary) Dialing is supported. Following the feature access code and the authorization/account code, the user must manually enter the directory number from the telephone set.

Note 2: Authorization/Account Code Last will not be supported because last digit string is not a feature access code.

8.2.51 Speed Calling

There are two separate aspects of Speed Calling that must be looked at:

- Speed Call programming
- Speed Call invocation.

In addition, there are several different types of Speed Calling. These are described in the following paragraphs, and include:

- MDC Speed Calling Group User (SCU)
- Network Speed Calling (NSC)
- Speed Calling
- Speed Call Pause Insertion (SCPAUSE)/End to end signaling via Speed Call
- POTS Speed Calling (SC1 and SC2)
- MDC Speed Calling (SCS and SCL)

8.2.51.1 Speed Call programming

For plain old telephone service (POTS) Speed Calling, in both SC1 and SC2 programming, no validation is performed on the destination digits, so there is no interaction with AIN. From a POTS environment, the user would not be able to encounter the AIN feature access code. For MDC Speed Calling, the user may program Speed Call numbers by dialing the SCPS or SCPL access

codes datafilled in table IBNXLA. Variations on MDC Speed Call programming are described next.

8.2.51.1.1 Variable Speed Calling access code If the variable Speed Calling access code (AMBISC) option is assigned against a customer group in table CUSTSTN, users in that customer group programming Speed Calling are restricted in the digits that they may use. Since this option only limits the available Speed Calling codes, it has no impact on AIN.

8.2.51.1.2 Speed Call validation If the Speed Call validation (SCVAL) option is assigned to a customer group, any attempt to activate Speed Call programming from a line in that customer group only succeeds if the dialed digits correspond to a valid translation number. During Speed Call validation, no triggers are encountered. When translations are activated, the AIN feature access code in table IBNXLA or XLANAME may be encountered. If this happens, the user receives a negative acknowledgment (NACK) treatment. Speed Call validation rejects calls to SCP feature access codes, as does any feature code.

8.2.51.2 Speed Call invocation

The different types of Speed Call invocation are described in the following sections.

8.2.51.2.1 Speed Call pause insertion/end-to-end signaling via Speed Call Speed Call pause insertion/end-to-end signaling via Speed Call is a type of MDC Speed Calling which allows a user to include *s (telephone set pad asterisk) when programming Speed Calling. If the * is included at the end of the Speed Call cell, the call pauses to allow the user to enter additional digits. This interaction is supported by AIN. If the *s are imbedded in the digit string, the asterisk is used to separate the routing digits from the signaling digits. The signaling digits are to be outpulsed as tones over the voice connection to the termination station.

Note: If a call that is invoked using Speed Call pause insertion with imbedded asterisks subsequently triggers, the signaling digits will be discarded. They will not be outpulsed over the voice connection to the terminating station.

8.2.51.2.2 Speed Call group user Speed Call group user (SCU) option allows a line equipment number (LEN) to be a member of a Speed Calling group. This means that the user may activate any of the Speed Call numbers programmed by the controller, but does not have the ability to change the Speed Calling list.

8.2.51.2.3 Network Speed Calling This feature allows for Speed Call numbers to be defined on a customer-group basis through translations. This is accomplished by datafill in tables REPLNAME, REPLCODE, and IBNXLA.

8.2.51.2.4 AIN interactions Calls dialed using the Speed Calling feature may subsequently encounter triggers in both the originating and terminating BCMs. Speed dialing codes are translated during the Collecting Information PIC. Upon invocation, Speed Call cells programmed with feature access codes will be translated but the feature will not be activated. This interaction is a result of limitations of Speed Call.

8.2.51.2.5 AIN Send_to_Resource interactions When AIN prompts the user to enter digits, the user cannot depress a speed call key to provide the digits.

The user may do one of the following if a normal number of digits are requested by the SCP:

- enter the Speed Call code using abbreviated dialing (this does not work for POTS originators). The translated address is reported to the SCP. At an originating trigger, translation of the Speed Call code is performed using the originator's Speed Call dial plan. At a terminating trigger, translation of the Speed Call code is performed using the terminator's Speed Call dial plan.
- enter the digits manually
- If a fixed or variable number of digits are requested, the user cannot use Speed Calling to provide the digits. The Speed Call code is reported to the SCP instead of the translated address.

If AIN digit collection does not take place, the translated address is included in the query rather than the Speed Call code.

8.2.52 Suppressed Ringing features

This section addresses the following features:

- Suppressed Ringing Access (SRA)
- Suppressed Ringing for Telemetry (UTS)

8.2.52.1 Suppressed Ringing Access (SRA)

Suppressed ringing access provides the capability to access a telephone company's customer loop without audibly ringing the telephone set(s) on the customers' premises. The SRA feature functionality is provided as part of a networked Suppressed Ringing Service (SRS) whereby a suppressed ringing call can be originated from any point in the network, to any customer's line network-wide.

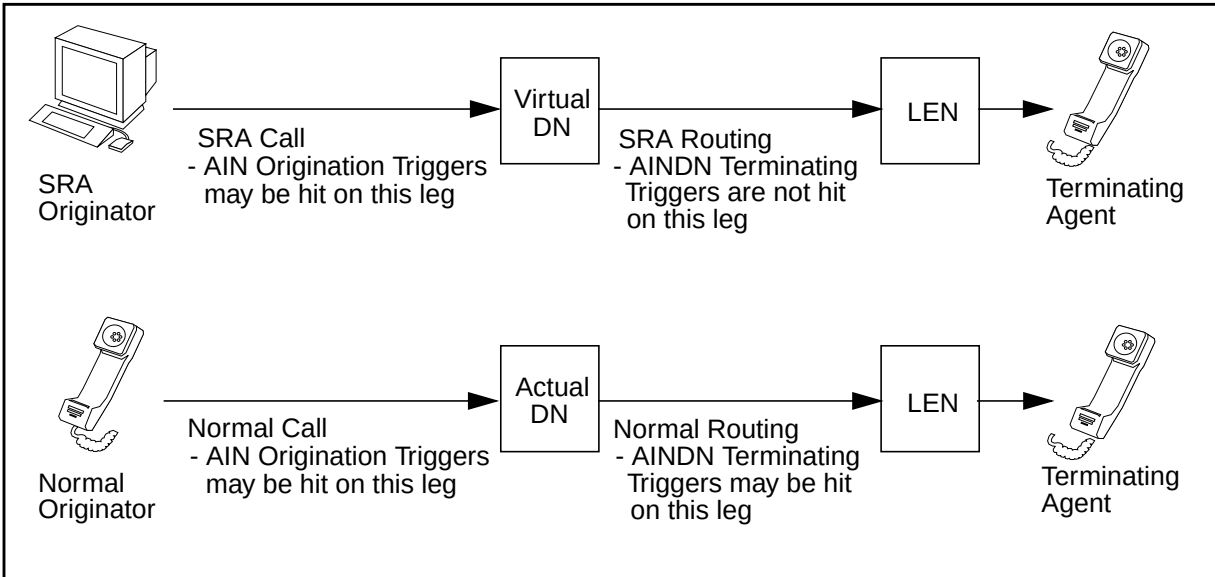
The calling party initiates a suppressed ringing call over a PRI trunk. The called number is a Virtual DN which enables the call to be routed to the proper switch where the target end user's line is provisioned. At the terminating switch the SRA feature is activated upon termination to the Virtual DN, and then attempts to establish the suppressed ringing connection to the target end

user's DN. A Virtual DN must be assigned on each switch providing suppressed ringing access, and the calling party must maintain a list of the Virtual DNs, mapping each target end user's DN to a specific Virtual DN.

On a call with SRA active, only AIN origination triggers may be encountered.

Figure 8 illustrates how SRA interacts with AIN.

Figure 8 How SRA interacts with AIN



8.2.52.2 Suppressed Ringing for Telemetry (UTS)

Suppressed Ringing For Telemetry, also known as the Utility Telemetry Service (UTS) allows a utility access to an end user's line for telemetry data purposes. Connections will be made only when the subscriber's line is idle; there will be no disruption to the subscriber's usual activities. No power ringing will be applied to the subscriber's line when a connection is made. The Central Office Service Unit connects to the Switch through a new Class of Service trunk identified as a Utility Telemetry (UT) Trunk.

UT Trunks are similar to MF trunks in that they do not carry any SS7 information. Therefore, no AIN Origination or Termination triggers will be hit in a UTS call.

8.2.53 Suppress line identification (SUPPRESS)

The SUPPRESS option is taken into account when encoding the CallingPartyID parameter in an AIN Essentials query message. It is one of several factors used to determine whether to encode the field as "presentation restricted" or "presentation allowed".

8.2.54 Teen Service features

This section addresses the following features:

- Teen Service (SDN)
- Teen Service on MDC
- Secondary Directory Number Identification (SDNID)

A line with the Teen Services option DN can subscribe to the AIN line option via SERVORD. The AINDN option may be subscribed to by both the primary and secondary directory numbers in the following manner:

- the primary directory number and enhanced secondary directory number(s) may subscribe to the AINDN option via SERVORD
- normal secondary directory number(s) may subscribe to the AINDN option via datafill in table DNFEAT only

8.2.54.1 Teen Service, Teen Service on MDC

If the ControllingLegTreatment parameter is present, the corresponding Distinctive Ringing pattern in DMS will be applied. If the terminator is a RES line with CNAMD option, the ControllingLegTreatment parameter is disregarded and switch-controlled alerting is applied.

AIN Distinctive Alerting and AIN Distinctive Alerting/Call Waiting take precedence over any switch-based Distinctive Ringing or Distinctive Ringing/Call Waiting feature, including the following features:

- Distinctive Ringing (DRING)
- Teen Service
- CLASS Distinctive Ringing/Call Waiting (DRCW)
- Teen Service on MDC

8.2.54.2 Secondary Directory Number Identification (SDNID)

When a secondary directory number (SDN) places a call, this feature allows the secondary number to appear as the originator of the call. Without activating this feature, the primary directory number would appear to have originated the call. SDNID affects call display, and Station Message Detail Recording records.

SDNID is a feature which is implemented using a switch-based feature access code. Refer to Section 8.4 “General Information” on page 221 for details on how supported features with switch-based access codes behave.

Based on the feature access code, SDNID escapes the Info Collected TDP in the Originating BCM. However, the call may encounter the Info Collected TDP based on the digits dialed.

SDNID causes the CallingPartyID to be modified, so that it reflects the secondary number placing the call. This updated CallingPartyID is reflected in subsequent AIN Essentials queries.

8.2.55 Termination Restrictions features

This section addresses the following features:

- Denied Termination (DTM)
- Denied Incoming (DIN)
- Do Not Disturb (DND)
- Make Busy Key (MBK)
- Make Set Busy (MSB)
- Make Set Busy Intragroup (MSBI)
- Random Make Busy (RMB)

8.2.55.1 Denied Incoming (DIN)

Because DIN is a customer-group based feature, any calls coming in from outside the customer group are denied. Any calls which are not considered INTRAGROUP as defined in IBN translations are denied even if the originator and terminator are in the same customer group.

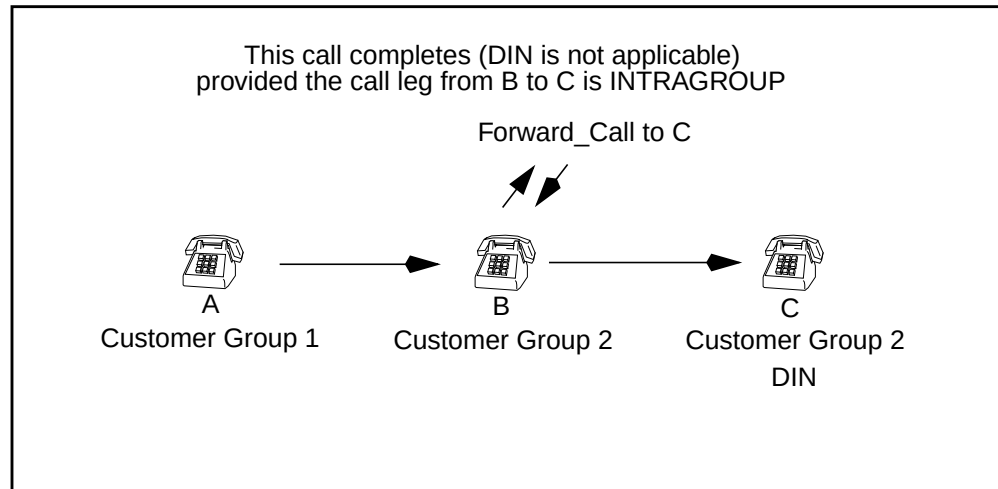
Agent subscription-based Originating Call Model Trigger Detection Points (TDPs) all trigger and respond properly. They do not affect the functionality of Denied Incoming.

Office-based/group-based Originating Call Model Trigger Detection Points (TDPs) all trigger and respond properly. They do not affect the functionality of DIN.

Terminating Call Model Trigger Detection Points (TDPs) all trigger and respond properly. An Authorize_Termination response does not affect the functionality of DIN.

If a Forward_Call response is received as a result of a Termination Attempt trigger, the call will be forwarded before hitting DIN. The call will start a new leg, with the Termination Attempt subscriber as the new originator. If the Forward_Call response routes the call to a DIN subscriber, DIN checking is based on the INTRAGROUP information for the forward leg of the call and the customer group of the Termination Attempt subscriber.

Please refer to Figure 9 for more details.

Figure 9 DIN Termination Attempt with Forward_Call Response

In Figure 9, if agent A were to dial agent C directly, agent A would be denied because agents A and C are in different customer groups. If agent A dials agent B, and receives a Forward_Call response to agent C, agent A will not be denied. This occurs because on the Forward_Call response leg of the call, agent B is now the originator, and the DIN option on agent C is screening against Agent B. (Agent B and C are in the same customer group).

For the case of switch-based call forwarding, the call would be denied since the actual originator is not in the same customer group as the terminator.

Note: Denied Incoming with the DINE option (for enabling Denied Incoming on a Call Transfer) has the same interactions as stated previously.

8.2.55.2 Make Busy Key (MBK)

Feature MBK creates a Make Busy Key (MBK) line option. When the MBK option is assigned, a scan point circuit that is controlled by an external key is associated with the line. The external key is used to activate the MBK line option. The MBK function is to allow the set to which MBK is assigned to appear as if it is busy with respect to call forwarding.

The MBK feature interacts properly with the AIN Essentials TERMATT trigger. The TERMATT trigger is hit and processed properly prior to checking for and initiating the Make Busy Key feature. That is, the TERMATT trigger occurs prior to and has precedence over the MBK feature.

8.2.55.3 Random Make Busy (RMB)

Feature RMB can be assigned in one of the following three types of hunt groups: Directory Number Hunt (DNH), Multiline Hunt (MLH), or Distributed Line Hunt (DLH). The feature provides for a miscellaneous scan

point circuit controlled by an external key. The line is made permanently busy when the key is activated and is normal when the key is not activated. The same scan point can be assigned to one, several, or all lines within the hunt group, depending on the lines to be made busy. The scan point must belong to one of the scan groups assigned in table SCGRP.

The RMB feature interacts properly with the AIN Essentials TERMATT trigger. The TERMATT trigger is hit and processed properly prior to checking for and initiating the Random Make Busy feature. That is, the TERMATT trigger occurs prior to and has precedence over the RMB feature.

8.2.56 Three-way Calling (3WC) features

This section addresses the following 3WC features:

- 3WC
- Consultation Hold (CH)
- Usage Sensitive Three-way Calling (U3WC)

3WC allows a call to be set up among three parties. As a subfeature of 3WC the Consultation Hold feature permits the transferring party to talk privately with the party at the transfer destination before actually transferring the call.

When a user performs a flash hook while in a call to invoke 3WC or Consultation Hold, the user encounters the Origination Attempt TDP. This action effectively establishes a new leg of a call, independent of other legs. The user subsequently encounters the InfoCollected, InfoAnalyzed, Network Busy and Termination Attempt trigger detection points, if the digits dialed initiate a call.

Refer to Section 8.2.20 “Display features” on page 166 and Section 8.2.6.3 “Flexible Calling (FC)” on page 135 for details on the impact of 3WC.

8.2.56.1 Usage Sensitive Three-way Calling (U3WC)

This feature provides the 3WC feature on a pay-per-use basis. The U3WC user is charged each time the 3WC feature is requested instead of being charged a flat rate independent of the number of 3WC activations.

The U3WC feature is subscribed on an office-wide basis. During subscription, the local operating company can choose the access mechanism for U3WC. The U3WC feature may be activated by a flash signal, or by a flash signal followed by an access code.

When a line has access to the U3WC feature, the OffHook Immediate trigger is encountered immediately after a flash, regardless of whether the user wants to establish a conference or not.

If U3WC is activated by a flash signal only, then after the flash the OffHook Immediate trigger is encountered, and a second leg is established. It is then possible for the user to establish a conference.

If U3WC is activated by a flash signal followed by an access code, then the OffHook Immediate trigger is encountered and the user does not have the opportunity to enter the U3WC access code. NACK treatment is applied to this call. To avoid such behavior, it is possible to assign the line option DENYU3WC. By removing the U3WC access from a line, the OffHook Immediate trigger can only be encountered after a flash if the line has a conference feature option assigned.

Please refer to Section 8.4.1 “Flash features” on page 221 for a more detailed description.

The U3WC feature interacts correctly with the OffHook Delay trigger. If U3WC is activated by a flash signal only and OffHook Delay is subscribed, then after a flash, the OffHook Delay trigger is encountered as soon as the user finishes dialing a DN. A second leg is then established and it is then possible for the user to establish a conference. If U3WC is activated by a flash signal followed by an access code, then after a flash it is possible for the user to first enter the U3WC access code, and then a DN. When the user finishes dialing the DN, then the OffHook Delay trigger is encountered. A second leg is then established and it is then possible for the user to establish a conference.

8.2.57 Toll restriction features

Carrier and Toll restriction features prevent intra-LATA and interLATA calls from completing for subscribers. The features included are:

- Carrier Toll Denial (CTD)
- Equal Access Enhanced Carrier Toll Denial
- InterLATA Full Carrier Toll Denied (FCTDNTER)
- Toll Denial (TDN)
- Toll Diversion (TDV)

8.2.57.1 Carrier Toll Denial

Carrier Toll Denial (CTD) specifies a list of the interexchange carriers that a subscriber is denied access. CTD applies to direct dialed calls as well as operator assisted calls when Equal Access Enhanced Carrier Toll Denied is active. See Section 8.2.57.2.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” and that route to the listed FGD carriers are denied access and are sent to intra-LATA Restricted (ILRS) treatment.

8.2.57.2 Equal Access Enhanced Carrier Toll Denial

This feature builds upon CTD in that it restricts access to specified carriers for operator assisted calls. As with CTD, calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” and that route to the listed FGD carriers are denied access and are sent to ILRS treatment.

8.2.57.3 InterLATA Full Carrier Toll Denied

InterLATA Full Carrier Toll Denied (FCTDNTER) allows the subscriber to specify a list of supported InterLATA carriers or to deny access to all InterLATA carriers. FCTDNTER applies to direct dialed calls as well as operator assisted calls when Equal Access Enhanced Carrier Toll Denied is active. See Section 8.2.57.2.

Note: The FCTDNTER functionality is controlled by equal access SOC option EQA00015 (intra-LATA PIC Enh Ph 1).

As with CTD, calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” and that route to FGD carriers are denied access and the call is sent to ILRS treatment.

8.2.57.4 Toll Denial

Toll Denial (TDN) prevents a RES subscriber from originating direct dialed or operator assisted toll calls.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” and that route to FGD carriers are denied access and the call is sent to Toll Denied (TDND) treatment.

8.2.57.5 Toll Diversion

Toll Diversion (TDV) diverts the originator’s toll calls to an attendant console. It prevents toll calls or calls to a toll operator from completing without the assistance of an attendant. If an attendant console is not available, the call is blocked and sent to TDND treatment.

Calls that return a CalledPartyID parameter with the Nature of Number field set to “950+ Call” and that route to FGD carriers are blocked or diverted by TDV.

8.2.58 Virtual facility group (VFG) features

AIN Essentials supports the following Virtual Facility Group features:

- virtual facility group (VFG)
- virtual facility group look ahead (VFGLA)

VFGs interact with AIN at the AuthorizingCallSetup Point-in-call (PIC); therefore, prior to this PIC all Originating Call Model (OCM) Trigger Detection Points (TDPs) can be encountered. After the call is routed through

a VFG, the only OCM TDPs that can be encountered are Information Analyzed and Network Busy. In the terminating call model (TCM), the Termination Attempt trigger (TAT) can be encountered.

When an AIN call goes through a VFG and the incoming side of the VFG requests an SMDR record, information from the last AIN response will be stored in DF04 records.

When attempting to route a call using an AR response with a PrimaryTrunkGroupID, AlternateTrunkGroupID, and a SecAlternateTrunkGroupID to VFG selectors, multiple VFGs may be throttled for the one call depending on the datafill and setup of the VFGs and trunk circuits.

Should VFGLA be performed and an AIN Essentials OCM trigger be encountered with an AR response having a different VFG from the one reserved by the VFGLA, the call will throttle the VFG indicated in the AR response. Also, the call will continue to hold onto the VFG reserved by VFGLA until it completes.

8.2.59 WATS features

All individual based triggers, OFFHKIMM, OFFHKDEL, and individual AFR are not supported for the WATS line. Subscription to these triggers are blocked in SERVORD.

8.2.59.1 Enhanced WATS Access Line (EWAL)

The EWAL option specifies the carriers which can be used from the WATS line.

8.2.59.1.1 Pre-query For Enhanced Outward WATS (EOW) and Enhanced Two-way WATS (ETW) lines, band screening takes precedence over PODP, N11, and AFR triggers. This does not include the CDP trigger since it is encountered before band screening takes place.

8.2.59.1.2 Post-query The carrier returned in the SCP response must be one of the carriers specified by the EWAL option except when the Universal WATS (UWATS) option is listed. The UWATS option allows the use of any carrier designated on the call.

The call will be routed to the designated carrier if the carrier is listed in the EWAL, the UWATS is listed in the EWAL or the ChargeNumber is present in the SCP response. Otherwise, the call will be sent to treatment. See Table 40.

Table 40 EWAL response processing

SCP carrier in EWAL list	SCP provide ChargeNumber	EWAL has UWATS	Response processing
Yes	Yes/No	Yes/No	route the call
No	Yes/No	Yes	route the call
No	Yes	No	route the call
No	No	No	send to treatment

Note: The call is not sent to treatment if a ChargeNumber is received from the SCP, even if the carrier and UWATS are not listed in the EWAL. The call is routed to the carrier returned by the SCP without band screening even if required by the carrier.

8.2.59.2 Zone screening

8.2.59.2.1 Pre-query When an OUTWATS (OWT) or Two-way WATS (TWW) subscriber dials a number outside the allowed zone, the call is sent to treatment without encountering the PODP, N11, or AFR triggers. However, the call will trigger at CDP since it is encountered before band screening.

8.2.59.2.2 Post-query The call will go to treatment if the following two criteria are met:

- The Analyze Route response is returned from the SCP without a TrunkGroupID but with either a carrier number and a CalledPartyID or only a CalledPartyID.
- The destination zone falls outside the allowed termination.

8.3 Local Number Portability

For intraswitch and interswitch calls, since Local Number Portability (LNP) uses the AIN Essentials framework there is no modification to support the interaction.

8.3.1 LNP interaction with the CalledPartyID parameter

LNP responses only accept CalledPartyID parameters with the Nature of Number field value of “National”. If a CalledPartyID parameter with a Nature of Number field set to “950+ Call” is returned for an LNP query, normal AIN processing occurs and the call is routed to carrier.

8.3.2 LNP interaction with Line Overflow to DN (LOD)

LOD is a hunt group option that specifies a DN to overflow a call to if all members in the hunt group are busy. If LNP is active in the office and a call to a hunt group overflows to the LOD DN, the hunt group pilot DN is stored as the AIN redirecting party with a redirecting reason set to “user busy”.

The overflow to the LOD DN is treated as an AIN redirection and the redirecting information is used to build the redirection query parameters in any subsequent AIN triggering or propagated in subsequent signalling (that is, if the call routes over ISUP, PRI, or SMDI). The LOD redirection data is also used in building the UserID parameter in any subsequent AIN query messages.

8.4 General Information

The interaction of two customer originated features with AIN Essentials is described in the following sections.

8.4.1 Flash features

When an AIN subscriber performs a flash hook while in a call, if the user subscribes to call transfer, 3WC or other conference features, the user encounters the Origination Attempt TDP. This action is interpreted as an attempt to establish a new leg of a call. The user subsequently encounters the InfoCollected, InfoAnalyzed, Network Busy, and Termination Attempt triggers, if the digits dialed initiated a call.

If the user does not subscribe to call transfer, 3WC or other conference features, the user is not allowed to establish a new leg of a call and therefore does not encounter the Origination Attempt TDP. The user performing a flash hook in this case is allowed to dial the access code to activate another feature (such as cancel call waiting.)

8.4.2 Supported features with switch based access codes

Supported features with switch-based vertical service codes (with or without dialed digits for a call) escape the Off-Hook Delay trigger. The vertical service codes for switch-based features are processed in the Analyzing Information point in call. If the feature initiates a call, call processing moves to the Collecting Information point in call with the additional dialed digits and without the vertical service code digits. Calls of this nature may encounter the Off-Hook Delay trigger.

This also applies to switch-based feature access codes.

8.5 Feature limitations and restrictions

The following sections describe limitations and restrictions that apply to AIN feature interactions.

8.5.1 Analog Display Services Interface (ADSI)

The limitation/restriction is as follows:

- AIN Distinctive Ringing (DRING) is not supported for re-alert since it is not required by specification. Switch-based alerting will be applied during the re-alert irrespective of AIN Distinctive Ringing (DRING).
- The ControllingLegTreatment (CLT) parameter is not applied after the party with a call waiting hangs up. For example, if A is a call waiting on B with CLT being applied as a distinctive call waiting tone, and B hangs up, then the CLT parameter is no longer applied and B receives normal ringing or switch-based distinctive ringing if necessary.
- AIN Distinctive Ringing/Call Waiting (DRCW) is not supported for Meridian business sets (MBS) or Meridian feature transparency (MFT) sets.
- The ControllingLegTreatment parameter is not applied on the second leg of a Three-way Calling (3WC) scenario if the conference state is established while the terminator is ringing.
- Distinctive Ringing (DRING) uses coded ringing. If the called party is a party line or is served by a peripheral that does not support coded ringing, then the ControllingLegTreatment parameter will be disregarded and switch-based alerting will be applied.
- If the ControllingLegTreatment parameter is present, the corresponding distinctive ringing pattern in DMS will be applied. This value will override any switch-based distinctive ringing including DRCW ringing and teen services ringing.

8.5.2 Automatic Call Distribution (ACD)

The limitation/restriction is as follows:

AINDN option cannot be assigned to an ACD DN.

8.5.3 Billing features limitations and restrictions

The limitation/restriction is as follows:

In the case of virtual DN TERMATT trigger, the CLD NO field of the SMDR records (dialed digit) will be overwritten by the 10 digits of the virtual DN.

8.5.4 Call Forwarding (CFX) feature limitations and restrictions

The limitations/restrictions are as follows:

- A remote call forwarding directory number (RCF DN) cannot subscribe to the AFR trigger on an individual subscriber basis. The AFR trigger can only be encountered on the RCF forwarding leg if AFR is encountered and it is subscribed on an office-wide basis.

- An RCF DN cannot subscribe to the Off-Hook Delay trigger. Therefore, no triggers at the Information Collected TDP may be encountered during translation of an RCF call leg.
- An RCF DN cannot subscribe to the Termination Attempt triggers. However, on the RCF forwarding leg the Termination Attempt TDP may be encountered at the remote station.
- Regression is not supported by AIN Essentials for all variants of Call Forward Don't Answer. If triggering takes place while a call is being forwarded under one of these features and the call is not able to terminate on the final station, the call will go to treatment.
- The Deny Call Forwarding (DCF) feature will be ignored for calls that encounter AIN Essentials triggering during switch based call forwarding.
- AIN response processing ignores Call Forwarding Intragroup restrictions. This means that AIN allows calls to be forwarded outside of the customer group if the SCP instructs the SSP to do so.
- AIN Essentials originating triggers may be encountered during the forwarding leg only if both the originating station and base station are supported AIN agents. Triggering at AIN Essentials terminating triggers during call forwarding may be encountered only if both the originating station and remote (terminating) station are supported AIN agents (the base station may or may not be a supported AIN agent). If, in either of these cases, one of the agents is not a supported AIN agent the call will not be forwarded.
- In the case where RCF forwards to an ISUP trunk the RCF OriginalCalledNumber, RedirectingNumber, and RedirectionCount are not outputted on the trunk.
- N11 trigger and call forwarding:
 - There are certain types of call forwarding that do not allow forwarding to certain N11 numbers. If forwarding to an N11 number is blocked, it will not be possible to trigger at the N11 trigger while call forwarding. However, it may be possible to trigger at N11 if the forwarding leg sent an AIN Essentials query and the N11 digits are supplied by the SCP response.
 - AIN Essentials does not support call forwarding to Vertical Service Codes.
 - If an AIN Essentials trigger is encountered during CFWVAL Termination Validation, the 2-minute timer is started when the first AIN trigger is encountered and trigger criteria is met. Therefore, there may be situations where the 2-minute timer expires before the call terminates. In these cases, if activation does not take place on the first call, the second call will attempt to translate and terminate again.

- A user will receive negative acknowledgment (NACK) treatment if trying to program an AIN feature access code during call forwarding programming.

8.5.5 Call Transfer limitations and restrictions

The limitation/restriction is as follows:

If a Multiway call is set up using the Meridian business set (MBS) single button transfer feature (also known as quick conference key [QCK]), no originating triggers are encountered on the new leg of the call.

8.5.5.1 Blind Transfer Recall / Identification limitations and restrictions

The limitations/restrictions are as follows:

- If a PassiveLegTreatment, or a ControlLegTreatment is specified in an AIN response, it will apply only while the transferring party is still part of the call. As soon as the transferring party goes on-hook, these treatments are no longer applied to the terminating DN.
- If a transferred call encounters a PODP trigger with an Analyze_Route or Continue response with an AMASLPID, an AMA record will be generated when the call is answered. This also occurs if the transferred call encounters Termination Attempt with a Forward Call or Authorize Termination response. However, if the transferred call goes unanswered and the transferring party answers on recall, an erroneous AMA record with COMPLETION_IND set to ANSWERED will be generated. Send Notification/Termination Notification (SN/TN) will be affected similarly when the transferred call goes unanswered.

8.5.6 CLASS features limitations and restrictions

The limitation/restriction is as follows:

If an SCP database sends a CallingPartyID parameter in a response message that is not 10 digits in length, various restrictions apply. It is recommended that the CallingPartyID parameter always be sent as a 10-digit number. Please refer to the following sections for details:

- Section 8.2.13.5 “CLASS Automatic Recall (AR)”
- Section 8.2.13.8 “CLASS Bulk Calling Line Identification (BCLID)”
- Section 8.2.13.13 “CLASS Calling Number Blocking (CNB)”
- Section 8.2.13.16 “CLASS Customer Originated Trace (COT)”
- Section 8.2.13.18 “CLASS Distinctive Ringing/Call Waiting (DRCW)”
- Section 8.2.13.21 “CLASS Selective Call Acceptance (SCA), Rejection (SCRJ), and Forwarding (SCF)”

8.5.7 Direct Inward System Access (DISA) features limitations and restrictions

The limitations/restrictions are as follows:

- No AIN Essentials triggers can be encountered once either Call Forwarding Remote Access (CFRA) or remote Call Forwarding All Calls (CFW) without unique PIN has been invoked.
- The Off-Hook Immediate (OFFHKIMM), PODP feature code (PODPFEAT), Shared Inter-Office trunk and Termination Attempt (TAT) triggers are not applicable to a DISA DN.

8.5.8 Display features limitations and restrictions

8.5.8.1 EBS Display features

The following limitations and restrictions apply to all the EBS Display features discussed in this document. In addition, specific exceptions and additional restrictions are documented in the remaining sections which deal with each of the display features.

- A call which has been forwarded as a result of an AIN Essentials Forward_Call response is not treated as a forwarded call for display purposes. For example, if Name and Reason Display has been assigned, a call which has been forwarded by a Forward_Call would be displayed only as a direct call, that is, no reason information will be displayed.
- The RedirectingPartyID parameter in an Analyze_Route response is not displayed for calls within the same office.

8.5.8.1.1 Name and Reason Display (REASDISP)

The limitation/restriction is as follows:

If the CallingPartyID DN field in the CallingPartyID parameter, sent in an SCP response, is the same as the originating party DN and the SCP Presentation Restriction Indicator is presentation-restricted, then the reason is not displayed.

8.5.8.1.2 Network Name Display

The limitations/restrictions are as follows:

If the CallingPartyID DN field of the CallingPartyID parameter sent in an SCP response is different from the originating party DN then:

- In the case of calls going over an ISUP trunk using the query method the terminating agent displays the CallingPartyID DN supplied by the SCP and displays the name associated with the originating DN.
- After Call Transfer and Recall or after Executive Busy Override (EBO), the display shows the originating DN instead of the SCP supplied CallingPartyID DN.

- Although switch datafill indicates that the SETUP method should be used to obtain the name, if the name is not available then the QUERY method is used for EBS sets.

8.5.9 Display Text limitations and restrictions

The limitations/restrictions are as follows:

- If DisplayText calling name information is received on a trunk-originated call which is not ISUP, then a reason for absence corresponding to “Out-of-Area” is delivered to the terminating agent for the name. DisplayText information is not provided to the terminating set.
- DisplayText applies to RES agents only. For all other agents, the DisplayText parameter is ignored (if received), even if the agent subscribes to CLASS display options. DisplayText will not be delivered to agents with an LCC of IBN subscribing to CLASS display options (referred to as CLASS on Centrex). The display services subscribed to by unsupported agents are not affected
- Delivery to RES agents occurs between the first and second ring. Should the terminating agent answer the call before delivery is complete, no information will be displayed.
- DisplayText does not apply on ring-back for Automatic Callback as the Termination_Attempt trigger is not encountered on ringback.
- DisplayText does not apply on ring-back for Automatic Recall as the Termination_Attempt trigger is not encountered on ringback

8.5.10 Distinctive Ringing features limitations and restrictions

The following section describes the limitations and restrictions that apply to Distinctive Ringing.

8.5.10.1 AIN Distinctive Alerting and AIN Distinctive Alerting/Call Waiting limitations and restrictions

The limitations/restrictions are as follows:

- The ControllingLegTreatment or PassiveLegTreatment parameter is disregarded when terminating to a line served by a peripheral that is not configured to support coded ringing. AIN Distinctive Ringing is supported only on peripherals using coded ringing.
- The ControllingLegTreatment or PassiveLegTreatment is not applied to the second leg of a 3WC scenario once the conference state is established while the terminator is ringing.
- If a call providing a ControllingLegTreatment or PassiveLegTreatment parameter is attempted to a busy party with Call Waiting (CWT), the ControllingLegTreatment or PassiveLegTreatment is applied only as a distinctive call waiting tone. If the called party becomes available, then the ControllingLegTreatment or PassiveLegTreatment is no longer applied.

Instead, the called party receives normal ringing, or switch-based Distinctive Ringing, if necessary, indicating the presence of an unanswered call.

- The ControllingLegTreatment or PassiveLegTreatment is not used for Call Waiting purposes on MBS or MFT sets.
- AIN Distinctive Alerting is not supported for re-alert. Switch-based alerting is applied during the re-alert irrespective of AIN Distinctive Alerting.
- The enhanced call waiting package must be present in an office in order to use enhanced call waiting tones.
- AIN Distinctive Alerting is implemented based on the existing Distinctive Alerting feature, all current restrictions and limitations of Distinctive Alerting are maintained.

8.5.11 Emergency service limitations and restrictions

The limitations/restrictions are as follows:

- A line with the Emergency Service Line (ESL) option may not subscribe to AIN originating or terminating triggers. Subscription is blocked in SERVORD.
- Subscription to Termination Attempt for an E911 public safety answering point (PSAP) agent is not currently supported by AIN Essentials
- E911 Ringback is not supported over IT trunks.
- E911 is not compatible with any CLASS feature.

8.5.12 Hotline features limitations and restrictions

The limitation/restriction is as follows:

All originating and terminating triggers are ignored for calls originating from a line having the MAN option. No digits can be collected on such lines.

8.5.13 Hunt Group features limitations and restrictions

The following section describes the limitations that apply to Hunt Group features.

8.5.13.1 Bridged Night Number (BNN)

If AIN functionality is desired on a Bridged Night Number (BNN), the BNN must be created using the EST command. Using the ABNN command to create a BNN will create a BNN in the normal fashion, but AIN functionality will be disallowed.

The AIN and AINDN options cannot be added to BNNs which apply to hunt groups made up of EBS agents. The ADO command is rejected from within SERVORD.

8.5.14 Intercept features limitations and restrictions

The following section describes the limitations that apply to Intercept features.

8.5.14.1 Flexible Intercept (FLEXI)

After the call encounters the OffhookImmediate originating trigger with an Analyze_Route response to a FLEX number, the call goes to treatment.

8.5.15 Intercom features limitations and restrictions

The following section describes the limitations that apply to Intercom features.

8.5.15.1 Single Party Revertive Calling (INT)

INT processing is encountered while processing the response from the AIN SCP (either Analyze_Route, Forward_Call, Continue, or Authorize_Termination). If INT is being activated (that is, if the response directs the call to the same line as the originator) following an Analyze_Route or Forward_Call response, the call is sent to FNAL treatment.

8.5.16 Messaging features limitations and restrictions

The limitations/restrictions are as follows:

- For Special Delivery Service (SDS), the portion of the call which routes the SDS subscriber to the VMS DN can only encounter the Termination Attempt and 3- to 10-digit PODP triggers subscribed by the VMS DN. No other trigger will be encountered on this portion of the call.
- For Universal Voice Messaging (UVM), the portion of the call from the UVM subscriber to the VMS, the Offhook Delay (OHD) trigger is not encountered.
- For Executive Message Waiting (EMW), the caller cannot leave a message for a party that does not have EMW.
 - A message cannot be left in the following scenario: A and C, both with EMW, are in the same customer group. B is in another customer group or is a POTS line. B is subscribed to the Termination Attempt Trigger with a Forward_Call response routing to C. A calls B, gets routed to C, and cannot leave a message.
 - The Termination Attempt Trigger will not be encountered when an EMW call is returned. That is, if a party subscribed to the AIN Termination Attempt Trigger calls and leaves a message using EMW, the call cannot be returned using EMW. The AIN Termination Attempt Trigger will not be encountered and the call will be routed to BUSY treatment. CallRequestRetrieval does not interact with the Termination Attempt Trigger. It is an unsupported interaction.
- For Station Message Waiting (MWT), when calls are made from a line subscribed to the Termination Attempt Trigger, messages can be left using MWT but these calls cannot be returned. Termination Attempt does not get

encountered when using MWT to return a call to a DN subscribed to it and busy treatment will be received.

- A message cannot be left in the following scenario: A and C, both with MWT, are in the same customer group. B is in another customer group or is a POTS line. B is subscribed to the Termination Attempt Trigger with a Forward_Call response routing to C. A calls B, gets routed to C, and cannot leave a message.

8.5.17 Monitor resources feature limitations and restrictions

For limitations and restrictions in the monitor resources feature, please refer to Section 54.4.2 “Limitations and restrictions” on page 902.

8.5.18 Ring Again and Call Back Queuing limitations and restrictions

The limitations/restrictions are as follows:

- If a user attempts to invoke Nodal Ring Again (RAG) or Call Back Queuing (CBQ) on a call that has received an Analyze Route message or a Forward Call message as a response to a query, the attempt to invoke RAG or CBQ is disallowed.
- If a user attempts to invoke Network Ring Again (NRAG) on a call that has received an Analyze Route or a Forward Call message in the same office as the originator, the attempt to invoke NRAG will be disallowed.

8.5.19 Routing features limitations and restrictions

The following sections describe the limitations and restrictions that apply to routing features.

8.5.19.1 Expensive Route Warning Tone (EWRT)

The limitation/restriction is as follows:

While processing an Analyze_Route or Forward_Call response from the SCP, no ERWT is heard.

8.5.19.2 Time of Day Routing (TOD)

The limitation/restriction is as follows:

TOD routing utilizes the conditional (CND) selector in the routing tables. CND selector is not supported by AIN response processing. All Analyze Route responses that output numbers to a route with the CND selector will result in AINF treatment.

8.5.20 Simplified message desk interface (SMDI) limitations and restrictions

The limitations/restrictions are as follows:

- If an SCP database sends a RedirectingPartyID parameter in a response message that is not 10 digits in length, various restrictions apply. It is recommended that the RedirectingPartyID parameter always be sent as a 10-digit number. Please refer to Section 8.2.47 “Simplified message desk interface (SMDI)” on page 205 for details.
- For simplified message desk interface (SMDI), on calls involving AIN redirections and switch-based redirections other than call forwarding (that is, LOD, KSH, SCMP), the order of redirections with respect to AIN is not supported at the present. Thus, the Forwarding DN and the type of call forwarding sent to the SMDI link may not be correct. Please refer to Section 8.2.47 “Simplified message desk interface (SMDI)” for details.

8.5.21 Softkey Display limitations and restrictions

The line option AIN is blocked from being subscribed to an MFT set with the Softkey Display option through SERVORD. If AIN is datafilled without using SERVORD, triggers at the Origination Attempt and Information Collected TDPs (OffhookImmediate, and OffhookDelay) will not be hit.

8.5.22 Speech Activated Intelligent Dialing (SAID) limitations and restrictions

The limitations/restrictions are as follows:

- During a Send_to_Resource operation, if the user is prompted to enter digits, the user cannot use SAID (IP dialing) to enter them. The user must enter the digits manually.
- Interaction between SAID Stringing of Digits (SOD) and AIN Essentials is currently blocked on a per-call basis.
- For more information please refer to Section 8.2.50.2 “SAID Stringing of Digits (SOD)” on page 207.

8.5.23 Speed Calling limitations and restrictions

The limitation/restriction is as follows:

AIN feature access codes cannot be programmed into a speed call cell. Any attempt will produce a negative acknowledgment (NACK) treatment.

8.5.24 Suppressed Ringing feature limitations and restrictions

The limitations/restrictions are as follows:

- For Suppressed Ringing Access (SRA) only AIN origination triggers may be encountered. The Termination Attempt trigger will not be encountered.
- For Suppressed Ringing for Telemetry (UTS) neither AIN origination nor AIN termination triggers will be encountered.
- Please refer to Section 8.2.52.2 “Suppressed Ringing for Telemetry (UTS)” on page 212.

8.5.25 Termination Restrictions features

The limitation/restriction is as follows:

If a Forward_Call response is received as a result of a Termination Attempt trigger, the call will be forwarded before hitting DIN. The call will start a new leg, with the Termination Attempt subscriber as the new originator. If the Forward_Call response routes the call to a DIN subscriber, DIN checking is based on the INTRAGROUP information for the forward leg of the call and the customer group of the Termination Attempt subscriber.

8.5.26 Virtual facility group (VFG) limitations and restrictions

The limitations/restrictions are as follows:

- The only AIN Essentials OCM triggers that can be encountered after throttling a VFG are Information Analyzed and Network Busy.
- When attempting to route a call using an AR response with a PrimaryTrunkGroupID, AlternateTrunkGroupID, and a SecAlternateTrunkGroupID to VFG selectors, multiple VFGs may be throttled for the one call depending on the datafill and setup of the VFGs and trunk circuits.
- Should VFGLA be performed and an AIN Essentials OCM trigger be encountered with an AR response having a different VFG from the one reserved by the VFGLA, the call will throttle the VFG indicated in the AR response. Also, the call will continue to hold onto the VFG reserved by VFGLA until it completes

8.5.27 WATS limitations and restrictions

All individual based triggers, OFFHKIMM, OFFHKDEL, and individual AFR are not supported for the WATS line. Subscriptions to these triggers are blocked in SERVORD.

8.5.27.1 Zone screening

The call will go to treatment if the following two criteria are met;

- The Analyze Route response is returned from the SCP without a TrunkGroupID but with either a carrier number and a CalledPartyID or only a CalledPartyID.
- The destination zone falls outside the allowed termination.

8.5.28 Other feature limitations and restrictions

The limitation/restriction is as follows:

Interworking between AIN services and any Digital Multiplex System (DMS) switch feature not discussed in this document is not supported. Any existing restriction regarding individual feature coexistence or operation remains in effect.

9. Untested and unsupported features

AIN Essentials supports interactions with a limited set of DMS features. This chapter summarizes many of the features not supported by AIN Essentials.

The features mentioned in this chapter have not been tested with AIN Essentials. These features are not supported by AIN Essentials, and should not be used in conjunction with AIN Essentials.

The list of unsupported features presented in this chapter may not be exhaustive. If a feature or service exists that is not mentioned in this document, it should be deemed as untested and unsupported by AIN Essentials, and should not be used in conjunction with AIN Essentials.

Table 41 presents examples of features which are not supported by AIN Essentials.

Table 41 Untested and unsupported features

Feature name
Analog Display Services Interface (ADSI) features Call Logging (CALLOG)
AIN Primer Prime Line Select (PLS)
Attendant Features Attendant Features Meridian Network Attendant Services Release Line Trunk
Automatic Call Distribution (ACD) and related features

Table 41 Untested and unsupported features (Continued)

Feature name
Billing AMA Test Call (AMATEST) AT&T Line Study (SDY) Automatic Time & Charges (ATC) Free Number Terminating (FNT) Local Call Detail Recording (LCDR)
basic rate interface (BRI) specific features Charge Option BRAFS (CHG) DN/Calltype PROVCDs Option (PROVCDS) DN/Calltype PROVCGS Option (PROVCGS) DN/Calltype PROVLHC Option (PROVLHC) DN/Calltype PROVLCC Option (PROVLCC) EKTS Hold For Use By SERVORD (EHLd)
Business Set Features Business Set Busy Indication/Query Business Station Busy Lamp Field (BLF) Display Queue Status (DQS & DQT) MBS Auto Answer Back (AAB) MBS Individual Business Line (PBL) Originating Line Select (OLS) Repeated Alerting (RPA) Query Time and Date (QTD) 18 Button Add-on (M518) 36 Button Add-on (M536)
Busy Override features Executive Busy Override Enhancement Executive Busy Override Exempt

Table 41 Untested and unsupported features (Continued)

Feature name
Call Forwarding Features Deny Call Forwarding (DCF) Inhibit Ring Reminder (IRR) Remote Call Forward without Unique PIN
Call Transfer Features Call Transfer Warning (CTW)
Call Waiting Features Call Waiting Exempt (CWX) Distinctive Call Waiting Ringback (CWR)
Calling Number Features Calling Number Announcement (CNA) Calling Number Delivery Blocking Override (CNDBO)
Camp-On Features Camp-On with Music Station Camp On for Meridian Business Set (MBSCAMP)
CLASS Features CLASS—CMS Network Administrative Center (NAC) Interface CLASS—NPA Split (NPASPLIT) Universal Access (DENY) (Note)
Class of Service Features Hotel/Motel Register Pulsing (RMP) Operator Number Identification (ONI)
Code Call Access Features Code Calling (CDCL) Code Call Access
Conference Features Preset Conference Preset Conference (Large) Single Button Transfer/Quick Conference Key (QCK)

Table 41 Untested and unsupported features (Continued)

Feature name
Cut-Through Dialing Features Cut-Through Dialing/Through Dialing (CUTTD)
Data Line Features Critical Path Restoration (CPR) Datapath—Closed User Group (U.S.) Data Looparound (LOOP) Nailed Up Connections (NUC)
Dialing Plan Customer Group Transparency Screening On Bearer Capability Simplified Dialing
Display Features Automatic Inspection Mode (AIM) Display—Attendant Console MBS Interactive Displays
Emergency Service Features E911 Auto Location Identification (ALI) E911 Line-ended PSAP (LINEPSAP) E911 Local Access LDT Public Safety Answer Point (LDTPSAP)
Equal Access Features Carrier Code Expansion for LEAS
Fire Reporting System—Originating (FRO)
Handsfree Features Automatic HandsFree (AUTOHF) Combined HandsFree/Mute (HFMUTE) Handsfree (HF) Mute Feature (Mute)

Table 41 Untested and unsupported features (Continued)

Feature name
Hold Features Called Party Hold (CPH) Calling Line Identification with Flash (CLF) Malicious Call Hold (MCH) Music On Hold—Line Interface Permanent Hold (HLD) Residential Call Hold
Hotline Features MDC Warm Line Warm Line (WML) - POTS
Hunt Groups Preferential Hunting (PRH)
Last Number Redial Features Last Number Redial Associated with Set (LNRA)
Message Service Features Call Request Retrieval (CRR) EBS as Message Centre Message Centre on EBS Set MSG Indication Key (MWIDC) Message Centre on EBS Set MSG Query Key (MWQRY) Enhanced Message Waiting Call Covering Message Centre Directory Number (MCDN) PRI Message Waiting Indicator Interwork (WIT) Remote Message Tool (RMT) Remote MSG Register, Reversal (RMR) Remote MSG Register, SD Point (RMS)
Multilocation Business Group Features Multilocation Business Group (MBG) MBG Network Feature Access Restriction

Table 41 Untested and unsupported features (Continued)

Feature name
Multiple Appearance Directory Number (MADN) Features DN Network Attribute MADN Member Display Option (MEMDISP) MADN Member Name Display (MDNNAME)
MultiParty Bridge (MPB)
Network Resource Selector (NRS)
No Receiver OffHook Tone (NOH)
OA&M Features Dial Tone Speed Recording (DTSR) OM Enhancements Overflow Register, SD Point (OFR) Overflow Register, Software (OFS) Power Features Service Analysis Service Evaluation Service Group (SVCGRP) Subscriber Line Peg Count
Operator Services
Paging Features Dictation Access and Control Loudspeaker and Radio Paging Access
Party Line Features Frequency Selective Ringing (FSR)
PBX Features Auto Identified Outward Dialing (AIOD)
Queuing Features Off Hook Queuing (OHQ) Single Line Queueing (SLQ)

Table 41 Untested and unsupported features (Continued)

Feature name
Restrictions to Dialing Privileges Business Group Restrictions Essential Line (ELN) Fully Restricted Service (2 types) Network Access Registers (NARS) Plug Up (PLP) Semi-Restricted Service Station Origination Restrictions Controller (SORC) Subscriber Activated Call Blocking (SACB) Toll Essential (TES)
Routing Features Automatic Route Selection (ARS) Dynamic Call Routing (DCR)
Speech Activated Intelligent Dialing (SAID) features SAID Remote Access (NFRA)
Termination Restriction features Inhibit Line Busy (ILB) Inhibit Make Busy (IMB)
Trunk features Call Progress/Comfort Tones CLID Screening Per Trunk Group Reorigination Trunk Verification From Designated Station SPC trunks/AIN CLID
Uniform Call Distribution features Uniform Call Distribution (UCD) UCD Login Key For UCD Lines (UCDLG) UCD Login Key For UCD Lines (UCDLG) UCD Night Service Activate/Deactivate (UCDNSA/UCDNSD)

Table 41 Untested and unsupported features (Continued)

Feature name
Wake-up Call features Wake-up Call Wake-Up Call Reminder (WUCR)
Wide area telephone service (WATS) features MDC OUTWATS Enhanced MDC WATS
800 features Advantage 800 End Office Dialing (EOD)
Note: This feature pertains to use with Automatic Call Back/Automatic Recall (ACB/AR).

10. AIN Essentials and AIN Primer interworking

This chapter presents functions where interworking between the two AIN capabilities, AIN Primer and AIN Essentials, may be encountered. The capability of a service switching point (SSP) equipped with an NA008 software load to support or not support the interworking is presented.

10.1 Feature synopsis

AIN Primer and AIN Essentials are two separate AIN capabilities. The features available from each are different. When both reside on the same SSP, a call being processed by the SSP may encounter a trigger controlled by one AIN capability, then following the completion of that activity, may be acted upon by a trigger controlled by the other AIN capability.

Three basic interworking scenarios between AIN Essentials and AIN Primer are supported on a call. These scenarios are encountered by a call when

- AIN Primer 3/6/10 PODP trigger follows the operation of one of a limited set of supported AIN Essentials triggers enumerated in this chapter
- AIN Primer DN trigger follows one of the supported AIN Essentials triggers
- AIN Essentials TAT trigger follows the operation of an AIN Primer route response
- AIN Essentials PODP trigger follows the operation of an AIN Primer route response

Calls which would encounter the AIN Essentials AFR trigger following an AIN Primer route response will not encounter this trigger and will continue route if possible.

Chaining of these basic scenarios to form more complex calls is possible and will be supported.

Unsupported serial triggering from AIN Essentials to AIN Primer will be given “feature not allowed” treatment. Unsupported triggers will not be encountered subsequent to an AIN Primer route response with the exception of AIN Essentials AFR. The Network Busy TDP occurs after AIN Primer response processing is complete and, therefore, may be encountered. This AIN Essentials trigger is unsupported for interworking and is also given “feature not allowed” treatment.

10.2 Functional overview

This section presents an overview of the SSP interworking of AIN Primer and AIN Essentials feature capabilities.

10.2.1 Supported Interworking Scenarios

Considering the AIN call model and the definition of the various AIN Primer triggers, only certain interworking scenarios make sense. For instance, the usual response to a query is to return routing information. In the processing of that information, it is not possible to hit triggers that occur before the Analyze Information Point In Call (PIC). Since an AIN Primer route response must return a North American Numbering Plan number, it is not possible to subsequently encounter the CDP or PODP Feature Code triggers. Of those scenarios that are applicable, some have been given a higher priority based on customer requirements and are supported. The AIN Essentials triggers supported as initial triggers are: Off Hook Delay(OHD), Customized Dialing Plan Feature Access Code (CDPFAC), PODP Feature Code (PODPFEAT), and Termination Attempt (TAT).

Table 42 indicates the applicable AIN Essentials triggers that could be encountered following an AIN Primer trigger. Each cell represents the scenario where the trigger indicated to the left on the row was encountered first, a routing response was returned, and the trigger indicated at the top of the column was subsequently encountered during the processing of that response. The darkly shaded cells represent scenarios that could not happen because of the call model. While the remaining scenarios make sense, only those scenarios which are unshaded are supported in this release.

Table 42 Applicable serial triggering scenarios (AIN Primer followed by AIN Essentials)

		AIN Essentials Trigger encountered subsequently								
		OHI	OHD	SIT	CDP	PODP FEAT	PODP 3 to 10-digit	N11	AFR	TAT
AIN Primer Trigger encountered first in the call.	OHI						S			S
	OHD						S			S
	ITS						S			S
	SIT						S			S
	*XX						S			S
	PDP						S			S
	CDP						S			S
	3/6/10						S			S
	AFR						S			S
	DN						S			S
Legend:										
			Not Applicable							
			Applicable Unsupported							
		S	Supported							

Table 43 follows the same format as Table 42 for the reverse direction. The rows represent the AIN Essentials trigger that occurred first, and the columns represent the AIN Primer trigger that could be encountered during the processing of an Analyze Route or Forward Call response.

Table 43 Applicable serial triggering scenarios (AIN Essentials followed by AIN Primer)

		AIN Primer Trigger encountered subsequently									
		OHI	OHD	ITS	SIT	*XX	PDP	CDP	3/6/10	AFR	DN
AIN Essentials Trigger encountered first in the call.	OHI								S		S
	OHD								S		S
	SIT										
	CDP FAC								S		S
	PODPFEAT								S		S
	CDP AC								S		S
	CDP EXT								S		S
	PODP 3 to 10-digit								S		S
	N11								S		S
	AFR										
	TAT								S		S
Legend:											
			Not Applicable								
			Applicable Unsupported								
		S	Supported								

10.2.2 Interaction with Forward Call and Analyze Route

A Forward Call and Analyze Route response can encounter AIN Primer triggers. Currently a call that encounters AIN Primer 3/6/10 PODP and DN triggers after a Forward Call or Analyze Route response is supported. Of course, if call forwarding were to occur after the Forward Call, the call could then encounter other AIN Primer triggers after OHD on the next leg.

If a call encounters AIN Essentials TAT and receives a Forward Call response, it could subsequently encounter only AIN Essentials triggers after the Analyzing Information Point In Call (PIC).

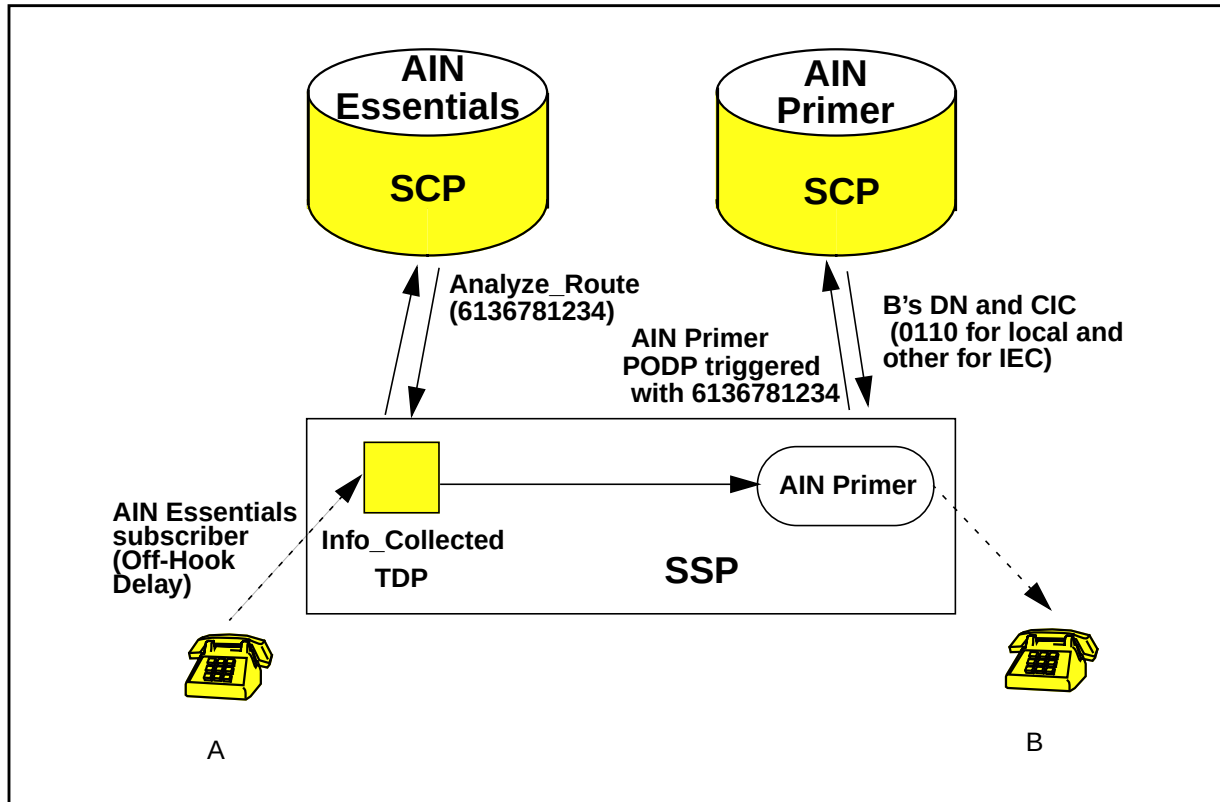
For information on the interaction with Call Forwarding, refer to Section 8.2.8.10 “Interworking with AIN Primer and Call Forwarding” on page 143.

10.2.3 AIN Essentials / AIN Primer Interworking Example

Figure 10 illustrates an example of a call that first encounters an AIN Essentials trigger (OHD in this case) and subsequently encounters an AIN

Primer 3/6/10 PODP trigger while processing the Analyze Route Response from the first trigger. Without interworking support, this call would have been blocked. This call scenario is supported.

Figure 10 AIN Essentials trigger in the Originating Call Model routes the call to encounter AIN Primer PODP



10.2.4 Characteristics of Successful Interworking Implementation

Providing support for the interworking scenarios described in the previous section entails the following:

- permitting a subsequent trigger to be encountered
- ensuring that relevant information returned in the previous response is reflected in the subsequent query
- ensuring that appropriate and correct billing records are created for each application.
- ensuring that existing interactions between each application and switch based features are unaffected by this interworking.

For each of the supported scenarios, these functions will be applied.

10.3 Feature description

This AIN Primer and AIN Essentials interworking feature can be divided into several main areas: Trigger Processing, Query and Response Processing, Billing, and Feature Interaction.

10.3.1 Trigger processing

The trigger processing features are described in this section.

10.3.1.1 Permitting supported interworking scenarios

Prior to the implementation of AIN Essentials to AIN Primer interworking, all AIN Primer triggers were blocked during the processing of an AIN Essentials Analyze Route or Forward Call response. As of NA006B, both AIN Primer 3/6/10 PODP and DN triggers encountered during processing for the selected AIN Essentials triggers listed in Section 10.2.1 “Supported Interworking Scenarios” on page 242 are enabled. All other AIN Primer triggers will continue to be blocked and the call will be given “feature not allowed” treatment.

AIN Essentials PODP 3- to 10-digit trigger can now be encountered during the processing of an AIN Primer Route response.

AIN Essentials CDP and N11 triggers at the Info_Analyzed TDP, and AIN Essentials AFR at the later Network Busy TDP, which are unsupported for subsequent triggering will not be encountered and the call will be allowed to continue to route if possible.

Because the termination attempt TDP is encountered after AIN Primer response processing is complete, it is possible, even in the current implementation of AIN Primer and AIN Essentials, to encounter AIN Essentials TAT following the operation of an AIN Primer trigger. Query population is done correctly.

10.3.1.2 Trigger precedence

AIN Primer and AIN Essentials do not follow the same call model. While AIN Essentials follows an explicit call model with Points In Call (PIC) and Detection Points (DP), AIN Primer does not. While there is some similarity between many of the AIN Primer and AIN Essentials triggers, there is no direct mapping of the AIN Primer triggers into the AIN Essentials call model. While it would be desirable to merge the AIN Primer triggers into the AIN Essentials call model such that each AIN Primer trigger has similar precedence to the most similar AIN Essentials triggers, this is not always practical. Because of the way in which the AIN Primer and AIN Essentials applications have been implemented in DMS, it is possible for an AIN Primer trigger to have a higher precedence than more specific AIN Essentials triggers.

Table 44 shows the precedence of the triggers that are supported. If the current call leg could hit either of 2 or more triggers, it will hit the higher order trigger in this list.

Table 44 Precedence of supported AIN Primer and AIN Essentials triggers

Trigger precedence
AIN Essentials OHD
AIN Primer OHD
AIN Primer CDP
AIN Essentials PODP Feature Code
AIN Essentials CDP Feature Access Code
AIN Essentials CDP extension
AIN Primer PODP
AIN Essentials CDP Access Code
AIN Essentials 3 to 10 PODP

Note: The three variations of the AIN Essentials CDP trigger have been listed separately because the priority of the three varieties are different. Also the AIN Essentials CDP access code trigger has a lower precedence than the AIN Primer 3/6/10 PODP trigger. This occurs because the criteria for the 3/6/10 trigger are checked during translations while those for the AIN Essentials CDP access code trigger are not checked until translations are complete (that is, at the Information Analyzed TDP). While this precedence may not conform to the philosophy that group triggers should take precedence over office ones at the same TDP, this precedence is not changed in NA008.

Because there is a fixed precedence between the supported triggers, it is still possible for a less specific trigger defined using the AIN Primer PODP, for instance, to take precedence over a more specific trigger defined using AIN Essentials PODP. For example, a 500 service defined in AIN Primer would take precedence over a 500 NXX service defined on AIN Essentials. This precedence is not altered in NA008.

10.3.1.3 AIN Primer OHD and AIN Essentials OHD co-subscription

When a user subscribes to both the AIN Primer OHD and AIN Essentials OHD, the AIN Essentials OHD trigger takes precedence. However, in order to allow the call to continue when the AIN Essentials SCP returns an Analyze_Route response, response translations requires a new translator to process the response. This new translator should not have any AIN Primer

OHD subscription. Otherwise, if the originator's translator is used or if the new translator has the AIN Primer OHD subscription, the call will be sent to feature not allowed (FNAL) treatment. Please refer to Chapter 39: "Datafilling for responses" for setting up AIN response translations.

10.3.1.4 Serial Trigger Counts

Both AIN Primer and AIN Essentials implement methods for limiting the number of serial triggers in a call. The method used by each application is independent of the other application. While there is no single serial trigger count for both applications, the intended result of limiting call completion times and preventing serial triggering loops is still achieved.

10.3.2 Query and response processing

The query and response processing features are described in this section

10.3.2.1 Population of subsequent queries

For those serial triggering scenarios that are supported, the appropriate information from the previous response message must be taken into account when populating the subsequent query. Not all information that is returned in a database response is relevant to subsequent queries and not all query parameters are affected by previous queries or responses. In general, query parameters for subsequent queries will be populated according to the rules for that application using information that may have been updated by the other application.

The tables that follow provide a detailed description of the parameter population rules for each of the AIN Essentials and AIN Primer query parameters. The AIN Essentials query parameters are given in Table 45 "Population of subsequent AIN Essentials query parameters—guidelines" on page 249 and those for AIN Primer queries in Table 46 "Population of subsequent AIN Primer query parameters" on page 255. The parameters that are shaded are unaffected by previous queries or responses from the other application, are not applicable to the query type, or are unsupported for DMS. Each table has seven columns.

- The first column gives the parameter name.
- The second column identifies whether the parameter can be modified or changed during serial triggering scenarios.
- The third through fifth columns identify which of the response messages can cause alteration of the parameter's value.
- The sixth column identifies whether the parameter should be updated when a TAT or DN trigger is encountered independent of whether the parameter is impacted by the response message.
- The seventh column provides a detailed explanation of the parameter population rules.

The population of the query parameters for subsequent serial triggers may be modified either as a result of information returned in the SCP response message, or as a result of response message processing, or as a result of encountering a DN or TAT trigger.

10.3.2.2 Population of subsequent AIN Essentials queries

Table 45 summarizes the impacts on subsequent AIN Essentials query population.

Table 45 Population of subsequent AIN Essentials query parameters—guidelines

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
UserID	yes	no	no	no	yes	Not impacted by previous AIN Primer query or response.
Bearer Capability	no	no	no	no	no	Not impacted by previous AIN Primer query or response
Charge Number	yes	yes	yes	yes	yes	The charge number is supposed to represent the ANI of the station that originated the call. If one or more AIN Primer or AIN Essentials triggers affect the call, then the most recent of the following will be used to populate the Charge_Number: • an AIN Primer Billing Number if returned in response to an AIN Primer trigger other than the DN trigger • the DN trigger DN in the case of an AIN Primer DN trigger • an AIN Essentials Charge Number if returned in a previous response

Table 45 Population of subsequent AIN Essentials query parameters—guidelines (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
Charge Number (continued)	yes	yes	yes	yes	yes	For all queries subsequent to a TAT with a Forward Call response, if the Charge Number parameter was not included in the Forward_Call response message then the TAT DN is used. If switch-based call forwarding is encountered, then the information associated with the forwarding station is used. If a previous response message does not contain a Billing Number or a Charge Number, then the Initial Query Population rule is used (as per TR-1284).
Charge Party Station Type	yes	yes	yes	yes	yes	Population of this parameter should follow the same algorithm as the Charge Number parameter. The parameter should be replaced with the OSTY returned in an AIN Primer Route Response only if an AIN Primer Billing Number was also returned in the previous response. Alternatively, if the Charge Party Station Type is returned in the AIN Essentials response, then it should be used in the subsequent query. For all queries subsequent to a TAT with a Forward Call response, if the Charge Party Station Type parameter was not included in the Forward_Call response message, then the TAT DN Station Type should be used. If switch-based call forwarding is encountered, then the information associated with the forwarding station should be used.

Table 45 Population of subsequent AIN Essentials query parameters—guidelines (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
Trigger Type	yes	no	no	no	no	This parameter is always populated with the trigger criteria type of the current trigger. Not impacted by a previous AIN Primer query or response.
LATA	yes	no	no	no	yes	Not impacted by a previous AIN Primer query or response
Called Party ID	yes	yes	yes	yes	no	If a Routing DN had been returned in a previous response, it will become the Called Party ID in subsequent triggers. For serial triggering to occur, such a DN must always be returned in either an AIN Primer “Route” response or an AIN Essentials Analyze_Route or Forward_Call.
Called Party Station Type	yes	no	no	no	no	Not impacted by a previous AIN Primer query or response.
Access Code	no	no	no	no	no	Parameter only included for CDP triggers, not applicable to serial triggering scenarios
Calling Party ID	yes	no	yes	yes	no	This parameter corresponds to the most recently received calling party ID information. If the information was previously overwritten by an AIN Essentials response it should correspond to the value in that response, otherwise it should correspond to the call's originator. Note that an AIN Primer response cannot change the value of this parameter, while an AIN Essentials response can.
Calling Party BGID	no	no	no	no	no	Not applicable

Table 45 Population of subsequent AIN Essentials query parameters—guidelines (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
Collected Address Information	no	no	no	no	no	Not applicable
Collected Digits	no	no	no	no	no	Not applicable
Original Called Party ID	no	no	no	no	no	Not impacted by previous AIN Primer query or response.
Primary Carrier	yes	yes	yes	yes	no	The carrier parameter should be populated according to the following algorithm: If the previous response was an AIN Essentials response then: • If carrier information was returned in a previous response message, it should overwrite the presubscribed carrier selection. • If no carrier is returned in the previous response, subsequent queries should use the value used in the previous query. Typically this will be the presubscribed carrier of the originating facility.

Table 45 Population of subsequent AIN Essentials query parameters—guidelines (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
Primary Carrier (Continued)	yes	yes	yes	yes	no	- if carrier information returned in the previous response message is different from the local exchange carrier (LEC), for example, 110), then the carrier value returned in the AIN Primer response should be used - Finally, if a TAT trigger is encountered then even if there is no carrier information in a Forward_Call response, the carrier information associated with the TAT trigger DN should be used to overwrite the current carrier information for the call, and should be used in all future queries. If the previous response was an AIN Primer response then: - if the carrier information returned is equal to the local exchange carrier, then the AIN Essentials Primary Carrier should contain - for line-originated calls; the user's preferred carrier; - for trunk-originated calls; the trunk's preferred carrier - i If none is available, then the local exchange carrier value should be used. A Primary Carrier value is not needed for an AIN Essentials TAT query. Therefore the query is not impacted by the previous AIN Primer response.

Table 45 Population of subsequent AIN Essentials query parameters—guidelines (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN Essentials A_R	AIN Essentials F_C	TAT impact	Comments
Redirecting Party ID	yes	no	yes	yes	yes	Not impacted by previous AIN Primer response.
Redirection Information	yes	no	yes	yes	yes	Not impacted by previous AIN Primer response.
Vertical Service Code	no	no	no	no	no	Parameter only included for CDP and Feature Code triggers. Not applicable to serial triggering scenario
TCM	yes	yes	yes	yes	no	This parameter is not supported for AIN Essentials TAT query on DMS. If the previous AIN Primer response contains TCM then it is used to populate the AIN Essentials PODP query parameter If the previous AIN Primer response does not contain TCM, then this parameter is only sent if TCM was received on a private facility or provided in a previous AIN Essentials response.
ACG Encountered	yes	yes	yes	yes	no	Not impacted by previous AIN Primer query or response.
Generic Name	no	no	no	no	no	Not impacted by previous AIN Primer query or response.
Legend:						
		Not affected by previous AIN Primer query or response or unsupported				
		Impacted by interworking				

10.3.2.2.1 Population of subsequent AIN Primer queries

Table 46 summarizes the rules for subsequent AIN Primer query parameter population. The headings are identical to those for the AIN Essentials subsequent query parameter population.

Table 46 Population of subsequent AIN Primer query parameters

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN EssentialsA_R	AIN Essentials F_C	DN impact	Comments
Service Key	yes	yes	yes	yes	no	For DN and 3/6/10 triggers, the Service Key should reflect the DN or NPA-NXX-XXXX which resulted in the trigger. For serial triggers the same information should be populated in the Service Key parameter as is populated for AIN Primer when an initial trigger occurs. In serial triggering scenarios this will typically be the previously returned routing DN (since that DN is now causing the subsequent DN or 3/6/10 trigger). Population of AIN Primer Nature of Number information should continue to follow current rules (including patches). Unsupported Nature of Number values should be supported using current AIN Primer defaults.
LATA	yes	no	no	yes	no	For 3/6/10 PODP, the LATA of the PODP number is used in the query. For DN trigger the LATA of the originator is used in the query. There is no impact on LATA population rules due to the previous AIN Essentials trigger.
Digits (dialed)	not applicable	no	no	no	no	In the DMS implementation, this parameter is not supported for DN or 3/6/10 triggers and thus is not applicable to serial triggering scenarios.

Table 46 Population of subsequent AIN Primer query parameters (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN EssentialsA_R	AIN Essentials F_C	DN impact	Comments
Digits (Originating Station DN - OSDN)	yes	yes	yes	yes	yes	If the previous response was AR/FC and contained Calling Party ID, then it should be used to populate the OSDN. If the previous response contained no CallingPartyID but AR/FC had occurred, then use the previous AIN Essentials query rules. If none of these conditions are true, then use the AIN Primer algorithm to populate OSDN. If call forwarding has occurred previously, then the existing AIN Primer PODP algorithm should be used (originating DN). If the query is AIN Primer DN, then there is no impact on the population rules due to the previous AIN Essentials response.

Table 46 Population of subsequent AIN Primer query parameters (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN EssentialsA_R	AIN Essentials F_C	DN impact	Comments
Originating Station Type (OSTY)	yes	yes	yes	yes	yes	If the query is AIN Primer PODP and the previous response was AR/FC with no Calling Party ID and had a charge party station type, then use the Chargepartystation type in order to populate the OSTY. If the query is AIN Primer PODP and the previous response was AR/FC with no CallingPartyID, then use the previous AIN Essentials query rules. If neither of these two conditions are true, then populate OSTY with the current AIN Primer algorithm. If the query is AIN Primer DN, then there is no impact on the population rules due to the previous AIN Essentials response.
Carrier	not applicable	yes	yes	yes	no	This parameter is not populated in DMS AIN Primer queries.
AuthCode	not applicable	no	no	no	no	This is not applicable to subsequent queries. If they are to be populated it should be with the values from the initial query.
PIN	not applicable	no	no	no	no	This is not usually applicable to subsequent queries. If they are to be populated it should be with the values from the initial query.
ACG Encountered	yes	no	no	no	no	When an ACG control is encountered during serial triggering and the query is not blocked, normal ACG Encountered indication, specific to the AIN Primer application should be included in the query message.

Table 46 Population of subsequent AIN Primer query parameters (Continued)

Subsequent query parameter	Modified during serial triggering	AIN Primer route	AIN EssentialsA_R	AIN Essentials F_C	DN impact	Comments
TCM	yes	yes	yes	yes	no	If the previous AIN Essentials response contains TCM, then it should be used to populate the subsequent AIN Primer query. However, TCM is not supported in the TAT query.
Trigger Type	not applicable	no	no	no	no	This parameter is not supported in DMS AIN Primer.

Legend:

	Not affected by previous AIN Primer query or response or unsupported
	Impacted by interworking

10.3.2.2.2 Applicable parameter population scenarios There are three scenarios of interest for subsequent query population for AIN Primer to AIN Essentials interworking. The scenarios are summarized in Table 47.

Table 47 AIN Primer and AIN Essentials subsequent query scenarios

Response message received	Subsequent query message	Triggers supported by message
AIN Primer Route Response	AIN Essentials Query	TAT, PODP
AIN Essentials Forward_Call	AIN Primer Query	3/6/10, DN
AIN Essentials Analyze_Route	AIN Primer Query	3/6/10, DN

Parameter population for each of the three scenarios is summarized in the following figures: Figure 11 “Parameter population for subsequent AIN Essentials query following AIN Primer Route Response” on page 260, please Figure 12 “Parameter Population for AIN Primer Query Following Analyze_Route” on page 261, and Figure 13 “Parameter Population for AIN

Primer Query Following Forward_Call” on page 262. Detailed parameter population rules were presented previously.

As a result of any serial trigger query the following responses can also be received and are processed within the context of that Serial Triggering leg:

- AIN Essentials Send_To_Resource / AIN Primer Play Announcement and Collect Digit
- AIN Essentials Send_Notification / AIN Primer Call Termination Information Request
- AIN Essentials ACG / AIN Primer Automatic Call Gapping

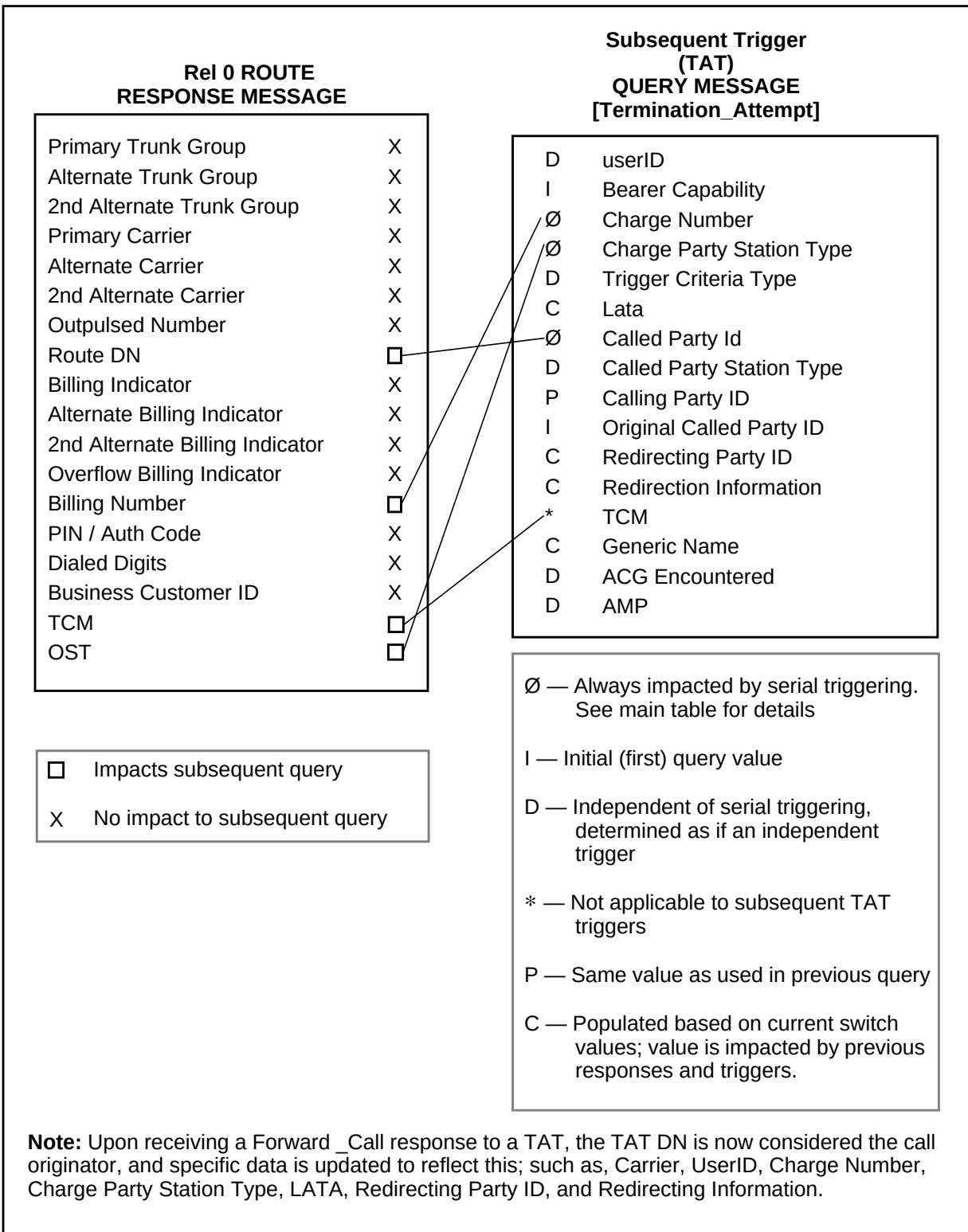
Figure 11 Parameter population for subsequent AIN Essentials query following AIN Primer Route Response

Figure 12 Parameter Population for AIN Primer Query Following Analyze_Route

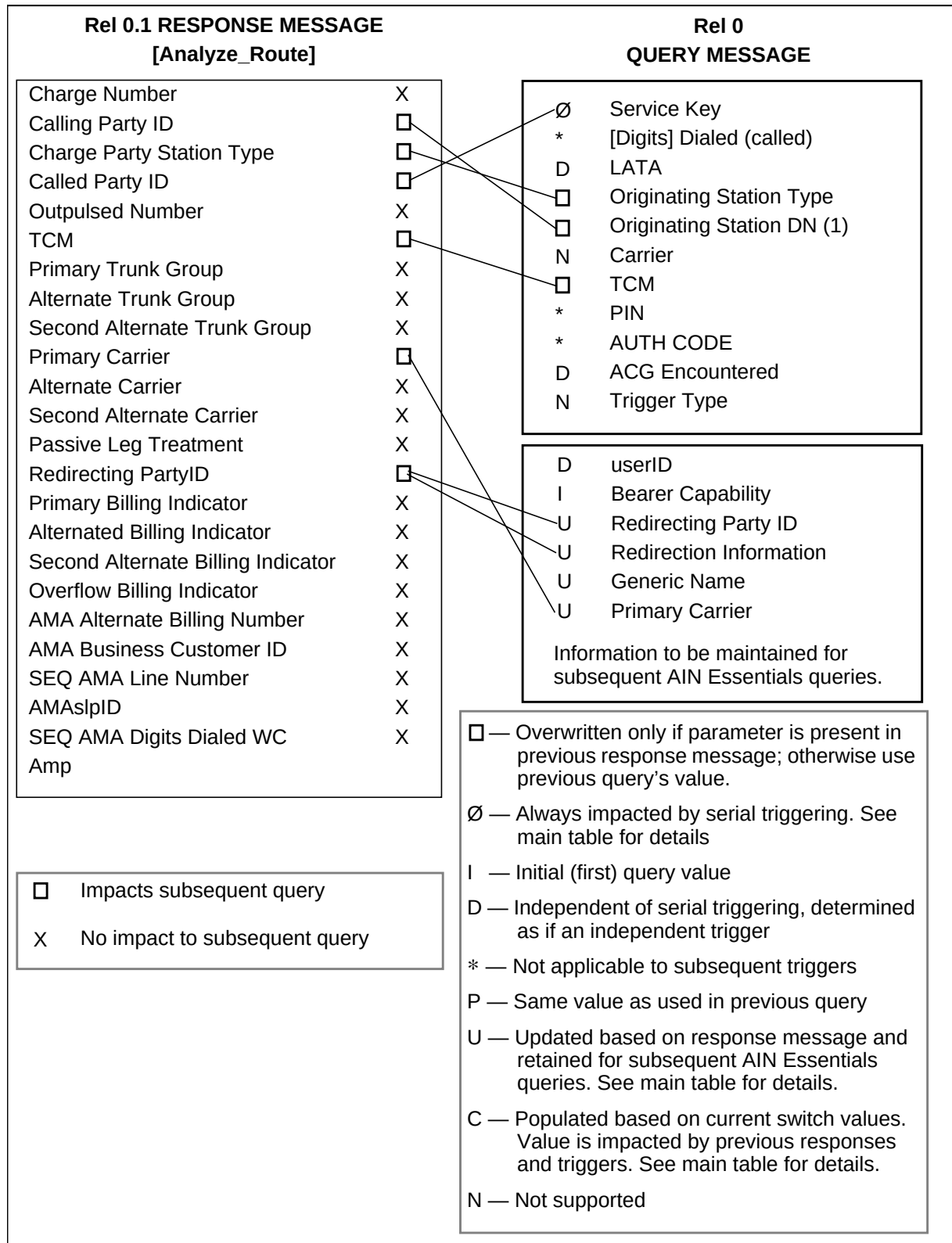
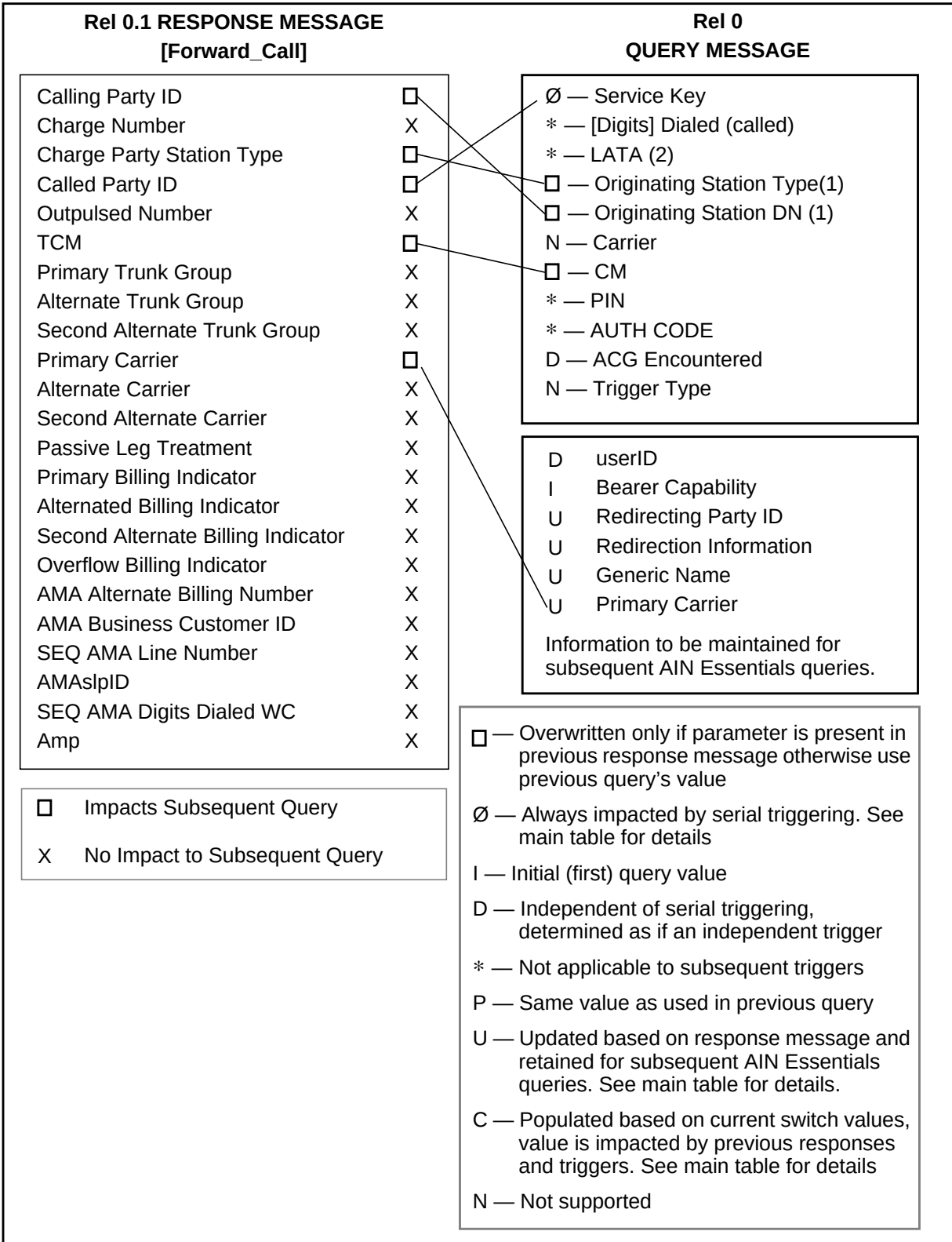


Figure 13 Parameter Population for AIN Primer Query Following Forward_Call

10.3.2.2.3 Subsequent response processing An index into the Line Attribute Table (LINEATTR) is included in the datafill of the PODP or DN trigger. These line attributes are used for the translation of the SCP response for that trigger only. This information is not maintained for subsequent AIN Primer or AIN Essentials query or response processing. In particular, if no profile is provided for a subsequent AIN Essentials 3- to 10-digit PODP trigger, then the attributes of the true originator of the call will continue to be used for processing of that response.

10.3.2.2.4 Information outpulsing (delayed response processing) Charge information provided by AIN Primer or AIN Essentials may need to be outpulsed over a trunk on termination. The information that is outpulsed in the Charge_Number parameter on ISUP trunks and as the ANI on MF trunks, must be the most recent valid information received. This support is extended under this activity to deal with AIN Essentials 3- to 10-digit PODP following AIN Primer Route response. Specific examples are given in Table 48 and 49 . AIN Primer 3/6/10 PODP and DN triggers have been treated separately since they behave differently. However, if the office parameter AIN00_PODP_CN_ANI_OUTPULSING is set to “N”, the AINAIN Primer 3/6/10 PODP trigger behaves the same as the AIN Primer DN trigger.

Table 48 Outpulsing information with AIN Primer DN trigger

Scenarios	Description	Information outpulsed	Comments
AIN Essentials OCM_trig -> AIN Primer DN	AIN Essentials AR response contains ChargeNumber and AIN Primer response contains Billing Number	DN number and OSTY in AIN Primer response	NA005 (Note 1)
AIN Essentials OCM_trig -> AIN Primer DN	AIN Essentials AR response contains ChargeNumber and AIN Primer response contains no Billing Number	DN number and OSTY in AIN Primer response	Modified in NA006 to be consistent with parameter population (Note 2)
AIN Essentials OCM_trig -> AIN Primer DN	AIN Essentials AR response contains no ChargeNumber and AIN Primer response contains no Billing Number	DN number and OSTY in AIN Primer response	NA005 (Note 1)
AIN Primer DN -> AIN Essentials PODP	AIN Primer response contains Billing Number and AIN Essentials AR contains ChargeNumber	ChargeNumber, ChargePartyStationType in the AIN Essentials response	NA006 (Note 2)
AIN Primer DN -> AIN Essentials PODP	AIN Primer response contains Billing Number and AIN Essentials AR contains no ChargeNumber	Last Query charge number (AIN Primer Billing Number) and OSTY in AIN Primer response	NA006 (Note 2)
AIN Primer DN -> AIN Essentials PODP	AIN Primer response contains no Billing Number and AIN Essentials AR contains no ChargeNumber	Last Query charge number (AIN Primer DN Number) and OSTY in AIN Primer response	NA006 (Note 2)
Note 1: Supported by phase 1 in release NA005.			
Note 2: Addressed by this activity in release NA006.			

Table 49 Outpulsing information with AIN Primer PODP trigger

Scenarios	Description	Information outpulsed	Comments
AIN Essentials OCM_trig -> AIN Primer PODP	AIN Essentials AR response contains ChargeNumber and AIN Primer response contains Billing Number	Billing Number and OSTY in AIN Primer response	NA005 (Note 1)
AIN Essentials OCM_trig -> AIN Primer PODP	AIN Essentials AR response contains ChargeNumber and AIN Primer response contains no Billing Number	ChargeNumber, ChargePartyStationType in the AIN Essentials response	NA005 (Note 1)
AIN Essentials OCM_trig -> AIN Primer PODP	AIN Essentials AR response contains no ChargeNumber and AIN Primer response contains no Billing Number	originating DN and StationType	NA005 (Note 2)
AIN Primer PODP -> AIN Essentials PODP	AIN Primer response contains Billing Number and AIN Essentials AR contains ChargeNumber	ChargeNumber, ChargePartyStationType in the AIN Essentials response	NA006 (Note 2)
AIN Primer PODP -> AIN Essentials PODP	AIN Primer response contains Billing Number and AIN Essentials AR contains no ChargeNumber	Last Query charge number (Billing Number and OSTY in AIN Primer response)	NA006(Note 2)
AIN Primer PODP -> AIN Essentials PODP	AIN Primer response contains no Billing Number and AIN Essentials AR contains no ChargeNumber	Last Query charge number (originating DN and OSTY)	NA006 (Note 2)
Note 1: Supported by phase 1 in release NA005.			
Note 2: Addressed by this activity in release NA006.			

The effect of the AIN Primer DN or AIN Essentials TAT trigger with respect to outpulsing is different depending on whether it occurs last on a call. If the DN or TAT trigger occurs last on a call and a billing or charge number is returned, the DN or TAT trigger behaves as if it were the only trigger on the call and the DN or TAT number is outpulsed. If it is followed by another trigger, the DN number will not be outpulsed, although a billing number received in the response may if not overwritten.

10.3.2.3 Billing

Although AIN Primer and AIN Essentials use different automatic message accounting (AMA) structures and call codes, both follow a multiple record paradigm for the generation of records. That means that the portion of a call following such triggers as PODP, DN and TAT, is treated as a separate call leg for billing purposes. The previous AMA record is closed off and a new AIN record is begun for the leg following the trigger to the next such trigger or to call termination. Since all of the triggers being supported as subsequent triggers under this activity begin new call legs, billing will be handled as it is in each application without interworking.

10.3.2.4 PODP response processing

In this activity, post query processing for the PODP trigger is based on the PODP number. That is, translation (Analyze Route) and normal digit collection (Send_To_Resource) is based on the line attributes associated with the PODP number. Moreover, any toll screening or LATA screening during post-query processing is based on the line attributes of the PODP number. In other words, as far as the PODP trigger is concerned, post-query processing behaves exactly like termination attempt with the redirecting number, or the PODP number acts as the “termination attempt” agent.

To associate the PODP number with a line-attribute index, a new table, PODPATTR, is created. For the new table, if there is any ambiguity, the matching of the digit pattern is from most specific to least specific.

Moreover, Primary Inter-LATA Carrier (PIC) and Intra-LATA PIC (LPIC) information can be optionally assigned to the PODP number. In the case when the Analyze Route response does not include Carrier ID or Trunk Group ID, PIC and LPIC will be used. In the case that there is no PIC and LPIC assigned to the PODP number, the office default carrier will be used.

If a set of attributes is assigned against the RedirectingPartyID or PODP number, processing various responses from the database are affected as follows.

10.3.2.4.1 800 IN/1-digit access, 6-digit access, and PVN For the Analyze Route response, if this feature is encountered after the PODP trigger, the PODP number will be populated as the CallingANI and the OriginatingStationType will be populated using the station type specified in the LINEATTR associated with the PODP number. If no special station type is specified by the LINEATTR associated with the PODP number, Identified Line (ANI = 00) will be defaulted as the OriginatingStationType. If no LINEATTR is subscribed against the PODP number, the triggering agent’s attributes will be used to populate those two parameters.

10.3.2.4.2 Toll Restriction and Call Screening If line attributes are associated with the PODP number, Toll Restriction and Call Screening are

applied according to the line attributes associated with the PODP number. If there are no line attributes associated with the PODP number, then Toll Restriction and Call Screening are applied according to the attributes of the triggering agent. The determination of toll restriction on post-query processing is based on the line attributes associated with the PODP number, if it is subscribed. If it is not subscribed, toll restriction will be based on the attributes of the triggering agent.

10.3.2.4.3 BBG call restriction When line attributes are associated with the PODP number, BBG call restriction will not be encountered for the originator when the Analyze Route response is returned from the SCP. On the other hand, if there is no line attributes associated with the PODP number, BBG call restriction will be encountered for the Analyze Route response.

With the Continue response, BBG call restriction is encountered no matter whether or not there are line attributes associated with the PODP number.

10.3.2.4.4 Station Message Detail Recording (SMDR) If there are line attributes associated with the PODP number, no SMDR record will be generated for the post-query leg of the call because the PODP number has the property of a POTS number. If there are no line attributes associated with the PODP number, then SMDR will be generated if the triggering agent is a Centrex agent.

10.3.2.4.5 Executive busy override (EBO) When there are no line attributes associated with the PODP number, the Analyze Route response from the SCP will be treated as a Forward Call from the PODP number. Therefore, executive busy override (EBO) will be blocked. On the other hand, EBO is supported if there is no line attributes associated with the trigger.

With the Continue response, EBO is supported no matter whether or not there are line attributes associated with the PODP number.

10.3.2.4.6 Automatic Call Back/Automatic Recall (ACB/AR) Functionality stays the same whether or not there are line attributes associated with the PODP number. That is, ACB/AR functionality will be blocked for the Analyze Route response and will be allowed for the Continue response.

10.3.2.4.7 Station Origination Restrictions (SOR) If there are line attributes associated with the PODP number, SOR will not be encountered during post-query processing. On the other hand, if there are no line attributes associated with the PODP number, then SOR will be encountered during post-query processing.

10.3.2.4.8 Simplified Message Desk Interface (SMDI) If there are line attributes associated with the PODP number, the Analyze Route response is treated as a Forward Call from the PODP number. Therefore, the forwarding

station number presented to the SMDI will be affected. If there is no call redirection except PODP-AnalyzeRoute, the forwarding station number will be the PODP number no matter whether the SMDI is set up to display the first or the last redirection number. On the other hand, if there are no redirections before the PODP-AnalyzeRoute, the forwarding station number will be the PODP number if the SMDI is set up to display the last redirection. If there are no redirections after the PODP-AnalyzeRoute, the forwarding station number will be the PODP number if the SMDI is set up to display the first redirection.

The PODP-AnalyzeRoute will not affect SMDI if there are no line attributes associated with the PODP number.

In either case, SMDI will not be affected by the Continue response.

10.3.2.4.9 Denied Incoming (DIN) If line attributes are associated with the PODP number, calls redirected by the SCP will always be denied since these calls are considered as forwarded by a public number. If there are no line attributes associated with the PODP number, DIN functionality will be based on the attributes of the triggering agent and the terminator.

10.3.3 Interactions

AIN Primer and AIN Essentials each support interactions with a limited set of switch-based features. In general, those features which are supported to interwork with both AIN Primer and AIN Essentials will continue to be supported for calls involving the supported interworking of the two AIN applications. As part of this activity, those features which interact with both AIN applications will be characterized and the results documented in this section.

10.3.3.1 Interaction with call forwarding

This activity places no restrictions on interactions between AIN Primer, AIN Essentials, and call forwarding. The rustication placed on encountering AIN Primer from call forwarding following AIN Essentials are removed. In other words, the fact that AIN Essentials may have occurred prior to call forwarding will not prevent an AIN Primer trigger from being encountered.

10.3.4 Restrictions

The AIN Essentials CDP access code trigger is given a lower precedence than the less specific AIN Primer 3/6/10 PODP trigger.

11. AIN Essentials and E800 interworking

This chapter describes the interworking between AIN Essentials features and E800 functions.

11.1 Functional synopsis

Interaction between AIN Essentials and E800 is fully supported with restrictions. Other IN toll-free codes that are based on TR-533¹, including the 888 toll-free code are also supported, while other variants of IN 800 remain unsupported by AIN Essentials (that is, 800Plus and E008). Furthermore, the AIN implementation of 888 is not provided at this time (that is, based on GR-2892²). AIN Essentials processing and E800 (US) processing can take place on a call in a single office or multiple offices.

E800 processing occurs in the following instances:

- E800 response processing takes place in the Analyze_Information PIC of the AIN Essentials Originating Call Model (OCM).
- When E800 processing takes place, the response can route the call to
 - an interexchange carrier or a local exchange carrier
 - a number which can encounter the Public Office Dialing Plan (PODP) trigger
 - a number which can subscribe to the Termination Attempt trigger (TAT)
- When an AIN Essentials trigger takes place, the response can route the call by way of an Analyze_Route or Forward_Call message to an E800 number.

¹ Technical Reference TR-NWT-000533, *Generic Switching and Signaling Requirements to Support Toll-Free Service*, Issue 3, Supplement 1 Draft, February 1995.

² General Requirements GR-2892-CORE, *Switching and Signaling Generic Requirements for Toll-Free Service*, Issue 1, April 1995.

- Many agents were previously given indirect support by E800 to originate an E800 query after call forwarding. These agents may be given indirect support by E800 through AIN Essentials as follows:
 - if the agent is supported to encounter the AIN Essentials Termination Attempt trigger
 - the agent may receive a Forward_Call response with an E800 number as the CalledPartyID
 - the agent can then launch a query to the E800 SCP, and the call is routed according to the routing information provided by the E800 SCP.
- When a call arrives at an AIN Essentials SSP with an OZZ code and carrier identification that jointly subscribe to the Shared Interoffice Trunk trigger, the call may be configured to escape processing the Shared Interoffice Trunk trigger through datafill in a new table entitled TRGSIESC. The call may subsequently encounter E800 processing.
- A call that arrives at an AIN Essentials SSP with FGD signaling can encounter E800 processing, if subscribed in HNPA translation tables.

11.2 Feature description

AIN Essentials response processing can direct a call to an E800 number by way of an Analyze_Route or Forward_Call message. Conversely, an E800 response can return a routing number which subscribes to the AIN Essentials 3- to 10-digit Public Office Dialing Plan (PODP), or Termination Attempt triggers.

The following sections provide examples of supported call scenarios.

11.2.1 An AIN response directs a call to E800

AIN Essentials response processing can direct a call to an E800 number. This may happen in one of the following ways:

- The calling party subscribes to the Off-Hook Immediate trigger. An Analyze_Route response returns a 10 digit E800 number as the CalledPartyID.
- The calling party/originating trunk subscribes to the Off-Hook Delay trigger. An Analyze_Route response returns a 10 digit E800 number as the CalledPartyID.
- A call arrives at an AIN Essentials SSP by means of Feature Group D (FGD) signaling and is configured to encounter the Shared Interoffice Trunk trigger. (Note: it is possible to escape processing the Shared Interoffice Trunk trigger.). An Analyze_Route response returns a 10 digit E800 number as the CalledPartyID.

- A call encounters one of the triggers at the Info. Analyzed Trigger Detection Point (TDP). An Analyze_Route response returns a 10 digit E800 number as the CalledPartyID.
- A call encounters the Automatic Flexible Routing (AFR) trigger. An Analyze_Route response returns a 10 digit E800 number as the CalledPartyID.
- A call terminates to a directory number that subscribes to the Termination Attempt trigger. A Forward_Call response returns a 10 digit E800 number as the CalledPartyID.

In each of the previous scenarios, a call performs AIN Essentials processing, and the AIN Essentials response directs the call to an E800 number. An E800 query message, which includes the relevant AIN Essentials response information, is launched to the E800 SCP. The call is routed according to the routing information returned from the E800 SCP.

Figure 14 illustrates a call that encounters an AIN Essentials trigger in the AIN Essentials Originating Call Model. An Analyze_Route response is returned which directs the call to an E800 number.

Figure 14 AIN Essentials trigger in the Originating Call Model routes the call to an E800 number

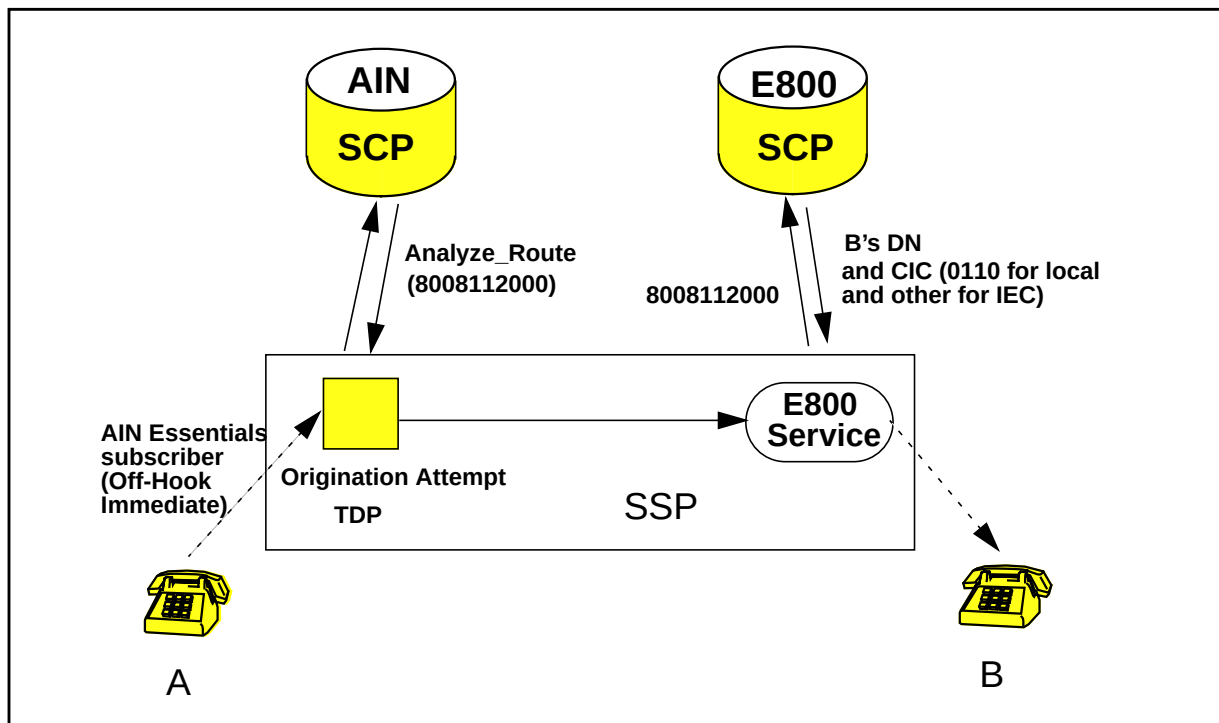
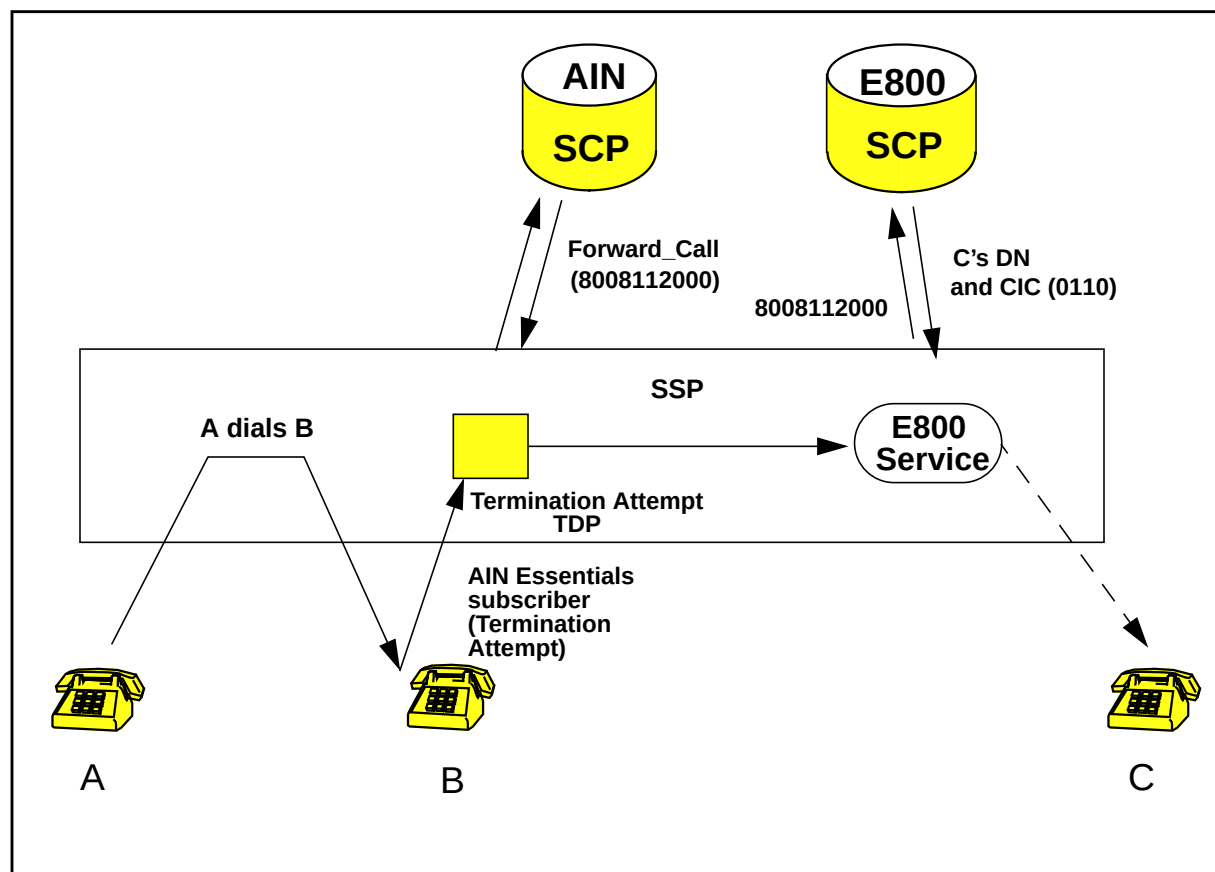


Figure 15 illustrates a call that encounters an AIN Essentials trigger in the AIN Essentials Terminating Call Model. A Forward_Call response is returned which directs the call to an E800 number.

Figure 15 AIN Essentials trigger in the Terminating Call Model routes the call to an E800 number

11.2.1.1 Structure of the AIN Essentials response message

The structure of the AIN Essentials response that routes a call to an E800 number is not restricted. For example, the AIN Essentials response may contain any/all of the following information:

- AMASlpID = Y
- CallingPartyID
- Charge_Number and Charge_Party_Station_Type
- Primary/alternate/second alternate carrier
- Primary/alternate/second alternate trunk group

When an AMASlpID is requested, then an AIN automatic message accounting (AMA) record is produced separately from the E800 AMA record. AMA is discussed in more detail in the AIN Translation Guide.

AIN Charge_Number and Charge_Party_Station_Type parameters may be specified by the AIN SCP. If provided, these values are used to populate the Calling_ANI and the Originating_Station_Type fields respectively of the

E800 query message. This is discussed in Section 11.2.3.1 “E800 query message parameter population” on page 276.

The AIN Essentials response may also provide routing information in the form of carrier or trunk group parameters, or both. If the AIN Essentials response provides routing information, AIN Essentials attempts to route the call to the trunk group or carrier.

As per TR-1284 (R)-2.6-204, route screening is performed to ensure that it is valid to route the call to the carrier specified in the response. As per TR-0533, casual dialing to an E800 number should be prevented. Table EASAC is used to achieve this requirement.

If an E800 CalledPartyID is specified, then datafill in table EASAC may prevent the call from passing the pre-routing validation. Entries in table EASAC prevent a user from using casual dialing to specify a carrier when dialing an 800 number. Removing entries from table EASAC will allow more AIN Essentials calls which specify a carrier with an E800 number to complete. However it will also allow calling parties to dial an E800 number and specify a preferred carrier to use. For example, it would be possible to dial 10XXX-1-800-NXX-XXXX or 101XXXX-1-800-NXX-XXXX.

11.2.2 An E800 response directs a call to AIN Essentials

E800 response processing can direct a call to an AIN Essentials subscriber. This may happen in one of the following ways:

- A call performs E800 processing and the E800 response returns a routing number that subscribes to the office-wide AIN Essentials 3- to 10-digit Public Office Dialing Plan trigger.
- A call performs E800 processing and the E800 response returns a routing number that subscribes to the Termination Attempt trigger.

In each of these scenarios, a call performs E800 processing, and the E800 response routes the call to an AIN Essentials subscriber. An AIN Essentials query message is launched. The call is processed according to the response returned from the AIN SCP.

Note: The Automatic Flexible Routing (AFR) trigger cannot be encountered after E800 processing takes place, even if E800 was encountered on a separate call forwarding leg.

Figure 16 illustrates a call which encounters E800 processing. The E800 response indicates to route the call to an AIN Essentials subscriber in the local SSP.

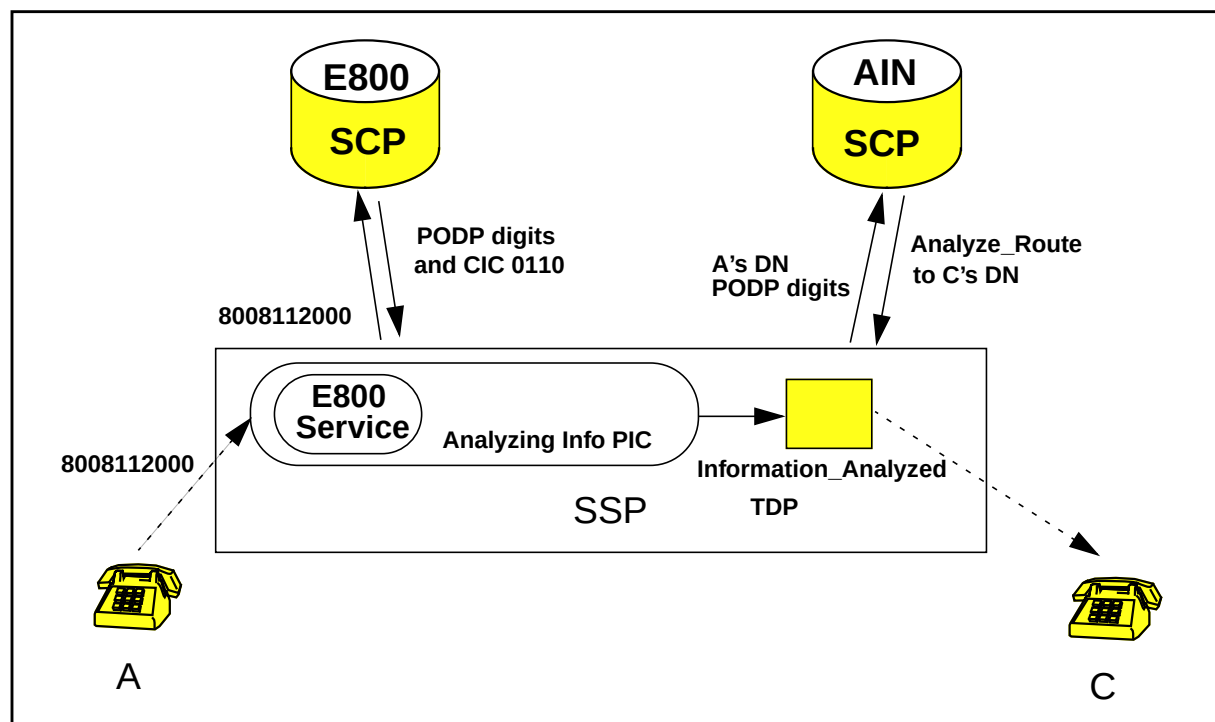
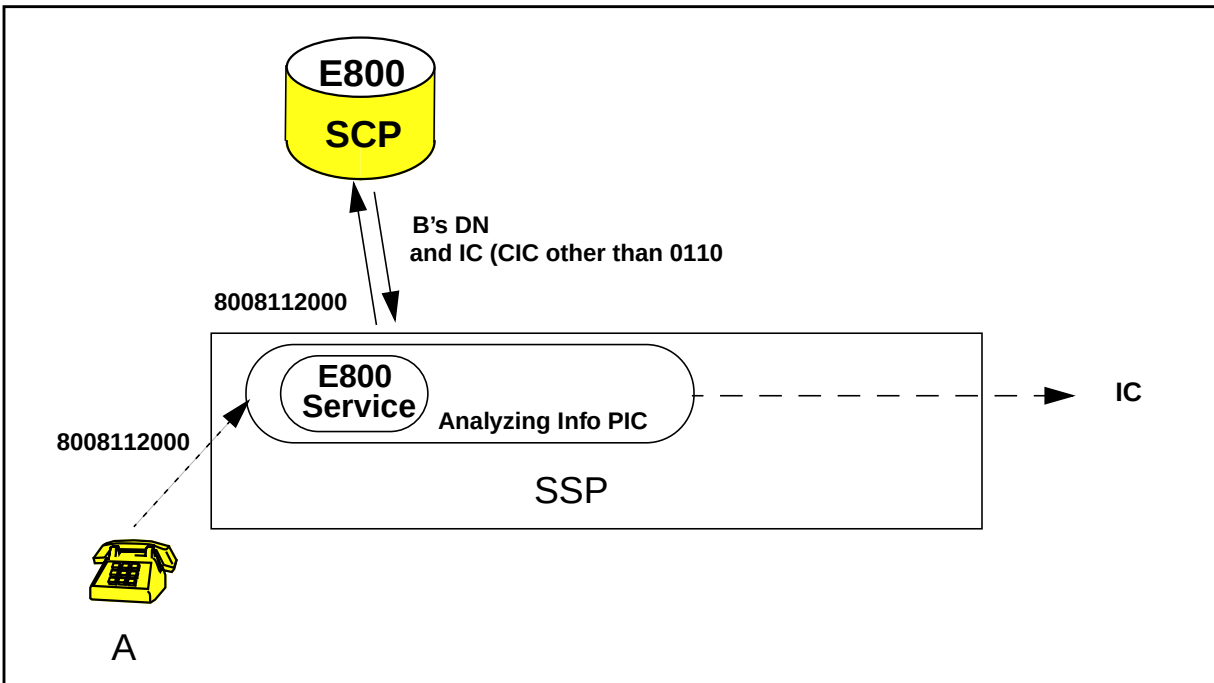
Figure 16 E800 response routes call to local CIC and AIN Essentials PODP number

Figure 17 illustrates a call which encounters E800 processing. The E800 response indicates to route the call to an Interexchange Carrier (IC). The call returns to the Analyzing Information PIC of the OCM, prior to routing the call out to the IC specified in the E800 response message.

Figure 17 E800 response routes call to IC



If a user dials an E800 number, and the PRETRAN option is subscribed in table NSCDEFS, and the E800 response returns an AIN PODP number, then AIN Essentials processing will use the originator's pretranslator as opposed to the E800 pretranslator.

E800 calls (no AIN) bypass certain types of screening. For example, consider Toll Denial that prevents a user from making toll calls. The user should still be able to make an 800 toll-free call. However, any AIN Essentials and E800 interworking calls will not bypass screening.

If any type of redirection (PODP with Analyze_Route, TermAtt with Forward_Call, or Switch-based call forwarding) takes place after the E800 SCP sends back a Send-Termination-Notification response, the Answer indicator in the Return_Result_Last message will be set to NO.

Calls originated from TermAtt only supported trunks will not encounter the PODP trigger after E800 response processing. This means that if the E800 response provides a routing number which is a PODP number (and a LEC CIC), the PODP trigger will not be processed.

11.2.3 Message protocols

This sections describes how E800 query messages are populated after AIN Essentials processing takes place, and how AIN Essentials query messages are populated after E800 processing takes place.

11.2.3.1 E800 query message parameter population

The E800 query message contains information for the calling party and billing information which must take into account previous AIN response information, if available.

The E800 query parameters of interest are as follows:

- calling_ani
- originating station type
- LATA
- called party

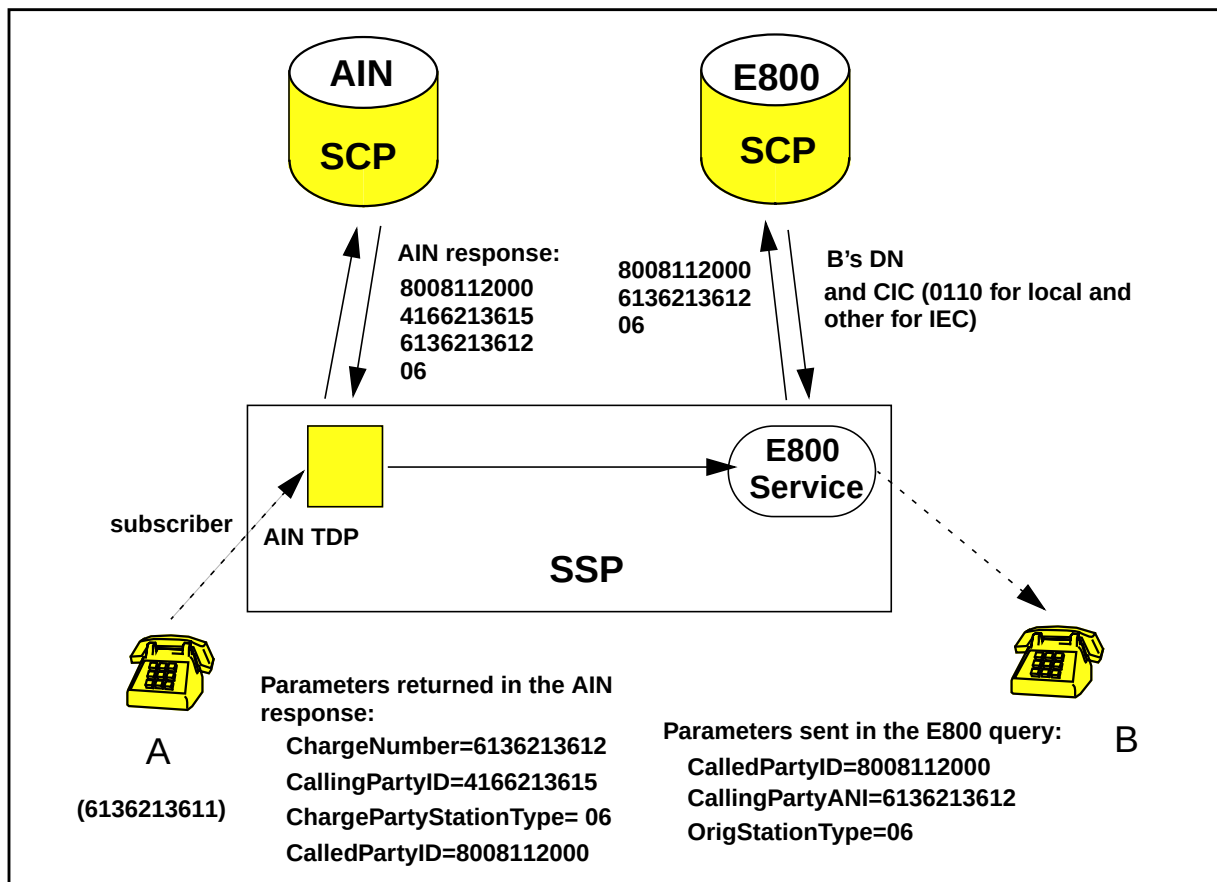
When AIN Essentials processing has taken place, the AIN Essentials response information will be used to populate these message parameters as follows:

- **Called_Party**
 - The Called_Party parameter is populated with the E800 number, for example, 8008112000.
- **Calling_ANI and Originating_Station_Type**
 - The AIN Essentials Charge_Number information, if available, is used to populate the Calling_ANI parameter of the E800 query message. If a Charge_Number is supplied by the AIN SCP, then a Charge_Party_Station_Type parameter must also be specified by the SCP. The Charge_Party_Station_Type value is used to populate the Originating_Station_Type parameter.

As per Bellcore specifications, the AIN Essentials CallingPartyID response information is never used to populate the Calling_ANI field.

Figure 18 illustrates how AIN charge information is used to populate the E800 query message parameters.

Figure 18 Population of the Calling_ANI parameter when AIN Essentials charge information is available



If AIN Essentials charge information is not supplied by the AIN SCP, then population of the Calling_ANI, LATA and Originating_Station_Type parameters depends upon the call scenario. In particular, AIN uses Identified_Line as the default value for Charge_Party_Station_Type. If ANI information is propagated throughout the call and is followed by E800 processing, then this value may be used by E800 as the Originating_Station_Type parameter. If AIN Essentials processing is not present on the call, then the E800 default value may be used.

E800 query message parameter population after AIN Essentials processing, in the absence of AIN Essentials charge information, is discussed in the remainder of this section.

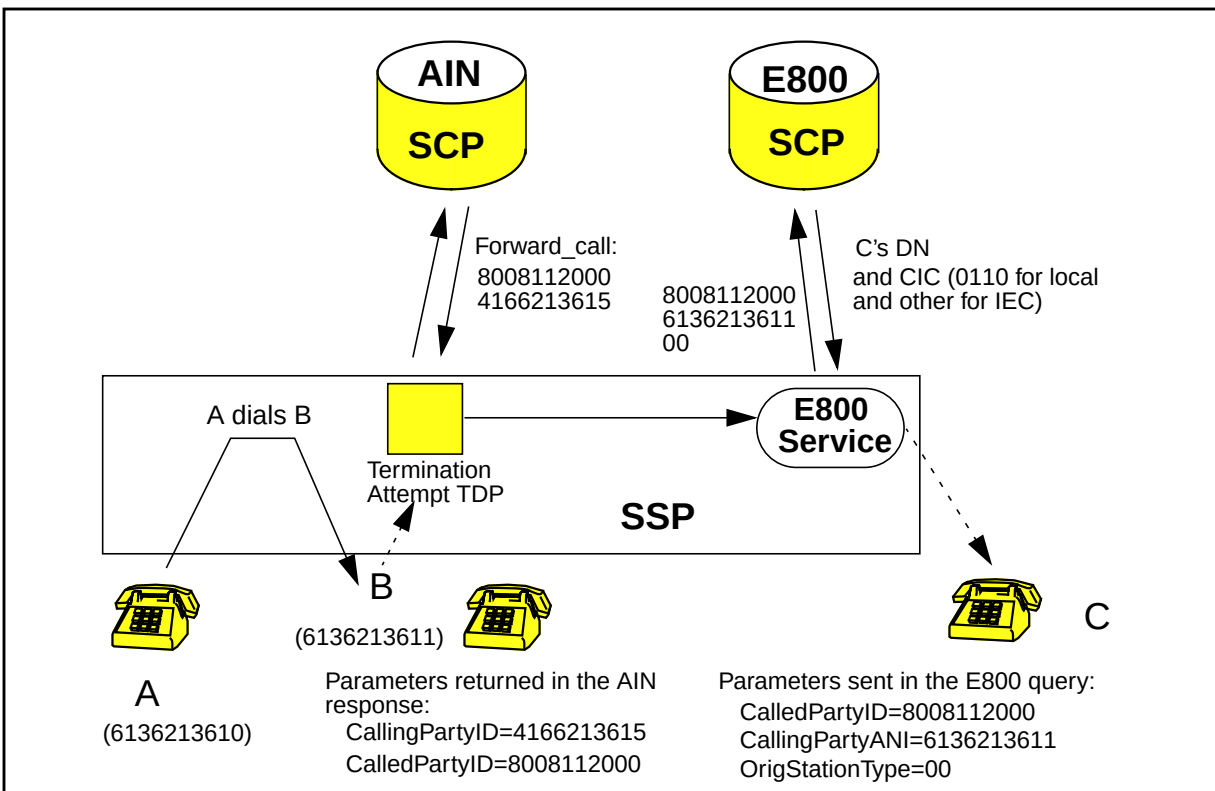
If the E800 query is being processed on the forwarding leg of AIN Essentials Forward_Call redirection in the same SSP, or switch-based call forwarding, then the forwarding agent's redirection information is used to populate the Calling_ANI, Originating_Station_Type and LATA parameters.

In particular, when a Forward_Call response is received in the same SSP, then

- the ten-digit address of the forwarding party is used to populate the Calling_ANI parameter
- the OLI of the forwarding party is used to populate the Originating Station Type parameter
- the LATA of the forwarding station is used to populate the LATA parameter
- the forwarding station's SNPA is used to translate the E800 response
- the forwarding station's pretranslator, or the E800-defined pretranslator associated with the PRETRAN option, is used to translate the E800 response

Figure 19 illustrates the population of the E800 query message after an AIN Essentials Forward_Call response message is received with an E800 number as the CalledPartyID, and no charge information.

Figure 19 Population of the Calling_ANI parameter when AIN Essentials charge information is not available



If an AIN Essentials Analyze_Route response provides a RedirectingPartyID parameter with an E800 number as the CalledPartyID, the AIN Essentials redirecting information is not used to populate the E800 query message. This is the behavior indicated by Bellcore specifications. In this situation, the AIN

Essentials charge information is used if available; otherwise, the originator's information is used.

If there is no redirection on this leg of the call, then conventional population of the Calling_ANI, Originating_Station_Type and LATA parameters is performed by E800.

After AIN Essentials charge information is provided, if the call is subsequently routed over a trunk that cannot provide ANI information, then the AIN Essentials charge information is lost and is not used to populate the E800 query.

If the call is received from an MF trunk, the calling number is not included. However, ANI information may be available

- if ANI information is available, it is used to populate the calling_ani field
- if ANI information is not available, then the calling party, originating station type, and LATA are derived using E800 table control datafill (table SSPTKINF, and possibly NSCSNPA). The derived NPA or NPA-NXX is used to populate the calling_ani parameter.

For an ISUP originator (TR-0317 or TR-0394), the calling number is received, and a charge number may or may not be received. E800 uses the information available in the following order:

- Automatic Number Identification and Originating Line Information
- Calling information (which is equal to the Charge Number) and Originating Line Information
- Redirecting Number
- Original Called Number
- Calling Party Number (no Originating Line Information)

When the AIN SCP returns a ChargeNumber parameter in a response and the call eventually goes out to a FGD trunk (ISUP or MF), then this ChargeNumber will be outpulsed as the ANI and any subsequent E800 query will use this to populate the Calling_ANI field. This ChargeNumber (or ANI in the next office) is also used to populate the Originating Number in the E800 AMA record.

11.2.3.2 AIN Essentials query message parameter population

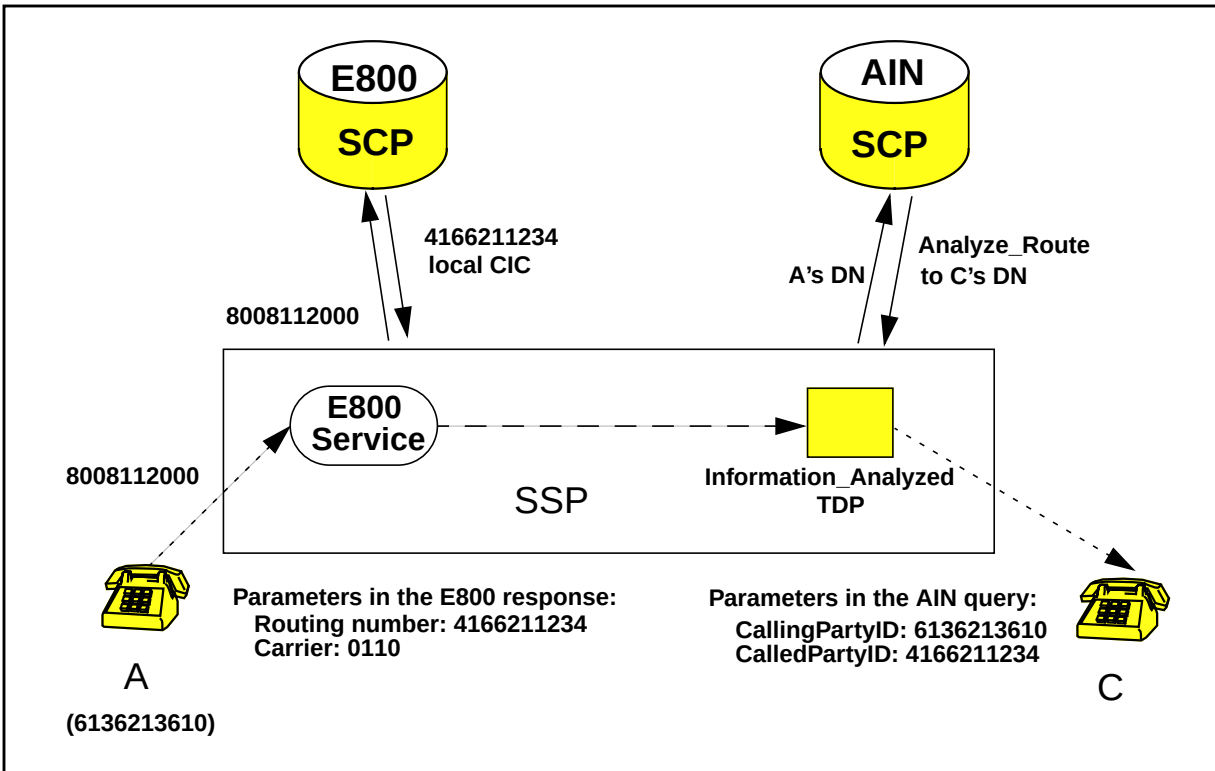
When E800 processing precedes AIN Essentials processing on a call leg, then E800 response information must be used to populate the AIN Essentials query parameters, where applicable. Parameters that are unaffected by AIN Essentials response information are determined by standard AIN Essentials call processing.

E800 response processing can direct a call to an AIN Essentials subscriber in one of two ways:

- A call performs E800 processing and the E800 response returns a routing number that subscribes to the office-wide AIN Essentials Public Office Dialing Plan trigger (see Figure 20).
- A call performs E800 processing and the E800 response returns a routing number that subscribes to the Termination Attempt trigger (see Figure 21).

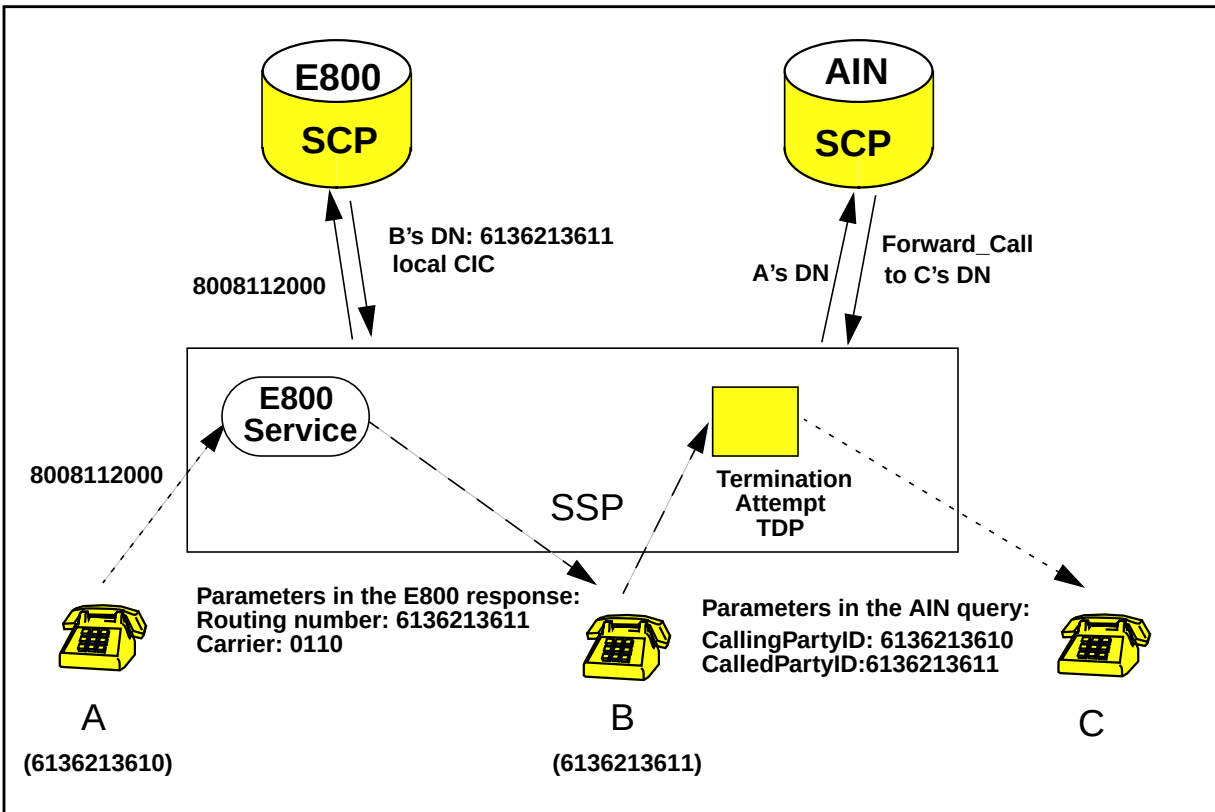
When an E800 response returns a routing number which subscribes to the office-wide PODP trigger, the routing number is used to populate the AIN Essentials CalledPartyID parameter of the query message.

Figure 20 E800 response indicates a PODP subscribing address



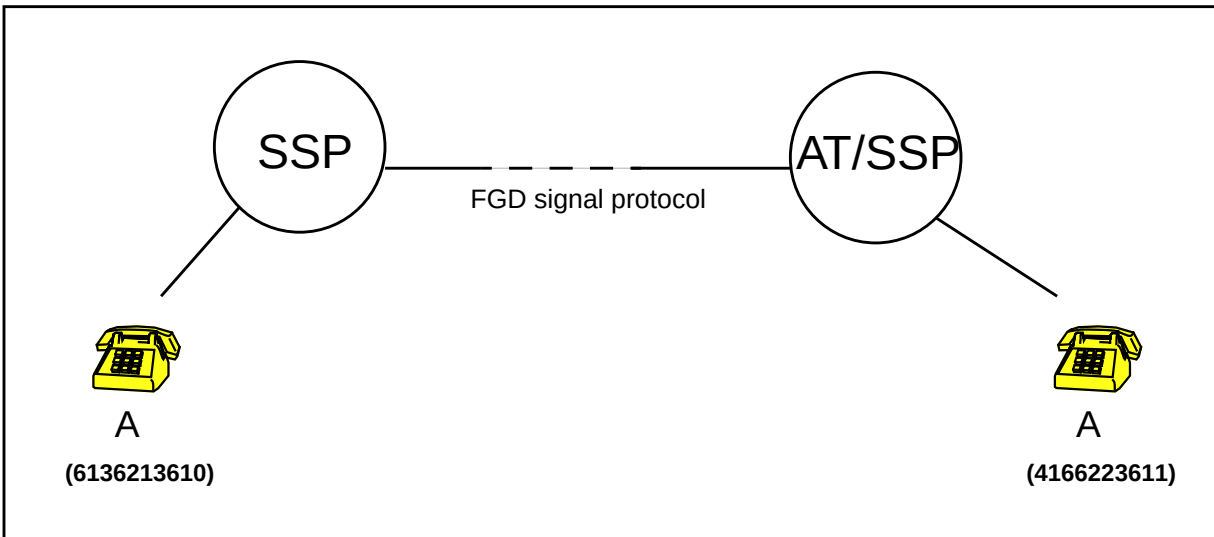
When an E800 response returns a routing number that subscribes to the Termination Attempt trigger, the routing number is used to populate the AIN Essentials CalledPartyID parameter of the query message.

Figure 21 E800 response indicates a Termination Attempt subscribing address



11.2.4 Call flow

A FGD call includes a number of parameters used in the routing and recording of these calls. Figure 22 illustrates a call that is routed to an AT/SSP using FGD signaling.

Figure 22 FGD signaling

The FGD signal protocol includes the following information:

- ANI
- ANI ID digits (OLI)
- routing digits
- preferred carrier (optional)

The routing digits are transmitted to the AT/SSP in the following form:

- 0ZZ+XXX(X) (For North America calls)
- 1N/N'X+XXX(X)+CCC (For International calls)

When the routing digits are received at the AT/SSP, they are read in table STDPRT of the incoming trunk group. The 0ZZ field indicates the type of call, and the digits XXX(X) which immediately follow the 0ZZ digits specify the carrier to route the call to in the AT/SSP.

E800 calls may be assigned a particular 0ZZ code, with the NSC selector, in table STDPRT. During standard pretranslation at the AT/SSP, the E800 0ZZ code is recognized, and E800 is activated immediately. AIN Essentials triggers cannot be encountered using the digits received in the incoming signal.

However once the E800 query takes place and a response is received from the E800 SCP, AIN Essentials triggers can subsequently be encountered using the routing number in the E800 response. Calls transmitted using a 0ZZ code with the NSC selector may encounter only the following triggers within E800 response processing:

- Public Office Dialing Plan (PODP)

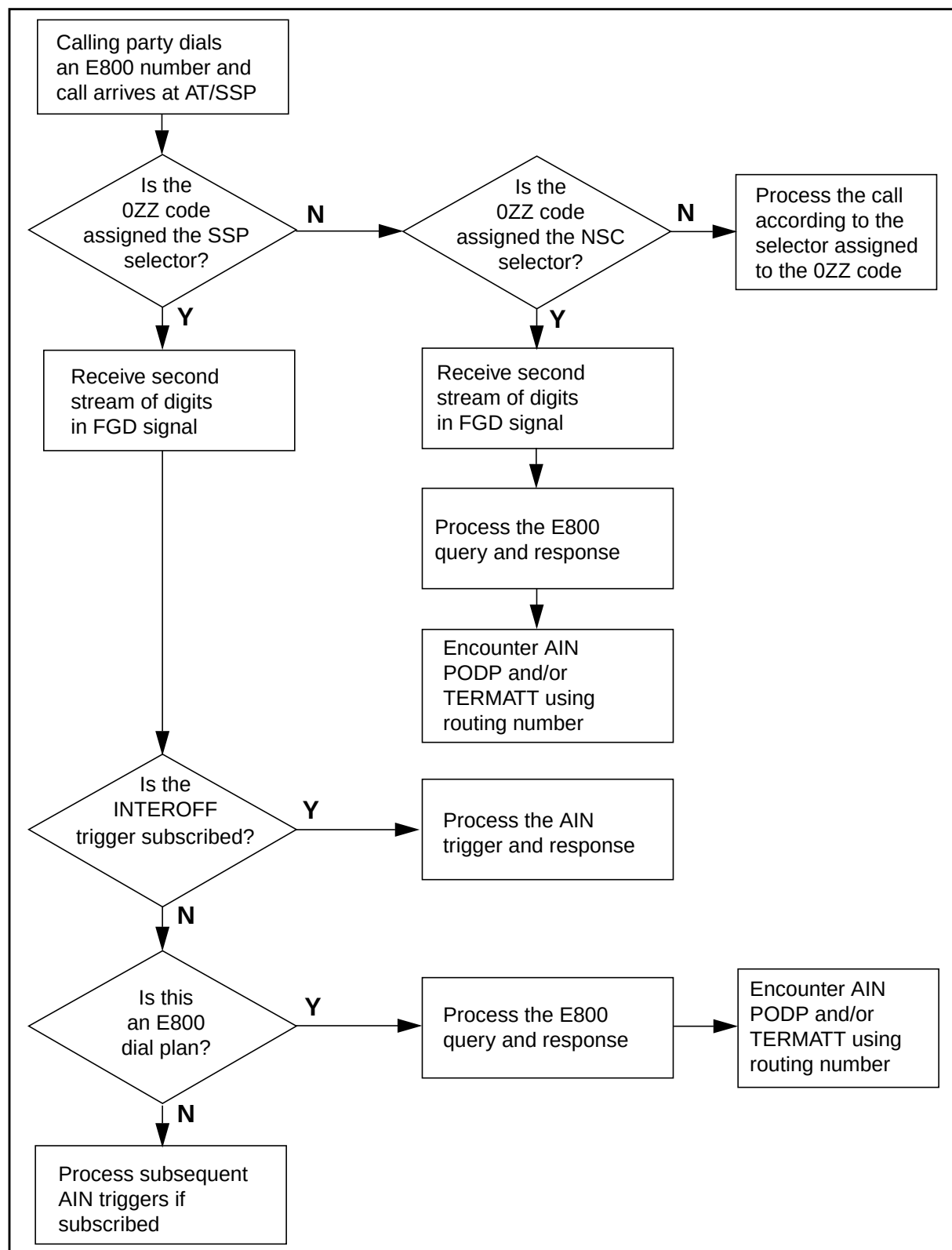
- Termination Attempt

AIN calls may be assigned a particular 0ZZ code, with the SSP selector, in table STDPRT. Calls which arrive at the AT/SSP with this 0ZZ code may encounter all applicable AIN Essentials originating and terminating triggers in the AT/SSP. This includes the following triggers:

- Off-Hook Delay (if subscribed by the incoming trunk group)
- Shared Interoffice Trunk
- Public Office Dialing Plan (PODP)
- Automatic Flexible Routing (AFR)
- Termination Attempt

Calls that arrive at the AT/SSP with a 0ZZ code with the SSP selector may also encounter E800 processing during translations. E800 may be subscribed against a dial plan datafiled in table HNPACODE, which is processed during translations.

Figure 23 illustrates the call flow.

Figure 23 Call flow for FGD signaling

11.2.4.1 Escape processing by the Shared Interoffice Trunk trigger

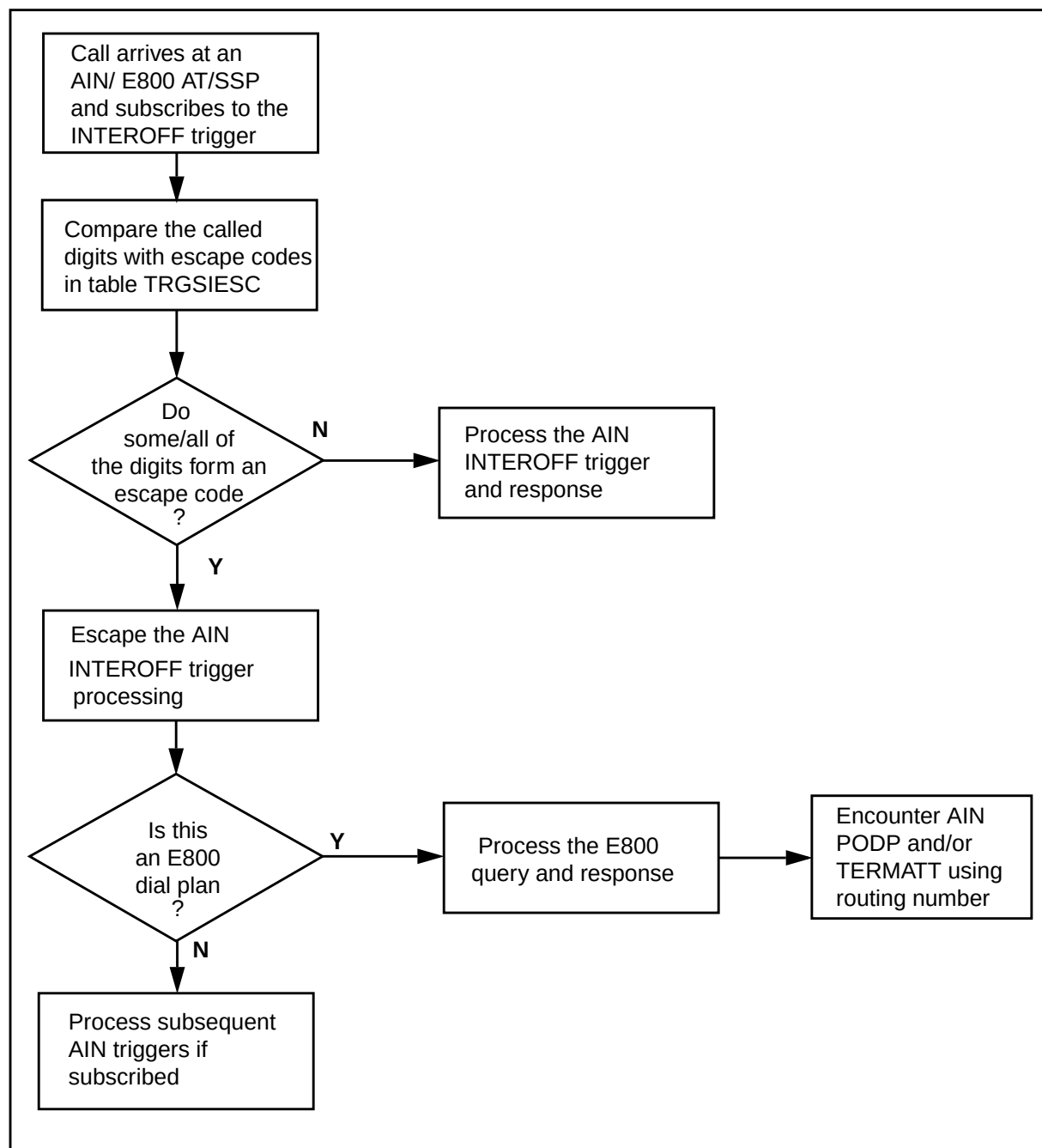
A call may be configured to escape processing the Shared Interoffice Trunk trigger by datafilling between one and ten of the called digits in table TRGSIESC.

When a call arrives at an AT/SSP by means of FGD signaling, and the second stream of digits have been collected, the Shared Interoffice Trunk trigger is encountered, if subscribed.

The Shared Interoffice Trunk trigger can be subscribed against the pretranslation code (0ZZXXX(X)) without attention to the called digits received in the same signal.

For instance, it is desirable for E800 calls to be sent to a combined AIN Essentials/E800 SSP with a 0ZZXXX(X) code with the SSP selector. If the 0ZZXXX(X) digits subscribe to the Shared Interoffice Trunk trigger, then AIN Essentials processing will take place before the E800 processing. It may be desirable for E800 processing to take precedence over AIN Essentials processing of the Shared Interoffice Trunk trigger. This may be accomplished by datafilling up to ten of the called digits in table TRGSIESC.

Figure 24 illustrates the call flow that may escape processing the Shared Interoffice Trunk trigger.

Figure 24 Call flow which may escape processing the Shared Interoffice Trunk trigger

11.2.5 Feature Interactions

Features which are supported by E800 and AIN Essentials are addressed here. For instance, the following features are addressed:

- call forwarding
- call transfer

- virtual facility groups

Not all AIN Essentials/AIN Primer/IN E800 interactions are supported at this time. They are discussed in more detail in the following sections.

11.2.5.1 AIN Essentials/CFW/E800 Interactions

A calls B, where B subscribes to both the AINDN and the Call Forward (CFW) options. CFW is programmed to direct incoming calls to an E800 number.

In this scenario, the AIN Essentials Termination Attempt trigger is processed. If an Authorize Termination response message is received, then the call is allowed to terminate and encounter call forwarding. On the forwarding leg, E800 processing takes place, showing the forwarding station as the originator of the forwarding call.

11.2.5.2 AIN Essentials/Call transfer/E800 Interactions

A user can subscribe to AIN Essentials triggers, and activate Call Transfer to transfer an incoming call to an E800 number.

11.2.5.3 Virtual facility groups/AIN Essentials/E800

Currently, AIN Essentials can encounter Virtual Facility Groups (VFGs) during response processing. VFGs cannot subscribe to originating triggers. It is also not possible to encounter any AIN Essentials originating trigger once the call is routed through a VFG.

Furthermore, E800 does not support originations from IBN VFGs.

However, an AIN Essentials Analyze_Route or Forward_Call response message can route a call to an E800 number through a POTS VFG.

In this case, the LATA corresponding to the POTS VFG's line attribute index is sent in the E800 query message to the E800 SCP. If the POTS VFG provides a billing number, it is used as the Calling_ANI in the E800 query message and appears in the originating field of the E800 AMA record.

11.2.5.4 AIN Essentials/E800/AIN Primer interactions

A list of AIN Essentials/E800/AIN Primer supported call scenarios follows:

- AIN Primer OHI, OHD, 3 to 10 digit PODP, ITS, SIT, *XX, PDP, CDP, AFR, or DN -> AIN Essentials TAT -> E800.
- When query processing is performed in the same office, call scenarios E800 -> AIN Essentials TAT -> AIN Primer 3 to 10 digit PODP, or DN are supported.

Note 1: If call forwarding is encountered after the E800 processing, then the AIN Essentials OHD and CDP triggers may be encountered on the forwarding leg of the call. After the AIN Essentials OHD is encountered,

the call may subsequently trigger at the AIN Primer 3 to 10 digit PODP or DN triggers. After the AIN Essentials CDP trigger is encountered on the call, then subsequent triggering on the call of the AIN Primer triggers is not supported.

Note 2: The following call scenarios are not supported:

E800 -> AIN Essentials PODP -> any AIN Primer trigger

The currently known interactions for unsupported call scenarios involving AIN Essentials, E800, and AIN Primer are

- AIN Essentials -> AIN Primer -> E800 calls result in the originator's LATA populated in the E800 query, not the LATA determined by the response translations
- AIN Primer -> E800 -> AIN Essentials PODP calls result in the AIN Essentials PODP trigger being bypassed

11.2.6 Restrictions/limitations

This section presents a number of functions that have restrictions or limitations in their interworking with AIN Essentials.

11.2.6.1 IN 800 variants

This activity applies to the E800 variant of the IN 800 service only, including both the 800 and 888 toll-free codes. E800 is deployed only in the United States telecommunications market.

Other variants of IN 800 deployed elsewhere remain unsupported by AIN Essentials. The AIN implementation of the 888 toll-free service (GR-2892) is not provided at this time.

11.2.6.2 E800 screening

E800 calls (no AIN) bypass certain types of screening. For example, consider Toll Denial which prevents a user from making toll calls. The user should still be able to make an 800 toll-free call. However, any AIN Essentials and E800 interworking calls will not bypass screening

11.2.6.3 FGD signaling

AIN Essentials does not support the use of the same 0ZZ code for both NSC calls and AIN Essentials calls. Therefore, if the NSC selector is assigned to a 0ZZ code, the call does not encounter AIN triggers. The SSP selector must be assigned to the 0ZZ code in order to encounter AIN triggers.

However, if the SSP selector is assigned to the 0ZZ code, E800 processing can take place. Please refer to Section 11.2.4 , "Call flow," on page 281 for details on how E800 processing can take place on FGD calls.

11.2.6.4 Administration

TR-1284 indicates that the SSP shall prevent the user from datafilling the same trigger criteria for AIN Essentials and E800 services. For example, the same NPA-NXX should not be datafilled both in E800 tables to trigger an 800 query and in the AIN table TRIGDIG to initiate a PODP trigger.

E800 can be subscribed against the pretranslator or against any sequence of three to ten digits in the HNPA tables. The PODP trigger can be subscribed by any sequence of three to ten digits in table TRIGDIG. The extent of verification required to ensure that the same (or less-specific) digit criteria is not datafilled in the E800 and AIN table control was estimated to be unrealistic.

The user is not prevented from datafilling the same trigger criteria in E800 and AIN table control. Instead, it clearly indicates the order of precedence in which AIN and E800 triggers are encountered on a call:

- If E800 triggers are subscribed against the pretranslator, then AIN Essentials triggers are not encountered immediately. However, AIN Essentials triggers may be encountered during E800 response processing.
- If E800 triggers are subscribed against a digit pattern in the HNPA translation tables, then E800 is encountered at the Analyzing Information PIC in the AIN Essentials Originating Basic Call Model (OCM). This means that E800 and AIN triggers are processed in the following order in the OCM:
- AIN Origination Attempt TDP
 - Info. Collected TDP
 - E800
 - Info. Analyzed TDP
 - Network Busy TDP

Note: The CDPCODE trigger within the Info.Analyzed TDP is encountered after E800 even if the E800 number is prefixed with a access number which is assigned to a CDPCODE trigger. For example, if a user in a Customized Dialing Plan dials 9-1-800-NXX-XXXX (9 is datafilled as a CDP AccessCode trigger criteria), this call will encounter E800 processing first before the CDPCODE trigger.

11.2.6.5 00Y codes

Historically, 00Y codes are used to provide information about the calling party when calling address and ANI information are not available. 00Y codes are also used when one trunk group comes in from another office which serves more than one NPA. The 00Y code is mapped to the serving NPA of the calling party. 00Y calls are typically Feature Group C calls.

E800 takes place at the Analyzing Information PIC of the AIN Essentials Originating Call Model (OCM). The potential for interaction with AIN depends on whether the SSP that receives calls with an NPA of the form 00Y is provisioned to perform E800 processing, or both E800 and AIN Essentials processing,

- SSP is capable of only E800 processing: This call type is unaffected by AIN Essentials. During translation, E800 processing recognizes the incoming 00Y call as an 800 call and performs the appropriate mapping during E800 trigger processing.
- SSP is capable of both E800 and AIN processing. This call type can encounter Off-Hook Delay and Shared Interoffice Trunk triggers prior to E800.
 - For these triggers at Info. Collected, when an AIN query is sent, if the calling information is unavailable, the userID is sent up as the calling address in the AIN query. The NPA corresponding to the 00Y code is not sent up as the calling address information.
 - If no AIN Essentials triggers are processed at the Info. Collected TDP, or the call is configured to escape processing the Shared Interoffice Trunk trigger using table TRGSIESC, then E800 processing can be invoked to process the 00Y code and query the E800 database appropriately.

11.2.6.6 Multiple E800 Queries in a single call leg

The DMS implementation of E800 does not allow for more than one E800 query to take place on a single call leg. For example, if a call already encounters E800 service and the E800 SCP returns an 800 number with a LEC carrier, then AIN will send the call to treatment.

Note: A new call leg is defined as follows:

- the forwarding leg when switch-based call forwarding is active
- the forwarding leg after an AIN Essentials Termination Attempt trigger has taken place and a Forward_Call response message has been received

Note: An Analyze_Route response message containing a RedirectingPartyID should not be treated as a new call leg. This is a Bellcore recommendation.

However, when E800 interworks with AIN Essentials in a call leg, then multiple E800 queries are allowed, if and only if the trigger involved is PODP AND this trigger happens in between each E800 query. Note that the routing number in the 800 SCP response is a PODP number (which is associated with an active PODP trigger) but not a 800 number. If it is a 800 number, E800 will send the call to treatment when the SSP receives the response. See Figure 25 for an example.

Figure 25 An example of Multiple E800 database queries with AIN Essentials PODP trigger

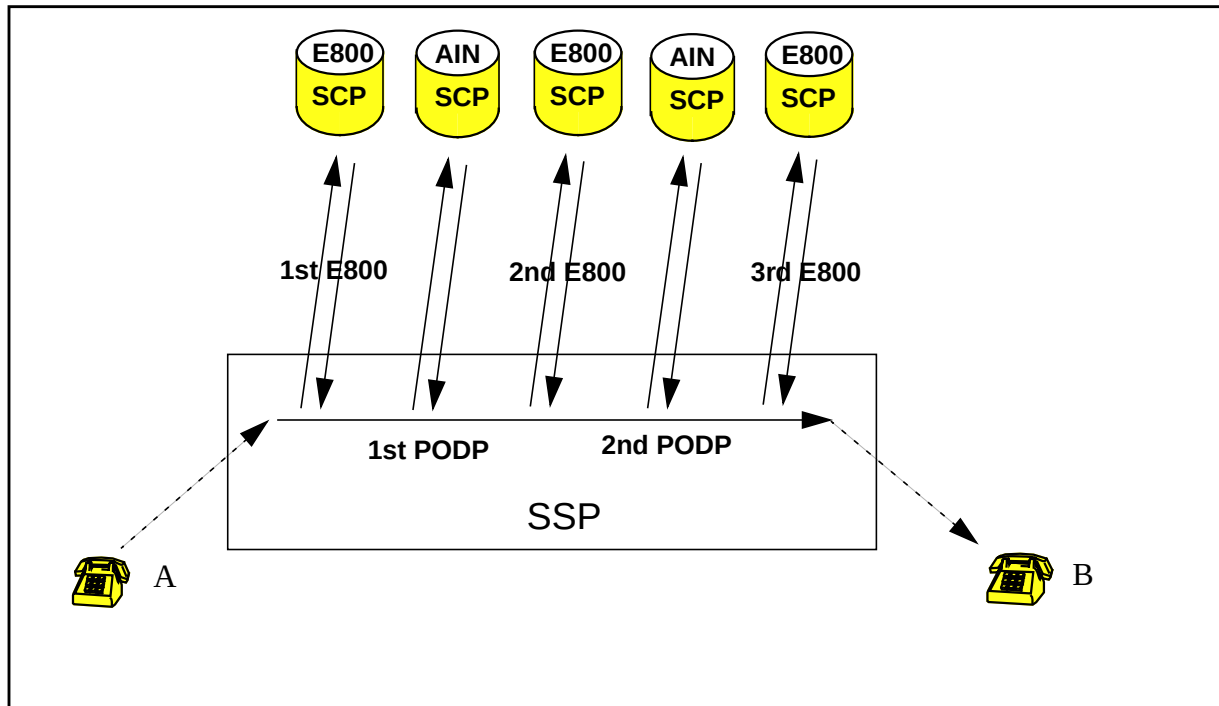


Figure 25 shows a call that encounters E800 and the 800 SCP returns a PODP number and a LEC CIC in the response. The call then triggers at PODP. The AIN SCP returns an Analyze_Route response with a 800 number as the CalledPartyID (without CIC info). The call then encounters E800 again and the 800 SCP returns another PODP number and a LEC CIC. The call then triggers at PODP again.

Multiple triggers occur until one of the following conditions are met:

- The 800 SCP returns a non-PODP routing number, or an IEC CIC. or
- The AIN SCP returns a non-800 CalledPartyID, or TrunkGroupID, or IEC CIC. or
- The number of PODP triggers exceeds the maximum value datafilled in the office variable AIN_MAX_SERIAL_TRIGGERS.

The maximum number of AIN triggers that can be encountered in a single call leg is limited by the office variable AIN_MAX_SERIAL_TRIGGERS in table OFCENG. Therefore, the maximum number of multiple E800 queries in a call leg is the value in the variable AIN_MAX_SERIAL_TRIGGERS.

11.2.6.7 Automatic Flexible Routing Trigger (AFR)

It is not possible to encounter the Automatic Flexible Routing trigger after E800 processing takes place. This is true even after call forwarding takes place.

11.2.6.8 Calling_ANI field in E800 query message

Without AIN in the picture, if the number of digits in the Calling_ANI field of the E800 query message is not 3, 6, or 10, then E800 will send the call to treatment. When AIN triggers prior to E800 and the AIN SCP returns a ChargeNumber that is not 3/6/10 digit number, E800 will also send the call to treatment.

11.2.6.9 Agent support

Not all agents are supported by AIN Essentials and not all agents are supported by E800. AIN does not alter the agent support for E800. In order for AIN to route an agent's call to an E800 number, the following conditions must be met:

- the agent must be supported to encounter AIN Essentials triggers
- the agent must be supported by E800

If both of these conditions are not met, the call is not supported.

For a list of agent support for AIN Essentials, please refer to Chapter 3.: "Agent support" on page 73.

12. Attendant console interactions

This section provides a list of attendant console features (Table 50) that are supported to interwork with AIN Essentials. This list identifies the support of each feature as “Category A” or “Category B”.

Generally, console features in “Category A” are supported with AIN Essentials. Features in “Category B” have no interaction with PODP, N11, and encounter TAT triggers.

Table 50 Attendant console features

Feature name	Category A	Category B
Alarm call status on Attendant Console		X
Attendant Call Detail Entry	X	
Attendant Conference (max. six conferees)	X	
Attendant Console Activation/Deactivation of CFU/CFI		X
Attendant Control of Virtual Facility Groups (VFGs)		X
Attendant Console Monitor Display (ACMON)		X
Attendant Console OMs on an Individual-Console Basis		X
Attendant Console to ACD	X	
Attendant Console to UCD	X	
Attendant Extended Calls to CFB/CFNA	X	
Attendant Message Waiting		X
Audio Input on Incoming Calls in Queue		X
Autodial	X	
Automatic Recall	X	
Attendant Transfer		X
Authorization Codes	X	

Table 50 Attendant console features (Continued)

Feature name	Category A	Category B
Busy Verification Station	X	
Busy verification Trunk	X	
Call Hold / Call Hold Recall Timer		X
Call Hold with Audio		X
Call Park / Call Park Recall Timer	X	
Call Selection		X
Call Waiting Recall		X
Camp-on / Camp-on Recall	X	
Camp On with Music		X
Centralized Consoles (Host and Remote Line Equipment)		X
Code-Calling Line Termination		X
Conference	X	
Console Display		X
Console Operator Login		X
Console Test		X
Control of Trunk Group Access		X
Cut-Through Dialing	X	
Delayed Operation	X	
Display of Queued Calls by ICI Key		X
Do Not Disturb	X	
DTMF End-to-End Signaling		X
Dynamic Attendant Console Measurements		X
Flexible Console Alerting		X
Flexible Display Language		X
Immediate Answer Reporting for IBN		X
Immediate Notification of Priority Enqueued Calls		X
Interposition Calls and Transfers		X
ISUP Trunks to AC Interworking		X

Table 50 Attendant console features (Continued)

Feature name	Category A	Category B
Local Consoles		X
Locked-Loop Operation		X
Lockout		X
Loopback Reduction for ISUP/AC		X
Loudspeaker Paging and Line Termination, rewrite		X
Loudspeaker and Radio Paging Access		X
MAP Display for Attendant OMs	X	
Maximum Number of Consoles		X
Multiple Console Operation		X
Multiple Listed Directory Numbers		X
Night Service, Fixed	X	
Night Service, Flexible	X	
Night Service, Trunk Answer From any Station		X
No Answer Recall	X	
Peg Counts on Listed DNs on AC	X	
Position Busy		X
Query Time and Date		X
Recorded Announcement		X
Release upon Completion of Dialing	X	
Remote Consoles		X
Secrecy	X	
Semi-Restricted Lines Call Intercept		X
Serial Call	X	
Speed Call	X	
Straightforward Outward Completion	X	
Supervisory Console (Basic)		X
Switched Loop Operation		X
Through Dialing	X	

Table 50 Attendant console features (Continued)

Feature name	Category A	Category B
Timed Recall Set to Zero		X
Trouble Key on MDC Console		X
Trunk Group Busy Indication		X
Trunk Group Busy/Trunk Access Control thru Special Keys		X
Trunk Busy Verification Tone		X
Two-Way Splitting		X
Uniform Call Distribution from Queue		X
Virtual Facility Group Trunk Group Busy on AC		X
Wildcard Key	X	
Network attendant features		
Network Attendant Control - including Network No_answer Timeout Recall and Flash Recall		X
Network Camp On including Network Camp-on Recall		X
Network CLID and NCOS Display for AC		X
Network Busy Verification Lines		X
NAS Attendant Console RTL Special Function Key		X
NAS Features Optionality		X

12.1 Attendant console display

When an attendant console encounters a PODP, N11 or TAT trigger, the console displays “PLEASE WAIT” while waiting for the SCP response. This display replaces the one for LNP in release NA008. All console keys are blocked while the console waits.

12.2 Limitations

Attendant console support for PODP, N11 and Encounter TAT triggers does not support an STR response. Calls with an STR response are sent to AIN final treatment.

When the attendant console encounters a TAT trigger, the Attendant Camp On feature is disabled.

If the attendant console originates a call to VFG which subsequently queries AIN, then the Userid and CallingPartyID parameters in the TCAP query

message are set to the VFG ChargeNumber instead of the originator's ChargeNumber. This limitation does not affect billing.

If the AC triggers on PODP or N11 or encounters TAT, the DND override feature is disabled.

Since the console and the Anonymous Caller Rejection (ACRJ) feature are not compatible, the AC cannot encounter this feature and hence the AC does not receive ACRJ treatment.

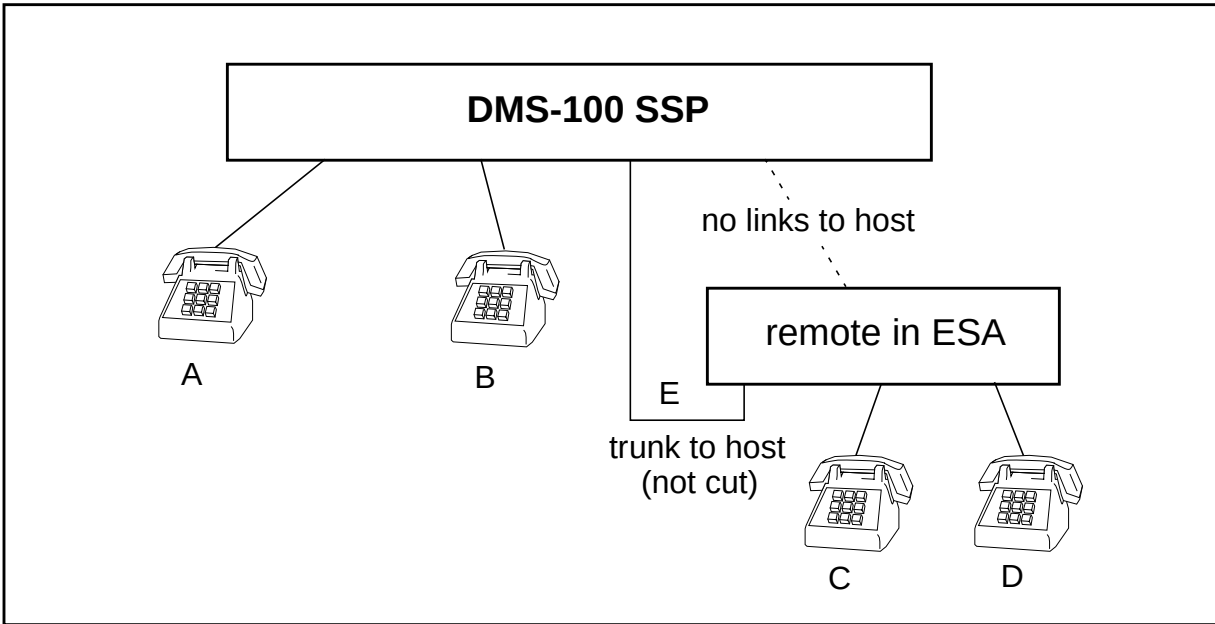
13. Other interactions

This section provides an overview of the interactions between AIN Essentials features and other DMS capabilities.

13.1 Interactions with Emergency Stand Alone (ESA)

ESA refers to Emergency Stand Alone capability for remotes and is the ability to handle calls within the remote when the remote has lost its links to the host switch. Since AIN triggers are handled in the computing module (CM) and not the peripheral, no AIN triggers are encountered by remotes that are in ESA mode. Any AIN Essentials SSP calls that have not reached talking state are taken down when reverting to ESA operation.

Figure 26 shows a DMS-100 SSP and a Remote which has lost its link to the SSP and is in ESA mode. Agent A and agent B are connected to the SSP, and agent C and agent D are connected to the remote. E is a trunk that is in service and is connected from the remote peripheral to the SSP. The following sections refer to Figure 26 and give examples to illustrate the interaction between AIN and ESA for calls terminating to and originating from a remote.

Figure 26 DMS-100 SSP with remote in ESA mode

13.1.1 AIN and ESA interactions—Terminating to a remote

There are two scenarios for AIN and ESA interactions for calls to a line or trunk on a remote peripheral in ESA mode from a line or trunk not on a remote peripheral in ESA mode (see Figure 26).

- Scenario 1: “A” calls “C”
These calls do not complete if they try to terminate to a line or trunk on a remote in ESA mode, but they will encounter any AIN originating and terminating triggers.
- Scenario 2: “A” calls “C” and is redirected by AIN to “B”
These calls complete if they are redirected to a line or trunk not on a remote in ESA mode, and they will encounter originating and terminating triggers.

13.1.2 AIN and ESA Interactions—Originating from a remote with no trunks in service

There are two scenarios for AIN and ESA interactions for calls from a line or trunk on a remote peripheral in ESA mode with no trunks in service (see Figure 26).

- Scenario 1: “C” calls “D”
These calls do complete if they are to a line on the same remote, but they will not encounter any AIN originating or terminating triggers.
- Scenario 2: “C” calls “A”

These calls do not complete if they are to a line or trunk not on the same remote, and they will not encounter AIN originating or terminating triggers.

13.1.3 AIN and ESA Interactions—Originating from a remote with trunks in service

There are two scenarios for AIN and ESA interactions for calls from a line or trunk on a remote peripheral in ESA mode with trunks in service (see Figure 26).

- Scenario: “D” calls “A” and is routed via trunk “E”, which is in service and connected to the host.

These calls complete if the ESA translations are set up to route calls from “D” to “A” via trunk “E”.

- These calls encounter AIN originating and terminating triggers on the call leg from “E” to “A” (if “E” is an AIN-supported agent) since the call leg routes via the CM, which provides AIN.

These calls do not encounter any AIN originating or terminating triggers on the call leg from “D” to “E” because the remote is in the ESA mode and does not support AIN.

13.2 NA005B interaction activities

The activities providing interaction support in the NA005B release are listed in Table 51. Please refer to Table 431 “Feature listings developed for NA005B” on page 1238 for descriptions of these activities.

Table 51 NA005B interaction support activities

Activity	
Feature	Title
AR0420	AINSSP: AIN and E800 I/W
AR1636	AINSSP: Interactions with Auth and Act Codes
AR1644	AINSSP: Interactions with VFG
AR1646	AINSSP: Interactions with Call Park/Call Pickup
AR1648	AINSSP: Interactions with MADN Features
AR1649	AINSSP: Interactions with DISA/Reset Dialing
AR1641	AINSSP: Interactions with Display Features
AR1638	AINSSP: Interactions with ACB/AR
AR1642	AINSSP: Feature Interactions I
AR1650	AINSSP: Feature Interactions II
AR1640	AINSSP: Feature Interactions III
AR1637	AINSSP: AIN 0.0 and 0.1 I/W
AQ1474	AINSSP: AIN and SMDR I/W

The activities providing interaction support in the NA006B release are listed in Table 52. Please refer to [Table 433 “Feature listings for NA006B development” on page 1244](#) for descriptions of these activities

Table 52 NA006B interaction support activities

Activity	
Feature	Title
AN1751	AINSSP: Post-VFG InfoAnalyzed and NetBusy Triggering
AR1532	AINSSP: AIN Interworking with SAID-SOD
AR1645	AINSSP: AIN Interworking with ADSI Features
AR1700	AINSSP: AIN 0.1 Interworking with AIN 0.0 (Phase 2)
AR1785	AINSSP: AIN Feature Interactions
AR1786	AINSSP: DISA Interactions with AIN Originating Triggers

13.2.1 NA007 interactions activities

There is no specific feature providing interaction support in the NA007 release. The interaction activities are covered as part of feature AJ4008, *Display Text for MDC Agents*. For a description of this feature, please refer to [Table 435 “Feature listings for NA007 development” on page 1248](#).

13.2.2 NA008 interactions activities

The activities providing interaction support in the NA008 release are listed in Table 53. Please refer to [Table 436 “Feature listings for NA008 development” on page 1250](#) for descriptions of these activities.

Table 53 NA008 interaction support activities

Activity	
Feature	Title
AQ1585	AIN 0.1: Monitor Resources
AQ1587	AIN 0.1 Additional Line Agent Support

Planning and engineering

Part : “Planning and engineering” consists of the following chapters:

- Chapter 14.:“Hardware description”
- Chapter 15.:“Software description”
- Chapter 16.:“SSP engineering”
- Chapter 17.:“Messaging requirements”
- Chapter 18.:“Performance tracking”

14. Hardware description

This chapter describes the AIN Essentials hardware. Please see the introductory section for an overview of the product.

14.1 AIN Essentials SSP delta

If the originator of the call is a PRI trunk, and a Send_to_Resource operation is returned from the off-board processor in order to Play Announcement and Collect Digits, digitone receivers must be provisioned in the office in order to allow for collection of digits over the PRI interface. Similarly, if the originator is an ISUP trunk, a UTR (universal tone receiver) card must be provisioned, to allow for digit collection from the ISUP trunk. These are needed whenever AIN Essentials SSP needs to do digit collection following a Send_to_Resource operation, or when pre-query digit collection is specified for the CDP VSC trigger.

14.2 Hardware limitations

The following are hardware limitations:

- MSB7 is not supported. AIN and MSB7 cannot co-exist. Do not activate AIN if MSB7 is in service, as it adversely affects MSB7. See NTP 297-5161-510, *SSP Maintenance Manual* and the *Special Applications Manual for MSB7 to LPP Migration* for the procedure to upgrade an MSB7 office to an LPP office.
- Only the Meridian Digital Centrex Data-Link attendant console is supported for PODP, N11 and encounter TAT triggers. Miniconsoles are not supported.

The AIN SSP does not require a set of announcements for AIN calls. However, the application on the off-board processor may require a set of announcements. Once the operating company determines that its AIN SSP will communicate with a certain AIN SCP application, the set of announcements (if any) required by the SCP service must be provisioned on the SSP. See the *Enhanced DRAM (EDRAM) Engineering Change Memorandum* for provisioning rules for standard and custom announcements for DRAM and EDRAM. Use the following guidelines to provision these announcements on the SSP:

- For recorded announcements, provision the Digital Recorded Announcement Machine (DRAM) NT1X75BA or Enhanced DRAM (EDRAM) NT1X80AA. The older DRAM NT1X75AA is not supported.
- To provide announcements with pronounced digits, do one of the following:
 - Use the digits PROM card NT1X76AG.
 - Provide an EPROM card to record equivalent digital phrases.
 - Provide a RAM card to record equivalent digital phrases.

For BRI agents that are indirectly supported for AIN through PRI looparound trunks, the ISDN sets must be equipped with release 1.53 or later of the MainROM to perform digit collection.

14.3 Configurable hardware

The provisioning of AIN Essentials capabilities in a DMS impacts a number of hardware components in the switch. The impact on the various components is described in this section.

14.3.1 Tables and formulas for memory usage

This section describes how to calculate data store and data structure memory usage for an AIN Essentials SSP.

Table 54 lists data tables that are introduced or enhanced by AIN Essentials SSP and their formulas for calculating memory usage.

Table 54 Formula for data store sizing

Item	Formula
Table TRIGGRP	# TRIGNAMES x 5 Words + TRIGGERS x 4 Words + #CRITERIA x 2 Words
Table TRIGDIG	# digit blocks x 12 Words + # tuples x 13 Words + # Digilator Pools x 8240 Words
Table TRIGINFO	# tuples x 8 Words
Table DNROUTE	4 Words per AIN Virtual DN
Table TRIGESC	10 Words per digit block used by table TRIGESC
Table TRGSIESC	10 Words per digit block used by table TRGSIESC
Table IBNXLA	# tuples with AIN option x 9 Words + store used by digit blocks used by IBNXLA
Table XLANAME	Increase Introduced by AIN = # tuples with AIN option x 9 Words
Line tables	4 Words x # tuples with AIN option
Table DNFEAT	Increase Introduced by AIN option = # tuples with AINDN option x 6 Words
Table TRKGRP	Increase Introduced by AIN option = # tuples x 2 Words
Table CUSTSTN	No change introduced by AIN. i.e. AIN option is stored in pre-allocated memory.
Table AINANNS	1024 Words + # of (0-127) ranges x 512 Words
Table TRKAIN	number of trunk groups datafilled in table TRKGRP * 48 bits (6 bytes)
Table TRIGASGN	Let N= number AIN agent subscriptions in tables LENFEAT,IBNFEAT, KSETFEAT, DNFEAT, and TRKAIN Let $N_r = (N \text{ rounded up to the nearest multiple of } 512) / 512$ Total increase= 1040 Words + $N_r \times 1536$ Words

The following sections specify the provisioning guidelines for data structures used by AIN Essentials SSP calls and indicate their associated office parameter and memory size.

14.3.1.1 AIN extension block

The provisioning guidelines for the AIN extension block are:

- Office parameter: AIN_NUM_EXT_BLKs
- Size: 253 words

- Provisioning guidelines:

The number of allocated AIN Essentials SSP extension blocks should be set to the number of calls that may be encoding or decoding simultaneously.

14.3.1.2 AIN Essentials Primer extension block

The provisioning guidelines for the AIN Essentials Primer extension block are:

- Office parameter: AIN_NUM_01_00_EXT_BLKs

This parameter defines the size of the pool of AIN_01_00_EXT_BLKs available for calls involving triggers to both AIN Essentials and AIN Primer applications.

- Size: 8 bytes
- Provisioning guidelines:

The value of this parameter should be based on the number of Call Condense blocks in the office (NCCBS) and the fraction of calls that are likely to encounter triggers in both AIN Essentials and AIN Primer.

14.3.1.3 AIN Primer parameter extension block

The provisioning guidelines for the AIN Primer parameter extension block are:

- Office parameter: AIN_NUM_00_PARA_EXT_BLKs

This parameter defines the size of the pool of AIN_00_PARA_EXT_BLKs available in the office.

- Size: 16 bytes
- Provisioning guidelines:

The value of this parameter should be based on the number of Call Condense blocks in the office (NCCBS) and the fraction of calls that are likely to encounter triggers in AIN Primer.

14.3.1.4 AIN processing extension block

The provisioning guidelines for the AIN processing extension block are:

- Office parameter: AIN_NUM_PROCESSING_EXT_BLKs
- Size: 253 words
- Provisioning guidelines:

The number of allocated AIN Essentials SSP Processing Extension blocks should be set to the potential number of calls that may be encoding or decoding simultaneously.

14.3.1.5 Large history data block

The provisioning guidelines for the large history data block are:

- Office parameter: NO_OF_HIS_DATA_BLKs

Note: This parameter specifies the number of regular, large, and extra large history data blocks available.

- Size: 80 words
- Provisioning guidelines:

The number of large history data blocks (HDB) should be increased to reflect the number of calls in the call setup phase that subscribe to AIN.

ATTENTION

If the office subscribes to AIN, this parameter value must be increased greatly to reflect every line or trunk origination in the office that subscribes to AIN and, therefore, needs to have a large HDB. The value of the large HDB must be greater than zero.

14.3.1.6 Extra-large history data block

The provisioning guidelines for the extra-large history data block are:

- Office parameter: NO_OF_HIS_DATA_BLKs
- Size: 160 words (including headers)
- Provisioning guidelines:

The number of extra-large HDBs should be increased to correspond to the number of calls that have already triggered. In addition, this number should be further increased when Display Text is activated. An extra large HDB is required for each call receiving the Display Text parameter in the Authorize Termination response terminating on a supported Display Text agent. The extra-large HDB is not released from the call until the call is disconnected. The value of the extra large HDB must be greater than zero.

14.3.1.7 Large feature data block

The provisioning guidelines for the large feature data block are:

- Office parameter: NO_OF_LARGE_FTR_DATA_BLKs

Note: This parameter specifies the number of regular, large, and extra large history data blocks available.

- Size: 37 words
- Provisioning guidelines:

The number of allocated large feature data blocks in the AIN Essentials SSP should be increased by the potential number of calls that may be simultaneously involved in encoding or decoding a message.

14.3.1.8 Routing characteristics extension block

The provisioning guidelines for the routing characteristic extension block are:

- Office parameter: NUM_RC_EXT_BLKs

This parameter is defined in table OFCENG.

- Reason for change:

- This section is documenting the use of routing characteristic extension blocks when translating AIN Analyze_Route or Forward_Call responses. The existing formula, found in NTP 297-1001-455, *Office Parameters Reference Manual (volumes 1–2)* is already correct in stating that the recommended value is (number of CCBs) x (Percentage of traffic using routing characteristics).

- This update is to call attention to the fact that calls receiving AIN Analyze_Route or AIN Forward_Call responses do use routing characteristics to translate and route the response, so this office parameter should be reviewed to ensure that it is provisioned to account for these additional users.

14.3.1.9 NO_OF_MEDIUM_EXT_BLKs

This parameter specifies the number of medium extension blocks allowed in the office. The values are as follows:

- Range of values: 0–32767
- Default value: 16

A COLD RESTART is required when the value of this parameter is decreased.

Each medium extension block requires 50 words of memory. These extension blocks are used by AIN for error handling. They are allocated when an error is detected in the incoming message from the SCP. The extension blocks are released after the error message is sent to the SCP.

14.3.1.10 NO_OF_X_LARGE_EXT_BLKs

This parameter defines the size of the pool of extra-large extension blocks that can be used by AIN calls when dealing with messages less than or equal to 256 bytes.

- Range of values: 0–32767
- Default value: 16

A COLD RESTART is required when the value of this parameter is decreased.

The extra-large extension block requires 200 words of memory.

The extra-large extension blocks parameter can be used for AIN calls that deal with UDT messages; that is, a TCAP portion that is no more than 256 bytes.

14.3.1.11 NO_OF_HUGE_EXT_BLKs

This parameter defines the size of the pool of huge extension blocks that can be used by AIN calls when dealing with messages larger than 256 bytes. The NO_OF_HUGE_EXT_BLKs parameter is similar to other office parameters for small, medium, large, and extra-large extension blocks.

- Range of values: 0–32767
- Default value: 16

A COLD RESTART is required when the value of this parameter is decreased.

The huge extension block requires 400 words of memory.

The huge extension blocks parameter can be used for AIN calls that deal with XUDT messages and a TCAP portion of up to 610 bytes which is the largest planned supported AIN message. The limit of 610 bytes is applied to minimize processor time usage and memory waste. The limit of 610 bytes is based on current customer requirements and plans. If future customer requirements and plans require a higher limit, then a future release of software can consider increasing the 610 byte limit.

14.3.1.12 History control block

The provisioning guidelines for the history control block are:

- Office parameter: NO_OF_HIS_CONTROL_BLKs
This parameter is defined in table OFCENG.
- Reason for change:
This section documents a change in the formula for calculating the number of the history control blocks required.
- Calculation:
The value for NO_OF_HIS_CONTROL_BLKs should be set equal to the total number of AIN subscribers (individual, group or office-based) in the office, regardless of AIN traffic. For example, if office parameter AIN_OFFICE_TRIGGRP is set to a value other than NIL, supported agents in the office will subscribe to AIN, so the value of this office parameter should be set equal to NCCBS. This is in addition to existing requirements for non-AIN subscribers.
- Consequences:

If the history control blocks are under provisioned then all calls that could potentially trigger will be blocked and sent to No Software Resources (NOSR) treatment. If over provisioned, then there is an unused data store impact.

- Duration:

The history control block is used for AIN throughout the entire call, from call setup to call take down.

14.3.1.13 AIN Termination Notification extension block

The provisioning guidelines for the AIN Termination Notification extension block are:

- Office parameter: AIN_NUM_TERM_NOTIF_EXT_BLKs
- Size: 15 words
- Provisioning guidelines:

The number of AIN Termination Notification extension blocks should correspond to the number of simultaneously AIN calls that require Termination Notification.

14.3.1.14 Maximum number of transaction IDs

The provisioning guidelines for the maximum number of transaction IDs are:

- Office parameter: MAX_NO_OF_TRANS_ID

This parameter is defined in table OFCENG.

- Provisioning information:

This parameter specifies the maximum number of transaction IDs that a DMS switch can allocate. Each transaction ID has an associated 50 words of store. This feature enhances the store allocation of table TCAPTRID by using segmented store to allow a greater number of transaction IDs to be allocated. The store needed for table TCAPTRID is based on the total transaction IDs datafilled in this table. The total number of transaction ID datafilled in this table should not exceed the value of this parameter, if it resides in the switch.

- Range of values 0 to 16000
 - The default value of this parameter is set to 4096 if AIN is in the office
 - Value set when feature not activated: 820

14.3.1.15 CRS_SUBRU_POOL1_SIZE

The provisioning guidelines for the CRS_SUBRU_POOL1_SIZE parameter are:

- Office parameter: CRS_SUBRU_POOL1_SIZE
- Reason for change:

The extension block that this parameter governs is being used for the new AIN application. The provisioning for this parameter is updated.

- Provisioning rules:
 - This extension block is used by AMA to store data returned from the off-board processor (for example, a service control point (SCP)) during call processing. The following list illustrates the optional parameters that, when included in a response message, will require an extension block. The number in parenthesis indicates the maximum number of extension blocks that can be recorded for a single call.
 - Billing indicator parameters (2)

Note: There are 4 billing indicator parameters. Only 1 of the 4 parameters is used depending upon the route taken by the call. The parameter used contains information requiring 2 extension blocks.

- AMAslpID (5)

Note: The first AMAslpID parameter is recorded in another extension block. The remaining 5 parameters would use this extension block.

This extension block can also be used to record switch-based Message Billing Index (MBI) calls as well.

- Calculation:

The following formula should be added to the existing formula:

$$\begin{aligned}
 &<\text{existing equation}> + \\
 &2 * (\# \text{ of AIN calls with a Billing Indicator parameter used}) + \\
 &\# \text{ of AIN calls with 2 AMAslpID parameters} + \\
 &2 * (\# \text{ of AIN calls with 3 AMAslpID parameters}) + \\
 &3 * (\# \text{ of AIN calls with 4 AMAslpID parameters}) + \\
 &4 * (\# \text{ of AIN calls with 5 AMAslpID parameters}) + \\
 &5 * (\# \text{ of AIN calls with 6 AMAslpID parameters}) + \\
 &\# \text{ of calls using MBI}
 \end{aligned}$$

Note: In the calculation formulas, there is a reference to “# of AIN calls”. This should include both billable AIN calls as well as any unanswered AIN calls that are being recorded due to datafill in tables AMAOPTS and BCCODES.

14.3.1.16 CRS_SUBRU_POOL2_SIZE

The provisioning guidelines for the CRS_SUBRU_POOL2_SIZE parameter are:

- Office parameter: CRS_SUBRU_POOL2_SIZE
- Reason for change:

The extension block that this parameter governs is being used for the new AIN application. The provisioning for this parameter is updated.

- Provisioning rules:
 - This extension block is used by AMA to store data returned from the off-board processor during call processing. The following list illustrates the optional parameters that, when included in a response message, will require an extension block. The number in parenthesis indicates the maximum number of extension blocks that can be recorded for a single call.

- AMASlpID (1)

Note: The first AMASlpID parameter received requires this extension block. This extension block also records the following parameters (if they are received): AMABusinessCustomerID and AMAAlternateBillingNumber.

- AMALineNumber (2)

- AMADigitsDialedWC (6)

- Calculation:

The following formula should be added to the existing formula:

<existing equation> +
of billable AIN calls +
of AIN calls with 1 AMALineNumber parameter +
2 * (# of AIN calls with 2 AMALineNumber parameters) +
of AIN calls with 1 AMADigitsDialedWC parameter +
2 * (# of AIN calls with 2 AMADigitsDialedWC parameters) +
3 * (# of AIN calls with 3 AMADigitsDialedWC parameters) +
4 * (# of AIN calls with 4 AMADigitsDialedWC parameters) +
5 * (# of AIN calls with 5 AMADigitsDialedWC parameters) +
6 * (# of AIN calls with 6 AMADigitsDialedWC parameters)

Note: In the calculation formulas, there is a reference to “# of AIN calls”. This should include both billable AIN calls as well as any unanswered AIN calls that are being recorded due to datafill in tables AMAOPTS and BCCODES.

14.3.1.17 CRS_SUBRU_POOL3_SIZE

The provisioning guidelines for the CRS_SUBRU_POOL3_SIZE parameter are:

- Office parameter: CRS_SUBRU_POOL3_SIZE
- Reason for change:

The SMDR record for an AIN Essentials call utilizes extension blocks from SUBRU POOL3. Additional extension blocks must be provisioned for this pool.

- Provisioning rules:

SUBRU_POOL3 extension block is used by SMDR to store billing information returned by the SCP. This includes the Alternate Billing Number, the Business Customer ID and Additional Digits Dialed. One to five extension blocks are required for each leg of a call (for example, calls that utilize VFGs, following a SCP query/response).

- Calculation:

The following formula should be added to the existing formula:

<existing equation> +
 (# of billable SMDR AIN Essentials calls *
 # billing number in an AIN Essentials SCP response) +
 (# of billable SMDR AIN Essentials calls *
 # SMDR legs per call following SCP response *
 # billing number in an AIN Essentials SCP response)

14.3.1.18 CRS_PRU_POOL2_SIZE

The provisioning guidelines for the CRS_PRU_POOL2_SIZE parameter are:

- Office parameter: CRS_PRU_POOL2_SIZE
- Reason for change:

The extension block that this parameter governs is being used for the new AIN application. The provisioning for this parameter is updated.

- Provisioning rules:

This extension block is used for all Bellcore format billable calls. The provisioning should be changed to allow for calls that become billable just because they are AIN calls. For example, a POTS line to POTS line call does not produce an AMA record. If this same call becomes an AIN call, it will produce an AMA record.

- Calculation:

The following formula should be added to the existing formula:

<existing equation> +
 # of previously non-billable calls that become billable if they are AIN calls

Note: In the calculation formulas, there is a reference to “# of AIN calls”. This should include both billable AIN calls as well as any unanswered AIN calls that are being recorded due to datafill in tables AMAOPTS and BCCODES.

14.3.1.19 Table TCAPTRID

Table TCAPTRID defines the number of transaction identifiers required for each network application. Table 55 shows the values that are applicable to TCAPTRID

Table 55 Table TCAPTRID

Field name	Range of values	Status	Default value, (if applicable)
TCAPAPPL	{NIL, NRAG, PVN, ACB/AR, ... AIN01, MAX}	CHANGED	N/A
NUMTRIDS	{0 to 16000}	UNCHANGED	N/A
NUMCOMPS	{0 to 16000}	UNCHANGED	?

Description of new or changed fields in Table TCAPTRID:

TCAPAPPL

- TCAPAPPL is the name of the TCAP application requiring transaction IDs. A new value, AIN01, is added to this key field. This allows the TCAP transaction IDs to be allocated for the AIN application.
- The values NIL and MAX will be rejected by table control software. The tuple, NRAG, replaces the office parameter NUM_TCAP_TRANSACTION_IDS.

NUMTRIDS

The number of transaction IDs required by the specific application. This is equal to the number of transactions that can be open simultaneously.

Table sizing:

- MINIMUM SIZE = 0 tuples MAXIMUM SIZE = 16000 tuples
- Table size = $[N(\text{AIN}) \times P1 \times R1]$
 - + $[N(\text{AIN}) \times P2 \times R2]$
 - + $[N(\text{LNP}) \times R3]$
 - + $[N(\text{AIN}) \times P3 \times R4]$
 - + $[N(\text{AIN}) \times P4 \times R5]$
 - + $[N(\text{AIN}) \times P5 \times R6]$
 - + $N(\text{MFC})$
 - + 11
 - + 50

where:

- $N(\text{AIN})$ = Number of AIN queries per second not including LNP queries. Queries include messages sent to the SCP as the result of a trigger or an event.
- $N(\text{LNP})$ = Number of LNP queries per second (See note 1).
- $N(\text{MFC})$ = Number of Monitor_For_Change requests which are simultaneously active. A monitor can only be kept on a line for 24 hours.
- $P1$ = Percentage of AIN queries that do not receive a Send_To_Resource response with collect digits option and receive an SCP response within the nominal response time.
- $P2$ = Percentage of AIN queries that receive a Send_To_Resource response with collect digits option. This includes STR messages that end up at an offboard peripheral.
- $P3$ = Percentage of AIN queries that result in arming the O_No_Answer event (AIN Service Enablers only).
- $P4$ = Percentage of AIN queries that result in arming the T_No_Answer event (AIN Service Enablers, Release NA008 and up only).
- $P5$ = Percentage of AIN queries that result in arming the O_Answer event (AIN Service Enablers only) (See note 2).
- $R1$ = Nominal SCP response time in seconds for AIN queries (not including LNP queries) (See note 3). This includes network delays and time spent at STPs and the SCP. The nominal SSP timeout value is set in the parameter AIN_T1_TIMER in table OFCENG. The default value setting for this parameter is three seconds.
- $R2$ = Average time to:

- receive the SCP conversation (containing the Send_To_Resource with collect digits option)
 - play the announcement and collect the digits
 - receive the SCP response based on the collected digits
- R3 = Nominal SCP response time in seconds for LNP queries. This includes network delays and time spent at STPs and the SCP. The nominal SSP timeout value is three seconds.
- R4 = (average ONA timeout value x percentage of calls not answered) + (average time to answer call x percentage of calls answered) (AIN Service Enablers only) (See notes 4 and 5).
- R5 = (average TNA timeout value x percentage of calls not answered) + (average time to answer call x percentage of calls answered) (AIN Service Enablers, Release NA008 and up only) (See notes 5 and 6).
- R6 = (average time to answer call x percentage of calls answered) + (average time for phone to be ringing x percentage of calls not answered) (AIN Service Enablers only) (See note 5).
- 11 = Number of outstanding Update_Request messages. This is the value of the Update_Request mailbox size of 10 + 1.
- 50 = Number of extra transaction IDs. This includes calls that do not obtain a response within the nominal SCP response time and calls abandoned by the caller before the response arrives. It also includes transaction IDs assigned for overhead including those for unidirectional error messages, reject messages, and abort messages.

Note 1: LNP calls are assumed to never involve a Send_To_Resource or an event. Calls involving STR or events should be considered AIN calls.

Note 2: $P1 + P2 = 100\%$. P3, P\$, and P5 are the percentage of queries already counted in P1 or P2 that arm the specified events.

Note 3: If this value differs significantly for responses to different messages the value should be calculated by summing for all query types “i” from one to N (response time for query “i” x percentage of query “i”).

Note 4: The default ONA event timer is set in table OFCENG in parameter AIN_O_NO_ANSWER_EVENT_TIMER.

Note 5: For R4, R5, and R6 the percentage of calls not answered is less than 100% since calls that are busy do not hold the TCAPTRID for a significantly longer amount of time.

Note 6: The default TNA event timer is set in table OFCENG in parameter AIN_T_NO_ANSWER_EVENT_TIMER (AIN Service Enablers, Release NA008 and up only).

- For each transaction ID there is associated 50 words of data store. Each time the table size value is decreased, a cold or reload restart is required for the change to take effect. It is not necessary to perform a restart when the value is being increased.
- OMs which can be used to approximate the above parameters are shown in Table 56.

Table 56 Approximation of parameter sizes

Parameter	OM group::OM register	Release	
		NA007	NA008 and up
N(AIN)	AIN::TRIG - LNP::LNPQRY	X	X
N(LNP)	LNP::LNPQRY	X	X
P2	(AINICSUB::ISSTR + AINICOFF::ISSTR) / N(AIN) x percentage of STR messages with a collect digits option		X
P3	(AINOGSUB::ESONA + AINOGOFF::EOONA) / N(AIN) / percentage of calls not answered (See note)		X
P4	(AINOGSUB::ESTNA + AINOGOFF::EOTNA) / N(AIN) / percentage of calls not answered (See note)		X
P5	(AINOGSUB::ESOANS + AINOGOFF::EOOANS) / N(AIN) / percentage of calls answered (See note)		X
Note: The value should be less than (AINICSUB::ISRRBE + AINICOFF::IORRBE) / N(AIN) which is the total of all events armed.			

15. Software description

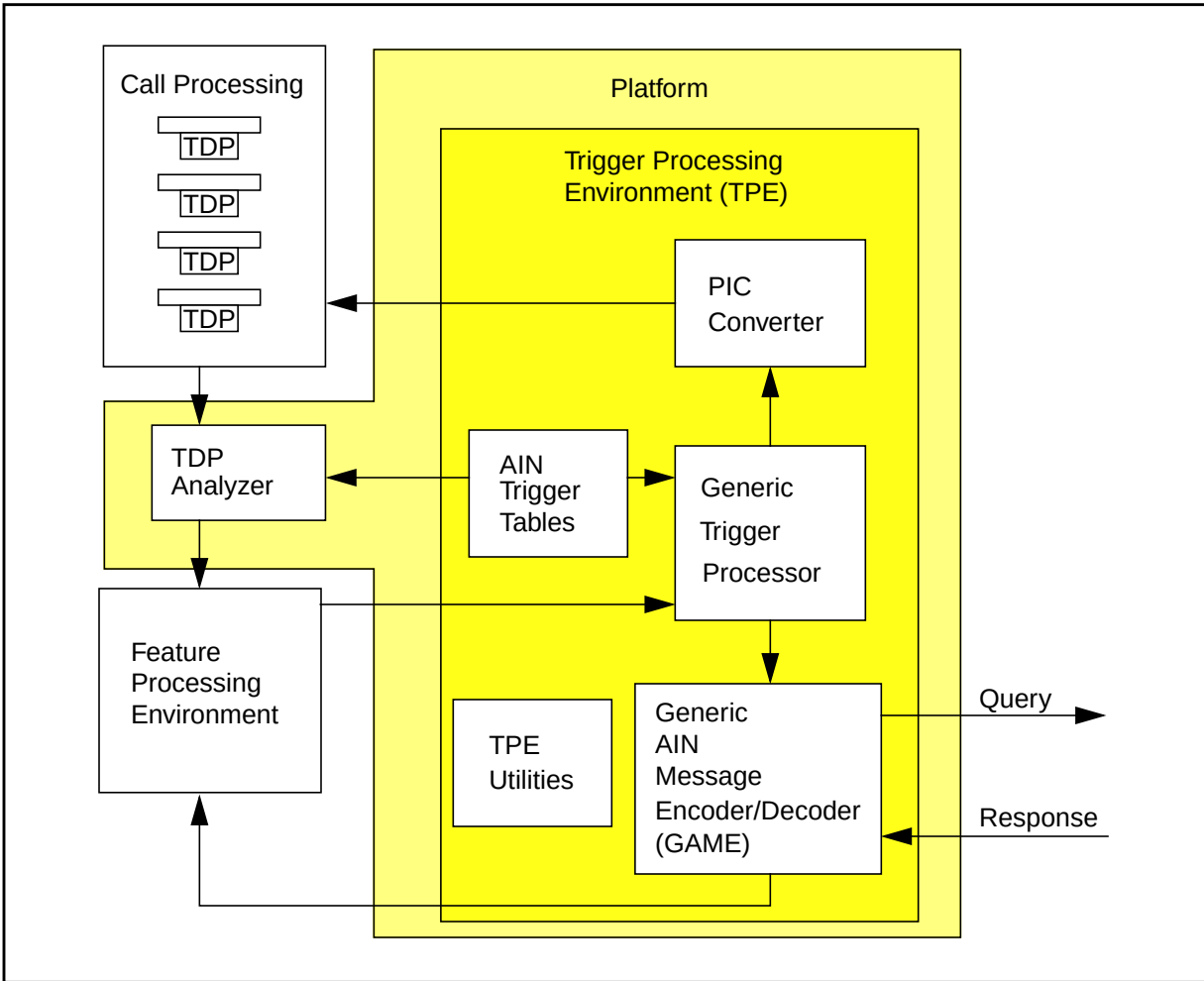
This chapter describes the AIN Essentials software. Please see the introductory section for an overview of the product.

The AIN Essentials SSP has two major functions. One is the Call Model which includes the points in call and trigger detection points. The other is the Trigger Processing Environment (TPE) which involves generating queries and processing responses.

The following subsections describe the AIN Essentials SSP software components and illustrate their functions by a call walk-through.

15.1 AIN Essentials SSP software components

The software components that implement the Call Model and trigger processing are described in Figure 27.

Figure 27 AIN Essentials SSP software components

The AIN Essentials SSP Basic Call Model (BCM) is implemented by imbedding appropriate software check points in the existing Call Processing software. This is done by partitioning the BCM into blocks called “points in call” and inserting trigger detection points (TDPs) between the points in call.

When a TDP in the BCM is reached, the TDP Analyzer is invoked. It uses the AIN Essentials SSP Trigger Tables to determine if the resource associated with the call subscribes to any of the triggers applicable at this TDP. If a trigger is subscribed to the resource, the trigger criteria are met, and, for individual and DN based triggers, the trigger is active, then the TDP Analyzer sends an initial feature request to the Features Processing Environment. If no trigger is invoked, control returns to the Call Processing Environment to continue the call at the next point in call in the BCM.

The Feature Processing Environment (FPE) is responsible for managing Call Processing Features. When the FPE receives an initial feature request from the

TDP Analyzer, the FPE sends a message to the Generic Trigger Processor in the Trigger Processing Environment. The FPE may also receive AIN Essentials SSP feature requests from the Generic AIN Message Encoder/Decoder (GAME).

The Generic Trigger Processor is invoked from the Feature Processing Environment. It handles events, such as initial feature requests and response messages, using event procedures that are application specific. Event procedures are invoked based on application, incoming message and current state of the call. The Generic Trigger Processor often uses the TPE Utilities to perform common message-related functions. If the event is a query, the Generic Trigger Processor will invoke the Generic AIN Message Encoder/Decoder (GAME) to send a message to the off-board processor. When the Generic Trigger Processor finishes response processing, the Generic Trigger Processor may invoke the point in call (PIC) Converter to direct the call to the Call Processing environment.

The Generic AIN Message Encoder/Decoder (GAME) is invoked by the Generic Trigger Processor when an event procedure requires a query be sent to an off-board processor. GAME receives data to be sent in the query and information about the off-board processor from the Generic Trigger Processor. GAME determines the address of the off-board processor and, based on the application and current state of the call, encodes the data into a query message using the required transport protocol. The T1 Timer is started and the query is sent. When a response is received from the off-board processor it is decoded using an application and protocol specific decoder. The information is sent in a feature request message to the Feature Processing Environment. GAME is also responsible for detecting and handling errors found in response messages. Chapter 6.: “Error handling” on page 103 provides more detail on error detection.

The PIC Converter is invoked by an event handler in the Generic Trigger Processor when trigger processing is complete. Given a specified point in call, the PIC Converter redirects the call to the call processing environment.

The AIN Trigger Tables store information about the AIN Essentials SSP application, TDPs, triggers, trigger criteria, trigger activation states, transport protocol, and SCP/adjunct routing. The TDP Analyzer uses the AIN Essentials SSP Trigger Tables to determine if the call will trigger. Event procedures in the Trigger Processing Environment use information from the AIN Essentials SSP Trigger Tables during trigger processing.

The TPE Utilities perform common functions for the Trigger Processing Environment. Such functions are building and handling message parameters, providing treatments, playing announcements and collecting digits.

15.2 AIN Essentials SSP example call walk-through

The following example describes an AIN Essentials SSP call where the call originator subscribes to the Off-Hook Delay trigger on an individual basis. Digit sequence, 411, is defined by the local office as an escape code. The N11 trigger is set up for the office and will cause calls to trigger whenever 411 is dialed. In this example, the call originator dials 411 and the off-board processor responds with an Analyze Route response message indicating a terminating trunk group. For an illustrative view of the call walk-thru, use the numbers in the paragraphs below and refer to Figure 28.

When the originator goes off hook processing at the Null point in call completes and the Origination Attempt TDP is hit (1). The TDP Analyzer, using the AIN Essentials SSP Trigger Tables, checks to see if the originator subscribes to the Off-Hook Immediate trigger (2). Since the originator does not subscribe to this trigger on a line, trunk group, or customer group basis, nor is set up for the whole office, the TDP Analyzer returns control to call processing at the Authorizing Origination Attempt point in call (3).

At the Authorizing Origination Attempt point in call, the authority of the originating agent to make the call is verified. Then, the Collecting Information point in call is entered where initial information is collected. In this case, the 411 digits are collected.

At the Collecting Information point in call, the digits are translated according to the agent's dial plan (4). Upon exiting the Collecting Information point in call, the Information Collected TDP is entered (5). The TDP Analyzer is invoked again and determines from the AIN Trigger Tables that the originator subscribes to the Off-Hook Delay Trigger (6). The TDP Analyzer then checks if an escape code or feature code was dialed. Since 411 is defined by the office as an escape code, the TDP Analyzer determines that triggering will not take place and control returns to call processing at the Analyzing Information point in call.

At the Analyzing Information point in call, the digits are retranslated according to the agent's dial plan (7). When call processing completes here, the Information Analyzed TDP is entered (8). The TDP Analyzer is invoked (9). It finds that the N11 trigger is subscribed to on an office-wide basis and confirms the criteria, 411 dialed, is met and triggering will take place. The TDP Analyzer sends a initial feature request to the Feature Processing environment (FPE) (10).

When the FPE receives the request, it invokes the AIN feature by sending a message to the Generic Trigger Processor in the AIN Platform (11).

The Generic Trigger Processor receives the initial feature message and invokes an AIN Essentials SSP event handler, based on the application, to determine

how to process the trigger. The event handler, using the TPE utilities builds a message. The Automatic Code Gapping (ACG) database is then checked to determine if this query should be gapped due to an SCP overload condition. If ACG allows the query, it is then sent to GAME (12). The message contains information about the call such as the TDP, trigger, application and other mandatory and optional parameters.

When GAME receives the message from the Generic Trigger Processor, it builds a TCAP query message based on the SS7 network protocol and determines the identity and location of the off-board processor. The query contains the information passed in the incoming message from the Generic Trigger Processor. Once the query message is built, GAME sends it to the appropriate off-board processor, starts the T1 timer and awaits response (13).

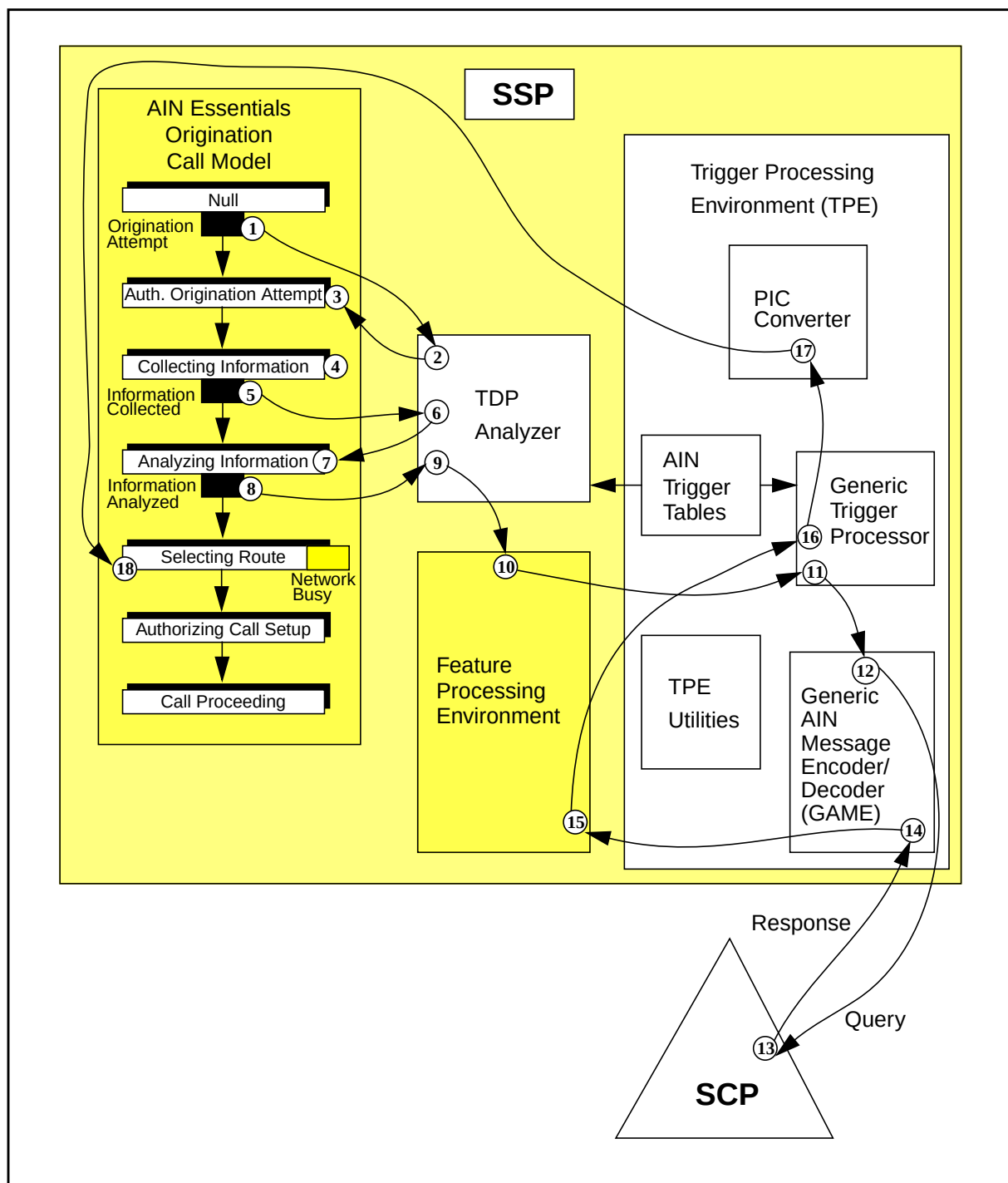
When GAME receives an Analyze Route response message from the off-board processor, error checking is done (14). No errors were found and the message is decoded into AIN internal format and sent in a message to the FPE (15). When the FPE receives the request, it invokes the AIN Essentials SSP feature by sending a message to the Generic Trigger Processor in the AIN SSP Platform (16).

The Generic Trigger Processor invokes the appropriate event handler which uses the TPE Utilities to decode the Analyze Route response message. The event handler updates the routing information with the new routing information received so it can be used by call processing.

After response processing is complete, control must be returned to call processing. This is accomplished through the PIC Converter (17). Since an Analyze Route response was received and a terminating trunk group is given, the PIC Converter returns control to the Selecting Route point in call (18).

Assuming no more triggering takes place, call processing uses the new routing information to route the call and connect it to the appropriate terminating resource.

Figure 28 AIN call walk-through



15.3 AIN SSP platform

The AIN SSP platform is intended to provide a framework and generic software base for future AIN applications. It is the responsibility of the application to provide its own call model to interface call processing with the AIN SSP platform.

The goals of the AIN SSP platform are:

- optimize software reuse across product lines, applications and services (that is, to achieve globalization of the AIN product line)
- minimize the overall software maintenance (sustaining) cost
- ease the addition of new functionality
- simplify interworking
- provide a well defined interface between Call Processing and AIN Trigger Processing Environment.

There are two major components of the platform:

- Trigger Detection Point (TDP) Analyzer
- Trigger Processing Environment (TPE)

The TDP Analyzer checks if a call will trigger using TDPs, triggers, and criteria stored in a local database. Because different TDPs, triggers, and criteria will be defined differently for applications, application specific trigger check procedures are added into the TDP Analyzer.

The Trigger Processing Environment is invoked after the TDP Analyzer has determined that the call will trigger. The functions this component provides are:

- trigger processing
- query message building
- response message processing
- database for storing TDPs, triggers, criteria
- message encoding/decoding

For different applications, these functions may be required to work differently. The Trigger Processing Environment provides a framework that binds in application specific procedures to perform these functions.

There is a common messaging interface between the Trigger Processing Environment and Call Processing. Different applications, such as AIN Essentials SSP, adjunct system architecture (ASA), and virtual network services (VNS), can use this interface to invoke trigger processing in the TPE.

The TPE also supports a set of common utilities such as parameter building procedures, play announcement and collect digit procedures, and response handlers.

16. SSP engineering

16.1 Capacity allocation and memory requirements

This section describes the impact AIN Essentials features will have on the processing and memory allocations of an SSP.

16.1.1 Capacity allocation

Capacity allocation on the DMS is affected by the presence of AIN Essentials software. Calls on an AIN Essentials SSP switch have an increase in processing time over calls on a non-AIN Essentials SSP switch. Thus, the call throughput and call capacity of the AIN Essentials SSP switch decreases.

Another area in which capacity allocation is a consideration is the link peripheral processor (LPP). AIN Essentials SSP does not introduce any changes to messaging capacity in the LPP. For more information on capacity of the LPP, please refer to Section 7 of the LPP/SSP Product Specification.

16.1.2 Memory requirements

The memory that should be taken into consideration for AIN Essentials SSP consists of the following:

- Data Store — AIN Essentials brings increase in this area as a number of new tables are introduced. Please refer to Section 14.3.1 “Tables and formulas for memory usage” on page 308 for more information on the impact on data store.
- In addition, AIN requires “*static*” data store for internal structures (such as arrays) used by AIN Essentials code. This storage amount remains constant for the load and is not dependent on the number of calls taking place.
- Data Structure Store — This includes data storage that is allocated on a per call basis, usually in the form of extension blocks. Please refer to Section 14.3.1 “Tables and formulas for memory usage” on page 308 for more information on the impact of data structure store.

16.2 Real time impact

This section discusses the real time impact on calls in a non-AIN Essentials SSP switch and the real time impact on calls in an AIN Essentials SSP switch.

16.2.1 Real time impact on non-AIN Essentials SSP

A non-AIN Essentials SSP switch is one that does not provide the functionality of AIN Essentials SSP. However, due to restructuring of the line and trunk call models in BCS35 and BCS36, a real time impact will occur even on switches without AIN Essentials software. More specifically, a SuperNode without AIN Essentials software installed is affected.

16.2.2 Real time impact on AIN Essentials SSP

AIN Essentials SSP is a new product for the DMS family of switches, which operating companies will use as a platform to deploy AIN services.

Consequently, there is no existing call model that can be used as a benchmark for evaluating real time impact on an AIN Essentials SSP.

An AIN Essentials SSP call model, AIN Group, has been defined and can be used to monitor real-time performance in future AIN Essentials SSP releases. This model consists of a set of AIN Essentials SSP call types that are derived from Termination Authorization and Origination Screening services.

Due to the numerous possible combinations of call types and the limited information on AIN Essentials SSP services that may be deployed, AIN Group, as currently defined, is the initial step in capturing a call model and may be refined in future.

There are three unique real time measurements required with the addition of AIN Essentials SSP:

- Non-AIN Essentials SSP calls on an AIN Essentials SSP switch with AIN Essentials SSP enabled: addresses any impact that switch support of AIN Essentials SSP may have on non-AIN Essentials SSP functionality. Incorporation of the existing U.S. URBAN OFFICE model into the AIN Group (in the base model portion) addresses these measurements.
- AIN agent on an AIN Essentials SSP switch with no Query: addresses the real time impact of AIN Essentials SSP calls that do not Query the SCP. Given the impossibility of forecasting services that a telco may deploy, a representative set of call types is included in the AIN Group based on the Termination Authorization and Origination Screening services.
- AIN agent on an AIN switch launching a Query: addresses the real time impact of AIN Essentials SSP calls that Query the SCP. Given the impossibility of forecasting services that a telco may deploy, a representative set of call types is included in the AIN Group based on the Termination Authorization and Origination Screening services.

16.3 Overload

Automatic Code Gapping (ACG) is a network management mechanism used in the control of network congestion. If a service control point (SCP) becomes

congested with queries, it can request that a service switching point (SSP) slow down or stop sending queries for a desired length of time. Code gapping can be initiated from the SCP in two ways: (1) automatically via SCP initiated code control; and (2) manually via service management system (SMS) originated code control (SOCC). The manual SOCC method complements the automatic SCP method. When ACG gaps a call, the call is offered to default routing. If default routing does not apply, the call is sent to AIN final treatment.

Overload controls that pertain to an AIN Essentials SSP are activated at the system level and no new overload controls for AIN Essentials have been introduced.

For information on SS7 messaging overload controls, please refer to the DMS STP Product Specification.

17. Messaging requirements

Messaging over the SS7 network is handled by the LPP and associated application-specific units (ASU) in the DMS switch. AIN Essentials SSP software introduces no change to the capacity of the LPP.

AIN Essentials software sends a TCAP message to the LPP via the DMS Bus. The maximum size TCAP message that may be handled by the LPP is 253 octets.

It is possible that AIN Essentials software may be flooded by incoming TCAP messages from the SCP. If there are not enough resources to handle incoming messages, the message will be discarded and a final treatment will be given to the call.

17.1 Interfaces

In order for the AIN Essentials SSP to communicate with an off-board processor, standard communication protocols must be established. AIN Essentials SSP has the ability to send messages to an off-board processor over an SS7 network transport or an Ethernet network transport. Currently existing software in the SSP supports both the SS7 and Ethernet transport layer protocols. In order for the AIN Essentials SSP to send messages across these transports it must pass the information to be sent to the SS7 and Ethernet transport layers in an orderly fashion. This is done using an application layer protocol. As required by TR-NWT-001284, *Advanced Intelligent Network (AIN) 0.1 Switching Systems Generic Requirements*, the application layer to be used by AIN Essentials software is TCAP.

AIN Essentials SSP messages are passed between the SSP and off-board processor in TCAP components in TCAP packages. TCAP packages sent by the SSP may contain only one component (that is, one AIN Essentials SSP message). Response and conversation packages received by the SSP may contain one, two, or three components. There are several package types:

- Query (Query with Permission to Release) — used to initiate a transaction
- Response — used to terminate a transaction

- Conversation (Conversation with Permission to Release) — used to maintain a transaction
- Abort — used to terminate a transaction abnormally
- Unidirectional — used to send messages that are not associated with a transaction.

Further details of TCAP will not be explained in this document and the reader is referred to *Draft Proposed American National Standard for Telecommunications - SS7 - TCAP*, Issue 2 of T1.114, November 1991, for further information.

The following sections describe the various call related, non call related and abnormal messages passed between the AIN Essentials SSP and off-board processor.

17.2 Generic SSP query message processing

This section describes the generic SSP functionality that is needed to create and format messages from the SSP to the SCP or adjunct.

SCCP message segmentation provides a mechanism by which an increased amount of TCAP data can be passed between the SSP and SCP. This is achieved by splitting or segmenting the SCCP Extended Unit Data (XUDT) messages into smaller more manageable segments, sending them, and reassembling them at the receiving end. The segmenting mechanism itself is transparent to AIN.

Prior to NA009, AIN software only processed TCAP UDT messages up to 256 bytes. Starting in NA009, AIN software processes TCAP XUDT messages up to 610 bytes. Message to the SSP must not exceed 610 bytes in size, otherwise the SSP detects the following error: Fatal Protocol Error, Badly Structured Transaction Portion. This error is handled according to Abnormal Procedures as described in GR-1299. See Section 6.1 “Protocol errors” on page 103.

Note: With SCCP segmentation, incoming AIN messages may be up to 1024 bytes long. However, all planned GR-1299 messages are less than the maximum supported message size of 610 bytes. The limit of 610 bytes is applied to minimize processor time and memory waste.

17.2.1 Generic SCCP procedure

This function provides low level generic SSP functionality to receive and send Unit Data (UDT) messages, message segmentation and, SCCP parameter population.

The SSP sends initial and subsequent SCCP UDT messages to the SCP. The SSP also accepts and processes these messages from the SCP.

17.2.2 SCCP procedure for SSP initial message

This function provides the SCCP procedures for sending messages from the SSP to the SCP by using Global Title Translation routing.

17.2.3 SCCP procedure for SSP subsequent message

This function provides the SCCP procedures for sending messages from the SSP to the SCP once the Destination Point Code (DPC) and subsystem number of the assisting SCP have been established from messages received from the SCP.

17.2.4 SSP-to-off-board processor messages

There are several types of AIN Essentials SSP messages that are sent by the SSP in TCAP format. Each of these messages is summarized below. The mandatory parameters are denoted with (M). There are some parameters that may be received by the AIN Essentials SSP but are not used. These parameters are intended to be used in future releases of the product and are denoted by (F) in the shaded entries. All other parameters are considered optional.

17.2.4.1 Origination Attempt message

The SSP sends the Origination Attempt message to the off-board processor when a trigger is encountered at the Origination Attempt TDP, all trigger criteria is met, and the action to be taken by the SSP is to send a query. The Origination Attempt message is sent in a Query package. The parameters for origination attempt messages are shown in Table 57.

Table 57 Origination Attempt message parameters

Parameters
UserID (M)
BearerCapability (M)
ChargeNumber
Lata
TriggerCriteriaType
CallingPartyID
ChargePartyStationType
PrimaryCarrier
ACGEncountered
Amp (F)

17.2.4.2 Information Collected message

The SSP sends the Information Collected message to the off-board processor when a trigger is encountered at the Information Collected TDP, all trigger criteria is met, and the action to be taken by the SSP is to send a query message. The Information Collected message is sent in a Query package. The parameters for information collected messages are shown in Table 58.

Table 58 Information Collected message parameters

Parameters
UserID (M)
BearerCapability (M)
ChargeNumber
Lata
PrimaryCarrier
TriggerCriteriaType
CallingPartyID
ChargePartyStationType
AccessCode
CollectedAddressInfo
CollectedDigits
VerticalServiceCode
Tcm
OriginalCalledPartyID
RedirectingPartyID
RedirectionInformation
ACGEncountered
Amp (F)

17.2.4.3 Information Analyzed message

The SSP sends the Information Analyzed message to the off-board processor when a trigger is encountered at the Information Analyzed TDP, all its criteria are met, and the action to be taken by the SSP is to send a query message. The Information Analyzed message is sent in a Query package. The parameters for information analyzed messages are shown in Table 59

Table 59 Information Analyzed message parameters

Parameters
UserID (M)
BearerCapability (M)
CalledPartyID
Lata
TriggerCriteriaType
ChargeNumber
CallingPartyID
CallingPartyBGID
ChargePartyStationType
PrimaryCarrier
AccessCode
CollectedAddressInfo
CollectedDigits
VerticalServiceCode
Tcm
OriginalCalledPartyID
RedirectingPartyID
RedirectionInformation
ACGEncountered
Amp (F)

17.2.4.4 Network Busy message

The SSP sends the Network Busy message to the off-board processor when a trigger is encountered at the Network Busy TDP, its criteria are met, and when the action to be taken by the SSP is to send a Query message. The Network

Busy message is sent in a Query package. The parameters for the Network Busy messages are shown in Table 60.

Table 60 Network Busy message parameters

Parameters
UserID (M)
BearerCapability (M)
ChargeNumber
Lata
TriggerCriteriaType
CallingPartyID
ChargePartyStationType
CalledPartyID
Tcm
OriginalCalledPartyID
PrimaryCarrier
RedirectingPartyID
RedirectionInformation
ACGEncountered
Amp (F)

17.2.4.5 Termination Attempt message

The SSP sends the Termination Attempt message to the off-board processor when a trigger is encountered at the Termination Attempt TDP, all its criteria are met, and the action to be taken by the SSP is to send a query message. The Termination Attempt message is sent in a Query package. The parameters for Termination Attempt messages are shown in Table 61.

Table 61 Termination Attempt message parameters

Parameters
UserID (M)
BearerCapability (M)
CalledPartyID
Lata
TriggerCriteriaType
CalledPartyStationType
ChargeNumber
CallingPartyID
ChargePartyStationType
Tcm (F)
OriginalCalledPartyID
RedirectingPartyID
RedirectionInformation
GenericName
ACGEncountered
Amp (F)

17.2.4.6 Resource Clear message

The SSP sends the Resource Clear message when the SSP has completed carrying out the instructions received in the previous Send to Resource message from the off-board processor. The Resource Clear message may only be sent in response to Send to Resource and Cancel Resource messages. The Resource Clear message is sent in a Conversation package. In the abnormal case in which the caller has abandoned the call, the Resource Clear is sent in a Response package. The parameters for Resource Clear messages are shown in Table 62.

Table 62 Resource Clear message parameters

Parameters
ClearCause (M)
CollectedDigits
CollectedAddressInfo
PrimaryCarrier (Note)
FailureCause
Amp (F)
Note: The primary carrier is not populated for an equal access tandem office in Send_to_Resource normal digit collection.

17.2.4.7 Termination Notification message

The SSP sends the Termination Notification in a Unidirectional package in response to a Send Notification request received in an AIN Response package. This message is sent by the SSP when a call terminates and the switch resources for the call are released. The parameters for Termination Notification messages are shown in Table 63.

Table 63 Termination Notification message parameters

Parameters
EchoData (M)
TerminationIndicator (M)
ConnectTime
BusyCause

17.2.4.8 Application Error message

The SSP sends an Application Error message when it detects an application error while processing a message received from the off-board processor and a transaction remains open as a result of the message. The parameters for Application Error messages are shown in Table 64.

Table 64 Application Error message parameters

Parameters
ApplicationErrorString (M)

17.2.4.9 Report Error message

The SSP sends a Report Error message when it detects an application error while processing a response from the off-board processor and no transaction remains open as a result of the error. The parameters for Report Error messages are shown in Table 65.

Table 65 Report Error message parameters

Report Error message parameters
ApplicationErrorString (M)

17.2.4.10 Update_Data message

An Update_Data message is sent in reply to an off-board processor Update_Request message to indicate the success or failure of that operation. The parameters for Update_Data are shown in Table 66.

Table 66 Update_Data message parameters

Update_Data message parameters
FailureCause (O)

Note: If the Update_Request is successful, no parameters are included in the Update_Data. Otherwise, the message contains a FailureCause parameter set to either rateTooHigh or unavailableResources. For more information, refer to features AR1630, *AIN SSP: Update Request for Trigger Activation/Deactivation* and AQ1585, *AIN 0.1: Monitor Resource Enhancements*.

17.2.4.11 Monitor_Success message

The SSP sends a Monitor_Success message when all of the following conditions are met:

- the requested line exists,
- the requested status of the line does not match the actual status of the line,
- The requested MonitorTime is non-zero,
- switch resources are available that allow a monitor to be set up.

The Monitor_Success message is sent in response to a Monitor_For_Change query, and must be a Conversation package with an Invoke (Not Last)

component with an operation code of Monitor_Success. The parameters for the Monitor_Success messages are shown in Table 67

Table 67 Monitor_Success message parameters

Parameters
FacilityStatus (M)

17.2.4.12 Status_Reported message

The SSP sends a Status_Reported message when one of the following conditions are met:

- the actual status of the line matches the status requested by the SCP,
- there are not enough resources available to set up a monitor on a line,
- the monitor timer has expired before the actual status of the line matched the status requested by the SCP,
- the received MonitorTime parameter has a value of zero,
- an error occurred.

The Status_Reported message is sent in response to a Monitor_For_Change query. The Status_Reported message must be a Response package containing an Invoke (Last) component with an operation code of Status_Reported. The parameters for the Status_Reported messages are shown in Table 68

Table 68 Status_Reported message parameters

Parameters
FacilityStatus
StatusCause
FailureCause
Note: Although all the parameters are optional, at least one of the parameters must be present in a Status_Reported message.

17.2.5 Off-board processor-to-SSP messages

When the SSP receives a message from an off-board processor, it first performs protocol error detection, and then application error detection. If no protocol and application errors were found, the message is decoded and the instructions are carried out by the SSP.

There are several types of AIN Essentials SSP messages that may be received by the SSP in TCAP format. Each of these messages is summarized in the

following sections. The mandatory parameters are denoted with (M). All other parameters are considered optional.

17.2.5.1 Analyze Route message

The off-board processor sends the Analyze Route message to the SSP to instruct the SSP to terminate the call to a specified address. This message may be sent in response to any call-related message sent by the SSP except Termination Attempt. The Analyze Route message must be sent in a Response package. The parameters for Analyze Route messages are shown in Table 69.

Table 69 Analyze Route message parameters

Parameters
ChargeNumber
CallingPartyID
ChargePartyStationType
CalledPartyID
OutpulseNumber
Tcm (F)
PrimaryTrunkGroup
AlternateTrunkGroup
SecondAlternateTrunkGroup
PrimaryCarrier
AlternateCarrier
SecondAlternateCarrier
PassiveLegTreatment
RedirectingPartyID
PrimaryBillingIndicator
AlternateBillingIndicator
SecondAlternateBillingIndicator
OverflowBillingIndicator
AMAAAlternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMASlpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.2 Forward Call message

The off-board processor sends the Forward Call message to the SSP to instruct the SSP to terminate the call to a specified address. This message may only be sent in response Termination Attempt and Resource Clear messages. The Forward Call message must be sent in a Response package. The parameters for Forward Call messages are shown in Table 70.

Table 70 Forward Call message parameters

Parameters
CallingPartyID
ChargeNumber
ChargePartyStationType
CalledPartyID
OutpulseNumber
Tcm (F)
PrimaryTrunkGroup
AlternateTrunkGroup
SecondAlternateTrunkGroup
PrimaryCarrier
AlternateCarrier
SecondAlternateCarrier
PassiveLegTreatment
PrimaryBillingIndicator
AlternateBillingIndicator
SecondAlternateBillingIndicator
OverflowBillingIndicator
AMAAAlternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMAslpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.3 Authorize Termination message

The off-board processor sends the Authorize Termination message to the SSP to have the SSP proceed the call to the Authorizing Termination point in call and proceed with normal termination for the terminating DN. This message

may only be sent in response to Termination Attempt and Resource Clear messages. The Authorize Termination message must be sent in a Response package. The parameters for Authorize Termination messages are shown in Table 71.

Table 71 Authorize Termination message parameters

Parameters
CallingPartyID
Tcm (F)
ControllingLegTreatment
DisplayText
PrimaryBillingIndicator
AMAAIternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMASlpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.4 Cancel Resource Event message

The off-board processor sends the Cancel Resource Event message to the SSP to request that the SSP disconnect a resource from a call. This message may be sent only after a Send to Resource message has been received. The Cancel Resource Event message is sent in a Conversation package. The parameter for the Cancel Resource Event message is shown in Table 72.

Table 72 Cancel Resource Event message parameter

Parameter (Note)
Amp (F)
Note: This parameter is not currently supported.

17.2.5.5 Continue message

The off-board processor sends the Continue message to the SSP to request that the SSP continue trigger detection processing at the Information Analyzed point in call. This message may only be sent in response to the Information

Analyzed message. The Continue Message is sent in a Response package. The parameters for the Continue message are shown in Table 73.

Table 73 Continue message parameters

Parameters
PrimaryBillingIndicator
AMAAIternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMASlpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.6 Disconnect message

The off-board processor sends a Disconnect message to the SSP to request that the SSP disconnect the call. This message may only be sent in response to any of the call-related messages. The Disconnect message is sent in a Response package. The parameters for the Disconnect messages are shown in Table 74.

Table 74 Disconnect message parameters

Parameters
PrimaryBillingIndicator
AMAAIternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMASlpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.7 Send to Resource message

The off-board processor sends the Send to Resource message to the SSP to instruct it to play a designated announcement to the user. It may also instruct the SSP to collect more digits. This message may be sent in response to any of the call related messages. The Send to Resource message may be sent in a Response package or a Conversation package. If the message requests digit

collection, it must be sent in a Conversation package. The parameters for the Send to Resource messages are shown in Table 75.

Table 75 Send to Resource message parameters

Parameters
ResourceType (M)
StrParameterBlock (M)
DisconnectFlag
AnswerIndicator
PrimaryBillingIndicator
AMAAIternateBillingNumber
AMABusinessCustomerID
Sequence of AMALineNumber (1-2)
AMAslpID
Sequence of AMADigitsDialedWC (1-5)
Amp (F)

17.2.5.8 Automatic Code Gapping message

The off-board processor sends an Automatic Code Gapping (ACG) message when it detects congestion of incoming messages. ACG instructs the SSP to reduce the rate at which it sends initial query messages to the off-board processor. The parameters for the Automatic Code Gapping messages are shown in Table 76.

Table 76 ACG message parameters

Parameters
ControlCauseIndicator (M)
GapDuration (M)
GapInterval (M)
TranslationType (M)
GlobalTitleAddress (M)

17.2.5.9 Send Notification message

The off-board processor sends the Send Notification message to the SSP to instruct the SSP to monitor the call and to send termination information for the call. This message can only be sent along with other call related messages: Analyze Route, Authorize Termination, Continue, Forward Call and Send to Resource in a Response package. The parameter for the Send Notification message is shown in Table 77.

If multiple Send_Notification messages are received during one transaction, only the last Send_Notification message is retained. All other Send_Notification messages received in the same transaction are ignored.

Table 77 Send Notification message parameter

Parameter
EchoData (M)

17.2.5.9.1 Limitations If a caller abandons during an open transaction, the SSP sends a Termination_Notification message as a reply to the last Send_Notification message received in the open transaction.

On rare occasions, a response or conversation message destined for the same transaction can arrive after the caller abandons. If this response or conversation message contains a Send_Notification component, the SSP replies again with a Termination_Notification message, creating a scenario where two Termination_Notification messages are sent out to the SCP for one call.

17.2.5.10 Application Error message

The off-board processor sends an Application Error message to the SSP when it has detected an application error. The action the SSP takes when an Application Error message is received is to take down the call. The Application

Error is sent in a Response package. The parameter for the Application Error message is shown in Table 78.

Table 78 Application Error message parameter

Parameter
ApplicationErrorString (M)

17.2.5.11 Report Error message

The off-board processor sends a Report Error message to the SSP to report an error event. The SSP may use information contained in the Report Error message or discard it. Report Error is sent in a Unidirectional package. The parameter for the Report Error message is shown in Table 79.

Table 79 Report Error message parameter

Parameter
ApplicationErrorString (M)

17.2.5.12 Update_Request message

The off-board processor sends an Update_Request message to the SSP to activate or deactivate an Off-Hook Immediate, Off-Hook Delay or Termination Attempt trigger for a user subscribing to AIN services. The parameters for Update_Request are shown in Table 80.

Table 80 Update_Request message parameters

Parameters
UserID (M)
TriggerCriteriaFlag (C) (Note)
BearerCapability (O)
Note: This parameter is considered conditional since an Update_Request message cannot be processed without a TriggerCriteriaFlag.

17.2.5.13 Monitor_For_Change message

The off-board processor sends a Monitor_For_Change message to the SSP to query the status, either busy or idle, of an analog line, an ISDN BRI line, or a multi-line hunt group (MLHG). Monitor Resource also allows the off-board processor to request the SSP to monitor a line or multi-line hunt group for a period of time until that line or multi-line hunt group changes to the desired

status or until the time period expires. The parameters for Monitor_For_Change are shown in Table 81

Table 81 Monitor_For_Change message parameters

Parameters
FacilityStatus (M)
MonitorTime (M))
CalledPartyID (O) (Note 1)
FacilityID (O) (Note 1)
BearerCapability (O) (Note 2)
Note 1: Exactly one of CalledPartyID or FacilityID must be present. If both are present, FacilityID is ignored and CalledPartyID is used. If neither are present, a fatal application error of Missing Conditional parameter is raised. In release NA007 and up, if only FacilityID is present, a Status_Reported message is immediately sent with the StatusCause parameter, set to the value error. Note 2: Supported values are: • AIN_BC_SPEECH • AIN_BC_3_1_KHZ • AIN_BC_7_KHZ • AIN_BC_56K_DATA • AIN_BC_64K_DATA • AIN_BC_PKT_MODE

18. Performance tracking

A single call model, AIN Group, has been developed for use by Nortel to track AIN Essentials SSP performance. It is based in part on the existing U.S. URBAN OFFICE call model (in the base portion). In addition to this base portion of the model, there are a number of AIN Essentials SSP call types (in the AIN component portion).

The base portion provides call types for measuring real time impact of non-AIN Essentials SSP calls on an AIN Essentials SSP switch with AIN enabled.

The AIN component portion—Services With Query provides call types for measuring the impact of two proposed services (Termination Authorization Service and Origination Screening Service) with AIN querying occurring.

The AIN component portion—Services Without Query provides call types for measuring the impact of two proposed services (Termination Authorization Service and Origination Screening Service) without the occurrence of AIN querying.

Table 82 shows the AIN Group base portion in detail.

Table 82 AIN Group base portion (U.S. URBAN OFFICE)

Call type	Description	Mix %
A001	MDC line – MDC line	14.1
A002	MDC line – EAS trunk (MF)	9.1
A003	MDC line – TOLL trunk (MF/FGD)	5.0
A004	MDC line – EAS trunk (SS7)	9.1
A005	MDC line – TOLL trunk (SS7/FGD)	5.0
A006	MF trunk – MDC line	14.0
A007	SS7 trunk – MDC line	14.0
A008	Line Ineffective	7.2
A009	Trunk Ineffective	3.0
A010	Partial Dial	2.5

Table 83 shows the AIN Group services with query in detail.

Table 83 AIN Group services with query

Call type	Description	Mix %
A011	ISUP TI trunk (– MDC line) Trigger: Termination Attempt Response: Authorize Termination	0.5
A012	MDC line (– MDC line) Trigger: Termination Attempt Response: Authorize Termination	1.5
A013	ISUP trunk Trigger: Termination Attempt Response: Send to Resource (announcement)	0.5
A014	MDC line (– MDC line) Trigger: Termination Attempt Response1: Send to Resource (announcement, Normal digit collection) Response2: Authorize Termination	0.5
A015	MDC line – (– MDC line) Trigger: Customized Dial Plan Response: Analyze Route (DN)	1.5
A016	ISUP IBN TI (– MDC line) Trigger: Customized Dial Plan Response: Analyze Route (DN)	1.5
A017	MDC line (– ISUP) Trigger: Customized Dial Plan Response: Analyze Route (route)	1.0
A018	ISUP IBNTI Trigger: Customized Dial Plan Response: Send to Resource (announcement)	1.0
Note: AIN component portion (based on approximately 20% AIN office penetration)		

Table 84 shows the AIN Group services without query in detail.

Table 84 AIN Group services without query

Call type	Description	Mix %
A019	ISUP TI trunk (– MDC line) Trigger: Termination Attempt	1.0
A020	MDC line (– MDC line) Trigger: Termination Attempt	1.0
A021	MDC line (– MDC line) Trigger: Termination Attempt	1.0
A022	MDC line – (– MDC line) Trigger: Customized Dial Plan	1.0
A023	ISUP IBN TI (– MDC line) Trigger: Customized Dial Plan	1.0
A024	MDC line (– ISUP) Trigger: Customized Dial Plan	1.0
Note: AIN component portion (based on approximately 20% AIN office penetration)		

Provisioning

Part : “Provisioning” consists of the following chapters:

- Chapter 19.:“Provisioning overview”
- Chapter 20.:“Data schema”
- Chapter 21.:“Software optionality control”
- Chapter 22.:“Datafilling for the general office”
- Chapter 23.:“SS7 datafill”
- Chapter 24.:“Trigger subscription”
- Chapter 25.:“Trigger item provisioning interface”
- Chapter 26.:“SERVORD guidelines”
- Chapter 27.:“Trigger administration”
- Chapter 28.:“Verifying with TRAVER”
- Chapter 29.:“Provisioning assumptions”
- Chapter 30.:“Off-hook Immediate trigger”
- Chapter 31.:“Off-Hook Delay trigger”
- Chapter 32.:“Shared interoffice trunk trigger”
- Chapter 33.:“Public Office Dialing Plan trigger”
- Chapter 34.:“N11 trigger”
- Chapter 35.:“Customized Dialing Plan trigger”
- Chapter 36.:“PODP feature code trigger”
- Chapter 37.:“Automatic flexible routing trigger”
- Chapter 38.:“Termination attempt trigger”
- Chapter 39.:“Datafilling for responses”
- Chapter 40.:“Analyze Route response”

- Chapter 41.:“Continue response”
- Chapter 42.:“Authorize Termination response”
- Chapter 43.:“Forward Call response”
- Chapter 44.:“Disconnect response”
- Chapter 45.:“Send_To_Resource response”
- Chapter 46.:“Cancel_Resource response”
- Chapter 47.:“Provisioning multiple triggers”
- Chapter 48.:“Provisioning for post-response translations”
- Chapter 49.:“Overview of AIN response translations”
- Chapter 50.:“AIN response translations for public agents”
- Chapter 51.:“AIN simplified response translations for public agents”
- Chapter 52.:“AIN response translations for private agents”
- Chapter 53.:“AIN simplified response translations for private agents”
- Chapter 54.:“Monitor resources feature”
- Chapter 55.:“Options for offices supporting only 7-digit dialing for home numbering plan”

19. Provisioning overview

**CAUTION**

This section provides instructions for provisioning the service switching point (SSP) for advanced intelligent network (AIN) services. The instructions are related to the sample call scenarios only. Do not consider these sample call scenarios as specific instructions that are applicable in all cases. The intention is to provide a wide range of sample calls, to show the triggers that the calls activate, and to describe the responses that result. These sample calls should be used as a guide to your provisioning needs only.

19.1 Purpose of this part

This provisioning part of the Service Implementation Guide is intended to provide datafilling examples, organized by trigger and response type, for the AIN Essentials SSP product. It is also designed to provide examples of the datafill required to set-up post-response translations. This information should not be used by those who are not familiar with the AIN Essentials SSP product.

It is assumed that the reader is familiar with the following:

- AIN Essentials SSP functionality, namely, knowledge of basic AIN Essentials provisioning and AIN Essentials call models (both the triggering-processing and response-processing aspects)
- various DMS utilities, such as Table Editor, SERVORD, and TRAVER
 - basic DMS switch translation knowledge, including the following:
 - Plain ordinary telephone service (POTS) translation
 - Meridian Digital Centrex (MDC) translation
 - Integrated Services Digital Network (ISDN) routing characteristic translation tables
 - Signaling System Number 7 (SS7) translations

— Equal access translation

Reference documents for the above prerequisites can be found in Section “References in this document” on page lvi“.

19.2 Structure of this part

This section is divided into the following main sections:

- Provisioning overview
- Datafilling for the general office
- Datafilling for triggers
- Datafilling for responses
- Additional topics
- Provisioning or multiple triggers
- Provisioning for post-response translations

19.2.1 Provisioning overview

This chapter defines the key terminology needed to provision the new or enhanced tables for AIN. It also provides general datafilling information and a description of the TRAVER utility.

19.2.2 Provisioning for the general office

This chapter describes the datafilling requirements for setting up the AIN Essentials SSP. It includes the following:

- datafilling table OFCENG for AIN Essentials SSP software
- datafilling for Transaction Capabilities Application Part (TCAP)
- datafilling for treatment

19.2.3 Datafilling for triggers

Chapter 23.: “SS7 datafill” on page 435 describes the datafilling requirements common to all nine triggers, such as datafilling required for SS7 tables, datafilling for the call type criterion, and SERVORD guidelines for assigning AIN or AINDN to a line.

Chapter 29.: “Provisioning assumptions” on page 493 is a guide to the trigger provisioning chapters that follow it.

Chapter 30.: “Off-hook Immediate trigger” on page 495 through Chapter 38.: “Termination attempt trigger” on page 611 describe the datafilling requirements for each of the nine trigger types.

19.2.4 Datafilling for responses

Chapter 39.: “Datafilling for responses” on page 625 is a guide to the 7 response-provisioning chapters that follow it. Chapter 40.: “Analyze Route response” on page 629 through Chapter 46.: “Cancel_Resource response” on page 689 describe the datafilling requirements for each of the seven response types.

19.2.5 Additional topics

Chapter 47.: “Provisioning multiple triggers” on page 691 goes beyond the one trigger–one response scenarios by describing how to define a multiple trigger group in table TRGGRP.

19.2.6 Datafilling for post-response translations

Chapter 48.: “Provisioning for post-response translations” on page 699 is a guide to the chapters which follow it. Chapter 49.: “Overview of AIN response translations” on page 703 through Chapter 55.: “Options for offices supporting only 7-digit dialing for home numbering plan” on page 903 describe the datafilling required to provision post-response translations.

19.3 Accessing AIN Essentials SSP services

See Chapter 3.: “Agent support” on page 73.

19.4 Response messages

Whenever the SSP queries an off-board processor as a result of triggering, it awaits a response message from the SCP. There are different types of response messages that can be received, depending on the trigger type from which the query originated.

Table 85 illustrates the relationship between the AIN Essentials TDPs and AIN Essentials response messages.

Table 85 AIN response–TDP relationship

TDP	Response message						
	Analyze Route	Continue	Authorize Termination	Forward Call	Disconnect	Send To Resource	Cancel Resource
Origination Attempt	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Collected	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Analyzed	Res.	Res.	N/A	N/A	Res.	Res./ Conv.	N/A
Network Busy	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Termination Attempt	N/A	N/A	Res.	Res.	Res.	Res./ Conv.	N/A
Res. = Response Conv. = Conversation							

19.5 Overview of tables by function

The data tables described in the following sections have been created or enhanced to datafill AIN Essentials.

New tables have been created and existing DMS tables have been modified to accommodate AIN services. The types of tables are as follows:

- trigger definition tables
- trigger subscription tables
- access code tables
- automatic flexible routing (AFR) tables
- service switching point (SSP) provisioning tables
- call recording tables
- message routing tables
- treatment control tables
- announcement tables

Note: Any tables mentioned in this document that are not listed in this section are existing DMS tables used by AIN Essentials.

19.5.1 Trigger definition tables

The trigger definition tables are

- TRIGGRP
- TRIGINFO
- TRIGDIG
- TRIGESC
- TRGSIESC

19.5.2 Trigger subscription tables

The trigger subscription tables are

- LENFEAT
- IBNFEAT
- KSETFEAT
- OFCVAR
- OFCTIID
- TRKGRP
- CUSTSTN
- DNFEAT, DNROUTE
- TRKAIN

19.5.3 Access code tables

The access code tables are

- IBNXLA
- XLANAME

19.5.4 Automatic flexible routing (AFR) tables

The AFR tables are

- OFRT, OFR2, OFR3, OFR4
- IBNRTE, IBNRT2, IBNRT3, IBNRT4
- HPNACONT SUB RTEREF
- FNPACONT SUB RTEREF

19.5.5 Service switching point (SSP) provisioning tables

The SSP provisioning tables are:

- OFCENG, parameters:
- AIN_T1_TIMER
- AIN_MAX_SERIAL_TRIGGERS
- AIN_NUM_PROCESSING_EXT_BLKs

- AIN_NUM_EXT_BLKs
- TRIGDIG_NUM_DGLTR_POOLS

19.5.6 Message routing tables

The message routing tables are:

- C7GTTYPE
- C7GTT
- C7RTESET
- C7NETSSN
- C7LOCSSN
- TCAPTRID

19.5.7 Call recording tables

The call recording tables are:

- AMAOPTS
- BCCODES
- CUSTSMR

19.5.8 Treatment control tables

The treatment control tables are

- TMTMAP
- TMTCNL

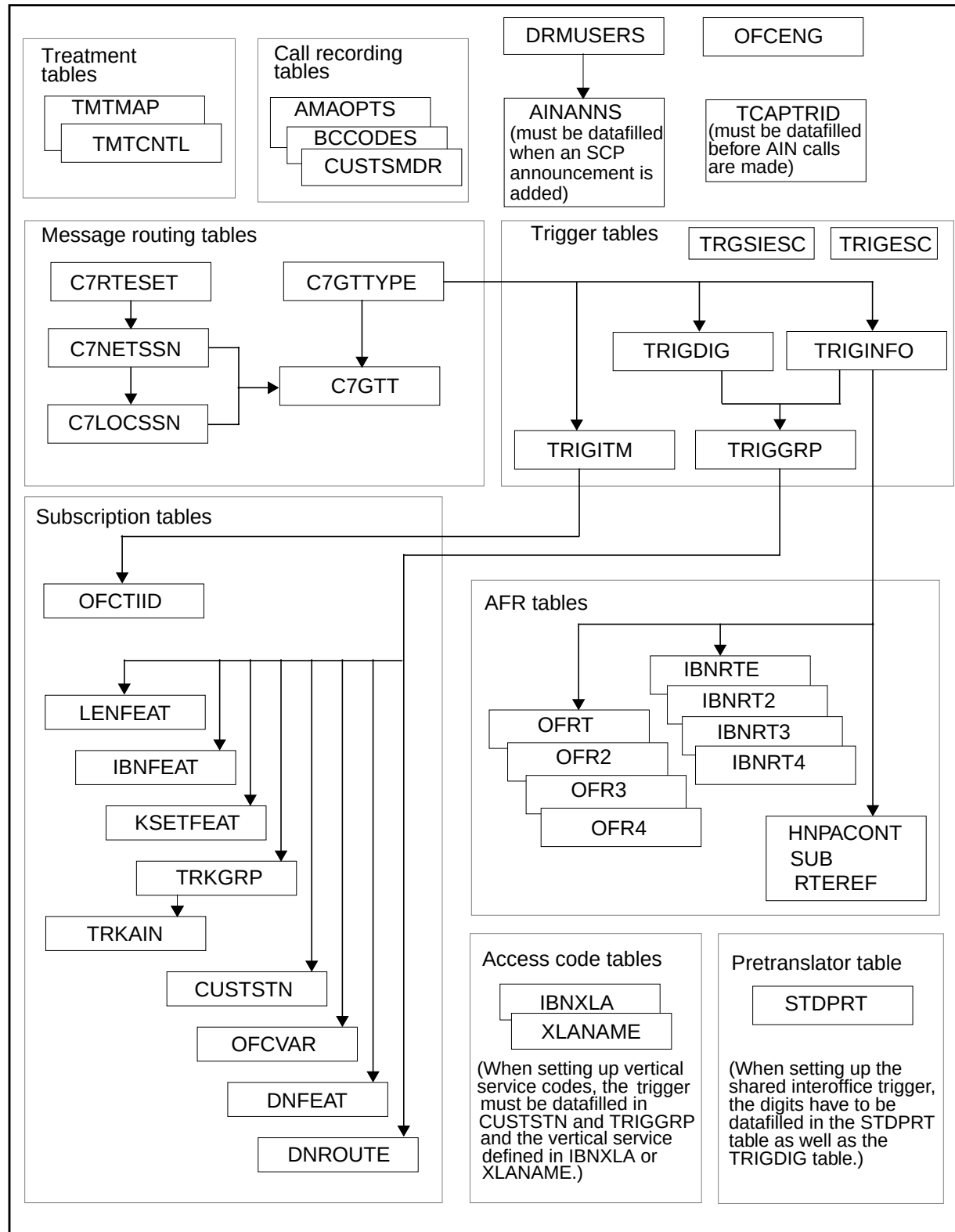
19.5.9 Announcements tables

The announcement table is AINANNS.

19.6 Datafilling hierarchy

Figure 29 illustrates the order of datafill as well as table indexing dependencies.

Figure 29 Datafill hierarchy and indexing



19.7 General information

This section provides a variety of general information about SSP data provisioning.

19.7.1 AIN Essentials

For information on AIN Essentials, see the following:

- 297-5161-011, *Advanced Intelligent Network Release 0.1 Service Switch Point—Product Information, Engineering, and Administration Guide*
- 297-5161-501, *DMS-100 Family AIN Complete Maintenance Guide*

19.7.2 Translations

For detailed information on AIN Essentials translations, see 297-8003-350, *NA DMS-100 Translations Guide*.

The following documents contain related information:

- 297-2001-350, *MDC Translations*
- 297-2001-451, *MDC Customer Data Schema, ISDN routing Characteristic Table*
- 297-5151-350, *CCS7 Translations*

Various translation courses, including POTS, MDC, ISDN, and CCS7, are offered through the Technical Education Centers of Nortel.

19.7.3 Announcement

Announcement information can be obtained from 297-1001-360, *DMS 100 Family Digital Recorded Announcement Machine Maintenance Reference Manual*.

19.7.4 TRAVER

In addition, for assistance with TRAVER, see 297-1001-360, *Basic Translations Tools Guide*.

19.7.5 Automatic message accounting (AMA)

This document does not cover AMA.

19.8 How to provision AIN triggers, responses, and post-response translations.

Browse through all the chapters in this part of the Service Implementation Guide to become familiar with the various assumptions that underlie this document.

This document can be used to learn how to datafill an SSP to make one trigger—one response for the various AIN Essentials calls described in this

document. First, decide on the triggering type encountered in the call. Then, perform the following steps:

- ensure that the general office datafill has been set up correctly according to the description in Chapter 22.: “Datafilling for the general office” on page 427
- browse through the common triggering datafill in Chapter 29.: “Provisioning assumptions” on page 493 to learn how to set up the datafilling that is applicable to your requirements. Then, proceed to the corresponding trigger datafilling chapter for the trigger type involved in the call. Choose any of the examples described in that chapter and follow the instructions to set up the datafill
- proceed to Chapter 39.: “Datafilling for responses” on page 625. Determine the valid response types for the query message and choose one response. Go to the corresponding response datafilling chapter for the responses type. If datafill is required, choose any of the examples described in the chapter and follow the instructions to set up the datafill
- ensure that the datafill required for post-response translation processing has been set-up as described in
- make the real AIN call.

An advanced user should be able to utilize this document to make calls that go beyond the examples given in this document.

20. Data schema

This chapter describes data tables that are introduced, changed, or used by AIN Essentials SSP. These tables are summarized in Table 86 through 98 .

Table 86 Trigger definition tables

TRIGGRP	TRIGDIG
TRIGESC	TRIGINFO
TRGSIESC	TRIGITM

Table 87 Trigger assignment data tables

TRIGASGN

Table 88 Access code tables

IBNXLA	XLANAME

Table 89 Automatic flexible routing (AFR) tables

OFRT	OFR2	OFR3	OFR4
IBNRTE	IBNRT2	IBNRT3	IBNRT4
HNPACONT SUB RTEREF		FNASUB RTEREF	

Table 90 Trigger subscription tables

LENFEAT	IBNFEAT	KSETFEAT
DNFEAT	TRKAIN	CUSTSTN
OFCVAR	DNROUTE	OFCTIID

Table 91 OP trunk tables

TRKGRP

Table 92 AIN provisioning (office parameters)

AIN_ACTIVE (Note)
AIN_T1_TIMER
AIN_NUM_EXT_BLKs
AIN_NUM_PROCESSING_EXT_BLKs
AIN_MAX_SERIAL_TRIGGERS
TRIGDIG_NUM_DGLTR_POOLS
AIN_NUM_TERM_NOTIF_EXT_BLKs
AIN_NUM_01_00_EXT_BLKs
AIN_NUM_00_PARA_EXT
Note: Note: This parameter is not applicable from release NA004B and up.

Table 93 Message routing tables

C7RTESET	C7NETSSN	C7LOCSSN
C7GTTTYPE	C7GTT	TCAPTRID

Table 94 Unanswered call recording tables

AMAOPTS	BCCODES

Table 95 Translation tables

STDPRTCT SUB STDPRT

Table 96 Treatment control tables

TMTCNTL	TMTMAP

Table 97 Announcements tables

AINANNS

Table 98 Extension Record Billing tables

CUSTSMR

20.1 Trigger definition tables

Trigger tables are used to define groups of triggers that can be used by the subscription tables so that lines, trunk groups, customer groups, DNs, or office may subscribe to AIN Essentials SSP. These tables define trigger criteria that are used to determine if triggering will take place. In addition, they provide information as to how the SSP will handle triggering and specify protocol and messaging information used to send query messages to an off-board processor.

New tables to store trigger information are described in the following sections.

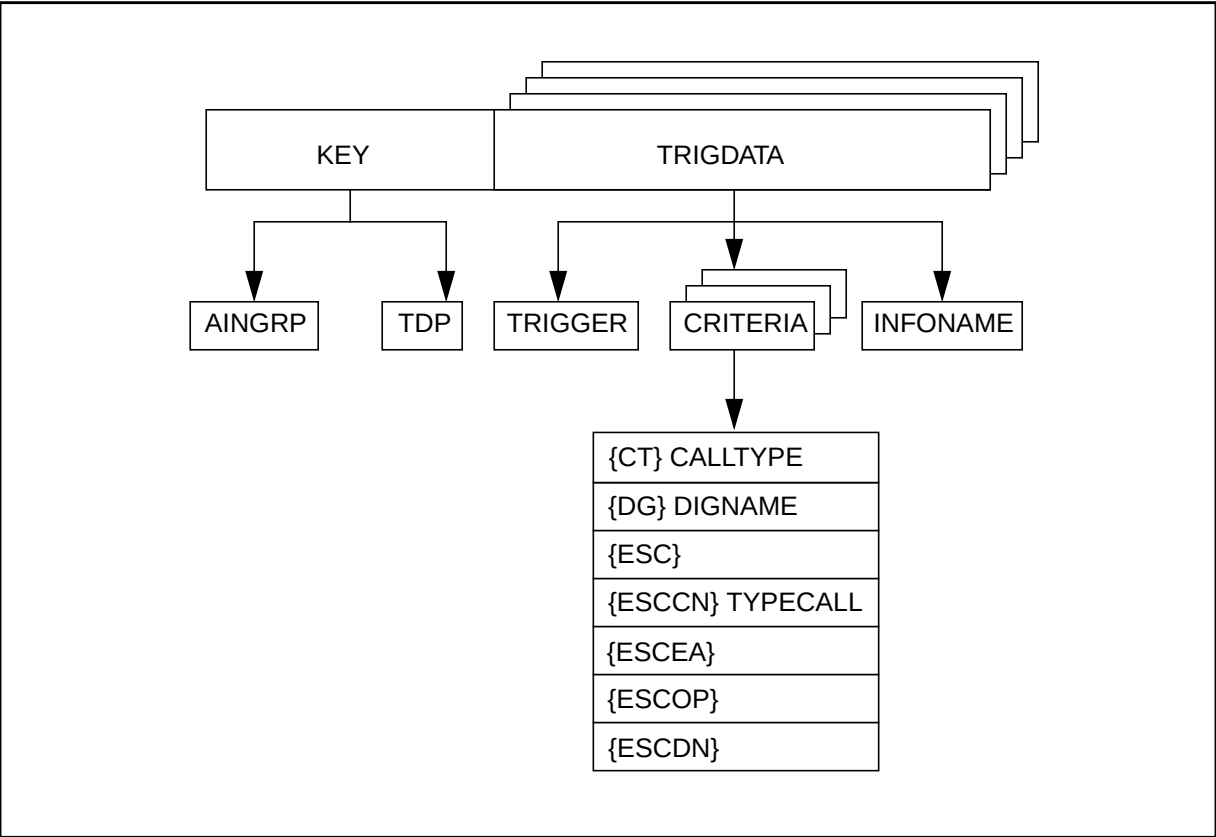
20.1.1 Table TRIGGRP

Table TRIGGRP is the main AIN Essentials SSP table used for provisioning triggers. TRIGGRP defines groups of triggers to which subscribers may subscribe. A logical view of an entry in table TRIGGRP and its fields is shown in Figure 30.

The range of values that can be datafilled in the TDP sub-field of the KEY field of table TRIGGRP includes “OCPB” and “ONOA”.

The range of values that can be datafilled in the TRIGGER sub-field of the TRIGDATA field of table TRIGGRP includes “OCPB” and “ONOA”.

Figure 30 Table TRIGGRP



20.1.1.1 Field information

The status of the fields in table TRIGGRP is shown in Table 99.

Table 99 Fields from table TRIGGRP

Field name	Range of values	Status	Default values
Key	multiple with TRIGNAME vector of up to 16 chars TDP {ORIGATT, INFOCOL, INFOANAL, NETBUSY, TERMATT, OCPB , ONOA }	unchanged	N/A
TRIGDATA	vector of up to 16 multiples with TRIGGER {OFFHKIMM,..., OCPB , ONOA , PODP} CRITERIA vector of up to 7 multiples with CRITERIA {DG,CT,ESC,ESCEA,ESCOP,ESCND,ESCCN, ESCQR,ESCGP} refinements: {DG} multiple with DIGNAME {PODPDIG,FEATDIG,N11DIG,CDPDIG} {ESCQR} nil_ain_criteria_area {ESCGP} nil_ain_criteria_area {ESCCN} multiple with typecall {DD,NP,OA,DD_NP,DD_OA,OA_NP, ALL} {ESCND} nil_ain_criteria_area {ESCOP} nil_ain_criteria_area {ESCEA} nil_ain_criteria_area {ESC} nil_ain_criteria_area {CT} multiple with calltype {VBINFO,CMDATA} INFONAME {INMDR,AINSIM,NIL}	unchanged unchanged unchanged	N/A

20.1.1.2 Description of fields

TRIGGRP is indexed by a two-part key consisting of the AIN group (AINGRP) name and TDP. Each entry defines one or more possible triggers and their criteria in the TRIGDATA field.

The TRIGNAME field is modified to block the reserved trigger group name 'TIID'. The reserved trigger group name TIID is used as a DMS provisioning interface selector.

In the TRIGGER field, a trigger name must be specified and it must be one that is associated with the TDP specified in the key. Table 100 shows the TDP names and their associated triggers.

Table 100 TDPs and triggers in table TRIGGRP

TDP		Trigger	
Name	Table syntax	Name	Table syntax
Origination Attempt	ORIGATT	Off-Hook Immediate	OFFHKIMM
Information Collected	INFOCOL	Off-Hook Delay	OFFHKDEL
		Shared Interoffice Trunk	INTEROFF
Information Analyzed	INFOANAL	3 to 10 Digit Public Office Dialing Plan	PODP
		N11	N11
		Customized Dialing Plan	CDPCODE
		PODP Feature Code	PODPFEAT
Network Busy	NETBUSY	AFR	AFR
Termination Attempt	TERMATT	Termination Attempt	TERMATT

As depicted in Figure 30, a trigger can contain more than one criteria. There are three criteria types: Call Type (CT), Digits (DG) and Escape Code (ESC). For all AIN Essentials SSP triggers Call Type criteria is optional. Escape Code criteria is mandatory and valid for the Off-Hook Delay trigger. The Shared Interoffice Trunk trigger allows Escape Code as a valid optional criteria. Digits criteria is mandatory and only valid for the following triggers:

- Shared Interoffice Trunk
- 3- to 10-Digit Public Office Dialing Plan
- N11
- Customized Dialing Plan
- PODP Feature Code

The Call Type criteria is used to specify which types of calls (for example, voice, data) may trigger. Call Type is specified by datafilling CT plus VBINFO or CMDATA. CMDATA means that the call must be a circuit-made data call in order to trigger. VBINFO (Voice Band Information) indicates that the call

must be a voice call to meet Call Type criteria. When Call Type criteria is specified, it must be the first entry in the criteria list.

Digits criteria is used to indicate which digits must be dialed in order for a call to trigger. Digits criteria is specified using DG plus an index to table TRIGDIG. Table TRIGDIG must be datafilled before it is referenced by TRIGGRP.

Escape criteria is used to specify that only calls in which an escape code has NOT been dialed may trigger. Escape codes for the Off-Hook Delay trigger are stored in table TRIGESC. TRIGESC does not have to be datafilled before Escape criteria is used. Escape codes for the Shared Interoffice Trunk trigger are stored in table TRGIESC. TRGIESC does not have to be datafilled before Escape criteria is used. Escape criteria for either the Off-Hook Delay trigger or the Shared Interoffice Trunk trigger is specified by datafilling ESC in the CRITERIA field.

ESCCN criteria is used to prevent coin originated calls with the indicated call types from triggering at that trigger. The ESCCN criteria is only valid for the PODP and LNP triggers, and only affects calls originated from CDF, CCF and CSP line types.

ESCEA is used to prevent Equal Access calls from triggering. It is only applicable to the PODP and LNP triggers.

ESCOP is used to prevent operator-bound calls from triggering. It is only applicable to the PODP and LNP triggers. In order for the call to be considered operator-bound, the call must either go through table POSITION to find an operator or it must be a 0+ call.

ESCDN is used to prevent a call from triggering if it is deemed that the DN dialed is resident on the switch. It is only applicable to the LNP trigger. A DN is considered resident unless one of the following intercepts/treatments is datafilled against it:

- BLDN
- UNDN
- VACT
- UNDT

If no criteria is specified for a trigger, a “\$” must be used.

The INFONAME specifies message routing information the SSP will use in order to send a query to the off-board processor. The routing information is actually datafilled in table TRIGINFO and the INFONAME field contains the index to the TRIGINFO entry. Table TRIGINFO must be datafilled before it is

referenced by TRIGGRP. If digits criteria is specified or the trigger is AFR, the INFONAME field must contain the value "NIL". In these cases, the message routing information is referenced elsewhere.

It is possible to assign triggers to the same group that cannot be subscribed to on the same basis.

20.1.1.2.1 Examples Table 101 shows three example entries in table TRIGGRP. The first two entries define an AINGRP called LINETRIGGRP that contains two triggers: Off Hook Immediate and Off Hook Delay. Since Off Hook Immediate is assigned on a line basis and Off Hook Delay is also assigned on a line basis, this group of triggers will be subscribed by lines. When a subscriber to this group makes a data call, the call will trigger at the Origination Attempt TDP and send a query message using the information specified by INFO1 in table TRIGINFO. If a subscriber to this group makes a call and the digits dialed do not match an escape code in TRIGESC, the call will trigger the Information Collected TDP and send a query message using the information specified by INFO2 in TRIGINFO.

The third entry in Table 101 defines an AINGRP called OFFICETRIGGRP. This group contains two triggers: 3- to 10-digit Public Office Dialing Plan and N11. For this example, this group of triggers is assignable on an office basis only. Thus, all calls in the office are affected. If a voice call is made and the Information Analyzed TDP is encountered, the call will trigger and send a query message if digits dialed match the digits specified by DIG3 in table TRIGDIG. The query message will be sent using the information specified by DIG3. If the call did not meet the PODP criteria (for example, the call was not a voice call or digits did not match), and the digits dialed match the digits specified by DIG4, the call will trigger and send a query message using the information specified by DIG4.

Table 101 Example entries in table TRIGGRP

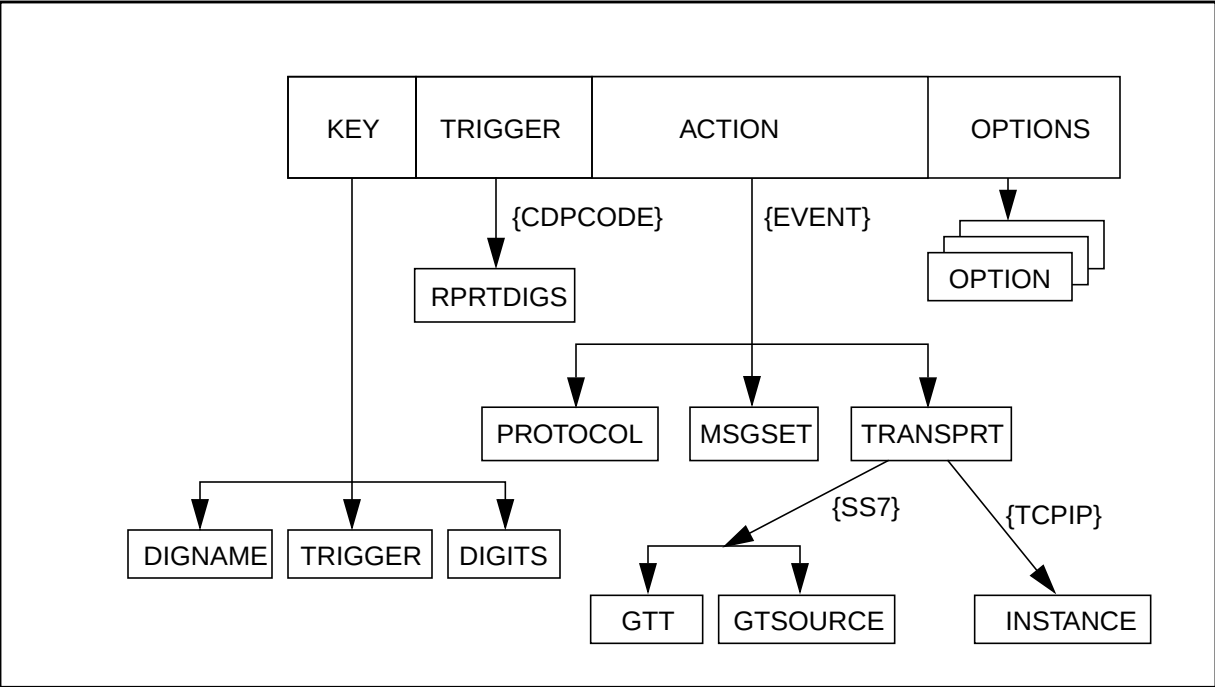
KEY		TRIGDATA		
TRIGNAME	TDP	TRIGGER	CRITERIA	INFONAME
LINETRIGGRP	ORIGATT	(OFFHKIMM	(CT CMDATA) \$	INFO1) \$
LINETRIGGRP	INFOCOL	(OFFHKDEL	(ESC) \$	INFO2) \$
OFFICETRIGGRP	INFOANAL	(PODP (N11	(CT VBINFO) (DG DIG3) \$ (DG DIG4) \$	NIL) NIL) \$

20.1.2 Table TRIGDIG

Table TRIGDIG is used to indicate addressing information based on dialed digits. It also indicates the action to be performed by the SSP when the digits criteria is met. A logical view of table TRIGDIG is shown in Figure 31.

The range of values that can be datafilled in the MSGSET field of table TRIGDIG includes “R01”, representing the AIN Essentials message set.

Figure 31 Table TRIGDIG



20.1.2.1 Field information

The status of the fields in table TRIGDIG is shown in Table 102.

Table 102 Fields from table TRIGDIG

Field name	Range of values	Status	Default values
Key	multiple with DIGNAME TRIGGER DIGITS	unchanged	N/A

Table 102 Fields from table TRIGDIG (Continued)

Field name	Range of values	Status	Default values
Trigger	multiple with TRIGGER {CDPCODE} RPRTDIGS OTHERWISE	unchanged	N/A
Action	multiple with ACTION {EVENT}: PROTOCOL MSGSET TRANSPRT TRANSPRT {SS7}: GTT GTSOURCE {TCPIP} INSTANCE {ESCAPE}	unchanged	N/A
Options	vector of up to 2 multiples with OPTION {DFLTRT}: SELECTOR {ANNDN}: ANNIDX DN E911ESN ESN {DN}: DN {ANN}: ANNIDX {QOR} {POTUSE}: POTUSE	unchanged	N/A

20.1.2.2 Description of fields

The range of the Action field includes the value “ESCAPE”. When the Action field is set to ESCAPE, the following data are not datafilled PROTOCOL, MSGSET, TRANSPRT. The OPTIONS field is blocked; that is, it accepts only the empty value.

The range of the MSGSET field includes the value “R01”. This value should be datafilled to indicate that any trigger referring to this tuple is an AIN Essentials trigger and so has AIN Essentials functionality.

See Chapter 23.: “SS7 datafill” on page 435 for information on the GTT subfield.

The index to this table is a three-part key consisting of a digit group identifier (DIGNAME), TRIGGER, and dialed digits (DIGITS). DIGNAME is the identifier used by table TRIGGRP to specify digits criteria. TRIGGER identifies the trigger name to which the digits criteria applies. DIGITS specifies the digits to be matched against digits specified for the trigger. A match is defined as the most specific match. For example, if the dialed digits are 6137225998 and datafilled digits are 613, 613722, and 6137225998, the entry with the most specific digits, 6137225998, will match first. If a query was sent and a Continue message was received, the SSP would examine the next most specific digits, 613722.

Note: For PODP and N11 triggers, digits criteria is actually based on the result of translating the dialed digits to the PODP format (for example, dialed digits = 161211171, criteria digits = 6136211171)

The TRIGGER field is a symbolic name representing a subscribed trigger. For AIN Essentials SSP, the value of this field must be the same as the trigger name used in the key field. If the trigger is CDPCODE, the user is prompted for the field RPRTDIGS. RPRTDIGS is used to indicate if digit manipulation should be performed by the SSP before sending a query message. The valid values for this field are TRANS and NOTTRANS. TRANS indicates the SSP should perform digit manipulation on the dialed digits. NOTTRANS indicates the SSP should query using the digits as dialed.

The ACTION field specifies what action will be taken by the SSP if triggering takes place. Currently, the only valid value is EVENT. When EVENT is specified, PROTOCOL, MSGSET and TRANSPRT must also be specified. PROTOCOL specifies the transport protocol to be used for sending query messages. Currently, the only valid value for this field is TCAP. MSGSET indicates the version of the protocol specified in the PROTOCOL field. TRANSPRT specifies the transport medium to be used to communicate with the off-board processor. Currently, the valid values for TRANSPRT are SS7 and TCPIP. When SS7 is specified, fields GTT and GTSOURCE must also be specified. GTT specifies the Global Title translation name which is an index into table C7GTTTYPE. The GTSOURCE field indicates the source of the GT digits to be used in the called party address in the query message. The allowed value for this field is DFLT. When TCPIP is specified, the INSTANCE field must also be specified. INSTANCE is the Application Instance Number used to identify the AIN application running on the off-board processor. Please refer

to Chapter 62.: “Other CI commands” on page 1073 for more information on Application Instance.

There are two OPTION field components, DFLTRT and POTUSE that are datafillable in the OPTION field. The DFLTRT option is only applicable to the PODP and N11 triggers. Please refer to Section 5.2 “Response processing with Default Routing” on page 101 for a description of the DFLTRT option.

The POTUSE option is used to indicate the potential usage of a trigger. Only the CPC (Carrier Portability Code) potential use is currently defined. This option is only applicable to the PODP trigger.

Please refer to Table 103 for an example on how to datafill the POTUSE option.

20.1.2.3 Examples

Table 103 gives some examples of entries in table TRIGDIG.

Table 103 Example entries in table TRIGDIG

Key			Trigger	Action	Options
DIGNAME	Trigger	Digits			
PODPDIG	PODP	613	PODP	EVENT TCAP R01 SS7 GTT1 DFLT	
PODPDIG	PODP	613722	PODP	EVENT TCAP R02 SS7 GTT2 DFLT	DFLRT ANN 6
CDP1	CDPCODE	9	CDPCODE NOTRANS (Note)	EVENT TCAP R01 SS7 GTT3 DFLT	
PODPDIG	PODP	800811	PODP	EVENT TCAP R02 SS7 GTT DFLT	(POTUSE TFS)
SFCDIG	SFC	B23	SFC	EVENT TCAP R02 SS7 GTYP DFLT	\$
DIG1	PODP	613722	PODP	EVENT TCAP R02 SS7 GTT DFLT	\$
DIG2	PODP	613711	PODP	ESCAPE	\$
Note: NOTRANS is a subfield of CDPCODE.					

When using the digit criteria, the entries associated with a DIGNAME can correspond to both AIN Essentials and AIN Service Enablers. Thus, the order of precedence between AIN Essentials and AIN Service Enablers is based on digit length and not application.

Note: The R01 entries are based on TR-NWT-1284, *Advanced Intelligent Network (AIN) 0.1 Switching Systems Generic Requirements* whereas the R02 entries are based on GR-1298-CORE, *AINGR: Switching Systems*.

For example, based on the datafill shown in Table 104, 6137220000 (AIN Service Enablers) has precedence over 613722 (AIN Essentials) which has precedence over 613 (AIN Service Enablers).

Table 104 Precedence datafill examples in table TRIGDIG

Key			Trigger	Action	Option
DIGNAME	Trigger	Digits			
N11DIG	N11	311	N11	EVENT TCAP R01 SS7 GTT5 DFLT	\$
PODPDIG	PODP	6137221231	PODP	EVENT TCAP R01 SS7 GTT4 DFLT	\$
PODPDIG	PODP	6137220000	PODP	EVENT TCAP R02 SS7 GTT3 DFLT	
PODPDIG	PODP	613722	PODP	EVENT TCAP R01 SS7 GTT2 DFLT	
PODPDIG	PODP	613	PODP	EVENT TCAP R02 SS7 GTT1 DFLT	

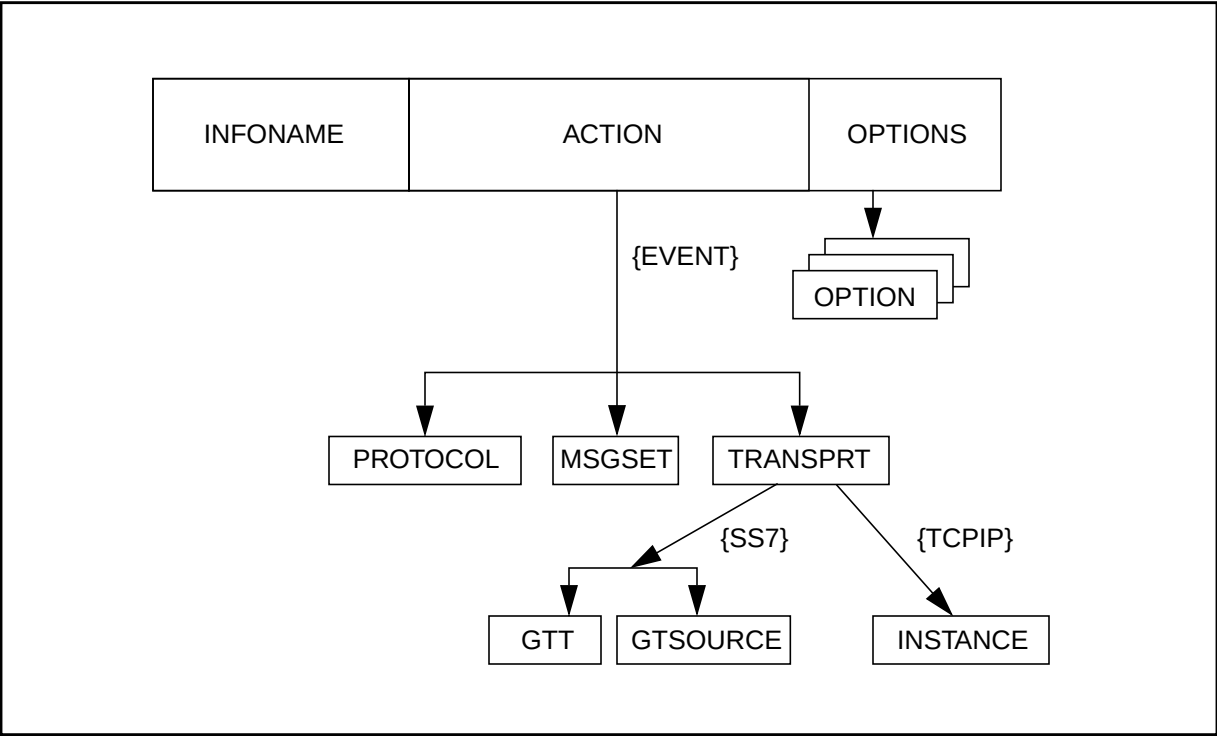
20.1.3 Table TRIGINFO

Table TRIGINFO stores information about the type of protocol and messaging that is used to send queries to off-board processors. Figure 32 gives a logical view of TRIGINFO.

The range of values that can be datafilled in the MSGSET field of table TRIGINFO included “R02”, representing the AIN Service Enablers message set.

The range of values that can be datafilled in the SELECTOR field of table TRIGINFO includes “E911ESN”, representing new default routing for the enhanced 911 service.

Figure 32 Table TRIGINFO



20.1.3.1 Field information

The status of the fields in table TRIGINFO is shown in Table 105.

Table 105 Fields from table TRIGINFO

Field name	Range of values	Status	Default values
Key	multiple with INFONAME vector of up to 8 chars.	unchanged	N/A
Action	multiple with ACTION {EVENT}: PROTOCOL {EVENT} MSGSET {TCAP} TRANSPRT {R01, R02 } TRANSPRT {SS7} {SS7} GTT GTSOURCE multiple with C7_GT_TYPE_NAME {DFLT, CHARGE, CALLED}	unchanged unchanged changed unchanged unchanged unchanged	N/A
Options	vector of up to 2 multiples with OPTION {DFLTRT}: SELECTOR {ANNDN}: ANNIDX DN {DN}: DN {ANN}: ANNIDX {E911ESN}: ESN_RANGE {POTUSE}: POTUSE multiple with {DFLTRT, POTUSE} multiple with {ANNDN, ANN, DN, E911ESN } multiple with {1 to 65535} vector up to 15 digits multiple with vector up to 15 digits multiple with {1 to 65535} multiple with {0 to 15999} multiple with {CPC}	unchanged changed unchanged unchanged unchanged unchanged new unchanged	N/A

20.1.3.2 Description of fields

The range of the MSGSET field includes the value “R01”. This value should be datafilled to indicate that any trigger referring to this tuple is an AIN Essentials trigger and so has AIN Essentials functionality.

The range of the SELECTOR field includes the value “E911ESN”. When the SELECTOR field is set to E911ESN, the user is prompted for an additional parameter, ESN (DFLTRT_ESN). The ESN parameter accepts ESN_RANGE values. Validation occurs to ensure that the ESN input is datafilled in the 911ESN table.

See NTP 297-8021-350, *North American DMS-100 Translation Guide*, for additional information on the enhanced 911 service.

See Chapter 23.: “SS7 datafill” on page 435 for information on the GTT subfield.

Table TRIGINFO is indexed by an identifier called INFONAME. INFONAME is an identifier used by table TRIGGRP and the AFR routing tables to reference protocol and messaging information.

The ACTION field specifies what action will be taken by the SSP if triggering takes place. Currently, the only valid value is EVENT. When EVENT is specified, PROTOCOL, MSGSET and TRANSPRT must also be specified. PROTOCOL specifies the transport protocol to be used for sending query messages. Currently, the only valid value for this field is TCAP. MSGSET indicates the version of the protocol specified in the PROTOCOL field. TRANSPRT specifies the transport medium to be used to communicate with the off-board processor. Currently, the valid values for TRANSPRT are SS7 and TCAPIP. When SS7 is specified, fields GTT and GTSOURCE must also be specified. GTT specifies the Global Title translation name which is an index into table C7GTTYPE. The GTSOURCE field indicates the source of the GT digits to be used in the called party address in the query message. The allowed value for this field is DFLT. When TCPUIP is specified, the INSTANCE field must also be specified. INSTANCE is the Application Instance Number used to identify the AIN application running on the off-board processor. Please refer to Section 62.5 “AINTCPCI command” on page 1076 for more information on application instance.

Only one OPTION field component, DFLTRT, is currently available. The DFLTRT option will only be applicable for the Termination Attempt (TERMATT) trigger. If a trigger is encountered that references a tuple in table TRIGINFO with the DFLTRT option and a default routing condition occurs (for example, T1 timer expiry), AIN final treatment will be applied if the trigger is not the TERMATT trigger. Please refer to Section 5.2 “Response processing with Default Routing” on page 101 for a description of the DFLTRT option.

20.1.3.3 Datafill sequence

The default routing ESN must be input into DFLTRT_ESN field of the E911ESN table before the setting the SELECTOR field of the TRIGINFO table to “E911ESN”.

If the E911ESN table is not correctly datafilled first, the following error message is output:

Invalid ESN specified. ESN must be present in Table E911ESN

20.1.3.4 Examples

Table 106 shows example entries in table TRIGINFO.

Table 106 Example entries in table TRIGINFO

INFONAME	ACTION	OPTIONS
INFO1	EVENT TCAP R01 SS7 CTT2 DFLT	DFLTRT ANN 34
INFO2	EVENT TCAP R01 TCPIP 2	DFLTRT ANNDN 34 6133376159
SLHR1	EVENT TCAP R02 SS7 GTT1 DFLT	\$
SLHR2	EVENT TCAP R02 SS7 GTT2 DFLT	DFLTRT ANNDN 32 6137224012\$
SLHR3	EVENT TCAP R02 SS7 GTT3 DFLT	DFLTRT ANN 64\$
SLHR4	EVENT TCAP R02 SS7 GTT4 DFLT	DFLTRT DN 7224012\$
SLHR5	EVENT TCAP R01 SS7 GTT5 DFLT	\$
SLHR6	EVENT TCAP R01 SS7 GTT6 DFLT	DFLTRT ANNDN 13 6136219001 \$
SLHR7	EVENT TCAP R01 SS7 GTT7 DFLT	DFLTRT ANN 23 \$
SLHR8	EVENT TCAP R01 SS7 GTT8 DFLT	DFLTRT DN 7228828 \$

20.1.4 TRIGESC

As required by TR-NWT-001284, triggering should not take place at the Off-Hook Delay trigger when a feature access code or escape code has been dialed. The table TRIGESC has been created to store the codes that will escape the Off-Hook Delay Trigger. Feature access codes should not be datafilled in this table as they automatically escape the Off-Hook Delay trigger.

The length of the escape code may be 1 to 18 digits. The digits datafilled in table TRIGESC are used by table TRIGGRP when the ESC option is specified. The digits in TRIGESC must match the result of removing prefix digits from the string of dialled digits. See Table 107 for an example of dialed digits and their matched TRIGESC digits.

Table 107 Dialed digits and match TRIGESC digits

Dialed Digits	Matched TRIGESC Digits
911, 9911	911
16137225001	6137225001
18002421692	8002421692
107770	0
04169375613	4169375613

Example entries for KEY in table TRIGESC are:

- 23
- 6137651234
- 911

20.1.5 TRGSIESC

As required by TR-NWT-001284, triggering should not take place at the Shared Interoffice Trunk trigger when the called digits correspond to an escape code. The table TRGSIESC is used to store an escape list for the Shared Interoffice Trunk trigger. Each entry in table TRGSIESC corresponds to an escape code which should escape processing of the Shared Interoffice Trunk trigger.

The length of the escape code may be 1 to 10 digits. The digits datafilled in table TRGSIESC are used by table TRIGGRP when the ESC option is specified. See Table 108 for an example of called digits and their matched TRGSIESC digits.

Table 108 Dialed digits and match TRGSIESC digits

Called digits	Matched TRGSIESC digits
8008112000	800811

Table 109 presents the generic format for escape code entries in table TRGSIESC.

Table 109 Generic format for TRGSIESC entries

Escape code
N
NP
NPA
NPA-N
NPA-NX
NPA-NXX
NPA-NXX-X
NPA-NXX-XX
NPA-NXX-XXX
NPA-NXX-XXXX

20.1.6 Table TRIGITM

The TRIGITM table stores the trigger items according to Bellcore GR-1298. The TRIGITM and OFCTIID tables collectively define the trigger items and the trigger item subscription context supported by the DMS trigger item interface. The following office wide triggers are supported:

- PODP
- N11
- LNP
- AFR, for office-wide subscription only

20.1.6.1 Field Information

The status of the fields in table TRIGITM is shown in Table 110.

Table 110 Fields for the TRIGITM table

Field name	Range of values		Default values
KEY	TDP { 4, 17 } TINAME VECTOR OF UP TO 8 CHAR'S	NEW	N/A
TRIGGERS	TRIGGER {SDS,N11,AFR,LNP} CRITERIA VECTOR OF UP TO 7 MULTIPLES WITH CRITERIA { DG,CT,ESCEA,ESCAP,ESCDN, ESCCN,ESCGP} REFINEMENTS: {DG} MULTIPLE WITH DIGITS VECTOR OF UP TO 10 DIGIT'S {ESCGP} NIL_TI_CRITERIA_AREA {ESCCN} MULTIPLE WITH COIN_CALL_TYPE {DD,NP,OA,DD_NP,DD_OA, OA_NP,ALL} {ESCDN} NIL_TI_CRITERIA_AREA {ESCAP} NIL_TI_CRITERIA_AREA {ESCEA} NIL_TI_CRITERIA_AREA {CT} MULTIPLE WITH CALLTYPE {VBINFO,CMDATA} TRIGGER REFINEMENTS: OTHERWISE NIL_TI_TRIGGER_EXTRA_AREA	NEW	N/A
STATE	STATE {ULK, LK}	NEW	ULK
ACTION	ACTION {EVENT, ESCAPE}	NEW	N/A
SLHR	MSGSET {R01, R02}	NEW	N/A
	TRANSPRT {SS7, TCPIP} refinements: {SS7}: multiple with GTT C7_GT_TYPE_NAME	NEW	N/A
OPTIONS	vector of up to 3 multiples with OPTION {DFLTRT, POTUSE, QOR} refinements: {DFLTRT}: multiple with SELECTOR {ANNDN, ANN, DN, E911ESN} refinements {ANNDN}: multiple with ANNIDX {1 to 65535} DN vector up to 15 digits {E911ESN } multiple with ESN { 0 to 15999 } {DN}: multiple with DN vector up to 15 digits {ANN}: multiple with ANNIDX {1 to 65535}	NEW	N/A

20.1.6.2 Description of fields

20.1.6.2.1 KEY The name of this field represents Trigger Item Identifier (TIID). It is a two parts key consisting of:

- TDP — a standard 2 digit number representing a TDP
- TINAME—an 8-character alphanumeric string

TDP is restricted to 4 for the Info_Analyzed TPD and 17 for the Network_Busy TDP.

The DMS-100 SSP supports case sensitive values for the TINAME field if it is entered between single quotes (for example 'Sds01').

20.1.6.2.2 TRIGGER This field supports the following office wide trigger types: PODP, N11, LNP and AFR.

20.1.6.2.3 Subfield CRITERIA This field is a vector of different criteria elements. Valid elements include:

- DG, or DIGITS
- CT
- ESCEA
- ESCOP
- ESCCN
- ESCGP

It contains the conditions that the trigger instance must meet for a call to trigger.

20.1.6.2.4 DIGITS This field is a vector of up to 10 digits represent the dialed digits. For digit based triggers, digits must be supplied. The criteria are summarized in Table 111.

Table 111 Supported fields per Trigger Type

Trigger Type	Digits fields	Call Type fields	Escape criteria and fields
Public Office Dialing Plan (PODP)	NPA-NXX-XXXX	VBINFO (voice), CMDATA (data)	ESCCN (coin) ESCEA (equal access) ESCOPE (operator) ESCGP (esc if generic address parm is present)
N11	N11	VBINFO (voice), CMDATA (data)	none
LNP	NPA-NXX-XXXX		ESCCN (coin) ESCDN (resident DN) ESCEA (equal access) ESCOPE (operator) ESCQR (escapes a LNP trigger in a downstream SSP)
AFR (office wide)		Call Type (CT)	none

20.1.6.2.5 Other criteria elements Other element criteria are described as they are required in the individual trigger provisioning procedures later in this document.

20.1.6.2.6 STATE The administrative state code used to selectively enable and disable a trigger item. The setting affects all subscription links referencing that trigger. It supports the following values:

- ULK — enables the trigger item (ULK means unlocked)
- LK — disable the trigger item (LK means locked)

20.1.6.2.7 ACTION This field specifies the behavior of the SSP when the criteria for the corresponding trigger item is satisfied. It can have the values EVENT and ESCAPE. If the ACTION field is set to EVENT, the SLHR fields (that is, MSGSET, TRANSPRT, and GTT fields) must be datafilled. The SSP sends a query message to the SCP. If the ACTION field is set to ESCAPE, the SSP does not send a query message.

Note: When the Action field is set to ESCAPE, the following data are not datafilled (MSGSET, TRANSPRT, and GTT), and the OPTION fields are not supported.

20.1.6.2.8 Service Host Logic Route This field contains the following subfields.

MSGSET—The MSGSETsubfield supports the following:

- R01: This value should be datafilled to indicate that any trigger referring to this tuple is an AIN Essentials trigger and as has the AIN Essentials functionality (Bellcore TR-NWT-001284).
- R02: This value should be datafilled to indicate that any trigger referring to this tuple is an AIN Service Enablers trigger and so has AIN Service Enablers functionality (Bellcore GR-1298-CORE).

TRANSPRT— This subfield supports SS7.

20.1.6.2.9 OPTIONS This field supports the following values:

- DFLTRT
- POTUSE
- QOR

20.1.6.2.10 Datafill sequence The trigger item tables must be datafilled in the following order:

- TRIGTM
- OFCTIID

20.1.6.2.11 Example Table 112 provides samples of datafill for the TRIGTM table.

Table 112 Sample datafill for table TRIGITM

KEY		Trigger	Criteria	State	Action	SHLR			Options
TDP	TINAME					MSGSET	Transport	GTT	
4	N11TRG1	N11	(DG 911)	ULK	EVENT	R02	SS7	GTT1	\$
4	SDSTRG1	SDS	(DG 613)	LK	EVENT	R02	SS7	GTT2	\$
4	SDSTRG2	SDS	(DG 613722)	ULK	EVENT	R02	SS7	GTT1	DFLRT ANN 6 \$
4	SDSTRG3	SDS	(DG 800811)	ULK	EVENT	R02	SS7	GTT2	(POTUSE TFS) \$
4	SDSTRG4	SDS	(DG 613772301)	LK	EVENT	R02	SS7	GTT2	\$
4	SDSTRG5	SDS	(DG 613745)	ULK	ESCAPE				\$
4	LNPTRG1	SDS	(DG 613722)	ULK	EVENT	R02	SS7	GTT1	
4	LNPTRG2	SDS	(DG 613711)	ULK	ESCAPE				\$
17	AFRTRG1	AFR		ULK	EVENT	R02	SS7	GTT	\$

20.1.6.2.12 Trigger assignment data tables An AIN subscriber subscribes to instances of AIN Essentials SSP triggers via the AIN trigger subscription tables. The association between an AIN subscriber and the instance of the AIN trigger to which it is subscribed is called a trigger assignment. Information can be stored about each trigger assignment for every AIN agent subscription. This information is called trigger assignment data. Currently, the only form of trigger assignment data that is stored is the trigger activation states for the triggers.

All trigger assignment data is stored in table TRIGASGN. Each tuple in table TRIGASGN stores activation state information for a given AIN agent subscription and the AIN triggers to which it is subscribed. Currently, activation states are stored only for the Off-Hook Immediate, Off-Hook Delay, and Termination Attempt triggers, and only for the AIN agent subscriptions that can subscribe to these triggers.

20.1.7 Table TRIGASGN

As table TRIGASGN is not intended to be viewed directly by the craftsperson, its format is not described herein.

The activation states for a given AIN agent subscription can be viewed and modified using the SHOWSTATE and CHANGESTATE CI commands respectively contained within the AINCI command interpreter directory. The activation states can also be modified via the Update Request off-board processor-to-SSP message.

20.2 Access Code tables

Changes to access code tables to accommodate AIN Essentials features are described in this section.

20.2.1 Table IBNXLA

The existing software can only recognize feature access codes which have been defined in tables IBNXLA or XLANAME for MDC translations. For AIN Essentials SSP there is a need to allow access codes which may only be recognizable to a off-board processor. The SSP must be able to recognize which of these access codes require subsequent digit collection. To handle these types of access codes, the MDC translation tables, IBNXLA and XLANAME have been enhanced so that the SSP may recognize these access codes.

Table IBNXLA is used to specify the access code with its required translation function. To provide for the new AIN feature access code, a new translation function, AIN, has been introduced. When the AIN feature option is used, a value for the Query After field must be supplied to indicate the rule for subsequent digit collection. The possible values for this field are:

- IMMED—do not collect subsequent digits
- NORM—collect subsequent digits according to the normal dialing plan for that line or trunk group
- VAR—collect a variable number of digits (0 to 32)
- FIXED—collect a fixed number of digits

Table 113 shows example entries in table IBNXLA.

Table 113 Example entries in table IBNXLA

KEY		RESULT
XLANAME	DIGITS	
CXDK	76	FTR 2 AIN IMMED
CXDK	77	FTR 2 AIN NORM
CXDK	78	FTR 2 AIN VAR
CXDK	79	FTR 2 AIN FIXED 4

20.2.2 Table XLANAME

Table XLANAME is used when no access code is found in IBNXLA. The changes to this table are similar to those for IBNXLA. A new AIN feature access code has been introduced and the QUERYAFTR field has been added to specify the rules for collecting subsequent digits. The possible values for this field are the same as those listed above.

Table 114 shows example entries in XLANAME.

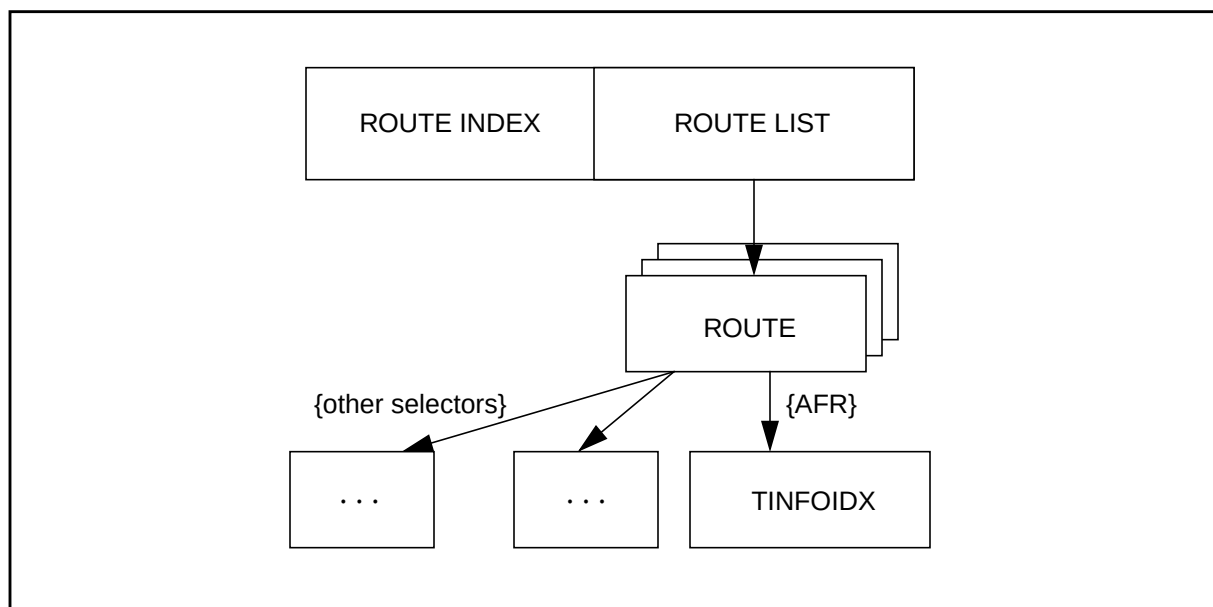
Table 114 Example entries in table XLANAME

XLANAME	RESULT	MAXDIG
CXDK	(FTR 2 AIN IMMED) \$	9
CXDK	(FTR 2 AIN FIXED 4) \$	9

20.3 AFR tables

In order for AFR to be applied to a route list, it must be added to the route list in the appropriate route table. The following route list tables were enhanced by AIN Essentials SSP to allow AFR to be added to route lists: IBNRTE, IBNRT2, IBNRT3, IBNRT4, OFRT, OFR2, OFR3, OFR4, HNPACONT SUB RTEREF and FNPACONT SUB RTEREF.

Figure 33 shows a logical view of an entry in any of the IBN and office route tables

Figure 33 AFR tables

The Route List field has been enhanced to accept AFR as a valid selector. If AFR is specified, an index to table TRIGINFO must be specified in the TINFOIDX field. The TRIGINFO entry specifies the messaging and routing information that is used if triggering takes place at the AFR trigger.

Note: It is possible to specify AFR at any location in the route list. Once the SSP has encountered AFR in the route list, any entries following it will be ignored. However, as required by TR-NWT-001284, AFR should take place only if all other routes in the route list are busy. Thus, in order to meet this requirement, AFR must be the last entry in the route list.

Table 115 shows an example entry in the IBNRTE table that contains two routes in the route list and the AFR selector. The TRIGINFO entry is indexed by INFO1.

Table 115 Example entry in table IBNRTE

RTE	ROUTELIST
1	(S N N N N OGMF) (S N N Y N OGDG) (AFR INFO1) \$

20.4 Optional AIN support for OP trunk

To provide the customer the ability to have some OP trunk groups which can encounter AIN, and some OP trunk groups which do not encounter AIN, a new option “NRMLTRAF” is added to the existing table TRKGRP. OP trunk

groups will only trigger if “NRMLTRAF” is present and the triggering criteria are met.

20.5 Trigger subscription tables

Subscription to AIN Essentials SSP may be made by a line, DN, trunk group, customer group, or entire office. This is done by datafilling an AINGRP defined in TRIGGRP against the subscriber in the appropriate line, DN, group or office table. The following sections describe how subscription is done and the tables involved in each case.

20.5.1 Subscription on a line basis

Subscription to AIN on a line basis is accomplished in different tables depending on the type of line as shown in Table 116.

Table 116 Line tables

Type of line	Table	New/changed /unchanged
POTS Lines	LENFEAT	Changed
MDC or RES Lines	IBNFEAT	Changed
ISDN BRI	KSETFEAT	New
EBS and MFT Terminals	KSETFEAT	Changed

20.5.1.1 Table LENFEAT

A new feature option, AIN, and field, AINGRP, have been added to this table to provide AIN subscription to POTS lines. It is recommended that the service order utility, SERVORD, be used to assign, change, and delete the AIN option for POTS lines.

Note: When using SERVORD to assign the AIN option for POTS lines, they will be converted to RES lines.

Table 117 shows a POTS line with Line Equipment Number (LEN), HOST 01 0 00 01 that has subscribed to AIN and the AINGRP that defines the triggers is AINGRP1.

Table 117 Example of table LENFEAT entries

LEN	PTY	DF	FEATURE	DATA
HOST 01 0 00 01	S	AIN	AIN	AINGRP1

20.5.1.2 Table IBNFEAT

A new feature option, AIN, and field, AINGRP, have been added to this table to provide AIN subscription to MDC and RES lines. It is recommended that

the service order utility, SERVORD, be used to assign, change, and delete the AIN option for MDC and RES lines.

Table 118 shows an example entry in table IBNFEAT where an MDC line with line equipment number (LEN) HOST 02 0 00 1 subscribes to AIN. The triggers it subscribes to are defined by AINGRP1 in TRIGGRP.

Table 118 Example of table IBNFEAT entries

LEN	DNNO	DF	FEATURE	DATA
HOST 02 0 00 01	0	AIN	AIN	AINGRP1

20.5.1.3 Table KSETFEAT

A new feature option, AIN, and field AINGRP have been added to this table to provide AIN subscription to EBS and MFT terminals. It is recommended that the service order utility, SERVORD, be used to assign, change, and delete the AIN option for EBS and MFT terminals.

Table 119 shows an example entry in KSETFEAT where an EBS terminal with LEN HOST 02 0 00 01 that subscribes to AIN and the triggers it subscribes to are defined by AINGRP1 in TRIGGRP. The AIN service is assigned against DN key 1 and DN key 5.

Table 119 Example of table KSETFEAT entries

FEATKEY			FEATURE	KVAR	
LEN	KEY	FEAT		AINGRP	KEYLIST
HOST 02 0 00 01	1	AIN	AIN	AINGRP1	(1 5 \$)

20.5.2 Subscription on a DN or DN/CT basis

A new data table, DNFEAT, has been created to provide subscription to AIN triggers on a Directory Number (DN) basis or Directory Number and Call Type (DN/CT) basis.

Note: This does not apply to DISA DNs (see Section 20.5.4 “Subscription by a DISA DN”).

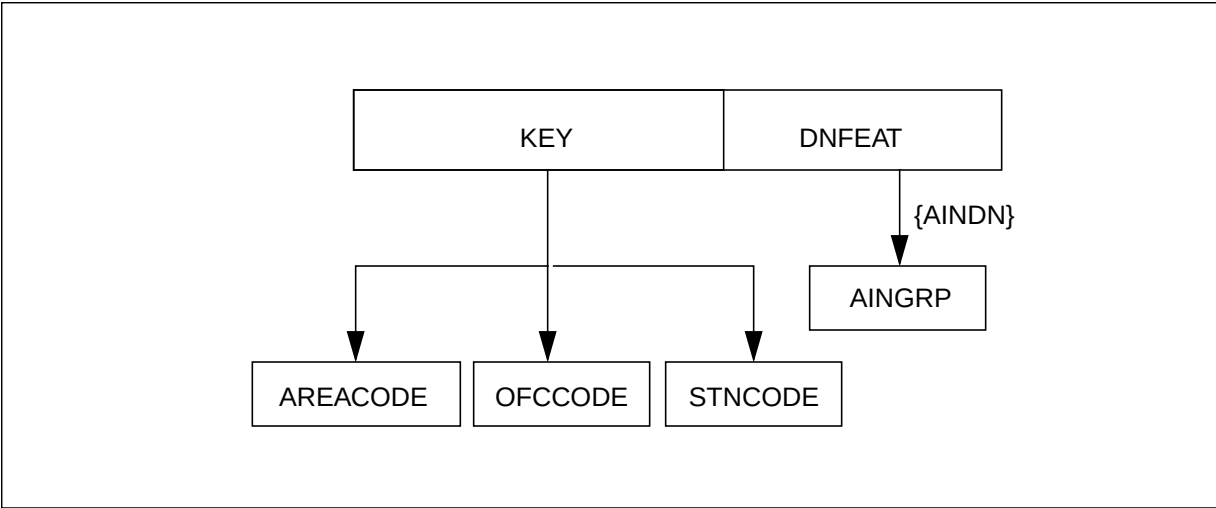
For AIN Essentials, the Termination Attempt trigger must be subscribed using this table. This table may be used to allow subscription to AIN for a number of types of directory numbers. In order to datafill a DN in this table it must already be a valid DN and be used for one of the following purposes:

- Individual Line
- Hunt Group

- Secondary Directory Number (for example, Teen services)
- Virtual Feature DN. The following feature DNs are supported:
 - AIN: Advanced Intelligent Network virtual DN

Figure 34 shows a logical view of an entry in table DNFEAT.

Figure 34 Table DNFEAT



The key to DNFEAT contains three fields: area code (AREACODE) office code (OFCCODE) and station code (STNCODE).

AREACODE specifies the serving numbering plan area associated with the DN. This must correspond to an area code already datafilled in table SNPANAME.

OFCCODE is the office code associated with the DN. The AREACODE and OFCCODE fields must appear in table TOFCNAME before they can be datafilled in table DNFEAT.

STNCODE is the station code associated with the DN.

Field DNFEAT is used to specify features assigned to the DN. Currently, the only possible value for this field is AINDN. When AINDN is specified, the user is prompted for an AINGRP. The AINGRP name from table TRIGGRP that defines the group of triggers to be assigned to the DN is datafilled here.

Table 120 shows an example entry in table DNFEAT where AIN triggers defined in AINGRP4 of table TRIGGRP are subscribed by DN 613 722 5234.

Table 120 Example entries in table DNFEAT

AREACODE	OFCCODE	STNCODE	DNOPT	AINGRP
613	722	5234	AINDN	AINGRP4 \$

Subscription to AIN on a DN/CT basis is accomplished by datafilling the AINGRP against the DN in DNFEAT as described above, and using the CT (call type) criteria in table TRIGGRP to specify which triggers are based on voice calls and which on data calls. For more information on TRIGGRP please refer to Section 20.1.1 “Table TRIGGRP”.

20.5.2.1 Table TRKAIN

TRKAIN is used to provision individual (non-office wide) AIN triggers to trunk groups. AIN Essentials triggers only apply to incoming calls on incoming and two-way trunks. See Table 7 “AIN trunk trigger support” on page 80 for a list of supported trunks.

TRKAIN allows MF cellular (Type 2A only) trunk groups to be added to TRKAIN. This permits Type 2A MF cellular trunks to subscribe to the Off-Hook Delay (OHD) AIN trigger. Type 2A MF cellular trunks have a trunk group type of ‘CELL’ in table TRKGRP.

SS7 Type 2A and 1/2B trunks can also be provisioned in TRKAIN. These trunk types allow OHD trigger criteria to be matched for SS7 cellular trunks. SS7 cellular trunks are Inter-Toll (IT) trunk group types having the CELL option in table TRKGRP.

20.5.2.1.1 Field information The status of the fields in table TRKAIN is shown in Table 121.

Table 121 Fields from table TRKAIN

Field name	Range of values	Default values
GRPKEY	Trunk groups with GRPTYP=CELL in table TRKGRP can be added to TRKAIN.	N/A

20.5.2.1.2 Description of fields The key field for TRKAIN is GRPKEY. Trunk groups that have a GRPTYP=CELL in table TRKGRP can be added to TRKAIN.

20.5.2.1.3 Datafill sequence Unchanged. A valid trigger group must be defined in table TRIGGRP before provisioning the trigger group against a trunk group.

20.5.2.1.4 Examples See Table 122 for an example of the TRKAIN table.

Table 122 Sample datafill for table TRKAIN

GRPKEY	AINGRP
SOMETRKGRP	OFFHKDELGRP

20.5.3 AIN-specific directory number

A virtual directory number may be used for AIN applications. To provide this functionality, a new feature code, AIN has been added to table DNROUTE. In order for the virtual AIN DN to subscribe to AIN triggers, the DN must appear in the TABLE DNFEAT with the AINDN option.

Table 123 shows example virtual DNs that have been assigned the AIN option

Table 123 Example entries of AIN DNs in table DNROUTE

AREACODE	OFCCODE	STNCODE	DN_SE L	FEATURE	DNTYPE	AINOPT
613	721	0521	FEAT	AIN	IBN COMKODAK	NCOS 0 \$
613	621	4923	FEAT	AIN	NONIBN 55	\$

20.5.4 Subscription by a DISA DN

Individual Offhook-Delay and AFR triggers can be subscribed to a DISA DN only through table DNROUTE. Table 124 shows an example of a DISA DN subscribed to the AIN Off-hook Delay trigger.

Table 124 Example entry of a DISA DN subscribed to AIN in table DNROUTE

AREACODE	613
OFCCODE	722
STNCODE	6002
DN_SEL	FEAT
FEATURE	DISA
CUSTGROUP	COMKODAK
SUBGRP	0
AUTHREQ	Y
SMDRTO	Y
SMDRFROM	Y
INTRAGRP	N
DISAOPT	AIN01OPT
AIN01_AGTIDX1	0
AIN01_AGTIDX2	14
AIN01_TRIGGRP	LNOFFHKDEL

The agent index fields (AIN01_AGTIDX1 and AIN01_AGTIDX2) are for trigger activation and deactivation, and are automatically administered. Manually entered values are not used.

20.5.5 Subscription on a trunk group basis

Table TRKAIN provides a new way of subscribing to AIN trigger groups on a trunk group basis and replaces the AIN option in table TRKGRP. As of NA004, AIN can be subscribed on seven trunk group types using this new method:

- IT (Intertoll)
- TI (POTS incoming)
- T2 (POTS two way)
- IBNTI (IBN incoming)
- IBNT2 (IBN two way)
- PRI (Primary Rate Interface except wideband)

- ATC (AIN support of this trunk group type was added in NA004 for only feature group B and feature group D signaling types)

To subscribe to a trunk group of one of the types listed above, the user must first enter the CLLI of the trunk group (datafilled in table TRKGRP) and the name of the trigger group (datafilled in table TRIGGRP).

Table 125 Example entry in table TRKAIN

GRPKEY	AINGRP
ISUPICITT	TRKOFFHKDEL

20.5.6 Subscription on a customer group basis

To provide subscription to AIN on a customer group basis, the Customer Group Station table, CUSTSTN, has been enhanced with an AIN option. To assign AIN to a customer group option AIN must be specified with AIN ANGRP. AINGRP is an index to a group of triggers defined in TRKGRP.

Table 126 shows an example entry in CUSTSTN showing the customer group COMKODAK subscribing to a group of triggers specified by AINGRP1.

Table 126 Customer group example that subscribes to triggers

CUSTNAME	OPTNAME	OPTION	
		OPTNAME	AINGRP
COMKODAK	AIN	AIN	AINGRP1

20.5.7 Subscription on an office basis

The AIN_OFFICE_TRIGGRP office parameter in the OFCVAR table is used to subscribe to the trigger item data model or to an AINGRP that affects the entire office.

- Range of values: AIN trigger group names (AINGRP) in TRIGGRP table or the trigger item identification description in table TRIGITM
- Default value: NIL

This parameter is used to subscribe to an AINGRP. To enable office wide subscriptions to the trigger items supported by the DMS Trigger Item Interface, the AIN_OFFICE_TRIGGRP parameter is set to 'TIID'—a reserved trigger group name which acts as a DMS trigger provisioning interface selector.

Note: Once AIN_OFFICE_TRIGGRP is assigned a TRIGGRP and AIN Essentials SSP is active in the office, applicable office triggers subscribed to by the office will be applied to all calls.

Table 127 shows an example entry in table OFCVAR used to subscribe the triggers defined in AINGRP1 to the entire office.

Table 127 Table OFCVAR example subscribing to AIN triggers

PARMNAME	PARMVAL
AIN_OFFICE_TRIGGRP	AINGRP1

20.5.8 Table OFCTIID

The OFCTIID table administers the subscription links to the office wide trigger items that are defined in the TRIGITM table.

20.5.8.1 Field Information

The status of the fields in the OFCTIID table is shown in Table 128.

Table 128 Fields from the OFCTIID table

Field name	Range of values	Default values
KEY	multiple with TDP {4, 17} TINAME vector of up to 8 alphanumeric chars.	NEW
SUBSCRIPTION	multiple with TRIGACT {ON, OFF}	NEW

20.5.8.2 Description of fields

20.5.8.2.1 KEY The KEY field consists of two parts as follows:

- TDP — a numerical representation of a trigger detection point
- TINAME — an 8-character alphanumeric string

TDP is restricted to 4 for the Info_Analyzed TPD and 17 for the Network_Busy TDP.

The DMS-100 SSP supports case sensitive values for the TINAME field if it is entered between single quotes (for example 'Sds01').

20.5.8.2.2 SUBSCRIPTION (TRIGACT) This field supports the following values:

- ON: indicates that the trigger item identified by the TIID is subscribed.
- OFF: the trigger item is not subscribed.

20.5.8.3 Datafill sequence

The trigger item tables must be datafilled in the following order:

- TRIGITM

- OFCTIID

20.5.8.4 Example

See Table 129 for an example of the OFCTIID table.

Table 129 Sample of the OFCTIID table

KEY		SUBSCRIPTION
TINAME	TDP	
N11TRIG1	4	ON
SDSTRG1	4	ON
LNPTRIG5	4	ON
AFRTRIG	17	OFF

20.5.8.5 Activation

Not applicable.

20.6 Message routing tables

Global Title (GT) translation is used by the AIN Essentials SSP to perform routing translations for sending query messages to the off-board processor. There are several data tables that are used by the SSP to store GT information. Since these tables are provided by currently existing software and were not altered for AIN Essentials, they are described only briefly here.

20.6.1 C7LOCSSN - the Local Subsystem table

Table 130 provides information for local subsystems. The subsystem name and information for the AIN Essentials SSP application on the SSP is defined in this table and the subsystem name that must be used is AIN01. In addition, subsystem name and information about AIN Essentials SSP applications running on off-board processors that have a TCP/IP connection to the SSP are defined here. For these subsystems, the subsystem name to use is AINTCPMG. The following table shows two example entries in C7LOCSSN. The first one defines the subsystem for the AIN Essentials SSP application. The second one defines the subsystem for the AIN application on an Adjunct with a TCP/IP connection.

Table 130 Table C7LOCSSN

SSNAME	SSNUMBER	MININST	REPLINFO	TFMI	PCNAMES
AIN01	81	1	N	N	\$
AINTCPMG	74	1	N	N	\$

20.6.2 C7RTESE—CCS7 Route Set table

Table 131 logically associates link sets/routes to be used to carry the signaling information to that signaling point in the network. The destination point code (DPC) in the following table specifies the unique address of the signaling point named “OTTAWA_RTESET” in the network.

Table 131 Table C7RTESET

ROUTESET	NETNAME	TFPBCAST	DPC	ROUTES
OTTAWA_RTESET	NATL_NET	N	ANSI7 (1) (4) (6)\$	(OTTAWA 0)\$

20.6.3 C7NETSSN—Network Subsystem Routing table

Table 132 provides the set of remote point code and subsystems at the remote point codes, where messages are routed by the SCCP. The point code in this table has to be datafilled in C7RTESET. The following table shows an example entry for a remote point code, OTTAWA_RTESET, that has a subsystem named AINSCP and subsystem number 121.

Table 132 Table C7NETSSN

PCNAME	SSNAMES
OTTAWA_RTESET	(AINSCP 121) \$

20.6.4 C7GTTYPE—Global Title Translation type table

Table 133 provides the mapping of the user defined symbolic Global Title Translation name (GTTNAME), to a network defined Global Title Translation type number (GTTNUM). The translation type number specifies the numbering plan (for example, implicit, ISDN, etc.) and an encoding scheme (for example, BCD) to be used to map the global title on to a CCS7 network address.

Table 133 Table C7GTTYPE

GTTNAME	GTTYPE	GTTID
AINGT	ANSI7 3	\$

20.6.5 C7GTT—Global Title Translation table

Table 134 maps a Global Title (GT) of a particular translation type to a CCS7 network address used to route the message to its destination. The GT is an application address, such as the dialed digits. The digits for AIN Essentials SSP are taken from the global title source datafilled in either TRIGINFO or TRIGDIG. The global title source may be one of the parameters, Charge Number or Called Party ID, depending upon the trigger. The translation type is derived from the table C7GTTYPE, using the GTTNAME. The GTTNAME is datafilled for AIN Essentials SSP in either TRIGINFO or TRIGDIG tables.

The GTTRSLT specifies the network address, and it can be one of PC only, SSN only, PC and SSN, PC and New GT, or Error. Hence, this indicates if further translation at subsequent nodes is required or not.

Table 134 Table C7GTT

GTTKEY			GTTRSLT
GTTNAME	FROMDIG	TODIG	
AINGT	0	9	PCSSN (AINSCP) \$SSN

20.6.6 TCAPTRID—TCAP Transaction and Component ID table

Table 135 controls the number of transaction and component IDs that are available for an application. For AIN Essentials SSP the number of component IDs should be equal to the number of transaction IDs.

Table 135 Table TCAPTRID

TCAPAPPL	NUMTRIDS	NUMCOMPS
AIN	410	410

20.7 Unanswered call recording tables

To provide unanswered call recording for AIN Essentials SSP calls, the following tables have been enhanced and are described in the following sections:

- AMAOPTS
- BCCODES

20.7.1 Table AMAOPTS

Table 136 is used to activate various types of call recordings. To provide AIN Essentials SSP-specific unanswered call recording, the Option field in AMAOPTS has been enhanced to accept the value UNANS_AIN. The entry must be datafilled in AMAOPTS to activate AIN Essentials SSP-specific unanswered call recordings.

AIN call recordings are provided for unanswered calls, including calls that receive treatments, when an AMASlpID is received and AIN unanswered is activated (the UNANS_AIN option in table AMAOPTS).

Table 136 Table AMAOPTS

OPTION	SCHEDULE
UNANS_AIN	ON

20.7.2 Table BCCODES

Table 137 is used to define the call types that apply to the call recording option datafilled in AMAOPTS. To enable AIN Essentials SSP-specific unanswered call recording on various call types, the CALLTYPE field in BCCODES has been enhanced to accept the value AIN. The CODES field has been enhanced to accept code 047. The table shows an example entry in BCCODES that assigns call types referenced by codes 006, 047, and 110 to AIN Essentials SSP.

Table 137 Table BCCODES

CALL TYPE	CODES
AIN	006, 047, 110

20.8 Treatment tables

Two new AIN Essentials SSP specific treatments have been introduced: AIN Disconnect Treatment and AIN Final Treatment. The AIN Disconnect Treatment is applied when a call is disconnected due to the request from the off-board processor. AIN Final Treatment is applied when there is a fatal call related error. These treatments must be datafilled in the Treatment Control table (TMTCNTL) and (for ISUP trunks) the Treatment Map table (TMTMAP).

20.8.1 Table TMTCNTL

Table TMTCNTL is used to define tones, announcements, and/or states that are returned to the originator of a call. The key values associated with the AIN Essentials SSP treatments are

- AIND—AIN Disconnect Treatment
- AINF—AIN Final Treatment

Table 138 shows example entries in a TMTCNTL subtable with the new AIN Essentials SSP treatments

Table 138 Table TMTCNTL

TREATMT	LOG	FSTRTE
AIND	N	S T120
AINF	Y	S T120

20.8.2 Table TMTMAP

Table 139 should be datafilled to allow the new treatments to be applied to ISUP. The key values and causes associated with the AIN Essentials SSP treatments are

- AIND—AIN Disconnect Treatment (Normal Clearing)
- AINF—AIN Final Treatment (Temporary Failure)

Table 139 Table TMTMAP

TMTMPKEY	TMTMPVAR
Q764 AIND ALLBC	ISUP NOLOCAL NORMCLR LOCNET N
Q764 AINF ALLBC	ISUP NOLOCAL TEMPFAIL LOCNET N

20.9 Announcements tables

Table AINANNS provides an interface to the announcement capabilities of the AIN SSP Platform.

AINANNS is used as a mapping table to associate Systems Announcements Identifiers to an SSP internal announcement. This may be a customized announcement, which is provided by a Digital Recorded Announcement Machine (DRAM), defined in table DRMUSERS and datafilled in ANNS, or a standard announcement, which is hard-coded on the DMS and datafilled in ANNS. The key field, AINANNID, is the Systems Announcement Identifier. CLLI and ANNNUM, in the customized case, reference a CLLI/ANNNUM pair datafilled in DRMUSERS. For the standard case, CLLI points to the table ANNS.

In addition to announcements, a number of tones can be requested. Refer to Chapter 5.: “Response Processing” on page 95.

Table 140 shows an example entry in AINANNS that maps Systems Announcement Identifier 25 to an internal customized announcement represented by a CLLI value of ANN and an ANNNUM of 1.

Table 140 Table AINANNS

AINANNID	CLLI	ANNNUM
25	ANN	1

20.10 Extension record billing tables

To provide AIN extension record billing information for AIN Essentials SSP calls, table CUSTSMR has been enhanced and is described in the following section.

20.10.1 Table CUSTSMR

Station Message Detail Recording (SMR) provides customer groups with a mechanism for generating billing records for calls.

Table CUSTSMR lists the SMDR options assigned to each of the customer groups. A new “AIN01” option is added to table CUSTSMR to enable a new extension record to be attached to SMDR records for AIN Essentials calls utilizing an AIN Essentials SCP. The SCP response message contains billing information that is appended to the SMDR billing record. Adding the AIN01 option to an IBN customer group causes an extension record to be appended to SMDR billing records for AIN01 calls for which the SCP has returned valid billing information.

Table 141 shows an example entry in CUSTSMR where customer group COMKODAK with a business identification number of 0 subscribes to AIN Essentials.

Table 141 Example of table CUSTSMR entries

CUSTNAME	BUSNSID	OPTIONS
COMKODAK	0	(AIN01) \$

21. Software optionality control

21.1 Activating AIN Essentials SSP software

AIN Essentials SSP software has been grouped into eight AIN software optionality control (ASOC) options; these ASOC options control the activation of the AIN product. Each ASOC option controls specific functionalities and exist in one of two state, ON or IDLE.

The options are as follows:

- AIN00001: AIN Primer. This is a track option associated with AIN Primer.
- AIN00002: AIN Essentials option. This controls basic AIN functionality.
- AIN00006: AIN Call Management option. This controls all AIN Essentials functionality. It is dependent on the AIN00002 option.
- AIN00007: AIN Call Model Control option. This is a track option associated with features brought forward to enhance AIN Essentials functionality.
- AIN00008: AIN Display Services option. This controls “Display Text to Terminating RES agents” functionality.
- AIN00009: AIN Services Supporting Option. This is a track option associated with features that provide support for services on AIN.
- AIN00010: AIN Default Routing option. This controls Default Routing functionality. It is dependent on the AIN00006 option.
- AIN00011: AIN SSP Service Enhancement option. This is a track option associated with features delivered in NA005 to enhance SSP functionality.
- AIN00015: AIN Network Services Enhancements option. This is a track option associated with features that Enhances network Services.
- AIN00018: AIN ACB/AR Premium option. This option controls the “ACB/AR” enhanced functionality. It is dependent on the AIN00007 option.
- AIN00021: AIN STR to STD announcement option. This is a track option associated with features that allow AIN to use Standard announcements in Send To Resource response.

- AIN00022: AIN Maintenance Enhancement option. This is a track option associated with features that enhances maintenance.
- AIN00025: AIN legacy CPC LNP option. This option controls the Carrier Portability Code(CPC) Local Number Portability(LNP) functionality. It is dependent on the AIN00009 option.
- AIN00026: AIN Translations Simplification option. This option controls the response translations simplification functionality. It is dependent on AIN00009.
- AIN00027: AIN Office Trigger Flex option. This option is a track option associated with the response translation enhancement feature.

To activate AIN Essentials SSP call processing, both AIN00002 and AIN00006 ASOC options must be in the ON state. When these ASOC options are ON, triggering is enabled at the TDPs, thus making a database query possible. When they are IDLE, triggering is disabled and only datafilling and testing are allowed.

The ASOC Display Services option (AIN00008) controls the “Display Text to Terminating RES agents” functionality and must be in the ON state if Display Text is desired.

The ASOC Default Routing option (AIN00010) controls the default routing functionality and must be in the ON state if default routing functionality is desired with AIN Essentials SSP.

The ASOC ACB/AR Premium option (AIN00018) controls the ACB/AR enhanced functionality and must be in the ON state if ACB/AR enhanced functionality is desired.

The ASOC Legacy CPC LNP option (AIN00025) controls the CPC LNP functionality and must be in the ON state if CPC LNP functionality is desired.

21.2 ASOC option status

To find out the status of the ASOC options, issue the **select group ain** command in the SOC utility. Figure 35 shows the command sequence and the resultant output.

Figure 35 Example ASOC option status

```

CI:
>SOC
SOC:
>select group ain
GROUP:AIN

```

OPTION	NAME	RT	STATE	USAGE	LIMIT	UNITS	LAST_CHG	
-----	----	--	-----	-----	-----	-----	-----	
AIN00001	Primer	Y	-	-	-	-	96/05/27	TRAK
AIN00002	Essentials	Y	IDLE	-	-	-	96/05/27	
AIN00006	Call Mgmt	Y	IDLE	-	-	-	96/05/27	
AIN00007	Call Model Control	Y	-	-	-	-	96/05/27	TRAK
AIN00008	Display Services	Y	IDLE	-	-	-	96/05/27	
AIN00009	Services Supporting	Y	-	-	-	-	96/05/27	TRAK
AIN00010	Default Rtg	Y	IDLE	-	-	-	96/05/27	
AIN00011	SSP Svcs Enhcmnts	Y	-	-	-	-	96/05/27	TRAK
AIN00015	Ntwk Srvcs Enhcmnts	Y	-	-	-	-	96/05/27	TRAK
AIN00018	ACB/AR Premium	Y	IDLE	-	-	-	96/05/27	
AIN00021	STR to STD Annment	Y	-	-	-	-	96/05/27	TRAK
AIN00022	Mtce Enhcmnt	Y	-	-	-	-	96/05/27	TRAK
AIN00025	Legacy CPC LNP	Y	IDLE	-	-	-	96/05/27	
AIN00026	Transltns simplifctn	Y	ON	-	-	-	96/05/27	

The fields of interest are RTU and STATE. RTU (Right-To-Use) indicates if the password has been purchased and applied (valid values are Y and N, default is N). STATE field indicates the state of the ASOC options (valid states are ON and IDLE, default is IDLE).

21.3 Option passwords

In order to turn the ASOC options ON, passwords must be purchased from Nortel and applied to the ASOC options. Once applied to the appropriate ASOC option, the RTU field of that ASOC option should be updated to indicate Y. Please contact your Nortel marketing prime to purchased the password(s).

21.4 Transition ASOC options

ASOC options can be transitioned to the ON state when the appropriate password has been purchased from Nortel. To transition an ASOC option to ON, enter the following commands from within the SOC utility:

>assign state on to <option code>

Where option code is anyone of the control options (for example AIN00002).

Please ensure that the option dependency requirements are taken into consideration when transitioning an option to the ON state. Options should always be transitioned to the ON state in the following order:

- AIN00002
- AIN00006
- AIN00008, AIN00010, AIN00018, AIN00025, or AIN00026

Please refer to Figure 36 for the an example of transitioning option AIN00002 to the ON state.

Note: AIN00001, AIN00007, AIN00009, AIN00011, AIN00015, AIN00021, and AIN00022 do not have states and cannot be transitioned.

Figure 36 Transition ASOC option ON

CI: >SOC SOC: >assign state on to ain00002 Done. >select option AIN00002						
GROUP:AIN						
OPTION	NAME	RTU STATE	USAGE	LIMIT	UNITS	LAST_CHG
-----	----	-----	-----	-----	-----	-----
AIN00002	Essentials	Y ON	-	-	-	96/05/27

To transition an ASOC option to IDLE, enter the following commands from within the SOC utility:

>assign state idle to <option code>

Where option code is anyone of the control options (for example AIN00002).

Please ensure that the option dependency requirements are taken into consideration when transitioning an option to the IDLE state. Options should always be transitioned to the IDLE state in the following order:

- AIN00008, AIN00010, AIN00018, AIN00025, or AIN00026
- AIN00006
- AIN00002

A warning will be generated for each ON to IDLE transition and a confirmation will be requested. Refer to Figure 37 for details.

Note: AIN00001, AIN00007, AIN00009, AIN00011, AIN00015, AIN00021, and AIN00022 do not have states and cannot be transitioned.

Figure 37 Transition ASOC option IDLE

CI:
>SOC
SOC:
>assign state idle to ain00006
This transition will disable AIN R0.1 Triggers for all current
and future AIN subscribers.
Confirm state change of option AIN00006 to state IDLE
by entering the textual option name:
>call mgmnt
Done.
>select option AIN00006
GROUP:AIN

OPTION	NAME	RTU STATE	USAGE	LIMIT	UNITS	LAST_CHG
-----	----	-----	-----	-----	-----	-----
AIN00006	Call Mgmt	Y IDLE	-	-	-	96/05/27

Table 142 shows an example of TRAVER output with AIN00002 ASOC option IDLE.

Table 142 TRAVER output with AIN00002 ASOC option IDLE

```

>traver l 7224012 96211179 b
TABLE IBNLINES
HOST 00 0 03 03 0 DT STN IBN 7224012 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
HOST 00 0 03 03 0 AIN AIN AINGRP1
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE TRIGGRP
AINGRP1 ORIGATT
. OFFHKIMM $ INF01
Trigger R01 OFFHKIMM is applicable to individual POTS line.
Trigger R01 OFFHKIMM: Trigger is active.
  (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . INFO1 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE LENFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224012 6137224012 SSNONLY (AINTTEST) $
AIN Orig Attempt TDP: trigger criteria met,
NOT querying the database, AIN00002 SOC Option is IDLE.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$

```

Table 142 TRAYER output with AIN00002 ASOC option IDLE (Continued)

```

TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y N 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 PKDK L613 TSPS 0 NIL NILSFC NILLATA 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
PKDK ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 621 621 L NP 0 613 621
AIN Info Collected TDP: no subscribed trigger.
AIN Info Analyzed TDP: no subscribed trigger.
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 1179 L HOST 00 0 09 19
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS

```

Table 142 TRAVER output with AIN00002 ASOC option IDLE (Continued)

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136211179          ST

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

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

Table 143 shows an example of TRAVER output with AIN00006 ASOC option IDLE.

Table 143 TRAYER output with AIN00006 ASOC option IDLE

```

>traver l 7224012 96211179 b
TABLE IBNLINES
HOST 00 0 03 03 0 DT STN IBN 7224012 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
HOST 00 0 03 03 0 AIN AIN AINGRP1
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE TRIGGRP
AINGRP1 ORIGATT
. OFFHKIMM $ INF01
Trigger R01 OFFHKIMM is applicable to individual POTS line.
Trigger R01 OFFHKIMM: Trigger is active.
    (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . INF01 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE LENFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224012 6137224012 SSNONLY (AINTTEST) $
AIN Orig Attempt TDP: trigger criteria met,
NOT querying the database, AIN00006 SOC Option is IDLE.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK

```

Table 143 TRAVER output with AIN00006 ASOC option IDLE (Continued)

```

TABLE DIGCOL
KDK 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y N 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 PKDK L613 TSPS 0 NIL NILSFC NILLATA 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
PKDK ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 621 621 L NP 0 613 621
AIN Info Collected TDP: no subscribed trigger.
AIN Info Analyzed TDP: no subscribed trigger.
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 1179 L HOST 00 0 09 19
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND

```

Table 143 TRAVER output with AIN00006 ASOC option IDLE (Continued)

TABLE DNGRPS		
TUPLE NOT FOUND		
. SUBTABLE AMAPRT		
. KEY NOT FOUND		
. DEFAULT VALUE IS: NONE OVRNONE N		
+++ TRAVER: SUCCESSFUL CALL TRACE +++		
AIN Orig Attempt TDP: trigger criteria met, NOT querying database, AIN00006 SOC Option is IDLE.		
DIGIT TRANSLATION ROUTES		
1	LINE	6136211179 ST
TREATMENT ROUTES. TREATMENT IS: GNCT		
1	*OFLO	
2	LKOUT	
+++ TRAVER: SUCCESSFUL CALL TRACE +++		

22. Datafilling for the general office

This chapter describes the datafilling requirements for setting up the AIN Essentials SSP under the following headings:.

- datafilling existing table OFCENG parameters
- datafilling for TCAP in TCAPTRID
- datafilling for announcements
- datafilling for treatments
- datafilling for CUSTSMR

22.1 Datafilling table OFCENG for AIN Essentials SSP software

The following parameters must be datafilled in the table OFCENG in order to support AIN Essentials:

- number of extension blocks available for AIN usage
- number of times a call is allowed to trigger
- time permitted to wait for an off-board processor response
- number of digilator pools allocated
- number of AIN processing extension blocks
- number of regular, large, and extra-large history blocks available
- number of large data blocks available

22.1.1 AIN_NUM_EXT_BLKs

This parameter controls the number of extension blocks available for use by the AIN software. The values are as follows:

- Range: 0–32767
- Default: 0

An AIN Extension Block uses 255 words of data store. The value of this parameter must be greater than 0 and should be based on the number of AIN subscribers (line, trunk group, customer group, or office). If over-provisioned,

some data store allocated are not used. If under-provisioned, AIN calls route to no software resource treatment.

Note: A COLD RESTART is required when the value of this parameter is decreased.

22.1.2 AIN_MAX_SERIAL_TRIGGERS

This parameter determines the number of times that a call is allowed to trigger per call leg. The values are as follows:

- Range: 1–25
- Default: 6

The value chosen for this parameter should be based on the number of trigger instances to which an agent may subscribe. Under-provisioning this parameter will cause calls to be routed to treatment. Over-provisioning this parameter may cause resources to be unnecessarily consumed.

The serial trigger count is reset whenever a call is redirected due to an Analyze Route response with a RedirectingPartyID parameter or due to a Forward Call response being received from the SCP. In each of these cases, a new call leg is initiated as the call is being redirected and so the serial trigger count is reset to zero. A call can be redirected a total of six times.

22.1.3 AIN_OFFICE_TRIGGRP

The AIN_OFFICE_TRIGGRP office parameter is used to subscribe to the trigger item data model or to an AINGRP that affects the entire office.

- Range of values: AIN trigger group names (AINGRP) in TRIGGRP table or the trigger item identification description in table TRIGITM
- Default value: NIL

This parameter is used to subscribe to an AINGRP. To enable office wide subscriptions to the trigger item data model, the AIN_OFFICE_TRIGGRP parameter is set to 'TIID'—a reserved trigger group name which acts as a DMS trigger provisioning interface selector.

22.1.4 AIN_T1_TIMER

This parameter specifies the length of time in seconds that the SSP waits for a response from the off-board processor after sending a query message. If no response is received by the time specified by this parameter, the call is routed to treatment. The values are as follows:

- Range: 1–99
- Default: 3

This parameter should be set to a value greater than the expected response time from the off-board processor. If this parameter is too low, some calls may be either routed to treatment or default routing. If this parameter is set too high, resources such as extension blocks may be tied up unnecessarily if the off-board processor fails to respond.

22.1.5 TRIGDIG_NUM_DGLTR_POOLS

This parameter specifies the number of digilator pools that should be allocated for use by table TRIGDIG. The values are as follows:

- Range: 1–6
- Default: 1

Note: The value of this parameter cannot be decreased.

Each digilator pool contains 32768 digit blocks that can be used to store digits used by table TRIGDIG. The number of digit blocks actually used by the table depends on the distribution of the digits in the table and on the number of DIGNAMES used. The worst case is up to 400 10-digit codes datafilled in one pool. Under-provisioning this parameter limits the number of tuples that can be added to table TRIGDIG. Over-provisioning will result in unnecessary use of data store. To monitor the use of digilator pools, the DBLOCKS command within the BCSMON utility should be used.

22.1.6 AIN_NUM_PROCESSING_EXT_BLKs

This parameter specifies the number of AIN Processing Extension Blocks allowed in the office. The values are as follows:

- Range: 0–32767
- Default: 0

Note: A COLD RESTART is required when the value of this parameter is decreased.

Each AIN Processing Extension Block contains 255 words of memory. The value of this office parameter should be based on the number of AIN subscribers (line, trunk group, customer group, DN, or office). If over-provisioned, some data store allocated is not used. If under-provisioned, AIN calls will route to no software resource treatment.

22.1.7 NO_OF_HIS_DATA_BLKs

This parameter specifies the number of regular, large, extra-large, and huge History Data Blocks available.

The number of large History Data Blocks (HDBs) should be increased to reflect the number of calls in the call setup phase that subscribe to AIN. A

warning should be issued that, if the office subscribes to AIN, this parameter value must be increased greatly to reflect every line or trunk origination in the office that subscribes to AIN and, therefore, needs to have a large HDB.

The number of extra large HDBs should be increased to correspond to the number of calls that have already triggered. The extra-large HDB is not released from the call until the call is disconnected.

In anticipation of new parameters being added to the SCP response message, a new HDB size huge is created for use in future releases.

The values of the large HDB, the extra-large HDB, and the huge HDB must be greater than 0.

22.1.8 NO_OF_LARGE_FTR_DATA_BLKs

This parameter specifies the number of large Feature Data Blocks available. This parameter should be increased by the potential number of calls that may be simultaneously involved in encoding or decoding a message.

22.1.9 AIN_NUM_TERM_NOTIF_EXT_BLKs

This parameter specifies the number of AIN Essentials SSP Termination Notification Extension Blocks allowed in the office. The values are as follows:

- Range: 0–32767
- Default: 200

Note: A COLD RESTART is required when the value of this parameter is decreased.

Each AIN Termination Notification Extension Block contains 15 words of memory. The value of this office parameter should be based on the average number of simultaneous AIN calls multiplied by the average number of Send Notification requests per AIN call. If over-provisioned, some data store allocated will not be used. If under-provisioned, AIN Essentials SSP calls will route to no software resource treatment.

22.1.10 AIN_NUM_01_00_EXT_BLKs

This parameter defines the size of the pool of AIN_01_00_EXT_BLKs available for calls involving triggers to both AIN Essentials and AIN Primer applications. The values are as follows:

- Range: 0–32767
- Default: 0

Note: A COLD RESTART is required when the value of this parameter is decreased.

Each AIN_01_00_EXT_BLK contains 7 words of memory. The value of this parameter should be based on the number of Call Condense Blocks in the office (NCCBS) and the fraction of calls that are likely to encounter triggers in both AIN Essentials and AIN Primer. If over-provisioned, some allocated data store will not be used. If under-provisioned, some calls which encounter both AIN Essentials and AIN Primer will route to no software resource treatment.

22.1.11 AIN_NUM_00_PARA_EXT_BLKs

This parameter defines the size of the pool of AIN_00_PARA_EXT_BLKs available in the office. The values are as follows:

- Range: 0–32767
- Default: 0

Note: A COLD RESTART is required when the value of this parameter is decreased.

Each AIN_00_PARA_EXT_BLK contains 18 words of memory. The value of this parameter should be based on the number of Call Condense Blocks in the office and the fraction of calls that are likely to encounter triggers in AIN Primer.

If over-provisioned, some allocated data store will not be used. If under-provisioned, some AIN Primer calls will route to no software resource treatment.

22.1.12 MAX_NO_OF_TRANS_ID

This parameter is required in a switching unit with the advanced intelligent network (AIN) and transaction capabilities application part (TCAP). It specifies the maximum number of transaction identifiers (TRID) that can be allocated. The store required for table TCAPTRID is based on the total TRIDs datafilled in this parameter.

The range is as follows when AIN is in the office:

- Range: 0—16000
- Default: 0

22.2 Datafilling for TCAP in table TCAPTRID

The AIN Essentials SSP communicates with an SCP by means of query and response messages sent in the transaction capabilities application part (TCAP) components (messages) within TCAP packages.

The TCAP transaction and component ID table TCAPTRID controls the number of transaction and component IDs that are available for an application.

For AIN Essentials, the number of component IDs should be equal to the number of transaction IDs. Both numbers must be greater than 0.

Table 144 shows that 410 transaction IDs and 410 component IDs are available for use by the application AIN Essentials.

Table 144 Table TCAPTRID

TCAPAPPL	NUMTRIDS	NUMCOMPS
AIN	410	410

22.3 Datafilling for announcements

AIN Essentials SSP does not require any set of announcements for AIN Essentials SSP calls. (Therefore, the existing announcement provisioning guidelines for non-AIN calls on the switch apply.) However, the application on the off-board processor may require a set of announcements. Thus, when the telco determines that its AIN Essentials SSP will communicate with a certain AIN Essentials SCP/Adjunct application, the set of announcements (if any) required by the SCP service must be provisioned on the SSP. When provisioning these announcements on the SSP, the following guidelines should be taken into consideration.

- For recorded announcements, it is suggested that a Digital Recorded Announcement Machine (DRAM) NT1X75ba or Enhanced DRAM (EDRAM) NT1X80aa be used. The older DRAM NT1X75aa is not supported.
- AIN Essentials places no restriction on the types of PROM cards, EPROM cards, and RAM cards used.
- To provide announcements with pronounced digits, it is recommended that the digits PROM card NT1X76ag be used, or the equivalent digits phrases be recorded on an EPROM card or RAM card.

22.4 Datafilling for treatments

There are two AIN Essentials-specific treatments.

22.4.1 AIN Final Treatment (AINF)

This treatment is applied whenever there is a call-related fatal error. This may be a protocol or application error. For ISDN user part (ISUP) users, this treatment should be mapped to Temporary Failure in the Treatment Map table (TMTMAP) and Treatment Control table (TMTCTL). The type of error notification (reorder tone or announcement) is determined by the operating company.

22.4.1.1 Datafilling table TMTCNTL

The table TMTCNTL defines tones, announcements, and states that are returned to the originator of a call. In theory, each type of originator can have its own AIN final announcement defined. The AINF associated with the OFFTREAT is applied if the originator does not have its own AINF defined.

22.4.1.2 Example

In table TMTCNTL, to add the AINF announcement to the following four different types of originator (OFFTREAT for office, LNT for lines, ITTRKGRP, and TITRKGRP for trunks) do the following:

- 1 In table TMTCNTL, position on tuple OFFTREAT
- 2 Go to subtable TREAT and add the tuple shown in Table 145
- 3 Repeat step 2 for tuples LNT, ITTRKGRP, and TITRKGRP respectively

Table 145 Sample datafill in subtable TREAT of Table TMTCNTL

Treatment	Log	FSTRSEL	CLLI
AINF	Y	S	TI20

22.4.1.3 Datafilling table TMTMAP

The table TMTMAP should be datafilled to allow the AINF treatments to be applied to ISUP.

In key field TMTMPKEY, specify AINF as the cause associated with the treatment as shown in Table 146.

Table 146 Table TMTMAP

TMTMPKEY	TMTMPVAR
Q764 AINF ALLBC	ISUP NOLOCAL TEMPFAIL LOCNET N

22.4.2 AIN Disconnect Call (AIND)

This treatment is applied when the off-board processor sends the Disconnect (DISC) response to the SSP to disconnect the call. The call is cleared as normal. See Chapter 44.: “Disconnect response” on page 681 for details.

22.5 Datafilling table CUSTSMDR

To enable the generation of the DF04 SMDR extension record, the AIN01 option needs to be added to the customer group as shown in Table 147.

Table 147 Table CUSTSMDR

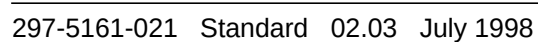
CUSTNAME	BUSNSID	OPTIONS
COMKODAK	0	AIN01\$

23. SS7 datafill

The AIN Essentials SSP interfaces the off-board processor through the Signaling System Number 7 (SS7). The examples given in the following triggering chapters use the SS7 transport for queries and responses.

To use the SS7 transport, the TRANSPRT field of the DIGNAME or INFONAME defined in table TRIGDIG or table TRIGINFO must be set to SS7, and a Global Title (GT) must be defined in the SS7 message routing tables before it can be referenced from table TRIGINFO or TRIGDIG.

Figure 38 illustrates the relationships among these tables. (The datafilling examples are for illustration only, and should not be understood as recommended datafill.)



Global Title translation is used by the AIN Essentials SSP to perform message routing translations for sending query messages to the off-board processor. There are several data tables that are used by the service switching point (SSP) to store GT information. Since these tables are provided by currently existing software and were not altered for AIN Essentials, they are described only briefly here.

For a description of the SS7 tables, see Section 20.6 “Message routing tables” on page 409.

24. Trigger subscription

This chapter describes trigger subscription under the following headings:

- Trigger definition and subscription
- DISA AIN subscription
- Trigger processing precedence

24.1 Trigger definition and subscription

Table 148 shows the definition and subscription tables applicable to different trigger types. Criteria, subscription basis, and SERVORD utility support are also indicated.

Table 148 Trigger definition and subscription summary

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
ORIGATT	OFFHKIIMM	CT	TRIGGRP TRIGINFO	Line(POTS)	LENFEAT	AIN	Yes
				Line (MDC, RES)	IBNFEAT		
				Line (EBS, MFT)	KSETFEAT		
INFOCOL	OFFHKDEL	CT	TRIGGRP TRIGINFO	Line(POTS)	LENFEAT	AIN	Yes
		ESC (M)	TRIGESC	Line (MDC, RES)	IBNFEAT		
				Line (EBS, MFT)	KSETFEAT		
				DISA DN	DNROUTE		No
				Trunk group (IBN)	TRKGRP		No
					TRKAIN		No
	INTEROFF	CT	TRIGGRP	Trunk group (POTS)	TRKGRP		No
		DG (M)	TRIGDIG		TRKAIN		No
		ESC	TRGSIESC TRIGGRP	Trunk group (POTS)	TRKAIN		No

Table 148 Trigger definition and subscription summary (Continued)

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	PODP	CT ESCCN ESCEA ESCOP	TRIGGRP	Office	OFCVAR	N/A	No
		DG (M) (NPA+ digits)	TRIGDIG				
	N11	CT	TRIGGRP	Office	OFCVAR OFCTIID	N/A	No
		DG (M)	TRIGDIG				
	CDPCODE	CT	TRIGGRP	Customer group	CUSTSTN	AIN	No
		DG (M)	TRIGDIG				
	PODPFEAT	CT	TRIGDIG	Individual	IBNFEAT	AIN	No
		DG (M)	TRIGGRP				
	LNP	CT ESCCN ESCEA ESCOP	TRIGGRP	Office	OFCVAR	N/A	No
		DG (M) (NPA+ digits)	TRIGDIG				

Table 148 Trigger definition and subscription summary (Continued)

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
NETBUSY	AFR	CT	TRIGGRP TRIGINFO AFR TABLES	Line(POTS)	LENFEAT	AIN	Yes
				Line (MDC, RES)	IBNFEAT		
				Line (EBS, MFT)	KSETFEAT		
				DISA DN	DNROUTE		No
				Trunk group	TRKGRP		No
					TRKAIN		No
				Customer group	CUSTSTN	AIN	No
				Office	OFCVAR	N/A	No
TERMATT	TERMATT	CT	TRIGGRP TRIGINFO	DN	DN	AIN DN	Yes
				AIN virtual DN	DNROUTE		No
				Note: (M) = mandatory.			

24.2 DMS trigger item interface

For a description see Chapter 25.: “Trigger item provisioning interface” on page 447.

24.3 DISA AIN subscription

The following sections describe how to add and delete an AIN subscription for a DISA DN.

24.3.1 Adding an AIN subscription for a DISA DN

- 1 Add the AIN01OPT option to a new or existing DISA DN in table DNROUTE by providing zero for the agent indexes (which are dummy values, since these are automatically administered) and a valid trigger group.
- 2 A DISA DN may subscribe to and encounter the Off-Hook Delay and individual AFR triggers. Table 149 shows an example of a DNROUTE AIN subscription for a DISA DN.

Table 149 Example of DNROUTE AIN subscription for a DISA DN

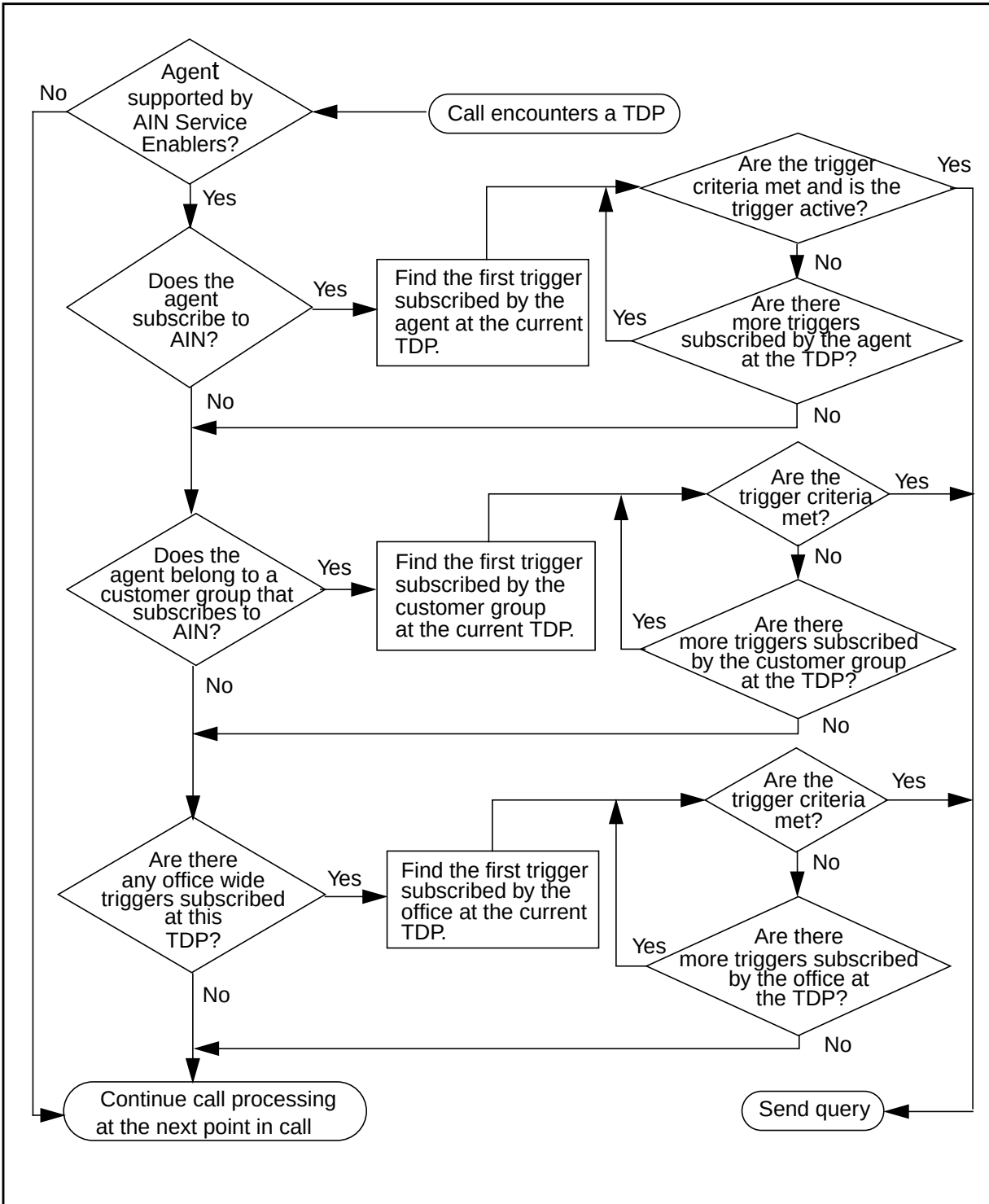
DNROUTE														
KEY			DN RESULT											
AREACODE	OFCCODE	STNCODE	DN_SEL	FEATURE	CUSTGRP	SUBGRP	AUTHREQ	SMDRTO	SMDRFROM	INTRAGRP	DISAOPT	AIN01_AGTIDX1	AIN01_AGTIOX2	AIN01_TRIGGRP
613	722	6002	FEAT	DISA	COMKODAK	0	Y	Y	Y	N	AIN01OPT	2	74	OFFHKDEL

24.3.2 Deleting an AIN subscription for a DISA DN

Delete the AIN01OPT option from a DISA DN to remove the AIN Service Enablers subscription.

24.4 Trigger processing precedence

When a call encounters a TDP at which triggers can be subscribed by a line, trunk group, customer group, office, or DISA DN, the SSP checks for a trigger subscription according to the logical flow shown in Figure 39.

Figure 39 Trigger checking order

Note: Figure 39 assumes all agents are AIN supported.

There is no subscription precedence required for triggers subscribed on a DN basis, other than DISA, since the Termination Attempt (TERMATT) TDP contains only one trigger that can be subscribed to by DNs.

25. Trigger item provisioning interface

Starting with the NA009 release, the DMS SSP provides an alternative provisioning data interface. The new data interface supports provisioning of the following office-wide triggers only:

- PODP
- N11
- AFR
- LNP

The term DMS Trigger Item Interface refers to this new provisioning interface. It is the Nortel implementation of trigger items and trigger item subscription as defined in Bellcore GR-1298. The term DMS Trigger Group Interface refers to the traditional AIN provisioning system.

25.1 Choosing which provisioning interface to use

Customers can choose which interface to use to provision and administer office-wide triggers. The choice of trigger provisioning interface occurs at subscription time. Both the trigger group and trigger item interfaces can be provisioned independently. However, the data created by the two interfaces are mutually exclusive for a particular AIN subscriber at run time.

Since the office is viewed as a single subscriber, either the trigger group data or the trigger item data are in effect for the office at runtime.

To maintain backwards compatibility with the DMS trigger group interface, the office parameter AIN_OFFICE_TRIGGRP in table OFCVAR controls whether office-wide triggers are checked using the Trigger Item Provisioning Interface or the Trigger Group Provisioning Interface. If the trigger group name is set to “TIID”, the DMS trigger item interface applies. Any value other than “TIID” implies that the DMS trigger group interface is in effect.

Note 1: Because TIID is a reserved trigger group name, it cannot be entered as a trigger group name in table TRIGGRP.

Note 2: Switching from one provisioning interface to another does not affect the underlying trigger provisioning data. However, this practice is not recommended.

ATTENTION

Once chosen, the interfaces are mutually exclusive.

For more information, see Section 20.5.7 “Subscription on an office basis” on page 407.

25.2 Support for the DMS trigger item interface

AIN Service Enablers implements trigger items and trigger item subscription as defined in Bellcore GR-1298, including up to 64,000 (64k) trigger item definitions or instances (tuples). There are two TDPs supporting 32K each. Trigger types are limited to:

- Specific_Digit_String
- N11
- LNP (see 297-8981-021 LNP Service Implementation Guide)
- Automatic Flexible Routing on an office subscription basis only. For non-office wide subscription, either interface may be used. AFR also requires provisioning of the DMS routing tables and table TRIGINFO.

25.2.1 Trigger item provisioning tables

Up to 64,000 (64k) trigger item definitions or instances are recorded in the TRIGITM table, with each definition being one tuple in the table. See Section 20.1.6 “Table TRIGITM” on page 392.

A new table, OFCTIID, supports the administration of trigger item assignments, the fundamental components of AIN subscription.

The DMS trigger item provisioning interface supports the Information_Analyzed and Network_Busy TDP, since these are the TDPs where the supported triggers would be detected.

Table 150 summarizes the trigger definition and subscription for the trigger item interface.

Table 150 Trigger definition and subscription summary for the trigger item interface

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	PODP	CT ESCCN ESCEA ESCOPE DG (M)	TRIGITM	Office	OFCTIID	N/A	No
	N11	CT DG (M)	TRIGITM	Office	OFCTIID	N/A	No
	LNP	CT ESCCN ESCDN ESCEA ESCOPE DG (M)	TRIGITM	Office	OFCTIID	AIN	No
NETBUSY	AFR	CT	TRIGITM TRIGINFO AFR TABLES	Office	OFCTIID	N/A	No

25.2.2 Trigger item subscription links

The OFCTIID table administers subscription links to office wide trigger items. See Section 20.5.8 “Table OFCTIID” on page 408.

25.2.3 Tool support

For TRAVER support, see Section 60.6 “TRAVER enhancements for the DMS trigger item interface” on page 1054.

For line query tool support, see Section 62.2 “Line query tool support for the DMS trigger item interface” on page 1074.

25.3 ONP and data migration

The dump and restore function can be used to perform software upgrade for the DMS trigger item interface. See also Section 25.5 “AIN trigger item transition tool”.

25.3.1 Rejected data updates during ONP

Changes to table data are not recommended during ONP. However, it is possible that the SCP might send Update messages to the SSP while data is being dumped as part of an ONP.

To preserve data integrity, all updates received during an ONP are rejected as stated in Belcore requirements (R)2.6-187 and (R)2.6-187 of TR-NWT-001284.

25.4 Examples of DMS trigger item datafill and subscription

See the following tables:

- Table 30.2.7 on page 554, for an example of the TRIGITM table
- Table 30.3.6 on page 555, for an example of the OFCTIID table

25.5 AIN trigger item transition tool

The AIN Trigger Item Transition Tool (AINTITT) provides a means of automatically converting office wide triggers from trigger group datafill to a functionally equivalent set of trigger items in the TRIGITM and OFCTIID tables.

25.5.1 Enabling AINTITT

To enable access to AINTITT, enter the TOOLSUP utility and use the enable command. Figure 40 shows how to use TOOLSUP to enable AINTITT.

For information about the status and execution history of AINTITT, use the status and history commands. See Figure 41 .

Figure 40 Enabling access to AINTITT through TOOLSUP

```
TOOLSUP:
>access on aintitt
Enter Password:
>79299334EWC

AINTITT permitted

AINTITT access will expire 48 hours from now.

      ** WARNING **
You have permitted access to command(s) that require
skilled and knowledgeable users. Proper use is required
to avoid possible service degradations. Please ensure
that only fully trained and qualified personnel
proceed.

>
```

Figure 41 AINTITT history and status commands

TOOLSUP:			
>history of aintitt			
AINTITT	Action	Time	Who
Actions: 5			
	Permitted	1998/01/14 18:23:58	OPERATOR
	Start	1998/01/14 18:40:31	OPERATOR
	Stop	1998/01/14 19:09:18	OPERATOR
	Start	1998/01/14 19:09:24	OPERATOR
	Stop	1998/01/14 19:09:27	OPERATOR
>status of aintitt			
Name	Status	Owner(s)	
AINTITT	Available		
>			

Note 1: After enabling AINTITT, it may execute for 48 hours after which the access time expires. If you need more time, you must re-enable the tool.

Note 2: It is extremely important that no changes occur to tables TRIGGRP and TRIGDIG during execution of this tool. Any changes may cause disastrous results to the switch.

25.5.2 Entering the AINTITT map increment

The AIN Trigger Item Transition Tool is an CI MAP increment. To enter the tool, type AINTITT. The conversion process starts from within this increment. For a list of available commands, type HELP. Figure 42 illustrates how to start AINTITT and find the available commands.

Figure 42 Entering AINTITT and finding available commands

CI:	
>aintitt	
AINTITT:	
>help	
AIN Trigger Item Transition Tool Increment	
Available commands:	
CONVERT	- convert the office wide trigger groups to trigger items
CHANGETIID	- change the tiname of a trigger item
HELP	- output available commands
QUIT	- exit increment
>	

25.5.3 Starting the transition process

The convert command executes the transition process. The user must set the prompt option for the trigger item names. To accept the generated names for each new trigger item, enter the value NOPROMPT. To rename each trigger item if desired, enter the value PROMPT.

Figure 43 Starting the transition process

```

AINTITT:
>convert
Next par is: <Prompt for Names> {PROMPT, NOPROMPT}
Enter: <Prompt for Names>
>prompt

```

25.5.4 AINTITT naming conventions

There are two naming conventions for trigger items. The main convention for digit based triggers reflects the trigger type and the digits criteria of the tuple. The first character of the name is the first letter of the trigger type (that is, S for PODP, N for N11, and L for LNP). The next six characters (or fewer) of the name contain the first six digits of the digits criteria. If the digits criteria are greater than six digits, the remaining character of the name is a letter from A to Z. Figure 43 illustrates these naming conventions.

Figure 44 NPANXX naming conventions

PODP 613	->	S613
PODP 613621	->	S613621
PODP 6136210000	->	S613621A
PODP 6136210001	->	S613621B
PODP 6136215001	->	S613621C
N11 211	->	N211
N11 911	->	N911
LNP 916967	->	L916967
LNP 916976	->	L916977

If there are greater than 26 triggers with the same NPANXX digits criteria, or if there is more than 1 trigger with the same digits criteria and trigger type, then the naming generator reverts to an indexing name convention. The first three characters of the name consists of the three letter trigger type. The remaining characters are a unique number. Figure 44 illustrates these integer naming conventions.

Figure 45 Integer naming conventions

PODP 613621	->	S613621
PODP 613621	->	SDS1
LNP 9169678879	->	L916967Y
LNP 9169678900	->	L916967Z
LNP 9169678901	->	LNP4

25.5.5 Executing AINTITT

After setting the prompt options and the naming conventions of the tool, a warning message appears indicating the potentially dangerous consequences if changes are made to tables TRIGGRP or TRIGDIG while the tool executes. The tool then begins to execute. Progress appears on the screen indicating the trigger type currently undergoing conversion. Any error or warning messages that indicate inconsistencies or untranslatable options appear in the display as the tool executes. Figure 46 illustrates a sample execution of AINTITT with the prompt option while Figure 47 illustrates a sample execution with the no prompt option.

Figure 46 Sample execution of AINTITT with prompt option

```
AINTITT:
>convert noprompt

Warning: During execution of the transition tool it is
essential that no changes be made to the trigger definition
tables (tables TRIGGRP and TRIGDIG). Any changes to these
tables during execution may cause severe runtime errors.

Proceed with Office Wide Trigger Group Conversion?
Please confirm ("YES", "Y", "NO", or "N"):
>y

Beginning Trigger Item Conversion
*****

-----
Beginning Conversion of      N11 triggers
with digname of    N11DIG.

-----
Beginning Conversion of      PODP triggers
with digname of    PODPDIG.

-----
Beginning Conversion of      LNP triggers
with digname of    LNPDIG.
Warning: The ESCQOR criteria is not supported.
The trigger items will be built without it.

-----
Beginning Conversion of      AFR triggers.

*****
Trigger Item Conversion Succeeded
>
```


Figure 47 Sample execution of AINTITT with no prompt option

```

AINTITT:
>convert prompt

Warning: During execution of the transition tool it is
essential that no changes be made to the trigger definition
tables (tables TRIGGRP and TRIGDIG). Any changes to these
tables during execution may cause severe runtime errors.

Proceed with Office Wide Trigger Group Conversion?
Please confirm ("YES", "Y", "NO", or "N"):
>y

Beginning Trigger Item Conversion
*****

-----
Beginning Conversion of      N11 triggers
with digname of    N11DIG.

Trigdig Key:   N11DIG      N11      111
Trigitm Tuple: 4    N11 N11 ULK  EVENT TCAP R01  SS7      AINJAZZ  DFLT  $
Change the tuple trigger item identifier?
Please confirm ("YES", "Y", "NO", or "N"):
>y
TINAME:
>n11_test

Trigdig Key:   N11DIG      N11      111
Trigitm Tuple: 4 N11_TEST N11 ULK  EVENT TCAP R01  SS7      AINJAZZ  DFLT  $
Accept this trigger item? (No to change identifier)
Please confirm ("YES", "Y", "NO", or "N"):
>y

Trigdig Key:   N11DIG      N11      211
Trigitm Tuple: 4    N211 N11 ULK  EVENT TCAP R01  SS7      AINROCK  DFLT  $
Change the tuple trigger item identifier?
Please confirm ("YES", "Y", "NO", or "N"):
>n

```

It is possible to run the tool twice. However, this will result in duplication of trigger items and is not recommended practice. Once the tool is run successfully, a warning message is displayed if the tool runs again. Figure 48 illustrates multiple executions.

Figure 48 Multiple execution

```
>convert prompt

Warning: Trigger Group -> Trigger Item conversion has already
been successfully performed. Continuing with conversion may
result in duplicate trigger items.

Do you wish to continue anyway?
Please confirm ("YES", "Y", "NO", or "N"):
>y

Warning: During execution of the transition tool it is
essential that no changes be made to the trigger definition
tables (tables TRIGGRP and TRIGDIG). Any changes to these
tables during execution may cause severe runtime errors.

Proceed with Office Wide Trigger Group Conversion?
Please confirm ("YES", "Y", "NO", or "N"):
>y
```

If the tool stops part way through an execution (through halting or restarting), a warning message appears when the convert tool is executed again. If this happens, you should remove all datafill in TRIGITM and OFCTIID that the tool created originally and re-execute AINTITT. Figure 49 illustrates an incomplete execution.

Figure 49 Incomplete execution

```
>convert prompt

Warning: Trigger Group -> Trigger Item conversion was not
completely performed. This may indicate that the conversion
was abnormally terminated during execution. Ensure that any
extraneous datafill created by the previous execution has
been removed. Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
>y

Warning: During execution of the transition tool it is
essential that no changes be made to the trigger definition
tables (tables TRIGGRP and TRIGDIG). Any changes to these
tables during execution may cause severe runtime errors.

Proceed with Office Wide Trigger Group Conversion?
Please confirm ("YES", "Y", "NO", or "N"):
>y
```

25.5.6 Renaming the trigger item

The `changetiid` command renames a trigger item after it has been created. You may use this command regardless of whether a given trigger item has been subscribed to or not. To use the `changetiid` command, you must supply the trigger item key to be changed, and the new trigger item name. The `changetiid` command is illustrated in Figure 50.

Note: To use the `changetiid` tool, you must first start the `aintitt` tool.

Figure 50 Changetiid command

```
TABLE: TRIGITM
>list
TOP
KEY TRIGGER STATE ACTION OPTIONS
-----
4 S213254 PODP (DG 213254) $ ULK EVENT TCAP R01 SS7 AINJAZZ DFLT $
>changetiid 4 s213254 sds_1
Trigger Item TINAME has been changed.
>list
TOP
KEY TRIGGER STATE ACTION OPTIONS
-----
4 SDS_1 PODP (DG 213254) $ ULK EVENT TCAP R01 SS7 AINJAZZ DFLT $
>down
4 S213255A PODP (DG 2132551000) $ ULK EVENT TCAP R01 SS7 AINJAZZ DFLT $
>changetiid 4 s213255a sds_1
4 SDS_1 already exists
```

26. SERVORD guidelines

The service order utility, SERVORD, has been enhanced for assigning AIN to various line agents or to directory numbers (DNs). To provide these new capabilities, two new options have been introduced:

- AIN
- AINDN

The following indicates which lines can be assigned the AIN and AINDN options using SERVORD.

- 1FR
- 1MR
- DATA, PDATA
- 2FR, 4FR (AIN option only)
- PBX
- PBM
- RES
- MDC
- EBS and MFT terminals
- ISDN BRI
- COIN
- WATS

Please refer to Section 26.2 for information on assigning AIN and AINDN options to the above agents.

26.1 AIN option

The triggers assigned to the line must be assignable on a line basis. Any attempt to subscribe to a group of triggers that is not assignable on a line basis is blocked and a warning message is displayed. The following sections

describe, with examples, how to add, change, and delete the AIN option to various lines.

26.1.1 Adding the AIN option to POTS, MDC, or RES lines

To assign AIN to POTS, MDC, or RES lines using the ADO command, first specify the line using its corresponding DN or LEN. The DN or LEN must be previously defined in the office. The next prompt requests an option. Enter "AIN". At the next prompt, AINGRP, enter the AINGRP name from table TRIGGRP that defines the group a triggers that this agent will subscribe to. The AINGRP must be previously defined in table TRIGGRP. Please refer to Section 20.1.1 "Table TRIGGRP" on page 375 for more information on this table. When no more options are to be assigned to the line enter "\$". Only one AINGRP may be assigned to a line at a time.

ATTENTION

When using ADO to assign the AIN option to a POTS line, the POTS line will be converted to a compatible RES line.
The AIN option with an AINGRP of trigger type OFFHKIMM or AFR can not be assigned on COIN or WATS lines (that is, assignment of OFFHKIMM and AFR are blocked at SERVORD time for COIN and WATS lines).

Figure 51 shows how to assign a group of AIN triggers defined by AINGRP1 in table TRIGGRP to a POTS line, MDC line or RES line specified by DN 6210000.

Figure 51 Assignment of AIN triggers to a POTS line

```
>SERVORD
SO:
>ADO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>6210000
OPTION:
>AIN
AINGRP:
>AINGRP1
OPTION:
>$
```

26.1.2 Adding the AIN option to EBS and MFT terminals

To add the AIN option to an EBS or MFT terminal, use the ADO command. Enter the DN or LEN that corresponds to the line to which the AIN option will

be added. The DN or LEN must be previously defined in the office. At the next prompt, OPTKEY, enter the Primary DN key (for example, key 1). Enter “AIN” at the OPTION prompt. At the AINGRP prompt enter the AINGRP name from table TRIGGRP that defines the group of triggers that will be assigned to this line. The AINGRP must be previously defined in TRIGGRP. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. The prompts which follow request the DN keys to which the AIN option is to be assigned. If AIN is to be assigned to all DN keys on the set enter “\$”. Otherwise, specify each key that will be assigned. After all the DN keys have been specified, enter “\$”. Enter “\$” at the OPTKEY prompt if no more options are being assigned to the line. Only one AINGRP may be assigned to the set at one time

Figure 52 shows how to assign a group of AIN triggers defined by AINGRP1 in TRIGGRP to an EBS specified by DN 7227020. AIN is assigned to DN key 1 and DN key 5 on the set.

Figure 52 Assignment of AIN triggers to an EBS

```
>SERVORD
S0:
>ADO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>7227020
OPTKEY:
>1
OPTION:
>AIN
AINGRP:
>AINGRP1
KEYLIST:
>1
KEYLIST:
>5
KEYLIST:
>$
OPTKEY:
>$
```

26.1.3 Changing the AIN option on POTS, MDC, and RES lines

To change the AIN option on a POTS line, MDC line or RES line, use the CHF command. Enter the DN or LEN that corresponds to the line to be changed. The DN or LEN must be previously defined in the office. At the OPTION prompt, enter “AIN”. At the next prompt, AINGRP, enter the AINGRP name from table TRIGGRP that defines the group of triggers that this line will now

subscribe to. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. If no more options are to be changed, enter “\$”.

Figure 53 shows how to change the AIN option to AINGRP2 for a POTS, MDC, or RES line with LEN HOST 00 0 07 04.

Figure 53 Change to an AIN option for a POTS, MDC, or RES line

```
>SERVORD
S0:
>CHF
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 07 04
OPTION:
>AIN
AINGRP:
>AINGRP2
OPTION:
>$
```

26.1.4 Changing the AIN option on EBS and MFT terminals

To change the AIN option on an EBS or MFT terminal, use the CHF command. Enter the DN or LEN that corresponds to the line to be changed. The DN or LEN must be previously defined in the office. At the OPTKEY prompt, enter the Primary DN key. At the OPTION prompt enter “AIN”. At the next prompt, AINGRP, enter the AINGRP name that will now be assigned to the line. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. The prompts which follow request the DN keys to which the AIN option is to be assigned. If AIN is to be assigned to all DN keys on the set, enter “\$”. Otherwise, specify each key that will be assigned. After all the DN keys have been specified, enter “\$”. If no more options will be changed, enter “\$” at the OPTKEY prompt.

Figure 54 shows how to change the AIN option for an EBS specified by HOST 00 0 05 08. The AINGRP is being changed to AINGRP2 and the key that the AIN option applies to is DN key 1.

Figure 54 Change to an AIN option for an EBS

```
>SERVORD
S0:
>CHF
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 05 08
OPTKEY:
>1
OPTION:
>AIN
AINGRP:
>AINGRP1
KEYLIST:
>1
KEYLIST:
>$
OPTKEY:
>$
```

26.1.5 Deleting the AIN option from POTS, MDC, and RES lines

To delete the AIN option on a POTS line, MDC line or RES line, use the DEO command. Enter the DN or LEN that corresponds to the line that is to have the AIN option removed. The DN or LEN must be previously defined in the office. At the option prompt enter “AIN”. If no more options are to be deleted from the line enter “\$”.

ATTENTION

When using DEO to delete the AIN option from a RES line, the RES line will be converted to a POTS line if there is no remaining RES specific features subscribed by the line.

Figure 55 shows how to delete the AIN option from a POTS line, MDC line, or RES line with LEN HOST 00 0 07 04.

Figure 55 Delete the AIN option from a POTS, MDC, or RES line

```
>SERVORD
S0:
>DEO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 07 04
OPTION:
>AIN
OPTION:
>$
```

26.1.6 Deleting the AIN option from EBS and MFT terminals

To delete the AIN option from an EBS or MFT terminal, use the DEO command. Enter the DN or LEN that corresponds to the line which will have the AIN option deleted. The DN or LEN must be previously defined in the office. At the OPTKEY prompt, enter the Primary DN key. Enter “AIN” at the option prompt. If no more options are to be deleted from the line, enter “\$” at the OPTKEY prompt.

Figure 56 shows how to delete the AIN option from an EBS specified by LEN HOST 00 0 05 08.

Figure 56 Delete the AIN option from an EBS

```
>SERVORD
S0:
>DEO
SONUMBER: NOW 91 10 24
PM
>
DN_OR_LEN:
>HOST 00 0 05 08
OPTKEY:
>1
OPTION:
>AIN
OPTKEY:
>$
```

26.2 AINDN option

Only triggers that are assignable on a DN basis may be assigned using the AINDN option. The following sections describe how to add, change and delete the AINDN options for various line types.

26.2.1 Assigning AINDN to POTS, MDC, or RES DNs

To assign the AINDN option to a DN that corresponds to a POTS, MDC or RES line use the ADO command. Enter the DN or its corresponding LEN to which the AINDN option will be assigned. The DN or LEN must be previously defined in the office. At the OPTION prompt enter “AINDN”. At the AINGRP prompt specify the AINGRP name from table TRIGGRP that defines the group of triggers to which the DN will subscribe. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. When no more options are to be assigned to the DN, enter “\$”. Only one AINGRP may be assigned to the line.

Figure 57 shows how to assign a group of AIN triggers defined by AINGRP2 in table TRIGGRP to DN 6210501 that corresponds to a POTS, MDC or RES line.

Figure 57 Assign AIN triggers to a POTS, MDC, or RES line

```
>SERVORD
S0:
>ADO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>6210501
OPTION:
>AINDN
AINGRP:
>AINGRP2
OPTION:
>$
```

26.2.2 Assigning AINDN to EBS, MFT, and BRI terminals

To assign the AINDN option to a DN on an EBS, MFT or BRI terminal, use the ADO command. Enter the DN or its corresponding LEN or LTID to which the AINDN option will be assigned. The DN, LEN or LTID must be previously defined in the office. At the OPTION prompt, enter “AINDN”. At the OPTKEY prompt, enter the DN key that will be assigned the AINDN option. Enter “AINDN” at the OPTION prompt. At the AINGRP prompt, enter the AINGRP name from TRIGGRP that specifies the group of triggers to be assigned to the DN. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. When no more options are to be applied to the set, enter “\$” at the OPTKEY prompt. It is possible to assign different AINGRPs to different DN keys on the set. Only one AINGRP may be specified per DN key.

Figure 58 shows how to assign the AINDN option to DN 7227020 which corresponds to an EBS. A group of AIN triggers defined by AINGRP1 in table TRIGGRP is assigned to DN key 2 on the set and another group of triggers defined by AINGR7 is assigned to DN key 4 on the set.

Figure 59 shows how to assign the AINDN option to a BRI terminal.

Figure 58 Assign the AINDN option to a DN on an EBS terminal

```
>SERVORD
SO:
>ADO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>7227020
OPTKEY:
>2
OPTION:
AINDN
AINGRP:
>AINGRP1
OPTKEY:
>4
OPTION:
>AINDN
AINGRP:
>AINGRP7
OPTKEY:
>$
```

Figure 59 Assign the AINDN option to a DN on a BRI terminal

```
>SERVORD
S0:
>ADO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>ISDN 201
OPTKEY:
>2
OPTION:
AINDN
AINGRP:
>AINGRP1
OPTKEY:
>$
```

26.2.3 Changing the AINDN option for a POTS, MDC, or RES DN

To change the AINDN option for a DN that corresponds to a POTS line, an MDC line or RES line, use the CHF command. Enter the DN or its corresponding LEN that is to be changed. The DN or LEN must be previously defined in the office. At the option prompt, enter “AINDN”. At the next prompt, AINGRP, enter the AINGRP name from table TRIGGRP that defines the group of triggers the DN will now subscribe to. Please refer to Section 20.1.1 “Table TRIGGRP” on page 375 for more information on this table. When no more options are to be changed enter “\$”.

Figure 60 shows how to change the AINDN option to AINGRP2 for LEN HOST 00 0 07 04 which corresponds to a POTS, MDC or RES line.

Figure 60 Change to AINDN option for a POTS, MDC, or RES line

```
>SERVORD
S0:
>CHF
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 07 04
OPTION:
>AINDN
AINGRP:
>AINGRP2
OPTION:
>$
```

26.2.4 Changing the AINDN option for an EBS or MFT terminal

To change the AINDN option for a DN that corresponds to an EBS or MFT terminal, use the CHF command. Enter the DN or its corresponding LEN that is to be changed. The DN or LEN must be previously defined in the office. At the OPTKEY prompt, enter the DN key that will have its AINDN option changed. At the OPTION prompt enter "AINDN". At the next prompt, AINGRP, enter the AINGRP name that will now be assigned to the line. When no more options are to be changed to the set, enter "\$" at the OPTKEY prompt.

Figure 61 shows how to change the AINDN option that has been assigned to DN key 2 on an EBS specified by HOST 00 0 05 08. AINGRP1 will now be assigned to DN key 2 on the set.

Figure 61 Change to the AINDN option for an EBS

```
>SERVORD
S0:
>CHF
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 05 08
OPTKEY:
>2
OPTION:
>AINDN
AINGRP:
>AINGRP1
OPTKEY:
>$
```

26.2.5 Deleting the AINDN option for a POTS, MDC, or RES DN

To delete the AINDN option from a DN corresponding to a POTS line, MDC line or RES line use the DEO command. Enter the DN or its corresponding LEN for which the AINDN option will be removed. The DN or LEN must be previously defined in the office. At the option prompt enter "AINDN". If no more options are to be deleted from the line, enter "\$".

Figure 62 shows how to delete the AINDN option from DN 6210504 that corresponds to a POTS, MDC or RES line.

Figure 62 Delete the AINDN option from a POTS, MDC, or RES line

```
>SERVORD
S0:
>DEO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>6210504
OPTION:
>AIN
OPTION:
>$
```

26.2.6 Deleting the AINDN option for an EBS or MFT terminal

To delete the AINDN option from a DN that corresponds to an EBS or MFT terminal, use the DEO command. Enter the DN or its corresponding for which the AINDN option will be deleted. The DN or LEN must be previously defined in the office. At the OPTKEY prompt, enter the DN key that will have the AINDN option deleted. Enter "AINDN" at the OPTION prompt. If no more options will be deleted from the set, enter "\$" at the OPTKEY prompt

Figure 63 shows how to delete the AINDN option from DN key 5 on an EBS that has a DN that corresponds to LEN HOST 00 0 05 08.

Figure 63 Delete the AIN option

```
>SERVORD
S0:
>DEO
SONUMBER: NOW 91 10 24 PM
>
DN_OR_LEN:
>HOST 00 0 05 08
OPTKEY:
>5
OPTION:
>AINDN
OPTKEY:
>$
```

26.3 Virtual DN subscription

Operating companies can define and subscribe virtual DN (VDN) using SERVORD commands. They can use flow-through provisioning to assign a VDN with a Termination_Attempt (TAT) trigger.

This functionality provides a streamlined common operation to operating companies to reduce the need to manually co-ordinate the provisioning of TAT triggers that are assigned to a VDN.

The existing SERVORD commands NEWDN and OUTDN are enhanced. The SERVORD ADO, DEO, and CHF features are extended to support modification of options on virtual DNs.

26.3.1 NEWDN command

The NEWDN command allows provisioning of virtual DNs (DNs that are not associated with physical line equipment). NEWDN is also used to assign Remote Call Forwarding (RCF) to a DN. For an AIN VDN, NEWDN provisions the VDN and subscribes it to AIN.

The prompt VDNTYPE of AIN specifies an AIN VDN. At the NEWDN VDNTYPE prompt, when you have entered YES at the BLOCK_OF_DNS prompt, only the VDN types that can be datafilled in blocks are available in the list of possible VDN types. For example, VDNTYPE RTE, RCF and RCFEA are available at the VDNTYPE prompt when BLOCK_OF_DNS is set to NO, whereas only the existing VDN type RTE is available at the VDNTYPE prompt when BLOCK_OF_DNS is set to YES (RCF and RCFEA do not support block of VDNs datafill).

When you enter a NONIBN VDN, there is a prompt for the AIN_VDN_OPTION vector. However, no options are valid at this prompt.

Although you can enter many options at the option prompt, only the AINDN option is valid for an AIN VDN. For any other option, the command returns an error.

Table 151 contains the parameter definitions for the NEWDN command for an AIN VDN.

Table 151 Parameter options

Parameter	Value	Definition
VDNTYPE (when BLOCK_OF_DNS is set to YES)	{RTE}	Selects the type of VDN to be provisioned.
VDNTYPE (when BLOCK_OF_DNS is set to NO)	{RTE,RCF,RCFEA,AIN}	Selects the type of VDN to be provisioned. Select AIN for an AIN VDN.
DNTYPE	{IBN,NONIBN}	Directory Number Type: IBN datafills a DN for a private IBN environment. Subgroups are CUSTGRP and SUBGRP. NONIBN datafills a DN for a public environment. Subgroup of LINEATTR
CUSTGRP	alphanumeric (1 to 16 characters)	Enter the name assigned to the customer group to which the AIN DN belongs
SUBGRP	0 to 7	The subgroup number within the customer group to which the AIN DN belongs
LINEATTR	0 to 1023	The line attribute index into table LINEATTR for this virtual DN
AIN_VDN_OPTION	NCOS or SMDR	Enter the option required. The Prompt label will be changed.
NCOS	0 to 255	The NCOS to be applied to the call. The value must be datafilled in table NCOS
OPTION	Line option	Any line option may be entered, only AINDN will be valid for this VDN.

When creating an AIN virtual DN through the Servord NEWDN command, the user is not required to specify the AINDN option. However, if a valid termination attempt trigger is not assigned to the VDN through the AINDN option, then any call routed to the VDN is routed to treatment. The AINDN option may be assigned later with the ADO command.

Figure 64 illustrates a NEWDN command session.

Figure 64 Sample NEWDN command session

```
>servord
S0:
>newdn
SONUMBER:      NOW  97  5  7 PM
>
SNPA:
>613
BLOCK_OF_DNS:      - allows provisioning of more than one dn
>NO
DN:
>7225399
VDNTYPE:
>ain              - indicates that new line will be an ain vdn
DNTYPE:
>ibn              - can be IBN or NONIBN
CUSTGRP:          - applicable to IBN only (for non IBN lines
>comkodak         it will ask for the line attribute index.)
SUBGRP:
>0
AIN_VDN_OPTION:   - Options: NCOS and SMDR (valid only for IBN)
>$
OPTION:
>aindn
AINGRP:
>termatt
OPTION:
>$
COMMAND AS ENTERED:
NEWDN NOW 97 5 7 PM 613 NO 7225399 AIN IBN COMKODAK 0 $ AINDN TERMATT $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
```

26.3.2 OUTDN command

The OUTDN command deletes the data for a VDN but does not prompt for all fields available in the NEWDN command. The OUTDN command prompts only for the VDN (or VDNs) to be deleted.

An OUTDN request is rejected if:

- the VDN type that corresponds to the VDNs to be deleted is not a VDN type supported for the block of VDN creation by the NEWDN command
- all VDNs in the specified block of VDNs do not have the same VDN type

When you delete a VDN, any options assigned to the VDN are also deleted.

Figure 65 illustrates a sample OUTDN command session.

Figure 65 Sample OUTDN command session

```
>servord
S0:
>outdn
SONUMBER:      NOW  97  5  7 PM
>
SNPA:
>613
BLOCK_OF_DNS:
>NO
DN:
>7225399
COMMAND AS ENTERED:
OUTDN NOW 97 5 7 PM 613 NO 7225399
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
```

26.3.3 ADO, DEO, and CHF commands

The ADO, DEO and CHF commands add, delete, and change options on a DN, respectively and allow these commands to operate on VDNs. Only VDNs with DN_SEL in {DN_FEATURE, DN_TABLE_REF, DN_CFW_LINE, DN_TRMT, DN_SYNONYM_DN, DN_IBN_LDN, DN_IBN_MM, DN_TEEN_LINE} are supported.

The only option that is supported for VDNs is the AINDN option assigned to an AIN VDN

27. Trigger administration

This chapter discusses several aspects of trigger administration under the following headings:

- Administering the trigger activation states
- Call type criterion
- Datafilling for default routing

27.1 Administering the trigger activation states

The trigger activation states for line, trunk, and DN subscribed agents can be viewed and modified using various command interpreter (CI) commands located in the AINCI directory.

To enter the AINCI directory, type the following:

```
>AINCI
```

27.1.1 Displaying the trigger activation states

To display the trigger activation states for a given line, trunk, or DN subscribed AIN agent, use the SHOWSTATE CI command, located in the AINCI directory. The syntax of the SHOWSTATE command is shown in Table 152.

Table 152 SHOWSTATE command

>SHOWSTATE	<agent>	{DN <directory number>
		CLLI <trunk group name>
		ADNUM <administrative number> }
	<trigger>	{OFFHKIMM, OFFHKDEL, TERMATT}
	[<BearerCapability>]	{SPEECH, 3_1KHZ, 56KDATA, 64KDATA}

where:

- <agent> is either a DN, a CLLI, or an Administrative Number that designates an AIN subscribed agent. <directory number> should be a 7- or 10-digit DN that corresponds to a line or DN subscribed agent. <trunk group name> should be a CLLI identifier that corresponds to a trunk subscribed agent. <administrative number> should be an Administrative Number (in the range from 0 to 8191) that corresponds to a trunk subscribed agent.
- <trigger> is the trigger type for which the corresponding activation states will be displayed.
- <bearer_capability> is the AIN bearer capability for which the corresponding activation states will be displayed. If this parameter is omitted, then the SHOWSTATE command will be executed for all applicable bearer capabilities.

The bearer capabilities that apply for a particular AIN-subscribed agent depend on the trigger group to which the agent is subscribed. If the agent is subscribed to an AIN trigger group that contains, say, an Off-Hook Immediate trigger subscribed on a particular call type criterion, then the applicable bearer capabilities are those that are compatible with the call type criterion. If no call type criterion is specified in the trigger group, then all bearer capabilities are applicable. Table 153 shows how the call type criterion (from the trigger group to which the AIN agent is subscribed) is mapped to the corresponding bearer capabilities.

Table 153 Corresponding bearer capabilities for the call type criteria

Call type	Bearer capability
VBINFO	SPEECH
	3_1KHZ
CMDATA	56KDATA
	64KDATA

The following examples demonstrate the usage of the SHOWSTATE command. An agent, specified by DN, CLLI or Administrative number, and a trigger with bearer capability are entered by the user. The output of the command is shown in Figure 66.

Figure 66 Examples of outputs from the SHOWSTATE command

```
>AINCI
AINCI:
>SHOWSTATE DN 6211091 OFFHKIMM SPEECH
AGENT:          DN 6136211091
TRIGGER:        OFFHKIMM
BEARER CAPABILITY: SPEECH
TRIGGER STATE:  OFF

>SHOWSTATE CLLI TRKGRP1 OFFHKDEL 56KDATA
AGENT:          CLLI TRKGRP1
TRIGGER:        OFFHKDEL
BEARER CAPABILITY: 56KDATA
TRIGGER STATE:  ON

>SHOWSTATE ADNUM 203 OFFHKDEL
AGENT:          ADNUM 203
TRIGGER:        OFFHKDEL
BEARER CAPABILITY: SPEECH
TRIGGER STATE:  OFF
BEARER CAPABILITY: 3_1KHZ
TRIGGER STATE:  OFF
BEARER CAPABILITY: 56KDATA
TRIGGER STATE:  ON
BEARER CAPABILITY: 64KDATA
TRIGGER STATE:  ON

>SHOWSTATE DN 6137221234 TERMATT 64KDATA
AGENT:          DN 6137221234
TRIGGER:        TERMATT
BEARER CAPABILITY: 64KDATA
TRIGGER STATE:  ON

>SHOWSTATE DN 6211111 OFFHKDEL
TRIGGER IS NOT SUBSCRIBED FOR BEARER CAPABILITY SPEECH
TRIGGER IS NOT SUBSCRIBED FOR BEARER CAPABILITY 3_1KHZ
AGENT:          DN 6136211111
TRIGGER:        OFFHKDEL
BEARER CAPABILITY: 56KDATA
TRIGGER STATE:  OFF
BEARER CAPABILITY: 64KDATA
TRIGGER STATE:  ON
```

27.1.2 Modifying the trigger activation state

To modify the trigger activation states for a given line, trunk, or DN-subscribed AIN agent, use the CHANGESTATE CI command, located in the AINCI directory. The syntax of the CHANGESTATE command is shown in Table 154.

Table 154 CHANGESTATE command

>CHANGESTATE	<agent>	{DN <directory number> CLLI <trunk group name> ADNUM <administrative number> }
	<trigger>	{OFFHKIMM, OFFHKDEL, TERMATT}
	[<bearer_capability>]	{SPEECH, 3_1KHZ, 56KDATA, 64KDATA}
	<state>]	{ON, OFF}

where:

- <agent> is either a DN, a CLLI, or an Administrative Number that designates an AIN subscribed agent. <directory number> should be a 7- or 10-digit DN that corresponds to a line or DN subscribed agent. <trunk group name> should be a CLLI identifier that corresponds to a trunk subscribed agent. <administrative number> should be an Administrative Number (in the range from 0 to 8191) that corresponds to a trunk subscribed agent.
- <trigger> is the trigger type for which the corresponding activation states will be modified.
- <bearer_capability> is the AIN bearer capability for which the corresponding activation states will be modified. If this parameter is omitted, then the CHANGESTATE command will be executed for all applicable bearer capabilities.
- <state> is the value to which the trigger activation states will be set.

In the case where the <bearer_capability> parameter is omitted, the applicable bearer capabilities are determined in the same manner as for the SHOWSTATE command.

Figure 67 demonstrates the usage of the CHANGESTATE command.

Figure 67 Examples of the CHANGESTATE command

```

>AINCI
AINCI:
>CHANGESTATE DN 6211091 OFFHKIMM SPEECH ON
AGENT:          DN 6136211091
TRIGGER:        OFFHKIMM
BEARER CAPABILITY: SPEECH
TRIGGER STATE:  OFF

ARE YOU SURE YOU WANT TO CHANGE THE TRIGGER STATE(S) TO ON?
Please confirm ("YES", "Y", "NO", or "N"):
>Y
ACTIVATION STATE CHANGED

>CHANGESTATE CLLI TRKGRP1 OFFHKDEL 56KDATA OFF
AGENT:          CLLI TRKGRP1
TRIGGER:        OFFHKDEL
BEARER CAPABILITY: 56KDATA
TRIGGER STATE:  OFF

ARE YOU SURE YOU WANT TO CHANGE THE TRIGGER STATE(S) TO OFF?
Please confirm ("YES", "Y", "NO", or "N"):
>Y
ACTIVATION STATE CHANGED

>CHANGESTATE ADNUM 203 OFFHKDEL OFF
TRIGGER IS NOT SUBSCRIBED FOR BEARER CAPABILITY SPEECH
TRIGGER IS NOT SUBSCRIBED FOR BEARER CAPABILITY 3_1KHZ
AGENT:          ADNUM 203
TRIGGER:        OFFHKDEL
BEARER CAPABILITY: 56KDATA
TRIGGER STATE:  ON
BEARER CAPABILITY: 64KDATA
TRIGGER STATE:  OFF

ARE YOU SURE YOU WANT TO CHANGE THE TRIGGER STATE(S) TO OFF?
Please confirm ("YES", "Y", "NO", or "N"):
>Y
ACTIVATION STATE CHANGED

>CHANGESTATE DN 6137221234 TERMATT 64KDATA ON
AGENT:          DN 6137221234
TRIGGER:        TERMATT
BEARER CAPABILITY: 64KDATA
TRIGGER STATE:  OFF

ARE YOU SURE YOU WANT TO CHANGE THE TRIGGER STATE(S) TO ON?
Please confirm ("YES", "Y", "NO", or "N"):
>N
CHANGESTATE COMMAND ABORTED

```

27.2 Administering the trigger activation states by trigger item

The trigger item activation state code is a part of the trigger item subscription tuple in OFCTIID. The activation state code accepts two values: ON or OFF. Setting the activation state code to OFF disables the trigger item. The call does not trigger if all its criteria are met at run-time.

The activation state code can be modified by one of the following methods:

- the table editor
- the update message

27.2.1 Modifying activation state code with the table editor

To modify the activation state code with the table editor, use the CHANGE or the REPLACE command. First, find the desired tuple that contains the activation state that needs changing in table OFCTIID as follows:

```
> TABLE OFCTIID  
> pos <TDP> <TINAME>  
> change <ON/OFF>
```

27.2.2 Modifying activation state code with the update message

Use the update message to selectively enable and disable trigger item assignment activation state codes.

When the DMS receives an update message, the activation state code for the specified trigger item assignment is set in accordance with the state parameter in the message. The update is also recorded in a journal file.

Note: Changes to table data are not recommended during ONP.

27.3 Call type criterion

Call type (CT) is an optional criterion for all AIN Service Enablers triggers being discussed. CT is used to specify which type of call (voice or data) can trigger and send a query message. If not specified, either voice or data calls trigger.

Whether a call is voice or data depends on the bearer capability (BC) parameter of the call. The BC parameter contains the bearer capability of the call that encountered the trigger. This parameter is mandatory in all outgoing messages.

The DMS CT symbols are VBINFO for voice and CMDATA for data.

Whether a call is a voice call or a data call depends on the TRANSFER CAPABILITY value of each BCNAME, which is defined by field XFERCAP in table BCDEF.

Table 155 is a summary of an incoming BC, its corresponding BC in an AIN outgoing message, its XFERCAP value, and the type of call. Given an incoming BC, you can use the table to determine whether the call is voice or data.

Table 155 Bearer capability (BC) summary

Incoming BC	Outgoing AIN BC	XFERCAP field in table BCDEF	Voice or Data
SPEECH	SPEECH	SPEECH	Voice
3_1KHZ	f32kHzaudio	AU3_1KHZ	
7_KHZ	f7kHzaudio	AU7KHZ	
64K_RATE_AD_DATA	b56kbps	UNRESDIG	Data
56K_DATA			
DATA_UNIT			
64K_DATA	b64kbps	N/A	
64K_X25	There is no AIN value defined for these; send the call to treatment.		
WIDEBAND			
64K_RES			

27.4 Datafilling for default routing

Default routing for AIN fault handling is not included in TR-1284 for AIN Essentials; it is highlighted in GR-1298 for AIN Service Enablers.

A subset of the requirements specified in GR-1298 is provided. Default routing procedures are provided for a signaling connection control part (SCCP) routing error (indicated by the receipt of an SCCP return on error message) and T1 timer expiry. ACG procedures are currently not supported and, therefore, do not apply to default routing.

Note: The SCCP return on error message is defined in Section 6.5.5 of TR-NWT-000606, Common Channel Signaling and in Section 3 of GR-1280-CORE. Additional information regarding the associated UDTs/XUDTs messages may be found in TR-NWT-000246.

Ensure that the Default Routing option (AIN00010) is in the ON state. This is required for default routing to function. Refer to Section 21.1 “Activating AIN Essentials SSP software” on page 415.

Default Routing functionality can be applied to the PODP, N11, LNP, and Termination Attempt triggers, although it may be datafilled for all triggers. For triggers that are not subscribed to Default Routing or that do not support Default Routing, AIN Final treatment will be applied when an SCCP routing error or T1 timer expiry occurs.

Default routing can be subscribed on a per trigger basis by using the options field in tables TRIGDIG or TRIGITM (PODP, N11, and LNP triggers) and TRIGINFO (Termination Attempt trigger). Datafill this field with DFLTRT to subscribe a trigger to default routing. The fields that are associated with DFLTRT are as follows:

- ANN

This specifies that an announcement should be played once default routing applies. If datafilled, the ANNIDX field applies. The ANNIDX field indicates the index of the announcement in table AINANNS to be played.

- DN

This field indicates that the call should route to the DN specified. If datafilled, the DN field applies. The DN field can contain 3, 7, or 10 decimal digits and if no digits are required then “\$” will be entered in place of the digits. If no digits are specified, the call continues processing. If an inappropriate number of digits is specified or a hex digit is specified, the data entered is rejected.

- ANNDN

If this option is datafilled, then both the ANNIDX field and the DN field apply and must be datafilled.

After datafilling an option and associated fields, the user is prompted for another option. To indicate that there are no more options, enter ‘\$’. Otherwise, more options will be expected.

27.4.1 TRIGINFO examples

Table 156 shows some examples of the datafilling default routing in table TRIGINFO.

Table 156 Examples of table TRIGINFO datafill

Infoname	Action	Options
INFO1	EVENT TCAP R01 SS7 GTT1 DFLT	DFLTRT ANN 34 \$
INFO2	EVENT TCAP R01 SS7 GTT2 DFLT	DFLTRT DN 6137211000 \$
INFO3	EVENT TCAP R01 SS7 GTT3 DFLT	DFLTRT ANNDN 34 6133376159 \$
INFO4	EVENT TCAP R01 SS7 GTT4 DFLT	DFLTRT ANNDN 34 \$

Currently, the DFLTRT option in table TRIGINFO will only be applicable for the Termination Attempt (TERMATT) trigger. If a trigger is encountered that references a tuple in table TRIGINFO with the DFLTRT option and a default routing condition occurs (that is, T1 timer expiry), AIN Final Treatment will be applied if the trigger is not the TERMATT trigger.

INFO1 indicates that when default routing is deemed applicable for this trigger, the announcement at index 34 of table AINANNS is played. Upon completion of the announcement, the call is sent to disconnect treatment (DISC).

INFO2 indicates that, if default routing applies, the call is routed to the specified DN. If the trigger is other than the Termination Attempt trigger, AIN final treatment (AINF) is applied. If this is the DN in which the TERMATT trigger is assigned to, then AUTHORIZE_TERMINATION response procedures is followed. If the DN is different than the TERMATT DN, FORWARD_CALL response processing is followed.

INFO3 indicates that an announcement is played. When the announcement completes, routing continues as described for INFO2.

INFO4 indicates that an announcement is played. When the announcement completes, the call continues routing to the Termination Attempt DN.

After datafilling an option and associated fields, the user is prompted for another option. To indicate that there are no more options, enter '\$'. Otherwise, more options will be expected.

27.4.2 TRIGDIG examples

Table 157 shows some examples of the datafilling default routing in the TRIGDIG table.

Table 157 Examples of table TRIGDIG datafill

Key	Trigger	Action	Options
DIG0 N11 411	N11	EVENT TCAP R01 SS7 GTT1 DFLT	DFLTRT ANN 34 \$
DIG1 PODP 61	PODP	EVENT TCAP R01 SS7 GTT2 DFLT	DFLTRT DN 6137211000 \$
DIG1 PODP 42	PODP	EVENT TCAP R01 SS7 GTT3 DFLT	DFLTRT ANNDN 34 6137221234 \$
DIG2 N11 611	N11	EVENT TCAP R01 SS7 GTT4 DFLT	DFLTRT ANNDN 34 \$

Currently, the DFLTRT option in table TRIGDIG is only applicable to the PODP, N11, and LNP triggers.

The first tuple indicates that when default routing is applicable for this trigger, the announcement at index 34 of table AINANNS is played. Upon completion of the announcement, the call is sent to disconnect treatment (DISC).

The second tuple indicates that if the default routing applies, the call is routed to the specified DN. A procedure similar to an Analyze Route response with a Called Party Number is followed.

The third tuple indicates that an announcement is played. When the announcement completes, routing continues as described for the second tuple.

The fourth tuple indicates that an announcement is played. When the announcement completes, the call continues routing to the originally dialed DN.

27.4.3 Routing characteristics

Since default routing allows call processing to continue as if a response was received from the SCP, it uses the same datafill setup that is required for routing in Analyzed_Route and Forward_Call responses, and it also uses the same datafill setup that is required for playing of an announcement in Send_to_Resource response. Please refer to Chapter 45.: “Send_To_Resource response” on page 683 for more details.

27.5 Deletion of a tuple from table TRIGITM

Deletion of a tuple from table TRIGITM is not restricted, but the tuple does not disappear from the table for 24 hours. An automated procedure then removes the tuple.

28. Verifying with TRAVER

The TRAVER utility can be used to verify whether the CT criterion is met or not.

Note: TRAVER assumes the agent is using the default bearer capability, unless BC option is specified in the TRAVER command.

28.1 Call 1 scenario

Originating from an IBN voice line (DN 7225502), dial 9411, where 9 is the access code to the public environment. Suppose the call encounters the N11 trigger group with CT set to CMDATA. Since the BC of the line is the default_bearer_capability, the line is a voice line. The call does not trigger because the trigger CT criterion of CMDATA is not met. Figure 68 shows the TRAVER output.

Table 158 Call type datafill, partial TRAVER output for call 1

```

traver l 7223213 9411 b
TABLE IBNLINES
HOST 01 1 00 03 0 DT STN IBN 7223213 COMKODAK 0 0 613 (CWT) (3WC) (RAG) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y N 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPTS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE

```


Table 158 Call type datafill, partial TRAVER output for call 1 (Continued)

```

TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( CT CMDATA) ( 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
. . 44 N D DAC 3 N Y
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 158 Call type datafill, partial TRAVER output for call 1 (Continued)

DIGIT TRANSLATION ROUTES		
1 DAC	NN	ST
TREATMENT ROUTES. TREATMENT IS: GNCT		
1 *OFLO		
2 LKOUT		
+++ TRAVER: SUCCESSFUL CALL TRACE +++		
>		

28.2 Call 2 scenario

Same setup as Call 1 scenario except that BC 64KDATA has been added to the originating IBN line to change it from a voice to a data line. This time, the call triggers because the CT criterion is met.

Note: The BC 64KDATA must be specified in the TRAVER command line. Failure to do so results in a TRAVER trace, as shown in Figure 68.

Table 159 shows the TRAVER output.

Table 159 Call type datafill, sample TRAVER output for calls 2 or 3

```

>traver l 7223213 9411 bc 64kdata b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE IBNLINES
HOST 01 1 00 03 0 DT STN IBN 7223213 COMKODAK 0 0 613 (CWT) (3WC) (RAG) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y N 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL

```

Table 159 Call type datafill, sample TRAVER output for calls 2 or 3 (Continued)

```

POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( CT CMDATA) ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. . TABLE TRIGDIG
. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met.
Querying the database.
Use the AINRES option for further information

```

Table 159 Call type datafill, sample TRAVER output for calls 2 or 3 (Continued)

<pre>+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++ AIN Info Analyzed TDP: trigger criteria met. Querying the database. Use the AINRES option for further information +++ AIN TRAVER: SUCCESSFUL CALL TRACE +++</pre>

28.3 Call 3 scenario

Same setup as Call 1 scenario except that 259411 is dialed to change the originating line from a voice to a data line. This time, the call triggers because the CT criterion is met. (25 is a BC FTR AC defined in table IBNXLA as CXDK 25 FTR 2 BC 64KDATA.)

The TRAVER command used for this call should be the same as the one for Call 2 scenario; that is, BC 64KDATA has to be specified in the TRAVER command line, and the digits dialed are specified as 9411. The BC FTR AC is not included. See Table 159 for sample TRAVER output for this call.

Failure to specify the BC in the TRAVER command line and failure to set the digits dialed to 259411 results in the TRAVER output as shown in Figure 68.

Figure 68 Call type datafill, sample TRAVER output for Call 3 (incorrect TRAVER command)

```
>traver l 7223213 259411 b
TABLE IBNLINES
HOST 01 1 00 03 0 DT STN IBN 7223213 COMKODAK 0 0 613 (CWT) (3WC) (RAG) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 25 FTR 2 BC 64KDATA

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Feature BC not supported by TRAVER

+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

29. Provisioning assumptions

The following assumptions are made for the examples given in chapters 30. through 38.:

- All examples deal with one-trigger call scenarios. The trigger is the first that a call encounters. Consequently, the AIN trigger groups are defined to contain only one trigger to be encountered by a call. Multiple-trigger group definition and subscription issues are discussed in Chapter 47.: “Provisioning multiple triggers” on page 691.
- All examples do not have the call type criterion specified. The call type criterion is optional for all noted trigger types. When it is not specified, both voice and data calls trigger.
- The action information for all examples is the same, that is, action (EVENT), protocol (TCAP), message set (R01), and transport (SS7), GTT(AINJAZZ), and GTSOURCE(DFLT).

Note 1: AINJAZZ is an illustration only. The field should represent the corresponding tuple in table C7GTTYPE. All the other values shown are constants.

Note 2: SS7 is the SSP interface to the off-board processor. You are expected to have completed the SS7 message datafilling described in Chapter 23.: “SS7 datafill” on page 435. Datafilling the ACTION field in table TRIGDIG or table TRIGINFO is not repeated in the triggering chapters.

- The triggering messages sent to the off-board processor are correct.

Note: The Query parameter population is not covered by this release of the document.

Once you have completed the datafilling requirements for a call to encounter a trigger and query the database, proceed to the response chapters.

SERVORD guidelines for assigning AIN or AINDN options to a line are included in Chapter 26.: “SERVORD guidelines” on page 459.

30. Off-hook Immediate trigger

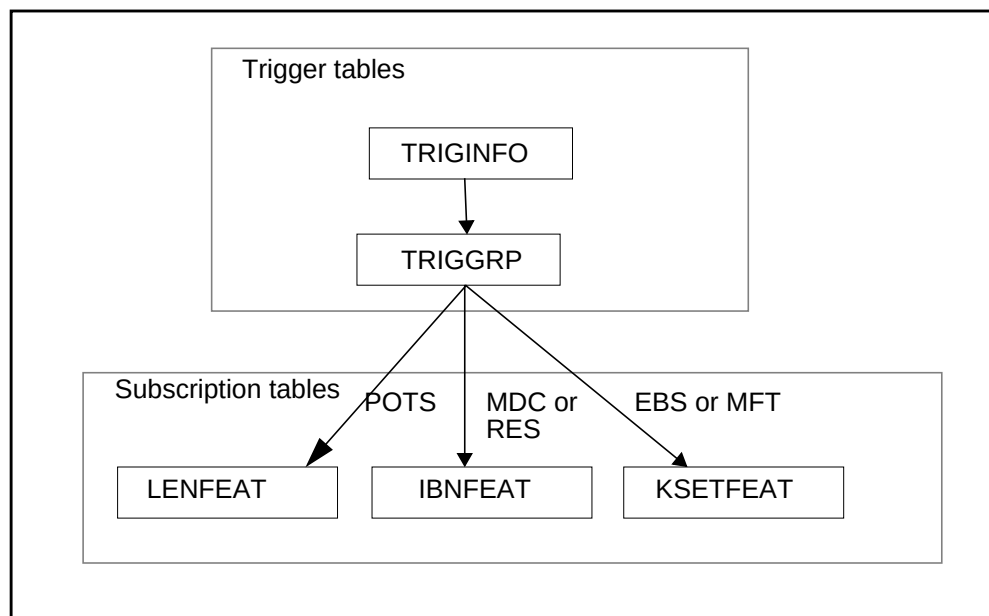
30.1 General

The Off-Hook Immediate (OFFHKIMM) trigger type occurs between the null and Authorizing Origination (AUTHORIG) attempt points in the originating call model. This trigger formulates and sends a query to the off-board processor as soon as the associated line goes off-hook.

30.2 Datafilling steps

Figure 69 shows the datafilling hierarchy for the OFFHKIMM trigger type.

Figure 69 Datafilling hierarchy for OFFHKIMM trigger type



30.2.1 Step 1: Datafilling table TRIGINFO

An INFONAME defines the action information, that is, what action the SSP takes if a call encounters a trigger and the criteria are met. For AIN Essentials, the SSP must send a query to the off-board processor using a particular messaging protocol and transport.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.:“Provisioning assumptions” through Chapter 38.:“Termination attempt trigger”.

30.2.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the OFFHKIMM trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and on TDP. You must create a name for the OFFHKIMM AINGRP (up to 16 characters). The TDP for the OFFHKIMM trigger type must be ORIGATT.

- 1 In response to the TRIGGER prompt, enter “OFFHKIMM”.
- 2 In response to the CRITERIA prompt, the Call type (CT) criterion can be entered for the OFFHKIMM trigger. This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- 3 In response to the INFONAME prompt, enter the INFONAME you defined in Section 30.2.1 “Step 1: Datafilling table TRIGINFO”.

30.2.3 Step 3: Datafilling table LENFEAT, IBNFEAT, or KSETFEAT

It is the originating agent that should subscribe to an OFFHKIMM AINGRP as described in Step 2. The subscription is done on a line basis using the AIN option. For a POTS line, the subscription tuple is added to table LENFEAT; for an MDC or RES line, the subscription tuple is added to table IBNFEAT; for an EBS or MFT set, the subscription tuple is added to table KSETFEAT.

While datafilling table KSETFEAT, the first entry is to populate the key of the table, which is composed of three fields: LEN, KEY, and FEAT. A sample entry would be HOST 00 0 00 09 1 AIN. Of note here is the “1”, which represents the KEY (DN key) field (which is a part of the table key).

As in Chapter 26.: “SERVORD guidelines” on page 459, the “1” entered for KEY represents the Primary DN key. When the KEYLIST prompt appears, it is still necessary to enter “1” to assign AIN to that DN key. It is also possible

to enter “\$” to assign AIN to all of the DN keys. After all of the desired DN keys have been specified, enter “\$”.



CAUTION

Use the service order system (SERVORD)—not the table editor—to assign, change, or delete the AIN option for lines. Using the table editor to datafill these tables can result in incompatible features being assigned to the line. See Chapter 24 “SERVORD guidelines” for details.

Table 160 summarizes steps 1 to 3. It shows the trigger definition and subscription tables for the OFFHKIMM trigger type.

Table 160 Trigger definition and subscription tables for the OFFHKIMM trigger type

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Sub- scription tables	Option	SERVORD
ORIGATT	Off-Hook Immediate	CT	TRIGGRP TRIGINFO	Line(POTS)	LENFEAT	AIN	Yes
				Line (MDC or RES)	IBNFEAT		
				Line (EBS, MFT)	KSETFEAT		

30.2.4 Step 4: Verifying with TRAVER

Once the datafill has been set up for the OFFHKIMM trigger, the TRAVER utility can be used to verify the AIN Essentials triggering.

30.3 Examples

This section describes three sample calls that trigger at OFFHKIMM. Figure 70 illustrates the datafill for these three sample calls. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 70 and to verify the datafill with TRAVER.

30.3.1 Example 1

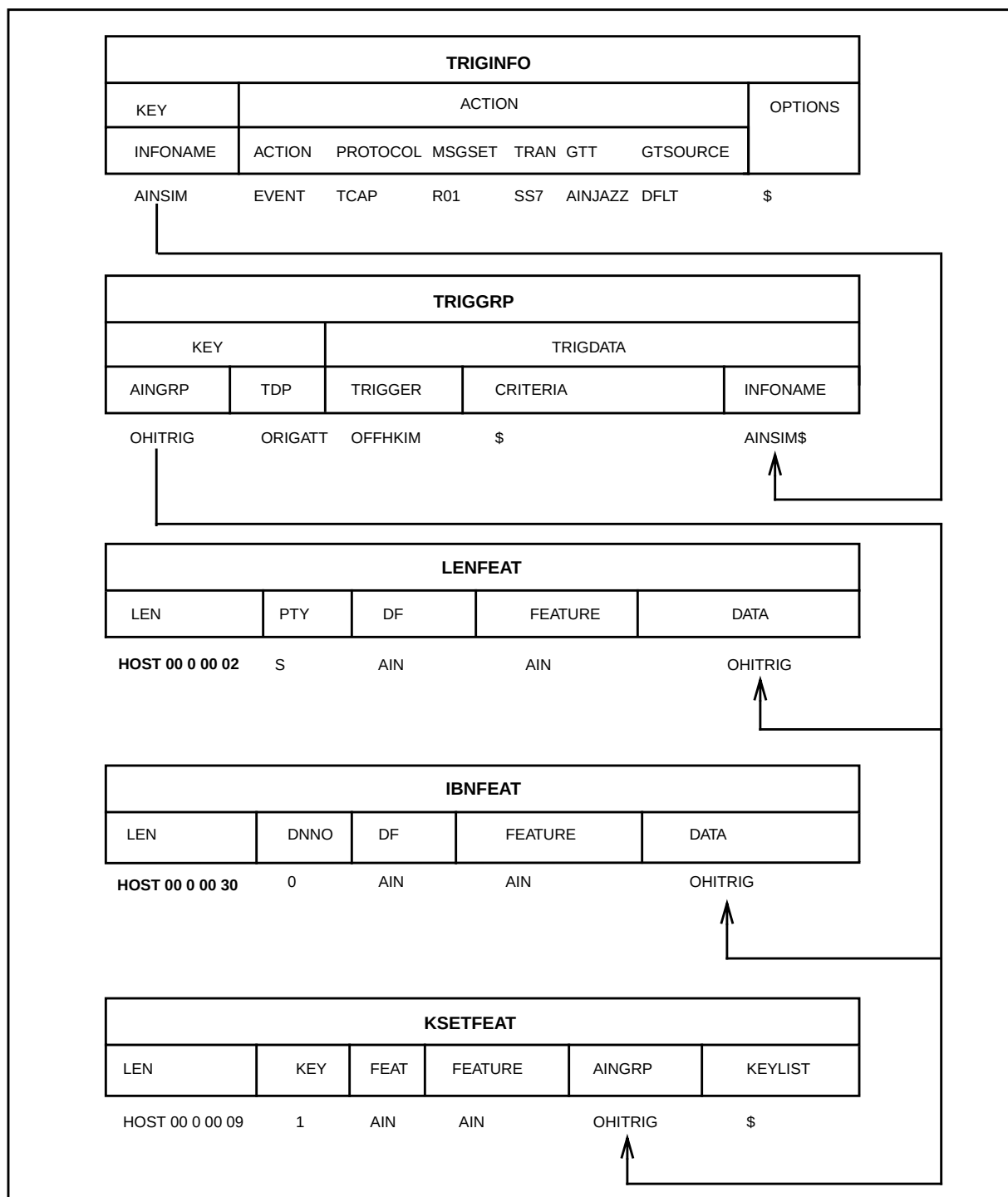
Go off-hook from a POTS line (LEN HOST 00 0 10 27, DN 6213111) that subscribes to an OFFHKIMM trigger group and the call triggers at OFFHKIMM.

30.3.2 Example 2

Go off-hook from an MDC line (LEN HOST 00 0 00 02, DN 7226020) that subscribes to an OFFHKIMM trigger group and the call triggers at OFFHKIMM.

30.3.3 Example 3

Go off-hook from a EBS or MFT line (LEN HOST 00 0 00 21, DN 7224070) that subscribes to an OFFHKIMM trigger group and the call triggers at OFFHKIMM.

Figure 70 Sample datafill for the three OFFHKIMM examples

In Figure 70, the tuple in table LENFEAT is used in Example 1. The tuple in table IBNFEAT is used in Example 2. The tuple in table KSETFEAT is used in Example 3.

31. Off-Hook Delay trigger

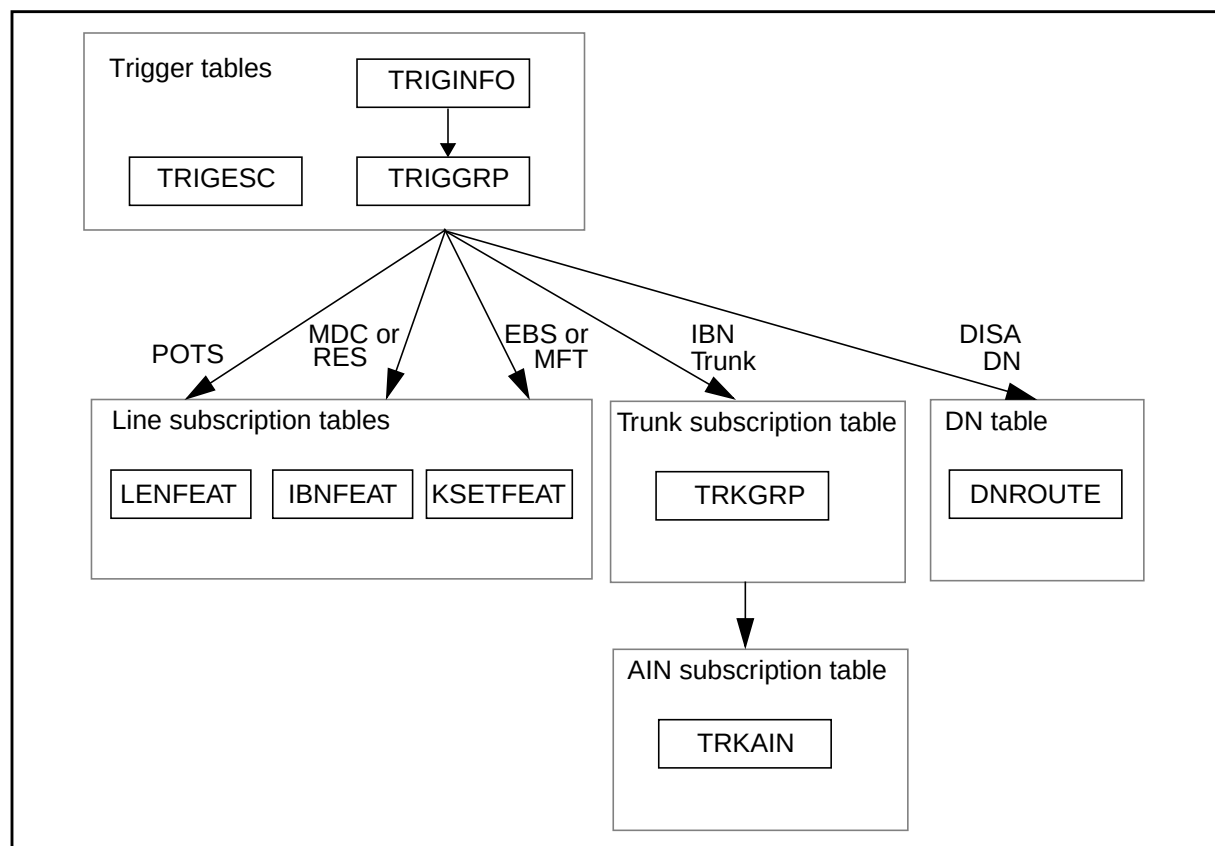
31.1 General

The Off-Hook Delay (OFFHKDEL) trigger type occurs between the Collecting Information (INFOCOL) and Analyzing Information (INFOANAL) points in call in the originating call model. This trigger formulates and sends a query to the off-board processor after dialed digits have been collected.

31.2 Datafilling steps

Figure 71 illustrates the datafilling steps for the OFFHKDEL trigger type.

Figure 71 Datafilling hierarchy for OFFHKDEL trigger type



31.2.1 Step 1: Datafilling table TRIGESC

Escape codes provide a way for subscribers of the Off-Hook Delay trigger to make certain calls (for example, to 911) without triggering at the Off-Hook Delay trigger. The SSP maintains a list of all escape codes in table TRIGESC. These codes must be valid North American Numbering Plan numbers or an N11 service code.

Escape from the Off-Hook Delay trigger occurs in the following situations:

- A call is received from a line or trunk group using a public office dialing plan where the dialed digits correspond to a vertical service code (VSC) plus a number on the administered escape code list. The VSC may be used for a switch-based feature or an AIN feature.
- A call is received from a line or trunk group using a private dialing plan where the dialed digits correspond to an access code that results in the call being routed over the public network plus a number on the administered escape code list.

If escape from the Off-Hook Delay trigger occurs, triggering does not take place, no query is sent, and call processing continues at the INFOANAL point in call. Subsequent triggering may take place at subsequent trigger detection points (TDPs).

Note: If several variations of a number on the escape code list may be dialed, all variations of that number must occur in the list. For example, if NXX-XXXX is on the escape code list and users may optionally dial the NPA, then NPA-NXX-XXXX should also occur on the escape code list.

The length of the escape code may be 1 to 18 digits. The digits in TRIGESC must match the result of removing prefix digits from the string of dialed digits as shown in Table 161.

Table 161 Dialed digits and matching TRIGESC digits

Dialed digits	Matched TRIGESC digits
911, 9911	911
16137225001	6137225001
18002421692	8002421692
107770	0

31.2.1.1 Examples

Sample tuple entries for KEY in table TRIGESC are:

- 23
- 7651234

- 911

The easiest way to determine whether a call escapes or not is by running the TRAVER. See Section 31.3 “Examples” on page 505 (examples 1 and 2) for details.

31.2.2 Step 2: Datafilling table TRIGINFO

An INFONAME defines the action information, that is, what action the SSP takes if a call encounters a trigger and the criteria are met. For AIN Essentials, the SSP must send a query to the off-board processor using a particular messaging protocol and transport.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.: “Provisioning assumptions” on page 493.

31.2.3 Step 3: Datafilling table TRIGGRP

An AINGRP that contains the OFFHKDEL trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and TDP. Create a name for the OFFHKDEL AINGRP (up to 16 characters). The TDP for the OFFHKDEL trigger type must be INFOCOL.

- 1 In response to the TRIGGER prompt, enter OFFHKDEL.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the OFFHKDEL trigger:
 - a Call type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Escape (ESC) criterion: This criterion is optional. If specified, then the trigger will not be hit if the dialed digits without the prefix digits match any of the digit strings in the escape code list in table TRIGESC. For more details, please refer to Section 31.2.1 “Step 1: Datafilling table TRIGESC”

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- 3 In response to the INFONAME prompt, enter the INFONAME you defined in Section 31.2.2.

31.2.4 Step 4: Datafilling table LENFEAT, IBNFEAT, KSETFEAT, TRKGRP or DNROUTE

The originating agent should subscribe to an OFFHKDEL AINGRP as described in Step 2. The subscription is done on a line basis using the AIN

option. For a POTS line, the subscription tuple is added to table LENFEAT; for an MDC or RES line, the subscription tuple is added to table IBNFEAT; for an EBS or MFT set, the subscription tuple is added to table KSETFEAT. The subscription to AIN on a trunk-group basis is done using table TRKAIN by adding OFFHKDEL AINGRP in table TRKAIN.

Subscription for a DISA DN is done in table DNROUTE (see Section 24.3 “DISA AIN subscription” on page 442).

In table KSETFEAT, if AIN is to be assigned to all DN keys on the set, enter “\$” in response to the KEYLIST prompt. Otherwise, specify each DN key that is assigned. After all DN keys are specified, enter \$.

ATTENTION

Use the service order system (SERVORD)—not the table editor—to add and delete tuples to and from the tables LENFEAT, IBNFEAT, and KSETFEAT. Using the table editor to datafill these tables can result in incompatible features being assigned to the line. See Chapter 26.: “SERVORD guidelines” on page 459 for details.

Table 162 summarizes Step 1 to Step 3. It shows the trigger definition and subscription tables for the OFFHKDEL trigger type.

Table 162 OFFHKDEL trigger definition and subscription table

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Sub- scription tables	Option	SERVORD
INFOCOL	OFFHKDEL	CT	TRIGGRP TRIGINFO	Line(POTS)	LENFEAT	AIN	Yes
		ESC (M)	TRIGESC	Line (MDC or RES)	IBNFEAT		
				Line (EBS or MFT)	KSETFEAT		
				DISA DN	DNROUTE		No
				Trunk group (IBN)	TRKGRP		No
		TRKAIN			No		
Note: (M) = mandatory							

31.2.5 Step 5: Verifying with TRAVER

Once datafill has been set up for the OFFHKDEL trigger, the TRAVER utility can be used to verify AIN Essentials triggering (other than for DISA DNs).

31.3 Examples

This section describes seven sample calls that trigger at OFFHKDEL. Figure 72 illustrates the datafill for these seven sample calls. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 72 and verify the datafill with TRAVER.

The DNROUTE tuple in Section 24.3 “DISA AIN subscription” on page 442 for a DISA DN subscription.

31.3.1 Example 1: POTS line

From a POTS line (LEN HOST 00 0 10 27, DN 6213111) that subscribes to OFFHKDEL trigger, dial 2132512000. The call triggers at OFFHKDEL.

31.3.2 Example 2: POTS line (ESC)

From a POTS line (LEN HOST 00 0 10 27, DN 6213111) that subscribes to OFFHKDEL trigger, dial 911. The call escapes and does not trigger at OFFHKDEL.

31.3.3 Example 3: MDC line

From an MDC line (LEN HOST 00 0 00 02, DN 7226020) that subscribes to OFFHKDEL trigger, dial 2132512000. The call triggers at OFFHKDEL.

31.3.4 Example 4: IBNT2 trunk

From the incoming trunk ISUPIBN2W, digits 25028 are impulsed. Since the ISUPIBN2W trunk has subscribed to an OFFHKDEL AINGRP called OHDTRIG, the call triggers at OFFHKDEL.

Note: The escape criterion is not applicable because the call is in the private environment.

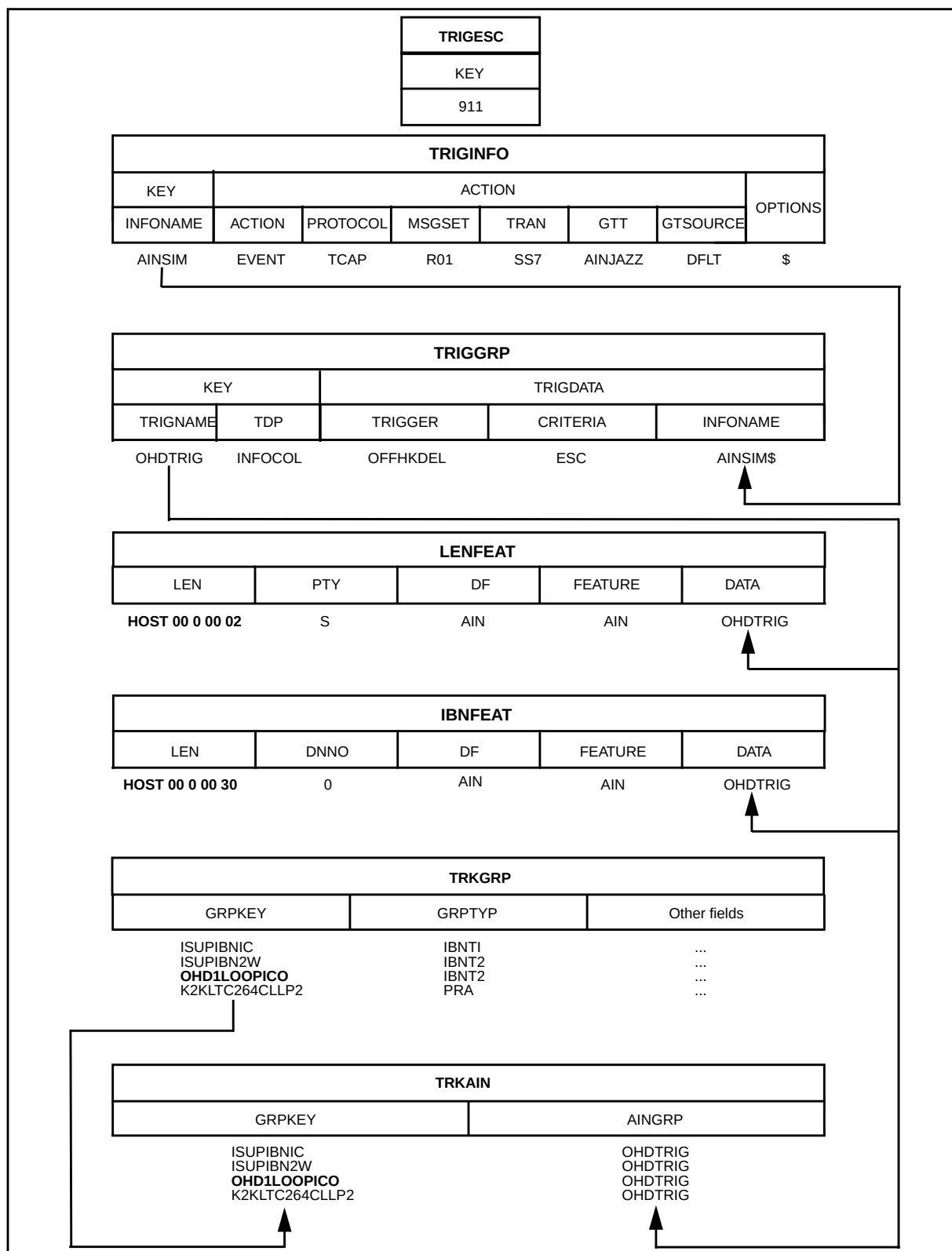
31.3.5 Example 5: PRI IBNT2 trunk

From the incoming trunk OHD1LOOPICO, digits 6214444 are impulsed. Since the OHD1LOOPICO trunk has subscribed to an OFFHKDEL AINGRP called OHDTRIG, the call triggers at OFFHKDEL.

31.3.6 Example 6: PRI trunk

From the incoming trunk K2KLTC264CLLP2, digits 6214444 are impulsed. Since the K2KLTC264CLLP2 has subscribed to an OFFHKDEL AINGRP called OHDTRIG, the call triggers at OFFHKDEL trigger.

Figure 72 Sample datafill for the seven OFFHKDEL examples



In Figure 72, the tuple in table LENFEAT is used in examples 1 and 2. The tuple in table IBNFEAT is used in Example 3. The four tuples in table TRKAIN are used in examples 4 to 7 respectively.

Since there is no example given for triggering OFFHKDEL from an EBS, MFT set, or a DISA DN, tables KSETFEAT and DNROUTE are not included in Figure 72. The tuple in Table 163 is not used in any of the OFFHKDEL examples. It is listed only for reference. It shows an EBS terminal (7228862) with LEN HOST 00 0 00 09 that subscribes to the AIN OHDTRIG trigger group. The AIN service is assigned to the whole set as in Table 163.

Table 163 Sample AIN subscription tuple in table KSETFEAT for EBS or MFT terminals

FEATKEY			FEATURE	KVAR	
LEN	KEY	FEAT		AINGRP	KEYLIST
HOST 00 0 00 09	1	AIN	AIN	OHDTRIG	\$

32. Shared interoffice trunk trigger

32.1 General

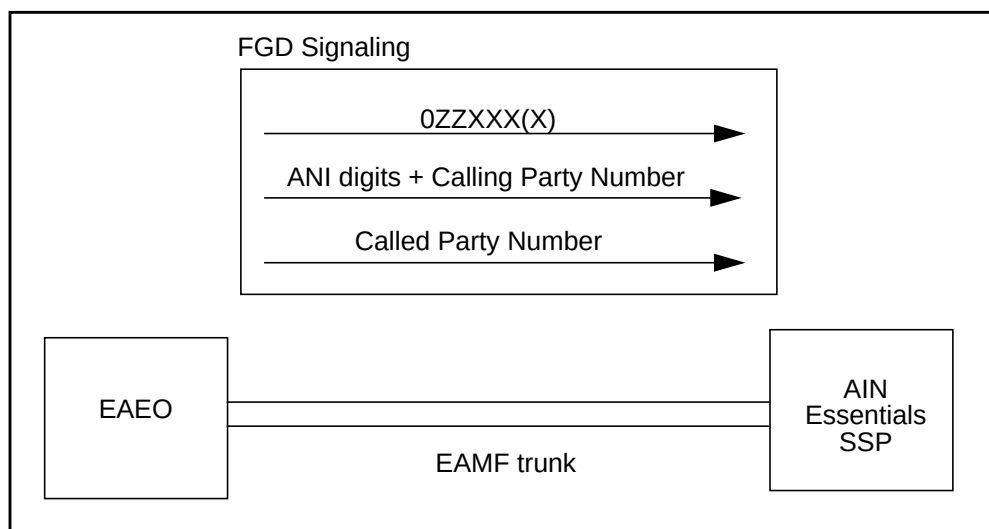
The Shared Interoffice Trunk (INTEROFF) trigger type is hit at the INFOCOL trigger detection point (TDP).

Calls routed to an inter-toll (IT) trunk from an equal access end office (EAEO) can encounter the INTEROFF trigger. IT trunks that carry EA traffic imply that the trunk must be Equal Access Multi Frequency (EAMF) or equal access SS7.

Figure 73 illustrates the Feature Group D (FGD) signaling between an EAEO and an AIN Essentials SSP connected by an EAMF trunk. There are three stages of FGD signaling. The first stream of digits is 0ZZXXX(X), the second stream of digits is ANI (automatic number identification) digits, and the third stream of digits is the called party number (CPN).

Note: 0ZZXXX(X) indicates that there may be a 3- or 4-digit carrier identification included in the first stage of outpulsing. Starting in BCS35, DMS supports a 4-digit carrier.

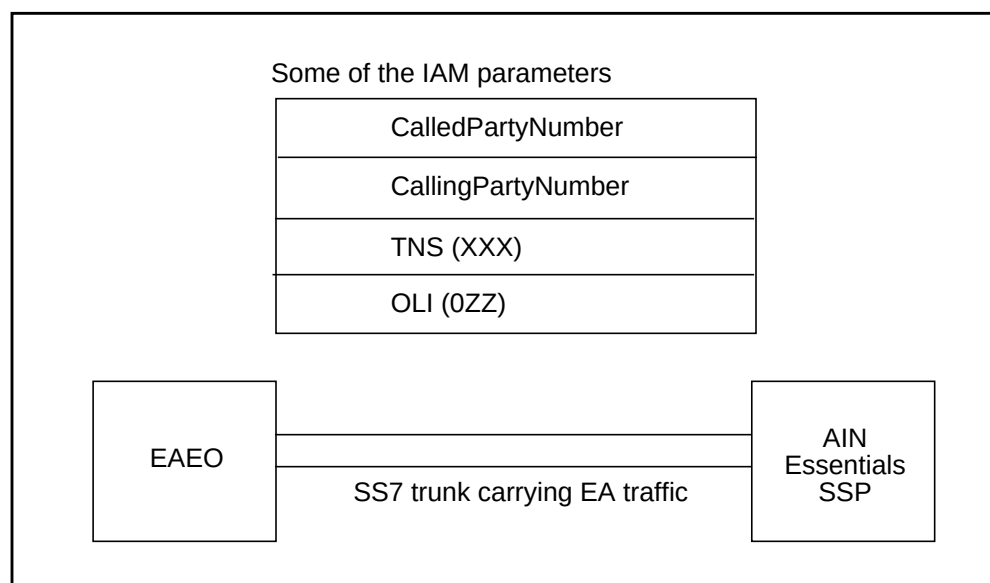
Figure 73 FGD signaling between an EAEO and an AIN Essentials SSP connected by an EAMF trunk



Note: Alternate signaling would exist if the first stage contained 1NX+XXX+CCC, but this is not supported. This signaling applies to international calls; CCC is the pseudo-country code.

Figure 74 shows a number of parameters included in the Initial Address Message (IAM) between an EAEO and an AIN Essentials SSP that is connected by a SS7 trunk that carries EA traffic.

Figure 74 IAM between an EAEO and an AIN Essentials SSP connected by an SS7 trunk



32.2 Datafilling steps

Figure 75 shows the datafilling hierarchy required by the INTEROFF trigger type.

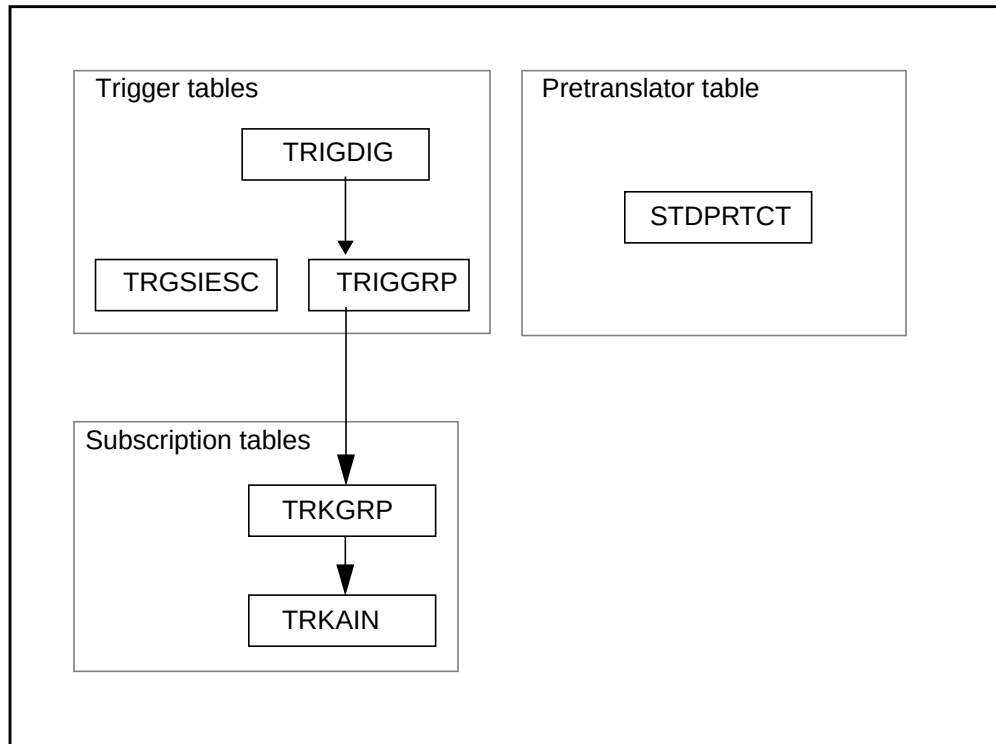
Figure 75 Datafilling hierarchy for INTEROFF trigger type**32.2.1 Step 1: Datafilling table STDPRTCT and its subtable STDPRT**

Table STDPRTCT and its subtable STDPRT must be datafilled to indicate that AIN Essentials SSP processing is required based upon the 0ZZXXX digits received over the trunk facility.

For an Equal Access Multi Frequency (EAMF) trunking facility, the SSP uses the XXX to determine that SSP processing is required. The XXX must have a value of the office parameter SSP_NSC_CARRIER_ID which can be datafilled in table OFCENG. The 0ZZ is used by the SSP to identify the call as one that requires AIN Essentials processing. The exact value of the 0ZZ digits should be agreed upon by the equal access end office (EAEO) and the AIN SSP.

Note: If neither the E800 service package (NTX554) nor the Private Virtual Network (PVN) package (BTX983) is in the office, the office parameter SSP_NSC_CARRIER_ID does not exist. In that case, the XXX must be outpulsed as 011, or the XXXX digits must be outpulsed as 0110.

For SS7 trunking facilities carrying equal access (EA) traffic, the SSP uses the XXX information found in the Transit Network Selection (TNS) parameter to determine that SSP processing is required. Once again, the XXX must have a value for the office parameter SSP_NSC_CARRIER_ID to indicate that SSP processing is required. The 0ZZ information found in the Originating Line

Information (OLI) parameter is used by the SSP to identify the call as a call that requires AIN Essentials processing.

When datafilling the table STDPRTCT for either one of the above trunks, position on the pretranslator of the originating trunk. Then, go to subtable STDPRT. Specify the 0ZZXXX digits received over the trunk in field FROMDIGS and TODIGS. Also, specify SSP routing selector in field PRERTSEL (SSP is a new pretranslator Selector introduced by AIN Essentials).

32.2.2 Step 2: Datafilling table TRGSIESC

Escape codes provide a way for subscribers of the Shared Interoffice Trunk (INTEROFF) trigger to make certain calls (for example 1011018006212000) without triggering at the Shared Interoffice Trunk trigger when routing from an EAEO to an IT trunk using FGD signaling. The SSP maintains a list of all escape codes in table TRGSIESC. These codes do not include the 0ZZXXX(X) digits but do specify North American Numbering Plan numbers.

Escape from the Shared Interoffice Trunk trigger occurs in the following situation:

A call is received from an IT FGD trunk specifying 0ZZXXX(X) digits indicating the value for the office parameter SSP_NSC_CARRIER_ID requires SSP processing. Optional Escape criterion (ESC) is datafilled in table TRIGGRP for the AINGRP subscribing to the INTEROFF trigger type. The number called is on the administered escape code list.

If escape from the Shared Interoffice Trunk trigger occurs, triggering does not take place, no query is sent, and call processing continues at the INFOANAL point in call. Subsequent triggering may take place at subsequent trigger detection points (TDPs).

Note: If several variations of a number on the escape code list may be dialed, all variations of that number must occur in the list. Digit matching begins using the NPA portion of the dialed number.

The length of the escape code can be 1 to 10 digits. The digits in TRGSIESC must match the result of removing prefix digits from the string of dialed digits as in.

Table 164 Impulsed digits and matching TRGSIESC digits

Impulsed digits	Matched TRGSIESC digits
0771108006213512	8006213512
088011016132427687	6132427687
0661108008196223456	800819

32.2.2.1 Example

Sample tuple entries in table TRGSIESC are:

- ESCAPECD
- 800621
- 6137221234
- 452

32.2.3 Step 3: Datafilling table TRIGDIG

The DIGIT criterion (DG) is mandatory for the INTEROFF trigger type. A DIGNAME must be datafilled in table TRIGDIG before it can be referenced from table TRIGGRP. A DIGNAME indicates addressing information based on dialed digits and the action to be performed by the SSP when the digits criteria are met.

The key consists of a DIGNAME, TRIGGER, and DIGITS.

- 1 In response to the DIGNAME prompt, enter the DIGNAME to be used in table TRIGGRP.
- 2 In response to the TRIGGER prompt, enter INTEROFF to specify the trigger name to which the digits criteria applies.
- 3 In response to the DIGITS (DG) prompt, enter the 0ZZXXX digits received over the trunk. Triggering occurs if the DG criterion matches the 0ZZXXX digits received over the trunk.
- 4 After specifying the key fields, you are prompted for TRIGGER again. Enter INTEROFF. The value in this field must be the same as the trigger name used in the key field.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.: “Provisioning assumptions” on page 493.

32.2.4 Step 4: Datafilling table TRIGGRP

An AINGRP that contains the INTEROFF trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and trigger detection point (TDP). Create a name for the AINGRP (up to 16 characters). The TDP for the INTEROFF trigger type must be INFOCOL.

- 1 In response to the TRIGGER prompt, enter INTEROFF.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the INTEROFF trigger:
 - a Call type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Digits (DG) criterion: This criterion is mandatory for the INTEROFF trigger. When the DG criterion is specified, you are prompted for the DIGNAME. In response to the DIGNAME prompt, enter the DIGNAME you defined in Section 32.2.3 “Step 3: Datafilling table TRIGDIG”.
 - c Escape (ESC) criterion: This criterion is optional. If specified, then the trigger will not be hit if the impulsed digits without the prefix digits match any of the digit strings in the escape code list in table TRGSIESC. For more details, please refer to Section 32.2.2 “Step 2: Datafilling table TRGSIESC”.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.
- 3 In response to the INFONAME prompt, enter NIL.

32.2.5 Step 5: Datafilling table TRKGRP and table TRKAIN

Public Facility Trunk groups (that is, POTS trunk groups) can subscribe to this trigger in table TRKAIN. The subscription is done on a trunk-group basis.

Among the POTS trunks, the inter-toll (IT) trunk groups are the only AIN-supported trunks that can subscribe and subsequently trigger at INTEROFF. And among the IT trunks, only the EAMF trunking facility or the SS7 trunking facilities that carry EA traffic are supported to trigger at INTEROFF.

Table 165 summarize steps 1 to 5. It shows the trigger definition and subscription tables for the INTEROFF trigger type.

Table 165 INTEROFF trigger definition and subscription tables

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Sub- scription tables	Option	SERVORD
INFOCOL	INTEROFF	CT	TRIGGRP	Trunk group	TRKGRP		No
		DG (M)	TRIGDIG	(POTS trunk group)	TRKAIN		
		ESC	TRGSIESC	(POTS trunk group)	TRKAIN TRIGGRP		
Note: (M) = mandatory							

32.2.6 Step 6: Verifying with TRAVER

The TRAVER utility can be used to determine whether or not the datafill has been set up to allow the call to trigger at INTEROFF.

32.3 Examples

This section describes three sample calls that encounter the INTEROFF trigger. The first example triggers at INTEROFF. The second one shows the new message “No called digits specified” when no called digits are included in the TRAVER command line using 0ZZXXX(X) digits. The third example shows the INTEROFF trigger not triggering due to escape criteria being met.

Figure 76 illustrates the datafill for these three examples. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 5 to add the sample tuples shown in Figure 76 and to verify the datafill with TRAVER. The TRAVER outputs are shown in Figure 77, Figure 78, and Figure 79.

32.3.1 Example 1: ISUP IT incoming trunk

From incoming trunk ISUPITEAIC that carries EA traffic, digits 0881106136213511 are impulsed. The incoming trunk’s trunk group type is IT, and the pretranslator name associated with the trunk is E800. The protocol associated with it is Q764, that is an SS7 trunk. Since the incoming trunk ISUPITEAIC has subscribed to an AINGRP called INTERTRIG, which includes the INTEROFF trigger, the call triggers at INTEROFF.

32.3.2 Example 2: ISUP IT incoming trunk using 0ZZXXX digits only in the TRAVER command line

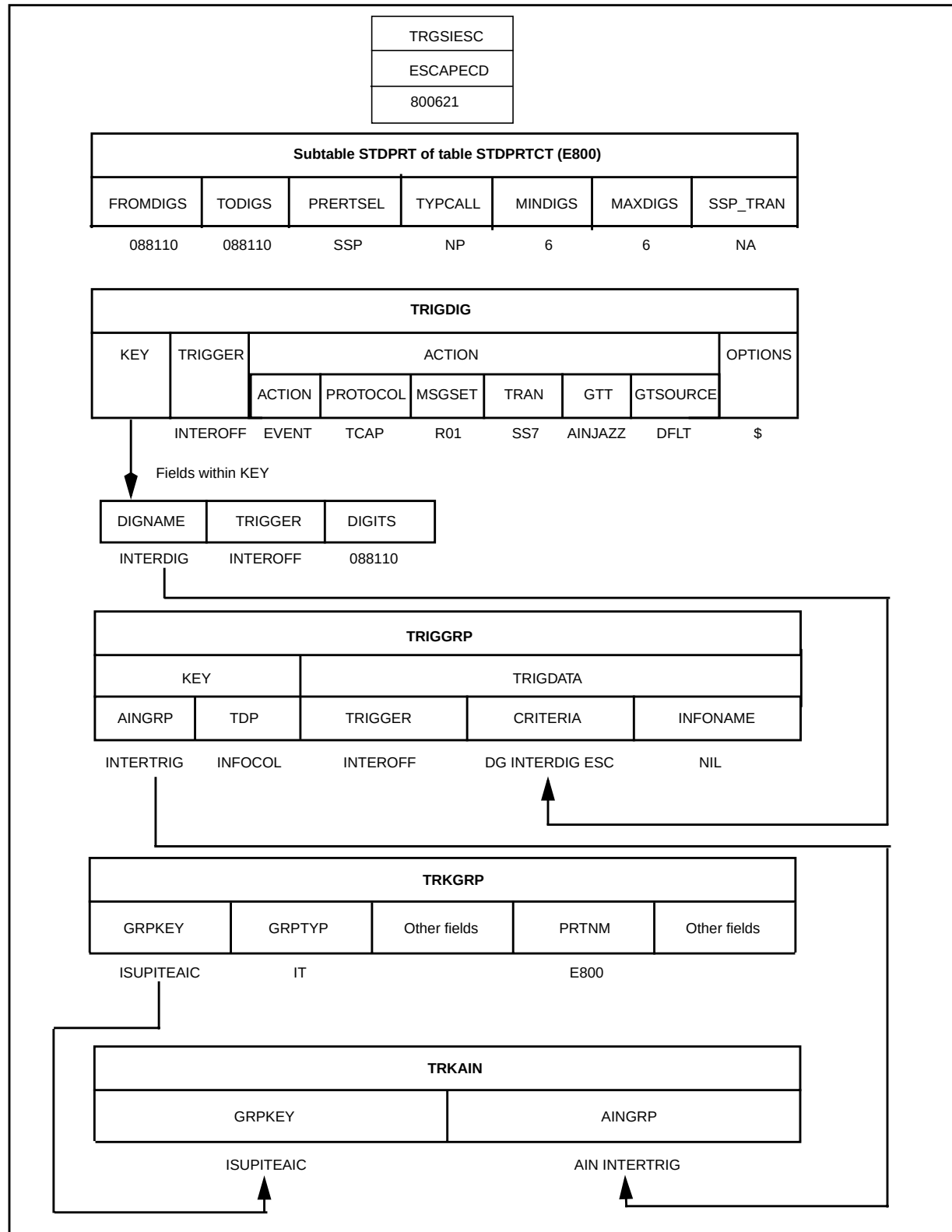
From incoming trunk ISUPITEAIC that carries EA traffic, digits 088110 are impulsed. The incoming trunk’s group type is IT, and the pretranslator name associated with the trunk is E800. The protocol associated with it is Q764, that is, an SS7 trunk. The incoming trunk ISUPITEAIC has subscribed to an

AINGRP called INTERTRIG, which includes the INTEROFF trigger and has the optional escape criteria. A new message is displayed by TRAVER indicating that no called digits have been specified. Since the incoming trunk ISUPITEAIC has subscribed to an AINGRP called INTERTRIG, which includes the INTEROFF trigger, the call triggers at INTEROFF.

32.3.3 Example 3: ISUP IT incoming trunk (ESC)

From incoming trunk ISUPITEAIC that carries EA traffic, digits 0881108006213512 are impulsed. The incoming trunk's group type is IT, and the pretranslator name associated with the trunk is E800. The protocol associated with it is Q764, that is, an SS7 trunk. The incoming trunk ISUPITEAIC has subscribed to an AINGRP called INTERTRIG, which includes the INTEROFF trigger and has the optional escape criteria. A match is found in the escape code list and the call does not trigger.

Figure 76 Sample datafills for the INTEROFF examples



In the INTEROFF examples, the trunking facility is an SS7 trunk that carries EA traffic, and the 0ZZ code is 088 and the XXX code is 110. Thus the following tuple must be added to subtable STDPRT of table STDPRTCT E800 to indicate that SSP processing is required. E800 is the pretranslator of the originating trunk ISUPITEAIC.

32.3.4 Verifying with TRAVER

Figure 77, Figure 78, and Figure 79 show TRAVER outputs for the INTEROFF examples.

Highlighted (bold) for illustration purposes are the following:

- the TRAVER command used to verify AIN datafill set up
- the subscription tuple in table TRKGRP
- the tuple added to table TRIGGRP
- the tuple added to table TRIGDIG
- the tuple added to table TRGSIESC

The order in the TRAVER output reflects the translation order only. For the datafilling order, see Section 32.2 “Datafilling steps”.

Figure 77 Sample TRAVER output for the INTEROFF_TRIGGER example

```

>traver tr isupiteaic 0881106136211512 ainchg 6136211511 b
TABLE TRKGRP
ISUPITEAIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
. . TABLE TRKAIN
. . ISUPITEAIC INTERTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE STDPRTCT
E800 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 088110 088110 SSP NP 6 6 NA
TABLE TRIGGRP
INTERTRIG INFOCOL
. INTEROFF ( DG INTERDIG) (ESC)$ NIL
Trigger R01 INTEROFF is applicable to individual POTS trunk.
. . TABLE TRIGDIG
. . INTERDIG INTEROFF 088110 INTEROFF EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136211511 6136211511 SSNONLY (AINTTEST) $
. . TABLE TRGSIESC
. . TUPLE NOT FOUND
AIN Info Collected TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

AIN Info Collected TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

```

Figure 78 Sample TRAVER output for the INTEROFF_NODIGIT example

```

>traver tr isupiteaic 088110 ainchg 6137225811 b
TABLE TRKGRP
ISUPITEAIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
. . TABLE TRKAIN
. . ISUPITEAIC INTERTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE STDPRTCT
E800 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 088110 088110 SSP NP 6 6 NA
TABLE TRIGGRP
INTERTRIG INFOCOL
. INTEROFF ( DG SHAIODIG) (ESC )$ NIL
Trigger R01 INTEROFF is applicable to individual POTS trunk.
. . TABLE TRIGDIG
. . INTERDIG INTEROFF 088110 INTEROFF EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6137225811 6137225811 SSNONLY (AINTTEST) $
No called digits specified
AIN Info Collected TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

No called digits specified

AIN Info Collected TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

```

Figure 79 Sample TRAYER output for the INTEROFF_ESCAPE example

```

>traver tr ainisupiteaic3 0771106136213712 ainchg 6136211511 b
TABLE TRKGRP
AINISUPITEAIC3 IT 63 ITTD NCRT IC NIL MIDL 613 EAIN NSCR 613 000 N Y $
. . TABLE TRKAIN
. . AINISUPITEAIC3 INTERTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE STDPRTCT
EAIN ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 077110 077110 SSP NP 6 6 NA
TABLE TRIGGRP
INTERTRIG INFOCOL
. INTEROFF ( DG SHAIODIG) (ESC )$ NIL
Trigger R01 INTEROFF is applicable to individual POTS trunk.
. . TABLE TRIGDIG
. . INTERTRIG INTEROFF 077110 INTEROFF EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136211511 6136211511 SSNONLY (AINTTEST) $
. . TABLE TRGSIESC
. . 6136213712
AIN Info Collected TDP: trigger criteria not met.
DIALED EQUAL ACCESS CODE DID NOT TRIGGER
TRAYER STOPS PROCESSING THE CALL
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N

+++ TRAYER: SUCCESSFUL CALL TRACE +++

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

33. Public Office Dialing Plan trigger

33.1 General

The 3- to 10-digit Public Office Dialing Plan (PODP) trigger type occurs between the Analyzing Information (INFOANAL) and the Selecting Route points in call in the originating call model.

This trigger operates on an office basis and is applicable to any facility with access to the Public Office Dialing Plan.

The triggering number used to determine whether a call matches the digits criteria or not is always based on a 10-digit national number. If the user dials 7 digits, the NPA is automatically added in front of the number so that the call triggers based on 10 digits. If the user dials 101XXX+1+10 digits, the carrier access code is stripped off, and the call triggers based on the 10 digits. In all cases, the number dialed is converted into a 10-digit national number and this number is then used to trigger.

The triggering digit criterion is specified in 3- to 10-digit patterns, that is, NPA, NPAN, NPANX, NPANXX, NPANXXX, NPANXXXX, NPANXXXXXX, NPANXXXXXXX, and NPANXXXXXXX. Only when the triggering number matches the digit criterion datafilled in the TRIGDIG or TRIGITM tables, does a call trigger (see Section 33.2 “Datafilling steps” on page 524 to determine which of these tables should be used). If the user is a private facility agent that dials a number in a private dial plan (for example, extension dialing), this trigger cannot be encountered. Similarly, if the user dials an international number, this trigger is not encountered. The number must be convertible into a national number format in order to trigger.

33.2 Datafilling steps

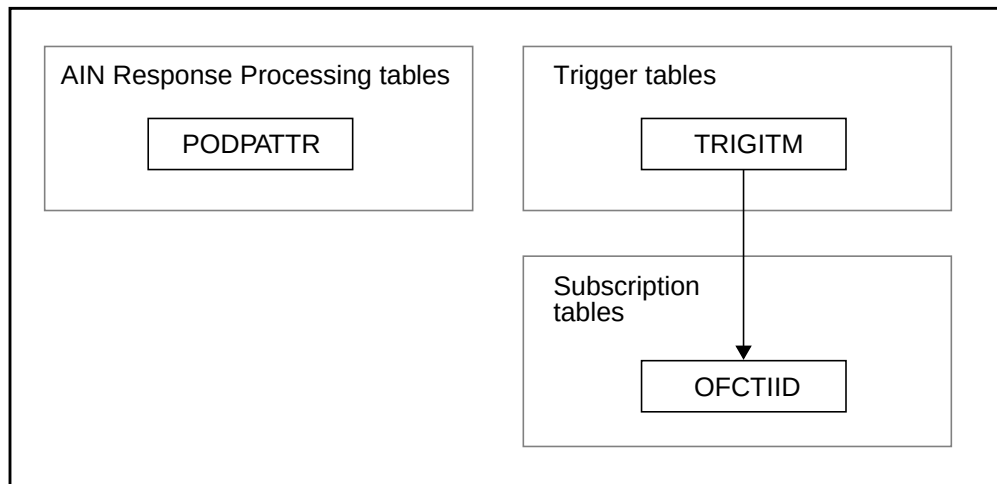
ATTENTION

The PODP trigger can be provisioned in one of two ways, depending on the provisioning interface subscribed for the office, either by using the trigger item provisioning interface (Section 33.2.1) or by using the trigger group provisioning interface (Section 33.2.2). See Section 24.2 “DMS trigger item interface” on page 442 for details on the new trigger item interface. Choose a data model appropriate to your office.

33.2.1 Trigger item provisioning interface

Figure 80 shows the datafilling steps required by the PODP trigger. Figure 80 assumes that the trigger item provisioning interface has been selected for the office. This selection is set in the OFCVAR table.

Figure 80 Datafilling hierarchy for the PODP trigger



33.2.1.1 Step 1: Datafilling table TRIGITM

The PODP trigger type is digit based, and a trigger item must be datafilled in table TRIGITM. This information defines the trigger type, trigger criteria, and the action to be performed by the SSP when the trigger criteria are met

- 1 In response to the TDP prompt, enter 4. This is the numeric code for the Info_Analyzed TDP.
- 2 In response to the TINAME prompt, enter the trigger item identifier you wish to use. For example, enter PODPTRIG1.
- 3 In response to the TRIGGER prompt, enter PODP.
- 4 In response to the CRITERIA prompt, enter any of the following for the PODP trigger. When all desired criteria have been entered, type a “\$” at the CRITERIA prompt.

- a To specify a digits criterion enter DG in response to the prompt. This criterion is mandatory for the PODP trigger.
 - b To specify an Escape Coin criterion enter ESCCN in response to the prompt. The Escape Coin criterion is optional. In response to the COIN_CALL_TYPE prompt enter a coin-originated call type. Adding this criterion will restrict which coin-originated call types (DD, OA, NP) will trigger.
 - c To specify an Escape Equal Access criterion enter ESCEA in response to the prompt. This criterion is optional. When specified, the PODP trigger will not trigger if the call is an Equal Access call.
 - d To specify an Escape Operator criterion enter ESCOP in response to the prompt. This criterion is optional. When specified, the PODP trigger will not trigger if the call is going to an operator.
 - e To specify an Escape GenericAddress present criterion enter ESCGP in response to the prompt. This criterion is optional. When specified, the PODP trigger will not trigger if the call is the GenericAddress parameter is present.
 - f To specify a Call Type criterion enter CT in response to the prompt. This criterion is optional. In response to the CALLTYPE prompt enter VBINFO for voice or CMDATA for data. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
- 5 For the PODP trigger type, the digits (DG) criterion is actually based on the translated digits, that is, the dialed digits that have been translated into the PODP format. For example, if the dialed digits are 16211171 and the called party has an NPA of 613, the digits to be entered for the digits criterion should be 6136211171. A match is defined as the most specific match. For example, if the dialed digits are 6137225998 and the trigger items with digits criteria of 613, 613722, and 6137225998 are subscribed, the entry with the most specific digits (that is, 6137225998) matches. For the PODP trigger type, a Continue (CONT) response might be received from the off-board processor. If a query is sent as a result of a PODP trigger and a Continue response message is received, the SSP matches on the next most specific digits (that is, 613722).
 - 6 In response to the STATE prompt, enter LK or ULK. LK locks (or deactivates) a trigger item; ULK unlocks (or activates) a trigger item.
 - 7 In response to the ACTION prompt, type either EVENT or ESCAPE. EVENT instructs the SSP to launch a query when the trigger criterion has been satisfied. ESCAPE prevents a query from being launched for this trigger type. If you choose EVENT, you must datafill SLHR subfield prompts: MSGSET, TRANSPORT, and GTT. See step 8.
 - 8 In response to the Service Logic Host Route (SLHR) subfield prompts, enter any of the following for the PODP trigger.

Note: The SLHR subfield prompts MSGSET, TRANSPORT, and GTT apply to the EVENT action only and are not prompted for if you entered ESCAPE for the ACTION field.

- a In response to the MSGSET prompt, enter R01.
 - b In response to the TRANSPORT prompt, enter SS7.
 - c In response to the GTT prompt, enter a Global Title Translation variable, for example, AINJAZZ.
- 9 You are then prompted for the OPTION field. This field is optional. If you choose to datafill this field, there are two choices:
- a Potential Use (POTUSE) option. There are no valid values for this option in AIN Essentials.
 - b Default Routing (DFLTRT) option. See Section 27.4 “Datafilling for default routing” on page 481 for more information on datafilling this option.

33.2.1.1.1 Datafilling criteria in table TRIGITM The following criteria are applicable for the PODP trigger:

- ESCCN

Table 166 shows the different ways the ESCCN criterion can be datafilled. If the office is subscribed to an PODP trigger with the ESCCN criterion, then all coin-originated calls of the indicated type will be blocked from triggering.

Table 166 Sample datafill of ESCCN criterion in table TRIGITM

KEY		TRIGGERS	CRITERIA
TDP	TINAME		
4	SDSTRIG1	SDS	(DG 613255) (ESCCN DD) \$
4	SDSTRIG2	SDS	(DG 613255) (ESCCN NP) \$
4	SDSTRIG3	SDS	(DG 613255) (ESCCN OA) \$
4	SDSTRIG4	SDS	(DG 613255) (ESCCN DD_NP) \$
4	SDSTRIG5	SDS	(DG 613255) (ESCCN DD_OA) \$
4	SDSTRIG6	SDS	(DG 613255) (ESCCN OA_NP) \$
4	SDSTRIG7	SDS	(DG 613255) (ESCCN ALL) \$

- ESCEA

Table 167 shows how the ESCEA criterion can be datafilled. If the office is subscribed to an PODP trigger with the ESCEA criterion, then Equal Access calls will not trigger on the PODP trigger.

Table 167 Sample datafill of ESCEA criterion in table TRIGITM

KEY			
TDP	TINAME	TRIGGER	CRITERIA
4	SDSTRIG1	SDS	(DG 613255) (ESCEA) \$

- ESCOP

Table 168 shows how the ESCOP criterion can be datafilled. If the office is subscribed to an PODP trigger with the ESCOP criterion, then calls going to the operator will not trigger on the PODP trigger.

Table 168 Sample datafill of ESCOP criterion in table TRIGITM

KEY			
TDP	TINAME	TRIGGER	CRITERIA
4	SDSTRIG1	SDS	(DG 613255) (ESCOP) \$

- ESCGP

Table 169 shows how the ESCGP criterion can be datafilled.

Table 169 Sample datafill of ESCGP criterion in table TRIGITM

KEY			
TDP	TINAME	TRIGGER	CRITERIA
4	SDSTRIG1	SDS	(DG 613255) (ESCGP) \$

33.2.1.2 Step 2: Datafilling table OFCTIID

Table OFCTIID stores the office-wide subscription links. Subscription to PODP occurs on an office-wide basis only. Do the following steps:

- 1 In response to the TDP prompt, enter 4.
- 2 In response to the TINAME prompt, enter the same identification name that you entered in item 2, Section 33.2.1.1 “Step 1: Datafilling table TRIGITM”
- 3 In response to the TRIGACT prompt, enter ON to enable the assignment or OFF to disable the assignment.

33.2.1.3 Step 3: Datafilling table PODPATTR (optional)

Table PODPATTR provides post query processing for the AIN PODP trigger based on the PODP number. If no entry exists in PODPATTR for the PODP DN, the originator’s line attributes will be used. The table consists of 4 mandatory fields:

- 1 **The PODP number:** in response to the KEY prompt, enter the PODP number, which can be from 3 to 18 digits. Note that key matching is from

most specific to least specific. Also, the matching of this table is based on the number dialled that caused the triggering, not on the digit pattern of the PODP number itself. For example, if the user dials 6137220000 and hits a 3-digit PODP trigger (that is, 613), the digit pattern being matched will be 6137220000, not 613 only.

- 2 **The line attribute index:** in response to the LINEATTR prompt, enter the number that associates the PODP number with the corresponding index in table LINEATTR. Range is from 1 to 1023.
- 3 **The LPIC:** as the PIC field above, but for the Local PIC (same values).
- 4 **The PIC:** in response to the PIC prompt, enter the name of the Primary Interexchange Carrier. It is of type IC_INC_CARRIER_NAME, which has a range of values corresponding to the tuple keys in table OCCNAME. Since all the fields are mandatory, a value must be put in the PIC field, even if no carrier is desired. For these situations, the value NILC is used, denoting the equivalent of a NIL carrier.

Note: The following tables must be datafilled: LINEATTR, OCCNAME, and OCCINFO.

An example of table PODPATTR with sample datafill is shown in Table 170:

Table 170 Example entries in table PODPATTR

KEY	LINEATTR	PIC	LPIC
5146211234	10	NILC	NLIC
613722	55	ATT	GTE
613	80	MCI	NILC

33.2.1.4 PODP examples and sample datafill

Figure 81 illustrates the datafill for the following examples. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 81 and verify the datafill with TRAVER.

33.2.1.4.1 Example 1: PODP trigger From an MDC line (DN 7223211), dial 92132551020 where 9 is a public environment access code. The call triggers at PODP on the digits 213255 and queries the database. Table 171 on page 531 shows the TRAVER output.

33.2.1.4.2 Example 2: PODP escape From an MDC line (DN 7223211), dial 92132551000 where 9 is a public environment access code. The call matches an ESCAPE trigger item (digits 2132551000) and escapes triggering at PODP. Table 172 on page 532 shows the TRAVER output.

33.2.1.4.3 Example 3: Criteria, Assignment Status, and Administrative State Code This example illustrates the role of Criteria, Assignment Status, and Administrative State Code in the trigger item provisioning interface. POTS line (DN 6136216104) dials 6213611. The most specific matching trigger item assigned is SDSTRIG2 (digits 6136213611) but the CT criteria of CMDATA is not met because the call is a voice call.

The next most specific digit item assigned is SDSTRIG3. However, the call does not trigger because the activation status of the assignment to SDSTRIG3 (in table OFCTIID) is OFF.

The next most specific matching trigger item assigned is SDSTRIG4 (digits 613). However, The Administrative State Code of SDSTRIG4 is set to LK (locked). The call does not trigger and terminates on the dialed DN.

Table 173 on page 534 shows the TRAVER output.

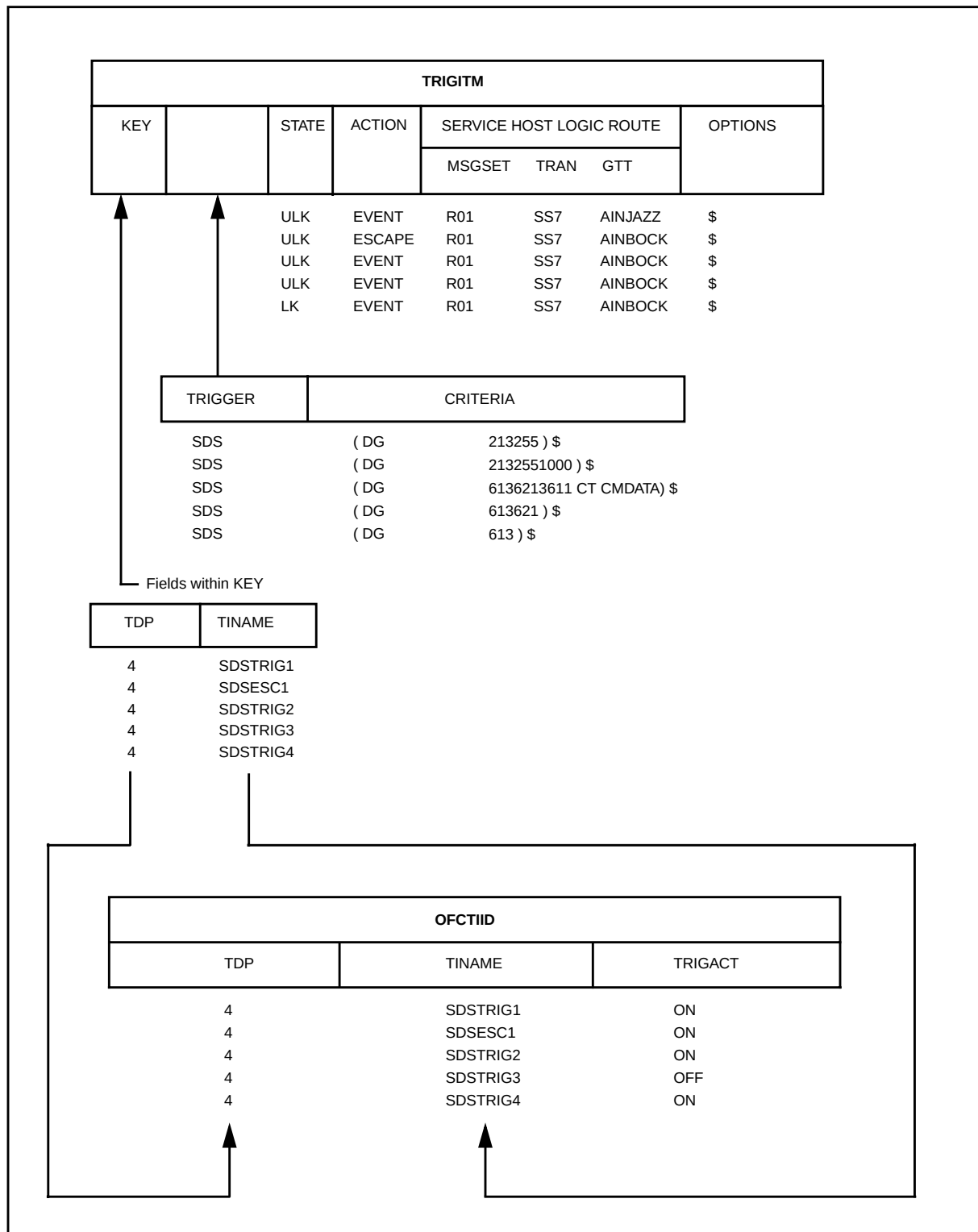
Figure 81 Sample datafill for the PODP example

Table 171 shows the TRAVER output for the PODP example 1.

Table 171 TRAVER for trigger item provisioning example 1: PODP trigger

```
>TRAVER L 7223211 92132551020 B
TABLE IBNLINES
HOST 01 0 00 01 0 DT STN IBN 7223211 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 250 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 213 216 HNPA 0
```

Table 171 TRAVER for trigger item provisioning example 1: PODP trigger (Continued)

```

. 255 255 LRTE 766
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
Checking AIN SDS Trigger Items as SDS is compatible with current call
. . TABLE OFCTIID
. . 4 SDSTRIG1 ON
. . TABLE TRIGITM
. . 4 SDSTRIG1 SDS (DG 213255) $ ULK EVENT R01 SS7 AINROCK $
. . . TABLE C7GTTYPE
. . . AINROCK ANSI7 5 $
. . . TABLE C7GTT
. . . AINROCK 2132551020 2132551020 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 172 shows the TRAVER output for the PODP example 1.

Table 172 TRAVER for trigger item provisioning example 2: PODP escape

```

>TRAVER L 7223211 92132551000 T
TABLE IBNLINES
HOST 01 0 00 01 0 DT STN IBN 7223211 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
AIN Orig Attempt TDP: no subscribed trigger.

```

Table 172 TRAVER for trigger item provisioning example 2: PODP escape (Continued)

```

TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 250 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 213 216 HNPAC 0
. 255 255 LRTE 766
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
Checking AIN SDS Trigger Items as SDS is compatible with current call
. . TABLE OFCTIID
. . 4 SDSESC1 ON
. . TABLE TRIGITM
. . 4 SDSESC1 SDS (DG 2132551000) $ ULK ESCAPE $
Checking AIN N11 Trigger Items as N11 is compatible with current call
Checking AIN LNP Trigger Items as LNP is compatible with current call
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEREF
. 766 S D ISUPTAC61_16

```

Table 172 TRAVER for trigger item provisioning example 2: PODP escape (Continued)

```

. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPACONT results are used.
TABLE LCASCRCN
613 L613 ( 15) OPTL N N
. SUBTABLE LCASCRCN
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 173 shows the TRAVER output for the PODP example 3.

Table 173 TRAVER for trigger item provisioning example 3: criteria, assignment status and administrative state code

```

>TRAVER L 6136216104 6213611 B
TABLE LINEATTR
4 CCF NONE LO FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 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 TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRTCT
WARNING: CHANGES IN TABLE STDPRTCT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
. 621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 621 621 DN 613 621

```


Table 173 TRAYER for trigger itme provisioning example 3: criteria, assignment status and administrative state code (Continued)

```

AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
Checking AIN SDS Trigger Items as SDS is compatible with current call
. . TABLE OFCTIID
. . 4 SDSTRIG2 ON
. . TABLE TRIGITM
. . 4 SDSTRIG2 SDS (DG 6136213611) (CT CMDATA) $ ULK EVENT R01 SS7
AINROCK $
Failed Criteria: CT
. . TABLE OFCTIID
. . 4 SDSTRIG3 OFF
. . TABLE TRIGITM
. . 4 SDSTRIG3 SDS (DG 613621) $ ULK EVENT R01 SS7 AINROCK $
. . TABLE OFCTIID
. . 4 SDSTRIG4 ON
. . TABLE TRIGITM
. . 4 SDSTRIG4 SDS (DG 613) $ LK EVENT R01 SS7 AINROCK $
Checking AIN N11 Trigger Items as N11 is compatible with current call
Checking AIN LNP Trigger Items as LNP is compatible with current call
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 3611 L HOST 00 1 01 03
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNP results are used.
TABLE LCASCRCN
613 L613 ( 15) OPTL N N
. SUBTABLE LCASCR
. 621 623
TABLE PFXTREAT
OPTL NP Y NP UNDT
TABLE CLSVSCRC

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

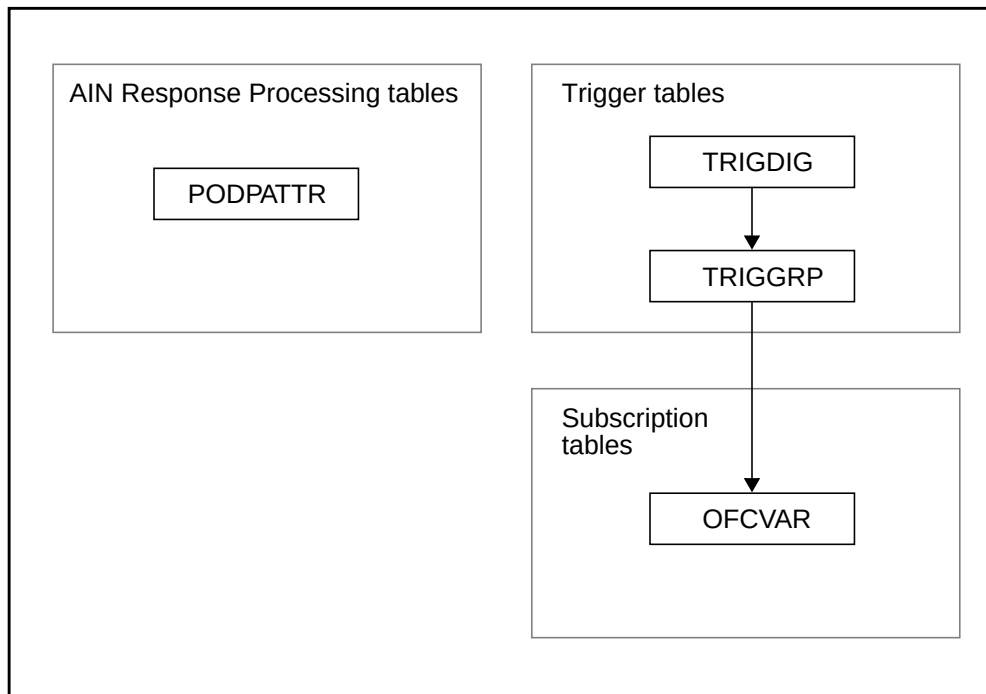
```

Table 173 TRAYER for trigger itme provisioning example 3: criteria, assignment status and administrative state code (Continued)

1	LINE	6136213611	ST
TREATMENT ROUTES. TREATMENT IS: GNCT			
1	*OFLO		
2	LKOUT		
+++ TRAVER: SUCCESSFUL CALL TRACE +++			

33.2.2 Trigger group provisioning interface

Figure 82 shows the datafilling steps required by the PODP trigger.

Figure 82 Datafilling hierarchy for PODP trigger type

33.2.2.1 Step 1: Datafilling table TRIGDIG

The DG criterion is mandatory for the PODP trigger type. A DIGNAME must be datafilled in table TRIGDIG before it can be referenced from table TRIGGRP to specify the DG criterion. A DIGNAME indicates addressing information based on dialed digits and the action to be performed by the SSP when the digits (DG) criterion is met.

The key consists of a DIGNAME, the trigger type, and the dialed digits.

- 1 In response to the DIGNAME prompt, enter the DIGNAME to be used in table TIRGGRP.

- 2 In response to the TRIGGER prompt, enter PODP to specify the trigger name to which the DG criterion applies.
- 3 For the PODP trigger type, the DG criterion is actually based on the translated digits, that is, the dialed digits that have been translated into the PODP format. For example, if the dialed digits are 16211171, the digits to be entered in the DIGITS field should be 6136211171. A DG match is defined as the most specific match. For example, if the dialed digits are 6137225998 and the datafilled digits are 613, 613722, and 6137225998, the entry with the most specific digits 6137225998 matches. For the PODP trigger type, a Continue (CONT) response might be received from the off-board processor. If a query is sent as a result of a PODP trigger and a Continue Response message is received, the SSP examines the next most specific digits, 613722.
- 4 You are prompted for the TRIGGER field a second time. In response to the TRIGGER prompt, enter the PODP. The value in this field must be the same as the trigger name used in the key field.
- 5 In response to the CRITERIA prompt, enter any of the following for the PODP trigger: When all desired criteria have been entered, type a "\$" at the CRITERIA prompt.
 - a Call Type (CT) criterion: This criterion is optional. For voice, enter VBINFO. For data, enter CMDATA. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Digits (DG) criterion: This criterion is mandatory for the PODP trigger.
 - c Escape Coin (ESCCN) criterion: The coin escape criterion is optional. Adding this criterion will restrict which coin-originated call types (DD, OA, NP) will trigger.
 - d Escape Equal Access (ESCEA) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is an Equal Access call.
 - e Escape Operator (ESCOP) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is going to an operator.
 - f Escape GenericAddress present (ESCGP) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is the GenericAddress parameter is present.
- 6 You are prompted for the OPTION field. This field is optional. If you choose to datafill this field, there are two choices:
 - a Default Routing (DFLTRT) option. Please refer to Section 27.4 "Datafilling for default routing" on page 481 for more information on datafilling this option.

- b Potential Use (POTUSE) option. This option is used to specify the service for which a particular tuple in table TRIGDIG is being used.

After entering POTUSE in the OPTION field, you will be prompted for the POTUSE field. The only defined service that can be specified is Carrier Portability Code (CPC). Enter CPC to specify this service.

Assumptions regarding the datafilling of the ACTION field in all triggering example are described in the Chapter 29.: “Provisioning assumptions” on page 493.

33.2.2.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the PODP trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and on the trigger detection point (TDP). You must create a name for the AINGRP (up to 16 characters). The TDP for PODP trigger type must be INFOANAL.

- 1 In response to the TRIGGER prompt, enter PODP.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the PODP trigger:

For examples of how these criteria can be datafilled, please refer to Section 33.2.2.2.1 “Datafilling criteria in table TRIGGRP”. When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- a Call Type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
- b Digits (DG) criterion: This criterion is mandatory for the PODP trigger. When the DG criterion is specified, you are prompted for the DIGNAME. In response to the DIGNAME prompt, enter the DIGNAME you defined in Section 33.2.2.1 “Step 1: Datafilling table TRIGDIG”.
- c Escape Coin (ESCCN) criterion: The coin escape criterion is optional. Adding this criterion will restrict which coin-originated call types (DD, OA, NP) will trigger.
- d Escape Equal Access (ESCEA) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is an Equal Access call.
- e Escape Operator (ESCOPE) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is going to an operator.

- f Escape GenericAddress present (ESCGP) criterion: This criterion is optional. When specified, the PODP trigger will not trigger if the call is the GenericAddress parameter is present.
- 3 In response to the INFONAME prompt, enter NIL.

Note: All examples in this document are limited to a one trigger–one response case and, for simplicity, an AINGRP always contains only one trigger. For the office basis trigger type, it is likely that an AINGRP would contain all the office basis trigger types, namely, PODP, N11, and AFR. In this case, all these would need to be defined.

33.2.2.2.1 Datafilling criteria in table TRIGGRP The following criteria are applicable only for PODP triggers:

- ESCCN

Table 174 shows the different ways the ESCCN criterion can be datafilled. If the office is subscribed to a trigger group containing a PODP trigger with the ESCCN criterion, then all coin-originated calls of the indicated type will be blocked from triggering. For example, if the office was subscribed to the OFCTRIG5 trigger group, then coin-originated calls will only trigger if they are of type NP. Coin calls of type DD and OA are blocked from triggering.

Table 174 Sample datafill of ESCCN criterion in table TRIGGRP

KEY		TRIGDATA				
AINGRP	TDP	TRIGGER		CRITERIA	INFONAME	
OFCTRIG1	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN DD) \$	NIL	) \$
OFCTRIG2	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN NP) \$	NIL	) \$
OFCTRIG3	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN OA) \$	NIL	) \$
OFCTRIG4	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN DD_NP) \$	NIL	) \$
OFCTRIG5	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN DD_OA) \$	NIL	) \$
OFCTRIG6	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN OA_NP) \$	NIL	) \$
OFCTRIG7	INFOANAL	(	PODP	(DG PODPDIG) (ESCCN ALL) \$	NIL	) \$

- ESCEA

Table 175 shows how the ESCEA criterion can be datafilled. If the office is subscribed to a trigger group containing a PODP trigger with the ESCEA criterion, then Equal Access calls will not trigger on the PODP trigger.

Table 175 Sample datafill of ESCEA criterion in table TRIGGRP

KEY		TRIGDATA			
AINGRP	TDP	TRIGGER	CRITERIA	INFONAME	
OFCTRIG1	INFOANAL	(	PODP	(DG PODPDIG) (ESCEA) \$	NIL) \$

- ESCOP

Table 176 shows how the ESCOP criterion can be datafilled. If the office is subscribed to a trigger group containing a PODP trigger with the ESCOP criterion, then calls going to the operator will not trigger on the PODP trigger.

Table 176 Sample datafill of ESCOP criterion in table TRIGGRP

KEY		TRIGDATA			
AINGRP	TDP	TRIGGER	CRITERIA	INFONAME	
OFCTRIG1	INFOANAL	(	PODP	(DG PODPDIG) (ESCOP) \$	NIL) \$

33.2.2.3 Step 3: Datafilling table OFCVAR

Subscription to a PODP AINGRP is done on an office basis. The AINGRP defined in Step 2 can be assigned to the office parameter AIN_OFFICE_TRIGGRP in table OFCVAR with table editor. Once AIN_OFFICE_TRIGGRP is assigned a TRIGGRP and AIN is active in the office (that is, the AIN_ACTIVE parameter is set to Y), triggers subscribed by the office are applied to all calls.

Note 1: The parameter AIN_OFFICE_TRIGGRP can only be set to one office trigger group.

Note 2: Changing table OFCVAR requires setting RWOK to ON.

Table 177 shows the highlights of steps 1 to 3. It shows the trigger definition and subscription tables for the PODP trigger type.

Table 177 PODP trigger definition and subscription tables

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	PODP	CT ESCEA ESCOP	TRIGGRP	Office	OFCVAR	N/A	No
		DG (M)	TRIGDIG				

Table 177 PODP trigger definition and subscription tables

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
Note: (M) = mandatory							

33.2.2.4 Step 4: Datafilling table PODPATTR (optional)

Table PODPATTR provides post query processing for the AIN PODP trigger based on the PODP number. If no entry exists in PODPATTR for the PODP DN, the originator's line attributes will be used. The table consists of 4 mandatory fields:

- 1 **The PODP number:** in response to the **KEY** prompt, enter the PODP number, which can be from 3 to 18 digits. Note that key matching is from most specific to least specific. Also, the matching of this table is based on the number dialled that caused the triggering, not on the digit pattern of the PODP number itself. For example, if the user dials 6137220000 and hits a 3-digit PODP trigger (that is, 613), the digit pattern being matched will be 6137220000, not 613 only.
- 2 **The line attribute index:** in response to the **LINEATTR** prompt, enter the number that associates the PODP number with the corresponding index in table LINEATTR. Range is from 1 to 1023.
- 3 **The PIC:** in response to the **PIC** prompt, enter the name of the Primary Interexchange Carrier. It is of type IC_INC_CARRIER_NAME, which has a range of values corresponding to the tuple keys in table OCCNAME. Since all the fields are mandatory, a value must be put in the PIC field, even if no carrier is desired. For these situations, the value **NILC** is used, denoting the equivalent of a NIL carrier.
- 4 **The LPIC:** as the PIC field above, but for the Local PIC (same values).

Note: The following tables must be datafilled: LINEATTR, OCCNAME, and OCCINFO.

An example of table PODPATTR with sample datafill is shown in Table 178:

Table 178 Example entries in table PODPATTR

KEY	LINEATTR	PIC	LPIC
5146211234	10	NILC	NLIC
613722	55	ATT	GTE
613	80	MCI	NILC

33.2.2.5 Step 5: Verifying with TRAVER

Once the datafill has been set up for the PODP trigger, TRAVER can be used to verify the AIN Essentials triggering.

33.3 Examples

This section describes sample calls that trigger at PODP.

33.3.1 Examples and PODP datafill

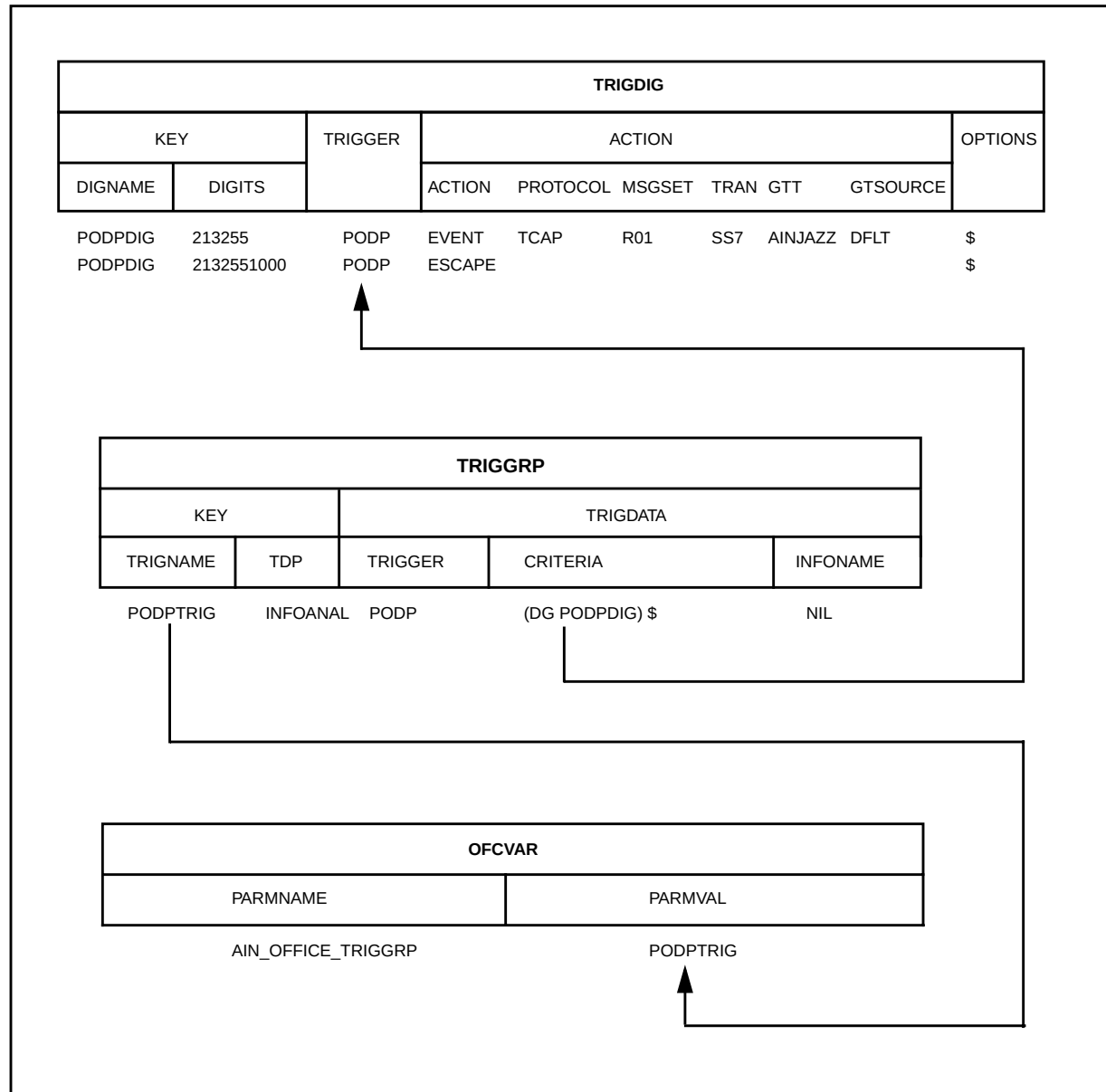
Figure 83 illustrates the datafill for the samples listed in this section. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 83 and verify the datafill with TRAVER.

33.3.1.1 Example 1: PODP Trigger

From an MDC line (DN 7223211), dial 92132551020 where 9 is a public environment access code. The call triggers at PODP on the digits 213255 and queries the database. The TRAVER output is shown in Table 180 on page 544.

33.3.1.2 Example 2: PODP Escape

From an MDC line (DN 7225028), dial 92132551000 where 9 is a public environment access code. The call matches an ESCAPE tuple in table TRIGDIG and escapes triggering at PODP. The TRAVER output is shown in Table 181 on page 546.

Figure 83 Sample datafill for the PODP example

Note: If the tuple in Table 179 is added to table TRIGDIG, receiving a CONT response from the off-board processor allows the call to continue to trigger at PODP (6). See Chapter 41.: “Continue response” on page 663 if retriggering at PODP is desired.

Table 179 Sample DIGNAME PODPDIG definition in table TRIGDIG

KEY					
DIGNAME	TRIGGER	DIGITS	TRIGGER	ACTION	OPTION
PODPDIG	PODP	213285	PODP	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$

33.3.2 Verifying with TRAVER

Table 180 shows the TRAVER output for the PODP example 1.

Note: The order in the TRAVER output reflects the translation order only. For the datafilling order, see Section 33.2 “Datafilling steps” in this chapter.

Table 180 TRAVER output for PODP example 1

```
>TRAVER L 7223211 92132551020 B
TABLE IBNLINES
HOST 01 0 00 01 0 DT STN IBN 7223211 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRCT
P621 ( 1) (65021) 0
```

Table 180 TRAVER output for PODP example 1 (Continued)

```

. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 250 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 213 216 HNPAC 0
. 255 255 LRTE 766
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. . TABLE TRIGDIG
. . PODPDIG PODP 213255 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 2132551020 2132551020 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 181 shows the TRAVER output for the PODP example 2.

Table 181 TRAVER output for PODP example 2

```
>TRAVER L 7223211 92132551000 T
TABLE IBNLINES
HOST 01 0 00 01 0 DT STN IBN 7223211 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 250 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 213 216 HNPA 0
```

Table 181 TRAVER output for PODP example 2 (Continued)

```

. 255 255 LRTE 766
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. . TABLE TRIGDIG
. . PODPDIG PODP 2132551000 PODP ESCAPE $
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEREF
. 766 S D ISUPTAC61_16
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPACONT results are used.
TABLE LCASCRCN
613 L613 ( 15) OPTL N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

33.3.3 ISUP IT FGD calls

The ISUP IT FGD calls at the access tandem are allowed to trigger at PODP in the case where the SSP selector is encountered and TNS is LEC (110). A two-stage TRAVER is used to mimic the outpulsing involved in the call. Table 182 and Table 183 illustrate how to use a two-stage TRAVER to verify the PODP trigger at the access tandem (from ISUP IT incoming trunk ISUPITEAIC that carries EA traffic, digits 0991106706211500 are inpulsed).

Table 182 shows stage 1 of the TRAVER.

Table 182 AIN Essentials TRAVER stage 1: ISUP IT FGD calls trigger at PODP

```

>TRAVER TR isupiteaic 099110 B
TABLE TRKGRP
ISUPITEAIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
TABLE STDPRTCT
E800 ( 1) (65021) 3

```

Table 182 AIN Essentials TRAVER stage 1: ISUP IT FGD calls trigger at PODP (Continued)

```

. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 099110 099110 SSP NP 6 6 NA
AIN Info Collected TDP: no subscribed trigger.
DIALED EQUAL ACCESS CODE DID NOT TRIGGER
TRAVER STOPS PROCESSING THE CALL
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 183 shows stage 2 of the TRAVER.

Table 183 AIN Service Enablers TRAVER stage 2: ISUP IT FGD calls trigger at PODP

```

>TRAVER TR isupiteaic 6217140 B
TABLE TRKGRP
ISUPITEAIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
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.
. 621 621 N DD 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 Y 999 1 ( 310) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. . TABLE TRIGDIG

```

Table 183 AIN Service Enablers TRAVER stage 2: ISUP IT FGD calls trigger at PODP (Continued)

```

. . PODPDIG PODP 6136217140 PODP EVENT TCAP R01 SS7 AINROCK DFLT $
. . . TABLE C7GTTYPE
. . . AINROCK ANSI7 5 $
. . . TABLE C7GTT
. . . AINROCK 6136217140 6136217140 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

34. N11 trigger

34.1 General

The N11 trigger type occurs between the Analyzing Information (INFOANAL) and Selecting Route points in call in the originating call model.

This trigger can be subscribed to on an office basis by any facility with access to the Public Office Dialing Plan (PODP). The triggering criteria is met when an N11 code is dialed.

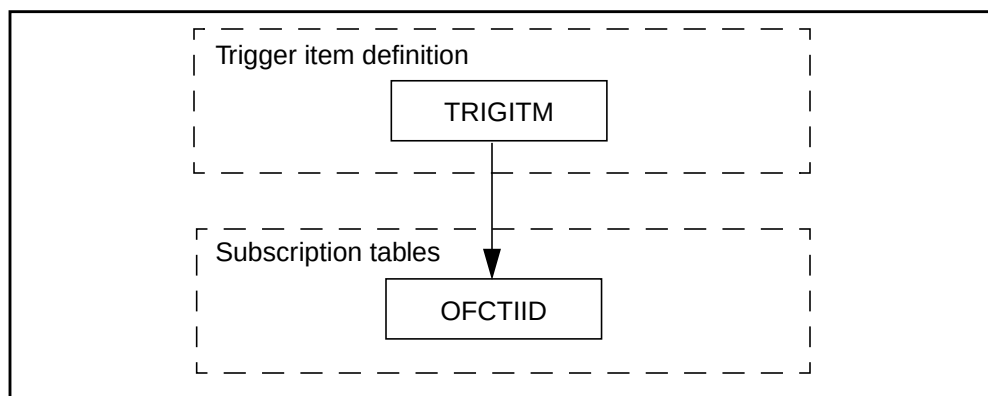
34.2 Datafilling steps

ATTENTION

The N11 trigger can be provisioned in two ways, either by using the trigger item provisioning interface (Section 34.2.1) or by using the trigger group provisioning interface (Section 34.2.2). See Section 24.2 “DMS trigger item interface” on page 442 for details on the new trigger item interface. Choose a data model appropriate to your office.

34.2.1 Trigger item provisioning interface

Figure 84 shows the datafilling steps required by the N11 trigger. Figure 84 assumes that the trigger item provisioning interface for the N11 trigger has been selected with the OFCVAR table.

Figure 84 Datafilling hierarchy for the N11 trigger**34.2.1.1 Step 1: Datafilling table TRIGITM**

The N11 trigger type is digit based, and a trigger item identification name must be datafilled in table TRIGITM. This information indicates the action to be performed by the SSP when the digits criterion is met

- 1 In response to the TDP prompt, enter 4. This is the numeric code for the Info_Analyzed TDP.
- 2 In response to the TINAME prompt, enter the trigger item identifier you wish to use. For example, enter N11TRIG1.
- 3 In response to the TRIGGER prompt, enter N11.
- 4 In response to the CRITERIA prompt, enter any of the following for the N11 trigger: When all desired criteria have been entered, type a “\$” at the CRITERIA prompt.
 - a Digits (DG) criterion: This criterion is mandatory for the N11 trigger.
 - b Call Type (CT) criterion: This criterion is optional. For voice, enter VBINFO. For data, enter CMDATA. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
- 5 In response to the STATE prompt, enter LK or ULK. LK locks (or deactivates) a trigger item; ULK unlocks (or activates) a trigger item.
- 6 In response to the ACTION prompt, type either EVENT or ESCAPE. EVENT instructs the SSP to launch a query when the trigger criterion has been satisfied. ESCAPE prevents a query from being launched. If you choose EVENT, you must datafill the SLHR subfield prompts in step 7.
- 7 If you entered EVENT at the ACTION prompt, then you are prompted for the SLHR subfields (MSGSET, TRANSPORT and GTT). In response to the prompts, enter the following:
 - a In response to the MSGSET prompt, enter R01.
 - b In response to the TRANSPORT prompt, enter SS7.

- c In response to the GTT prompt, enter a Global Title Translation variable. For example, AINJAZZ.
- 8 You are prompted for the OPTION field. This field is optional. If you choose to datafill this field, there is only a single choice: the Default Routing (DFLTRT) option. See Section 27.4 “Datafilling for default routing” on page 481 for more information. If you choose not to enter a value, type “\$” at the prompt.

34.2.1.2 Step 2: Datafilling table OFCTIID

Table OFCTIID stores the trigger item assignments (subscriptions). Subscription to N11 occurs on an office-wide basis only. Do the following steps:

- 1 In response to the TDP prompt, enter 4.
- 2 In response to the TINAME prompt, enter the same identification name that you entered in item 2 of Section 34.2.1.1 “Step 1: Datafilling table TRIGITM”.
- 3 In response to the TRIGACT prompt, enter ON to enable the assignment or OFF to disable the assignment.

34.2.1.3 Step 3: Verifying with TRAVER

Once your datafill has been set up for the N11 trigger, TRAVER can be used to verify the AIN Service Enablers triggering.

34.2.1.4 Example of calls using trigger item provisioning

This section describes four sample calls that trigger at N11 and that use trigger item provisioning. The examples are based on the different types of agents from which the N11 trigger can be encountered. Figure 85 on page 554 illustrates the datafill for the trigger group provisioning for these four sample calls. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 2 to add the sample tuples shown in Figure 85 on page 554 and verify the datafill with TRAVER. The TRAVER output is shown in Table 184 on page 555 to Table 187 on page 558.

34.2.1.4.1 Example1: MDC line From an MDC line (6137224011), dial 9411 (9 is the access code to the POTS environment). The call triggers at N11 and queries the database. (See sample output in Table 184 on page 555.)

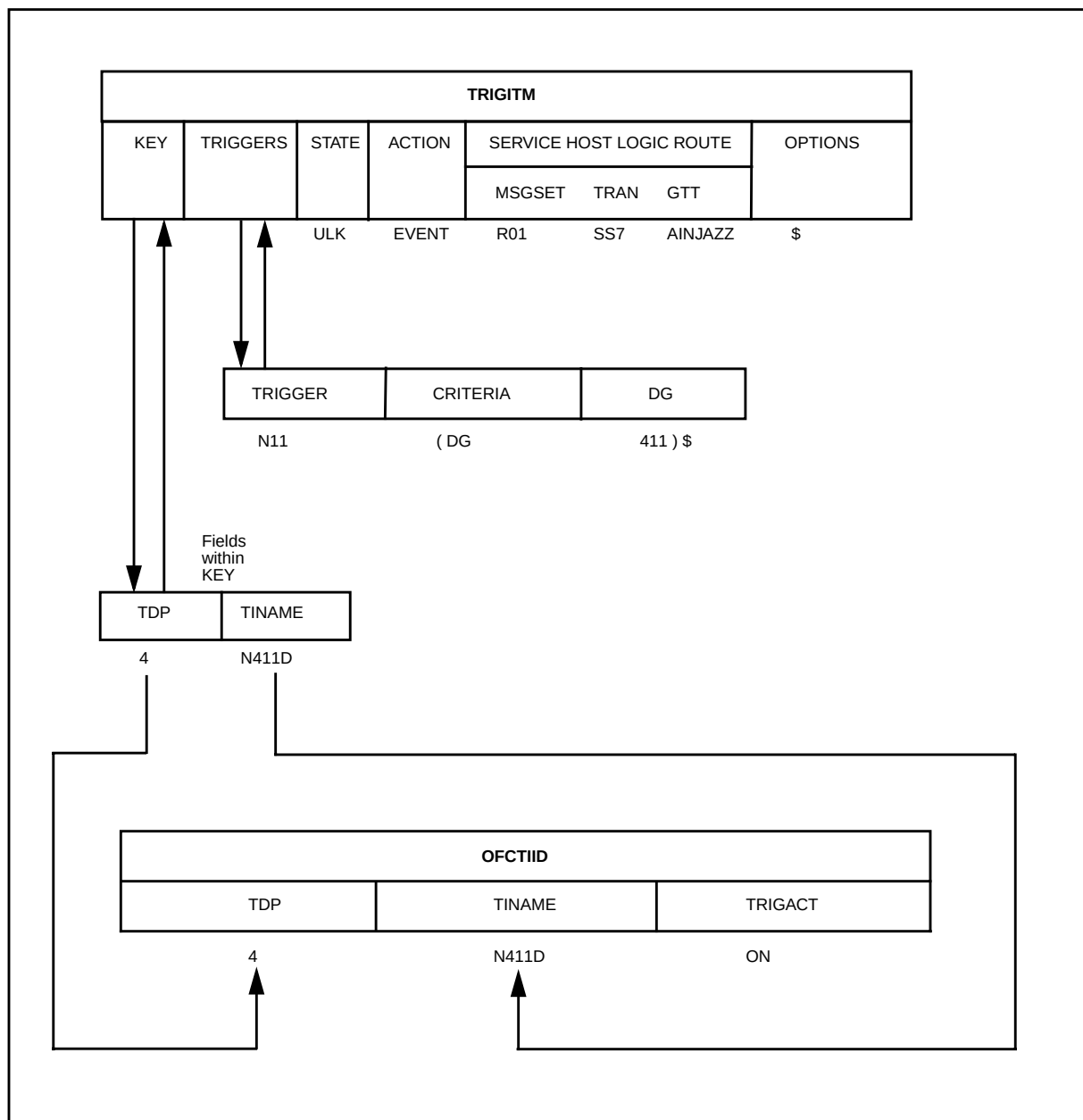
34.2.1.4.2 Example 2: POTS line From a POTS line (6136212111), dial 411. The call triggers at N11 and queries the database. (See sample output in Table 185 on page 556.)

34.2.1.4.3 Example 3: POTS trunk From the incoming POTS trunk ISUPITIC, the outpulse number is 411. An N11 trigger item (N411D) is defined with digits 411 in the TRIGITM table and assigned in the OFCTIID table. The call triggers at N11. (See sample output in Table 186 on page 557.)

34.2.1.4.4 Example 4: IBN trunk From the incoming IBN trunk ISUPIBNIC, the outpulse number is 9411. An N11 trigger itme (N411D) is defined with digits 411 in the TRIGITM table and assigned in the OFCTIID table. The call triggers at N11. (See sample output in Table 187 on page 558.)

Figure 85 illustrates the datafill for the four N11 sample calls.

Figure 85 Sample datafill for the N11 example



34.2.1.4.5 TRAVER outputs Table 184 on page 555 to Table 187 on page 558 show TRAVER outputs for the four N11 examples.

The order of the TRAVER output reflects the translation order only. For the datafilling order, see Section 34.2.1 “Trigger item provisioning interface” on page 551.

Table 184 TRAVER example: trigger item provisioning and MDC line

```
>TRAVER L 7224011 9411 B
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
```

Table 184 TRAVER example: trigger item provisioning and MDC line (Continued)

```

Trigger AIN CDPCODE is applicable to customer group.
Checking AIN SDS Trigger Items as SDS is compatible with current call
Checking AIN N11 Trigger Items as N11 is compatible with current call
. . TABLE OFCTIID
. . 4 N411D ON
. . TABLE TRIGITM
. . 4 N411D N11 (DG 411) $ ULK EVENT R01 SS7 AINJAZZ $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 185 TRAVER example: trigger item provisioning and POTS line

```

>TRAVER L 6136212111 411 B
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 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 TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.

```

Table 185 TRAVER example: trigger item provisioning and POTS line (Continued)

```

. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
Checking AIN SDS Trigger Items as SDS is compatible with current call
Checking AIN N11 Trigger Items as N11 is compatible with current call
. . TABLE OFCTIID
. . 4 N411D ON
. . TABLE TRIGITM
. . 4 N411D N11 (DG 411) $ ULK EVENT R01 SS7 AINJAZZ $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 186 TRAVER example: trigger item provisioning and POTS trunk

```

>TRAVER TR ISUPITIC 411 B
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
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.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
Checking AIN SDS Trigger Items as SDS is compatible with current call
Checking AIN N11 Trigger Items as N11 is compatible with current call
. . TABLE OFCTIID
. . 4 N411D ON
. . TABLE TRIGITM
. . 4 N411D N11 (DG 411) $ ULK EVENT R01 SS7 AINJAZZ $

```

Table 186 TRAVER example: trigger item provisioning and POTS trunk (Continued)

```

. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 187 TRAVER example: trigger item provisioning and IBN trunk

```

>TRAVER TR ISUPIBNIC 9411 B
TABLE TRKGRP
ISUPIBNIC IBNTI 0 ELO NCRT COMKODAK 0 0 7224111 ANSDISC 0 Y N N N N N N 0 0
N N
    N N Y FGD Y N $ NATL $
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT

```


Table 187 TRAVER example: trigger item provisioning and IBN trunk (Continued)

```

P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
Checking AIN SDS Trigger Items as SDS is compatible with current call
Checking AIN N11 Trigger Items as N11 is compatible with current call
. . TABLE OFCTIID
. . 4 N411D ON
. . TABLE TRIGITM
. . 4 N411D N11 (DG 411) $ ULK EVENT R01 SS7 AINJAZZ $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

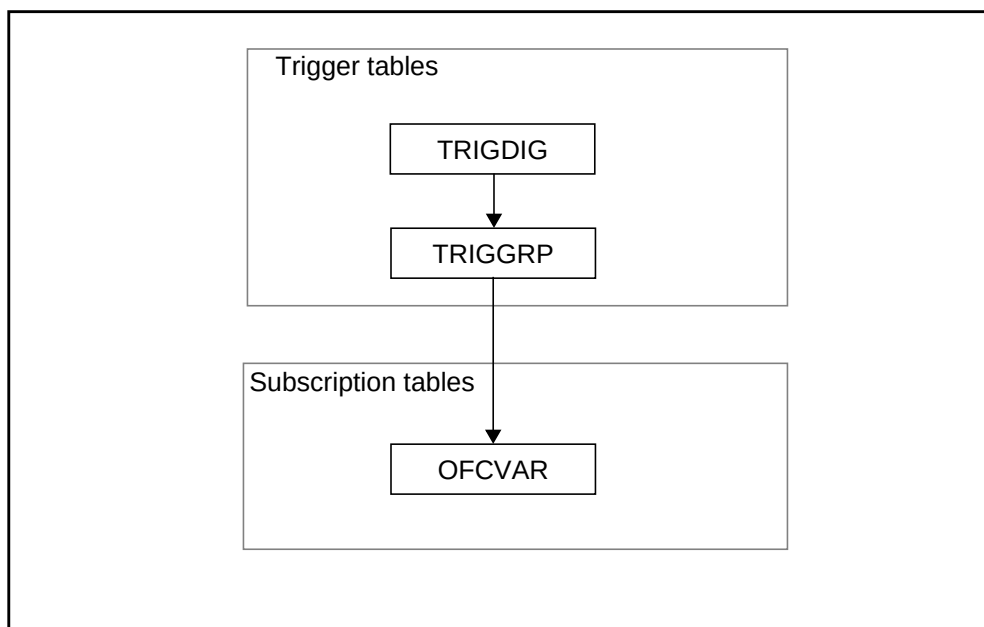
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

34.2.2 Trigger group provisioning interface

Figure 86 shows the datafilling hierarchy for the N11 trigger type. The datafilling steps follow the figure.

Figure 86 Datafilling hierarchy for N11 trigger type**34.2.2.1 Step 1: Datafilling table TRIGDIG**

The digits (DG) criterion is mandatory for the N11 trigger type. A DIGNAME must be datafilled in table TRIGDIG to specify the DG criterion before it can be referenced from table TRIGGRP. A DIGNAME indicates addressing information based on the dialed digits and also the action to be performed by the SSP when the DG criterion is met.

The key consists of a DIGNAME, the trigger type, and the dialed digits.

- 1 In response to the DIGNAME prompt, enter the DIGNAME to be used in table TRIGGRP.
- 2 In response to the TRIGGER prompt, enter N11 to specify that trigger name to which the DG criterion applies.
- 3 For the N11 trigger type, the DG criterion is actually based on the translated digits, that is, the dialed digits that have been translated into the PODP format. For example, from a Meridian Digital Centrex (MDC) line, if the dialed digits are 9411 (where 9 is an access code to the public environment), the digits that should be entered in response to the DIGITS prompt are 411.
- 4 You are prompted for the TRIGGER field a second time. In response to the TRIGGER prompt, enter N11. The value in this field must be the same as the trigger name used in the key field.

Assumptions regarding the datafilling of the ACTION field in all triggering example are described in the Chapter 29.: “Provisioning assumptions” on page 493.

34.2.2.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the N11 trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and on the trigger detection point (TDP). You must create a name for the AINGRP (up to 16 characters). The TDP for the N11 trigger type must be INFOANAL.

- 1 In response to the TRIGGER prompt, enter N11.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the N11 trigger:
 - a Call Type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Digits (DG) criterion: This criterion is mandatory for the N11 trigger. When the DG criterion is specified, you are prompted for the DIGNAME. In response to the DIGNAME prompt, enter the DIGNAME you defined in Section 34.2.2.1 “Step 1: Datafilling table TRIGDIG”.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- 3 In response to the INFONAME prompt, enter NIL.

Note: All examples in this document are limited to a one-trigger–one-response case and, for simplicity, always define an AINGRP that contains only one trigger in it. For an office basis trigger type, it is very likely that an AINGRP would contain all the office basis triggers types, namely, PODP, N11 and automatic flexible routing (AFR). In that case, all of these would need to be defined.

34.2.2.3 Step 3: Datafilling table OFCVAR

A subscription to an N11 AINGRP is done on office basis. The AINGRP defined in Step 2 can be assigned to the office parameter AIN_OFFICE_TRIGGRP in table OFCVAR using the Table Editor.

Table 188 presents the highlights of steps 1 to 3. It shows the trigger definition and subscription tables for the N11 trigger type.

Table 188 Trigger definition and subscription tables for N11

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	N11	CT	TRIGGRP	Office	OFCVAR	N/A	No
		DG (M)	TRIGDIG				
Note: (M) = mandatory							

34.2.2.4 Step 4: Verifying with TRAVER

Once your datafill has been set up for the N11 trigger, TRAVER can be used to verify the AIN Essentials triggering.

34.2.3 Examples of calls using trigger group provisioning

This section describes four sample calls that trigger at N11 and that use trigger group provisioning. The examples are based on the different types of agents from which the N11 trigger can be encountered. Figure 87 on page 563 illustrates the datafill for the trigger group provisioning for these four sample calls. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 3 to add the sample tuples shown in Figure 87 and verify the datafill with TRAVER. The TRAVER output is shown in Table 189 on page 564 to Table 192 on page 567.

34.2.3.1 Example1: MDC line

From an MDC line (6137224011), dial 9411 (9 is the access code to the POTS environment). The call triggers at N11 and queries the database. (See sample output in Table 189 on page 564.)

34.2.3.2 Example 2: POTS line

From a POTS line (6136212111), dial 411. The call triggers at N11 and queries the database. (See sample output in Table 190 on page 565.)

34.2.3.3 Example 3: POTS trunk

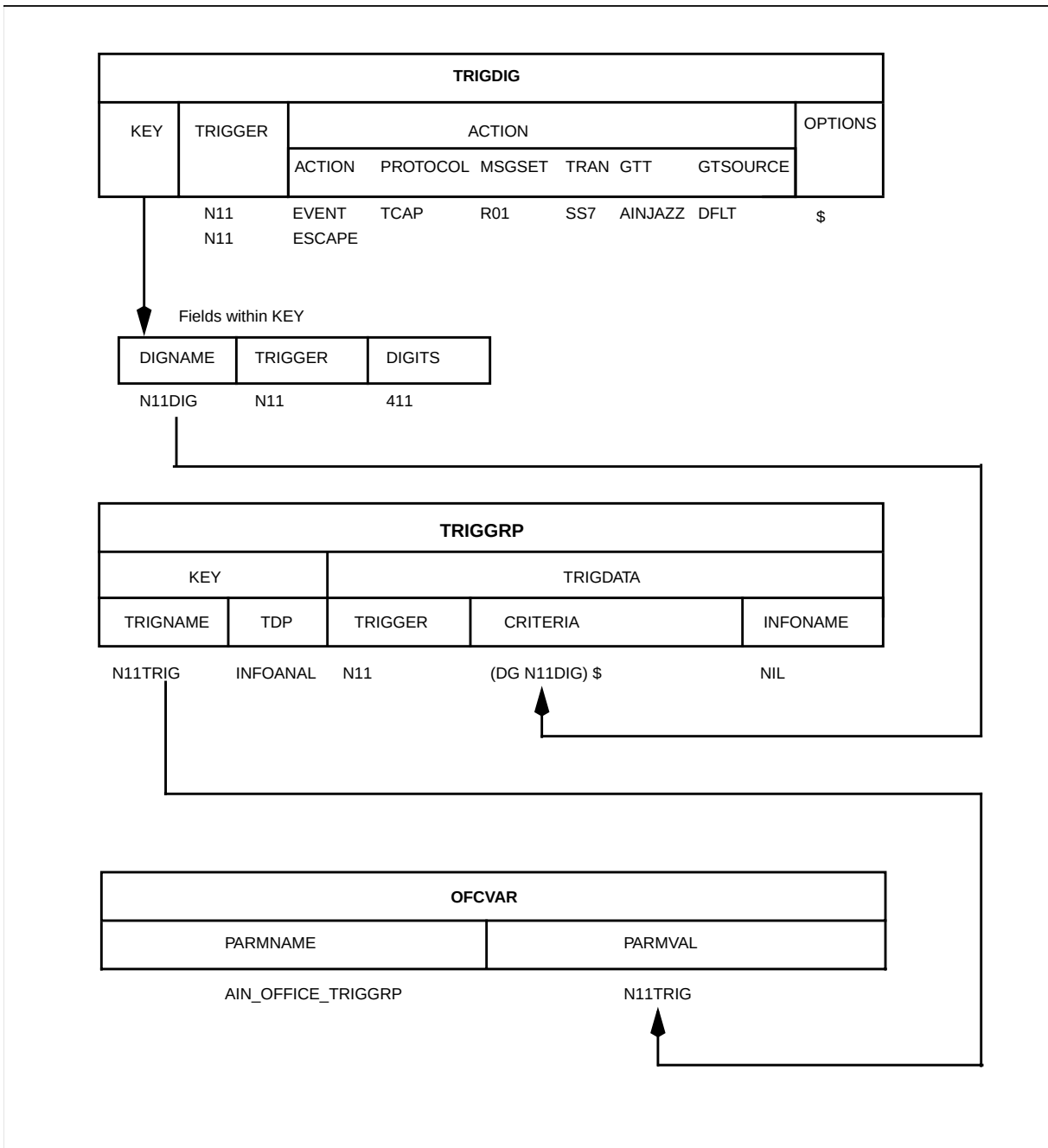
From the incoming POTS trunk ISUPITIC, the outpulse number is 411. Since AIN_OFFICE_TRIGGRP has been assigned an N11 trigger group called N11TRIG, the call triggers at N11. (See sample output in Table 191 on page 566.)

34.2.3.4 Example 4: IBN trunk

From the incoming IBN trunk ISUPIBNIC, the outpulse number is 9411. Since AIN_OFFICE_TRIGGRP has been assigned an AIN trigger group called N11TRIG, the call triggers at N11. (See sample output in Table 192 on page 567.)

Figure 87 illustrates the datafill for the four N11 sample calls.

Figure 87 Sample datafill for four N11 examples using trigger group provisioning



Note: The AIN datafill for the four N11 examples are the same.

34.2.3.5 TRAVER outputs

Table 189 on page 564 to Table 192 on page 567 show TRAVER outputs for the four N11 examples using trigger group provisioning.

The order of the TRAVER output reflects the translation order only. For the datafilling order, see Section 34.2.2 “Trigger group provisioning interface” on page 559.

Table 189 TRAVER example: trigger group provisioning and MDC line

```
>TRAVER L 6137224011 9411 B
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP N11TRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
```

Table 189 TRAVER example: trigger group provisioning and MDC line (Continued)

```

. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
N11TRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. . TABLE TRIGDIG
. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 190 TRAVER example: trigger group provisioning and POTS line

```

>TRAVER L 6136212111 411 B
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 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 N11TRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO

```

Table 190 TRAVER example: trigger group provisioning and POTS line (Continued)

```

DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
N11TRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. . TABLE TRIGDIG
. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 191 TRAVER example: trigger group provisioning and POTS trunk

```

>TRAVER TR ISUPITIC 411 B
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 E800 NSCR 613 000 N Y $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP N11TRIG
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.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
N11TRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. . TABLE TRIGDIG

```


Table 191 TRAVER example: trigger group provisioning and POTS trunk (Continued)

```

. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Table 192 TRAVER example: trigger group provisioning and IBN trunk

```

>TRAVER TR ISUPIBNIC 9411 B
TABLE TRKGRP
ISUPIBNIC IBNTI 0 ELO NCRT COMKODAK 0 0 7224111 ANSDISC 0 Y N N N N N N 0 0
N N
    N N Y FGD Y N $ NATL $
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP N11TRIG
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 RPT
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE

```

Table 192 TRAYER example: trigger group provisioning and IBN trunk (Continued)

```

TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 44 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
N11TRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. . TABLE TRIGDIG
. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 4110000000 4110000000 PCSSN (AINTATM_RTESET2 AIN01 0) $
SSN
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

+++ AIN TRAYER: SUCCESSFUL CALL TRACE +++

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

+++ AIN TRAYER: SUCCESSFUL CALL TRACE +++

```

35. Customized Dialing Plan trigger

35.1 General

The Customized Dialing Plan (CDP) trigger type occurs at the Information Analyze trigger detection point (TDP), that is, between the Analyzing Information (INFOANAL) and the Selecting Route points in call in the originating basic call model.

Any customer group assigned to a customized dialing plan can subscribe to the CDP trigger type, which has three feature access code variants: access code, extension or intercom number, or off-board processor Feature Access Code (FAC) within a customized dial plan.

35.1.1 Access code

The CDP access code variant consists of an access code which contains the digits dialed to gain access to a private or public environment (for example, 9+ to access the public environment).

35.1.2 Intercom or extension code

The CDP intercom or extension code variant consists of an extension or intercom number.

35.1.3 The off-board processor FAC

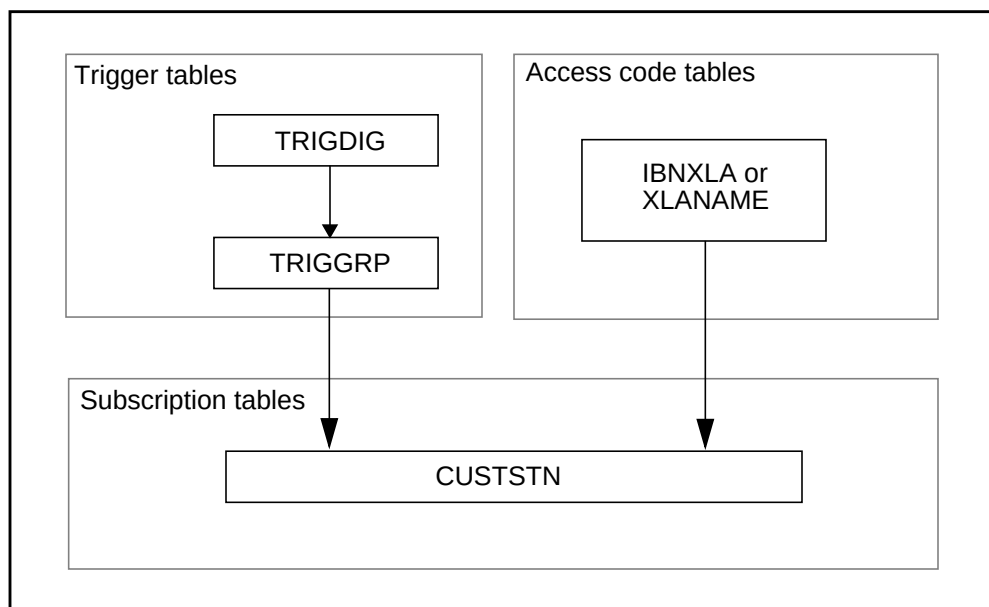
The off-board processor FAC variant consists of the digits dialed to invoke a feature defined in the off-board processor. A FAC may be one to six digits, and the first digit may be an asterisk (*) or an octothorpe (#).

To enable subsequent digit collection, a FAC can be provisioned to query immediately, query according to the normal dialing plan of the agent, collect a variable number of digits, or collect up to the fixed number of digits.

35.2 Datafilling steps

Before doing any datafill, you must determine the feature access code variant, that is the access code, extension or intercom number, or off-board processor FAC variant used in the call.

Figure 88 shows the datafilling hierarchy.

Figure 88 Datafilling hierarchy for CDP trigger type

35.2.1 Datafilling for triggering

The following sections outline the steps required when datafilling for triggering.

35.2.1.1 Step 1: Datafilling table TRIGDIG

The digits (DG) criterion is a mandatory one for the CDP trigger type. A DIGNAME must be datafilled in table TRIGDIG before it can be referenced from table TRIGGRP to specify the digits criterion. A DIGNAME indicates addressing information, based on dialed digits, and the action to be performed by the SSP when the digits criterion is met.

The key consists of the DIGNAME, TRIGGER, and DIGITS fields.

- 1 In response to the DIGNAME prompt, enter the DIGNAME to be used in table TRIGGRP.
- 2 In response to the TRIGGER prompt, enter CDPCODE to specify that trigger name to which the digits criterion applies.
- 3 In response to the DIGITS prompt, enter the digits to be matched against the digits dialed. A match is defined as the most specific match. For example, if the dialed digits are 8806210000 and the datafilled digits are 880, 88062 and 8806210000, the entry with the most specific digits 8806210000 matches.
 - a For the off-board FAC variant, you must dial the FAC itself; for example, *360. If the DIGITS field in table TRIGDIG is specified as B360, it matches the digits dialed. Symbol B is used to represent “*” and symbol C is used to represent “#” in table TRIGDIG.

- b For the Intercom or Extension number, you must dial the intercom code or extension; for example, 2160000. If the DIGITS field in table TRIGDIG is specified as 2160000, it matches the digits dialed.
 - c For the Access Code, you might dial the Access Code followed by the terminating DN; for example, 8806210000, where 880 is the Access Code and 6210000 is the terminating DN. If the DIGITS field in table TRIGDIG is specified as 880, it matches the digits dialed. In fact, it matches all the CDP calls that use the 880 access code.
- 4 You are prompted for the TRIGGER field a second time. In response to the TRIGGER prompt, enter the CDPCODE. The value in this field must be the same as the trigger name used in the key field.
- 5 Because the trigger type is CDPCODE, you are prompted for the RPRTDIGS field, which is used to indicate whether digit translation should be performed by the SSP on an extension number (only) before sending a query message. The TRANS and NOTRANS entries specify whether the SSP sends dialed digits or translated digits in the outgoing message to the off-board processor.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.: “Provisioning assumptions” on page 493.

35.2.1.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the CDP trigger must be defined in table TRIGGRP before it can be referenced in any subscription table.

Table TRIGGRP is keyed on the trigger group name and TDP. You must create a name for the AINGRP (up to 16 characters). The TDP for CDPCODE trigger type must be INFOANAL.

- 1 In response to the TRIGGER prompt, enter CDPCODE.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the CDPCODE trigger:
 - a Call Type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Digits (DG) criterion: This criterion is mandatory for the CDPCODE trigger. When the DG criterion is specified, you are prompted for the DIGNAME. In response to the DIGNAME prompt, enter the DIGNAME you defined in Section 35.2.1.1 “Step 1: Datafilling table TRIGDIG”.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.
- 3 In response to the INFONAME prompt, enter NIL.

35.2.1.3 Step 3: Datafilling table CUSTSTN

Subscription to a CDP AINGRP is done on a group basis through the AIN option in table CUSTSTN. Table editor is used to enter the subscription.

The customer group to which the originating agent belongs can subscribe to a CDP AINGRP defined in Section 35.2.1.1 “Step 1: Datafilling table TRIGDIG”. Once a customer group is assigned an AINGRP and AIN is active in the office, triggers subscribed by the customer group apply to all agents that belong to that group. Usually, a customer group is assigned an AINGRP only once.

35.2.1.4 Step 4: Datafilling table IBNXLA or table XLANAME

Tables IBNXLA and XLANAME are Meridian Digital Centrex (MDC) translation tables. Table XLANAME specifies the default translation and is used when no translation information is found in table IBNXLA. Either table IBNXLA or table XLANAME must be datafilled to specify the access code with its required translation function.

35.2.1.4.1 Off-board processor FAC Tables IBNXLA and XLANAME have been enhanced to recognize the off-board processor FAC variant, so that the SSP knows that this is an access code belonging to an off-board processor, which may require subsequent digit collection.

An off-board processor FAC can be one to six digits long, and the first digit can be an asterisk (* = B in table TRIGDIG) or an octothorpe (# = C in table TRIGDIG). If an asterisk or an octothorpe is the first character of the FAC, then it should be removed and the DGLIDX field should be datafilled with the remaining FAC digits. The NO_ACCCODE_DIGITS field should be datafilled as the number of digits in the access code after the “*” or “#”. For example, if the off-board processor FAC *360 is dialed, the DGLIDX field in table IBNXLA can be specified as 360 and NO_ACCCODE_DIGITS is 3.

35.2.1.4.2 Intercom or extension number For the intercom or extension code variant, datafill either table IBNXLA or table XLANAME in the same way as for a basic call.

Note: TRSEL must be set to EXTN.

35.2.1.4.3 Access code For the access code variant, datafill table IBNXLA or table XLANAME the same as for a basic call.

Note: TRSEL must be set to ROUTE to go to a private trunk or NET to go to a public environment.

Table 193 summarize steps 1 to 3. It shows the trigger definition and subscription tables for the CDP trigger type.

Table 193 Trigger definition and subscription tables for the CDP trigger type

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	CDPCODE	CT DG (M)	TRIGGRP TRIGDIG	Group	CUSTSTN	AIN	No
Note: M = mandatory							

35.2.1.5 Step 5: Datafilling DIGCOL

For off-board processor FAC variant, which requires NORMAL, VARIABLE or FIXED digit collection, it is recommended that digits be reported to the CC individually. The RPT selector is required in table DIGCOL if the first digit dialed is the first digit in a FAC.

35.2.1.6 Step 6: Verifying with TRAVER

Verify the datafill with the TRAVER utility.

35.2.2 Datafilling for LATA population

LATA parameter population is now available for Centrex-originated calls. Since these agents do not have a line attribute from which to pick up a LATA, it is instead retrieved from either table NCOS or table CUSTSTN.

Note: The LATA in table NCOS takes precedence.

These LATAs are for the purposes of parameter population only. It is up to the customer to ensure the consistency between this LATA parameter and the LATA parameter used for post-query processing.

35.2.2.1 Step 1: Datafilling table CUSTSTN

For an IBN agent, the AINLATA option can be datafilled in table CUSTSTN under the agent's customer group.

35.2.2.2 Step 2: Datafilling table NCOS

The LATA parameter may also be datafilled based on the IBN agent's network class of service. The AINLATA option is added to the NCOS index to which the IBN agent is attributed.

35.3 CDP examples

These examples are given for the sole purpose of showing how to datafill and are not to be understood as recommended datafill.

35.3.1 Example 1: FAC

From an MDC line (DN 7224011), dial FAC *360. The call triggers at CDP and queries the database because the customer group (COMKODAK) to which this MDC line belongs has subscribed to the CDP trigger. (See sample output in Table 204.)

35.3.2 Example 2: FAC “7”

From an MDC line (DN 7224011), dial extension 7234. The call triggers at CDP and queries the database because the customer group (COMKODAK) to which this MDC line belongs has subscribed to the CDP trigger. (See sample output in Table 205.)

35.3.3 Example 3: Extension dialing

From an MDC line (DN 7224011), dial extension 25027. The call triggers at CDP and queries the database because the customer group (COMKODAK) to which this MDC line belongs has subscribed to the CDP trigger. (See sample output in Table 205.)

35.3.4 Example 4: Access code dialing and net selector

From an MDC line (DN 7224011), dial 880 + terminating DN 6210000 (where access code 880 is set up to go to a NET selector). The call triggers at CDP and queries the database because the customer group (COMKODAK) to which this MDC line belongs has subscribed to the CDP trigger. (See sample output in Table 207.)

35.3.5 Example 5: Access code dialing and route selector

From an MDC line (DN 7224011), dial 885 (where access code 885 is set up to go to a ROUTE selector). The call triggers at CDP and queries the database because the customer group (COMKODAK) to which this MDC line belongs has subscribed to the CDP trigger. (See sample output in Table 208.)

35.3.6 Sample datafill for triggering

The following sections show sample datafills for triggering.

35.3.6.1 Sample datafill for table TRIGDIG

Table 194 shows the definition of DIGNAME CDPDIG for the extension code number 25027, the access code 880 and 885, and the Feature Access Code (FAC) *360 and 7

.

Table 194 Sample DIGNAME CDPDIG definition in table TRIGDIG

KEY			TRIGGER		ACTION	OPTION
DIGNAME	TRIGGER	DIGITS	TRIGGER	RPRTDIGS		
CDPDIG	CDPCODE	25027	CDPCODE	NOTRANS	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$
CDPDIG	CDPCODE	880	CDPCODE	TRANS	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$
CDPDIG	CDPCODE	885	CDPCODE	TRANS	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$
CDPDIG	CDPCODE	B360	CDPCODE	TRANS	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$
CDPDIG	CDPCODE	7	CDPCODE	TRANS	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$

35.3.6.2 Sample datafill table TRIGGRP

Table 195 shows a sample CDP AINGRP definition.

Table 195 Sample CDP AINGRP definition in table TRIGGRP

KEY		TRIGDATA		
AINGRP	TDP	TRIGGER	CRITERIA	INFONAME
CDPTRIG	INFOANAL	CDPCODE	DG CDPDIG \$	NIL

35.3.6.3 Sample datafill table CUSTSTN

For our examples, the originating agent belongs to customer group COMKODAK. For calls to trigger at the CDP trigger, the AIN trigger group CDPTRIG is assigned to the customer group COMKODAK.

Table 196 shows a sample CDP AINGRP subscription.

Table 196 Sample CDP AINGRP subscription in table CUSTSTN

KEY		OPTION
CUSTNAME	OPTNAME	
COMKODAK	AIN	AIN CDPTRIG

35.3.6.4 Sample datafill table IBNXLA or XLANAME

For our examples, we use table IBNXLA to define the off-board processor FAC, the extension or intercom number, and the access code. You should be able to derive the corresponding datafills for table XLANAME if default translation is desired.

Note: Only the off-board processor FAC definition is AIN specific datafill. The definition of the extension number or access code are standard datafills.

35.3.6.5 Feature access code

Table 197 shows a sample off-board processor FAC definition and Table 198 shows a sample datafill.

Table 197 Sample off-board processor FAC definition in table IBNXLA

KEY		RESULTS			
XLANAME	DGLIDX	TRSEL	NO_ACCODE_DIGITS	FTR_TYPE	QUERYAFT
FTCOMM	360	FTR	3	AIN	IMMED
where: - FTCOMM has been set to correspond to feature access codes with asterisk (*). - AIN: indicates this is a FAC for AIN feature - IMMED: no subsequent digit collection is required					
PXDK	7	FTR	1	AIN	VAR
where: - AIN— indicates this is a FAC for AIN feature (no asterisk) - VAR— variable digit collection is required after the FAC is dialed					

Table 198 Sample datafill for extension (25027) dialing in table IBNXLA

KEY		RESULTS							
XLANAME	DGLIDX	TRSEL	SMDR	VCDR	INTRAGRP	SNPA	NNX	DIGINEXT	FILLDIGS
CXDK	25	EXTN	N	N	Y	613	722	5	\$

35.3.6.5.1 Access code The TRSEL selector is set to NET for access code 880 and ROUTE for access code 885 as shown in Table 199

Table 199 Private environment translations (ROUTE selector)

KEY	XLNAME	PXDK
	DGLIDX	885

Table 199 Private environment translations (ROUTE selector) (Continued)

R E S U L T S	TRSEL	ROUTE
	ACR	N
	SMDR	N
	VCDR	N
	NO_ACCODE_DIGITS	3
	SECOND_DIAL_TONE	N
	MINDIGS	3
	MAXDIGS	15
	DGCOLNM	NDGT
	INTRAGRP	Y
	ROUTE_SUBSEL	S
	CLLI	AIN_DUMMY_TRUNK
	NETRTOPT	\$

Table 200 shows datafill fields and sample values for the public environment selection NET in table IBNXLA, which is used for POTS calls.

Table 200 Public environment translations (NET selector)

K E Y	XLNAME	PXDK
	DGLIDX	880

Table 200 Public environment translations (NET selector) (Continued)

R E S U L T S	TRSEL	NET
	ACR	N
	SMDR	Y
	VCDR	N
	NO_ACCODE_DIGITS	3
	SECOND_DIAL_TONE	Y
	DGCOLNM	POTS
	CRL	Y
	INTRAGRP	N
	NETTYPE	DOD
	SMDRB	N
	LINEATTR	80
	TOLL_RESTRICTION	NONE
	OPTION	\$

35.3.6.5.2 Sample datafill table DIGCOL Corresponding to the FAC “7” that was datafilled in IBNXL A, DIGCOL must be set up for report digits as shown in Table 201.

Table 201 DIGCOL datafill for FAC codes

DGKEY	DGDATA
KDK 7	RPT

35.3.6.5.3 Result Given the above datafill, from DN 7224011 (an IBN line belonging to the customer group COMKODAK), you can dial the extension number 25027 (or access code 880, or access code 885, or FAC *360, or FAC 7) and the call triggers.

35.3.7 Sample datafill for LATA population

The following sections show sample datafills for LATA population.

35.3.7.1 Sample datafill for table CUSTSTN

For our example, the originating IBN agent belongs to customer group COMKODAK. Table 202 shows a sample CDP AINLATA subscription.

Table 202 Sample CDP AINLATA datafilled in table CUSTSTN

KEY		OPTION
CUSTNAME	OPTNAME	
COMKODAK	AINLATA	AINLATA LATA1

35.3.7.2 Sample datafill for table NCOS

For our example, the originating IBN agent belongs to customer group COMKODAK. Table 203 shows a sample CDP AINLATA subscription.

Table 203 Sample CDP AINLATA datafilled in table NCOS

KEY		NCOSNAME	LSC	TRAFSNO	OPTIONS
CUSTGRP	NCOS				
COMKODAK	0	KDK0	0	0	AINLATA LATA1

35.4 Examples

This section provides TRAVER output for each of the examples. If your datafill is correct, your TRAVER output should match the output shown in Table 204, 205 , 206 , or 207 .

Highlighted (bold) for illustration purposes are the following:

- the TRAVER command used to verify
- the subscription tuple in table CUSTSTN
- the FAC tuple in table IBNXLA
- the tuple added to table TRIGGRP
- the tuple added to table TRIGDIG
- the tuple added to table DIGCOL

Note: The order in the TRAVER output reflects the translation order. For the datafilling order, see Section 35.2 “Datafilling steps”.

Table 204 Sample TRAVER output for CDP for Example 1 (FAC)

```

traver l 7224011 b360 b
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK STAR COL S 1
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME FTCOMM
FTCOMM 360 FTR 3 AIN IMMED
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPTRIG INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group.

```

Table 204 Sample TRAVER output for CDP for Example 1 (FAC) (Continued)

```

. . TABLE TRIGDIG
. . CDPDIG CDPCODE B360 CDPCODE TRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224011 6137224011 SSNONLY (AINTEST) $
AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 205 Sample TRAVER output for CDP for Example 2 (FAC "7")

```

>traver l 7224011 7234 b
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 7 RPT
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
PXDK 7 FTR 1 AIN VAR
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group.

```


Table 205 Sample TRAVER output for CDP for Example 2 (FAC "7") (Continued)

```

. . TABLE TRIGDIG
. . CDPDIG CDPCODE 7 CDPCODE TRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224011 6137224011 SSNONLY (AINTEST) $
AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 206 Sample TRAVER for CDP for Example 3

```

traver l 7224011 25027 b
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 25 EXTN N N Y 613 722 5 $
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPTRIG INFOANAL
. CDPCODE ( CT VBINFO) ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group

```

Table 206 Sample TRAVER for CDP for Example 3 (Continued)

```

. . TABLE TRIGDIG
. . CDPDIG CDPCODE 25027 CDPCODE NOTRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224011 6137224011 SSNONLY (AINTEST) $

```

AIN Info Analyzed TDP: trigger criteria met. Querying the database would occur now.

Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met. Querying the database would occur now.

Use the AINRES option for further information

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

Table 207 Sample TRAVER output for CDP for Example 4 (access code 860)

```

traver l 7224011 8806210000 b
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFICETRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 8 COL S 1
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
PXDK 880 NET N Y N 3 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 PKDK L613 TSPS 0 NIL NILSFC NILLATA 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
PKDK ( 1) (65021) 0
. SUBTABLE STDPRT

```

Table 207 Sample TRAVER output for CDP for Example 4 (access code 860) (Continued)

```

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.

. 621 621 L NP 0 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPTRIG INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group.
. . . TABLE TRIGDIG
. . CDPDIG CDPCODE 880 CDPCODE TRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224011 6137224011 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

```

Table 208 Sample TRAVER output for CDP for Example 5 (access code 885)

```

traver l 7224011 885 b
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 8 COL S 1
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
PXDK 885 ROUTE N N N 3 N 3 15 NDGT Y S AIN_DUMMY_TRK $
TABLE DIGCOL
NDGT specified: digits collected individually
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPTRIG INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group.

```

Table 208 Sample TRAVER output for CDP for Example 5 (access code 885) (Continued)

```

. . TABLE TRIGDIG
. . CDPDIG CDPCODE 885 CDPCODE TRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137224011 6137224011 SSNONLY (AINTEST) $
AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met. Querying the database would
occur now.
Use the AINRES option for further information

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

```

36. PODP feature code trigger

36.1 General

The PODP feature code (PODPFEAT) trigger type occurs at the Information Analyze (INFOANAL) trigger detection point (TDP). This is between the Analyzing Information and the Selecting Route points in call in the originating basic call model.

PODPFEAT has a feature code, also known as SCP vertical service code (VSC), as its mandatory trigger criteria. A VSC may be one to seven digits, with the first digit being either an asterisk (*) or an octothorpe (#).

To enable subsequent digit collection, a VSC can be provisioned to

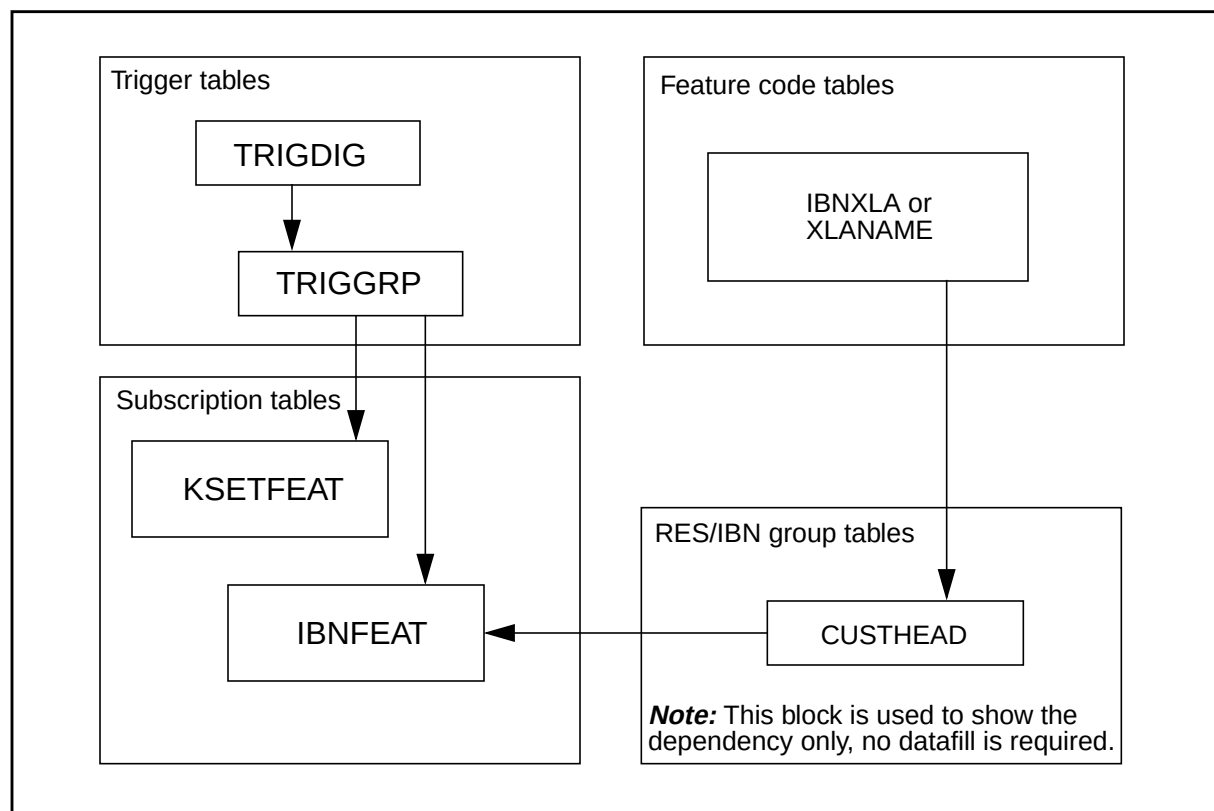
- query immediately
- query according to the normal dialing plan of the agent
- collect a variable number of digits or
- collect up to the fixed number of digits

A PODPFEAT feature code may be one to six digits, and the first digit may be an asterisk (* = B in table TRIGDIG) or an octothorpe (# = C in table TRIGDIG). If either is the first character of the PODPFEAT feature code, then it should be removed, and the DGLIDX field should be datafilled with the remaining PODPFEAT feature code digits. The NO_ACCCODE_DIGITS field should be datafilled as the number of digits in the access code after the '*' or '#'. For example, if the PODPFEAT feature code *360 is dialed, the DGLIDX field in table IBNXLA can be specified as 360 and NO_ACCCODE_DIGITS is 3.

36.2 Datafilling steps

Before doing any datafill, the feature code must be determined. It includes the pattern of the starting digit and the number of the total digits for the feature code.

Figure 89 illustrates the datafilling hierarchy.

Figure 89 Datafilling hierarchy for PODPFEAT trigger type

36.2.1 Step 1: Datafilling table TRIGDIG

The digits (DG) criterion is mandatory for the PODPFEAT trigger type. A DIGNAME must be datafilled in table TRIGDIG before it can be referenced from the table TRIGGRP to specify the digits criterion. A DIGNAME indicates addressing information, based on the dialed digits, and the action to be performed by the SSP when the digits criterion is met.

The key consists of the DIGNAME, TRIGGER, and DIGITS fields.

- 1 In response to the DIGNAME prompt, enter the DIGNAME to be used in table TRIGGRP.
- 2 In response to the TRIGGER prompt, enter PODPFEAT to specify that trigger name to which the digits criterion applies.
- 3 In response to the DIGITS prompt, enter the digits to be matched against the feature code (VSC) dialed.

Note: Note that symbol B is used to represent “*” and symbol C is used to represent “#” in table TRIGDIG.

- 4 The TRIGGER field is prompted a second time. In response to this prompt, enter PODPFEAT.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.: “Provisioning assumptions” on page 493.

36.2.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the PODPFEAT trigger must be defined in table TRIGGRP before it can be referenced in any subscription tables or tools.

Table TRIGGRP is keyed on the trigger group name and TDP. The name for the AINGRP (up to 16 characters) must be created. The TDP for PODPFEAT trigger type must be INFOANAL.

The following is a summary of datafilling the TRIGDATA field.

- 1 In response to the TRIGGER prompt, enter PODPFEAT.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the PODPFEAT trigger:
 - a Call Type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b Digits (DG) criterion: This criterion is mandatory for the PODPFEAT trigger. When the DG criterion is specified, you are prompted for the DIGNAME. In response to the DIGNAME prompt, enter the DIGNAME you defined in Section 36.2.1 “Step 1: Datafilling table TRIGDIG”.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- 3 The INFONAME prompt is shown after the CRITERIA field is done. Enter NIL in INFONAME.

36.2.3 Step 3: Datafilling table IBNFEAT or KSETFEAT

Subscription to a PODPFEAT AINGRP is done on a individual basis by the AIN option. Currently, the agents supported by PODPFEAT are RES and ISDN BRI lines, so the subscription tuple should be added to table IBNFEAT and KSETFEAT respectively.

Note: As table IBNFEAT is protected, the subscription to a RES line must be added using SERVORD. The guideline for adding an AIN trigger group to a RES line can be found in Section 26.1.1 “Adding the AIN option to POTS, MDC, or RES lines” on page 460.

36.2.4 Step 4: Datafilling table IBNXLA or table XLANAME

Table IBNXLA and XLANAME are also the translation tables for RES and IBN agents. The feature code of PODPFEAT can be either defined in table IBNXLA or XLANAME under the AIN feature selector. Please refer to

Section 35.2.1.4 “Step 4: Datafilling table IBNXLA or table XLANAME” on page 572 and its subsections, which includes a full description about the off-board processor (AIN) VSC.

For the PODPFEAT feature access code variant which requires NORMAl, VARiable or FIXED digit collection, it is recommended that digits be reported to the CC individually. The RPT selector is required in table DIGCOL if the first digit dialed is the first digit in a PODPFEAT feature access code.

36.2.5 Step 5: Verifying with TRAVER

Verify the datafill with the TRAVER utility.

Table 209 summarizes steps 1 to 4. It shows the trigger definition and subscription tables for the PODPFEAT trigger type.

Table 209 Trigger definition and subscription tables for PODPFEAT trigger type

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
INFOANAL	PODPFEAT	CT DG (M)	TRIGDIG TRIGGRP	Individual	IBNFEAT KSETFEAT	AIN	Yes
Note: (M) = mandatory							

36.3 Examples

The following example is given for the sole purpose of showing how to datafill and is not to be understood as recommended datafill.

36.3.1 Example 1: RES line

From a RES line (DN 6211611), dial VSC*901. The call triggers at PODPFEAT and queries the database because the line is subscribed to the PODPFEAT trigger and *901 is defined as the PODPFEAT VSC.

36.3.2 Sample datafill in table TRIGDIG

Table 210 shows the definition of DIGNAME PODPFEAT for the VSC *901.

Table 210 Sample DIGNAME FEATDIG definition in table TRIGDIG

KEY			TRIGGER	ACTION	OPTION
DIGNAME	TRIGGER	DIGITS			
FEATDIG	PODPFEAT	B901	PODPFEAT	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$

36.3.3 Sample datafill in table TRIGGRP

Table 211 shows a sample PODPFEAT AINGRP definition.

Table 211 Sample PODPFEAT AINGRP definition in table TRIGGRP

KEY		TRIGDATA		
AINGRP	TDP	TRIGGER	CRITERIA	INFONAME
FEATTRIG	INFOANAL	PODPFEAT	DG FEATDIG \$	NIL

36.3.4 Sample datafill in table IBNFEAT

The originating agent is a RES line. The AIN trigger group FEATTRIG is assigned to the originating line using SERVORD. The guideline for adding an AIN trigger group to a RES line can be found in Section 26.1.1 “Adding the AIN option to POTS, MDC, or RES lines” on page 460.

Figure 90 shows an example of how to assign the AIN trigger group FEATTRIG to a RES line.

Figure 90 Assigning AIN trigger group FEATTRIG to a RES line using SERVORD

```
>SERVORD
S0:
>ado $ 6212101 AIN FEATTRIG $
```

Table 212 shows a sample PODPFEAT AINGRP subscription.

Table 212 Sample PODPFEAT AINGRP subscription in SERVORD

KEY			FEATURE	DATA
LEN	DNNO	DF		
HOST 00 1 14 02	0	AIN	AIN	FEATTRIG

36.3.5 Sample datafill in table IBNXLA

The feature code for RES line is defined in table IBNXLA. The PODPFEAT VSC used by PODPFEAT trigger is AIN specific. Table 213 shows a sample AIN VSC.

36.3.6 Result

Given the above datafill, from DN 6211611 (a RES line belonging to a RES group with RXCFNXXX as the XLANAME for the asterisk (*), *901 is dialed and the call triggers.

Table 213 Sample AIN VSC for PODPFEAT in table IBNXLA

KEY		RESULTS			
XLANAME	DGLIDX	TRSEL	NO_ACCODE_DIGITS	FTR_TYPE	QUERYAFT
RXCFNXXX	901	FTR	3	AIN	IMMED
where: RXCFNXXX— has been set to correspond to the feature codes with asterisk (*) AIN— indicates this is a VSC for AIN feature IMMED— indicates no subsequent digit collection is required					

36.4 Verifying the datafill

This section provides TRAVER output for the example. If your datafill is correct, your TRAVER output should match the output shown in Figure 91.

Highlighted (bold) for illustration purposes are the following:

- the TRAVER command used to verify
- the subscription tuple in table CUSTSTN
- the AIN VSC tuple in IBNXLA
- the tuple added to table TRIGGRP
- the tuple added to table TRIGDIG

Figure 91 Sample TRAVER output for the PODPFEAT example

```

>traver l 6211611 b901 b
TABLE IBNLINES
HOST 00 1 14 02 0 DT STN RES 6211611 252 $
TABLE LINEATTR
252 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00 Y
RESG252 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNTFEAT
HOST 00 1 14 02 0 AIN AIN FEATTRIG
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG252 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG252 NXLA RXCMN252 RXCFNXXX 0 RES
TABLE DIGCOLRES specified: RES digit collection
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME RXCFNXXX
RXCFNXXX 901 FTR 3 AIN IMMED
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
FEATTRIG INFOANAL
. PODPFEAT ( DG FEATDIG )$ NIL
Trigger R01 PODPFEAT is applicable to individual RES lines.
. . TABLE TRIGDIG
. . FEATDIG PODPFEAT B901 PODPFEAT EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE KSETFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 66136211611 61362116111 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met. Querying the database would occur
now.
Use the AINRES option for further information

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++
AIN Info Analyzed TDP: trigger criteria met. Querying the database would occur
now.
Use the AINRES option for further information
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

37. Automatic flexible routing trigger

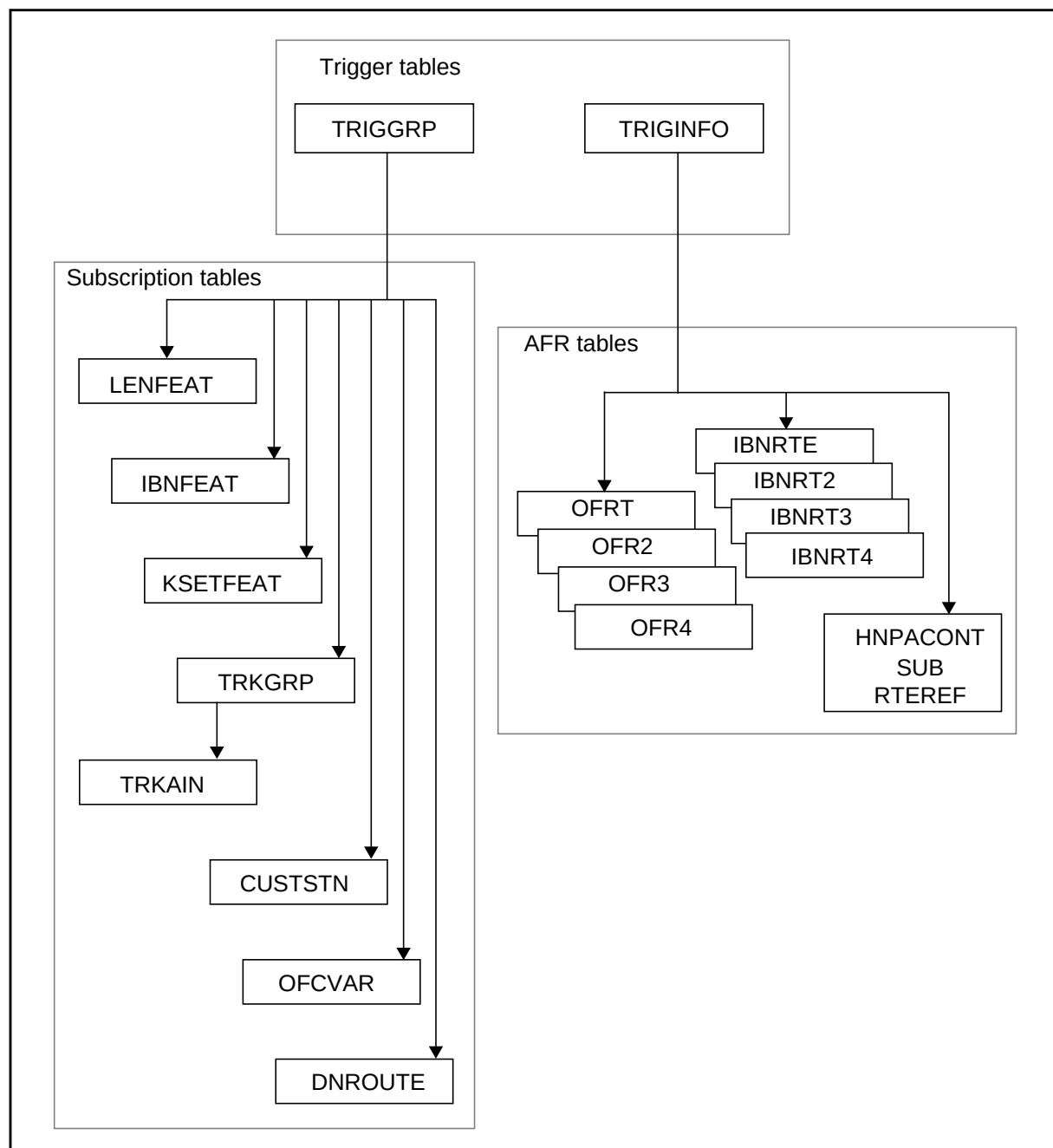
37.1 General

The automatic flexible routing (AFR) trigger type occurs after the Selecting Route point in call in the originating call model. The AFR trigger is an entry in the routing list, which occurs when none of the previous routes in the list is available.

37.2 Datafilling steps

Information for completing the datafill for the AFR trigger is presented in this section.

Figure 92 shows the datafilling hierarchy.

Figure 92 Datafilling hierarchy for the AFR trigger type**37.2.1 Step 1: Datafilling table TRIGINFO**

An INFONAME defines the action information, that is, what action the SSP takes if a call encounters a trigger and the criteria are met. For AIN Essentials, the SSP must send a query to the off-board processor using a particular messaging protocol and transport.

Assumptions regarding the datafilling of the ACTION field in all triggering example are described in Chapter 29.: “Provisioning assumptions” on page 493.

37.2.2 Step 2: Datafilling AFR tables

The AFR tables are as follows:

- OFRT
- OFR2
- OFR3
- OFR4
- IBNRTE
- IBNRT2
- IBNRT3
- IBNRT4
- HNPACONT SUB RTEREF

In order for AFR to be applied to a route list, the AFR selector must be added to the route list in the appropriate route table.

Note: It is possible to specify AFR at any location in the route list. Once the SSP has encountered AFR in the route list, any entries following it are ignored. However, as required by TR-NWT-001284, AFR should take place only if all other routes in the route list are busy. Thus, in order to meet this requirement, AFR must be the last entry in the route list.

37.2.3 Step 3: Datafilling table TRIGGRP

An AINGRP that contains the AFR trigger must be defined in table TRIGGRP before it can be referenced in any subscription table. Table TRIGGRP is keyed on the trigger group name and on the trigger detection point (TDP). You must create a name for the AFR AINGRP (up to 16 characters). The TDP for AFR trigger type must be NETBUSY.

- 1 In response to the TRIGGER prompt, enter AFR.
- 2 In response to the CRITERIA prompt, the following criteria can be entered for the AFR trigger:
 - a Call Type (CT) criterion: This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.
 - b When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.
- 3 In response to the INFONAME prompt, enter NIL.

37.2.4 Step 4: Datafilling AFR subscription tables

The AFR AINGRP defined in Step 3 can be subscribed by an originating agent on an individual, group, or office basis using the AIN option, or through table DNROUTE for a DISA DN. The precedence is individual -> group -> office.

37.2.4.1 Subscribing to AFR on individual line basis

For a POTS line, the subscription tuple is added to table LENFEAT.

For an MDC or RES line, the subscription tuple is added to table IBNFEAT.

For a EBS or MFT set, the subscription tuple is added to table KSETFEAT.

Both table editor and the SERVORD utility can be used to assign, change, or delete the AIN option for lines. See Chapter 26.: “SERVORD guidelines” on page 459 for details.

37.2.4.2 Subscribing to AFR on a DISA DN basis

A DISA DN can subscribe to AIN in table DNROUTE.

37.2.4.3 Subscribing to AFR on individual trunk basis

A trunk group can subscribe to AIN in table TRKAIN.

37.2.4.4 Subscribing to AFR on group basis

A customer group can subscribe to AIN in table CUSTSTN. All lines and trunks in the customer group trigger if the call encounters a route list where AFR has been datafilled.

37.2.4.5 Subscribing to AFR on office basis

An office can subscribe to AIN in table OFCVAR. All lines and trunks in the office trigger if the call encounters a route list where AFR has been datafilled.

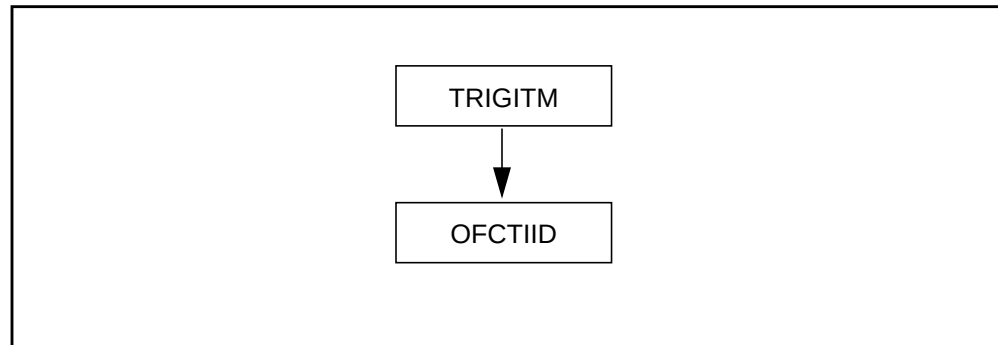
Note: For a trunk, group, or office, use table editor to subscribe to AIN.

ATTENTION

Provisioning AFR off-wide can be accomplished in two ways, either by using the trigger item provisioning interface (Section 37.2.4.6) or the trigger group provisioning interface (Section 37.2.5.1). See Section 24.2 “DMS trigger item interface” on page 442 for details on the new trigger item interface. Choose a data model appropriate to your office.

37.2.4.6 Trigger item provisioning interface for an office

Figure 93 shows the datafilling steps required by the AFR trigger. Figure 93 assumes that the trigger item provisioning interface for the AFR trigger has been selected with the OFCVAR table.

Figure 93 Datafilling hierarchy for the AFR trigger

37.2.4.6.1 Step 1: Datafilling table TRIGITM The AFR trigger type must have a trigger item identification name datafilled in the TRIGITM table. This information indicates the action to be performed by the SSP when the network busy criterion is met.

- 1 In response to the TDP prompt, enter 17. This is the numeric code for the Network_Busy TDP.
- 2 In response to the TINAME prompt, enter the trigger item identifier you wish to use. For example, enter AFRTRIG1.
- 3 In response to the TRIGGER prompt, enter AFR.
- 4 In response to the CRITERIA subfield prompts, you can the Call Type (CT) criterion. This criterion is optional. For voice, enter VBINFO. For data, enter CMDATA. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.

When you finish entering the criteria, type a “\$” at the CRITERIA prompt.

- 5 In response to the STATE field, enter LK or ULK. LK locks (or deactivates) a trigger item; ULK unlocks (or activates) a trigger item.
- 6 In response to the ACTION prompt, type either EVENT or ESCAPE. EVENT instructs the SSP to launch a query when the trigger criterion has been satisfied. ESCAPE prevents a query from being launched. If you choose EVENT, you must datafill the MSGSET, TRANSPORT, and GTT fields. See steps
- 7 In response to the Service Logic Host Route (SLHR) subfield prompts, enter any of the following for the AFR trigger.
 - a In response to the AIN_MSGSET prompt, enter R01.
 - b In response to the TRANSPORT prompt, enter SS7 only if you entered EVENT for the ACTION field.
 - c In response to the GTT prompt, enter a Global Title Translation variable only if you entered EVENT for the ACTION field. For example, AINJAZZ.

- 8 You are prompted for the OPTION field. This field is optional and should not be used for the AFR trigger.

37.2.4.6.2 Step 2: Datafilling table OFCTIID Table OFCTIID stores the office-wide subscription links. Subscription to AFR occurs on an office-wide basis only. Do the following steps:

- 1 In response to the TDP prompt, enter 17.
- 2 In response to the TINAME prompt, enter the same identification name that you entered in item 2 of Section 37.2.4.6.1 “Step 1: Datafilling table TRIGITM”.
- 3 In response to the TRIGACT prompt, enter ON to enable the assignment or OFF to disable the assignment.

37.2.5 Sample AFR datafill

Figure 94 illustrates the datafill for this sample call. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 94 and verify the datafill with TRAVER.

From a line (DN 7225028), dial 92132850000 where 9 is a public environment access code. The call triggers at AFR and queries the database.

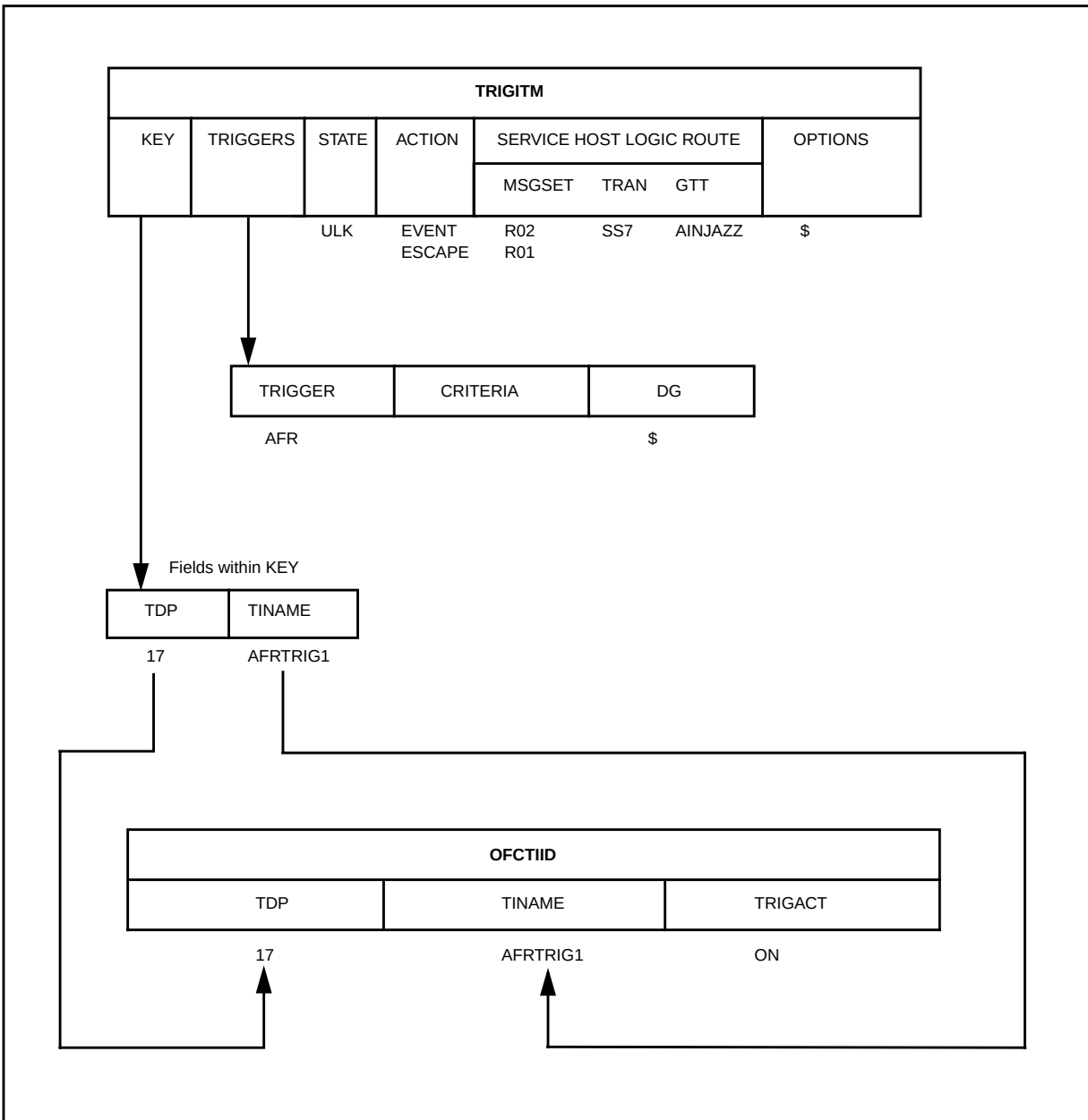
Figure 94 Sample datafill for the AFR example**37.2.5.1 Trigger group provisioning interface for an office**

Table 214 highlights steps 1 to 4. It shows the trigger definition and subscription tables for the AFR trigger type.

Table 214 AFR trigger definition and subscription table

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
NETBUSY	AFR	CT	TRIGINFO TRIGGRP or TRIGITM OFR tables	Line(POTS)	LENFEAT	AIN	Yes
				Line (MDC, RES)	IBNFEAT	AIN	Yes
				Line (EBS, MFT)	KSETFEAT	AIN	Yes
				DISA DN	DNROUTE		No
				Trunk Group	TRKGRP		No
					TRKAIN		No
				Customer group	CUSTSTN	AIN	No
				Office	OFCVAR OFCTIID	N/A	No

37.2.6 Verifying with TRAVER

Once the datafill has been set up for the AFR trigger, the TRAVER utility can be used to verify the AIN Essentials triggering (other than for a DISA DN).

Because the AFR trigger occurs at the Network Busy (NETBUSY) trigger detection point (TDP), it is encountered only if all routes in the route list are busy. Since TRAVER is a call simulation, routes are not busy, and criteria for this trigger are never met. Therefore, if AFR is encountered in the route list, then subscription to the AFR trigger is checked. If the AFR trigger is subscribed, an informational message is displayed indicating that triggering would take place if all routes were busy. The corresponding TRIGGRP and TRIGINFO table entries are displayed, and simulation of call processing continues.

37.3 Examples

The following five examples are selected to illustrate the datafilling required for the AFR trigger.

37.3.1 Example 1: Individual subscription basis (line)

From an MDC line 7224585, dial 92870000. The line has subscribed to the AFR trigger on an individual basis (AFRLINE), on a group basis (AFRGRP), and on an office basis (AFROFFICE). According to the processing precedence, the call triggers at AFRLINE in this example.

37.3.2 Example 2: Individual subscription basis (trunk)

From incoming trunk ISUPIBNIC, digits 92870000 are received (9 is the private environment access code). The incoming trunk ISUPIBNIC has subscribed to AFR trigger on an individual basis (AFRTRK), on a group basis (AFRGRP), and on an office basis (AFROFFICE). According to the processing precedence, the call triggers at AFRTRK.

37.3.3 Example 3: Group subscription basis

From an MDC line 7224012, dial 92870000, where 9 is the private environment access code. The line has subscribed to the AFR trigger on a group basis (AFRGROUP) and on an office basis (AFROFFICE). According to the processing precedence, the call triggers at AFRGROUP.

37.3.4 Example 4: Office subscription basis

From a POTS line 6210000, dial 2870000. The line has subscribed to the AFR trigger on an office basis (AFROFFICE), and the call triggers at AFROFFICE.

37.3.5 Example 5: DISA DN subscription basis

A DISA DN can be subscribed to an AFR trigger through the table DNROUTE.

37.3.6 Sample datafill

The following sections provide samples of datafill.

37.3.6.1 Datafilling TRIGINFO

Table 215 shows a sample tuple.

Table 215 Sample tuple for table TRIGINFO

INFONAME	ACTION	OPTIONS
AINSIM	EVENT TCAP R01 SS7 AINJAZZ DFLT	\$

37.3.6.2 Datafilling AFR tables AFR selector

The tuple in Table 216 illustrates AFR Example 4.

Table 216 Sample tuple using AFR selector in table OFR2

RTE	ROUTELIST
52	(S D AIN_BUZY_TRK) (AFR AINSIM) \$

The tuple in Table 217 illustrates AFR examples 1 to 3.

Table 217 Sample tuple using AFR selector in HNPACODE SUB RTEREF

RTE	ROUTELIST
801	(S D AIN_BUZY_TRK) (AFR AINSIM) \$

37.3.6.3 Datafilling Table TRIGGRP

The following four AFR AIN groups (AINGRP) are defined in table TRIGGRP for the four AFR examples (see Table 218). Although they are defined to have the same behavior, different AINGRP names are chosen to show more clearly (from the TRAVER trace) whether the triggering occurs because of individual, group, or office subscription.

Note: Whether the AFR trigger is subscribed on an individual, group, or office basis should not affect the triggering behavior.

Table 218 Sample AFR AINGRP definition in table TRIGGRP

KEY		TRIGDATA		
AINGRP	TDP	TRIGGER	CRITERIA	INFONAME
AFRLINE	NETBUSY	AFR	\$	NIL\$
AFRTRK	NETBUSY	AFR	\$	NIL\$
AFRGRP	NETBUSY	AFR	\$	NIL\$
AFROFFICE	NETBUSY	AFR	\$	NIL\$

37.3.6.4 Datafilling AFR subscription tables

The tuple in Table 219 is used in Example 1 and shows a MDC line (7224585) with Line Equipment Number (LEN) HOST 02 0 00 12 that has subscribed to the AIN AFRLINE trigger group.

Table 219 Sample AIN POTS line subscription in table LENFEAT (AFR Example 1)

LEN	DNNO	DF	FEATURE	AINGRP
HOST 02 0 00 12	0	AIN	AIN	AFRLINE

The tuples in Table 220 and 221 are used in Example 2 and show that an IBNTI trunk group called ISUPIBNIC has subscribed to AIN AFRTRK trigger group.

Table 220 Sample trunk group subscription table TRKGRP (AFR Example 2)

GRPKEY	TRKINFO	
	GRPTYP	Other fields
ISUPIBNIC	IBNTI	...

Table 221 Sample AIN trunk group subscription table TRKAIN

GRPKEY	AINGRP
ISUPIBNIC	AFRTRK

In Example 3, the originating agent belongs to customer group COMKOADK. For calls to trigger at AFR trigger, the AIN trigger group AFRGRP is assigned to customer group COMKODAK. Since COMKODAK has subscribe to AIN, every member of the customer group is affected. This means that the line (HOST 00 0 07 04) in Example 1 and the trunk (ISUPIBNIC) in Example 2 have also subscribed to the AFRGRP on the group basis.

Table 222 shows a sample customer group subscription.

Table 222 Sample AIN Customer Group Subscription in table CUSTSTN

KEY		OPTION
CUSTNAME	OPTNAME	
COMKODAK	AIN	AIN AFRGRP

The tuple in Table 223 allows the entire office to subscribe to AIN AFROFFICE on an office basis. Thus, every agent in the office is affected, that is, the line in Example 1 and the trunk in Example 2 have also subscribed to the AFROFFICE on an office basis.

Table 223 Sample AIN office subscription in table OFCVAR

PARMNAME	PARMVAL
AIN_OFFICE_TRIGGRP	AFROFFICE

38. Termination attempt trigger

38.1 General

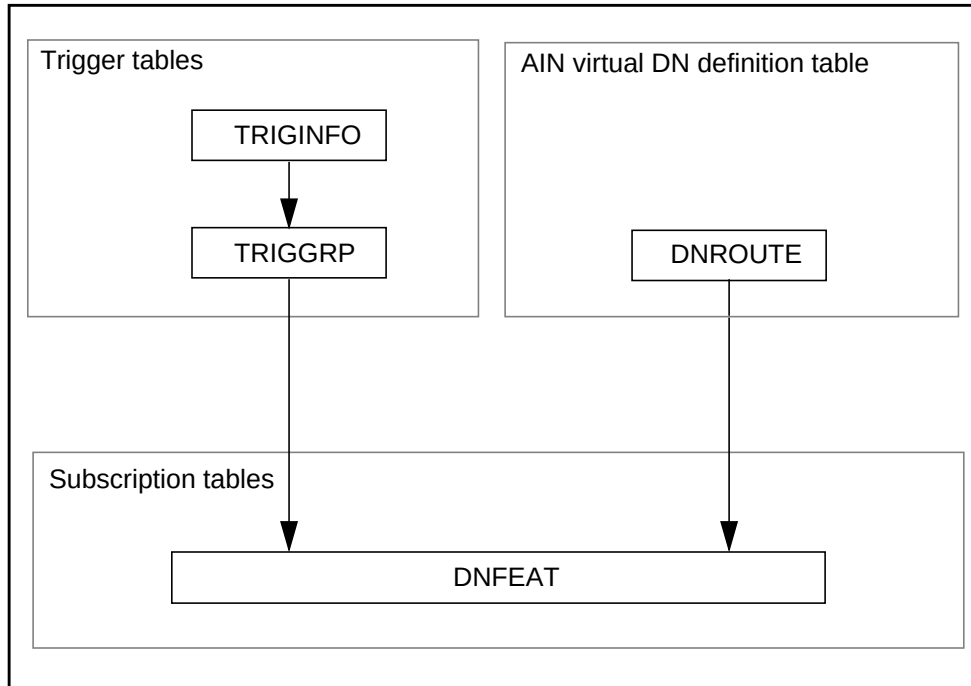
The termination attempt (TERMATT) trigger type occurs between the null and Authorizing Termination points in call in the terminating call model.

A query is sent to the off-board processor whenever a call attempts to terminate on a DN that has subscribed to the TERMATT trigger, provided that the originating agent is AIN Essentials supported.

38.2 Datafilling steps

Figure 95 shows the datafilling hierarchy.

Figure 95 Datafilling hierarchy for the TERMATT trigger type



38.2.1 Step 1: Datafilling table TRIGINFO

An INFONAME defines the action information, that is, what action the SSP takes if a call encounters a trigger and the criteria are met. For AIN Essentials, the SSP must send a query to the off-board processor using a particular messaging protocol and transport.

Assumptions regarding the datafilling of the ACTION field in all triggering examples are described in Chapter 29.: “Provisioning assumptions” on page 493.

38.2.2 Step 2: Datafilling table TRIGGRP

An AINGRP that contains the TERMATT trigger must be defined in table TRIGGRP before it can be referenced in the subscription table DNFEAT.

Table TRIGGRP is keyed on the trigger group name and on the trigger detection point (TDP). You must create a name for the TERMATT AINGRP (up to 16 characters). The TDP for the TERMATT trigger type must be TERMATT.

- 1 In response to the TRIGGER prompt, enter TERMATT.
- 2 In response to the CRITERIA prompt, the Call type (CT) criterion can be entered for the TERMATT trigger. This criterion is optional. If the CT criterion is not specified, then both voice and data calls will trigger if all other criteria are satisfied.

The ability to datafill groups of AIN behaviors on a DN/CT basis is accomplished by datafilling a group on a DN basis in table DNFEAT, and then using the CT criterion in table TRIGGRP to specify which trigger behaviors within that entry correspond to voice calls and which to data calls.

When all desired criteria have been entered, enter a “\$” at the CRITERIA prompt.

- 3 In response to the INFONAME prompt, enter the INFONAME you defined in Section 38.2.1 “Step 1: Datafilling table TRIGINFO”.

38.2.3 Step 3: Datafilling table DNROUTE

- 1 Proceed to Section 38.2.5 “Step 5: Datafilling table DNFEAT” if the terminating DN is not an AIN virtual DN.
- 2 If the call triggers at TERMATT from an AIN virtual DN, that AIN virtual DN must be datafilled in table DNROUTE before it can be subscribed in table DNFEAT.
- 3 An AIN virtual DN can be used for AIN applications. For example, it may correspond to a feature DN in the off-board processor or adjunct. If a call is made to this DN without the associated trigger being datafilled to send control to the off-board processor, the call is routed to treatment.

- 4 An AIN virtual DN can be defined in table DNROUTE using the FEAT AIN selector.
- 5 An AIN virtual DN can be either in the public environment or in the private environment. The DNTYPE field must be set to NONIBN for a POTS virtual DN and to IBN for an IBN virtual DN. The IBN DNTYPE appears only if the Meridian Digital Centrex (MDC) base package is in the load.
- 6 If the AIN virtual DN is in the public environment, you are prompted for a LINEATTR.
- 7 If the virtual DN is in the IBN environment, you are prompted for a customer group and subgroup information, and you can specify NCOS as an option.

38.2.4 Step 4: Datafilling tables for IBN lines

- 1 Proceed to Section 38.2.5 “Step 5: Datafilling table DNFEAT” if the terminating DN is an AIN virtual DN.
- 2 If the physical DN is in the IBN environment, the SMDR option needs to be datafilled in order to have the generation of the SMDR record for the second leg of the call if a Forward Call response is received.

38.2.5 Step 5: Datafilling table DNFEAT

Any terminating DN with access to the Public Office Dialing Plan (PODP) can subscribe to the TERMATT trigger by the AINDN option in table DNFEAT. In order to datafill a DN in table DNFEAT, it must be a valid DN and be used for one of the following purposes:

- individual line
- hunt group
- secondary directory number (that is, Teen Services)
- AIN virtual DN

The table editor can be used for subscription. For non-virtual DNs, the SERVORD utility can also be used. See Chapter 26.: “SERVORD guidelines” on page 459.

Table 224 summarizes steps 1 to 4. It shows the trigger definition and subscription tables for the TERMATT trigger type.

Table 224 TERMATT trigger definition and subscription

TDP	Trigger type	Criteria	Definition tables	Subscription basis	Subscription tables	Option	SERVORD
TERMATT	TERMATT	DN	TRIGGRP	DN	DNFEAT	AINDN	Yes
			TRIGINFO	Virtual DN			No

38.2.6 Step 6: Verifying with TRAVER

Once datafill has been set up for the TERMATT trigger, TRAVER can be used to verify the AIN Essentials triggering.

38.3 Examples

This section describes three sample calls that trigger at TERMATT. Figure 96 illustrates the datafill for these three sample calls. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 4 to add the sample tuples shown in Figure 96 and verify the datafill with TRAVER.

38.3.1 Example 1: Normal DN

Originating from DN 6219001, dial 6212502. When the call attempts to terminate on a non AIN-virtual DN (6212502) which has subscribed to a TERMATT trigger group called DNTRIG, the call triggers at TERMATT. (See sample output in Figure 97 on page 616.)

38.3.2 Example 2: POTS AIN virtual DN

Originating from DN 6219001, dial 6210001. When the call attempts to terminate on a POTS AIN-virtual DN (6210001) which has subscribed to a TERMATT trigger group called DNTRIG, the call triggers at TERMATT. (See sample output in Figure 100 on page 619.)

38.3.3 Example 3: IBN AIN virtual DN

Originating from DN 6219001, dial 7229090. When the call attempts to terminate on a IBN AIN-virtual DN (7229090) which has subscribed to a TERMATT trigger group called DNTRIG, the call triggers at TERMATT. (See sample output in Figure 103 on page 621.)

38.3.4 Verifying with TRAVER

Figure 97, Figure 100 on page 619, and Figure 103 on page 621 show several sample TRAVER outputs.

Note: The order in TRAVER reflects the translation order only. For the datafilling order, see Section 38.2 “Datafilling steps”.

Figure 97 Sample TRAVER output for TERMATT for example 1

```
>traver l 7227811 6213911 b
TABLE KSETLINE
HOST 03 1 12 00 1 DN Y 7227811 COMKODAK 0 0 613 (AIN) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
HOST 03 1 12 00 1 AIN AIN SESIM_AFR $
TABLE CUSTSTN
COMKODAK AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 6 COL L 1
TABLE IBNXLA: XLANAME PXDK
PXDK 621 NET N N 0 N NDGT N N DOD N 0 NONE $
TABLE DIGCOL
NDGT specified: digits collected individually
```

Figure 98 Sample TRAVER output for TERMATT for example 1 (Continued)

```

TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 293) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 3911 L HOST 00 1 00 16

```

Figure 99 Sample TRAVER output for TERMATT for example 1 (Continued)

```
TABLE DNFEAT
TABLE TRIGGRP
TAT_SIM TERMATT
. TERMATT $ BLUEINFO
Trigger AIN TERMATT is applicable to directory number.
Trigger AIN TERMATT: Trigger is active.
  (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . BLUEINFO EVENT TCAP R02 SS7 AINBLUES DFLT $
. . . TABLE C7GTTYPE
. . . AINBLUES ANSI7 11 $
. . . TABLE C7GTT
. . . AINBLUES 6136213911 6136213911 PCSSN (SIMT00L RTESET SIMT00L 0)
$ SSN
AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

Figure 100 Sample TRAVER output for TERMATT for example 2

```

>traver l 6213911 6210001 b
TABLE IBNLINES
HOST 00 1 00 16 0 DT STN RES 6213911 400 613 $
TABLE LINEATTR
400 1FR NONE NT FR01 0 613 EAP1 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
RESG200 AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG200 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG200 NXLA RXCMN200 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RXCMN200
RXCMN200 6 AMBIG RXCFNXXX 2 RXCML200
NUMBER OF DIGITS GREATER THAN 2 RXCML200 TRANSLATOR WILL BE USED.
TABLE IBNXLA: XLANAME RXCML200
TUPLE NOT FOUND
Default from table XLANAME:
RXCML200
      (NET N N 0 N NDGT N Y GEN ( LATTR 200) (EA ITT Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
200 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL
00 Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT

```

Figure 101 Sample TRAVER output for TERMATT for example 2 (Continued)

```

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
. 621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 293) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 0001 FEAT AIN NONIBN 0 $
TABLE DNFEAT
TABLE TRIGGRP
SESIM_DN TERMATT
. TERMATT ( CT VBINFO)$ SESIMINF
Trigger AIN TERMATT is applicable to directory number.
Trigger AIN TERMATT: Trigger is active.
(Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . SESIMINF EVENT TCAP R02 SS7 AINBLUES DFLT $
. . . TABLE C7GTTYPE
. . . AINBLUES ANSI7 11 $
. . . TABLE C7GTT
. . . AINBLUES 6136210001 6136210001 PCSSN (SIMTOOL RTESET SIMTOOL 0) $

```

Figure 102 Sample TRAVER output for TERMATT for example 2 (Continued)

```

AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

Figure 103 Sample TRAVER output for TERMATT for example 3

```

>traver l 6213911 7229090 b
TABLE IBNLINES
HOST 00 1 00 16 0 DT STN RES 6213911 400 613 $
TABLE LINEATTR
400 1FR NONE NT FR01 0 613 EAP1 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
RESG200 AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG200 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG200 NXLA RXCMN200 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RXCMN200
RXCMN200 7 AMBIG RXCFNXXX 2 RXCML200
NUMBER OF DIGITS GREATER THAN 2 RXCML200 TRANSLATOR WILL BE USED.
TABLE IBNXLA: XLANAME RXCML200

```

Figure 104 Sample TRAVER output for TERMATT for example 3 (Continued)

```

TUPLE NOT FOUND
Default from table XLANAME:
RXCML200
    (NET N N 0 N NDGT N Y GEN ( LATTR 200) (EA ITT Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
200 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL
00 Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. 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 HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 999 1 ( 293) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 722 722 DN 613 722
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 722 $

```


Figure 105 Sample TRAVER output for TERMATT for example 3 (Continued)

```

TABLE DNINV
613 722 9090 FEAT AIN IBN COMKODAK 0 $
TABLE DNFEAT
TABLE TRIGGRP
SESIM_DN TERMATT
. TERMATT ( CT VBINFO)$ SESIMINF
Trigger AIN TERMATT is applicable to directory number.
Trigger AIN TERMATT: Trigger is active.
  (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . . SESIMINF EVENT TCAP R02 SS7 AINBLUES DFLT $
. . . TABLE C7GTTYPE
. . . AINBLUES ANSI7 11 $
. . . TABLE C7GTT
. . . AINBLUES 6137229090 6137229090 PCSSN (SIMT00L RTESET SIMT00L 0)
$ SSN
AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Term Attempt TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

39. Datafilling for responses

This chapter and, Chapter 40.:“Analyze Route response” through Chapter 46.:“Cancel_Resource response” deal with the datafilling requirements of the service switching point (SSP) to handle the responses received from the off-board processor, assuming the response messages are valid.

Each of the seven response types are described in a separate chapter. The topics for each chapter include the following:

- a brief description of the response type
- the datafilling steps for the response if datafilling is required
- some examples of the datafilling required and the TRAVER output for the examples if applicable

Table 225 illustrates the relationship between the AIN Essentials trigger detection points (TDPs) and responses.

Table 225 AIN response–TDP relationship

TDP	Response message						
	Analyze Route	Continue	Authorize Termination	Forward Call	Disconnect	Send to Resource	Cancel Resource
Origination Attempt	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Collected	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Information Analyzed	Res.	Res.	N/A	N/A	Res.	Res./ Conv.	N/A
Network Busy	Res.	N/A	N/A	N/A	Res.	Res./ Conv.	N/A
Termination Attempt	N/A	N/A	Res.	Res.	Res.	Res./ Conv.	N/A
Legend: Res. = Response Conv. = Conversation							

39.1 Generic SSP response message processing

This section describes the generic SSP functionality needed to interpret messages from the SCP or adjunct.

39.1.1 Abstract syntax and TCAP structure

This function provides the transfer syntax notation that is transmitted over the SSP to the SCP or its adjunct interface.

39.1.2 General SCCP procedure

This function provides low level generic SSP functionality to send and receive Unit Data (UDT) messages, message segmentation, and SCCP parameter population.

SCCP message segmentation provides a mechanism by which an increased amount of TCAP data can be passed between the SSP and SCP. This is achieved by splitting or segmenting the SCCP Extended Unit Data (XUDT) messages into smaller more manageable segments, sending them, and reassembling them at the receiving end. The segmenting mechanism itself is transparent to AIN.

Prior to NA009, AIN software only processed TCAP UDT messages up to 256 bytes. Starting in NA009, AIN software processes TCAP XUDT messages up to 610 bytes. Message to the SSP must not exceed 610 bytes in size, otherwise the SSP detects the following error: Fatal Protocol Error, Badly Structured Transaction Portion.

Note: With SCCP segmentation, incoming AIN messages may be up to 1024 bytes long. However, all planned GR-1299 messages are less than the maximum supported message size of 610 bytes. The limit of 610 bytes is applied to minimize processor time and memory waste.

39.1.3 SCCP procedure for SCP initial message

This function provides the procedures for sending messages to the SSP that correspond to SCP-originated transactions and Unidirectional Packages that are not related to an existing transaction.

39.1.4 SCCP procedure for SCP subsequent message

This function provides the procedures for sending messages to the SSP that are related to a particular transaction. These messages are sent only after an SSP Initial Message or an SCP Initial Message has been sent across the interface.

39.1.5 TCAP structure package

This function provides low level, generic procedures for using ANSI TCAP Package Types, Component Types, Transaction IDs, and Component IDs.

39.1.6 Call-related response message processing

This function provides transaction and component level procedures for sending call related messages to the SCP. As well, this function provides the SSP with procedures for call-related messages from the DSP.

In the message parameter tables in the following chapters:

- The parameters are listed in the order listed in the ASN.1 format of the message.
- Optional parameters have a capital O in parentheses at the end of their name.
- Mandatory parameters have a capital M in parentheses at the end of their name.

40. Analyze Route response

40.1 General

The Analyze Route (AR) response message can be received at the SSP from an off-board processor. It can be sent in response to AIN Essentials queries from the following trigger detection points (TDPs):

- ORIGATT
- INFOCOL
- INFOANAL
- NETBUSY

This response requests the SSP to resume call processing, taking into account the address, routing, and billing information provided in the message parameters.

40.2 SSP routing algorithm

The routing algorithm that the SSP uses is the following:

- If one or more routing lists are present, the SSP attempts to route on them first. The primary trunk group is first, the alternate trunk group is second (if present), and the second alternate trunk group is third (if present).

If one or more carriers are present, the SSP attempts to route on them only after trying to route on the routing lists. The primary carrier is first, the alternate carrier is second (if present), and the second alternate carrier is third (if present).

If the called party number (CDN) is present, the SSP attempts to route on it only after trying to route on the routing lists and there is no carrier or carrier ID 0110 is specified.

- If the last address that the SSP attempts to route on is a routing list or carrier and it is busy, then the call goes to General No Circuit Treatment (GNCT).

When the SSP attempts to route on a routing list, call processing resumes at the selecting route point in call.

When the SSP attempts to route on a carrier or a CDN, call processing resumes at the Analyzing Information (INFOANAL) point in call. As the call proceeds to the Selecting Route PIC, it encounters the INFOANAL trigger detection point (TDP). The call skips this TDP if the carrier specified is an Inter-exchange Carrier (IEC). If the carrier specified is a Local-exchange Carrier (LEC) or the SSP is attempting to route on the CDN, this TDP is not skipped.

40.3 Datafilling requirements for the SSP

AIN does not change or create any tables to handle the AR responses. Routing is done strictly by datafilling existing DMS tables. However, it is important to take into account the unique characteristics of the address parameters in the response message when preparing the SSP to handle an AR response. The address parameters in the response message that we are concerned about are the following:

- Routing lists, that is, trunk group IDs (Primary Trunk Group, Alternate Trunk Group, and Second Alternate Trunk Group)
- Carrier IDs (Primary Carrier, Alternate Carrier, and Second Alternate Carrier)
- CDN

To route a call over routing lists, see Section 40.4 “Routing on a routing list”.

To route a call based on a carrier only, a Called Party Number only, or a carrier with a Called Party Number, see Section 40.5 “Routing on a carrier, a Called Party Number, or a carrier with a Called Party Number”.

Chapter 48.: “Provisioning for post-response translations” on page 699 through Chapter 55.: “Options for offices supporting only 7-digit dialing for home numbering plan” on page 903 contain detailed information on how to set up the datafill to route a call on a carrier, Called Party Number or a carrier with a Called Party Number. TRAVER examples are also included in this document.

40.4 Routing on a routing list

This section provides information on the SSP handling of a route index.

40.4.1 SSP route index tables

One of the following tables on the DMS SSP needs to be datafilled depending on the route index in the Trunk Group ID parameter.

- OFRT
- OFR2
- OFR3

- OFR4
- IBNRTE
- IBNRT2
- IBNRT3
- IBNRT4

The routing index received from the off-board processor is eight digits encoded in binary-coded decimal (BCD).

40.4.2 Example

Steps 1 to 3 following Table 226 explain how to prepare the SSP to handle a route index received as part of the Trunk Group ID parameters of the AR message.

Table 226 BCD encoded route index

H	G	F	E	D	C	B	A
0	0	0	0	1	0	2	9

40.4.2.1 Step 1: Converting the route index from BCD format into an integer format

The SSP verifies that the digit field contains a value from 0 to 9 inclusive. Then, it converts the digits into an integer by concatenating the digits. In the example, the corresponding route index in integer format is 1029.

40.4.2.2 Step 2: Finding the DMS routing table and routing index

Using the routing index in integer format, see Table 227 to identify the DMS routing table and routing index.

Table 227 Trunk Group routing index to DMS routing table and index

Trunk Group routing index	DMS routing table name	DMS routing index
1 to 1023	OFRT	1 to 1023
1025 to 2047	OFR2	1 to 1023
2049 to 3071	OFR3	1 to 1023
3073 to 4095	OFR4	1 to 1023
10241 to 11263	IBNRTE	1 to 1023
11265 to 12287	IBNRT2	1 to 1023
12289 to 13311	IBNRT3	1 to 1023
13313 to 14335	IBNRT4	1 to 1023

For example, routing index 1029 corresponds to row 2 of Table 227 (1025 to 2047). Thus, the DMS routing table to be datafilled is OFR2. The DMS routing index is derived by subtracting the first number in the range in column 1 of row 2 (that is, 1025) from the routing index and adding 1. In our example, $1029 - 1025 + 1 = 5$.

40.4.2.3 Step 3: Validating the route

First, ensure that the route requested by the off-board processor has been datafilled on the DMS switch and the selectors used are supported for AIN.

Table 228 and 229 list the routing selectors supported for AIN.

Table 228 Selectors supported for tables OFRT, OFR2, OFR3, and OFR4

Routing selector's name	Routing selector
Integrated service access	ISA
Two stage outpulsing	TS
Standard Digit Manipulation	S
No Position for ANI failure or ONI.	NPOS
Normal outpulsing	N
AFR trigger	AFR
Table	T
Same table	ST
Directory number	DN

Table 229 Selectors supported for tables IBNRTE, IBNRT2, IBNRT2, and IBNRT4

Routing selector's name	Routing selector
Integrated Service Access	ISA
Standard Digit Manipulation	S
Normal outpulsing	N
Virtual Facility Group	VFG
Outwats	OW
AFR trigger	AFR
Table	T
Directory number	DN

If a route is unacceptable, that is, it contains a selector that is not supported or a routing index that is not datafilled on the switch, the DMS discards the trunk group parameter. All subsequent address parameters in the message are also discarded.

In our example, the corresponding tuple for routing index 5 in table OFR2 is shown in Table 230. It indicates that route index 1029 is routed over an outgoing trunk called ISUPTOOG using Standard Digit Manipulation.

Table 230 Sample tuple using the selector in table OFR2

RTE	ROUTELIST
5	(S D ISUPTOOG)

Note: We can not use TRAVER to verify that the SSP has been set up properly to handle an AR message with trunk group ID parameters because the trunk group ID option is not supported by TRAVER.

40.5 Routing on a carrier, a Called Party Number, or a carrier with a Called Party Number

Refer to Chapter 48.: “Provisioning for post-response translations” on page 699 through Chapter 55.: “Options for offices supporting only 7-digit dialing for home numbering plan” on page 903 for details.

40.6 Routing characteristics and digits used in translations

There are many carrier and CDN combinations that may be received in an AR response. When routing on a carrier, a CDN, or a carrier with a CDN, the following routing characteristics may be used to route a call:

- CDN (nature of number in the Called PartyID) values can be either NA (national), IN (international), and UNK (unknown). The default is UNK.
- OSA (Operator Service Access) values can be PUBP (Public Principle, send call to operating company operator), or PUBA (Public Alternate, send call to an interexchange carrier operator), or NIL, which is the default.
- OSA can also be PRIV (Private) though this value is not used by AIN.
- TNS (Transit Network Selection) values can be either NA (national) or NIL, which is the default.
- If the DMS has package NTX767 or NTX768, bearer capability (BC) should also be considered.

Before using Table 232 and 235 , it is necessary to understand the use of XXX vs. XXXX in Table 232 and of 10XXX vs. 101XXXX in Table 233. The off-board processor always sends a 4-digit carrier. However, sometimes DMS may interpret it as a 3-digit carrier code. The algorithm is detailed in Table 231.

Table 231 XXX carrier vs. XXXX carrier

Office parameter EAE0_FOUR_DIGIT_CIC_STATUS	Carrier received	Result
THREEDIG	0XXX	Use as XXX or 10XXX
	NXXX, where N does not equal 0	Disregard carrier parameter
PERMISSIVE	0XXX	Use as XXX or 10XXX
	5XXX or 6XXX	Use as XXXX or 101XXXX
	YXXX, where Y does not equal 0, 5 or 6	Disregard carrier parameter
FOURDIG	XXXX	Use as XXXX

Table 232 summarizes different carrier and CDN combinations and their corresponding routing characteristics that can be received in an AR response.

Table 232 Carrier and Called Party Number combination, and the corresponding routing characteristics

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	CDN	OSA	TNS
National number	10D	XXX	NA	NIL	NA
International number	7-15D	XXX	IN	NIL	NA
No address present, operator requested	0D	XXX	UNK	PUBA	NA
National number, operator requested	10D	XXX	NA	PUBA	NA
International number, operator requested	7-15D	XXX	IN	PUBA	NA
National number	10D	XXXX	NA	NIL	NA
International Number	7-15D	XXXX	IN	NIL	NA
No address present, operator requested	0D	XXXX	UNK	PUBA	NA
National number, operator requested	10D	XXXX	NA	PUBA	NA
International number, operator requested	7-15D	XXXX	IN	PUBA	NA
National number	10D	Not Present	NA	NIL	NIL
International number	7-15D	Not Present	IN	NIL	NIL
No address present, operator requested	0D	Not Present	UNK	PUBP	NIL
National number, operator requested	10D	Not Present	NA	PUBP	NIL
International number, operator requested	7-15D	Not Present	IN	PUBP	NIL
Carrier cut-through	Not present	XXX	UNK	NIL	NA
Carrier cut-through	Not present	XXXX	UNK	NIL	NA
Note 1: If one of the carrier parameters contains a LEC (identified by 110), the DMS translates as though the carrier were not present.					
Note 2: The last two rows of the table are allowed in an end office only					

Table 235 summarizes the digits used in translation for various carrier and Called Party Number combinations. Once the call is in the POTS environment, the fields FROMDIGS and TODIGS in subtable STDPRT of table STDPRTCT must be set according to the digits in the translation.

Table 233 Digits used in translation

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations for an end office	Digits used in translations for an access tandem
National number	10D	XXX	10XXX+(10)D	XXX+(10)D
International number	7-15D	XXX	10XXX+(7-15)D	XXX+(7-15)D
No address present, operator requested	0D	XXX	10XXX0	XXX0
National number, operator requested	10D	XXX	10XXX0+(10)D	XXX0+(10)D
International number, operator requested	7-15D	XXX	10XXX0+(7-15)D	XXX0+(7-15)D
National number	10D	XXXX	101XXXX+(10)D	XXXX(10)D
International number	7-15D	XXXX	101XXXX+(7-15)D	XXXX+(7-15)D
No address present, operator requested	0D	XXXX	10XXXX0	XXXX0
National number, operator requested	10D	XXXX	101XXXX0+(10)D	XXXX0+(10)D
International number, operator requested	7-15D	XXXX	101XXXX0+(7-15)D	XXXX0+(7-15)D
National number	10D	Not Present	(10)D	
International number	7-15D	Not Present	(7-15)D	
No address present, operator requested	0D	Not Present	0	
National number, operator requested	10D	Not Present	0+(10)D	
International number, operator requested	7-15D	Not Present	0+(7-15)D	
Carrier cut-through	Not present	XXX	10XXX	N/A
Carrier cut-through	Not present	XXXX	101XXXX	N/A
Note: A national number is supported only if it is a 10-digit number, an N11 number, or a 950-XXXX number. Table 233 shows the 10-digit number configuration.				

40.6.1 Example

An AR is required with CDN NA 6136210501 and no carrier is received at the SSP end office. Neither NTX767 nor NTX768 is present. From Table 232, you can identify the routing characteristics of the call as CDN = NA, OSA = NIL, and TNS = NIL. The digits used in translation are 6136210501.

40.6.2 Some SSP routing options

It is also possible for an AR response to instruct the SSP to route the call as an

- OSA (Operator Service Access) Zero Minus call

A CDN with no digits and no carrier is received in the AR response

- OSA Zero Plus call

A CDN with digits but no carrier is received in the AR response

- Carrier cut-through call

Only a carrier, but no Called Party Number, is received in an AR response in an end office

- International call

An International CDN is received in the AR message.

Unless the originator is an IBN agent (Case 1) or an IT trunk receiving an equal access (EA) carrier in an AT office (Case 2), datafill for all these types of call is the same as for a non AIN call. However, digits used in translation must be obtained from Table 235.

40.7 Datafilling tables RCNAME and RTECHAR

Table RTECHAR associates an RCNAME with several routing characteristics. The RCNAME is used throughout the translations and routing to select a route based on the routing characteristics of the call.

A routing characteristic name must be datafilled in table RCNAME before it can be referenced from table RTECHAR.

Figure 106 and 107 show sample datafill in table RCNAME and table RTECHAR. These RCNAMEs are used throughout this chapter.

Figure 106 Sample AR RCNAMEs defined in table RCNAME

```
TAB RTECHAR

CDNPUB
TNSPUB
OSAAPUB
OSAPPUB
OSAAPBZM
CICONLY
```

Figure 107 Sample AR RCNAMEs and their routing characteristics in table RTECHAR

```
TAB RTECHAR

CDNPUB
(CDN NA $)
(CDN IN $)
( BC 3_1KHZ (CDN NA) $)
( BC 3_1KHZ (CDN IN) $) $

TNSPUB
(CDN NA (TNS NA) $ )
(CDN IN (TNS NA) $)
(BC 3_1KHZ (CDN NA) (TNS NA) $) $

OSAAPUB
(OSA PUBA (CDN NA) (TNS NA) $)
(OSA PUPB (CDN IN) (TNS NA) $)
(BC 3_1KHZ (OSA PUBA) (CDN NA) (TNS NA) $ )
(BC 3_1KHZ (OSA PUBA) (CDN IN) (TNS NA) $ )$

OSAPPUB
(OSA PUBP (CDN NA) $)
(OSA PUBP (CDN IN) $)
(BC 3_1KHZ (OSA PUBP) (CDN NA) $)
(BC 3_1KHZ (OSA PUBP) (CDN IN) $ ) $

CICONLY
(TNS NA $) $
```

The routing characteristics identified in the example correspond to the (CDN NA) entry under the RCNAME CDNPUB.

The TRAVER utility can be used to verify that the call picks up the RCNAME in translation. Figure 108 shows a sample TRAVER output for a call when the routing characteristics are present.

Figure 108 Finding the AR RCNAME

```

traver l 7224011 n cdn na 6136210501 tns na cic 777 ainres r01 ar b
Warning: Routing characteristics are present.
Originator must be able to send in
characteristics specified.
TABLE RTECHAR
. TNSPUB (CDN NA (TNS NA)$) (CDN IN (TNS NA)$) ( BC 3_1KHZ (CDN NA)
(TNS NA)$) ( BC 3_1KHZ (CDN IN) (TNS NA)$)$
TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $
.....

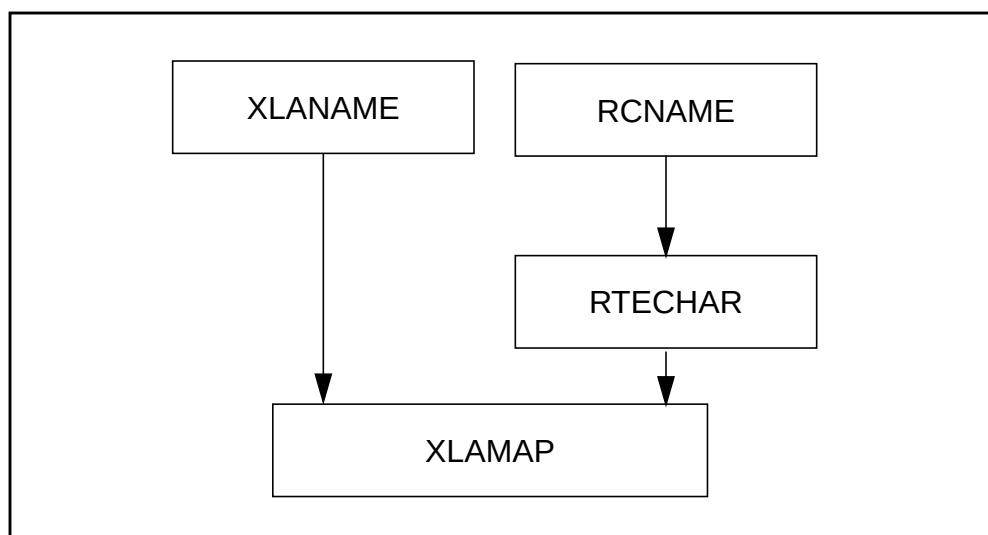
```

40.8 Datafilling IBN-originated calls

For IBN-originated calls the private dialing plan is enforced. However, the CDN is received as a public number. The translations have to be moved to the public environment using the Integrated Services Digital Network (ISDN) routing characteristics tables.

40.8.1 Tables to be datafilled

Figure 109 illustrates the datafill hierarchy to move a call from the private to the public environment.

Figure 109 AR datafill hierarchy for moving a call from the private to the public environment

Assuming that the tables RCNAME and RTECHAR have already been datafilled, only the tables XLANAME and XLAMAP need to be datafilled. Table XLANAME must be datafilled before table XLAMAP.

40.8.2 Walk-through example

A call originates from an IBN line (DN 7224011) and triggers from the private environment at any TDP except TERMATT. An AR response is received that instructs the call to route based on a national CDN (6136210501) and a carrier (777).

40.8.2.1 Step 1: Datafilling table XLANAME

The new pretranslator name must be defined in table XLANAME before it can be referenced in table XLAMAP. It is used to move the translations to the public environment.

Table 234 shows the tuple used in the walk-through example.

Table 234 Sample tuple in table XLANAME

XLANAME	TRSEL	Other fields	NET_TYPE	OPTION	LINATTR	Other fields
AINPUB (Note)	NET		GEN	LATTR	0	

Note: Pre-translator AINPUB allows a call to go into the POTS environment with the GEN selector. The call is routed to a line with the LINATTR index 0.

40.8.2.2 Step 2: Datafilling table XLAMAP

Table XLAMAP is used to replace the predefined pretranslator with a new pretranslator for IBN calls. The new pretranslator, defined in XLANAME in Step 1, must already be datafilled.

Table 235 shows the tuple used in the walk-through example.

Table 235 Sample tuple in table XLAMAP

XLAKEY	SEL	NEWXLA
TNSPUB PXDK	XLA	AINPUB

Where:

TNSPUB is the RCNAME associated with the call.

PXDK is the pre-defined pretranslator for the call.

XLA is needed for replacing the pre-translator specified in XLAKEY with the pretranslator specified in field NEWXLA.

AINPUB is the new pre-translator for the call. It was datafilled in table XLANAME from step 1.

40.8.2.3 Step 3: Verifying with TRAVER

TRAVER can be used to verify that the call is translated correctly. The routing characteristics of the call must be specified in the TRAVER command.

Table 236 shows the TRAVER output for the walk-through example. It shows the translation order. Highlighted (bold) in the display are the following:

- TRAVER command
- tuples added in table RTECHAR, XLAMAP and XLANAME (The tuple added to RCNAME is not shown directly from the output.)

Note: The TRAVER output is not complete. It shows only the section that is required to illustrate how to move translations from the private to the public environment based on RCNAME.

Table 236 Sample AR TRAVER output for moving translation from IBN to POTS environment

```

>traver l 7224011 n cdn na 6136210000 tns na cic 777 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.

TABLE RTECHAR
. TNSPUB (CDN NA (TNS NA)$) (CDN IN (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS
NA)$) ( BC 3_1KHZ (CDN IN) (TNS NA)$)$

TABLE IBNLINES
HOST 00 0 02 18 0 DT STN IBN 7224011 COMKODAK 0 0 613 $

TABLE DNATTRS
TUPLE NOT FOUND

TABLE DNGRPS
TUPLE NOT FOUND

TABLE IBNFEAT
TUPLE NOT FOUND

TABLE CUSTSTN
TUPLE NOT FOUND

TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFICETRIG

TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK

TABLE DIGCOL
KDK 1 RPT

TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
NCOS PRELIM XLA name is NIL. Go to next XLA name.

TABLE XLAMAP
. TNSPUB PXDK ( XLA AINPUB)$

TABLE IBNXLA: XLANAME AINPUB
TUPLE NOT FOUND

```

Table 236 Sample AR TRAVER output for moving translation from IBN to POTS environment (Continued)

```

DEFAULT FROM TABLE XLANAME:
AINPUB
  (NET N N N 0 N NDGT N N GEN ( LATTR 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 NLCA TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
  N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
  . TNSPUB P621 ( XLA AIN)$
TABLE STDPRTCT
  . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
  . 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
613 802 1 ( 212) ( 1) ( 84) ( 0) 0
  . SUBTABLE HNPACODE
  . KEY NOT FOUND
  . DEFAULT VALUE IS:   VCT VACT N
TABLE TMTCNTL

```

Table 236 Sample AR TRAVER output for moving translation from IBN to POTS environment (Continued)

```

LNT ( 110)
. SUBTABLE TREAT
. VACT Y T OFRT 52
. TABLE OFRTMAP
. . Tuple not found. Default to old index.
. TABLE OFRT
.   52 S D VCA
.     S D *OFLO
.     S D LKOUT
. EXIT TABLE OFRT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

TREATMENT ROUTES.  TREATMENT IS: VACT
1 VCA
2 *OFLO
3 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

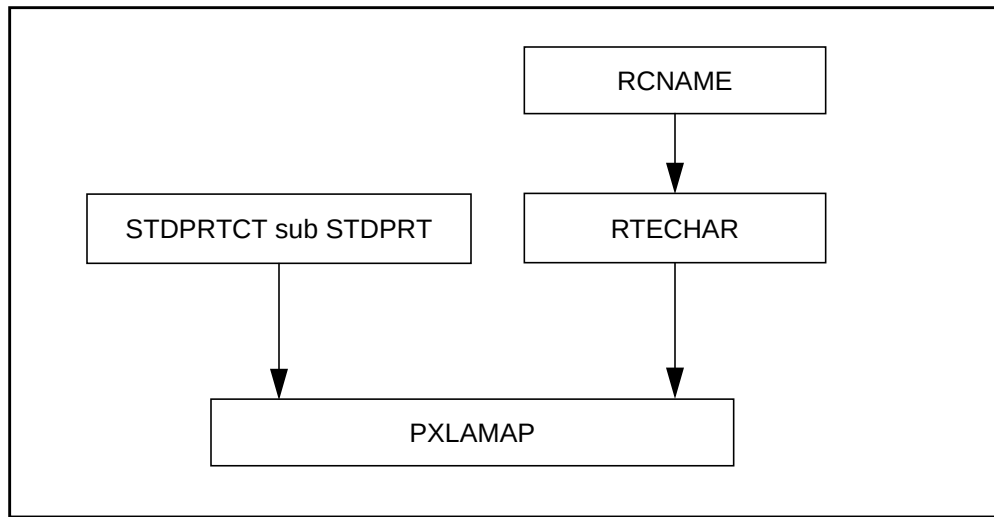
40.9 Datafilling an IT trunk-originated call that receives an EA carrier in an AT office

An EA carrier, specified in the AR message, does not contain the 0ZZ prefix. The SSP must enforce a pretranslator that translates the XXX digits based on the Equal Access Tandeming (ET) selector.

40.9.1 Tables to be datafilled

Figure 110 illustrates the datafill hierarchy for POTS IT trunk-originated calls that receive an EA carrier.

Figure 110 AR datafilling hierarchy for POTS IT trunk-originated calls that receive an EA carrier



Assuming that tables RCNAME and RTECHAR have been datafilled, only tables STDPRTCT and PXLAMAP still require datafill. Table STDPRT must be datafilled before table PXLAMAP.

40.9.2 Walk-through example

In an AT office, a call, originating from the incoming ISUPITIC (ISUP IT trunk), triggers at an AIN Essentials TDP that is valid to receive an AR response. The response is received from the off-board processor with an Equal Access Carrier 777 and a national CDN 6136210000. The SSP routes the call to terminate on DN 6210000.

40.9.2.1 Step 1: Datafill Table STDPRTCT and its subtable STDPRT

A new pretranslator must be defined in table STDPRTCT before it can be referenced in table PXLAMAP.

For the walk-through example, first add the new pre-translator name AIN to table STDPRTCT. Then, go to its subtable and add the tuple shown in Table 237.

Table 237 Sample datafill in subtable STDPRT

FROMDIGS	TODIGS	PRERTSEL	Other fields
777	777	ET	DD GTE Y OFRT 896 3 16
Where: 777 is the digits used in translation. ET is the equal access tandem selector. 896 is the index into table OFRT. GTE is the carrier name to route the call			

40.9.2.2 Step 2: Datafilling table PXLAMAP

Table PXLAMAP is used to replace the predefined pre-translator with a new pre-translator for POTS calls. (See Table 238 for sample tuple.) The new pre-translator defined in Step 1 must be datafilled to replace the predefined pre-translator.

Table 238 Sample tuple in table PXLAMAP

XLAKEY	SEL	NEWXLA
TNSPUB P621	XLA	AIN
Where: TNSPUB is the RCNAME associated with the call. P621 is the pre-defined pretranslator for the call. XLA is needed for replacing the pre-translator specified in XLAKEY with the pretranslator specified in field NEWXLA. AIN is the new pre-translator for the call. It was datafilled in table STDPRT from step 1.		

40.9.2.3 Step 3: Verifying with TRAVER

The TRAVER utility can be used to verify that the call is translated correctly. The routing characteristics of the call must be specified in the TRAVER command.

Note: The UNK followed by a carrier ID rather than CIC followed by a carrier ID should be specified because the call originates from an AIN AT and not an end office.

Figure 109 shows the TRAVER output for the walk-through example. It shows the translation order. Highlighted (bold) are the following:

- the TRAVER command

- the tuples added in tables RTECHAR, PXLAMAP and STDPRTCT (the tuple added to RCNAME is not shown directly from the output)

Figure 111 Sample AR TRAVER output for IT trunk calls receiving an EA carrier in an AT office

```

>traver tr isupitic n cdn na 6136210000 tns na unk 777 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. TNSPUB (CDN NA (TNS NA)$) (CDN IN (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS
NA)$) ( BC 3_1KHZ (CDN IN) (TNS NA)$)$
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 P621 NSCR 613 000 N Y $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFFICETRIG
TABLE PXLAMAP
. TNSPUB P621 ( XLA AIN)$
TABLE STDPRTCT
AIN ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 777 777 ET DD 3 GTE Y OFRT 896 3 16
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 896 CND EA INTNL SK 3
. . N D ISUPOGGTE 0 N N
. . S D OGEAITT
. . CND ALWAYS SK 2
. . N D ISUPOGGTE 3 N N
. . S D OGEAITT
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPOGGTE 6136210000 ST
2 OGEAITT 6136210000 ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

40.10 Datafilling a local trunk originated call that receives an EA FGD carrier in an EAEO or AT office

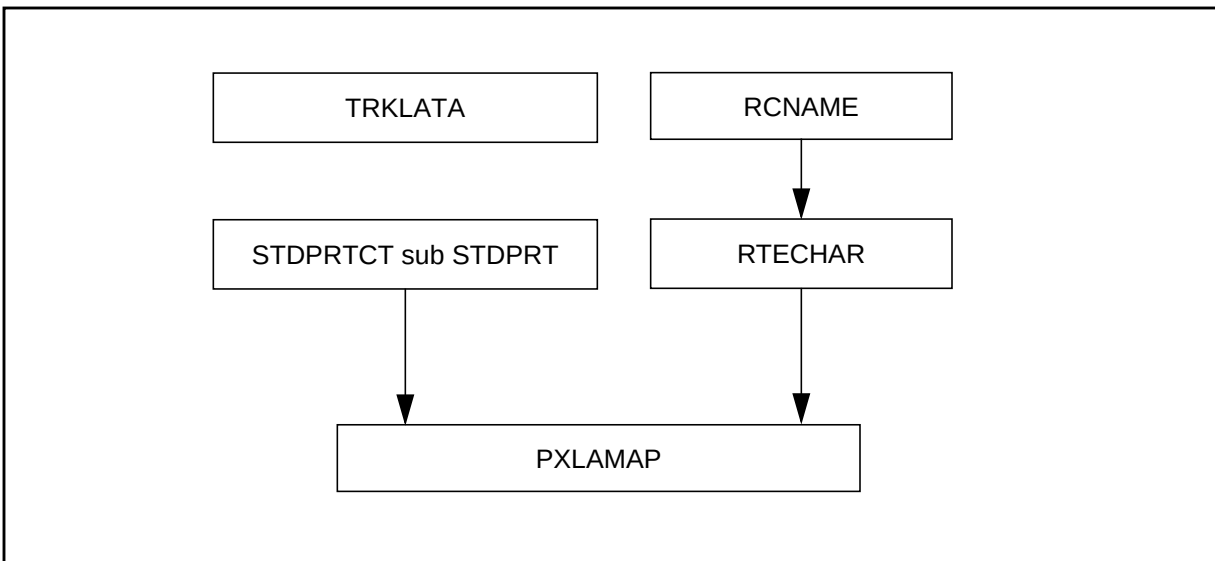
An EA FGD carrier, as specified in the AR message, does not contain the 0ZZ prefix. The SSP must enforce a pre-translator that translates the XXX digits based on the equal access tandeming (ET) selector.

For a POTS local trunk originated call to be redirected to an EA FGD carrier, the ChargeNumber and ChargePartyStationType parameters have to be present in the AR response. Both parameters are used to generate the FGD signaling and the ChargeNumber is also used to index table TRKLATA to deduce the originating LATA.

40.10.1 Tables to be datafilled

Figure 112 illustrates the datafill hierarchy for POTS local trunk originated calls that receive an EA FGD carrier.

Figure 112 AR datafilling hierarchy for POTS local trunk originated calls that receive an EA FGD carrier



Assuming that tables RCNAME and RTECHAR have already been datafilled, only tables TRKLATA, STDPRCT and PXLAMAP require datafill. Table STDPRCT must be datafilled before table PXLAMAP.

40.10.2 Walk-through example

A call, incoming on local trunk (L613MFTI), triggers at an AIN Essentials TDP that is valid for receiving an AR response. The response is received from the off-board processor with an Equal Access Carrier 205, a national CDN 8196261506, a ChargePartyStationType and a ChargeNumber of 6136211088. The SSP routes the call to terminate on DN 6261506.

40.10.2.1 Step 1: Datafill table TRKLATA

Table TRKLATA must be datafilled for LATA screening before the call can be routed to the FGD carrier. Table 239 provides a sample of table TRKLATA datafill. If it is not datafilled, the call is still routed to the FGD carrier but without LATA screening. The triggering trunk and the ChargeNumber are used to index table TRL to deduce the LATA of the incoming call for use in LATA screening.

Table 239 Sample datafill in table TRKLATA

ORIGKEY	ORIGLATA	LEASTRK
L613MFTI6136211088	USEA1	N
L613MFTI000	USEA1	N
Where: L613MFTI6136211088 is the index consisting of the triggering trunk and ChargeNumber USEA1 is the originating LATA name N indicates that it is not a LEAS trunk		

40.10.2.2 Step 2: Datafill table STDPRTCT and its subtable STDPRT

A new pre-translator must be defined in table STDPRTCT before it can be referenced in table PXLAMAP.

For the walk-through example, first add the new pre-translator name NAPC to table STDPRTCT. Then go to its subtable and add the tuples shown in Table 240.

Table 240 Sample datafill in subtable STDPRT

FROMDIGS	TODIGS	PRERTSEL	Other fields
205	205	ET	DD 3 UNT5 Y OFRT 129 3 20
Where: 205 are the digits used in translation ET is the equal access tandem selector UNT5 is the carrier name to route the call 129 is the index into table OFRT			

40.10.2.3 Step 3: Datafilling table PXLAMAP

Table PXLAMAP is used to replace the predefined pre-translator with a new pre-translator for local trunk calls. Table 241 provides a sample of table

PXLAMAP datafill. The new pre-translator defined in step 2 must be datafilled to replace the predefined pre-translator.

Table 241 Sample datafill in table PXLAMAP

XLAKEY	SEL	NEWXLA
NACAR P613	XLA	NAPC

Where:

NACAR is the RCNAME associated with the call (national call with carrier)

P613 is the predefined pre-translator for trunk L613MFT1

XLA is needed for replacing the pre-translator specified in XLAKEY with the pre-translator specified in NEWXLA

NAPC is the new pre-translator for the call

40.10.2.4 Step 4: Verifying with TRAVER

The TRAVER utility can be used to verify that the call is translated correctly. The routing characteristics of the call must be specified in the TRAVER command.

Note: The UNK followed by a carrier ID rather than CIC followed by a carrier ID should be specified because the call behaves like it is being originated from an AIN AT and not from an end office.

Table 242 shows the TRAVER output for the walk-through example. It shows the translation order. Highlighted (bold) are the following:

- the TRAVER command
- the tuples added in tables RTECHAR, PXLAMAP, STDPRTCT, and TRKLATA. The tuple added to RCNAME is not shown in the TRAVER output.

Table 242 Sample AR TRAVER output for local trunk calls receiving an EA FGD carrier

```

> traver tr 1613mfti n cdn na 8196261506 tns na unk 205 ainchg 6136211088 ainres
r01 ar b

Warning:          Routing characteristics are present.
                  Originator must be able to send in
                  characteristics specified.

TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$)$
TABLE TRKGRP
L613MFTI TI 0 ELO NCRT NIL P613 NSCR 613 LCL N N (LNP 1NNNC62NN3) $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
TABLE PXLAMAP
. NACAR P613 ( XLA NAPC)$
TABLE STDPRTCT
NAPC ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 205 205 ET DD 3 UNT5 Y OFRT 129 3 24
. . TABLE OFRTMAP
. . Tuple not found. Default to old index.
. . TABLE OFRT
. . 129 CDN EA INTNL SK 2
. . N D MFIT_613_A 15 D081 N
. . CDN ALWAYS SK 1
. . N D MFIT_613_A 15 D138 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE TRKLATA
L613MFTI 6136211088 USEA1 N
TABLE LATAOLA
USEA1 819626 INTER INTER STD
. Not checked for AIN 0.1 TNS response processing
TABLE OCCINFO
UNT5 0205 EAP Y Y Y N Y N N Y Y Y N LONG 61 FGRPD N N Y N N N N N N N N N N Y
Using Equal Access (EA) route OFRT 129 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.

```

Table 242 Sample AR TRAVER output for local trunk calls receiving an EA FGD carrier (Continued)

```

TABLE OFRT
  129 CDN EA INTNL SK 2
    N D MFIT_613_A 15 D081 N
    CND ALWAYS SK 1
    N D MFIT_613_A 15 D138 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 MFIT_613_A      D081          ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

40.11 Post query processing of a call originating from SC LEAS trunk

When a SuperCama (SC) trunk is datafilled to carry LEAS traffic in an AIN call, table TRKLATA and either table DNPIC or table DNLPIK must be datafilled. Please refer to document NTX710AA, *LATA Equal Access System, Digital Switching System DMS 100 Family General Feature Description* for more information on provisioning these tables.

40.11.1 Walk-through example 1

A call originated from a plain ordinary telephone service (POTS) line is routed via a SuperCama trunk. The DN of the originator is 6136218918.

In an Access Tandem (AT) office, the incoming call on an SC trunk triggers at an AIN Essentials TDP at which an Analyze Route response can be received. The response is received from the off-board processor with a DN 6706218919 and a charge number 6137221111. The SSP routes the call to terminate on DN 6218919.

40.11.1.1 Step 1: datafill table TRKLATA

For the walk-through example, datafill table TRKLATA as shown in Table 243.

Table 243 Sample datafill in table TRKLATA

ORIGKEY	ORIGLATA	LEASTRK
SC2WB 6136218918	LATA1	Y T DACD
SC2WB 6137221111	LATA1	Y T DACD
Where:		
SC2WB 6137221111	is the index into table TRKLATA, consisting of the trunk group CLLI name and the 10-digit number	
Y T DACD	indicates that the trunk is a LEAS trunk and default treatment is DACD	
LATA1	is the originating LATA name	

40.11.1.2 Step 2: datafill table DNPIC

For the walk-through example, datafill table DNPIC as shown in Table 244.

Table 244 Sample datafill in table DNPIC

DNKEY	DNPIC	CHOICE	CTD
613 722 11 11	ITT	Y	N
613 621 89 18	ITT	Y	N
Where:			
613 722 11 11	is a directory number. In this case it is the charge number in the response from the SCP		
ITT	is the carrier name		
Y	indicates subscriber is allowed to use 10XXX dialing		
N	indicates no carriers are denied service to this subscriber		

40.11.1.3 Step 3: verify with TRAVER

The TRAVER utility can be used as shown in Table 244 to verify that the call is translated correctly.

Table 245 TRAVER: SC LEAS post-query processing when SCP returns an Analyze Route to a DN with a charge number

```
traver tr sc2wb n cdn na 6706218919 ainchg 6137221111 ainres r01 ar b n st
06136218918 st
```

Warning: Routing characteristics are present.

Originator must be able to send in
characteristics specified.

TABLE RTECHAR

. LECNA (CDN NA \$) (BC 3_1KHZ (CDN NA)\$)\$

TABLE TRKGRP

```
SC2WB SC 0 TLA NCRT NIL N 613 TCA3 NONE DD ONHOOK ONHOOK 5 5 5 2W MIDL 0 BELL
REGULAR CAMA NONE REV Y N $
```

Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.

TABLE PXLAMAP

. Tuple not found. Default to old pretranslator name.

TABLE STDPRTCT

TCA3 (1) (65021) 0

. SUBTABLE STDPRT

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.

. 67 819554 N DD 0 NA

. SUBTABLE AMAPRT

. KEY NOT FOUND

. DEFAULT VALUE IS: NONE OVRNONE N

TABLE HNPACONT

613 Y 932 2 (384) (1) (84) (0) 0

. SUBTABLE HNPACODE

. 670 670 HNPAC 0

. 6218 6219 DN 613 621

TABLE OFCVAR

AIN_OFFICE_TRIGGRP OFCTRIG

Table 245 TRAVER: SC LEAS post-query processing when SCP returns an Analyze Route to a DN with a charge number (Continued)

```

TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 8919 L HOST 05 1 12 11
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
DETERMINE IF THE ROUTE SHOULD BE REPLACED WITH A NEW EQUAL ACCESS ROUTE
TABLE TRKLATA
SC2WB 6137221111 LATA1 Y T DACD
TABLE EASAC
TUPLE NOT FOUND
TABLE LATAXLA
LATA1 670 INTER INTER STD
TABLE DNPIC
613 722 11 11 ITT Y N
TABLE OCCINFO
ITT 0488 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
TABLE PXLAMAP

```

Table 245 TRAVER: SC LEAS post-query processing when SCP returns an Analyze Route to a DN with a charge number (Continued)

```

. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
TCA3 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . . 900 CND EA INTNL SK 2
. . . N D ISUPOGITT 0 N N
. . . CND ALWAYS SK 1
. . . N D ISUPOGITT 15 D179 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA1 ( 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 ITT N
Using Equal Access (EA) route OFRT 900 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
900 CND EA INTNL SK 2
N D ISUPOGITT 0 N N
CND ALWAYS SK 1

```

Table 245 TRAYER: SC LEAS post-query processing when SCP returns an Analyze Route to a DN with a charge number (Continued)

```

      N D ISUPOGITT 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT
+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
ISUPOGITT          6706218919          ST
BILL              6136218918

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

40.11.2 Walk-through example 2

A call originated from a plain ordinary telephone service (POTS) line is routed via a SuperCama trunk. The DN of the originator is 6136218918.

In an Access Tandem (AT) office, the incoming call on an SC trunk triggers at an AIN Essentials TDP at which an Analyze Route response can be received. The response is received from the off-board processor with an Equal Access carrier 777, a national CDN 6706218919, and a charge number 6137221111. The SSP routes the call via the carrier specified in the SCP response to terminate on DN 6218919.

40.11.2.1 Step 1: datafill table TRKLATA, table DNPIC

Datafill table TRKLATA as shown in Table 243.

40.11.2.2 Step 2: verify with TRAYER

The TRAYER utility can be used as shown in Table 246 to verify that the call is translated correctly.

Table 246 TRAYER: SC LEAS post-query processing when SCP returns Analyze Route with a carrier and a charge number

```
traver tr sc2wb n cdn na 6706218919 tns na cic 0777 ainchg 6137221111 ainres
r01 ar b n st 06136218918 st
```

Warning: Routing characteristics are present.

Originator must be able to send in
characteristics specified.

TABLE RTECHAR

. IXCDDNA (CDN NA (TNS NA)\$) (BC 3_1KHZ (CDN NA) (TNS NA)\$)\$

TABLE TRKGRP

```
SC2WB SC 0 TLA NCRT NIL N 613 TCA3 NONE DD ONHOOK ONHOOK 5 5 5 2W MIDL 0 BELL
REGULAR CAMA NONE REV Y N $
```

Warning: Routing characteristics in TRAYER command
line will override any bearer capability datafilled
in table TRKGRP.

TABLE PXLAMAP

. Tuple not found. Default to old pretranslator name.

TABLE STDPRTCT

TCA3 (1) (65021) 0

. SUBTABLE STDPRT

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.

. 10777 10777 EA DD 5 P PEA2 GTE Y OFRT 896 5 20 N

. . TABLE OFRTMAP

. . . Tuple not found. Default to old index.

. . TABLE OFRT

. . 896 CND EA INTNL SK 2

. . N D ISUPOGGTE 0 N N

. . CND ALWAYS SK 1

. . N D ISUPOGGTE 15 D179 N

. . EXIT TABLE OFRT

TABLE PXLAMAP

Table 246 TRAVER: SC LEAS post-query processing when SCP returns Analyze Route with a carrier and a charge number (Continued)

```

. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA2 ( 1) (65021) 0
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO DOCUMENTATION.
. . 6 9 EA DD 0 T NA GTE N
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 384) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 670 670 HNPAC 0
. 6218 6219 DN 613 621
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 8919 L HOST 05 1 12 11
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
DETERMINE IF THE ROUTE SHOULD BE REPLACED WITH A NEW EQUAL ACCESS ROUTE
TABLE TRKLATA
SC2WB 6137221111 LATA1 Y T DACD
TABLE EASAC
TUPLE NOT FOUND
TABLE OCCINFO
GTE 0777 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

```

Table 246 TRAVER: SC LEAS post-query processing when SCP returns Analyze Route with a carrier and a charge number (Continued)

```
TABLE LATA1
LATA1 670 INTER INTER STD
TABLE DNPIC
613 722 11 11 ITT Y N
Using Equal Access (EA) route OFRT 896 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
896 CND EA INTNL SK 2
      N D ISUPOGGTE 0 N N
      CND ALWAYS SK 1
      N D ISUPOGGTE 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

ISUPOGGTE          6706218919          ST
BILL              6136218918
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

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

41. Continue response

41.1 General

The Continue (CONT) response is an off-board processor-to-SSP message that can be received only at the Information Analyzed (INFOANAL) trigger detection point (TDP). It instructs the call to continue processing at the INFOANAL TDP and trigger again if more triggers are found. If no more triggers are found, the SSP attempts to route the call.

If there is not enough information to perform normal routing, the call is sent to treatment. For example, after a Customized Dialing Plan (CDP) trigger with the off-board processor feature access code (FAC) (off-board processor feature activation request), the off-board processor sends back a CONT response. There is no information on how the call should be routed. In such a case, the call is sent to AIN FINAL (AINF) treatment.

41.2 Datafilling requirements

No extra AIN datafill is required.

41.3 Continue examples

The following three examples are selected to show CONT response processing at the SSP. Although no extra AIN datafill is required for CONT response, you might like to get familiar with TRAVER outputs in order to predict how call processing continues to process the call.

For instructions on how to datafill the SSP to trigger at Public Office Dialing Plan (PODP), N11, or CDP trigger, see the corresponding trigger chapters in this document.

41.3.1 Example 1: Continue at PODP

From a Meridian Digital Centrex (MDC) DN 7225028, dial 92132850000. The call triggers at PODP(10) and queries the database. (See sample output in Table 247.)

An AIN CONT response is received from the off-board processor. The call continues to trigger at PODP(6) and queries the database again.

If an AIN CONT response is received from the off-board processor again, the call continues to trigger at PODP(3) and queries the database again.

If an AIN CONT response is received from the off-board processor again, since no more triggers are found, the SSP attempts to route the call to the terminating DN.

41.3.2 Example 2: Continue at N11

From a POTS line (6214777), dial 411. The call triggers at N11. (See sample output in Table 248.)

An AIN CONT response is received at the SSP. Since no more triggers are found, the call attempts to terminate.

41.3.3 Example 3: Continue at CDP

From an MDC line (7223214), dial extension 26992 to trigger at CDP. (See sample output in Table 249.)

An AIN CONT response is received at the SSP. Since no more triggers are found, the call attempts to terminate.

41.3.4 Verifying examples with TRAVER

The AINRES TRAVER option allows routing information to be displayed when a CONT response is received. When this option is used, the Origination Attempt (ORIGATT) and Information Collected (INFOCOL) TDPs are not displayed in the TRAVER, but the Information Analyzed and subsequent TDPs are displayed. The purpose of the CONT response is to instruct the SSP to continue processing at the next trigger in the Information Analyzed TDP. Since this is only a simulated call and it is not known which trigger was last processed, TRAVER displays all triggers subscribed by the originator at the Information Analyzed TDP and continues simulation of the call. The Network Busy (NETBUSY) and Termination Attempt (TERMATT) TDPs may be encountered.

Table 247, 248 , and 249 show the TRAVER outputs from the Continue response perspective. Highlighted (bold) are the following:

- the TRAVER commands
- the TRAVER output specific to AIN CONT response

Table 247 CONT in response to PODP query sample TRAVER output (example 1)

```

>traver l 7225028 92132850000 ainres r01 cont b
TABLE KSETLINE
HOST 00 1 10 24 1 DN Y 7225028 COMKODAK 0 0 613 (3WC) (RAG) (MSB) (CFX) (MWT)
$
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 9 NET N Y N 1 Y POTS Y N DOD N 80 NONE $
TABLE DIGCOL
POTS specified: POTS digit collection
TABLE LINEATTR
80 IBN NONE NT FR01 0 613 PKDK L613 TSPS 0 NIL NILSFC NILLATA 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
PKDK ( 1) (65021) 0

```

Table 247 CONT in response to PODP query sample TRAVER output (example 1) (Continued)

```

. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 2210 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 802 1 ( 212) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 213 213 HNPA 0
. 285 285 LRTE 802
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. Continue option: All matched digit criteria will be displayed
. . TABLE TRIGDIG
. . PODPDIG PODP 2132850000 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 2132850000 2132850000 SSNONLY (AINTTEST) $
. . PODPDIG PODP 213285 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 2132850000 2132850000 SSNONLY (AINTTEST) $
. . PODPDIG PODP 213 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $

```

Table 247 CONT in response to PODP query sample TRAVER output (example 1) (Continued)

```

. . . TABLE C7GTT
. . . AINJAZZ 2132850000 2132850000 SSNONLY (AINTST) $
AIN Info Analyzed TDP: AINRES continue option selected
. SUBTABLE RTEREF
. 802 DN 213 285
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPACONT results are used.
TABLE LCASCRN
613 L613 ( 11) MNDT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
TUPLE NOT FOUND. DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                2132850000          ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Note: When a CONT response is received at the SSP in response to a PODP query, the SSP matches the next most specific digits. In Example 1, the call triggers at PODP(10), that is, 2132850000, and when the SSP receives a CONT response, the next most specific digits matched are 213285.

Table 248 CONT response to N11 query sample TRAVER output (example 2)

```

traver l 6214777 411 ainres r01 cont b
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 NLCA TSPS 10 NIL NILSFC NILLATA 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 N11TRIG
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 411 411 T OA 0 OFRT 185 3 3 NONE
TABLE TRIGGRP
N11TRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. Continue option: All matched digit criteria will be displayed
. . TABLE TRIGDIG
. . N11DIG N11 411 N11 EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT

```

Table 248 CONT response to N11 query sample TRAVER output (example 2) (Continued)

```
. . . AINJAZZ 4110000000 4110000000 SSNONLY (AINTST) $
AIN Info Analyzed TDP: AINRES continue option selected
. . TABLE OFRT
. . 185 N D LNAOSS0 0 N Y
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LNAOSS0          NN          ST

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

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


Table 249 CONT response to CDP query sample TRAVER output (Example 3)

```

>traver l 7223214 26992 ainres r01 cont b
TABLE IBNLINES
HOST 00 0 07 05 0 DT STN IBN 7223214 COMKODAK 0 0 613 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
COMKODAK AIN AIN CDPTRIG
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK FTCOMM 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 26 EXTN N N Y 613 722 5 $
TABLE TRIGGRP
CDPTRIG INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
. Continue option: All matched digit criteria will be displayed
. . TABLE TRIGDIG

```

Table 249 CONT response to CDP query sample TRAVER output (Example 3) (Continued)

```
. . CDPDIG CDPCODE 26992 CDPCODE NOTRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE IBNFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6137223214 6137223214 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: AINRES continue option selected
TABLE TOFCNAME
613 722
TABLE DNINV
613 722 6992 D BLDN
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: TREATMENT SET +++

TREATMENT ROUTES.  TREATMENT IS: BLDN
1 VDN
2 *OFLO
3 LKOUT

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

42. Authorize Termination response

42.1 General

Authorize Termination (AUTHTERM) can be received at the SSP from the off-board processor only in response to the TERMATT trigger detection point (TDP).

The AUTHTERM message instructs the SSP to continue processing at the AUTHTERM point in call. If the DN/CT encountered as an AIN virtual DN, feature not allowed (FNAL) treatment is given since there is no terminating access or service switching point (SSP) feature associated with the specified DN.

42.2 Datafilling requirements

There is no extra AIN datafilling required for the AUTHTERM response.

42.3 Verifying with TRAVER

The AINRES TRAVER AT (Authorize Termination) option allows routing and billing information to be displayed after encountering the Termination Attempt TDP. When this option is used, the Origination Attempt (ORIGATT), Information Collected (INFOCOL) and Information Analyzed (INFOANAL) TDPs are not displayed in the TRAVER, but the Termination Attempt (TERMATT) TDP is displayed as shown in Table 250.

Table 250 Example TRAVER with the "AT" AINRES option

```
traver l 6214141 6137226050 ainres r01 at b
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 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
TABLE STDPRTCT
P621 ( 1) (65021) 0
. 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 932 2 ( 385) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 6137 6139 HNPA 0
. 722 722 DN 613 722
TABLE TOFCNAME
613 722
```

Table 250 Example TRAVER with the “AT” AINRES option (Continued)

```
TABLE DNINV
613 722 6050 ILC REM1 00 0 09 31
TABLE DNFEAT
613 722 6050 (AINDN TERMATT) $
TABLE TRIGGRP
TERMATT TERMATT
. TERMATT $ JAZZINFO
Trigger AIN TERMATT is applicable to directory number.
Trigger AIN TERMATT: Trigger is active.
    (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6137226050 6137226050 SSNONLY (AINTTEST) $
AIN Term Attempt TDP: AINRES authorize termination option selected
TABLE DNATTRS
613 722 6050
    (PUBLIC ( NAME TOP_CAT) $)
    (PRIVATE ( NAME JERRY_MOUSE) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRCN
613 L613 ( 18) OPTL N
. SUBTABLE LCASCR
. 613 613
TABLE LCASCRCN
613 L613 ( 18) OPTL N
. SUBTABLE LCASCR
. 722 722
```

Table 250 Example TRAVER with the "AT" AINRES option (Continued)

```
TABLE PFXTREAT
OPTL NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6137226050          ST

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

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

43. Forward Call response

43.1 General

A Forward Call (FC) response message can be received only at the Termination Attempt (TERMATT) trigger detection point (TDP). It is similar to the Analyze Route (AR) response. It instructs the SSP to terminate the call on a specified address. Addresses are presented in the same format as in the AR message.

Using the new address information, the terminator originates a new leg in the call. If a routing list is specified, processing of the new leg begins at the Selecting Route point in call. If a routing list is not specified, processing begins at the Analyze Information (INFOANAL) point in call. Processing at these points in call works in a similar way as in AR. If the Information Analyzed trigger detection point (TDP) is encountered, triggering takes place against the terminating DN; that is, against the DN to which the Termination Attempt (TERMATT) trigger was assigned.

43.2 Datafilling requirements

Datafilling requirements for the SSP to handle the FC response are quite similar to the AR requirements, except that the terminating agent rather than the originating agent is used when routing the FC response.

See Chapter 40.: “Analyze Route response” on page 629 for details on how to datafill for the FC response. Remember to use the terminating agent.

The TRAVER utility has been enhanced to verify the translation for receiving an FC response. The option is FC. See Table 251 for a sample TRAVER output.

Triggering at Termination Attempt TDP from an IBN line terminating DN 6137226962, the SCP sends back a Forward Call response with a CalledPartyID (National Number 6136221243, the number returned is on the same SSP).

Table 251 shows the TRAVER output for an FC example.

Table 251 Sample TRAVER output using AINRES FC option

```

traver l 7226962 n cdn na 6136221243 ainres r01 fc b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:

```


Table 251 Sample TRAVER output using AINRES FC option (Continued)

```

PUBXLA
      (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TOPS 10 NIL NILSFC LATA1 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. NACALL P722 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 613 613 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 613 613 HNPA 0
. 622 622 DN 613 622
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger R10 N11 is applicable to office
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office
AIN Info Analyzed TDP: trigger criteria not met.

```

Table 251 Sample TRAVER output using AINRES FC option (Continued)

```
TABLE TOFCNAME
613 622
TABLE DNINV
613 622 1243 L HOST 00 1 10 17
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRCN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 622 622
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136221243          ST

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

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

44. Disconnect response

44.1 General

For AIN Essentials, the off-board processor may return a Disconnect (DISC) message in response to any AIN Essentials trigger detection point (TDP). When the SSP receives a DISC response from the off-board processor, the SSP routes the call to AIN disconnect call treatment and clears the call as normal.

44.2 Datafilling requirements

Thus, the datafill requirement for the SSP to handle the DISC message is to datafill the AIN disconnect treatment. For ISDN user part (ISUP) users, the treatment should be mapped to Normal Clearing in the Treatment Map table (TMTMAP) and Treatment Control table (TMTCNTL).

44.2.1 Datafilling table TMTCNTL

In table TMTCNTL, we can define tones, announcements, and states that are returned to the originator of a call. In theory, each type of the originator can have its own AIN disconnect announcement defined. The AIND associated with the OFFTREAT is applied if the originator does not have its own AIND defined.

44.2.1.1 Example

In table TMTCNTL, to add the AIND announcement to the four different types of originator (OFFTREAT for office, LNT for lines, ITTRKGRP and TITRKGRP for trunks) do the following:

In table TMTCNTL, position on tuple OFFTREAT and then go to subtable TREAT and add the tuple shown in Table 252. Repeat the same step for tuples LNT, ITRKGRP, and TITRKGRP respectively.

Table 252 Sample datafill in subtable TREAT of table TMTCNTL

Treatment	Log	FSTRSEL	CLLI
AIND	Y	S	TI20

44.2.2 Datafilling table TMTMAP

The table TMTMAP should be datafilled to allow the AIND treatments to be applied to ISUP.

In key field TMTMPKEY, specify AIND as the cause associated with the treatment as shown in Table 253.

Table 253 Table TMTMAP

TMTMPKEY	TMTMPVAR
Q764 AIND ALLBC	ISUP NOLOCAL NORMCLR LOCNET N

45. Send_To_Resource response

45.1 General

The response Send_to_Resource is an off-board processor-to-SSP message that can be received at any trigger detection point (TDP). It directs the SSP to play an announcement and can also include a request that the SSP collect subsequent digits from the calling party.

45.2 Datafilling steps

The SSP must handle the System Announcement Identifier received from the off-board processor in the StrParameterBlock parameter of the Send_To_Resource message. The System Announcement Identifier indicates to the SSP which announcement to play to the calling party. Datafill is required in Table AINANNS to map the external System Announcement Identifier to an internal DMS customized announcement.

Figure 113 shows an outline of the order of datafill required before anything can be entered into table AINANNS. Start at table CLLI and follow the arrows.

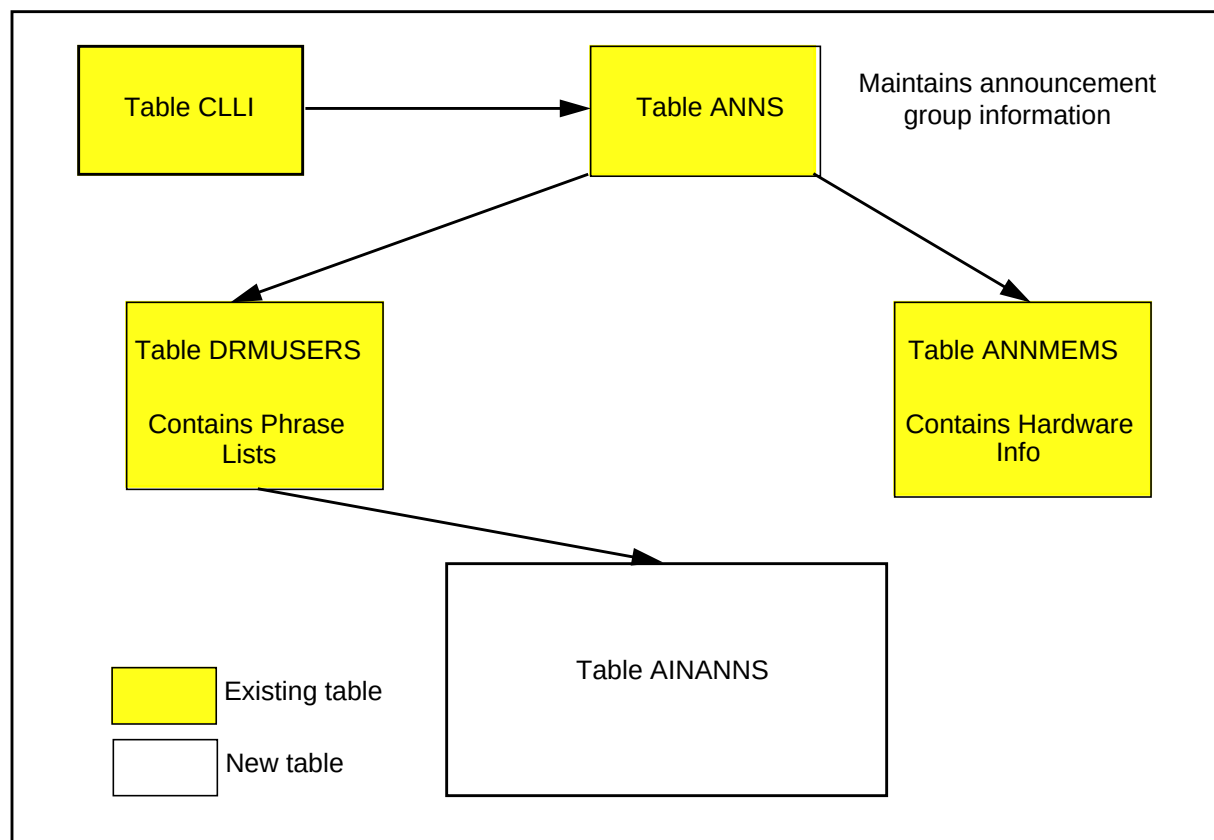
Figure 113 Datafilling hierarchy**45.2.1 Step 1: Datafilling table CLLI**

Table CLLI provides a name that denotes the concept of announcement groups. A CLLI name must be datafilled in table CLLI before it can be referenced in table ANNS.

45.2.2 Step 2: Datafilling table ANNS

Table ANNS provides announcement group information, mostly on how the messages in this group are played (that is, their duration and repeatability).

- 1 In response to the CLLI prompt, enter the CLLI name defined in Section 45.2.1 “Step 1: Datafilling table CLLI”.
- 2 In response to the ANTYPE prompt, enter AIN to specify that this is for an AIN announcement.

45.2.3 Step 3: Datafilling table ANNMEMS

Tables ANNMEMS provides information about individual announcements. It provides the physical location relative to the hardware setup.

In response to the ANNMEM prompt, you are asked to enter values for fields CLLI and MEMBER. For field CLLI, enter the CLLI defined in Section 45.2.1

“Step 1: Datafilling table CLLI”; for field MEMBER, enter an integer between 0 to 255.

45.2.4 Step 4: Datafilling table DRMUSERS

Table DRMUSERS provides information about individual announcements. It identifies the phrase or phrases that actually make up the message.

There is a one-to-one relationship between table ANNMEMS and table DRMUSERS, although the relationship is not enforced.

In response to the USERANN prompt, you are asked to enter values for the fields CLLI and ANNNUM. For the field CLLI, enter the CLLI defined in Section 45.2.1 “Step 1: Datafilling table CLLI”; for the field ANNNUM, enter the DMS announcement number.

45.2.5 Step 5: Datafilling table AINANNS

Tables DRMUSERS and AINANNS actually maintain a relationship that allows many tuples of AINANNS to refer to individual tuples in DRMUSERS. Tuples cannot be added to AINANNS that refer to non-existent tuples in DRMUSERS. In addition, deletion of a tuple in DRMUSERS is blocked if there is a reference to that tuple in AINANNS.

- 1 In response to the KEY prompt, enter the announcement identifier received from the off-board processor.
- 2 In response to the CLLI prompt, enter the CLLI defined in Section 45.2.1 “Step 1: Datafilling table CLLI”.
- 3 In response to the ANNNUM prompt, enter the same value as field ANNUM in table DRMUSERS. This maps the announcement identifier received from the off-board processor to a DMS announcement identifier.

If one of the announcement identifiers specified in Table 254 is not datafilled in table AINANNS and it is received from the off-board processor in the StrParameterBlock of the Send_To_Resource message, the call will be routed to the corresponding tone subject to other conditions specified in the table.

Table 254 Tones available to STR requests

Tone	STR ID	Interruptible	Uninterruptible non-terminating (Note 1)	Uninterruptible terminating (Note 2)
Silent (NIL) Tone	5	YES	NO	YES
Special Dial Tone	6	YES	NO	YES
Confirmation Tone	12	NO (Note 3)	YES	YES
Reorder Tone	13	NO	NO	YES
Note 1: In conversation package Note 2: In response package Note 3: NO means that the tone is not supported in the particular context (for example, as interruptible); in this case the call will be sent to AINF treatment and a Resource Clear message will be sent back to the SCP indicating Application Error.				

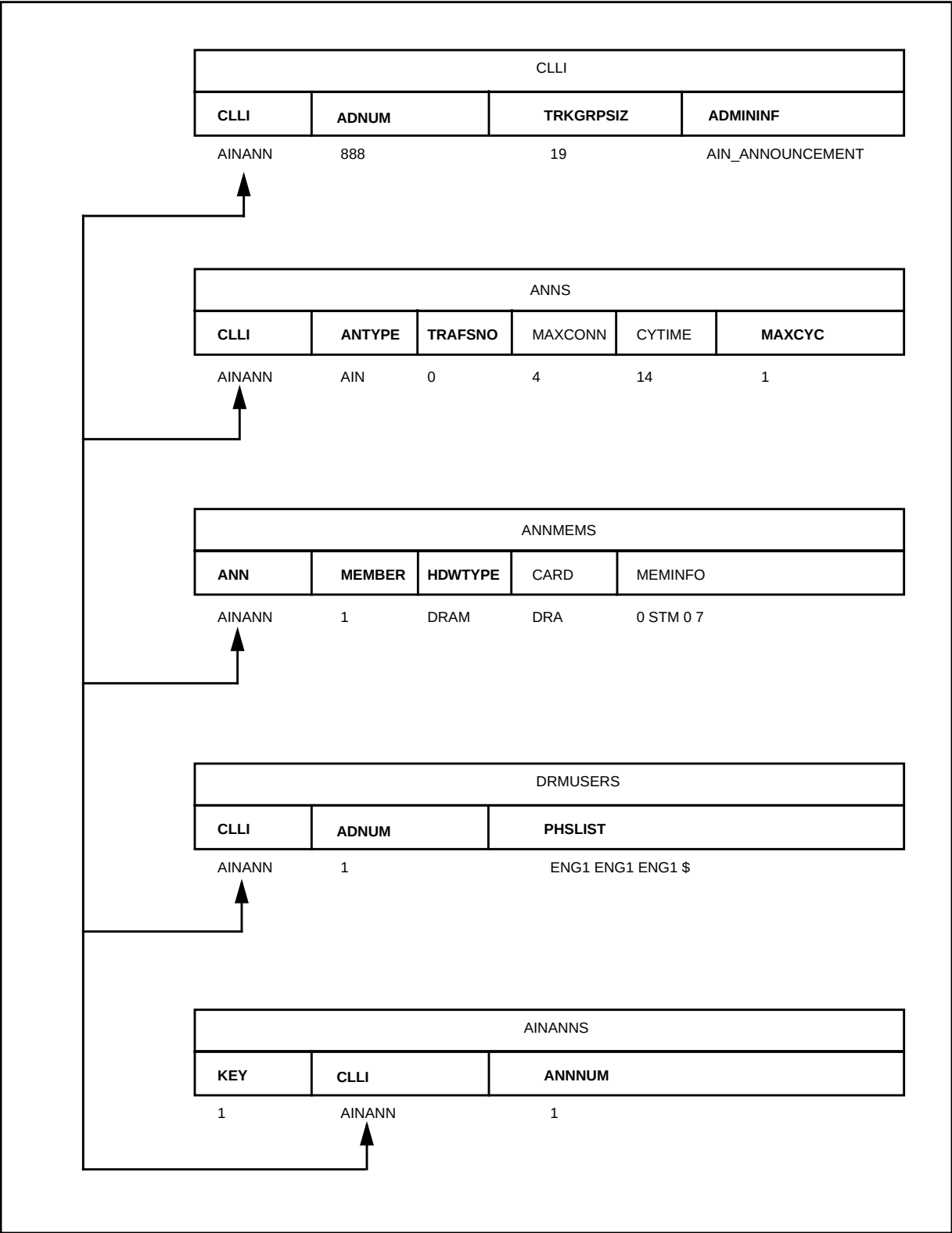
After datafilling these tables, see NTP 297-1001-360, *DMS-100 Family Digital Recorded Announcement Machine Maintenance Reference Manual* to record the announcements.

45.3 Send_To_Resource example

The following example illustrates the datafilling required for the SSP to handle the Send_To_Resource response message. Figure 114 illustrates the datafill for the call. It also shows the dependencies between the datafilling tables. Apply the instructions already outlined in steps 1 to 5 to add the sample tuples shown in.

A Send_To_Resource message is received at the SSP and the System Announcement Identifier is 1.

Figure 114 Sample datafill for Send_To_Resource announcement example



46. Cancel_Resource response

46.1 General

When the off-board processor sends the SSP a Send_To_Resource response and the Send_To_Resource operation does not request digit collection, the off-board processor can follow through with a Cancel_Resource response.

The Cancel_Resource directs the SSP to stop the non-interruptible announcement and return a RESOURCE_CLEAR message to the off-board processor.

46.2 Datafilling requirements

None.

47. Provisioning multiple triggers

47.1 General

In Chapter 30. through Chapter 38., the trigger provisioning chapters, all examples deal with one-trigger call scenarios. The trigger is the first component encountered by a call. Consequently, the AIN trigger groups are defined to contain only one trigger that is encountered by a call.

Often, an AINGRP is defined to contain more than one trigger.

47.2 Multiple trigger AINGRP definition

The following issues should be considered when defining a multiple-trigger AINGRP in table TRIGGRP and consequently subscribing to it.

47.2.1 Choosing a trigger group name

The table TRIGGRP is keyed on the trigger group name and on the trigger detection point (TDP). You must create a name for the trigger group (up to 16 characters). It may be helpful to use a name that identifies the subscriber or the service.

47.2.2 Making a list of trigger types for the trigger group

List the trigger types that are contained in the group. The trigger types that can be contained in the trigger group depend on the potential subscribers of the trigger group. Never include trigger types of a different subscription basis in one trigger group. A trigger type can be included more than once in a trigger group.

47.2.3 Grouping the trigger instances by TDP

Group the trigger instances according to which TDP or trigger type they belong. The datafilling order is important. If the trigger group contains several trigger instances at the same TDP, the call encounters the triggers in the order in which they are datafilled.

47.2.4 Choosing the criteria for each trigger instance

After choosing the trigger types, decide on the criteria for each trigger instance. A call type (CT) criterion must be entered before digits (DG) criterion or escape (ESC) criterion.

47.2.5 Choosing the action information for each trigger instance

Each trigger instance can have its own query destination.

47.2.6 Subscription

For each subscription basis, only one AINGRP can be assigned to an agent on that particular subscription basis. An agent can potentially subscribe to a different AINGRP on a different basis. For example, when a call originates from an Internal Business Network (IBN) agent, it can potentially encounter an AINGRP called LINETRIG because the originating line has subscribed to it on an individual basis. The call might also encounter an AINGRP called CUSTTRIG because the customer group to which the originating IBN line belongs has subscribed to it on group basis. Again, the call might encounter an AINGRP called OFFICETRIG because the office to which the line belong has subscribed to it on an office basis.

47.2.7 Sample multi-triggers AINGRPs

This section describes sample trigger groups that contain more than one trigger.

Table 255 shows an example of two trigger groups that can subscribe to line agents

Table 255 Example of two trigger groups subscribed to line agents

Table TRIGGRP	
KEY	TRIGDATA
LINETRIG ORIGATT	(OFFHKIMM (CT CMDATA) \$AINSIM) \$
LINETRIG INFOCOL	(OFFHKDEL (ESC) \$ AINSIM) \$
LINETRIG NETBUSY	(AFR \$ NIL) \$

Table 256 shows an example trigger group for a POTS trunk group.

Table 256 Trigger group example for a POTS trunk group

Table TRIGGRP	
KEY	TRIGDATA
TRKTRIG1 INFOCOL	(INTEROFF (DG INTERDIG) \$ NIL) \$
TRKTRIG1 NETBUSY	(AFR \$ NIL) \$

Table 257 shows an example trigger group for an IBN trunk group.

Table 257 Trigger group example for an IBN trunk group

Table TRIGGRP	
KEY	TRIGDATA
TRKTRIG2 INFOCOL	(OFFHKDEL (ESC) \$ AINSIM \$
TRKTRIG2 NETBUSY	(AFR \$ NIL) \$

Table 258 shows an example trigger group that can be subscribed to a DN.

Table 258 Trigger group example for DN subscription

Table TRIGGRP	
KEY	TRIGDATA
DNTRIG TERMATT	(TERMATT \$ AINSIM) \$

Table 259 shows an AIN trigger group CUSTRTRIG, defined in table TRIGGRP, which contains triggers valid on a customer group basis.

Table 259 Trigger group example on a customer group basis

Table TRIGGRP	
KEY	TRIGDATA
CDPTRIG INFOANAL	(CDPCODE (DG CDPDIG) \$ NIL) \$
CDPTRIG NETBUSY	(AFR \$ NIL) \$

Table 260 shows an example of a trigger group defined in table TRIGGRP that contains all the triggers that are valid on an office basis.

Table 260 Example of trigger group valid on an office basis

Table TRIGGRP	
KEY	TRIGDATA
OFFICETRIG INFOANAL	(N11 (CT VBINFO) (DG N11DIG) \$ NIL) \$
	(PODP (DG PODPDIG) \$ NIL)
OFFICETRIG NETBUSY	(AFR \$ NIL) \$

Table 261 shows an example of a trigger group that can be subscribed by every subscription basis except on a DN basis.

Table 261 Trigger group example valid on subscription basis except for DNs

Table TRIGGRP	
KEY	TRIGDATA
AFRTRIG NETBUSY	(AFR \$ NIL) \$

47.3 Deletion of a tuple from table TRIGINFO

Deletion of a tuple from table TRIGINFO will be blocked if the INFONAME to be deleted is referenced by another table. (The TABREF command may be used to get the potential list of tables referring to this tuple.) Table TRIGGRP is one of them. In table TRIGGRP deleted tuples are stored until 2 table audits are completed following the deletion of the TRIGGRP tuple. Table audits are scheduled daily at 3:11 a.m.

Hence, if the INFONAME to be deleted is referred to by a deleted TRIGGRP tuple, the deletion of the TRIGINFO tuple will be blocked. Suitable error messages are displayed indicating the reason for denial of the deletion. The various error messages displayed are as shown in Figure 115 to Figure 117.

- The warning shown in Figure 115 will be displayed when an attempt is made to delete an INFONAME referred to by an existing tuple in table TRIGGRP.

Figure 115 Warning—delete INFONAME referenced in table TRIGGRP

Warning: This INFONAME is referenced by an existing,
tuple in table TRIGGRP.
Deletion is therefore disallowed.

- The warning shown in Figure 116 will be displayed when an attempt is made to delete an INFONAME referred to by a recently deleted TRIGGRP tuple and no table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 116 Warning—delete INFONAME referenced by a recently deleted tuple in table TRIGGRP—no table audit

Warning: This INFONAME is referenced by a recently
deleted tuple in table TRIGGRP. The deleted
TRIGGRP tuple is temporarily being stored
until the end of a 24-hour period, starting
at the next occurrence of 3:11 AM.
Deletion is therefore disallowed until the expiry
of the 24-hour period.

- The warning shown in Figure 117 will be displayed when an attempt is made to delete an INFONAME referred to by a recently deleted TRIGGRP tuple and a table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 117 Warning—delete INFONAME referenced by a recently deleted tuple in table TRIGGRP—table audit complete

```
Warning:  This INFONAME is referenced by a recently
          deleted tuple in table TRIGGRP.  The deleted
          TRIGGRP tuple is temporarily being stored
          until the next occurrence of 3:11 AM.
          Deletion is therefore disallowed until 3:11 AM.
```

The INFONAME may safely be deleted only after the completion of the second table audit following the deletion of the TRIGGRP tuple referring to the INFONAME.

47.4 Deletion of a tuple from table TRIGDIG

Deletion of a tuple from table TRIGDIG will be blocked if the DIGNAME/TRIGGER combination to be deleted is referenced by an existing tuple in table TRIGGRP.

In table TRIGGRP deleted tuples are stored until two table audits are completed following the deletion of the TRIGGRP tuple. Table audits are scheduled daily at 3:11 a.m.

If the DIGNAME/TRIGGER combination to be deleted is referred to by a deleted TRIGGRP tuple and

- if the DIGNAME does not appear elsewhere in table TRIGDIG:
The deletion of the TRIGDIG tuple will be blocked. Suitable error messages are displayed indicating the reason for denial of the deletion. The various error messages are discussed in Section 47.4.1 “The DIGNAME does not appear elsewhere in table TRIGDIG”.
- if the DIGNAME/TRIGGER combination does not appear elsewhere in the table but the DIGNAME appears in table TRIGDIG:
The deletion of the TRIGDIG tuple will be allowed. Suitable warning messages are discussed in Section 47.4.2 “The DIGNAME/TRIGGER combination does not appear elsewhere in table TRIGDIG but the DIGNAME appears in table TRIGDIG”.

47.4.1 The DIGNAME does not appear elsewhere in table TRIGDIG

The various error messages displayed are as shown in Figure 118 to 120 . In all the following cases the DIGNAME to be deleted in table TRIGDIG does not appear elsewhere in table TRIGDIG.

- The warning shown in Figure 118 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by an existing tuple in table TRIGGRP.

Figure 118 Warning—delete DIGNAME/TRIGGER referenced in table TRIGGRP—DIGNAME not elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by an existing tuple in table TRIGGRP.
Deletion is therefore disallowed.

- The warning shown in Figure 119 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by a recently deleted TRIGGRP tuple and no table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 119 Warning—delete DIGNAME/TRIGGER referenced by a recently deleted tuple in table TRIGGRP—no table audit—DIGNAME not elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by a recently deleted Tuple in table TRIGGRP. The deleted TRIGGRP tuple is temporarily being stored until the end of a 24-hour period, starting at the next occurrence of 3:11 AM.
Deletion is therefore disallowed until the expiry of the 24-hour period.

- The warning shown in Figure 120 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by a recently deleted TRIGGRP tuple and a table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 120 Warning—delete DIGNAME/TRIGGER referenced by a recently deleted tuple in table TRIGGRP—table audit complete—DIGNAME not elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by a recently deleted Tuple in table TRIGGRP. The deleted TRIGGRP tuple is temporarily being stored until the next occurrence of 3:11 AM.
Deletion is therefore disallowed until 3:11 AM.

The DIGNAME/TRIGGER pair may safely be deleted only after the completion of the second table audit following the deletion of the TRIGGRP tuple referring to the DIGNAME/TRIGGER pair.

47.4.2 The DIGNAME/TRIGGER combination does not appear elsewhere in table TRIGDIG but the DIGNAME appears in table TRIGDIG

The various warning messages displayed are as shown in Figure 121 to Figure 123. In all the following cases DIGNAME/TRIGGER pair to be deleted in table TRIGDIG does not appear elsewhere in table TRIGDIG, while the DIGNAME itself may appear in conjunction with another trigger in table TRIGDIG.

- The warning shown in Figure 121 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by an existing tuple in table TRIGGRP.

Figure 121 Warning—delete DIGNAME/TRIGGER referenced in table TRIGGRP—DIGNAME elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by an existing tuple in table TRIGGRP.

- The warning shown in Figure 122 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by a recently deleted TRIGGRP tuple and no table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 122 Warning—delete DIGNAME/TRIGGER referenced by a recently deleted tuple in table TRIGGRP—no table audit—DIGNAME elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by a recently deleted tuple in table TRIGGRP. The deleted TRIGGRP tuple is temporarily being stored until the end of a 24-hour period, starting at the next occurrence of 3:11 AM.

- The warning shown in Figure 123 will be displayed when an attempt is made to delete a DIGNAME/TRIGGER pair referred to by a recently deleted TRIGGRP tuple and a table audit has been completed since the deletion of the TRIGGRP tuple.

Figure 123 Warning—delete DIGNAME/TRIGGER referenced by a recently deleted tuple in table TRIGGRP—table audit complete—DIGNAME elsewhere in table TRIGDIG

Warning: This DIGNAME is referenced by a recently deleted tuple in table TRIGGRP. The deleted TRIGGRP tuple is temporarily being stored until the next occurrence of 3:11 AM.

48. Provisioning for post-response translations

The remaining chapters in this provisioning part of the document describe an analytical approach aimed at determining service switching point (SSP) datafill requirements for deployment of AIN Essentials services. Its purpose is to assist in the deployment of AIN Essentials services on the SSP. The AIN Essentials SSP is first deployed in DMS-100 Family offices with batch change supplement 36 (BCS36).

Because switches are unique, it is sometimes difficult to describe specific datafill that must be added, deleted or modified. A section in this chapter called “Unique switch and network configurations” describes the generic SSP.

A subsection called “Modifying generic *TableName* data for an office or AIN Essentials service” describes alterations of generic data when such are required to meet specific office needs.

Each table that must be modified for AIN Essentials response processing is described in its own chapter. In each chapter that describes a specific table, there is a subsection called “Recommended datafill for table *TableName* to support AIN Essentials response processing” that describes the data required for a generic service switching point (SSP).

Chapter 55.: “Options for offices supporting only 7-digit dialing for home numbering plan” on page 903 describes options for offices that support only 7-digit dialing for the home numbering plan.

48.1 Unique switch and network configurations

Each switch is unique in the telecommunication network because of one or more of the following factors:

- switch location within the network
 - public dialing plan (local/non local)
 - carrier access based on LATA boundaries

- outpulsing information to an adjacent switch
- Basic Business Group (BBG) customers
 - tailored private dialing plan to meet their needs
 - special access into the public dialing plan
- feature packages that are present on a switch; some features require datafill to enable the service
- flexibility of datafill; the DMS provides enough flexibility to customize specific functions by datafill according to operating company and end-user needs

For the purpose of this document, a generic service switching point (SSP) is assumed.

48.2 Characteristics of a generic SSP

The following characteristics of a generic SSP that is used in the examples in this document are as follows:

- the generic SSP is an equal-access end office (EAEO). An EAEO was selected because it requires more data than a tandem office. Tandem offices can also use this document because the data required is generally a subset of the EAEO data
- the generic SSP supports calls from a network access point (NAP); that is, the generic SSP supports incoming public trunks using EAMF signaling or Transit Network Selection (TNS) for Signaling System Number 7 (SS7) facilities. This implies that the datafill is present to support 0ZZ XXX calls.
- the generic SSP does not have routing based on bearer capability (package NTX767 or NTX768). This assumption was made to simplify the datafill explanations. Bearer capability is detailed in sections on modification of generic SSP data
- the generic SSP supports a variety of AIN Essentials services that allow all types of national and international calls in the AIN Essentials response, including operator and carrier calls. If the AIN services do not support all call types, the data for the unsupported call type is not required
- the generic SSP supports the private lines and private trunks. Though not explicitly stated, the office also supports public lines and trunks
- the generic SSP routes all public numbers in the public environment.
- the generic SSP supports triggering at a Public Office Dialing Plan (PODP) trigger for all AIN Essentials supported agents
- the generic SSP supports only one public dialing plan used in AIN Essentials response processing. The generic SSP does not span LATA boundaries

- the generic SSP does not require class of service screening during AIN Essentials response processing
- the generic SSP does not currently support dialing of the home numbering plan area (HNPA).
- the generic SSP supports 10-digit outpulsing of home numbering plan numbers. The network supports 10-digit dialing from public trunks.
- as of NA003, the SSP supports a 7-digit subscriber number in the CalledPartyID returned by the SCP, as well as national and international numbers in the CalledPartyID.

**WARNING**

Table examples are examples only and are not meant to be copied.

Any table datafill examples contained in this document are examples only. Do not enter them into your switch since they may not be compatible with the translations of your office.

49. Overview of AIN response translations

Service providers can implement AIN response translations using either the established (legacy) translations methods or simplified translations.

The purpose of the overall AIN response translation simplification effort is to reduce the high cost of ownership associated with response translation for the AIN platform. Simplification addresses both the public side of response translation and public network access support for private line and trunk agents.

The following points describe the information available for both legacy and simplified AIN response translations:

- “Chapter 50.: AIN response translations for public agents” on page 705 describes legacy AIN response translations for agents that are either public lines or public trunks.
- “Chapter 51.: AIN simplified response translations for public agents” on page 759 describes AIN simplified response translations for public agents.
- “Chapter 52.: AIN response translations for private agents” on page 811 describes legacy AIN response translations for private trunk and line agents.
- “Chapter 53.: AIN simplified response translations for private agents” on page 853 describes AIN simplified response translations for private trunk and line agents.

50. AIN response translations for public agents

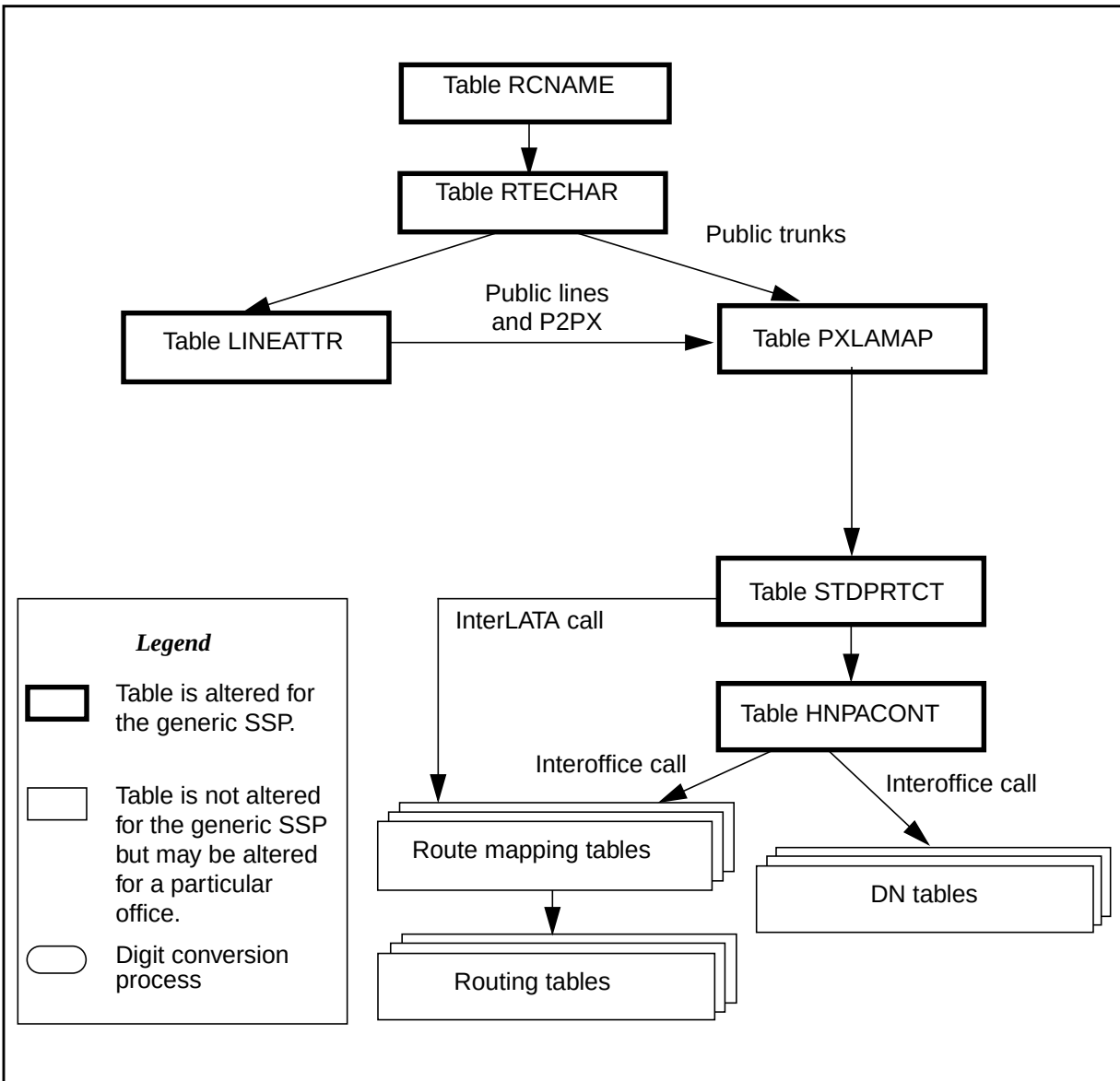
This chapter describes the additional datafill required for AIN response translations when triggering agents are public lines or public trunks.

Figure 124 on page 706 outlines the different tables needed for AIN response translations for public agents and the relationship between these tables.

**CAUTION**

Possible loss of service

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

Figure 124 AIN table relationships for public agents - without simplification

The generic SSP referenced in Figure 124 has the following characteristics:

- The generic SSP is an equal-access end office (EAEO). An EAEO was selected because it requires more data than tandem office. Tandem offices can also use this document because the data required is generally a subset of the EAEO data.
- The generic SSP supports calls from a network access point (NAP); that is, the generic SSP supports incoming public trunks using EAMF signaling or Transit Network Selection (TNS) for Signaling System Number 7 (SS7) facilities. This implies that the datafill is present to support 0ZZXXX calls.

- The generic SSP does not have routing based on bearer capability (package NTX767 or NTX768). This assumption was made to simplify the datafill explanations. Bearer capability is detailed in sections on modification of generic SSP data.
- The generic SSP supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls. If the AIN services do not support all call types, the data for the unsupported call type is not required.
- The generic SSP supports the private lines and private trunks. Though not explicitly stated, the office also supports public lines and trunks.
- The generic SSP routes all public numbers in the public environment.
- The generic SSP supports only triggering at a Public Office Dialing Plan (PODP) trigger for all AIN supported agents.
- The generic SSP supports only one public dialing plan used in AIN response translation. The generic SSP does not span LATA boundaries.
- The generic SSP does not require class of service screening during AIN response translation.
- The generic SSP supports 10-digit outpulsing of home numbering plan numbers. The network supports 10-digit dialing from public trunks.
- As of NA003, the SSP supports a 7-digit subscriber number in the CalledPartyID returned by the SCP, as well as national and international numbers in the CalledPartyID.

50.1 Datafill public lines and public trunks without simplification

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

50.1.1 Table RCNAME

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

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

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

- translation mapping tables (such as table XLAMAP and table PXLAMAP)
- route mapping tables (such as subtable RTEMAP, table OFRTMAP, and table IBNMAP)

- Table RTECHAR

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

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

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

ATTENTION

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

50.1.1.1 Recommended datafill for table RCNAME

The required data for Table RCNAME for AIN TRIGNAME response processing depends on the additional entries required for table RTECHAR as described in Section "50.1.2.1. Routing characteristics" on page 709.

Table 262 shows the data that would be present for a generic SSP. Details on the associated routing characteristics are provided in the following chapter.

Table 262 Generic SSP data

Type of access	RCNAME
National call	NACALL
National carrier call	NACAR
International call	INCALL
International carrier call	INCAR
Subscriber Call	SUBCALL
Subscriber Carrier Call	SUBCAR
International operator	INOPER
International carrier operator	INCAROP
National carrier operator	NACAROP
Carrier operator	CAROP
Bell operating company operator call	BOCOP

50.1.1.2 Modifying generic RCNAME data for office or AIN TRIGNAME service

Modification of table RCNAME depends on the modification of table RTECHAR. See Section "50.1.2.5. Modifying generic RTECHAR data for an office or AIN TRIGNAME service" on page 717.

50.1.2 Table RTECHAR

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

This chapter describes table RTECHAR under the following headings:

- Routing characteristics
- Combining routing characteristics
- Recommended datafill to support AIN TRIGNAME response processing

50.1.2.1 Routing characteristics

There are four routing characteristic types:

- Bearer capability
- Called party number

- Operator System Access
- Transit Network Selection

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

Before querying the SCP, the BC is maintained while processing the SCP response. Table 263 contains examples of Bearer Capabilities that are supported for AIN TRIGNAME.

Table 263 Bearer capability characteristics

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

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

50.1.2.1.2 Called party number The called party number (CDN) type indicates the intended use of the corresponding digits. AIN TRIGNAME response processing currently supports the following CDN types:

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

Note: AIN TRIGNAME response processing currently does not support a private network (NET) number or a private abbreviated (ABBR) number.

The CalledPartyID parameter must use the AINDigits parameter format. The AINDigits parameter contains the “nature of number” field. It is this field that is used to identify the CDN characteristic. See TR-NWT-001285, *Switching Control Point Interface*.

Table 264 shows the characteristics of the “nature of number” field.

Table 264 Characteristics of the nature of number field

Nature of number	Characteristic
National (significant) number/ National (significant) number, operator requested	(CDN NA)
International number/ International number, operator requested	(CDN IN)
Subscriber number/ Subscriber number, operator requested	(CDN L)
No address present, operator requested	(CDN NIL)
No address present, cut-through call to carrier.	(CDN NIL)
Note: The 950+ Nature of Number Called Party numbers are 7-digits numbers datafilled as Subscriber CDN type. However, the call is routed as national number.	

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

- Public/Principle (PUBP) access is used to direct the call to an operator when there is no carrier parameter specified in the response. Note that the operator this call is being routed to may either be the local exchange carrier (LEC) operator or the carrier operator, depending on the nature of the call and the translation set up.
- Public/Principle (PUBP) access is used to direct the call to an operator when the carrier that will be used in translation is a LEC. Note that the operator this call is being routed to may either be the LEC operator or the carrier operator, depending on the nature of the call and the translation setup.
- Public/Alternate (PUBA) access is used to direct the call to a carrier operator when the carrier that will be used in translation is NOT an LEC.

Note: Private/Principle access, which is used to direct calls to a private network attendant system or a private branch exchange (PBX), is not supported by AIN TRIGNAME.

AIN TRIGNAME uses the CalledPartyID parameter (“nature of number” field) to indicate that an operator is required. The type of operator that is required depends on the following:

- The SCP can return one or more carriers in the form of PrimaryCarrier, AlternateCarrier, and SecondAlternateCarrier. The SSP translates using each carrier in turn until a facility is selected or the SSP detects that the

carrier is busy. Routing characteristics associated with each carrier are selected before the translation of each carrier.

- If the carrier that will be used in the translation is not an LEC (identified by 0110), then the carrier operator is required.
- If the carrier that will be used in translation is an LEC, then the PUBP operator is required.
- If there was no carrier parameter presented in the response, then the PUBP operator is required.

Table 265 shows the characteristics of each type of operator.

Table 265 Type of operator characteristics

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

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

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

Note: AIN TRIGNAME supports only Nationally-Standardized (NA).

In AIN TRIGNAME the presence of TNS is determined in the following manner:

- The SCP can return one or more carriers in the form of PrimaryCarrier, AlternateCarrier, and SecondAlternateCarrier. The SSP translates using each carrier in turn until a facility is selected or the SSP detects that the carrier is busy. Routing characteristics associated with each carrier are selected before the translation of each carrier.
- If the carrier that is used in the translations is not an LEC (identified by 0110), the transit network selection of NA is required.
- If the carrier that will be used in translation is an LEC, then the transit network selection is not required.

- If there is no carrier parameter specified in the response, then the transit network selection is not required.

Table 266 shows the type of network characteristics.

Table 266 Type of network characteristics

Type of network	Characteristic
Nationally Standardized	(TNS NA)

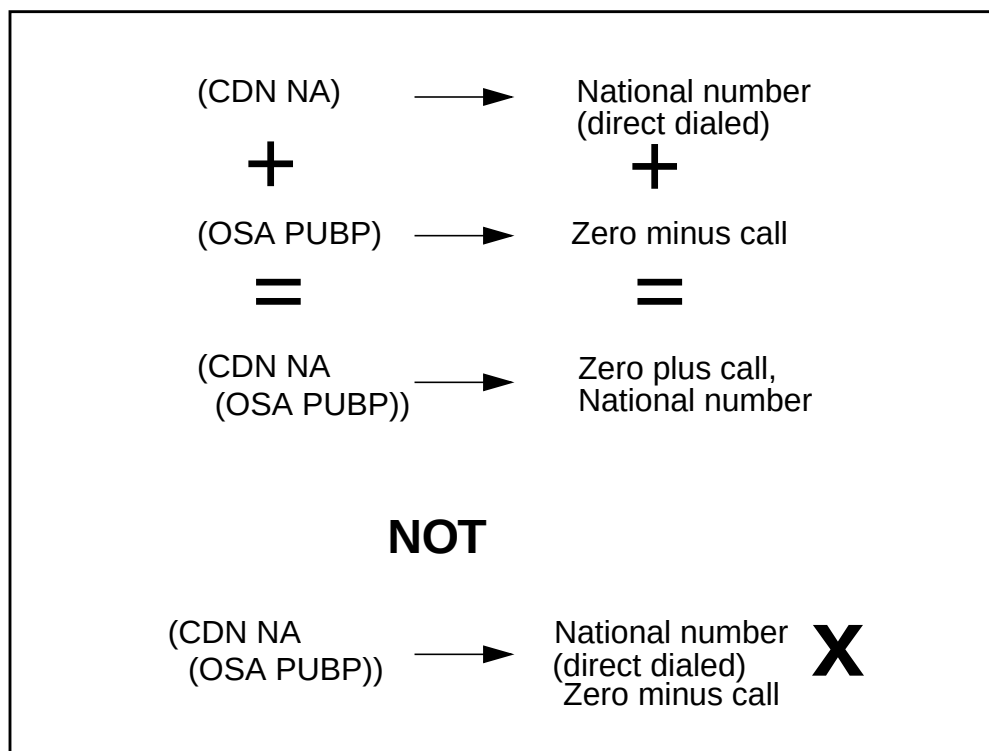
50.1.2.2 Combining routing characteristics

A call can have one or more routing characteristics. The combination of several characteristics usually introduces a different call type rather than individual characteristics.

For example,

- A called party number of NA with no other routing characteristics translates as a 10-digit national number.
- An operator system access with no other routing characteristics translates as a zero minus call. The operator enters the number the user wants to call.
- When a called party number is present in conjunction with an operator system access, the call translates as a zero plus call. The call routes to an operator, but the operator does not need to enter the number as it has already been provided.
- The call does not translate as a zero minus, national number because there is no such call type.

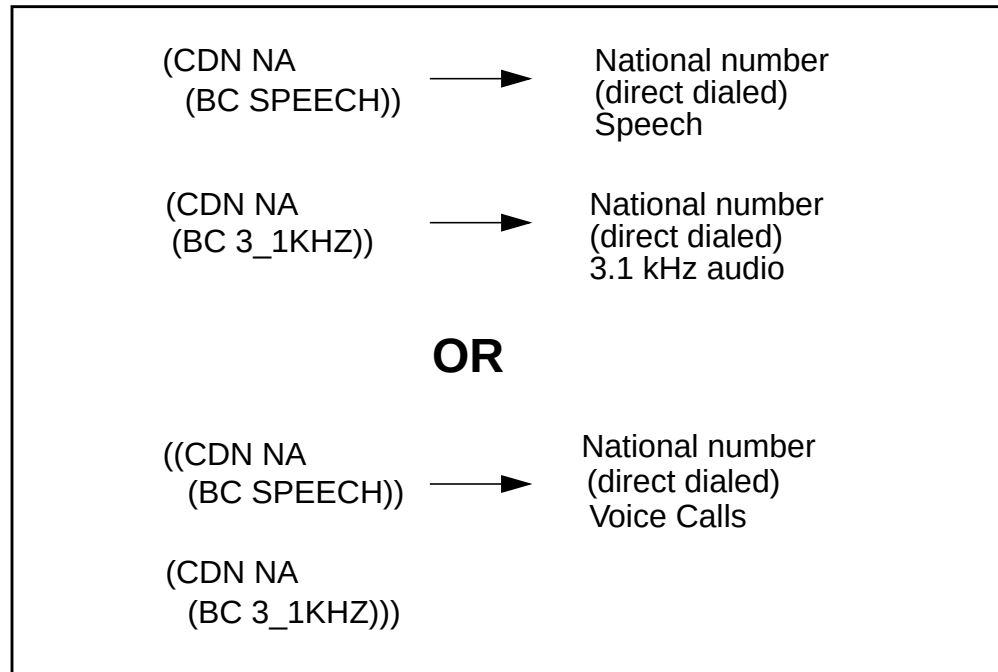
Figure 125 on page 714 illustrates this example.

Figure 125 Example #1: combining routing characteristics

In some instances, different combinations could be treated identically. It is up to the operating company to determine whether or not the differential factor identifies a new call type.

Figure 126 on page 715 shows another possible combination.

Figure 126 Example #2: combining routing characteristics



Though both methods are correct, the one shown in Figure 126 is preferred because it minimizes datafill in the tables that use RCNAME.

50.1.2.3 Routing characteristic combinations supported by AIN TRIGNAME response processing

Table 267 on page 716 illustrates the possible routing characteristic combinations determined from an AIN TRIGNAME response. Each bearer capability is compatible with all combinations and is not shown here for simplicity.

Table 267 Combinations supported by AIN TRIGNAME response processing

Type of access	Routing characteristic combinations		
National call	(CDN NA)		
National carrier call	(CDN NA)		(TNS NA)
Subscriber call	(CDN L)		
Subscriber carrier call	(CDN L)		(TNS NA)
International call	(CDN IN)		
International carrier call	(CDN IN)		(TNS NA)
International operator	(CDN IN)	(OSA PUBP)	
International carrier operator	(CDN IN)	(OSA PUBA)	(TNS NA)
National carrier operator	(CDN NA)	(OSA PUBA)	(TNS NA)
Carrier operator		(OSA PUBA)	(TNS NA)
BOC operator—zero minus call		(OSA PUBP)	
BOC operator—zero plus national call	(CDN NA)	(OSA PUBP)	
BOC operator—zero plus subscriber call	(CDN L)	(OSA PUBP)	

50.1.2.4 Recommended datafill to support AIN TRIGNAME response processing

Datafill is highly influenced by office and AIN TRIGNAME services. This section first documents generic RTECHAR data and, then, documents how to modify the generic RTECHAR data based on office and AIN TRIGNAME services.

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

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports calls from a network access point (NAP); that is, this SSP supports incoming public trunks using EAMF signaling or TNS for SS7 facilities.
- The generic SSP does not have routing services based on bearer capability (package NTX767 or NTX768).
- The generic SSP supports a variety of AIN TRIGNAME services that allow all types of national and international calls in the AIN TRIGNAME response, including operator and carrier calls.

Table 268 on page 717 illustrates the RCNAMES and routing characteristic combinations for various access types.

Table 268 Routing characteristic combinations by access type

Type of access	RCNAME	Routing characteristic combination
National call	NACALL	(CDN NA \$) \$
National carrier call	NACAR	(CDN NA (TNS NA) \$) \$
Subscriber call	SUBCALL	(CDN L) \$
Subscriber carrier call	SUBCAR	(CDN L (TNS NA) \$) \$
International call	INCALL	(CDN IN \$) \$
International carrier call	INCAR	(CDN IN (TNS NA) \$) \$
International operator	INOPER	(CDN IN (OSA PUBP) \$) \$
International carrier operator	INCAROP	(CDN IN (OSA PUBA) (TNS NA) \$) \$
National carrier operator	NACAROP	(CDN NA (OSA PUBA) (TNS NA) \$) \$
Subscriber carrier operator	SUBCAROP	(CDN L (OSA PUBA) (TNS NA) \$) \$
Carrier operator	CAROP	(OSA PUBA (TNS NA) \$) \$
Bell operating company operator call	BOCOP	(CDN NA (OSA PUBP) \$) (CDN L (OSA PY\$) (OSA PUBP \$) \$

50.1.2.5 Modifying generic RTECHAR data for an office or AIN TRIGNAME service

The generic RTECHAR data is a superset of AIN TRIGNAME functionality with the exception of bearer capability. Some of the routing characteristic combinations can be further grouped to minimize the datafill in the associated mapping tables.

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

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

Table 269 on page 718 shows routing characteristic combination for offices that do not support a NAP.

Table 269 Combinations for non-NAP supporting offices

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

The datafill in Table 269 would replace the NACALL, NACAR, INCALL, and INCAR entries in generic RTECHAR data. All other entries specified in generic RTECHAR data remain unaltered.

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

Table 270 illustrates some combinations for national call entries.

Table 270 Combinations for national call entries

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

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

50.1.2.5.3 AIN TRIGNAME services that do not allow international numbers If the AIN TRIGNAME services do not allow an international number in the response, then the tuples in Table 271 on page 719 may be removed from generic RTECHAR datafill.

Table 271 Combinations for services that do not support international numbers

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

All other entries in generic RTECHAR data would remain unaltered.

50.1.2.5.4 AIN TRIGNAME services that do not allow operator numbers If the AIN TRIGNAME services do not allow operator calls in the response, the tuples in Table 272 may be removed from generic RTECHAR datafill.

Table 272 Combinations for services that do not allow operator numbers

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

All other entries in generic RTECHAR data would remain unaltered.

50.1.3 Digits used in AIN response translations

When a public agent triggers and receives an Analyze Route or a Forward call response from the SCP with digits specified, translation and routing processing should take place to translate the digits and route the call. Depending on the nature of the response, digits to translate can have different format.

Table 273 on page 720 summarizes the digits used in response translations for various carrier and called party number combinations. The maximum number of digits supported is 18.

Table 273 Digits used in AIN translation

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

Table 273 Digits used in AIN translation (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations for an end office	Digits used in translations for an access tandem
National number, operator requested	10D	Not present	(10D)	
Subscriber number, operator requested	7D	Not present	(7)D	
International number, operator requested	7-15D	Not present	(7-12)D	
950+ Call	7D	Not present	(7)D	
Carrier cut-through	Not present	XXX	10XXX	N/A
Carrier cut-through	Not present	XXXX	101XXXX	N/A

50.1.4 Table PXLAMAP

When a public agent triggers and receives an Analyze Route or a Forward call response from the SCP with digits specified, translation and routing functions should take place to translate the digits and route the call. The digits coming into the SCP response are not in a format that can reuse originator's public pretranslator (digits could be in 10D format whereas local dialing supports only 7D format, no international access code is prefixed in case of international calls). Table PXLAMAP (pretranslator mapping) is used to map to new pretranslators into the public environment to allow the DMS to translate differently given a RCNAME and a pretranslator.

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

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

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

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

AIN response processing supports only the XLA and PREFIX selectors.

50.1.4.1 Recommended datafill to support AIN TRIGNAME response processing

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

- The service switching point (SSP) is an equal-access end office (EAEO).
- This office supports a variety of AIN TRIGNAME services that allow all types of national and international calls in the AIN TRIGNAME response, including operator and carrier calls.
- The pretranslator names to be mapped are derived from the following:
 - All public line a7ttributes for AIN TRIGNAME supported agents
 - All public trunk groups for AIN TRIGNAME supported agents
 - All private LINEATTRs that are used in AIN TRIGNAME response processing, as defined in Section "52.1.6. Table LINEATTR" on page 830.

The RCNAMES used in Table 274 are from the generic RTECHAR example. If an office modified table RTECHAR data, the following example should be modified accordingly.

Table 274 Recommended PXLAMAP datafill

RCNAME	XLANAME (Note)	Data
NACALL	P621	(XLA NAT) \$
NACAR	P621	(XLA NAT) \$
SUBCALL	P621	(XLA NAT) \$
SUBCAR	P621	(XLA NAT) \$
INCALL	P621	(XLA INT) \$
INCAR	P621	(XLA INT) \$
INOPER	P621	(XLA IOP) \$
INCAROP	P621	(XLA ICOP) \$

Table 274 Recommended PXLAMAP datafill (Continued)

RCNAME	XLNAME (Note)	Data
NACAROP	P621	(XLA NCOP) \$
SUBCAROP	P621	(XLA NCOP) \$
CAROP	P621	(XLA CAOP) \$
BOCOP	P621	(XLA NAOP) \$
NACALL	PTRK	(XLA NAT) \$
SUBCALL	PTRK	(XLA NAT) \$
NACAR	PTRK	(XLA NAPC) \$
SUBCAR	PTRK	(XLA NAPC) \$
INCALL	PTRK	(XLA INT) \$
INCAR	PTRK	(XLA NAPC) \$
Note: Assume P621 is the public translator for a public line and PTRK is the pretranslator for a public trunk.		

Though it is not necessary to separate the national and national carrier calls for lines, it is necessary to separate them for public trunks. Details of the new translator names and their function are provided in the next chapter.

The above entries for P621 need to be duplicated for each line pretranslator name. The new pretranslator names would be reused for each line pretranslator because there is only one dialing plan. Similarly, duplication of the PTRK entries would be required for public trunks.

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

50.1.4.2 Modifying generic table PXLAMAP data for office or AIN TRIGNAME service

If the AIN TRIGNAME services do not support international or operator calls, the tuples with RCNAMEs reflecting these call types are required.

If the office supports only individual or customer group triggers, table PXLAMAP would require only the pretranslator for each subscribed agent. For office-based triggers, every pretranslator of each agent would be required.

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

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

The example in Table 275 depicts sample datafill for two lines in different LATAs. Assume that the international carriers are the same for both LATAs.

Table 275 Sample datafill for two lines in different LATAs

RCNAME	XLANAME	Data
NACALL	P621	(XLA NAT) \$
NACALL	P622	(XLA NAT2) \$
NACAR	P621	(XLA NAT) \$
NACAR	P622	(XLA NAT2) \$
INCALL	P621	(XLA INT) \$
INCALL	P622	(XLA INT) \$
INCAR	P622	(XLA INT) \$
INCAR	P622	(XLA INT) \$

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

50.1.4.2.2 Mapping RCNAMEs to reuse pretranslators The generic datafill shows seven new pretranslators for a line originator. Depending on the office, these can be further reduced to four pretranslators. The main difference is that the generic datafill allows a different carrier operator to be selected based on whether the 10XXX was dialed. If different carrier operators are not required, the generic datafill can be modified as in Table 276 for the a line originator.

Table 276 Modified generic datafill

RCNAME	XLANAME	Data
NACALL	P621	(XLA NAT) \$
NACAR	P621	(XLA NAT) \$
SUBCALL	P621	(XLA NAT) \$
SUBCAR	P621	(XLA NAT) \$
INCALL	P621	(XLA INT) \$
INCAR	P621	(XLA INT) \$
INOPER	P621	(XLA IOP) \$
INCAROP	P621	(XLA IOP) \$
NACAROP	P621	(XLA NCOP) \$
SUBCAROP	P621	(XLA NCOP) \$
CAROP	P621	(XLA NCOP) \$
BOCOP	P621	(XLA NCOP) \$
NACALL	PTRK	(XLA NAT) \$

50.1.5 Table STDPRTCT

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

50.1.5.1 Recommended datafill for tables STDPRTCT and STDPRTCT.STDPRT

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

The generic STDPRTCT datafill provided in Table 277 on page 726 is based on the following:

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls.
- The datafill used in the previous STDPRTCT example is used as reference material.

The RCNAMES used in Table 277 on page 726 are from the generic RTECHAR example. If an office modifies table RTECHAR data, the following example should be modified accordingly.

Table 277 Generic STDPRTCT datafill

STDPRTCT	
NAT	(1) (1234) ... (national calls)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for national calls. 10488 10488 EA DD 5 T NA 488 Y OFRT 700 5 15 N
	9501542 9501542 FGB DD 0 C542 Y OFR3 542 7 7
	... other carriers ... (similar datafill as pretranslators for carrier, NA call)
	2 410 N DD 0 NA
	411 411 T NP 0 OFRT 1 3 3 NONE
	412 510 N DD 0 NA
	... other N11 Note that the standard North American entries are interleaved.
	The following entry is required for home area codes that do not require billing. 613 613 N NP 0 NA
INT	(1) (123) (international calls)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 recursive translator for international calls. 10488 10488 EA DD 5 T IN 488 Y OFRT 701 5 15 N
	... other carriers ... (same datafill as pretranslators for carrier, IN call)
	The entry below is similar to the P621 translator for international direct dialed calls. 2 9 N DD 0 IN
NAOP	(1) (122) ... (national operator call)
	Subtable STDPRT
	The entry below is similar to the P621 translator for national operator calls. 2 9 P OA 0 NA TOPS

Table 277 Generic STDPRTCT datafill (Continued)

STDPRTCT	
IOP	(1) (12) ... (international operator call)
	Subtable STDPRT
	The entry below is similar to the P621 translator for international operator calls. 2 9 P OA 0 IN TOPS
NCOP	(1) (127) ... (national carrier operator call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for national carrier operator call. 10488 10488 EA OA 5 T NA 488 Y OFRT 700 5 15 N
	... other carriers... (similar datafill as pretranslators for carrier)
CAOP	(1) (127) ... (operator carrier call—no address present)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for “00” carrier operator call. 10488 10488 EA OA 5 T NO 488 Y OFRT 700 5 5 N
	... other carriers ... (similar datafill as pretranslators for carrier, “00” operator call)
ICOP	(1) (125) ... (international carrier operator call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for international operator calls. 10488 10488 EA OA 5 T IN 488 Y OFRT 701 5 15 N
	... other carriers ... (similar datafill as pretranslators for carrier, IN operator call)
NAPC	(1) (125) ... (NAP or access carrier call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the PTRK OZZ XXX call. 488 488 ET DD 3 MCI Y OFRT 900 3 15
	... other carriers ... (similar datafill OZZ XXX call)

50.1.5.2 Modifying generic STDPRTCT data for an office or an AIN service

Most switches do not differentiate between carrier operator–no address and national carrier operator within STDPRTCT. If your office does not need to differentiate, only one of NCOP or CAOP needs to be datafilled.

Some AIN services may not need to support operator calls, and so the operator pretranslators may not be required.

50.1.6 10-digit dialing in the home numbering plan

Table HNPACONT and its subtable HNPACODE is probably the most straightforward to datafill for AIN TRIGNAME response processing. In most instances, the tuples are already present.

The entry in table HNPACONT and subtable HNPACODE allows for 10-digit dialing of a number in the home numbering plan.

The generic HNPACONT datafill provided in Table 278 is based on the fact that the generic SSP does not currently support dialing of the home NPA.

Table 278 Generic datafill example

HNPACONT	
613	984 1 (270) (1) (84) (0)
	Subtable HNPACODE
	613 613 HNP A 0

**CAUTION**

Other table changes are required if 10-digit HNP A dialing is not supported in the network.

The previous example allows for 10-digit translation of a home numbering plan number (HNP A). If other switches in the network cannot support 10-digit dialing, then additional entries in the routing table are required to delete the HNP A.

50.1.7 Route mapping tables

The route mapping tables direct the call to a new route based on the RCNAME and a route derived by translations.

50.1.7.1 Recommended datafill to support AIN TRIGNAME response processing

Additional datafill for the route mapping tables is not required in the generic SSP because it already meets the following conditions:

- The generic SSP does not have routing based on bearer capability.
- The generic SSP supports 10-digit outpulsing of home numbering plan numbers.

However, when routing based on BC is supported or 10-digit outpulsing of home numbering plan numbers is not supported, datafill is required for an office or an AIN TRIGNAME service.

50.1.7.2 Routing based on bearer capability

The route mapping tables are currently used for routing based on bearer capability. Normally, the route derived from translations causes the use of standard facilities, which support mainly voice communication. For some data calls, ISUP or ISDN facilities are required. Route mapping tables allow the DMS to map the standard facilities to the intelligent signaling facilities for data bearer capability.

As AIN TRIGNAME uses other characteristics in conjunction with BC, the RCNAME that is derived from the response will probably not be the same as the RCNAME derived initially.

50.1.7.2.1 Example 1 BC64K would be used initially; NA64K would be used to translate and route the AIN TRIGNAME response, as in Table 279.

Table 279 Datafill for example 1

Type of access	RCNAME	Routing characteristic combinations
64kbps call	BC64K	(BC 64KDATA \$) \$
National Call (64kbps)	NA64K	(CDN NA (BC 64KDATA) \$) \$

50.1.7.2.2 Example 2 If BC64K is datafilled in a route mapping table to select intelligent signaling facilities, the same tuple would need to be datafilled for NA64K as in Table 280.

Table 280 Datafill for example 2

RCNAME	INDEX	NEW INDEX
BC64K	10	510
The following entry would be required:		
NA64K	10	510

50.1.8 Routing without 10-digit dialing of home numbering plan numbers

See “Chapter 55.: Options for offices supporting only 7-digit dialing for home numbering plan” on page 903 for details on the use of the RX selector.

50.2 Sample TRAVERs for public lines and trunks without simplification

This section contains TRAVER examples of various call types during AIN response translations without activating the Response Translations Simplification feature.

50.2.1 Additional data required for AIN response translations in TRAVERs

Table RCNAME and table RTECHAR are datafilled as specified in the recommended datafill to support AIN response translations in a generic SSP, as shown in Figure 127.

Figure 127 Table RCNAME

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

For the generic SSP, Figure 128 on page 731 shows the entries for table RTECHAR.

Figure 128 Table RTECHAR

```

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

```

If the SSP supports routing based on bearer capability, the above RTECHAR entries would be modified, as shown in Figure 129.

Figure 129 Table RTECHAR modified

```

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

```

The entries shown in Figure 130 on page 732 map the RCNAME and pretranslator to obtain a new pretranslator based on call type.

Figure 130 Table PXLAMAP

```
TABLE PXLAMAP
. NACALL P722 ( XLA NAT)$
. NACALL P622 ( XLA NAT)$
. NACAR P722 ( XLA NAT)$
. SUBCALL P722 (XLA NAT)$
. SUBCALL P622 (XLA NAT)$
. SUBCAR P722 (XLA NAT)$
. INCALL P622 ( XLA INT)$
. INCAR P622 ( XLA INT)$
. INCAROP P622 ( XLA ICOP)$
. NACAROP P622 ( XLA NCOP)$
. SUBCAROP P622 (XLA NCOP)$
```

The new entries are pretranslators, as shown in Figure 131.

Figure 131 Table STDPRTCT

```
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA DD 5 T NA MCI Y OFRT 963 3 15 N
. 613 613 N NP 0 NA
. 819 819 N DD 0 NA
INT ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA DD 5 T IN MCI Y OFRT 700 5 25 Y
. 10488 10488 EA DD 5 T IN ITT Y OFRT 900 5 20 N
. 2 9 N DD 0 IN
INCOP ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA OA 5 T IN MCI Y OFRT 700 6 25 Y
NCOP ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10488 10488 EA OA 5 T NA ITT Y OFRT 963 5 20 N
```

The entry shown in Figure 132 allows for 10-digit dialing of home numbering plan.

Figure 132 Table HNPACONT

```
TABLE HNPACONT
613 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 613 613 HNPA 0
```

50.2.2 National call - returned number on the same SSP

The command line assumes the following:

- originator is an IBN line 613 622 1243
- CalledPartyID = National Number 6136221243

Figure 133 TRAVER for national call - returned number on the same SSP

```

traver l 6221243 n cdn na 6136221243 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. NACALL P622 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 613 613 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 613 613 HNPA 0
. 622 622 DN 613 622
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 622

```


Figure 134 TRAVER for national call - returned number on the same SSP (Continued)

```

TABLE DNINV
613 622 1243 L HOST 00 1 10 17
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 622 622
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136221243          ST

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

```

50.2.3 National call - returned number within the user HNP

The command line assumes the following:

- originator is an IBN line 6136221243
- CalledPartyID = National Number 6134257320

Figure 135 TRAVER for national call - returned number in the user HNP

```

traver l 6136221243 n cdn na 6134257320 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. NACALL P622 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 613 613 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 613 613 HNPA 0
. 425 425 HRTE 1
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 1 N D OTMF1 0 N N

```

Figure 136 TRAVER for national call - returned number in the user HNP (Continued)

```

. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 425 425
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OTMF1                6134257320                ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

50.2.4 National call - returned number not within the user HNP

The command line assumes the following:

- originator is an 1FR line 613 622 1243
- CalledPartyID = National Number 8197226992

Figure 137 TRAVER for national call - returned number not in the user HNP

```

traver l 6221243 n cdn na 8197226992 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. NACALL P622 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TODOCUMENTATION.
. 819 819 N DD 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE NTABLE HNPACONT
613 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 819 819 FRTE 100
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 100 N D OTMF2 0 N N
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT

```

Figure 138 TRAVER for national call - returned number not within the user HNP (Continued)

```

TABLE LCASCRCN
613 L613 ( 2) MNMT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNMT DD N DD UNMT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
TABLE LENFEAT
HOST 00 1 10 17 S PIC PIC ITT Y
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y Y N N Y Y N LONG 14 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 OTMF2                8197226992                ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

50.2.5 Subscriber call

The command line assumes the following:

- originator is an 1FR line 6136221243
- CalledPartyID = Subscriber Number 4257320

Figure 139 TRAVER for subscriber call

```

traver l 6221243 n cdn 1 4257320 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. SUBCALL (CDN L $) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. SUBCALL P622 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. 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 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 425 425 DN 613 425
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 722
TABLE DNINV
613 722 6972 L HOST 00 1 06 09

```

Figure 140 TRAYER for subscriber call (Continued)

```

AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 425 425
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE          6134257320      ST

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

50.2.6 National carrier call

The command line assumes the following:

- originator is an IBN line 6136221243
- CalledPartyID = National Number 4166251242
- PrimaryCarrierID = 0234

Figure 141 TRAVER for national carrier call

```

traver l 6221243 n cdn na 4166251242 tns na cic 0234 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. NACAR P722 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10234 10234 EA DD 5 T NA MCI Y OFRT 963 3 15 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 100 15 ( 3) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 416 416 FRTE 2
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL

```


Figure 142 TRAVER for national carrier call (Continued)

```

. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. . 2 T OFRT 963
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
613 L613 ( 3) MNDT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATA1
LATA1 416625 INTER INTER STD
TABLE OCCINFO
MCI 0234 TRANS Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N
N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route OFRT 963 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
963 N D OTTISUPITEAOG3 0 D077 N
N D OTTMFITEAOG 10 D077 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Figure 143 TRAVER for national carrier call (Continued)

DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3	D0774166251242	ST
2 OTTMFITEAOG	D077	ST

TREATMENT ROUTES. TREATMENT IS: GNCT

1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

50.2.7 International call

The command line assumes the following:

- originator is an 1FR line 6136221243
- CalledPartyID = International 8527146926

Figure 144 TRAVER for international call

```

traver l 6221243 n cdn in 8527146926 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. INCALL (CDN IN $) )$
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. INCALL P622 ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 2 9 N DD 0 IN
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE CCTR
852 T 692 9 11 T OFRT 936 Y
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
936 N D OTTISUPITEAOG3 0 D177 N
. . N D OTTMFITEAOG 10 D177 N
. . EXIT TABLE OFRT
64 N D TERMBX01 3 N N

```

Figure 145 TRAYER for international call (Continued)

```

EXIT TABLE OFRT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N N Y Y N LONG 14 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND
10XXX/101XXX OF DEFAULT CARRIER FROM OFFICE PARM
TABLE PXLAMAP
. INCALL P622 ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10488 10488 EA DD 5 T IN ITT Y OFRT 936 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 936 N D OTTISUPITEAOG3 0 D177 N
. . N D OTTMFITEAOG 10 D177 N
. . EXIT TABLE OFRT

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 OTTISUPITEAOG3 D1778527146926 ST
2 OTTMFITEAOG D177 ST

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

50.2.8 International carrier call

The command line assumes the following:

- originator is an 1FR line 6136221243
- CalledPartyID = International 8527146926
- PrimaryCarrierID = 0234

Figure 146 TRAVER for international carrier call

```

traver l 6221243 n cdn in 8527146926 tns na cic 0234 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. INCAR (CDN IN (TNS NA)$) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. INCAR P622 ( XLA INT)$
TABLE STDPRTCT
INT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
10234 10234 EA DD 5 T IN MCI Y OFRT 700 5 25 Y
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 700 N D ISUPITEAOG3 0 D177 N
. . N D MFITEAOG 0 D177 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE CCTR
852 T 692 9 11 T OFRT 700 Y
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL

```

Figure 147 TRAVER for international carrier call (Continued)

```

AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  700  N D ISUPITEAOG3 0 D177 N
        N D MFITEAOG 0 D177 N
EXIT TABLE OFRT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
MCI 0234 EAP Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT  700 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  700  N D ISUPITEAOG3 0 D177 N
        N D MFITEAOG 15 D177 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPITEAOG3          D1778527146926      ST
2 MFITEAOG             D177 ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

50.2.9 International operator

The command line assumes the following:

- originator is a 1FR line 6136221243
- CalledPartyID = International, Operator Requested 8527146926

Figure 148 TRAVER for international operator

```

>traver l 6221243 n cdn in 8527146926 osa pubp ainres r01 ar b
Warning: Routing characteristics are present.
  Originator must be able to send in
  characteristics specified.
TABLE RTECHAR
  . INOPER (OSA PUBP (CDN IN))$
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
  . INOPER P622 ( XLA IOP)$
TABLE STDPRTCT
IOP ( 1) ( 0) 0
  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
  . 2 9 N OA 0 IN
  . SUBTABLE AMAPRT
  . KEY NOT FOUND
  . DEFAULT VALUE IS: NONE OVRNONE N
TABLE CCTR
852 T 692 9 11 T OFRT 936 Y
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
  . N11 ( DG N11DIG)$ NIL
  . PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
  TABLE OFRTMAP
    . Tuple not found. Default to old index.
  TABLE OFRT
936 N D OTTISUPITEAOG3 0 D177 N
..      N D OTTMFITEAOG 15 D177 N
EXIT TABLE OFRT

```

Figure 149 TRAVER for international operator (Continued)

```

TABLE LENFEAT
HOST 00 1 10 17 S PIC PIC MCI Y
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
MCI 0234 EAP Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND
TABLE PXLAMAP
. INOPER P622 ( XLA IOP)$
TABLE STDPRTCT
IOP ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
.10234 10234 EA OA 5 T IN 120 Y OFRT 936 5 15 NONE
..TABLE OFRTMAP
... Tuple not found. Default to old index.
..TABLE OFRT
..936 N D OTTISUPITEAOG3 0 D177 N
..      N D OTTMFITEAOG 15 D177 N
..EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3 D1778527146926 ST
2 OTTMFITEAOG D177 ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

50.2.10 International carrier operator

The command line assumes the following:

- originator is a 1FR line 6136221243
- CalledPartyID = International, Operator Requested 8527146926
- PrimaryCarrierID = 0234

Figure 150 TRAVER for international carrier operator

```

traver l 6221243 n cdn in 8527146926 tns na cic 0234 osa puba ainres r01
ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. INCAROP (OSA PUBA (CDN IN) (TNS NA)$)$
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. INCAROP P622 ( XLA ICOP)$
TABLE STDPRTCT
ICOP ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10234 10234 EA OA 5 T IN MCI Y OFRT 700 6 25 Y
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT . . 700 N D ISUPITEAOG3 0 D177 N
. . N D MFITEAOG 15 D177 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE CCTR
852 T 692 9 11 T OFRT 700 Y
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.

```

Figure 151 TRAVER for international carrier operator (Continued)

```

TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
700  N D ISUPITEAOG3 0 D177 N
      N D MFITEAOG 15 D177 N
EXIT TABLE OFRT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
MCI 0234 EAP Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT 700 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
700  N D OTTISUPITEAOG3 0 D177 N
      N D OTTMFITEAOG 15 D177 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 ISUPITEAOG3          D1778527146926      ST
2 MFITEAOG             D177 ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

50.2.11 National carrier operator

The command line assumes the following:

- originator is a 1FR line 6136221243
- CalledPartyID = International, Operator Requested 8527146926
- PrimaryCarrierID = 0488

Figure 152 TRAVER for national carrier operator

```

traver l 6221243 n cdn na 4166251242 tns na cic 0488 osa puba ainres r01
ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAROP (OSA PUBA (CDN NA) (TNS NA)$) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 00 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. NACAROP P622 ( XLA NCOP)$
TABLE STDPRTCT
NCOP ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10488 10488 EA OA 5 T NA ITT Y OFRT 963 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 20 15 ( 1) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 416 416 FRTE 2
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL

```

Figure 153 TRAVER for national carrier operator (Continued)

```

. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. . 2 T OFRT 963
. . TABLE OFRT
. . . 963 N D OTTISUPITEAOG3 0 D077 N
. . . N D OTTMFITEAOG 10 D077 N
. . . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT OA N OA UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA UNCHANGED
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATA XLA
LATA1 416625 INTER INTER STD
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N N Y Y N LONG 14 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route OFRT 963 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
963 N D OTTISUPITEAOG3 0 D077 N
N D OTTMFITEAOG 10 D077 N
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3 D0774166251242 ST
2 OTTMFITEAOG D077 ST
TREATMENT ROUTES. TREATMENT IS: GNCT

```

Figure 154 TRAVER for national carrier operator (Continued)

```
1 *OFLO
2 LKOUT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

50.2.12 Carrier operator

The command line assumes the following:

- originator is a 1FR line 6136221243
- CalledPartyID = International, Operator Requested 8527146926
- PrimaryCarrierID = 0488

Figure 155 TRAVER for carrier operator

```

traver l 6221243 n tns na cic 0488 osa puba ainres r01 ar b
Warning: Routing characteristics are present.
  Originator must be able to send in
  characteristics specified.
TABLE RTECHAR
  . CAROP (OSA PUBA (TNS NA)$) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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
HOST 0 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
  . CAROP P622 (XLA CAOP)$
TABLE STDPRTCT
CAOP ( 1) ( 0) 0
  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
  . 10488 10488 EA OA 5 T NO 488 Y OFRT 700 5 5 NONE
  . . TABLE OFRTMAP
  . . . Tuple not found. Default to old index.
  . . TABLE OFRT
  . . 700 N D TOPSEAOSSOG 15 D040 N
  . . EXIT TABLE OFRT
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
  . N11 ( DG N11DIG)$ NIL
  . PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRT
  700 N D TOPSEAOSSOG 15 D040 N
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

```

Figure 156 TRAVER for carrier operator (Continued)

```
1 TOPSEA0SSOG N STP
```

```
TREATMENT ROUTES. TREATMENT IS: GNCT
```

```
1 *OFLO
```

```
2 LKOUT
```

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

50.2.13 Bell operating company operator call

The command line assumes the following:

- originator is a 1FR line 6136221243
- CalledPartyID = no address present, operator requested

Figure 157 TRAVER for Bell operating company operator call

```
traver l 6221243 n cdn na 0 osa pubp ainres r01 ar b
Warning: Routing characteristics are present.
  Originator must be able to send in
  characteristics specified.
TABLE RTECHAR
. BOCOP (OSA PUBP $) (OSA PUBP (CDN NA)$) (OSA PUBP (CDN L)$) $
TABLE LINEATTR
501 1FR NONE NT FR01 0 613 P622 L613 TSPS 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 LENFEAT
HOST 0 1 10 17 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
ZERO MINUS POS FROM LINE ATTRIBUTES
TABLE POSITION
TSPS T OFRT 106
TABLE OFRT
106 N D LNTOPSO 1 N N

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

POSITION ROUTES. POSITION IS: TOPS
1 LNTOPSO          N          ST3P

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

51. AIN simplified response translations for public agents

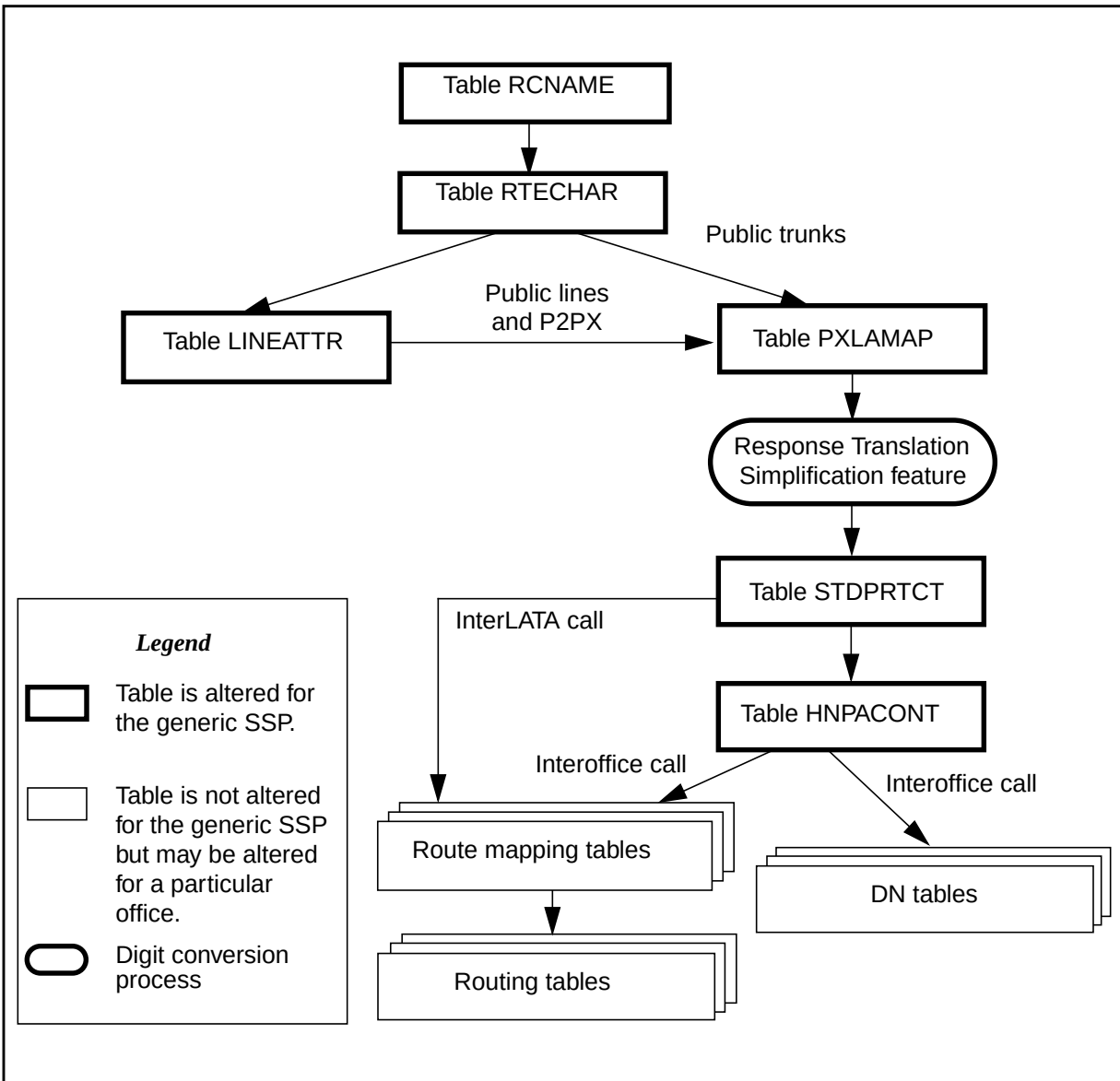
The response translations simplification feature reduces the amount of datafill required to support AIN response translation. This feature is used to convert SCP Analyze Route or Forward Call response into a digit format which can reuse the triggering agent's translation datafill. See Table 302 on page 826.

Figure 158 outlines the different tables needed for AIN simplified response translations for public agents and the relationship between these tables.

**CAUTION**

Possible loss of service

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

Figure 158 AIN table relationships for public agent - with simplification

51.1 Table PXLAMAP

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

- No tuple is present for the triggering agent's pretranslator and the RCNAME derived from the SCP response.
- A tuple is present for the triggering agent's pretranslator and the RCNAME derived from the SCP response, with the PREFIX selector present.

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

If the converted digits cannot reuse the datafill contained in the originator's pretranslator, a new pretranslator must be defined to handle this exception. This exception pretranslator can in most cases can be shared among several AIN response translations calltypes, minimizing the number of exception translators required. If the exception pretranslator is to be used, tuples must be defined in table PXLAMAP with the PREFIX and XLA selectors to direct call processing to use the exception pretranslator.

51.2 Different digit streams produced by simplification

The Response Translations Simplification feature works under the following assumptions:

- The digits in the response for national number and national number operator requested are 10D. If the response contains a subscriber number (7D), digits conversion is not performed.
- For incoming local or FGC trunks, it is assumed that the originating trunk's translations are based on 10D translation.

51.2.1 Triggering agents of type public line

For all call types, except National Direct Dial (where CDN=NA & TNS=UNK & OSA=UNK) and National Carrier Direct Dial (where CDN=NA & TNS=NA & OSA=UNK), the conversion rules are based on existing dial plan conventions:

- "0" is prefixed for national number operator requested
- "011" are prefixed for international number
- "01" are prefixed for international number operator requested
- "10XXX" or "101XXXX" are prefixed for carrier access

Table 281 summarizes the digits used in translation after being converted by the Response Translations Simplification feature when the triggering agent is a public line and when call types are other than National Direct Dial (where CDN=NA & TNS=UNK & OSA=UNK) and National Carrier Direct Dial (where CDN=NA & TNS=NA & OSA=UNK).

Table 281 Digits used in translation after simplification

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
International number	7-15D	Not present	011+(7-15)D	IN	NIL	NIL
No address present, operator requested	0D	Not present	0-	NIL	PUBP	NIL
National number, operator requested	10D	Not present	0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	01+(7-15)D	IN	PUBP	NIL
International number	7-15D	0XXX	10XXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	0XXX	10XXX0-	NIL	PUBA	NA
National number, operator requested	10D	0XXX	10XXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	0XXX	10XXX+01+(7-15)D	IN	PUBA	NA
International number	7-15D	XXXX	101XXXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	XXXX	101XXXX0-	NIL	PUBA	NA
National number, operator requested	10D	XXXX	101XXXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	XXXX	101XXXX+01+(7-15)D	IN	PUBA	NA
Legend: IN - International NA - National NIL - Not present PUBA - Carrier operator PUBP - Public operator						

For National Direct Dial (where CDN=NA & TNS=UNK & OSA=UNK) and National Carrier Direct Dial (where CDN=NA & TNS=NA & OSA=UNK) SCP responses, the conversion of the 10D number into a dialable format is based on existing translation datafill in tables LCASCRCN and HNPACONT. The resulting digits will be in 7D, 1+7D, 10D, or 1+10D format, being consistent with the originator's dialing plan.

Note: If carrier ID is returned in the response, the carrier access digits 10XXX or 101XXXX will be prefixed before the converted digits.

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

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

Table 282 summarizes the digits used in translation after conversion when the triggering agent is a public line and for calltypes where (CDN=NA) or (CDN=NA & TNS=NA).

Table 282 Translation digits after conversion - triggering agent is a public line

Digits after step 1	Local or Toll	PFX FOR10	Originator's NPA = Called NPA	Result if no Carrier ID is present	Result if 0XXX Carrier ID is present	Result if XXXX Carrier ID is present
7D	Local	Y	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Local	N	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Toll	Y	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Toll	N	Not Applicable	1+7D	10XXX+1+(7)D	101XXXX+1+(7)D
10D	Local	Y	N	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D
10D	Local	Y	Y	7D	10XXX+7D	101XXXX+7D
10D	Local	N	Not Applicable	10D	10XXX+(10)D	101XXXX+(10)D
10D	Toll	Y	Not Applicable	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D
10D	Toll	N	Not Applicable	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D

51.2.2 Triggering agents of type local or FGC trunk

For incoming local or FGC trunks, it is assumed that the originating trunk's translations are based on 10D translation.

Table 283 summarizes the digits used in translation after conversion by the Response Translations Simplification feature when the triggering agent is a local or FGC trunk.

Table 283 Translation digits after simplification - local and FGC trunk triggering agents

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations	CDN	OSA	TNS
National number	10D	Not present	10D	NA	NIL	NIL
International number	7-15D	Not present	011+(7-15)D	IN	NIL	NIL
No address present, operator requested	0D	Not present	0-	NIL	PUBP	NIL
National number, operator requested	10D	Not present	0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	01+(7-15)D	IN	PUBP	NIL

Table 283 Translation digits after simplification - local and FGC trunktriggering agents (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations	CDN	OSA	TNS
National number	10D	0XXX	0XXX+10D	NA	NIL	NA
International number	7-15D	0XXX	0XXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	0XXX	0XXX+00	NIL	PUBA	NA
National number, operator requested	10D	0XXX	0XXX+0+10D	NA	PUBA	NA
International number, operator requested	7-15D	0XXX	0XXX+0+(7-15)D	IN	PUBA	NA
National number	10D	XXXX	XXXX+10D	NA	NIL	NA
International number	7-15D	XXXX	XXXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	XXXX	XXXX00-	NIL	PUBA	NA
National number, operator requested	10D	XXXX	XXXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	XXXX	XXXX+01+(7-15)D	IN	PUBA	NA
Legend: IN - International NA - National NIL - Not present PUBA - Carrier operator PUBP - Public operator						

51.2.3 Triggering agents of type FGD trunks

For triggering FGD trunks the conversion depends on whether a carrier ID is present in the response. If no carrier ID is present, the feature converts the called digits into the same format as used for triggering local or FGC trunks. If a carrier ID is present, a 0ZZ or 1NX code must be determined in order to reuse the FGD translations which are based on 0ZZ+(X)XXX or 1NX+(X)XXX. There are four options NSC0ZZ, NSC1NX, NSCOP0ZZ, and NSCOP1NX defined in tables OCCSRV and NSCDEFS. Table OCCSRV, indexed by carrier ID, provides these options on a per carrier basis. Whereas, table NSCDEFS provides these options as defaults. These options are used to datafill the 0ZZ or 1NX digits which will be used by this feature to prefix in front of the carrier ID returned in the response.

If the carrier specified in the response has the 0ZZ/1NX option is datafilled in table OCCSRV then it is used in digit conversion otherwise the 0ZZ/1NX option is taken from table NSCDEFS. In addition, the conversion depends on whether the incoming FGD trunk is based on a 3-digit CIC or a 4-digit CIC.

51.2.3.1 Table OCCSRV

Table OCCSRV was introduced in NA09 to enhance the FGD digit conversion component of the AIN Response Translations Simplification feature. This table provides the capability to define 0ZZ/1NX codes on a per calltype basis for each carrier.

The key for table OCCSRV is carrier name. Four options can be datafilled for a given carrier:

- Option NSC0ZZ is created to specify the 0ZZ digits for National calls.
- Option NSCOP0ZZ is created to specify the 0ZZ digits for National Operator assist calls.
- Option NSC1NX is created to specify the 1NX digits for International calls.
- Option NSCOP1NX is created to specify the 1NX digits for International Operator assist calls.

51.2.3.2 Recommended datafill for table OCCSRV to support simplification

Table 284 provides an example of table OCCSRV datafill.

Note: NSC0ZZ, NSCOP0ZZ, NSC1NX and NSCOP1NX must be datafilled before activation of response translations simplification for trunks using FGD signalling.

Table 284 Example of table OCCSRV datafill

KEY	OPTIONS			
ATT	(NSC0ZZ 088)	(NSCOP0ZZ 044)	(NSC1NX 155)	(NSCOP1NX 166) \$

51.2.3.3 Table NSCDEFS

The following options in Table NSCDEFS are used by the AIN Response Translations Simplification feature to determine the 0ZZ/1NX codes, if the options are not datafilled for the carrier ID in table OCCSRV:

- NSCOP0ZZ - to specify the 0ZZ digits for National Operator assist calls.
- NSCOP1NX - to specify the 1NX digits for International Operator assist calls.
- NSC0ZZ - to specify the 0ZZ digits for National calls.
- NSC1NX- to specify the 1NX digits for International calls.

51.2.3.4 Recommended datafill for table NSCDEFS

Table 285 provides an example of table NSCDEFS datafill.

Note: NSC0ZZ, NSCOP0ZZ, NSC1NX and NSCOP1NX must be datafilled before activation of response translations simplification for trunks using FGD signalling.

Table 285 Example of table NSCDEFS datafill

NSC CODE	TIME OUT	OPTIONS			
AIN	3	(NSC0ZZ 077)	(NSCOP0ZZ 033)	(NSC1NX 144)	(NSCOP1NX 177) \$

51.2.3.5 Digits used in translation when triggering agents are FGD trunks

Table 286 summarizes the digits used in translation after digit conversion by the AIN Response Translations Simplification feature when the originating agent is a FGD trunk based on a 4-digit CIC. The four options NSC0ZZ, NSC1NX, NSCOP0ZZ, and NSCOP1NX are the ones defined in Table 284 on page 766.

Table 286 Digits produced for FGD trunk triggering agents based on 4-digit CIC

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations	CDN	OSA	TNS
National number	10D	0XXX	0330XXX+10D	NA	NIL	NA
International number	7-15D	0XXX	1150XXX+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	0XXX	0440XXX	NIL	PUBA	NA
National number, operator requested	10D	0XXX	0440XXX+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	0XXX	1660XXX+(7-15)D	IN	PUBA	NA
National number	10D	XXXX	033XXXX+10D	NA	NIL	NA
International number	7-15D	XXXX	155XXXX+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	XXXX	044XXXX	NIL	PUBA	NA
National number, operator requested	10D	XXXX	044XXXX+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	XXXX	166XXXX+(7-15)D	IN	PUBA	NA
Legend: IN -- International NA - National NIL -Not present PUBA - Carrier operator PUBP - Public operator						

Table 287 summarizes the digits used in translation after conversion by the Response Translations Simplification feature when the originating agent is an FGD trunk and no carrier ID is specified in the response.

Table 287 Digits produced for FGD trunk agents - no carrier specified in the response

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations	CDN	OSA	TNS
National number	10D	Not present	1+10D	NA	NIL	NIL
International number	7-15D	Not present	011+(7-15)D	IN	NIL	NIL
No address present, operator requested	0D	Not present	0-	NIL	PUBP	NIL
National number, operator requested	10D	Not present	0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	01+(7-15)D	IN	PUBP	NIL
Legend: IN -- International NA - National NIL -Not present PUBA - Carrier operator PUBP - Public operator						

Note: For these calltypes it is recommended that a exception pretranslator be defined. Mapping tuples with the PREFIX and XLA selectors in table PXLAMAP must be added for the above calltypes in order to direct response translations to the exception pretranslator.

51.2.4 Table STDPRTCT

The digit streams produced by the AIN Response Translations Simplification feature cannot reuse the originator's translation datafill in all the cases. New pretranslators must be defined to handle the exceptions. The following subsections describe the exceptions for the different types of triggering agents involved with the Response Translations Simplification feature.

51.2.4.1 Triggering agents of type public lines

For triggering agents of type public lines, the digit streams produced by the AIN Response Translations Simplification feature for the different routing characteristics can directly reuse the originator's pretranslator in most cases. In these cases no mapping tuples are required for the triggering public lines in table PXLAMAP.

51.2.4.2 Triggering agents of type local or FGC trunks

For incoming local or FGC trunks, it is assumed that the originating trunk's translations are based on 10D translation. If 7D translation is used, a new pretranslator that handles 10D translation for public trunks must be defined.

This new pretranslator is then associated with the different call types according to the originator's trunk pretranslator in table PXLAMAP.

In the case where 10D translation is used, the datafill required to support all of the call types defined in Table 283 on page 764 (except National Number without Carrier ID) usually do not exist in the translation datafill for local trunks. If the National Number without Carrier ID call type can reuse the trunk translation datafill, then all other call types can be datafilled in a single exception pretranslator. In this case table PXLAMAP would have tuples corresponding to the RCNAMES (other than NACALL) with PREFIX and XLA selectors to direct response translations to use the exception pretranslator.

The tuples described in Table 288 are used to handle the exceptions for local or FGC trunk originating agents when the Response Translations Simplification feature is active.

Table 288 Recommended PXLAMAP datafill for local or FGC trunks

NACAR	PTRK	(XLA EXP1) \$	PREFIX
INCALL	PTRK	(XLA EXP1) \$	PREFIX
INCAR	PTRK	(XLA EXP1) \$	PREFIX
Note: Assume PTRK is the pretranslator for a public trunk.			

Table 289 on page 770 defines the new pretranslator that handles exceptions produced by the Response Translations Simplification feature when the originating agent is a local or FGC trunk.

Table 289 New pretranslator for exceptions for local or FGC trunks

EXP1	(1) (1234) ... Pretranslator to handle exception cases produced by Response Translations Simplification feature
	Subtable STDPRT
	448 448 ET DD 3 MCI Y OFRT 900 3 3
	... other carriers ... (similar datafill as pretranslators for carriers)

If the National Number without Carrier ID call type cannot reuse the trunk translation datafill, then two exception pretranslators must be datafilled for:

- non-carrier call types
- carrier call types

This is because the carrier digit pattern XXX cannot exist with 10D in the same pretranslator. Datafilling exception pretranslators allows grouping of local or FGC trunks to use one set of response translations datafill.

51.2.4.3 Triggering agents of type FGD trunks

If a carrier ID is returned from the SCP response, the AIN Response Translations Simplification feature needs to determine a 0ZZ or 1NX code in order to reuse the FGD translation datafill in table STDPRTCT.

Based on the calltype of the response National, National Operator, International, International Operator the corresponding 0ZZ/1NX option is searched for. Table OCCSRV is checked first to see if a NSC/1NX option is datafilled for the calltype for the carrier ID. If a tuple is found for the carrier ID, and it contains the desired 0ZZ/1NX option for the calltype, the 0ZZ/1NX digits specified in the option will be used by the feature.

If nothing is found in table OCCSRV, the 0ZZ/1NX digits are obtained from table NSCDEFS.

Table 290 on page 771 describes an example of datafill in the pretranslator of the triggering trunk which will be reused for response translations with the prefixed 0ZZ/1NX digits.

Table 290 Additional datafill for new options NSCOP0ZZ and NSCOP1NX in table NSCDEFS

PTRK	(1) (1234) ... Pretranslator for tansem or NAP call
	Subtable STDPRT
	088488 088488 ET DD 6 MCI Y OFRT 900 6 6
	... other carriers ...
	044448 044448 ET OA MCI Y OFRT 900 6 6
	... other carriers ...
	166448 166488 ET IN MCI OFRT 901 6 6
	... other carriers ...
	2 9 N DD 1 NA
	411 411 T NP 0 OFRT 1 3 3 NONE
	... other N11 ...

Responses without Carrier ID cannot be translated by the same translator containing FGD 0ZZXXX or 1NXXXX type translation datafill. 1+10D, 0+10D, or 011+(7-15)D is likely to conflict with 0ZZXXX and 1NXXXX datafill. Therefore, it is recommended that translation of responses with no Carrier ID use an exception pretranslator. Since the digits produced are in the

same format as the digits produced when triggering agent is a public line, the exception pretranslator is similar to a line pretranslator.

51.3 Sample TRAVERs for the generic SSP

This section contains TRAVER examples of AIN response processing with various call types when the Response Translations Simplification feature is activated.

51.3.1 Additional data required for AIN response processing in TRAVERs

Table RCNAME and table RTECHAR are datafilled as specified in the recommended datafill to support AIN response processing in a generic SSP. Figure 159 on page 772 shows the entries for table RCNAME.

Figure 159 Table RCNAME

```
TABLE RCNAME
. IXCDDNA
. IXCDDIN
. IXCOANA
. IXCOAIN
. LECNA
. LECIN
. LECO
. LECOANA
. LECOAIN
. SUBCAROP
. IXCOA
```

For the generic SSP, Figure 160 shows the entries for table RTECHAR.

Figure 160 Table RTECHAR

```
TABLE RTECHAR
IXCDDNA (CDN NA (TNS NA) $)(BC 3_1KHZ (CDN NA) (TNS NA) $)$
IXCDDIN(CDN IN (TNS NA) $)(BC 3_1KHZ (CDN IN) (TNS NA) $)$
IXCOANA(OSA PUBA (CDN NA) (TNS NA) $)
      (BC 3_1KHZ (OSA PUBA) (CDN NA) (TNS NA) $)$
IXCOAIN(OSA PUBA (CDN IN) (TNS NA) $)
      (BC 3_1KHZ (OSA PUBA) (CDN IN) (TNS NA) $)$
LECNA(CDN NA $)(BC 3_1KHZ (CDN NA) $)$
LECIN(CDN IN $)(BC 3_1KHZ (CDN IN) $)$
LECOA(OSA PUBP $)(BC 3_1KHZ (OSA PUBP) $)$
LECOANA(OSA PUBP (CDN NA) $)(BC 3_1KHZ (OSA PUBP) (CDN NA) $)$
LECOAIN(OSA PUBP (CDN IN) $)(BC 3_1KHZ (OSA PUBP) (CDN IN) $)$
IXCOA(OSA PUBA (TNS NA) $)(BC 3_1KHZ (OSA PUBA) (TNS NA) $)$
```

Figure 161 shows the entries for table PXLAMAP for triggering agents that require exception pretranslators. The triggering agents which do not require exception pretranslators, do not require any datafill in table PXLAMAP.

Figure 161 Table PXLAMAP

```
TABLE PXLAMAP
. IXCDDNA PUB ( XLA PUBXCAR) ( PREFIX )$
. LECIN PUB ( XLA PBXNOCAR) ( PREFIX )$
. LECOAIN PUB ( XLA PBXNOCAR) ( PREFIX )$
. IXCOAIN PUB ( XLA PUBXCAR) ( PREFIX )$
. IXCOANA PUB ( XLA PUBXCAR) ( PREFIX )$
. IXCOA PUB ( XLA PUBXCAR) ( PREFIX )$
```

Figure 162 shows the new pretranslator used in the TRAVER examples described in this chapter.

Figure 162 Table STDPRTCT

```
TABLE STDPRTCT
PUBXCAR ( 1) ( 0) 1
. SUBTABLE STDPRT
. 52204 52209 ET NP 4 SPR Y OFRT 898 5 24
.

PBXNOCAR ( 1) ( 0) 2
. SUBTABLE STDPRT
. 14 179776 N DD 1 NA
.
```

Figure 163 shows the entries for table OCCSRV.

Figure 163 Table OCCSRV

```
TABLE OCCSRV
ATT (NSC0ZZ 088) (NSCOP0ZZ 099) (NSC1NX 144) (NSC1NX 166)
```

Figure 164 shows the entries for table NSCDEFS.

Figure 164 Table NSCDEFS

```
TABLE NSCDEFS
AIN 3 (NSC0ZZ 077) (NSCOP0ZZ 033) (NSC1NX 144) (NSC1NX 177)
```

51.3.2 National calls

This section discusses the following four national call scenarios:

- National call where conversion produces 10D number
- National call where conversion produces 1+10D number
- National call where conversion produces 7D number
- National call where conversion produces 1+7D number

51.3.2.1 National call where conversion produces 10D number

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 6137228885

Figure 165 TRAVER for national call - convert to 10D number

```

>traver l 6631302 n cdn na 6137228885 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.     Resulting digits are: 6137228885
TABLE STDPRTCT
P621 ( 1) (65021) 0
. 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 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 6137 6139 HNPA 0
. 722 722 DN 613 722
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL

```

Figure 166 TRAVER for national call - convert to 10D number (Continued)

```

Trigger AIN PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 722 $
TABLE DNINV
613 722 8885 H 6 0
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
613 722 8885
(PUBLIC (NONUNIQUE ) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
6 613 7228885 DLH N Y N RCVD N N N N N Y LINEPSAP Y FIRE 2 $
TABLE HUNTMEM
6 0 N L HOST 00 0 01 14 N
LNP Info: Called DN is not resident.
LNP Info: HNP results are used.
TABLE LCASCRCN
613 L613 ( 44) OPTL N N
. SUBTABLE LCASCR
. 613 613
TABLE LCASCRCN
613 L613 ( 44) OPTL N N
. SUBTABLE LCASCR
. 722 722
TABLE PFXTREAT
OPTL NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6137228885                ST

TREATMENT ROUTES.  TREATMENT IS: GNCT

```

Figure 167 TRAVER for national call - convert to 10D number (Continued)

```
1 *OFLO
2 LKOUT

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

51.3.2.2 National call where conversion produces 1+10D numbers

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 9059631003

Figure 168 TRAVER for national call - convert to 1+10D number

```

>traver l 6631302 n cdn na 9059631003 ainres r01 ar b
Warning: Routing characteristics are present.
Originator must be able to send in
characteristics specified.

TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
. Resulting digits are: 19059631003
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 19 19 N DD 1 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 9059631003 9059631076 FRTE 747
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.
. N11 ( DG N11TRAF)$ NIL

```

Figure 169 TRAVER for national call - convert to 1+10D number (Continued)

```

Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 747 T OFRT 747
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 747 S D C0S1_ISUPITOG
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNP results are used.
TABLE LCASCRCN
613 L613 ( 43) OPTL N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL DD N DD UNDT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 C0S1_ISUPITOG          9059631003          ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.2.3 National call where conversion produces 7D number

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 6136631301

Figure 170 TRAVER for national call - convert to 7D number

```

>traver l 6631302 n cdn na 6136631301 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
. Resulting digits are: 6631301
TABLE STDPRTCT
P621 ( 1) (65021) 0
. 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 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 663 663 DN 613 663
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL

```

Figure 171 TRAVER for national call - convert to 7D number (Continued)

```

Trigger AIN PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
. . TABLE TRIGDIG
. . LNPDIG LNP 613663 LNP EVENT TCAP R01 SS7 AINBLUES DFLT $
. . . TABLE C7GTTYPE
. . . AINBLUES ANSI7 11 $
. . . TABLE C7GTT
. . . AINBLUES 6136631301 6136631301 PCSSN (SIMT00L RTESET SIMT00L 0)
$ SSN
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 663 $
TABLE DNINV
613 663 1301 L HOST 05 0 14 09
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNP results are used.
TABLE LCASCRCN
613 L613 ( 43) OPTL N N
. SUBTABLE LCASCR
. 663 663
TABLE PFXTREAT
OPTL NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136631301          ST

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

```

51.3.2.4 National call where conversion produces 1+7D number

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 6136211301

Figure 172 TRAVER for national call - convert to 1+7D number

```

>traver l 6631302 n cdn na 6136211301 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 16211301
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 16 19 N DD 1 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 Y 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 6211 6214 DN 613 621
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL

```


Figure 173 TRAVER for national call - convert to 1+7D number (Continued)

```

Trigger AIN PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 1301 L REM1 00 0 01 23
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNP results are used.
TABLE LCASCRCN
613 L613 ( 43) OPTL N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL DD N DD UNDT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 LINE                6136211301          ST
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.3 National carrier call

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 9059631003

- PrimaryCarrier = 0488

Figure 174 TRAVER for national carrier call

```
>traver l 6631302 n cdn na 4166251242 tns na cic 488 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCDDNA (CDN NA (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.     Resulting digits are: 1048814166251242
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 900 CND EA INTNL SK 2
. .     N D ISUPOGITT 0 N N
. .     CND ALWAYS SK 1
```

Figure 174 TRAVER for national carrier call (Continued)

```

. . N D ISUPOGITT 15 D179 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
. PEA1 ( 1) (65021) 1
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 1 1 EA DD 1 T NA ITT N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 4166251242 4166251242 FRTE 747
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 747 T OFRT 747
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 747 S D C0S1_ISUPITOG
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPAC results are used.
TABLE LCASCRCN
613 L613 ( 44) OPTL N N
. SUBTABLE LCASCR
. 416 416
TABLE LCASCRCN
416 L613 ( 1) OPTL N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL DD N DD UNDT
EA:Local override does not apply to this call.
OVERLAP CARRIER SELECTION (OCS) APPLIES

```

Figure 174 TRAVER for national carrier call (Continued)

```
TABLE LATAxLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N Y Y Y Y LONG 14 FGRPC N N N N N N N N Y N N N
N N Y
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT   900 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  900 CND EA INTNL SK 2
      N D ISUPOGITT 0 N N
      CND ALWAYS SK 1
      N D ISUPOGITT 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPOGITT           4166251242           ST

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

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

51.3.4 International call

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National Number 8527146926

Figure 175 TRAVER for international call

```

>traver l 6631302 n cdn in 8527146926 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECIN (CDN IN $) ( BC 3_1KHZ (CDN IN)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 0118527146926
TABLE STDPRTCT
P621 ( 1) ( 0) 2
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 011 011 N DD 3 IN
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE CCTR
852 T 692 9 11 T OFRT 64 Y
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.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL

```

Figure 175 TRAVER for international call (Continued)

```

Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  64 N D TOPOGNY 3 N N
    N D TERMBX01 3 N N
EXIT TABLE OFRT
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N Y Y Y Y LONG 14 FGRPC N N N N N N N Y N N N
N N Y
TABLE EASAC
TUPLE NOT FOUND
10XXX/101XXXX OF DEFAULT CARRIER FROM OFFICE PARM
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
. 10 10 F 0 STUTTER_DIALTONE EAP1
EAP1 ( 1) (65021) 3
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 900 CND EA INTNL SK 2
. . N D ISUPOGITT 0 N N
. . CND ALWAYS SK 1
. . N D ISUPOGITT 15 D179 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA1 ( 1) (65021) 1
. . SUBTABLE STDPRT

```

Figure 175 TRAYER for international call (Continued)

```

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 011 011 EA DD 3 T IN ITT N
Using Equal Access (EA) route OFRT 900 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
900 CND EA INTNL SK 2
N D ISUPOGITT 0 N N
CND ALWAYS SK 1
N D ISUPOGITT 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPOGITT          D179          ST

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

51.3.5 International operator

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID =International, Operator Requested 8527146926

Figure 176 TRAVER for international operator

```

>traver l 6631302 n cdn in 8527146926 osa pubp ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECOAIN (OSA PUBP (CDN IN)$) ( BC 3_1KHZ (OSA PUBP) (CDN IN)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 018527146926
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 018 019 T OA 0 OFRT 107 1 16 NONE
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.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.

```


Figure 176 TRAVER for international operator (Continued)

```

. . TABLE OFRT
. . 107 N D OCAMDCM 1 6108 N
. .      N D OCAMDPDCM 1 6108 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OCAMDCM                610818527146926      ST
2 OCAMDPDCM              610818527146926      ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.6 International carrier operator

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = International, Operator Requested 8527146926
- PrimaryCarrier = 5220

Figure 177 TRAVER for international carrier operator

```

>traver l 6631302 n cdn in 8527146926 tns na cic 5220 osa puba ainres
r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCOAIN (OSA PUBA (CDN IN) (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (CDN IN)
(TNS NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 1015220018527146926
TABLE STDPRTCT
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 1015 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
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.
. 1015220 1015220 EA DD 7 P PEA6 SPR Y OFRT 898 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.

```

Figure 177 TRAVER for international carrier operator (Continued)

```

. . TABLE OFRT
. . 898 CND EA INTNL SK 2
. . N D ISUP2WSPRA 0 N N
. . CND ALWAYS SK 1
. . N D ISUP2WSPRA 15 D179 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA6 ( 1) (65021) 3
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 018 018 EA DD 2 T IN ITT N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE CCTR
852 T 692 9 11 T OFRT 64 Y
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
64 N D TOPOGNY 3 N N
N D TERMBX01 3 N N
EXIT TABLE OFRT
EA:Local override does not apply to this call.
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N Y Y Y Y LONG 14 FGRPC N N N N N N N Y N N N
N N Y
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route OFRT 898 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
898 CND EA INTNL SK 2
N D ISUP2WSPRA 0 N N
CND ALWAYS SK 1
N D ISUP2WSPRA 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.

```

Figure 177 TRAVER for international carrier operator (Continued)

```
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUP2WSPRA          D179          ST

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

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

51.3.7 National carrier operator

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = National, Operator Requested 4166251242
- PrimaryCarrier = 0488

Figure 178 TRAVER for national carrier operator

```

>traver l 6631302 n cdn na 4166251242 tns na cic 0488 osa puba ainres r01
ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCOANA (OSA PUBA (CDN NA) (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (CDN NA)
(TNS NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 1048804166251242
TABLE STDPRTCT
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
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.
. 10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . EXIT TABLE OFRT

```

Figure 178 TRAVER for national carrier operator (Continued)

```

. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 900 CND EA INTNL SK 2
. . N D ISUPOGITT 0 N N
. . CND ALWAYS SK 1
. . N D ISUPOGITT 15 D179 N
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA1 ( 1) (65021) 1
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 04 09 EA OA 1 T NA ITT N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 4166251242 4166251242 FRTE 747
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 747 T OFRT 747
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 747 S D C0S1_ISUPITOG
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPAC results are used.
TABLE LCASCRCN
613 L613 ( 44) OPTL N N
. SUBTABLE LCASCR
. 416 416
TABLE LCASCRCN
416 L613 ( 1) OPTL N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL

```

Figure 178 TRAVER for national carrier operator (Continued)

```

TABLE PFXTREAT
OPTL OA N OA UNDT
EA:Local override does not apply to this call.
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N Y Y Y Y LONG 14 FGRPC N N N N N N N N Y N N N
N N Y
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT   900 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  900 CND EA INTNL SK 2
    N D ISUPOGITT 0 N N
    CND ALWAYS SK 1
    N D ISUPOGITT 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 ISUPOGITT           4166251242           ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.8 Carrier operator

The command line assumes the following:

- originator is a 1FR line 6136631302
- CalledPartyID = no address present, Operator Requested
- PrimaryCarrier = 0488

Figure 179 TRAVER for carrier operator response

```

>traver l 6631302 n tns na cic 0488 osa puba ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCOA (OSA PUBA (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (TNS NA)$)$
TABLE LINEATTR
401 1FR NONE NT NSCR 0 613 P621 L613 TSPS 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
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 104880
TABLE STDPRTCT
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
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.
. 10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT

```


Figure 179 TRAVER for carrier operator response (Continued)

```

. . 900 CND EA INTNL SK 2
. . N D ISUPOGITT 0 N N
. . CND ALWAYS SK 1
. . N D ISUPOGITT 15 D179 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
CARRIER OPERATOR CALL. LOOKING UP 10XXX/101XXX-00
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
EAP1 ( 1) (65021) 3
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 900 CND EA INTNL SK 2
. . N D ISUPOGITT 0 N N
. . CND ALWAYS SK 1
. . N D ISUPOGITT 15 D179 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. PEA1 ( 1) (65021) 1
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . KEY NOT FOUND
. . DEFAULT VALUE IS: N NP 0 NA
USING EQUAL ACCESS (EA) ROUTE OFRT 900 FROM PRETRANSLATION
TABLE OFRTMAP

```

Figure 179 TRAVER for carrier operator response (Continued)

```
. Tuple not found. Default to old index.
TABLE OFRT
  900 CND EA INTNL SK 2
      N D ISUPOGITT 0 N N
      CND ALWAYS SK 1
      N D ISUPOGITT 15 D179 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPOGITT           80           ST

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

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

51.3.9 National carrier call with trunk originator

The command line assumes the following:

- originator is public trunk C0C1_ISUPITIC
- CalledPartyID = National Number 4166251242

Figure 180 TRAVER for national carrier call with trunk originator

```

>traver tr  C0C1_ISUPITIC n cdn na 4166251242 tns na unk 5220 ainres r01
ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCDDNA (CDN NA (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS NA)$)$
TABLE TRKGRP
C0C1_ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 PUB NSCR 613 000 N Y $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE PXLAMAP
. IXCDDNA PUB ( XLA PUBXCAR) ( PREFIX )$
. NOTE: ISDN Digit Conversion has been performed:
.   Resulting digits are: 52204166251242
TABLE STDPRTCT
PUBXCAR ( 1) ( 0) 1
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 52204 52209 ET NP 4 SPR Y OFRT 898 5 24
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 898 CND EA INTNL SK 2
. .   N D ISUP2WSPRA 0 N N
. .   CND ALWAYS SK 1
. .   N D ISUP2WSPRA 15 D179 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUP2WSPRA          4166251242          ST

```

Figure 180 TRAVER for national carrier call with trunk originator (Continued)

```
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

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

51.3.10 National call with trunk originator

The command line assumes the following:

- originator is public trunk C0C1_ISUPITIC
- CalledPartyID = National Number 6136631301

Figure 181 TRAYER for national call with trunk originator

```

>trayer tr C0C1_ISUPITIC n cdn na 6136631301 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE TRKGRP
C0C1_ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 PUB NSCR 613 000 N Y $
Warning: Routing characteristics in TRAYER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
.       Resulting digits are: 6136631301
TABLE STDPRTCT
PUB ( 1) (65021) 0
. 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 932 2 ( 432) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 6136 6139 HNPA 0
. 663 663 DN 613 663
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.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL

```

Figure 181 TRAVER for national call with trunk originator (Continued)

```

Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
. . TABLE TRIGDIG
. . LNPDIG LNP 613663 LNP EVENT TCAP R01 SS7 AINBLUES DFLT $
. . . TABLE C7GTTYPE
. . . AINBLUES ANSI7 11 $
. . . TABLE C7GTT
. . . AINBLUES 6136631301 6136631301 PCSSN (SIMT00L RTESET SIMT00L 0)
$ SSN
AIN Info Analyzed TDP: trigger criteria met.
TABLE TOFCNAME
613 663 $
TABLE DNINV
613 663 1301 L HOST 05 0 14 09
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.

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

DIGIT TRANSLATION ROUTES

1 LINE                6136631301                ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

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

```

51.3.11 National carrier call with 4 CIC based FGD trunk originator

The command line assumes the following:

- originator is a public trunk ISUPITIC
- CalledPartyID = National Number 4166251242
- PrimaryCarrier = 0488

Figure 182 TRAVER for national carrier call with 4 CIC based FGD trunk originator

```

>traver tr isupitic n cdn na 4166251242 tns na unk 488 ainres r01 ar fgd
b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCDDNA (CDN NA (TNS NA)$) ( BC 3_1KHZ (CDN NA) (TNS NA)$)$
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 PUB NSCR 613 000 N Y $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. TABLE OCCINFO
. . ATT 0488 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 OCCSRV
. . ATT (NSC0ZZ 088) (NSCOP0ZZ 099) (NSC1NX 144) (NSC1NX 166)
. NOTE: ISDN Digit Conversion has been performed:
. Trunk originator of type FGD assumed.
. FGD Trunk Originator"s translations assumes CIC size of 4.
. Resulting digits are: 08804884166251242
TABLE STDPRTCT
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
PUB ( 1) (65021) 1
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 0880488 0880488 EA DD 7 N ATT Y OFRT 900 7 25 N
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.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL

```

Figure 182 TRAVER for national carrier call with 4 CIC based FGD trunk originator (Continued)

```

Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCP ) (ESCQR ) (ESCDN )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 900 CND EA INTNL SK 2
. . N D ISUPOGATT 0 N N
. . CND ALWAYS SK 1
. . N D ISUPOGATT 15 D179 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPOGATT 4166251242 ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 *OFLO

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.12 National carrier operator call with 4 CIC based FGD trunk originator

The command line assumes the following:

- originator is public trunk ISUPITIC
- CalledPartyID = National Number, carrier operator present 4166251242
- PrimaryCarrier = 0488

Figure 183 TRAVER for national carrier operator call - 4 CIC based FGD trunk originator

```

>traver tr isupitic n cdn na 4166251242 tns na unk 0488 osa puba ainres
r01 ar fgd b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. IXCOANA (OSA PUBA (CDN NA) (TNS NA)$) ( BC 3_1KHZ (OSA PUBA) (CDN NA)
(TNS NA)$)$
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 PUB NSCR 613 000 N Y $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. TABLE OCCINFO
. . ATT 0488 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 OCCSRV
. . ATT (NSC0ZZ 088) (NSCOP0ZZ 099) (NSC1NX 144) (NSC1NX 166)
. NOTE: ISDN Digit Conversion has been performed:
. Trunk originator of type FGD assumed.
. FGD Trunk Originator"s translations assumes CIC size of 4.
. Resulting digits are: 09904884166251242
TABLE STDPRTCT
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
PUB ( 1) (65021) 1
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 0990488 0990488 EA OA 6 N ITT Y OFRT 106 7 25 N
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.
. N11 ( DG N11TRAF)$ NIL

```

Figure 183 TRAVER for national carrier operator call - 4 CIC-based FGD trunk originator (Continued)

```

Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCQR ) (ESCDN )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 106 N D 800MFTOPSOG 1 N N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 800MFTOPSOG          4166251242          ST3P

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

51.3.13 National call with for CIC based FGD trunk originator

The command line assumes the following:

- originator is a public trunk ISUPITIC
- CalledPartyID =National Number 4164631301

Figure 184 TRAVER for national call - 4 CIC based FGD trunk originator

```

>traver tr isupitic n cdn na 4164631301 ainres r01 ar fgd b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. LECNA (CDN NA $) ( BC 3_1KHZ (CDN NA)$)$
TABLE TRKGRP
ISUPITIC IT 63 ITTD NCRT IC NIL MIDL 613 PUB NSCR 613 000 N Y $
Warning: Routing characteristics in TRAVER command
line will override any bearer capability datafilled
in table TRKGRP.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE PXLAMAP
. LECNA PUB ( XLA PBXNOCAR) ( PREFIX )$
. NOTE: ISDN Digit Conversion has been performed:
.       Trunk originator of type FGD assumed.
.       FGD Trunk Originator"s translations assumes CIC size of 4.
.       Resulting digits are: 14164631301
TABLE STDPRTCT
PBXNOCAR ( 1) ( 0) 2
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 14 179776 N DD 1 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 Y 932 2 ( 430) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 4164631301 4164631398 FRTE 732
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.
. N11 ( DG N11TRAF)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL

```

Figure 184 TRAVER for national call - 4 CIC based FGD trunk originator (Continued)

```
Trigger AIN PODP is applicable to office.
. LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCQR )$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 732 T OFRT 732
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 732 S D C0C1_ISUPTIOG
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNP results are used.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 C0C1_ISUPTIOG          4164631301          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *OFLO

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

52. AIN response translations for private agents

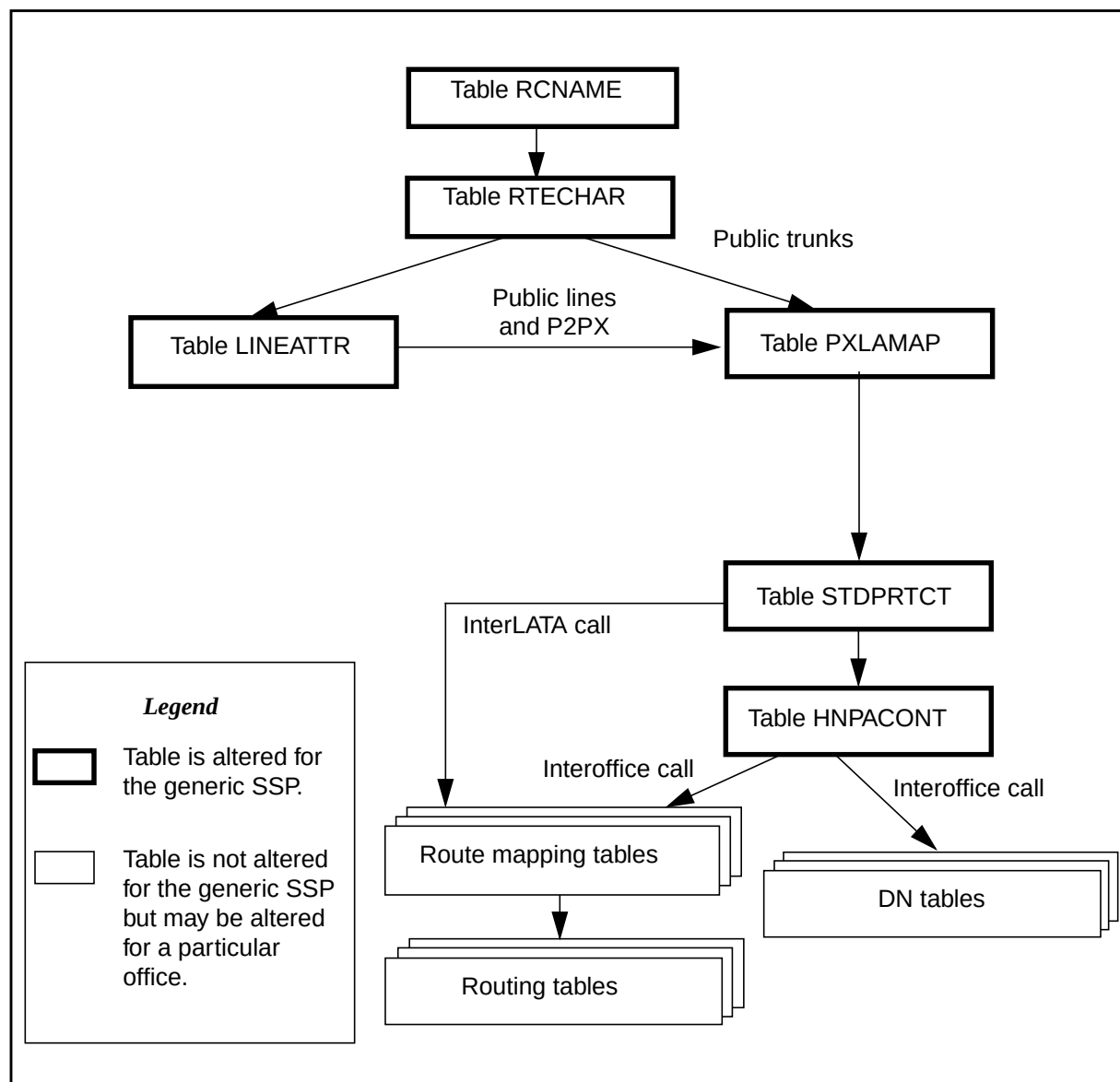
This chapter describes the additional datafill required for AIN response translations when triggering agents are public lines or public trunks.

Figure 185 on page 812 outlines the different tables needed for AIN response translations for private agents and the relationship between these tables.

**CAUTION**

Possible loss of service

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

Figure 185 AIN table relationships for public agents - without simplification

The generic SSP referenced in Figure 185 on page 812 has the following characteristics:

- The generic SSP is an equal-access end office (EAEO). An EAEO was selected because it requires more data than tandem office. Tandem offices can also use this document because the data required is generally a subset of the EAEO data.
- The generic SSP supports calls from a network access point (NAP); that is, the generic SSP supports incoming public trunks using EAMF signaling or Transit Network Selection (TNS) for Signaling System Number 7 (SS7) facilities. This implies that the datafill is present to support 0ZZXXX calls.

- The generic SSP does not have routing based on bearer capability (package NTX767 or NTX768). This assumption was made to simplify the datafill explanations. Bearer capability is detailed in sections on modification of generic SSP data.
- The generic SSP supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls. If the AIN services do not support all call types, the data for the unsupported call type is not required.
- The generic SSP supports the private lines and private trunks. Though not explicitly stated, the office also supports public lines and trunks.
- The generic SSP routes all public numbers in the public environment.
- The generic SSP supports only triggering at a Public Office Dialing Plan (PODP) trigger for all AIN supported agents.
- The generic SSP supports only one public dialing plan used in AIN response translation. The generic SSP does not span LATA boundaries.
- The generic SSP does not require class of service screening during AIN response translation.
- The generic SSP supports 10-digit outpulsing of home numbering plan numbers. The network supports 10-digit dialing from public trunks.
- As of NA003, the SSP supports a 7-digit subscriber number in the CalledPartyID returned by the SCP, as well as national and international numbers in the CalledPartyID.

52.1 Datafill for private lines and trunks without simplification

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

52.1.1 Table RCNAME

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

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

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

- translation mapping tables (such as table XLAMAP and table PXLAMAP)
- route mapping tables (such as subtable RTEMAP, table OFRTMAP, and table IBNMAP)

- Table RTECHAR

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

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

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

ATTENTION

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

52.1.1.1 Recommended RCNAME datafill for AIN response translations

The required data for Table RCNAME for AIN TRIGNAME response processing depends on the additional entries required for table RTECHAR as described in Section "52.1.2. Table RTECHAR" on page 815.

Table 291 shows the data that would be present for a generic SSP. Details on the associated routing characteristics are provided in the following chapter.

Table 291 Generic SSP data

Type of access	RCNAME
National call	NACALL
National carrier call	NACAR
International call	INCALL
International carrier call	INCAR
Subscriber Call	SUBCALL
Subscriber Carrier Call	SUBCAR
International operator	INOPER
International carrier operator	INCAROP
National carrier operator	NACAROP
Carrier operator	CAROP
Bell operating company operator call	BOCOP

52.1.1.2 Modifying generic RCNAME data for office or AIN TRIGNAME service

Modification of table RCNAME depends on the modification of table RTECHAR. See Section "52.1.2.5. Modifying generic RTECHAR data for an office or an AIN TRIGNAME service" on page 823.

52.1.2 Table RTECHAR

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

This chapter describes table RTECHAR under the following headings:

- Routing characteristics
- Combining routing characteristics
- Recommended datafill to support AIN TRIGNAME response processing

52.1.2.1 Routing characteristics

There are four routing characteristic types:

- Bearer capability
- Called party number

- Operator System Access
- Transit Network Selection

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

Before querying the SCP, the BC is maintained while processing the SCP response. Table 292 contains examples of Bearer Capabilities that are supported for AIN TRIGNAME.

Table 292 Bearer capability characteristics

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

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

52.1.2.1.2 Called party number The called party number (CDN) type indicates the intended use of the corresponding digits. AIN TRIGNAME response processing currently supports the following CDN types:

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

Note: AIN TRIGNAME response processing currently does not support a private network (NET) number or a private abbreviated (ABBR) number.

The CalledPartyID parameter must use the AINDigits parameter format. The AINDigits parameter contains the “nature of number” field. It is this field that is used to identify the CDN characteristic. See TR-NWT-001285, *Switching Control Point Interface*.

Table 293 shows the characteristics of the “nature of number” field.

Table 293 Characteristics of the nature of number field

Nature of number	Characteristic
National (significant) number/ National (significant) number, operator requested	(CDN NA)
International number/ International number, operator requested	(CDN IN)
Subscriber number/ Subscriber number, operator requested	(CDN L)
No address present, operator requested	(CDN NIL)
No address present, cut-through call to carrier.	(CDN NIL)
Note: The 950+ Nature of Number Called Party numbers are 7-digits numbers datafilled as Subscriber CDN type. However, the call is routed as national number.	

52.1.2.1.3 Operator system access The operator system access indicates the required operator by type of access:

- Public/Principle (PUBP) access is used to direct the call to an operator when there is no carrier parameter specified in the response. Note that the operator this call is being routed to may either be the local exchange carrier (LEC) operator or the carrier operator, depending on the nature of the call and the translation set up.
- Public/Principle (PUBP) access is used to direct the call to an operator when the carrier that will be used in translation is a LEC. Note that the operator this call is being routed to may either be the LEC operator or the carrier operator, depending on the nature of the call and the translation setup.
- Public/Alternate (PUBA) access is used to direct the call to a carrier operator when the carrier that will be used in translation is NOT an LEC.

Note: Private/Principle access, which is used to direct calls to a private network attendant system or a private branch exchange (PBX), is not supported by AIN TRIGNAME.

AIN TRIGNAME uses the CalledPartyID parameter (“nature of number” field) to indicate that an operator is required. The type of operator that is required depends on the following:

- The SCP can return one or more carriers in the form of PrimaryCarrier, AlternateCarrier, and SecondAlternateCarrier. The SSP translates using each carrier in turn until a facility is selected or the SSP detects that the

carrier is busy. Routing characteristics associated with each carrier are selected before the translation of each carrier.

- If the carrier that will be used in the translation is not an LEC (identified by 0110), then the carrier operator is required.
- If the carrier that will be used in translation is an LEC, then the PUBP operator is required.
- If there was no carrier parameter presented in the response, then the PUBP operator is required.

Table 294 shows the characteristics of each type of operator.

Table 294 Type of operator characteristics

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

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

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

Note: AIN TRIGNAME supports only Nationally-Standardized (NA).

In AIN TRIGNAME the presence of TNS is determined in the following manner:

- The SCP can return one or more carriers in the form of PrimaryCarrier, AlternateCarrier, and SecondAlternateCarrier. The SSP translates using each carrier in turn until a facility is selected or the SSP detects that the carrier is busy. Routing characteristics associated with each carrier are selected before the translation of each carrier.
- If the carrier that is used in the translations is not an LEC (identified by 0110), the transit network selection of NA is required.
- If the carrier that will be used in translation is an LEC, then the transit network selection is not required.

- If there is no carrier parameter specified in the response, then the transit network selection is not required.

Table 295 shows the type of network characteristics.

Table 295 Type of network characteristics

Type of network	Characteristic
Nationally Standardized	(TNS NA)

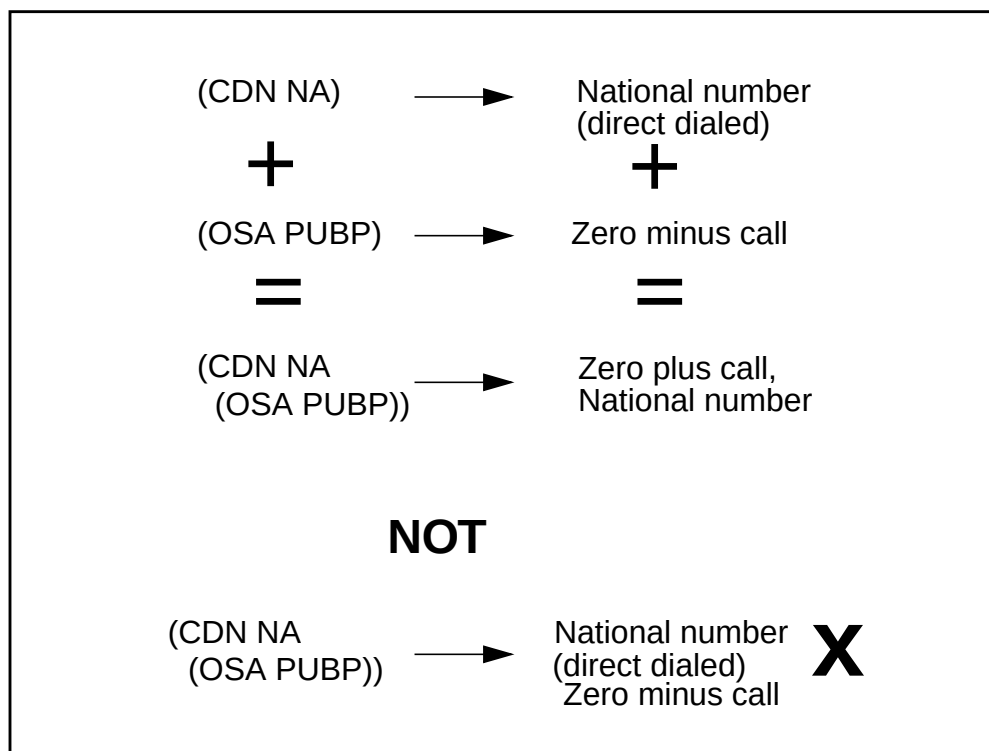
52.1.2.2 Combining routing characteristics

A call can have one or more routing characteristics. The combination of several characteristics usually introduces a different call type rather than individual characteristics.

For example,

- A called party number of NA with no other routing characteristics translates as a 10-digit national number.
- An operator system access with no other routing characteristics translates as a zero minus call. The operator enters the number the user wants to call.
- When a called party number is present in conjunction with an operator system access, the call translates as a zero plus call. The call routes to an operator, but the operator does not need to enter the number as it has already been provided.
- The call does not translate as a zero minus, national number because there is no such call type.

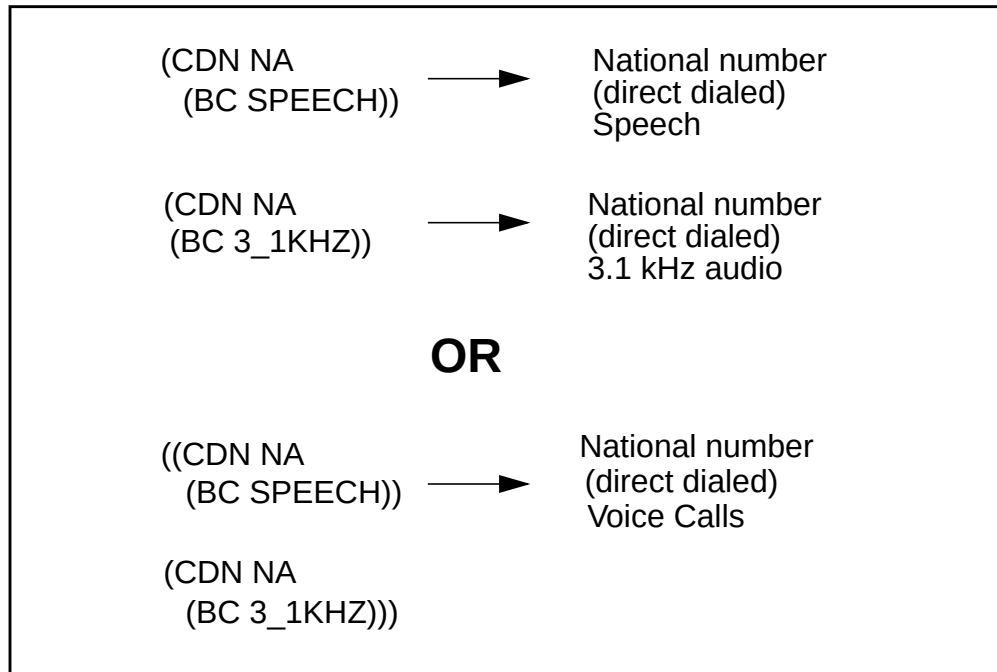
Figure 186 on page 820 illustrates this example.

Figure 186 Example #1: combining routing characteristics

In some instances, different combinations could be treated identically. It is up to the operating company to determine whether or not the differential factor identifies a new call type.

Figure 187 on page 821 shows another possible combination.

Figure 187 Example #2: combining routing characteristics



Though both methods are correct, the one shown in Figure 187 is preferred because it minimizes datafill in the tables that use RCNAME.

52.1.2.3 Routing characteristic combinations supported by AIN TRIGNAME response processing

Table 296 on page 822 illustrates the possible routing characteristic combinations determined from an AIN TRIGNAME response. Each bearer capability is compatible with all combinations and is not shown here for simplicity.

Table 296 Combinations supported by AIN TRIGNAME response processing

Type of access	Routing characteristic combinations		
National call	(CDN NA)		
National carrier call	(CDN NA)		(TNS NA)
Subscriber call	(CDN L)		
Subscriber carrier call	(CDN L)		(TNS NA)
International call	(CDN IN)		
International carrier call	(CDN IN)		(TNS NA)
International operator	(CDN IN)	(OSA PUBP)	
International carrier operator	(CDN IN)	(OSA PUBA)	(TNS NA)
National carrier operator	(CDN NA)	(OSA PUBA)	(TNS NA)
Carrier operator		(OSA PUBA)	(TNS NA)
BOC operator—zero minus call		(OSA PUBP)	
BOC operator—zero plus national call	(CDN NA)	(OSA PUBP)	
BOC operator—zero plus subscriber call	(CDN L)	(OSA PUBP)	

52.1.2.4 Recommended datafill to support AIN TRIGNAME response processing

Datafill is highly influenced by office and AIN TRIGNAME services. This section first documents generic RTECHAR data and, then, documents how to modify the generic RTECHAR data based on office and AIN TRIGNAME services.

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

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports calls from a network access point (NAP); that is, this SSP supports incoming public trunks using EAMF signaling or TNS for SS7 facilities.
- The generic SSP does not have routing services based on bearer capability (package NTX767 or NTX768).
- The generic SSP supports a variety of AIN TRIGNAME services that allow all types of national and international calls in the AIN TRIGNAME response, including operator and carrier calls.

Table 297 illustrates the RCNAMES and routing characteristic combinations for various access types.

Table 297 Routing characteristic combinations by access type

Type of access	RCNAME	Routing characteristic combination
National call	NACALL	(CDN NA \$) \$
National carrier call	NACAR	(CDN NA (TNS NA) \$) \$
Subscriber call	SUBCALL	(CDN L) \$
Subscriber carrier call	SUBCAR	(CDN L (TNS NA) \$) \$
International call	INCALL	(CDN IN \$) \$
International carrier call	INCAR	(CDN IN (TNS NA) \$) \$
International operator	INOPER	(CDN IN (OSA PUBP) \$) \$
International carrier operator	INCAROP	(CDN IN (OSA PUBA) (TNS NA) \$) \$
National carrier operator	NACAROP	(CDN NA (OSA PUBA) (TNS NA) \$) \$
Subscriber carrier operator	SUBCAROP	(CDN L (OSA PUBA) (TNS NA) \$) \$
Carrier operator	CAROP	(OSA PUBA (TNS NA) \$) \$
Bell operating company operator call	BOCOP	(CDN NA (OSA PUBP) \$) (CDN L (OSA PY\$) (OSA PUBP \$) \$

52.1.2.5 Modifying generic RTECHAR data for an office or an AIN TRIGNAME service

The generic RTECHAR data is a superset of AIN TRIGNAME functionality with the exception of bearer capability. Some of the routing characteristic combinations can be further grouped to minimize the datafill in the associated mapping tables.

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

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

Table 298 on page 824 shows routing characteristic combination for offices that do not support a NAP.

Table 298 Combinations for non-NAP supporting offices

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

The datafill in Table 298 would replace the NACALL, NACAR, INCALL, and INCAR entries in generic RTECHAR data. All other entries specified in generic RTECHAR data remain unaltered.

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

Table 299 illustrates some combinations for national call entries.

Table 299 Combinations for national call entries

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

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

52.1.2.5.3 AIN TRIGNAME services that do not allow international numbers If the AIN TRIGNAME services do not allow an international number in the response, then the tuples in Table 300 on page 825 may be removed from generic RTECHAR datafill.

Table 300 Combinations for services that do not support international numbers

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

All other entries in generic RTECHAR data would remain unaltered.

52.1.2.5.4 AIN TRIGNAME services that do not allow operator numbers If the AIN TRIGNAME services do not allow operator calls in the response, the tuples in Table 301 may be removed from generic RTECHAR datafill.

Table 301 Combinations for services that do not allow operator numbers

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

All other entries in generic RTECHAR data would remain unaltered.

52.1.3 Digits used in AIN response translations

When a public agent triggers and receives an Analyze Route or a Forward call response from the SCP with digits specified, translation and routing processing should take place to translate the digits and route the call. Depending on the nature of the response, digits to translate can have different format.

Table 302 on page 826 summarizes the digits used in response translations for various carrier and called party number combinations. The maximum number of digits supported is 18.

Table 302 Digits used in AIN translation

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

Table 302 Digits used in AIN translation (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits used in translations for an end office	Digits used in translations for an access tandem
National number, operator requested	10D	Not present	(10D)	
Subscriber number, operator requested	7D	Not present	(7)D	
International number, operator requested	7-15D	Not present	(7-12)D	
950+ Call	7D	Not present	(7)D	
Carrier cut-through	Not present	XXX	10XXX	N/A
Carrier cut-through	Not present	XXXX	101XXXX	N/A

52.1.4 Table XLAMAP

When a private agent triggers and receives an Analyze Route or a Forward Call response from the SCP with digits specified, translation and routing functions should take place to translate the digits and route the call. The digits coming into the SCP response are not in a format that can reuse originator's private pretranslator (no public access code is prefixed, could be in 10D format whereas local dialing supports only 7D format, no international access code is prefixed in case of international calls). See Table 302. Then a new pretranslator should be defined to handle these digits. Table XLAMAP is used to map to a new pretranslator and allow private lines and private trunks on the DMS to translate differently given a RCNAME and a Meridian Digital Centrex (MDC) translator.

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

- The XLA selector directs the call to use a new translator name.
- The LINEATTR selector provides direct access to a line attribute that does not support equal access. Note that this selector is not supported by the current AIN release.
- The ROUTE selector provides direct access to a route list element when there are no address digits to translate on. Note that this selector is not supported by the current AIN release.

Note: AIN response translations supports only the XLA selector. The XLA selector specifies a translator that directs the call to the public environment.

52.1.4.1 Recommended datafill for table XLAMAP to support AIN response translation

The generic XLAMAP datafill recommended in this section is based on the following:

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports private lines and private trunks.
- The generic SSP routes all public numbers in the public environment.
- The generic SSP supports triggering at the Public Office Dialing Plan (PODP) trigger for all AIN supported agents.
- The generic SSP supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls.

The RCNAMES used in Table 303 are from the generic RTECHAR example described in Section 52.1.1 and Section 52.1.2. If an office modifies table RTECHAR data, the following example should be modified accordingly.

Table 303 Generic RTECHAR RCNAME examples

RCNAME	XLANAME	Data
NACALL	<1st XLA>	(XLA PUBXLA) \$
NACAR	<1st XLA>	(XLA PUBXLA) \$
SUBCALL	<1st XLA>	(XLA PUBXLA) \$
SUBCAR	<1st XLA>	(XLA PUBXLA) \$
INCALL	<1st XLA>	(XLA PUBXLA) \$
INCAR	<1st XLA>	(XLA PUBXLA) \$
INOPER	<1st XLA>	(XLA PUBXLA) \$
INCAROP	<1st XLA>	(XLA PUBXLA) \$
NACAROP	<1st XLA>	(XLA PUBXLA) \$
SUBCAROP	<1st XLA>	(XLA PUBXLA) \$
CAROP	<1st XLA>	(XLA PUBXLA) \$
BOCOP	<1st XLA>	(XLA PUBXLA) \$

The <1st XLA> entry in the second column of Table 303 on page 828 refers to the first non-nil translator that a private agent encounters. The ordering of translators is as follows:

- table NCOS, option XLAS, translator identified in field PREMXMLA
- table CUSTHEAD, translator identified in field PREMXML
- table CUSTHEAD, translator identified in field CUSTXLA

The entries in Table 303 on page 828 need to be duplicated for the first non-nil translator of each private agent.

The new translator name (that is, PUBXLA) may be different for each mapped translator. It is recommended that the number of new translators be limited to one per customer group.

In most offices, the number of new translators is equivalent to the number of public dialing plans the office supports. The number of public dialing plans depends on the number of LATAs and the number of NPA NXX that require different public dialing plan.

52.1.4.2 Modifying generic XLAMAP data for an office or an AIN service

If the office supports only individual or customer group triggers, table XLAMAP requires only the first translator for each subscribed private agent. For office-based triggers, every first translator of each private agent is required.

If the service does not support international or operator calls, the entries associated with those RCNAMES are not required.

If bearer capability routing is supported, then additional entries associated with the additional RCNAMES are required.

52.1.5 Table XLANAME

Table XLANAME is used to define the new pretranslators that direct calls from the private dialing plan to the public dialing plan. These new pretranslators are mapped to through table XLAMAP as described in Section 52.1.4.

52.1.5.1 Recommended datafill to support AIN response translation

The generic XLANAME datafill provided in Table 304 on page 830 is based on the following:

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports the private lines and private trunks.
- The generic SSP routes all public numbers in the public environment.

- The generic SSP supports only one public dialing plan required for all AIN 0.1 response translation.
- The generic SSP does not support a default carrier per customer group for AIN response translation.

Table 304 Generic XLANAME datafill

XLANAME	Data	MAXDIG
PUBXLA	(NET N N N 0 N NDGT N N GEN (LATTR 500) (EA NILC Y 0) \$ \$) \$	9

Note 1: The following selectors must be present: NET, GEN, LATTR, and EA. These selectors allow equal-access calls to translate.

Note 2: For details on the fields in table XLANAME, please refer to NTP 297-2001-451, *Meridian Digital Centrex Customer Data Schema*.

52.1.5.2 Modifying generic XLANAME data for an office or an AIN service

If an office does not support the private dialing plan, then the entries in table XLANAME are not required.

Additional entries in table XLANAME are needed for each different public dialing plan that is required in AIN response translation.

If a default carrier per customer group is required, the data in Table 305 is required for each default carrier code.

Table 305 Data for a default customer group

XLANAME	Data	MAXDIG
MCIPUB	(NET N N N 0 N NDGT N N GEN (LATTR 500) (EA MCI Y 0) \$ \$) \$	9
ATTPUB	(NET N N N 0 N NDGT N N GEN (LATTR 500) (EA ATT Y 0) \$ \$) \$	9

52.1.6 Table LINEATTR

Table LINEATTR is the starting point of public dialing plan translations for private lines, private trunks, and public lines. This chapter discusses only additions to table LINEATTR with respect to private lines and private trunks for AIN response translation. The public lines use the subscribed line attribute that is associated with the LEN.

52.1.6.1 Recommended datafill to support AIN response translation

The generic LINEATTR datafill provided in Table 306 is based on the following:

- the generic SSP is an equal-access end office (EAEO)
- the generic SSP supports private lines and private trunks
- the generic SSP supports only one public dialing plan for all AIN response translations
- the generic SSP does not require class of service screening during AIN response translations

Table 306 Recommended datafill

LNATTIDX	Data
500	IBN NONE NT NSCR 0 613 P621 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N

Note: For details on the fields in Table LINEATTR please refer to NTP 297-1001-451, *Customer Data Schema*.

52.1.6.2 Modifying generic LINEATTR data for an office or an AIN service

If an office does not support the private dialing plan, the additional entries in Table LINEATTR are not required.

If class of service screening is required for AIN response translation, the office has two options:

- The office may opt to reuse existing LINEATTRs from the IBN to the public environment. This requires additional data in the translation mapping tables as well.
- The office may add only the LINEATTR entries required for class of service screening.

If there is more than one public dialing plan, additional data is required in table LINEATTR. For example, an office may span two LATAs. In this case, the office requires a minimum of two entries in table LINEATTR, as shown in Table 307.

Table 307 Modified LINEATTR data

LNATTIDX	Data
500	IBN NONE NT NSCR 0 613 P621 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N
501	IBN NONE NT NSCR 0 819 P622 L819 TSPS 0 NIL NILSFC LATA2 0 NIL NIL 00 N

Note: The additional line attribute allows for different STDPRT entries (for example, P621 and P622). Though this may not be required for different originating numbering plan areas (NPA), it usually is required for different LATAs.

52.1.7 Table PXLAMAP

Table XLAMAP is used to map to a new pretranslator to translate digits coming into the SCP response if originator's pretranslator cannot be reused. The new pretranslator allows access to the public environment where digits are translated and routed. However, digits used into the public environment could have a format that cannot use public pretranslators. Then, new pretranslators should be defined to handle such cases. Table PXLAMAP (pretranslator mapping) is used to map to new pretranslators into the public environment to allow the DMS to translate differently given a RCNAME and a pretranslator.

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

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

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

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

AIN response translations supports only the XLA and PREFIX selectors.

52.1.7.1 Recommended datafill for table PXLAMAP to support AIN response translation

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

- The service switching point (SSP) is an equal-access end office (EAEO).
- This office supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls.

- The pretranslator names to be mapped are derived from the following:
 - All public line attributes for AIN supported agents
 - All public trunk groups for AIN supported agents
 - All private LINEATTRs that are used in AIN response translation, as defined in Section "52.1.6. Table LINEATTR" on page 830.

Table 308 Recommended PXLAMAP datafill

RCNAME	XLANAME (Note)	Data
NACALL	P621	(XLA NAT) \$
NACAR	P621	(XLA NAT) \$
SUBCALL	P621	(XLA NAT) \$
SUBCAR	P621	(XLA NAT) \$
INCALL	P621	(XLA INT) \$
INCAR	P621	(XLA INT) \$
INOPER	P621	(XLA IOP) \$
INCAROP	P621	(XLA ICOP) \$
NACAROP	P621	(XLA NCOP) \$
SUBCAROP	P621	(XLA NCOP) \$
CAROP	P621	(XLA CAOP) \$
BOCOP	P621	(XLA NAOP) \$
NACALL	PTRK	(XLA NAT) \$
SUBCALL	PTRK	(XLA NAT) \$
NACAR	PTRK	(XLA NAPC) \$
SUBCAR	PTRK	(XLA NAPC) \$
INCALL	PTRK	(XLA INT) \$
INCAR	PTRK	(XLA NAPC) \$
Note: Assume P621 is the public translator for a public line and PTRK is the pretranslator for a public trunk.		

Though it is not necessary to separate the national and national carrier calls for lines, it is necessary to separate them for public trunks. Details of the new translator names and their function are provided in the next chapter.

The above entries for P621 need to be duplicated for each line pretranslator name. The new pretranslator names would be reused for each line pretranslator because there is only one dialing plan. Similarly, duplication of the PTRK entries would be required for public trunks.

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

52.1.7.2 Modifying generic PXLAMAP data for office or AIN service

If the AIN services do not support international or operator calls, the tuples with RCNAMEs reflecting these call types are required.

If the office supports only individual or customer group triggers, table PXLAMAP would require only the pretranslator for each subscribed agent. For office-based triggers, every pretranslator of each agent would be required.

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

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

The example in Table 309 depicts sample datafill for two lines in different LATAs. Assume that the international carriers are the same for both LATAs.

Table 309 Sample datafill for two lines in different LATAs

RCNAME	XLANAME	Data
NACALL	P621	(XLA NAT) \$
NACALL	P622	(XLA NAT2) \$
NACAR	P621	(XLA NAT) \$
NACAR	P622	(XLA NAT2) \$
INCALL	P621	(XLA INT) \$
INCALL	P622	(XLA INT) \$
INCAR	P622	(XLA INT) \$
INCAR	P622	(XLA INT) \$

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

52.1.7.2.2 Mapping RCNAMEs to reuse pretranslators The generic datafill shows seven new pretranslators for a line originator. Depending on the office, these can be further reduced to four pretranslators. The main difference is that the generic datafill allows a different carrier operator to be selected based on whether the 10XXX was dialed.

If different carrier operators are not required, the generic datafill can be modified as in Table 310 for the a line originator.

Table 310 Modified generic datafill

RCNAME	XLANAME	Data
NACALL	P621	(XLA NAT) \$
NACAR	P621	(XLA NAT) \$
SUBCALL	P621	(XLA NAT) \$
SUBCAR	P621	(XLA NAT) \$
INCALL	P621	(XLA INT) \$
INCAR	P621	(XLA INT) \$
INOPER	P621	(XLA IOP) \$
INCAROP	P621	(XLA IOP) \$
NACAROP	P621	(XLA NCOP) \$
SUBCAROP	P621	(XLA NCOP) \$
CAROP	P621	(XLA NCOP) \$
BOCOP	P621	(XLA NCOP) \$
NACALL	PTRK	(XLA NAT) \$

52.1.8 Table STDPRTCT

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

52.1.8.1 Datafill to support AIN response translations without simplification

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

The generic STDPRTCT datafill provided in Table 311 is based on the following:

- The generic SSP is an equal-access end office (EAEO).
- The generic SSP supports a variety of AIN services that allow all types of national and international calls in the AIN response, including operator and carrier calls.
- The datafill used in the previous STDPRTCT example is used as reference material.

The RCNAMES used in Table 311 are from the generic RTECHAR example. If an office modifies table RTECHAR data, the following example should be modified accordingly.

Table 311 Generic STDPRTCT datafill

STDPRTCT	
NAT	(1) (1234) ... (national calls)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for national calls.
	10488 10488 EA DD 5 T NA 488 Y OFRT 700 5 15 N
	9501542 9501542 FGB DD 0 C542 Y OFR3 542 7 7
	... other carriers ... (similar datafill as pretranslators for carrier, NA call)
	2 410 N DD 0 NA
	411 411 T NP 0 OFRT 1 3 3 NONE
	412 510 N DD 0 NA
	... other N11 ...
	... Note that the standard North American entries are interleaved.
	The following entry is required for home area codes that do not require billing.
	613 613 N NP 0 NA

Table 311 Generic STDPRTCT datafill (Continued)

STDPRTCT	
INT	(1) (123) (international calls)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 recursive translator for international calls. 10488 10488 EA DD 5 T IN 488 Y OFRT 701 5 15 N
	... other carriers ... (same datafill as pretranslators for carrier, IN call)
	The entry below is similar to the P621 translator for international direct dialed calls. 2 9 N DD 0 IN
NAOP	(1) (122) ... (national operator call)
	Subtable STDPRT
	The entry below is similar to the P621 translator for national operator calls. 2 9 P OA 0 NA TOPS
IOP	(1) (12) ... (international operator call)
	Subtable STDPRT
	The entry below is similar to the P621 translator for international operator calls. 2 9 P OA 0 IN TOPS
NCOP	(1) (127) ... (national carrier operator call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for national carrier operator call. 10488 10488 EA OA 5 T NA 488 Y OFRT 700 5 15 N
	... other carriers... (similar datafill as pretranslators for carrier)
CAOP	(1) (127) ... (operator carrier call—no address present)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for “00” carrier operator call. 10488 10488 EA OA 5 T NO 488 Y OFRT 700 5 5 N
	... other carriers ... (similar datafill as pretranslators for carrier, “00” operator call)

Table 311 Generic STDPRTCT datafill (Continued)

STDPRTCT	
ICOP	(1) (125) ... (international carrier operator call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the MCI1 translator for international operator calls. 10488 10488 EA OA 5 T IN 488 Y OFRT 701 5 15 N
	... other carriers ... (similar datafill as pretranslators for carrier, IN operator call)
NAPC	(1) (125) ... (NAP or access carrier call)
	Subtable STDPRT
	The entry for the carrier below is similar to the destination provided in the PTRK OZZ XXX call. 488 488 ET DD 3 MCI Y OFRT 900 3 15
	... other carriers ... (similar datafill OZZ XXX call)

52.1.8.2 Modifying generic STDPRTCT data for an office or an AIN service

Most switches do not differentiate between carrier operator–no address and national carrier operator within STDPRTCT. If your office does not need to differentiate, only one of NCOP or CAOP needs to be datafilled.

Some AIN services may not need to support operator calls, and so the operator pretranslators may not be required.

52.1.9 Table HNPACONT.HNPACODE

Table HNPACONT and its subtable HNPACODE are probably the most straightforward to datafill for AIN TRIGNAME response processing. In most instances, the tuples are already present.

The entry in table HNPACONT and subtable HNPACODE allows for 10-digit dialing of a number in the home numbering plan.

52.1.9.1 Recommended datafill to support AIN TRIGNAME response processing

The generic HNPACONT datafill provided in Table 312 is based on the fact that the generic SSP does not currently support dialing of the home NPA.

Table 312 Generic datafill example

HNPACONT	
613	984 1 (270) (1) (84) (0)
	Subtable HNPACODE
	613 613 HNPA 0



CAUTION

Other table changes are required if 10-digit HNPA dialing is not supported in the network.

The previous example allows for 10-digit translation of a home numbering plan number (HNPA). If other switches in the network cannot support 10-digit dialing, then additional entries in the routing table are required to delete the HNPA.

52.1.10 Route mapping tables

The route mapping tables direct the call to a new route based on the RCNAME and a route derived by translations.

52.1.10.1 Recommended datafill to support AIN TRIGNAME response processing

Additional datafill for the route mapping tables is not required in the generic SSP because it already meets the following conditions:

- The generic SSP does not have routing based on bearer capability.
- The generic SSP supports 10-digit outpulsing of home numbering plan numbers.

However, when routing based on BC is supported or 10-digit outpulsing of home numbering plan numbers is not supported, datafill is required for an office or an AIN TRIGNAME service.

52.1.10.2 Routing based on bearer capability

The route mapping tables are currently used for routing based on bearer capability. Normally, the route derived from translations causes the use of standard facilities, which support mainly voice communication. For some data calls, ISUP or ISDN facilities are required. Route mapping tables allow the

DMS to map the standard facilities to the intelligent signaling facilities for data bearer capability.

As AIN TRIGNAME uses other characteristics in conjunction with BC, the RCNAME that is derived from the response will probably not be the same as the RCNAME derived initially.

52.1.10.2.1 Example 1 BC64K would be used initially; NA64K would be used to translate and route the AIN TRIGNAME response, as in Table 313.

Table 313 Datafill for example 1

Type of access	RCNAME	Routing characteristic combinations
64kbps call	BC64K	(BC 64KDATA \$) \$
National Call (64kbps)	NA64K	(CDN NA (BC 64KDATA) \$) \$

52.1.10.2.2 Example 2 If BC64K is datafilled in a route mapping table to select intelligent signaling facilities, the same tuple would need to be datafilled for NA64K as in Table 314.

Table 314 Datafill for example 2

RCNAME	INDEX	NEW INDEX
BC64K	10	510
The following entry would be required:		
NA64K	10	510

52.1.11 Options for offices supporting only 7-digit dialing plan for HNP

See “Chapter 55.: Options for offices supporting only 7-digit dialing for home numbering plan” on page 903.

52.2 Sample TRAVERs for private lines and trunks (no simplification)

This section contains TRAVER examples of various call types during AIN response translations without activating the Response Translations Simplification feature.

52.2.1 Additional data required for AIN response translations in TRAVERS

Table RCNAME and table RTECHAR are datafilled as specified in the recommended datafill to support AIN response translations in a generic SSP, as shown in Figure 188 on page 841.

Figure 188 Table RCNAME

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

For the generic SSP, Figure 189 shows the entries for table RTECHAR.

Figure 189 Table RTECHAR

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

If the SSP supports routing based on bearer capability, the above RTECHAR entries would be modified, as shown in Figure 190 on page 842.

Figure 190 Table RTECHAR modified

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

In order to simplify the TRAVER examples, only the three entries shown in Figure 191 are used. The impact on the IBN environment for other call types is similar to the three call types shown.

Figure 191 Table XLAMAP

```
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
. SUBCALL CESN ( XLA PUBXLA)$
. NACAR CESN ( XLA PUBXLA)$
. SUBCAR CESN (XLA PUBXLA)$
```

There is only one entry in table XLANAME, as shown in Figure 192, because the office supports only one dialing plan.

Figure 192 Table XLANAME

```
TABLE XLANAME
PUBXLA
(NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $
```

All public calls from the AIN SCP that originate in the private environment use the new line attribute, as shown in Figure 193 on page 843.

Figure 193 Table LINEATTR

```
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
```

The entries shown in Figure 194 map the RCNAME and pretranslator to obtain a new pretranslator based on call type.

Figure 194 Table PXLAMAP

```
TABLE PXLAMAP
. NACALL P722 ( XLA NAT)$
. NACALL P622 ( XLA NAT)$
. NACAR P722 ( XLA NAT)$
. SUBCALL P722 (XLA NAT)$
. SUBCALL P622 (XLA NAT)$
. SUBCAR P722 (XLA NAT)$
. INCALL P622 ( XLA INT)$
. INCAR P622 ( XLA INT)$
. INCAROP P622 ( XLA ICOP)$
. NACAROP P622 ( XLA NCOP)$
. SUBCAROP P622 (XLA NCOP)$
```

The new entries are pretranslators, as shown in Figure 195.

Figure 195 Table STDPRTCT

```
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA DD 5 T NA MCI Y OFRT 963 3 15 N
. 613 613 N NP 0 NA
. 819 819 N DD 0 NA
INT ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA DD 5 T IN MCI Y OFRT 700 5 25 Y
. 10488 10488 EA DD 5 T IN ITT Y OFRT 900 5 20 N
. 2 9 N DD 0 IN
INCOP ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10234 10234 EA OA 5 T IN MCI Y OFRT 700 6 25 Y
NCOP ( 1) ( 0) 0
. SUBTABLE STDPRT
. 10488 10488 EA OA 5 T NA ITT Y OFRT 963 5 20 N
```

The entry shown in Figure 196 on page 844 allows for 10-digit dialing of home numbering plan.

Figure 196 Table HNPACONT

TABLE HNPACONT 613 20 15 (0) (1) (0) (0) 0 . SUBTABLE HNPACODE . 613 613 HNPA 0

52.2.2 National call when the number returned is on the same SSP

The command line assumes the following:

- originator is an BN line 6137226962
- CalledPartyID = National Number 6136221243

Figure 197 TRAVER for national call (returned number on same SSP)

```

>traver l 7226962 n cdn na 6136221243 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
        (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. NACALL P722 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT

```

Figure 198 TRAVER for national call - returned number on same SSP (Continued)

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO DOCUMENTATION.

. 613 613 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N

TABLE HNPACONT

613 20 15 (0) (1) (0) (0) 0

. SUBTABLE HNPACODE
. 613 613 HNPA 0
. 622 622 DN 613 622

TABLE TRIGGRP

OFCTRIGGRP_ALL INFOANAL

. N11 (DG N11DIG)\$ NIL
. PODP (DG PODPDIG)\$ NIL

AIN Info Analyzed TDP: trigger criteria not met.

TABLE TOFCNAME

613 622

TABLE DNINV

613 622 1243 L HOST 00 1 10 17

AIN Term Attempt TDP: no subscribed trigger.

TABLE DNATTRS

TUPLE NOT FOUND

TABLE DNGRPS

TUPLE NOT FOUND

TABLE LCASCRN

613 L613 (2) MNMT N

. SUBTABLE LCASCR
. 622 622

TABLE PFXTREAT

MNMT NP Y NP UNMT

TABLE CLSVSCRC

KEY NOT FOUND

DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE 6136221243 ST

TREATMENT ROUTES. TREATMENT IS: GNCT

Figure 199 TRAVER for national call - returned number on same SSP (Continued)

```
1 *OFLO
2 LKOUT

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

52.2.3 National call - returned number returned is in the user HNP

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 6134257320

Figure 200 TRAVER for national call - returned number is in the user HNP

```

>traver l 7226962 n cdn na 6134257320 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
(NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. NACALL P722 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT

```

Figure 201 TRAVER for national call - returned number is in the user HNP (Continued)

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO DOCUMENTATION.

. 613 613 N NP 0 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS: NONE OVRNONE N

TABLE HNPACONT
 613 20 15 (0) (1) (0) (0) 0

. SUBTABLE HNPACODE
 . 613 613 HNPA 0
 . 425 425 HRTE 1

TABLE TRIGGRP
 OFCTRIGGRP_ALL INFOANAL
 . N11 (DG N11DIG)\$ NIL
 . PODP (DG PODPDIG)\$ NIL

AIN Info Analyzed TDP: trigger criteria not met.

. SUBTABLE RTEMAP
 . . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 . 1 N D OTMF1 0 N N
 . EXIT TABLE RTEREF

EXIT TABLE HNPACONT
 TABLE LCASCRCN
 613 L613 (2) MNMT N
 . SUBTABLE LCASCR
 . 425 425

TABLE PFXTREAT
 MNMT NP Y NP UNMT

TABLE CLSVSCRC
 KEY NOT FOUND
 DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OTMF1	6134257320	ST

TREATMENT ROUTES. TREATMENT IS: GNCT

1 *OFLO
 2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

52.2.4 National carrier call

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 4166251242
- PrimaryCarrierID = 0234

Figure 202 TRAVER for national carrier call

```

>traver l 7226962 n cdn na 4166251242 tns na cic 0234 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
        (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. NACAR P722 ( XLA NAT)$

```

Figure 203 TRAVER for national carrier call (Continued)

```

TABLE STDPRTCT
NAT ( 1) ( 0) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10234 10234 EA DD 5 T NA MCI Y OFRT 963 3 15 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 100 15 ( 3) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 416 416 FRTE 2
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 2 T OFRT 963
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
613 L613 ( 3) MNDT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE CLSVSCRC

```

Figure 204 TRAVER for national carrier call (Continued)

```
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATA XLA
LATA1 416625 INTER INTER STD
TABLE OCCINFO
MCI 0234 TRANS Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N
N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route OFRT 963 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
963 N D OTTISUPITEAOG3 0 D077 N
N D OTTMFITEAOG 10 D077 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3 D0774166251242 ST
2 OTTMFITEAOG D077 ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120

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

53. AIN simplified response translations for private agents

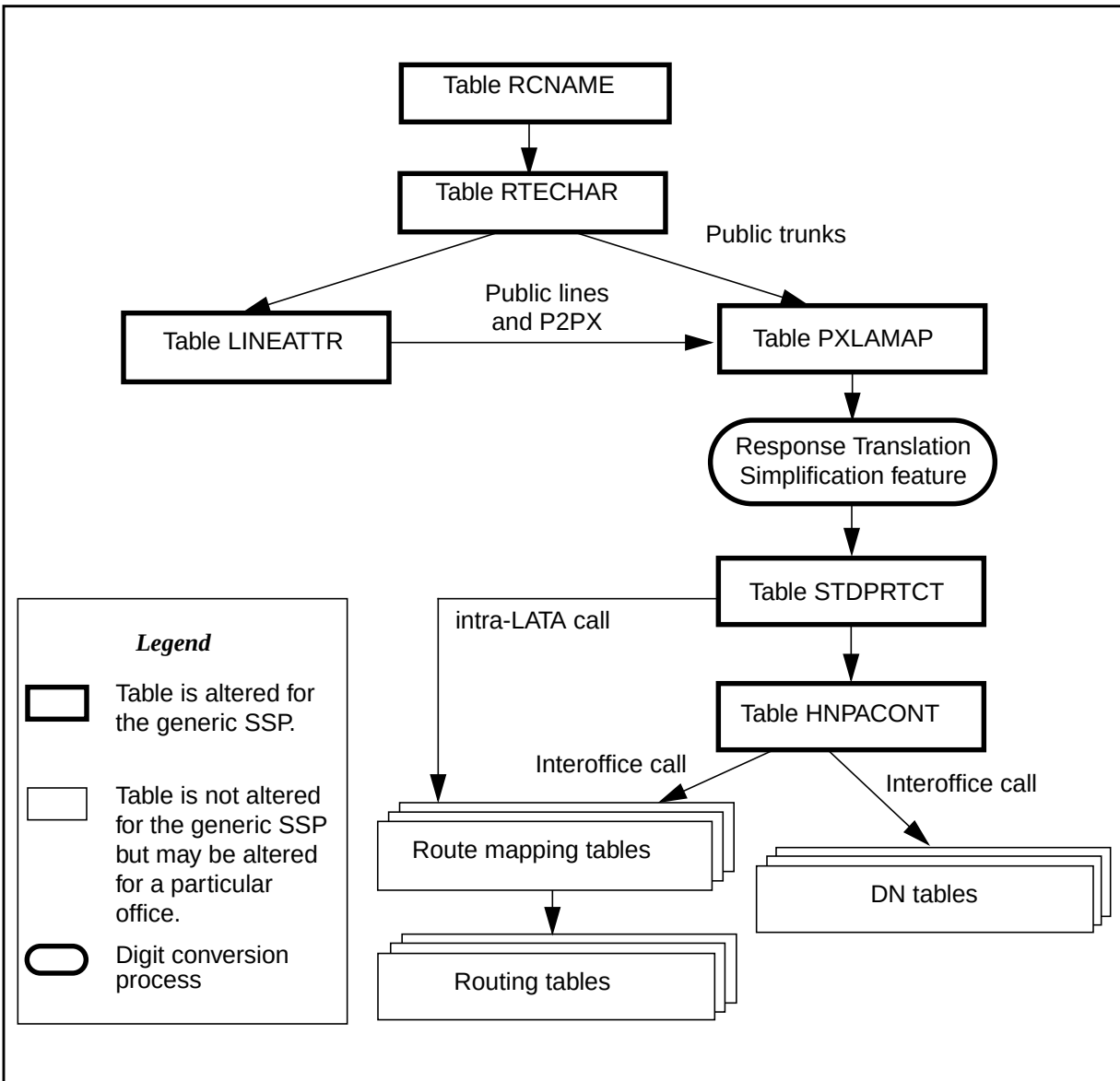
The AIN Response Translations Simplification feature has been introduced to reduce the amount of datafill required to support AIN response translation. This feature is used to convert the digits returned in the SCP response and convert them into a digit format which can reuse the triggering agent's translation datafill. See Table 302 on page 826.

Figure 205 outlines the different tables needed for AIN simplified response translations for private agents and the relationship between these tables.

**CAUTION**

Possible loss of service

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

Figure 205 AIN table relationships for private agents - with simplification

For triggering private agents, the AIN Response Translations Simplification feature can be activated either in the private or in the public environment. When activated in the private environment, the feature converts the digits of the response in a format that can reuse private and public translation datafill. Whereas, when activated in the public environment AIN responses translation specific public network access datafill is required in table XLANAME and XLAMAP, but the converted digits can reuse the public translation datafill.

53.1 AIN response translations simplification in the private environment

This feature is activated by private lines and private trunks in the private environment under the following conditions:

- SOC AIN00026 is ON.
- No entry in table XLAMAP for any of the triggering agent's IBN translators (NCOS Prelim, CUSTHEAD Prelim, CUSTHEAD main).
- Option PUB_NET_ACC is datafilled in table NCOS or CUSTHEAD.

53.1.1 Option PUB_NET_ACC

Option PUB_NET_ACC is available in tables NCOS and CUSTHEAD and it has two sub values PFX_DIGITS and LINEATTR_OPT used to provision the public network access digits (e.g. 9) and a line attribute index required by the simplification feature. The option can be datafilled in either table NCOS or CUSTHEAD or both.

PFX_DIGITS is used to specify the public network access code that should be prefixed to the digits in the response to the public translation environment. A maximum of 5 digits can be specified in this parameter.

LINEATTR_OPT is used to specify the line attribute index on which conversion of the 10D response into 7D, 1+7D, 10D or 1+10D, for responses where Nature_of_number = National Number, is based. The line attribute index used with this option should be the same one used by the NCOS or CUSTHEAD pretranslator used to enter public translation environment.

The digit conversion process of the simplification feature is based on the following steps:

- Obtain PUB_NET_ACC option from table NCOS or CUSTHEAD for the triggering agent. Precedence order is: NCOS first, CUSTHEAD second. That is, if PUB_NET_ACC option is not datafilled for the agent's NCOS, the PUB_NET_ACC for the agent's customer group will be used.
- Convert digits in response into a public dialable format using the line attribute index obtained from PUB_NET_ACC option.
- Prefix the public network access digits obtained from the PUB_NET_ACC option in front of the digits resulting from the previous step.

It is recommended that the PUB_NET_ACC option in CUSTHEAD be used for all agents in the customer group if possible. However, if required PUB_NET_ACC can be datafilled in table NCOS to provide NCOS specific overrides of the custhead value.

53.1.2 Option PUB_NET_ACC in table NCOS

Option PUB_NET_ACC is datafilled in table NCOS if a specific NCOS has a different public network access code than the one used by the other NCOSs in the customer group, or needs a different line attribute to use for conversion than the one used for the customer group.

Table 315 describes an example of IBNXLA datafill corresponding to a customer group.

Table 315 Example of IBNXLA datafill

KEY	RESULT
PKDK0 6	NET N Y 1 Y POTS Y N GEN (LATTR 80) (EA NILC Y 0) \$
PKDK1 9	NET N Y 1 Y POTS Y N GEN (LATTR 0) \$
CKDK 9	NET N Y 1 Y POTS Y N GEN (LATTR 80) (TOLL TDN Y)

Table 316 describes the datafill in table LINEATTR for line attributes used in Table 315.

Table 316 LINEATTR datafill

LNATTIDX	DATA
0	IBN NONE NT ATGO 0 416 PUB L416 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N \$
80	IBN NONE NT ATGO 0 613 PUB L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N \$

Table 317 describes datafill needed for table NCOS in order to activate the simplification feature.

Table 317 Datafilling table NCOS with new option PUB_NET_ACC

CUSTGRP NCOS	DATA
COMKODAK 0	KDK0 0 0 (XLAS PKDK0) (CBQ 0 3 N 2) (PUB_NET_ACC 6 (LINEATTR 80)\$)\$
COMKODAK 1	KDK1 0 0 (XLAS PKDK1) (CBQ 0 3 N 2) (PUB_NET_ACC 9 (LINEATTR 0)\$)\$
COMKODAK 2	KDK2 0 0 (CBQ 0 3 N 2)

53.1.3 Option PUB_NET_ACC in table CUSTHEAD

Option PUB_NET_ACC is datafilled in table CUSTHEAD to be used for the entire customer group except the ones that have the option datafilled in table NCOS. Table 318 on page 857 describes datafill needed for table CUSTHEAD in order to activate the simplification feature.

Table 318 Datafilling table CUSTHEAD with the new option PUB_NET_ACC

CUSTNAME	CUSTXLA DGCOLNM IDIGCOL OPTIONS
COMKODAK	CXDK KDK NIL (VACTRMT 0) (EXTNCOS 0) (ACCT 5 N N) (FETXLA CUSTFEAT) (PLMXLA PXDK) (ERDT 7) (AUTH COMKODAK N N) (SUPERCNF)(OCTXLA CUSTSHRP) (ESAPXLA ESAKODAK) (PUB_NET_ACC 9 (LINEATTR 80))\$

53.1.4 Different digit streams produced by simplification

For call types other than National Direct Dial (CDN=NA) and National Carrier Direct Dial (CDN=NA and TNS=NA), the conversion rules are based on existing dial plan conventions:

- “0” is prefixed for national number operator requested
- “011” are prefixed for international number
- “01” are prefixed for international number operator requested
- “10XXX” or “101XXXX” are prefixed for carrier access

Public network access code specified in the PUB_NET_ACC option is then prefixed to the resulting digits.

Table 319 summarizes the digits used in translation after being converted by the Response Translations Simplification feature when the triggering agent is a private line or private trunk and where call types are National Direct Dial and National Carrier Direct Dial.

Table 319 Digits for private lines and trunks triggering agents

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
International number	7-15D	Not present	PFX+011+(7-15)D	IN	NIL	NIL
No address present, operator requested	0D	Not present	PFX+0-	NIL	PUBP	NIL
National number, operator requested	10D	Not present	PFX+0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	PFX+01+(7-15)D	IN	PUBP	NIL
International number	7-15D	0XXX	PFX+10XXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	0XXX	PFX+10XXX0-	NIL	PUBA	NA

Table 319 Digits for private lines and trunks triggering agents (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
National number, operator requested	10D	0XXX	PFX+10XXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	0XXX	PFX+10XXX+01+(7-15)D	IN	PUBA	NA
International number	7-15D	XXXX	PFX+101XXXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	XXXX	PFX+101XXXX0-	NIL	PUBA	NA
National number, operator requested	10D	XXXX	PFX+101XXXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	XXXX	PFX+101XXXX+01+(7-15)D	IN	PUBA	NA
Legend: IN - International NA - National NIL - Not present PUBA - Carrier operator PUBP - Public operator PFX: Public network access code defined in option PUB_NET_ACC in table NCOS or CUSTHEAD						

For responses where CDN=NA, the conversion of the 10D (coming in the response) into a dialable format is based on existing translation datafill in tables LCASCRCN and HNPACONT. The resulting digits will be in 7D, 1+7D, 10D, or 1+10D format, being consistent with the originator's dialing plan. STS and LCANAME defined in the line attribute index in option PUB_NET_ACC are used as entries in tables HNPACONT and LCASCRCN.

If carrier ID is returned in the response, the carrier access digits 10XXX or 101XXXX will be prefixed before the converted digits.

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

- Table HNPACONT datafill is used to determine if the 10D number should be converted to 7D or 10D. The conversion produces 7D (by removing the NPA) if one of the following conditions are met:
 - Indexing HNPACODE with the 10D called number results in VCT HNPI.

- Originator's NPA is equal to the NPA of the 10D called number, and the HNPACODE subtable contains no entry for the NPA of the called number.
- Table LCASCRCN datafill is used to determine if a call is local or toll.
 - If NPA and NXX of the called number are found in LCASCRCN then the call is considered as local.
 - If NPA is not found but the originator's NPA is equal to the called number's NPA, a check is made to see if the called NXX is datafilled in subtable LCASCR. If it is found, then it is local. This is to handle the case where a 7D local dialling plan exists within a NPA, and the NPA is not datafilled in LCASCRCN.
 - Otherwise, it is toll.
- Using PFXFOR10 of table LCASCRCN and the local/toll result from step 2, the called number is modified as follows:

Table 320 Digit streams for call number modifications

Digits after step 1	Local or Toll	PFX FOR 10	Originator's NPA = Called NPA	Result if no Carrier ID is present	Result if 0XXX Carrier ID is present	Result if XXXX Carrier ID is present
7D	Local	Y	Not Applicable	PFX+7D	PFX+10XXX+ (7)D	PFX+101XXXX+ (7)D
7D	Local	N	Not Applicable	PFX+7D	PFX+10XXX+ (7)D	PFX+101XXXX+ (7)D
7D	Toll	Y	Not Applicable	PFX+7D	PFX+10XXX+ (7)D	PFX+101XXXX+ (7)D
7D	Toll	N	Not Applicable	PFX+1+7D	PFX+10XXX+1+ (7)D	PFX+101XXXX+1+ (7)D
10D	Local	Y	N	PFX+1+10D	PFX+10XXX+1+ (10)D	PFX+101XXXX+1+ (10)D
10D	Local	Y	Y	PFX+7D	PFX+10XXX+ 7D	PFX+101XXXX+ 7D
10D	Local	N	Not Applicable	PFX+10D	PFX+10XXX+ (10)D	PFX+101XXXX+ (10)D
10D	Toll	Y	Not Applicable	PFX+1+10D	PFX+10XXX+1+ (10)D	PFX+101XXXX+1+ (10)D
10D	Toll	N	Not Applicable	PFX+1+10D	PFX+10XXX+1+ (10)D	PFX+101XXXX+1+ (10)D

53.2 Residential lines

In most configurations, residential (RES) lines do not need a public network access code to access the public environment. In this case, they do not require the PUB_NET_ACC option in table CUSTHEAD or NCOS. However, if the RES lines are configured such that a public network access code is used, then PUB_NET_ACC option is required.

53.3 Response translations simplification in the public environment for triggering private agents

Simplification feature can be activated in the public environment instead of being activated in the private environment. Table XLAMAP is used to provide access the public environment as described in Section 52.1.4 and then simplification feature is activated to convert the digits used in the public environment into a format that can reuse public pretranslator used for public translation.

The option of activating simplification feature in the public environment will avoid additional datafill required for response translations in the public environment as described in Section 52.1.7 and additional datafill required to support response translations in the private environment are still required.

Activating simplification feature in the public environment can be done under the following conditions:

- Feature AIN00026 SOC is ON.
- The conditions to activate the feature in the private environment are not satisfied.
- No entry in table PXLAMAP corresponding to the public pretranslator used in the public environment and the RCNAME derived from the response; or an entry exist in table PXLAMAP with the PREFIX selector present.

Note that simplification feature is activated only once. If it is activated in the private environment, it won't be activated in the public environment regardless of whether an entry exist in table PXLAMAP or not.

53.3.1 Table PXLAMAP

For private lines and trunks, if simplification feature is to be activated in the public environment, no additional datafill is required for table PXLAMAP. In fact, simplification feature converts the digits used in response translations in the public environment into a format that can use the originator's pretranslator used in the public environment. No exceptions are produced.

Simplification feature supposes that digits are in the format described in Table 302 on page 826. This means that no digit manipulation should be done

prior to activate simplification feature such as setting up prefix fence or deleting or adding digits.

Simplification feature produces the same digit streams produced when the feature is activated in the private environment without public network access code prefixed.

Table 321 summarizes the digits used in translation after being converted by the Response Translations Simplification feature in the public environment when the triggering agent is a private line or private trunk and where call types are National Direct Dial and National Carrier Direct Dial.

Table 321 Digits for private lines and trunks triggering agents in the public environment

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
International number	7-15D	Not present	011+(7-15)D	IN	NIL	NIL
No address present, operator requested	0D	Not present	0-	NIL	PUBP	NIL
National number, operator requested	10D	Not present	0+(10)D	NA	PUBP	NIL
International number, operator requested	7-15D	Not present	01+(7-15)D	IN	PUBP	NIL
International number	7-15D	0XXX	10XXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	0XXX	10XXX0-	NIL	PUBA	NA
National number, operator requested	10D	0XXX	10XXX+0+(10)D	NA	PUBA	NA
International number, operator requested	7-15D	0XXX	10XXX+01+(7-15)D	IN	PUBA	NA
International number	7-15D	XXXX	101XXXX+011+(7-15)D	IN	NIL	NA
No address present, operator requested	0D	XXXX	101XXXX0-	NIL	PUBA	NA
National number, operator requested	10D	XXXX	101XXXX+0+(10)D	NA	PUBA	NA

Table 321 Digits for private lines and trunks triggering agents in the public environment (Continued)

Nature of number in CalledPartyID	Digits (CDN)	Carrier ID	Digits produced by the feature and used in translations	CDN	OSA	TNS
International number, operator requested	7-15D	XXXX	101XXXX+01+(7-15)D	IN	PUBA	NA
Legend: IN - International NA - National NIL - Not present PUBA - Carrier operator PUBP - Public operator						

For responses where CDN=NA, the conversion of the 10D (coming in the response) into a dialable format is based on existing translation datafill in tables LCASCRCN and HNPACONT. The resulting digits will be in 7D, 1+7D, 10D, or 1+10D format, being consistent with the originator's dialing plan. STS and LCANAME defined in the line attribute index used to access the public environment are used as entries in tables HNPACONT and LCASCRCN.

Note: If carrier ID is returned in the response, the carrier access digits 10XXX or 101XXXX will be prefixed before the converted digits.

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

- 1 Table HNPACONT datafill is used to determine if the 10D number should be converted to 7D or 10D. The conversion produces 7D (by removing the NPA) if one of the following conditions are met:
 - a Indexing HNPACODE with the 10D called number results in VCT HNPI.
 - b Originator's NPA is equal to the NPA of the 10D called number, and the HNPACODE subtable contains no entry for the NPA of the called number.
- 2 Table LCASCRCN datafill is used to determine if a call is local or toll.
 - a If NPA and NXX of the called number are found in LCASCRCN then the call is considered as local.

- b If NPA is not found but the originator's NPA is equal to the called number's NPA, a check is made to see if the called NXX is datafilled in subtable LCASCR. If it is found, then it is local. This is to handle the case where a 7D local dialling plan exists within a NPA, and the NPA is not datafilled in LCASCRCN.
 - c Otherwise, it is toll.
 - 3 Using PFXFOR10 of table LCASCRCN and the local/toll result from step 2, the called number is modified as follows:

Table 322 Called number modification

Digits after step 1	Local or Toll	PFX FOR10	Originator's NPA = Called NPA	Result if no Carrier ID is present	Result if 0XXX Carrier ID is present	Result if XXXX Carrier ID is present
7D	Local	Y	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Local	N	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Toll	Y	Not Applicable	7D	10XXX+(7)D	101XXXX+(7)D
7D	Toll	N	Not Applicable	1+7D	10XXX+1+(7)D	101XXXX+1+(7)D
10D	Local	Y	N	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D
10D	Local	Y	Y	7D	10XXX+7D	101XXXX+7D
10D	Local	N	Not Applicable	10D	10XXX+(10)D	101XXXX+(10)D
10D	Toll	Y	Not Applicable	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D
10D	Toll	N	Not Applicable	1+10D	10XXX+1+(10)D	101XXXX+1+(10)D

53.3.2 TRAVER enhancements for AIN response translations simplification

A new option DIGCONV is added to TRAVER to support response translations simplification feature for private lines and private trunks.

The DIGCONV parameter is designed to be used during the operating company's datafill transition.

While the Response Translations Simplification feature is deactivated or "idle", the operating company can specify that it would like to see the results

of a digit conversion in a TRAVER via use of the DIGCONV parameter. TRAVERS performed without this parameter will not invoke the feature. Hence the operating company has the ability to determine the affect of this feature without the need to affect call processing. It also preserves the ability to produce a TRAVER for current datafill.

The DIGCONV parameter is an optional parameter which falls under the AINRES parameter (which is itself optional).Figure 206 shows how the DIGCONV parameter can be used in a TRAVER.

Figure 206 TRAVER with the DIGCONV parameter

TRAVER 1 7224531 N CDN NA 6137220000 AINRES R01 AR DIGCONV B

53.4 Sample TRAVERs for private lines and trunks with simplification

This section contains TRAVER examples of various call types during AIN response translations with simplification feature activated.

53.4.1 Simplification feature activated in the private environment

In this section, the TRAVER examples shown in “Chapter 52.: AIN response translations for private agents” on page 811 are reproduced with simplification feature activated in the private environment.

53.4.1.1 Additional data required for AIN response translations to activate simplification feature in the private environment

Entries in table XLAMAP and PXLAMAP described respectively in Figure 191 on page 842 and Figure 192 on page 842 are removed. Entry in HNPACONT table Figure 196 on page 844 is changed and replaced with VCT HNPI as described in Figure 208.

Figure 207 Table HNPACONT

TABLE HNPACONT
613 20 15 (0) (1) (0) (0) 0
. SUBTABLE HNPACODE
. 613 613 VCT HNPI

Table CUSTHEAD is changed to include option PUB_NET_ACC as shown in Figure 208.

Figure 208 Table CUSTHEAD

CENTESN	CESN	CEN	NIL
(VACTRMT 0)	(EXTNCOS 0)	(ACCT 5 N N)	(PLMXLA CESN) (AUTH
CESNAUTH N N)	(ACR AUTH 0)	(PUB_NET_ACC 9	(LINEATTR 500) \$)\$

53.4.1.2 National call - number returned is within user HNP

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 6134257320

Figure 209 TRAVER for national call - number returned is in user HNP

```

>traver l 7226962 n cdn na 6134257320 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
Tuple not found. Default is use original XLANAME.
PUB_NET_ACC Option present in table CUSTHEAD.
NOTE: ISDN Digit Conversion has been performed:
Resulting digits are: 94257320
TABLE IBNXLA: XLANAME CESN
CESN 9
      (NET N N N 1 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. Tuple not found. Default to original pretranslator.
TABLE STDPRTCT
P722 ( 1) ( 0) 0

```

Figure 210 TRAVER for national call - number returned is in user HNP (Continued)

```

. 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 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 425 425 HRTE 1
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 1 N D OTMF1 0 N N
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 425 425
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 OTMF1                6134257320          ST

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

53.4.1.3 National call when the number returned is on the same SSP

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 6136221243

Figure 211 TRAVER for national call - returned number on the same SSP

```

>traver l 7226962 n cdn na 6136221243 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
. PUB_NET_ACC Option present in table CUSTHEAD.
. NOTE: ISDN Digit Conversion has been performed:
.     Resulting digits are: 96221243
TABLE IBNXLA: XLANAME CESN
CESN 9
      (NET N N N 1 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. Tuple not found. Default to original pretranslator.
TABLE STDPRTCT
P722 ( 1) ( 0) 0

```

Figure 212 TRAVER for national call - returned number on the same SSP (Continued)

```

. 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 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 622 622 DN 613 622
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 622
TABLE DNINV
613 622 1243 L HOST 00 1 10 17
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRCN
613 L613 ( 2) MNMT N
. SUBTABLE LCASCR
. 622 622
TABLE PFXTREAT
MNMT NP Y NP UNMT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136221243                ST

```


Figure 213 TRAVER for national call - returned number on the same SSP (Continued)

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

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

53.4.1.4 National carrier call

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 4166251242
- PrimaryCarrierID = 0234

Figure 214 TRAVER for national carrier call

```

>traver l 7226962 n cdn na 4166251242 tns na cic 0234 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
. PUB_NET_ACC Option present in table CUSTHEAD.
. NOTE: ISDN Digit Conversion has been performed:
. Resulting digits are: 91023414166251242
TABLE IBNXLA: XLANAME CESN
CESN 9
      (NET N N N 1 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT

```

Figure 215 TRAVER for national carrier call (Continued)

```

P722 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10234 10234 EA DD 5 P PEA2 MCI Y OFRT 963 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
. PEA2 ( 1) (65021) 1
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 1 1 EA DD 1 T NA MCI N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 100 15 ( 3) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 416 416 FRTE 2
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
. 2 T OFRT 963

```

Figure 216 TRAVER for national carrier call (Continued)

```

. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. .      N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
613 L613 ( 3) MNDT N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
LATA1 416625 INTER INTER STD
TABLE OCCINFO
MCI  0234 TRANS Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N
N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route   OFRT  963 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
  963  N D OTTISUPITEAOG3 0 D077 N
      N D OTTMFITEAOG 10 D077 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3          D0774166251242      ST
2 OTTMFITEAOG            D077                  ST
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

53.4.2 Additional data required for AIN response translations to activate simplification feature in the public environment

Entries in table PXLAMAP described respectively in Figure 194 on page 843 are removed. Changes in Table CUSTHEAD to include option PUB_NET_ACC as shown in Figure 208 on page 864 are also removed.

53.4.2.1 National call when the number returned is on the same SSP

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 6136221243

Figure 217 TRAVER for national call - returned number on the same SSP

```

>traver l 7226962 n cdn na 6136221243 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
        (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
. Resulting digits are: 6221243
TABLE STDPRTCT

```

Figure 218 TRAVER for national call - returned number on the same SSP (Continued)

```

P722 ( 1) ( 0) 0
. 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 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 622 622 DN 613 622
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 622
TABLE DNINV
613 622 1243 L HOST 00 1 10 17
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRN
613 L613 ( 2) MNMT N
. SUBTABLE LCASCR
. 622 622
TABLE PFXTREAT
MNMT NP Y NP UNMT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136221243                ST

```

Figure 219 TRAVER for national call - returned number on the same SSP (Continued)

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

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

53.4.2.2 National call when the number returned is within the home numbering plan of the user

The command line assumes the following:

- originator is an IBN line 6137226962
- CalledPartyID = National Number 6134257320

Figure 220 TRAVER for national call - returned number is in the user HNP

```

>traver l 7226962 n cdn na 6134257320 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
        (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. NOTE: ISDN Digit Conversion has been performed:
. Resulting digits are: 6227320
TABLE STDPRTCT

```

Figure 221 TRAVER for national call - returned number is in the user HNP (Continued)

```

P722 ( 1) ( 0) 0
. 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 20 15 ( 0) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 425 425 HRTE 1
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF
.   1 N D OTMF1 0 N N
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
613 L613 ( 2) MNDT N
. SUBTABLE LCASCR
. 425 425
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 OTMF1                6134257320          ST

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

```

53.4.2.3 National carrier call

The command line assumes the following:

- originator is an IBN line 4166251242
- CalledPartyID = National Number 6136631301
- PrimaryCarrierID = 0234

Figure 222 TRAVER for national carrier call

```

>traver l 7226962 n cdn na 4166251242 tns na cic 0234 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIG-
COL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:
PUBXLA
        (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL
00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
. . NOTE: ISDN Digit Conversion has been performed:
. . Resulting digits are: 1023414166251242

```

Figure 223 TRAVER for national carrier call (Continued)

```

TABLE STDPRTCT
P772( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 104 109 F 0 STUTTER_DIALTONE EAP1
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10234 10234 EA DD 5 P PEA2 MCI Y OFRT 963 5 20 N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . 963 N D OTTISUPITEAOG3 0 D077 N
. . N D OTTMFITEAOG 10 D077 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
. PEA2 ( 1) (65021) 1
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 1 1 EA DD 1 T NA MCI N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 100 15 ( 3) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 416 416 FRTE 2
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index.
. SUBTABLE RTEREF

```

Figure 224 TRAVER for national carrier call (Continued)

```

.      2 T OFRT 963
.      . TABLE OFRTMAP
.      . . Tuple not found. Default to old index.
.      . TABLE OFRT
.      . 963 N D OTTISUPITEAOG3 0 D077 N
.      .      N D OTTMFITEAOG 10 D077 N
.      . EXIT TABLE OFRT
.      . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
613 L613 ( 3) MNDT N
.      . SUBTABLE LCASCR
.      . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATA1
LATA1 416625 INTER INTER STD
TABLE OCCINFO
MCI  0234 TRANS Y Y Y Y Y N N N Y Y N LONG 61 FGRPC N N N N N N N N N N
N
TABLE EASAC
TUPLE NOT FOUND
Using Equal Access (EA) route  OFRT  963 from Pretranslation
TABLE OFRTMAP
.      . Tuple not found. Default to old index.
TABLE OFRT
.      . 963 N D OTTISUPITEAOG3 0 D077 N
.      .      N D OTTMFITEAOG 10 D077 N
TABLE OFRTMAP
.      . Tuple not found. Default to old index.
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OTTISUPITEAOG3      D0774166251242      ST
2 OTTMFITEAOG      D077      ST
TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

54. Monitor resources feature

54.1 General

Monitor resources is a non-call related feature which determines the hardware status of a line or determines whether or not a call can be placed on a line. The feature can also request that a line be monitored for given period of time until a change in the busy or idle status is encountered. To determine whether or not a call can be placed on the line, the switch must determine the hardware status as well as the applicability of switch-based features that allow or disallow a call to be placed.

This function allows the SCP to request the SSP to monitor a resource for a busy or idle status. The monitor resources feature also allows the SCP to request that the SSP monitor a line for a period of time until that line changes to the desired status or until the time period expires.

54.2 Capabilities

Monitor resources functionality encompasses two separate capabilities that can be utilized by the operating company:

- the ability to monitor the busy or idle status of a line for the purpose of surveillance and maintenance
- the ability to build services based on the outcome of a monitor resources operation

54.2.1 Non-call associated capabilities

Monitor resources can be used for the statistical analysis of services. Using this functionality the operating company can determine the peak hours and the calling and called locations for a particular service. This provides the ability to monitor traffic at a finer granularity than is currently possible. The hardware status of a line can be determined by leaving out the BearerCapability parameter in the Monitor_Resources message.

54.2.2 Call associated capabilities

The service logic of an SCP can be defined in such a way as to create a service based on the busy or idle status of a line (that is, ring back when idle, forward call on busy). To determine the busy or idle status of the requested line the

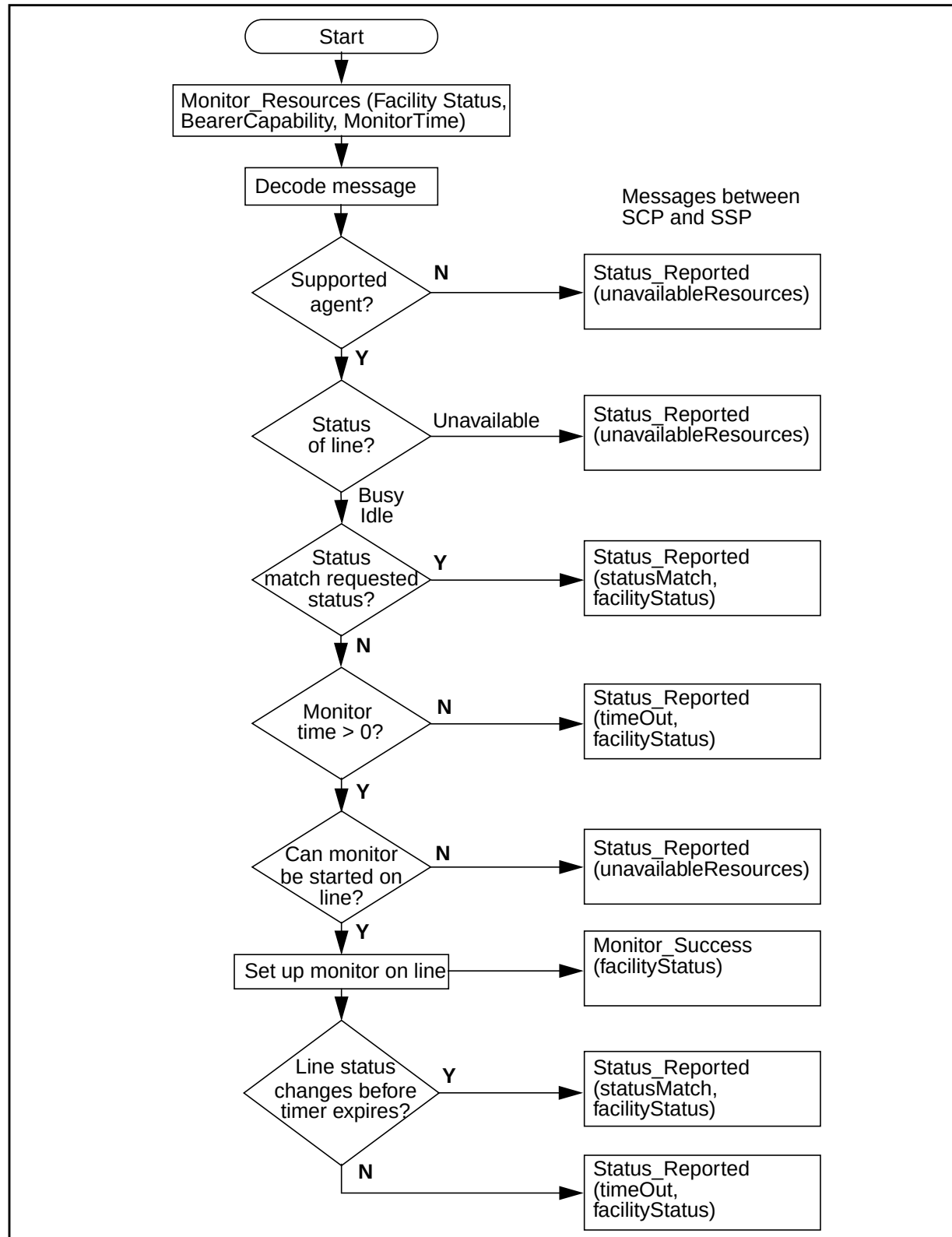
SCP must perform a “look ahead” operation. This operation requires the SCP to request the SSP to monitor the line before the actual status of the line is determined.

54.3 Feature operation

54.3.1 Overview

The overall functionality of the Monitor Resources feature is illustrated in Figure 225.

Figure 225 Feature flow for monitor resources



When the SSP receives a Monitor_Resources operation from the SCP it must undergo a series of checks to determine if the line matches the state requested by the FacilityStatus parameter. If the status of the line does not match the requested state and the MonitorTime parameter is non-zero then the SSP will set up a monitor on the line. If the status of the line changes to the desired state, the SSP will return a Status_Reported message with the FacilityStatus parameter set to “statusMatch”. If the timer expires before the line switches to the desired state then the SSP will return a Status_Reported message with the StatusCause parameter set to “timeOut”.

If the BearerCapability parameter is present in the Monitor_Resources message and a call can be established using the specified Bearer Capability, then the SSP must also consider the applicability of switch-based features.

If the BearerCapability parameter is not present in the Monitor_Resources message then the physical state of the line is used directly to determine the response, without considering any switch-based features.

If a monitor is active on a line the switch may consider a change in switch-based features that may affect the status of the line (for example, a monitor is set up to determine when the line becomes busy. At some point in the call the Dial Cancel Call Waiting feature is invoked. In this situation the SSP will immediately send a Status_Reported message with the StatusCause parameter set to “statusMatch”). CCW is the only switch based feature supported in this release which can result in a change of line status while the monitor is active.

The parameters used in the Monitor Resources messages are described in Section 54.3.15.1 “Monitor_For_Change message”, Section 54.3.15.2 “Monitor_Success message”, and Section 54.3.15.3 “Status_Reported message”.

54.3.2 Supported agents

Table 323 shows which line agents and line class codes (LCC) are supported. Any agent types or LCCs not listed here are not supported by the Monitor Resources feature. Those agent types that are not supported result in a

Status_Reported message being sent to the SCP with the FailureCause parameter set to “unavailableResources”.

Table 323 Supported agents for monitor resources feature

Class	Type	Line class code (LCC)
POTS	BASIC	1FR
		1MR
	COIN	CCF
		CDF
		CFD
		CSP
		ZMD
		ZMZPA
RES	BASIC	1FR
		1MR
	COIN	CCF
		CDF
		CFD
		CSP
		ZMD
		ZMZPA
	WATS	2WW
		EOW
		ETW
		INW
		OWT

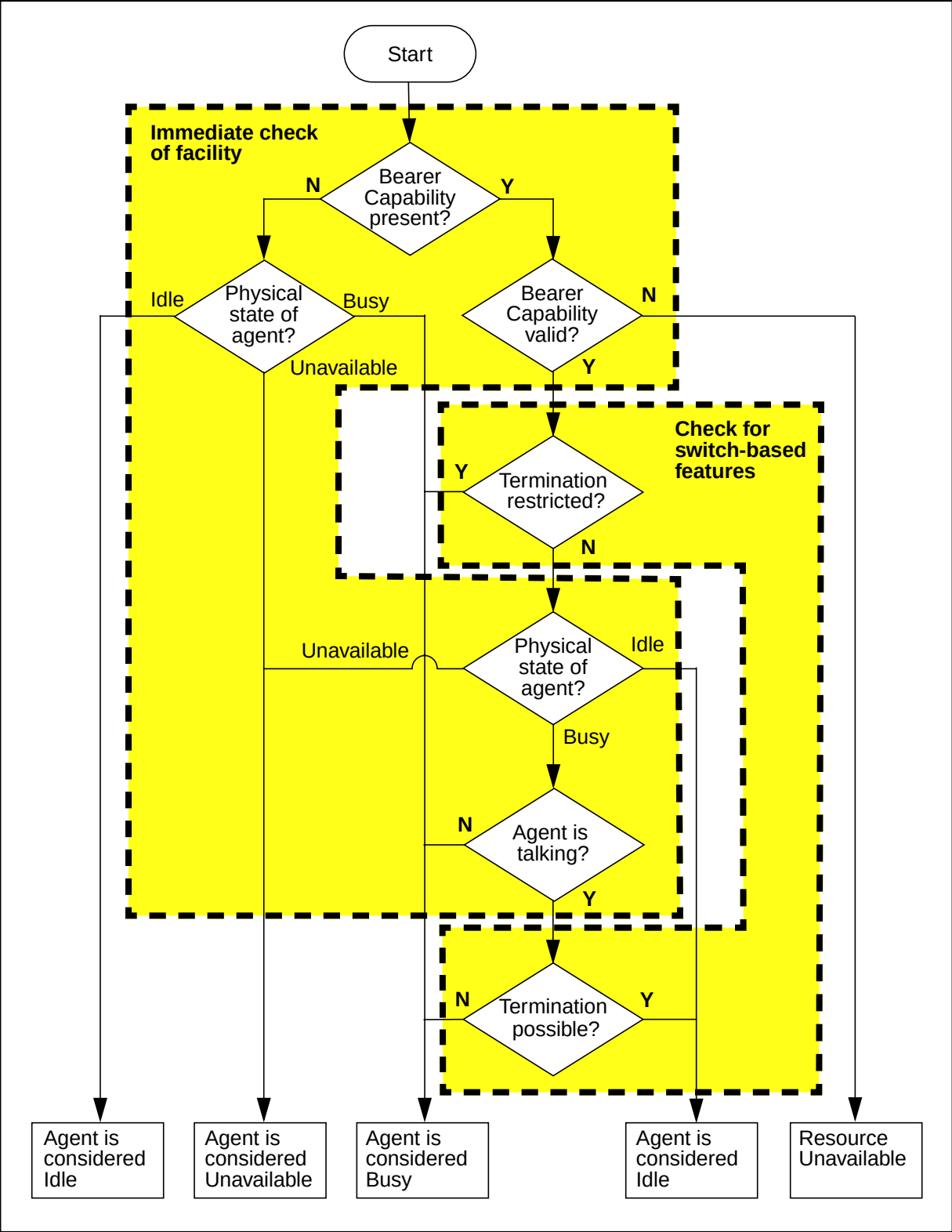
Table 323 Supported agents for monitor resources feature (Continued)

Class	Type	Line class code (LCC)
IBN	BASIC	IBN
		M5009
		M5112
		M5209
		M5212
		M5312
		PSET
ISDN BRI	BRAMFT	ISDNKSET
	BRAFS	ISDNKSET

54.3.3 Determining the status of the line

Once it has been determined that the agent is supported by the Monitor Resources feature, a check is made to determine the status of the line. This check is described in Figure 226, and will be further described in the following sections. This check will return one of “busy”, “idle”, or “unavailable” as a result. If the result is “unavailable”, a Status_Reported message will be sent to the SCP with the FailureCause parameter set to “unavailableResources”, and the feature processing will terminate. If the result is “busy” or “idle”, feature processing will continue.

Figure 226 Determining the status of the line for monitor resources feature



54.3.4 Evaluating the bearer capability

If the BearerCapability parameter is “null” (not included) in the Monitor_Resources message then the feature will proceed directly to the check of the physical state as described in Section 54.3.6 “Determining the physical state of the line”.

If the BearerCapability parameter is present in the Monitor_Resources message, a check is made to determine whether the BearerCapability parameter is valid for the specified agent. For an analog line, the only valid BearerCapability is “Speech”. If the BearerCapability is not valid for the specified agent a Status_Reported message will be sent to the SCP with the FailureCause parameter set to “unavailableResources”, and the feature processing will terminate. If the BearerCapability is valid for the specified agent, feature processing will continue to consider the applicability of switch-based features.

54.3.5 Check for termination restricted

A check is made for the following switch-based features to see if any of them will cause the line to be considered busy:

- Suspend (SUS) - denies termination because a customer has not paid his bill
- Requested Suspension (RSUS) - denies termination upon request of the customer (for example, customer is on vacation)
- Denied Termination
- Plug Up (PLP)

For IBN lines, an additional check is made for the following switch-based features:

- Make Set Busy (MSB)
- Do Not Disturb (DND)

If any of these features are active on a line, a call cannot complete to that line, and the line will be considered to be “busy”. Note that if one of these features is present on the line, and the SCP is requesting a status of “idle”, a monitor will not be set up to wait for a transition, since these features are not expected to change frequently. In this case, “unavailable resources” will be returned. This is further described in section Section 54.3.10 “Determining if a monitor can be set up on a line”.

If none of these features is present on the line, the feature will proceed to determine the physical state of the line.

54.3.6 Determining the physical state of the line

The hardware status of the line is checked. If it is found to be in the idle state, a value of “Idle” is returned. If it is in the Call-Processing Busy (CPB) state, a value of “busy” is returned. If it is in any other state (that is, NEQ, INB, MB, LO, etc.), a value of “unavailable” is returned.

54.3.7 Check for termination possible

For lines that have a hardware status of Call Processing Busy, a check is made to determine if any switch-based features are present that would make Monitor Resource consider the line idle. The only switch-based features directly supported in this release of Monitor Resource are Call Waiting (CWT, including CWI for IBN lines) and Cancel Call Waiting (CCW), for lines other than ISDN BRAFS agents. Additional Function Calls (AFC) and Additional Call Offering Unrestricted (ACOU) are the features supported for ISDN BRAFS agents. Call-Waiting Dialed (CWD) is not considered because it is not a terminating feature.

If Call Waiting is not subscribed on the line then the status of the line is considered busy.

If Call Waiting is subscribed on the line, Table 324 shows how Monitor Resources determines whether the line is busy or idle.

Table 324 Line status with Call Waiting and Cancel Call Waiting

Call Waiting subscribed?	Cancel Call Waiting active?	Call on hold?	Line is considered
Yes	No	No	Idle
Yes	Yes	No	Busy
Yes	No	Yes	Busy

However, for the Call Waiting feature to become active, the Call state of the line has to be stable (that is, TALKING). Thus if Call state is not stable, Monitor resources will consider the line as busy.

Note: Call Waiting cannot be assigned to ISDN BRAFS lines. Instead, Additional Function Call (AFC) and/or Additional Call Offer Unrestricted (ACOU) can be assigned to them.

Through the AFC feature, one or more AFC keys may be assigned to correspond to each DN key on an ISDN keyset with functional signaling. The master DN, known as the Single Functional Call (SFC) key can have up to four AFC keys associated with it. Any of these AFC keys can be used to originate or terminate calls. Only one call can be active at a given time. Lamps can be used to inform the user of waiting or held calls.

Additional Call Offer Unrestricted (ACOU), is a method for providing more than one call to a DN served by an ISDN interface, even if that DN would normally be considered busy. ACOU takes precedence over AFC.

Figure 226 outlines the procedure to determine the status of the facility. From the hardware status check of the facility, it is determined that the agent is either idle or busy. We then proceed to check for AFC and ACOU interactions.

If AFC is not assigned to the line, the status of the line is the same as determined during hardware status check.

If AFC is assigned and ACOU feature package is not present then a line is considered idle if the line is hardware idle or there is at least one idle AFC key; otherwise the line is considered to be Call Reference Busy.

If AFC is assigned and ACOU feature package is present, the status of an EKTS line is determined as explained in the previous paragraph. A Non-EKTS line is considered idle if a B-channel is available. Otherwise if ACOU is not assigned, the line is considered interface busy.

If ACOU is assigned to a non-EKTS line, the line is considered idle if the following conditions are met:

- the Network Busy Counter (NBC) of that line is less than the Network Busy Limit (NBL)

Note 1: NBC is the counter maintained by the switch to keep track of the number of active call references being used for called-user notification of waiting calls for a given DN served by a non-EKTS ISDN interface.

Note 2: NBL is the counter maintained by the switch to keep track of the number of active call references being used for called-user notification of waiting calls for a given DN served by a non-EKTS ISDN interface.

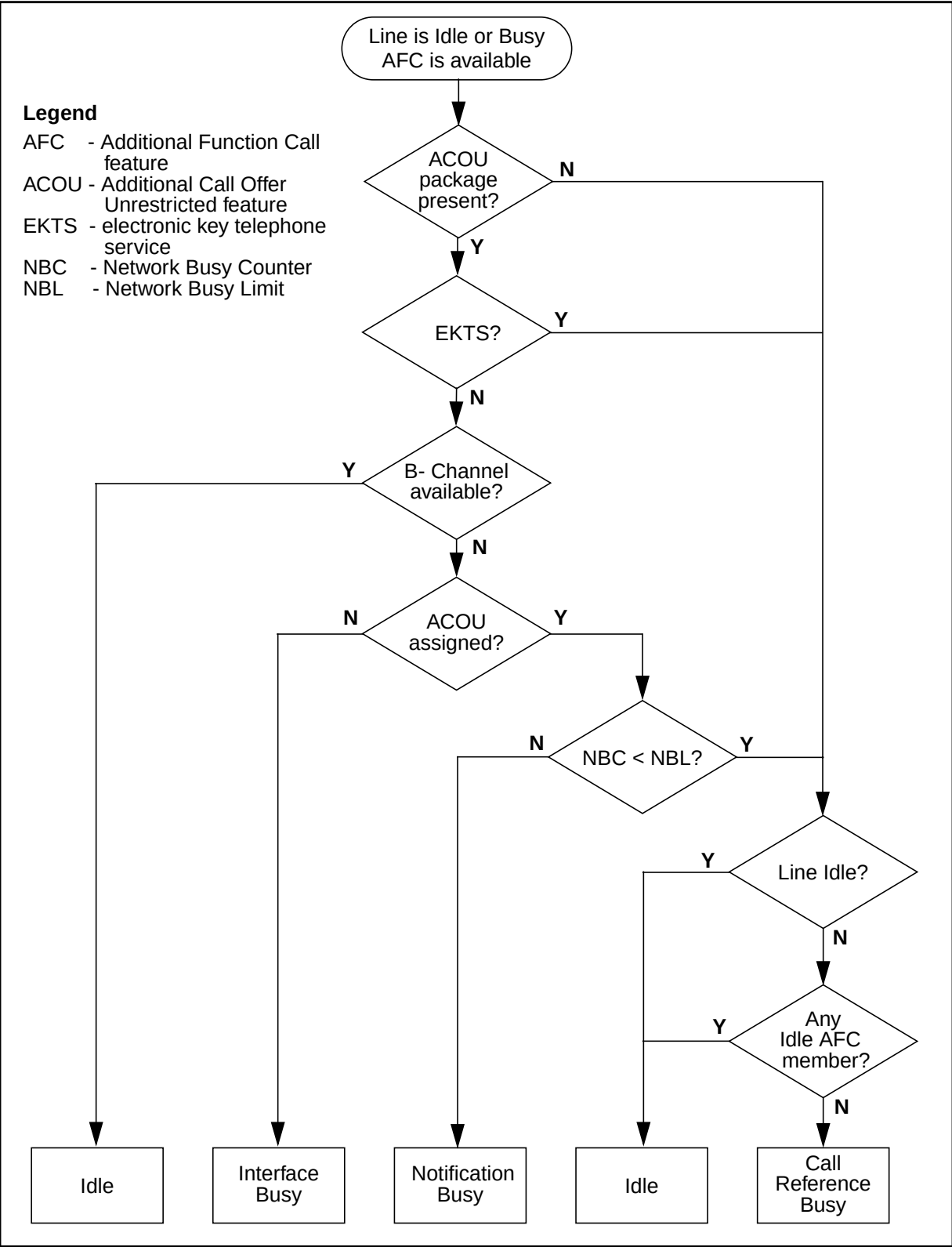
- the line is hardware idle or at least one AFC key is idle

Otherwise it is considered call reference busy.

If NBC is equal to NBL, it is considered notification busy.

If the agent is Notification Busy or Call Reference busy, it is considered as busy.

Figure 227 Check for termination possible on ISDN BRAFS lines



54.3.8 Does status match requested status?

Once the status of the line has been determined to be either busy or idle, it is compared to the status requested in the Monitor Resources message received from the SCP. If they match, then the SSP will return a Status_Reported message with the FacilityStatus parameter set to the line status and the StatusCause parameter set to “statusMatch”, and feature processing will terminate. If they do not match, then feature processing will continue.

54.3.9 Is MonitorTime non-zero?

If the Monitor Resources message received from the SCP specified a MonitorTime value of “0” for the hours, minutes, and seconds fields, then a monitor will not be started, and a Status_Reported message will be sent to the SCP with the FacilityStatus parameter set to “Idle” or “Busy”, as is the case, and the StatusCause parameter set to “timeOut”.

If a non-zero MonitorTime value is specified, then feature processing will continue to set up a monitor on the line.

54.3.10 Determining if a monitor can be set up on a line

If the line is idle, there is no condition which would preclude the setting up of a monitor. In the case when the line is busy, a monitor will not be set up under the following conditions:

- If the line is connected to an operator station.
- If termination to the line is restricted as described in section Section 54.3.5 “Check for termination restricted”.

The features indicating the termination restriction are typically long-duration in nature, and are not expected to change frequently for a given line.

- If an ISDN BRI agent is interface busy, a monitor cannot be started because different DNs need to be monitored to determine the B-channel availability.
- If the line has subscribed to Call Waiting and Call state of the line is not stable (that is, not TALKING), then the line is considered unavailable for monitoring.

For Call Waiting to become applicable the line state has to become stable (Monitor Resources cannot detect the Call state transition to TALKING).

However for KSET and ISDN BRAMFT agents, if the Call Waiting key is already busy on a call, then the line can be monitored even if the Primary DN Call state is unstable, because in this case the call on the Primary DN is considered held.

If a monitor cannot be set up due to any of the above reasons, a Status_Reported message will be sent to the SCP with the FailureCause

parameter set to “unavailableResources”, and the feature processing will terminate. Otherwise, feature processing will continue.

54.3.11 Monitoring a line

A monitor is set up on the requested line. Once the monitor is active on a line (and a call, if there is a call associated with the line), one of two things can happen:

- an event occurs on the line or call (if present), which changes the status to match that requested by the SCP
- the monitor times out

54.3.11.1 Events monitored on an idle line

If the BearerCapability parameter is “null”, then the only event monitored on an idle line is the telephone going off-hook.

If a valid BearerCapability parameter is present in the query, then Table 325 shows those events which cause an idle line to change status to busy while a monitor is active. If such an event occurs, the monitor is stopped and a Status_Reported message is sent to the SCP with the FacilityStatus parameter set to “busy” and the StatusCause parameter set to “statusMatch”.

Table 325 Events monitored on an idle line

State	Event
On-hook	Telephone is taken off-hook
Off-hook, talking, Call Waiting (CWT) subscribed, no call on hold, Cancel Call Waiting (CCW) inactive	1 Telephone is placed on-hook 2 Telephone is taken off-hook 3 Another caller attempts to connect 4 The hook switch is flashed and the Cancel Call Waiting (CCW) code is dialed 5 Call Waiting (CWT) key is on and a KSET or ISDN BRAMFT gets another call
Off-hook, talking, one Additional Functional Call (AFC) key available	1 Another caller attempts to connect 2 Additional Functional Call (AFC) key is used to originate a call

54.3.11.2 Events monitored on a busy line

A line is considered busy when the telephone is off-hook in the call processing busy state. This means that the line can be involved in a call but cannot be in a state such as lockout.

If the BearerCapability parameter is “null”, then the only event which is monitored for on a busy line is the line going on-hook.

If a valid BearerCapability parameter is present in the query, then the supported switch-based features are also considered by the monitor. The state of an ISDN BRAFS agent is determined as explained in Section 54.3.3 “Determining the status of the line”. Table 326 shows those events which cause a busy line to change status to idle while a monitor is active. If such an event occurs, the monitor is stopped and a Status_Reported message is sent to the SCP with the FacilityStatus parameter set to “idle” and the StatusCause parameter set to “statusMatch”.

Table 326 Events monitored on a busy line

State	Event
Off-hook (dial tone, listening to ringback, listening to announcement)	Telephone is placed on-hook
Off-hook, talking, Call Waiting (CWT) not subscribed	Telephone is placed on-hook
Off-hook, talking, Call Waiting (CWT) subscribed, Cancel Call Waiting (CCW) active	Telephone is placed on-hook
Off-hook, talking, Call Waiting (CWT) subscribed, Cancel Call Waiting (CCW) inactive, second call on hold	1 Either remote party goes on-hook 2 Telephone is placed on-hook
Additional Functional Call (AFC) subscribed, Additional Call Offering Unrestricted (ACOU) assigned, Notification busy	1 A waiting call is answered 2 Telephone is placed on-hook 3 Remote party goes on-hook
Additional Functional Call (AFC) subscribed, Additional Call Offering Unrestricted (ACOU) package not present, no AFC key is idle	1 Remote party goes on-hook 2 Telephone is placed on-hook

54.3.11.3 Monitor times out

If no transition in line state occurs during the delay specified in the MonitorResource message, the monitor will time out. In this case, a Status_Reported message is sent to the SCP with the FacilityStatus parameter set to the current status of the facility (either “busy” or “idle”) and the StatusCause parameter set to “timeOut”.

However, in the case of a “timeOut”, FacilityStatus reported in the Status_Reported message will not be the actual status of the facility under the following conditions:

- facility changes to a state other than idle or busy during the monitor period. (for example, if through a MAPCI command, the state is changed to MB [Manual busy])

- a termination restriction feature is assigned (for example, DTM) to the facility through SERVORD or becomes active (for example, DND) on the facility during the monitor period

54.3.12 Multiple monitor requests

If more than one Monitor Resources request is received for a line and the status of the line does not match the status requested by the SCP, then each Monitor Resources request results in a separate monitor being set up for that line. When there is more than one monitor on a line, all of the monitors are waiting for the same status. A line cannot have multiple monitors where some are waiting for “busy” and others for “idle”.

If the status of the line changes to match the status requested by the SCP, each active monitor is stopped and one Status_Reported message per monitor is sent to the SCP with the StatusCause parameter set to “statusMatch”.

If one of the monitors times out before the status of the line changes to match the status requested by the SCP, that monitor is stopped and a single Status_Reported message is sent to the SCP with the StatusCause parameter set to “timeOut”. The other monitors are left alone.

See Section 54.4.2 “Limitations and restrictions” for the limit on the number of monitors that can be active on a line at the same time.

See Section 54.4.2 “Limitations and restrictions” for the upper limit of the number of monitors that can be active on a switch at the same time.

54.3.13 Interaction with AIN triggers

Care must be exercised when engineering use of Monitor Resource on lines that have AIN triggers associated with them. For example, if line B has Termination Attempt that is used for a Denied Termination type feature, Monitor Resource has no way of knowing that the call cannot be completed, even if the status of the line is idle.

54.3.14 Unavoidable race condition

The possibility of a race condition is inherent with Monitor Resource queries. This happens when a Status_Reported message is sent to the SCP, which notifies the SCP that the line is, say, idle. The SCP then instructs the SSP to terminate a call on that line. However, there is a time delay during which time that line could go busy. Then when the SCP attempts to terminate a call to that line, the call fails since that line has subsequently gone busy.

54.3.15 Message protocols

Communication between the Service Control Point (SCP) and the Service Switching Point (SSP) is by SS7 with TCAP user parts. For AIN Essentials Monitor Resource, there are three TCAP messages:

- Monitor_For_Change SCP request message
- Monitor_Success switch response message
- Status_Reported switch response message

54.3.15.1 Monitor_For_Change message

The Monitor Resource application is initiated on an SSP through the reception of an unsolicited (that is, it can be received at any time) Query package from an SCP containing an Invoke(Last) component with an operation of Monitor_For_Change. The Monitor_For_Change message contains the following parameters:

- FacilityStatus (MANDATORY) which is the status of the facility to be monitored (either “busy” or “idle”).
- MonitorTime (MANDATORY) which is the amount of time to wait for the facility to change to the desired status. A MonitorTime value of “0” means that the SSP is to reply to the SCP immediately, even if the facility is not in the desired status.
- CalledPartyID (OPTIONAL) which is the directory number of the called party (that is, the directory number of the line to monitor) (see note).
- FacilityID (OPTIONAL) which is the facility group ID. It is used to specify a multi-line hunt group. It is not supported in this release (see note).
- FacilityMemberID (OPTIONAL) which is the member of a facility group. It is used to specify a single member of a multi-line hunt group. It is not supported in this release.
- BearerCapability (OPTIONAL) which is the bearer capability, (that is, the capacity of the facility). Possible values are:
 - Speech
 - 3.1 kHz
 - 7 kHz
 - 56 kHz Data
 - 64 kHz Data

Note: Either CalledPartyID or FacilityID must be present. If both are present, FacilityID is ignored and CalledPartyID is used. If neither are present, a fatal application error of Missing Conditional Parameter is raised. In this release, if only FacilityID is present, a Status_Reported message is immediately sent to the with the StatusCause parameter set to the value “error”.

54.3.15.2 Monitor_Success message

The Monitor_Success Switch Response message is sent from the SSP to the SCP when all of the following conditions are met:

- the requested line exists
- the requested status of the line does not match the actual status of the line
- the requested MonitorTime is non-zero
- switch resources are available that allow a monitor to be set up

The Monitor_Success message must be a Conversation package with an Invoke(Not Last) component with an operation code of Monitor_Success. The Monitor_Success contains the following parameter:

FacilityStatus (MANDATORY) which is the status for which Monitor Resource is waiting (either “busy” or “idle”).

54.3.15.3 Status_Reported message

The Status_Reported Switch Response Message is sent from the SSP to the SCP to report when one of the following conditions is met:

- the actual status of the line matches the status requested by the SCP
- there are not enough resources available to set up a monitor on a line
- the monitor timer has expired before the actual status of the line matched the status requested by the SCP
- the received MonitorTime parameter has a value of “zero”
- an error occurred

The Status_Reported message must be a Response package containing an Invoke(Last) component with an operation code of Status_Reported. A Status_Reported message contains the following parameters:

- FacilityStatus (OPTIONAL)
- StatusCause (OPTIONAL)
- FailureCause (OPTIONAL)

Although all the parameters are optional, at least one of the parameters must be present in a Status_Reported message.

54.4 Feature impacts

54.4.1 Interactions

The interactions between Monitor Resource and Suspend, Requested Suspension, Denied Termination, Make Set Busy and Do Not Disturb are described in Section 54.3.5 “Check for termination restricted”.

The interactions between Monitor Resource and Call Waiting and Cancel Call Waiting are described in Section 54.3.7 “Check for termination possible”.

The interactions between Monitor Resource and AFC/ACOU are described in Section 54.3.7 “Check for termination possible”.

There are no interactions issues with Monitor Resource and Teen Service.

54.4.2 Limitations and restrictions

This implementation of Monitor Resource does not support multi-line hunt groups. If a Monitor_For_Change message is received for a multi-line hunt group, a Status_Reported message is immediately sent to the SCP with a FailureCause parameter value set to “unavailableResources”.

The only switch-based features supported are those listed in Section 54.3.11.1 “Events monitored on an idle line” and Section 54.3.11.2 “Events monitored on a busy line”.

The maximum number of monitors that can be active on a line is five. If a Monitor_For_Change message is received that would cause a sixth monitor to be applied to a line, a Status_Reported message with a StatusCause of “unavailableResources” is sent to the SCP. Additionally, certain other features which use the internal Feature Queueing mechanism, such as Automatic Call-Back (ACB), may reduce this maximum number if they are already queued on the requested agent.

For KSETs and ISDN BRAMFTs, the maximum number of monitors that can be active on a CWT key is five. This places a limitation on the total number of monitors that can be active on the DNs of the set.

The maximum number of monitors that can be active on a switch is 1000 due to a limited number of resources available on a switch.

The maximum monitor time is 24 hours. If a Monitor Resources message is received with monitor time greater than 24 hours and a monitor is required, a Status_Reported message is immediately sent to the SCP with a FailureCause parameter value set to “unavailableResources”.

55. Options for offices supporting only 7-digit dialing for home numbering plan

55.1 Office options

Some offices do not currently support 10-digit dialing throughout their network. If the network cannot be altered to support 10-digit dialing for the Home Numbering Plan, the following option is recommended.

Route HNPA calls from table STDPRTCT to table OFRT as shown in Table 328. Since the RX selector may cause two different billing records to be generated (refer to Section 55.3 “Billing when using the RX selector”), it is necessary to have the right call type datafilled in table STDPRTCT; whereas the call type specified in the RX selector has to be NP (no prefix) so that only one billing record will be generated. Please refer to Section 55.4 “Recommendation on datafilling table STDPRT for RX selector” for more details on how STDPRT should be datafilled when RX selector is used. The example in Table 328 assumes that all home NPA (HNPA) calls are local calls.

Table 327 STDPRT entries

STDPRTCT	
NAT	(1) (1234) ... (national calls)
	Subtable STDPRT
	The following entry is required to select OFRT entry with RX selector. 613 613 T NP 0 OFRT 708 10 10 NONE

As a result, the OFRT table has an RX selector and an index to Table DIGMAN as shown in Table 329.

Note: When using the RX selector the call will bypass screening. To avoid this problem, use the set up recommendation shown in Section 55.4

“Recommendation on datafilling table STDPRT for RX selector” on page 907.

Table 328 OFERT entries

DMIKEY	DMIDATA
RTE	RTELIST
708	RX 613 NP 200 0 \$

Table DIGMAN removes the 3 HNP A digits as shown in Table 329.

Table 329 DIGMAN entries

DMIKEY	DMIDATA
200	(CL BEG)(REM 3)(CL BEG) \$

Note: Retranslations begin in table HNPACONT. Only local HNP A 10-digit numbers are affected.

55.2 TRAVER using RX selector for local HNP A calls

Table 330 Input for TRAVER

Originator: IBN line 6137226962
Information received from SCP:
CalledPartyID = National Number
6136221243

Table 331 TRAVER using RX selector for local HNP calls

```

traver l 7226962 n cdn na 6136221243 ainres r01 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACALL (CDN NA $) $
TABLE KSETLINE
HOST 00 1 06 10 2 DN Y 7226962 CENTESN 0 0 613 (3WC) (MSB) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE KSETFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE NCOS
CENTESN 0 0 0 CESN ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT ) ( ACR N)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
CENTESN CESN CESN CUSTFEAT 0 CEN
TABLE DIGCOL
CEN 7 COL S 1
TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE XLAMAP
. NACALL CESN ( XLA PUBXLA)$
TABLE IBNXLA: XLANAME PUBXLA
TUPLE NOT FOUND
DEFAULT FROM TABLE XLANAME:

```

Table 331 TRAVER using RX selector for local HNP calls (Continued)

```

PUBXLA
    (NET N N N 0 N NDGT N N GEN ( LATTR 500) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
500 IBN NONE NT FR01 0 613 P722 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
    . NACALL P722 ( XLA NAT)$
TABLE STDPRTCT
NAT ( 1) ( 0) 0
    . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
    . 613 613 T NP 0 OFRT 708 3 15 NONE
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
    . N11 ( DG N11DIG)$ NIL
    . PODP ( DG PODPDIG)$ NIL
AIN Info Analyzed TDP: trigger criteria not met.
    . . TABLE OFRTMAP
    . . . Tuple not found. Default to old index.
    . . TABLE OFRT
    . . 708 RX 613 NP 200 0)$
    . . . TABLE DIGMAN
    . . . 200 (CL BEG)(REM 3)(CL BEG)
    . . . EXIT TABLE DIGMAN
    . . EXIT TABLE OFRT
    . SUBTABLE AMAPRT
    . KEY NOT FOUND
    . DEFAULT VALUE IS:  NONE OVRNONE  N

```

Table 331 TRAYER using RX selector for local HNP calls (Continued)

```

OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 EAP Y Y Y Y Y N N N Y Y N LONG 14 FGRPC N N N N N N N N N N N N
TABLE EASAC
TUPLE NOT FOUND

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE      6136221243      ST

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

55.3 Billing when using the RX selector

The billing records may be affected by using the RX selector. Please refer to Section 56.4 “Billing when using the RX selector” on page 913 which describes some of the billing interactions with the RX selector and with AIN billing information that is received from the SCP.

55.4 Recommendation on datafilling table STDPRT for RX selector

As specified in the previous section, using the RX selector may result in two billing records being produced for the same call. This section takes a detailed look at how this situation can be avoided so that only one billing record will be produced for every billable call.

In order to produce only one billing record, the call type specified in the RX selector must be NP (no prefix), as shown in Table 332. If DD is specified in the RX selector, two billing records will be generated.

Table 332 OFERT entries

RTE	RTELIST
708	RX 613 NP 200 0 \$

The datafill in table STDPRTCT and subtable STDPRT will determine whether the call should be billable or not, so that correct billing information will be applied to the call.

Using the previous home NPA (613), assume that some of the office codes within the 613 area code are now billable. Table 333 provides an example for datafilling table STDPRT to obtain correct billing information for home NPA calls.

Table 333 STDPRT entries

STDPRTCT	
NAT	(1) (1234) ... (national calls)
	Subtable STDPRT
	The following entry is required to select OFRT entry with the RX selector. 613201 613212 T DD 0 OFRT 708 10 10 NONE 613213 6133 T NP 0 OFRT 708 10 10 NONE 61340 61346 T DD 0 OFRT 708 10 10 NONE 61347 6139 T NP 0 OFRT 708 10 10 NONE
Note: In this example the office codes from 201 to 212 and from 400 to 469 identify long-distance calls. The rest of the office codes identify local calls.	

Billing

Part : “Billing” consists of the following chapters:

- Chapter 56.:“Billing”
- Chapter 57.:“AMA structures and modules”

56. Billing

The AIN Essentials SSP produces AIN-specific billing records when instructed by an off-board processor. The format used for generating billing records for AIN 0.1 SSP is the Bellcore automatic message accounting (AMA) format. The SSP will produce an AIN-specific billing record only when it receives a response message from the off-board processor that contains an **AMAslpID** parameter. When no **AMAslpID** parameter has been received, switch-based billing will be used by the SSP.

When a call triggers for the first time, and the trigger is not the 3- to 10- digit PODP or the Termination Attempt trigger, any open AMA billing record associated with the current, active leg of the call is discarded. The off-board processor is responsible for sending AMA parameters in order to re-start the billing record. If the off-board processor fails to do this, switch-based AMA for that call leg is lost. One exception to this is when the call retranslates and becomes a billable call. In this case, a switch-based record is generated.

When triggering takes place at the 3- to 10-digit PODP trigger and Termination Attempt trigger, any previous billing (switch-based or AIN) will be kept and, if AMA information is received from the off-board processor, a new AIN AMA record is also generated. The internal counts that keep track of the number of AMA parameters received are reset to initial values before the new record is generated.

For the Send to Resource operation, AMA timing is only started in the SSP if the AnswerIndicator parameter is present in a TCAP Response package.

Calls that produce terminating billing records will continue to produce those records along with a single AIN billing record except for the following call types: Terminating Study Record, Cellular Mobile Carrier type 1 or 2B or Feature Group A—Originating records. Currently, INWATS Terminating Entry and AIN Terminating cannot co-exist.

The Conference Trunk Usage and Call Forwarding AMA records continue to be produced in addition to the AIN record or switch-based record for interactions with Three-Way Calling and Call Forwarding.

If a no-prefix (NP) call is routed using a SC trunk and the call triggers PODP, the Orig DN of the pre-query AMA record (Study record) will be populated with the charge number in the response message from the SCP if there is one, otherwise it will be zeros as in the case where AIN is not involved.

AMA Pre-translation is affected by AIN. All AMA pre-translation information is discarded unless the call retranslates following an AIN query. This would occur if a **CalledPartyID** or **OutputPulseNumber** parameter is received in the response message.

Please refer to Chapter 57.: “AMA structures and modules” on page 917 for more information on AIN Essentials SSP AMA structures and modules.

56.1 Unanswered call recording

The AIN Essentials SSP provides AIN-specific unanswered call recording for unanswered AIN Essentials SSP calls of different call types (for example, voice, data). When AIN-specific unanswered calling recording is activated for a particular call type, an AMA record will be generated for all unanswered billable AIN calls of that call type.

AIN call recordings are provided for unanswered calls, including calls that receive treatments, when an AMAslpID is received and AIN unanswered is activated (the UNANS_AIN option in table AMAOPTS).

Unanswered call recording is activated by datafilling the information about unanswered call recording and call type in tables AMAOPTS and BCCODES. See Chapter 20.: “Data schema” on page 373 for more information on table AMAOPTS and table BCCODES.

If AIN-specific unanswered call recording is not activated, switch-based unanswered call recording will apply to AIN Essentials SSP calls.

56.2 Billing operational measurements

The three new operational measurements associated with AIN Essentials SSP AMA are

- AMAMAX—Maximum parameter count per AMA record exceeded. The following parameters have maximum limits that they will be accepted by the SSP per AMA record:
 - 1 to 25—AMAslpID —the maximum is based on the value set by office parameter AIN_MAX_SERIAL_TRIGGERS
 - 6—AMADigitsDialedWC
 - 2—AMALineNumber
 - 1—AMABusinessCustomerID

-
- 1—AMAAAlternateBillingNumber
 - 1—PrimaryBillingIndicator
 - 1—AlternateBillingIndicator
 - 1—SecondAlternateBillingIndicator
 - 1—OverflowBillingIndicator

Note: TR-NWT-001284 specifies the default value for this parameter to be six. This parameter controls the maximum number of times a single call may trigger. However, this AIN Essentials SSP product allows operating companies to specify the maximum number of times a call may trigger to be in the range of 1 to 25. To accommodate this range, the maximum for AMAslpID will be equal to the office parameter that controls serial triggering.

- AMAslpID
 - Receipt of AMA parameters prior to AMAslpID
 - The AMAslpID parameter must not be received after any of the other AMA parameters are received. This OM counts the number of times AMA parameters were received before the AMAslpID parameter was received.
- AMACONV—AMA parameters received in a Conversation package—AMA parameters are not allowed in a conversation package. This OM counts the number of times AMA parameters were received in a Conversation package.

56.3 AMA testing

Please refer to Section 62.3 “MAKEAMA command” on page 1076 for information on how to generate AIN Essentials AMA records for testing purposes. In addition, two modified commands are provided: CALLDUMP and AMADUMP to support the new AMA records for AIN Essentials SSP.

56.4 Billing when using the RX selector

The billing records may be affected by using the RX selector. This section describes some of the billing interactions with the RX selector and with AIN

billing information that is received from the SCP. Billing interaction depends on datafill, as shown in Table 334 through Table 337.

Table 334 Billing a local number before the RX selector

Datafill	Records produced
TABLE STDPRTCT NAT (1) (0) 0 . SUBTABLE STDPRT . 613 613 T DD 0 OFRT 708 3 15 NONE	Structure Code = 220 Call Code = 06
TABLE OFRT 708 RX 613 NP 200 0\$	NONE

Table 335 AIN billing only

Datafill	Records produced
TABLE STDPRTCT NAT (1) (0) 0 . SUBTABLE STDPRT . 613 613 T NP 0 OFRT 708 3 15 NONE	Structure Code = 220 Call Code = 47
TABLE OFRT 708 RX 613 NP 200 0\$	NONE

Table 336 Billing a call after the RX selector

Datafill	Records produced
TABLE STDPRTCT NAT (1) (0) 0 . SUBTABLE STDPRT . 613 613 T NP 0 OFRT 708 3 15 NONE	Structure Code = 220 Call Code = 47
TABLE OFRT 708 RX 613 DD 200 0\$	Structure Code = 500 Call Code = 06

Table 337 Billing a call before and after the RX selector

Datafill	Record s produced
TABLE STDPRTCT NAT (1) (0) 0 . SUBTABLE STDPRT . 613 613 T DD 0 OFRT 708 3 15 NONE	Structure Code = 220 Call Code = 06
TABLE OFRT 708 RX 613 DD 200 0)\$	Structure Code = 500 Call Code = 06

Note: Two billing records for the same call will be generated if the translation is set up so that the call is billed before and after the RX selector is hit (that is, the call type specified in table STDPRT and the RX selector are both DD).

57. AMA structures and modules

57.1 AMA structures

To provide AIN Essentials SSP-specific billing, two new AMA structures are introduced:

- AIN Call Completion, Structure Code 220
- AIN Call Termination, Structure Code 221

The AMA structure that is used by the SSP for a call depends upon the trigger that is encountered during the call. AMA structure 221 is used only when a call triggers at the Termination Attempt trigger and a Forward Call response is NOT received. For all other AIN Essentials SSP triggers and for Termination Attempt with a Forward Call response, AMA structure 220 is used.

Table 338 and 340 list the components of AMA structures 220 and 221, respectively.

Table 338 AIN Essentials Call Completion AMA structure code 220

Information	Table number	Number of characters
Record Descriptor Word	000	8
Hexadecimal Identifier	00	2
Structure Code	0	6
Call Type	1	4
Sensor Type	2	4
Sensor Identification	3	8
Recording Office type	4	4
Recording Office Identification	5	8
Date	6	6
Timing Indicator	7	6
Study Indicator	8	8
Completion Indicator	280	4
Operator Action	11	2
Service Feature	12	4
Originating NPA	13	4
Originating Number	14	8
Overseas Indicator	15	2
Terminating NPA	6	6
Terminating Number	17	8
Connect Time	18	8
Elapsed Time	19	10
Service Logic Program Identification	77	10

Table 339 AIN Essentials Call Termination AMA structure code 221

Information	Table number	Number of characters
Record Descriptor Word	000	8
Hexadecimal Identifier	00	2
Structure Code	0	6
Call Type	1	4
Sensor Type	2	4
Sensor Identification	3	8
Recording Office type	4	4
Recording Office Identification	5	8
Date	6	6
Timing Indicator	7	6
Study Indicator	8	8
Completion Indicator	280	4
Service Feature	12	4
Terminating NPA	16	6
Terminating Number	17	8
Connect Time	18	8
Elapsed Time	19	10
Service Logic Program Identification	77	10

Table 341 lists all the possible modules that can be appended to AMA structures 220 and 221. Not all of the modules can appear on a record at the same time. Some of these modules have been introduced or enhanced by AIN 0.1 SSP. New and enhanced modules are explained in further sections.

Please refer to TR-NWT-001100, BAF Requirements for detailed descriptions of existing AMA Modules.

Table 340 Appended modules for structures 220 and 221

Module code	Module name	New/Change/Unchanged
Mod 021	Carrier Access (Originating)	Unchanged
Mod 022	Long Duration	Unchanged
Mod 023	WATS	Unchanged
Mod 024	PSDS	Unchanged
Mod 025	Circuit Seizure	Unchanged
Mod 027	Business Customer ID	Unchanged
Mod 029	Alternate Billing Number	Unchanged
Mod 030	Translation Settable	New
Mod 039	Service Logic Program ID	New
Mod 040	Digits	New
Mod 070	ISDN Core	Unchanged
Mod 071	ISDN Core (abv)	Unchanged
Mod 102	Authorization Code	Unchanged
Mod 103	Account Code	New
Mod 104	Trunk Network Number	Unchanged
Mod 307	Line Number	Changed

AIN-specific AMA recording takes place when an AMAslpID parameter is received in a response message. In addition to the AMAslpID parameter, other optional AMA parameters may be received in the response message and used by SSP billing. These parameters are recorded in some of the AMA modules listed above. Table 342 lists the AMA-related parameters and the associated module used to record the information.

Table 341 AIN Essentials AMA-related message parameters

Message parameter	Module name	Module number
AMAAIternateBillingNumber	Alternate Billing Number	Mod 029
AMABusinessCustomerID	Business Customer ID	Mod 027
AMALineNumber	Line Number	Mod 307
AMASlpID	Service Logic Program ID	Mod 039
PrimaryBillingIndicator	Translation Settable	Mod 030
AlternateBillingIndicator	Translation Settable	Mod 030
SecondAlternateBillingIndicator	Translation Settable	Mod 030
OverflowBillingIndicator	Translation Settable	Mod 030
AMADigitsDialedWC	Digits	Mod 040
PrimaryCarrierID	Carrier Access	Mod 021
AlternateCarrierID	Carrier Access	Mod 021
SecondAlternateCarrierID	Carrier Access	Mod 021
PrimaryTrunkGroup	Trunk Network Number	Mod 104
AlternateTrunkGroup	Trunk Network Number	Mod 104
SecondAlternateTrunkGroup	Trunk Network Number	Mod 104

A new default Call Type and default Service Feature are introduced for AIN AMA recording. Call Type and Service Feature are normally determined by switch-based translations. Whenever these values cannot be determined by switch-based translations, the default Call Type, 047, and default Service Feature, 027, will be recorded in the AMA structure. It is possible that the off-board processor may specify Call Type and Service Feature in the AMA billing indicator parameters (PrimaryBillingIndicator, AlternateBillingIndicator, SecondAlternateBillingIndicator and OverflowBillingIndicator) in a response message. In this case, the Call Type and Service Feature is stored in Translation Settable Module 030. The Call Type and Service feature values supplied by the off-board processor are never recorded in the AMA structure.

57.2 AMA modules

The following sections describe the AMA modules for AIN Essentials-specific billing.

57.2.1 Translation Settable module 030

Translation Settable Module 030 (see Table 343) records the Call Type or Service Feature code returned by the off-board processor, or MBI information encountered in SSP translations. Module 030 may appear up to three times in the same AMA record.

Table 342 Translation Settable module 030

Information	Table number	Number of characters
Module Code	88	4
Context ID	152	4
Translation Settable Field	89	4

57.2.2 Service Logic Program Identification module 039

Service Logic Program Identification module 039 (see Table 344) records the AMAslpIDs received in a response message from the off-board processor. Note that the first AMAslpID received from the off-board processor is recorded in the base AIN structure (0220 or 0221). Subsequent AMAslpIDs are recorded in appended 039 modules. The number of times Module 039 may appear in the same AMA record is based on the maximum number of times a call may trigger. This value is set by office parameter AIN_MAX_SERIAL_TRIGGERS that has a range of 1–25.

Table 343 Service Logic Program Identification module 039

Information	Table number	Number of characters
Module Code	88	4
Service Logic Program Identification	77	10

57.2.3 Digits module 040

Digits module 040 (see Table 344) records AMA digits returned by the off-board processor. The AMA parameter AMADigitsDialedWC as well as the outpulse number (used in private networks) are recorded in this module. There can be at most 6 module code 040 containing AMADigitsDialedWC per AMA record. This limit does NOT apply to module code 040 containing the

outpulse number, that is, there could be 7 module code 040 in one AMA record, 6 for AMADigitsDialedWC and 1 for the outpulse number

Table 344 Digits module 040

Information	Table number	Number of characters
Module Code	88	4
Digits Identifier	78	4
Significant Digits Next Field	55	4
Digits Dialed 1	32	12
Digits Dialed 2	33	14

57.2.4 Account Code/CDAR module 103

Account Code/CDAR module 103 (see Table 345) records account codes collected by a switch-based feature. Previously, the first character of the Structure Code field indicated that CDAR information was appended to the record. Beginning in BCS36, module 103 will be appended to the base structure, and the structure code field will not be marked. This change applies to all AMA (not AIN-specified), as per Bellcore TR-NWT-001100.

Table 345 Account Code/CDAR module 103

Information	Table number	Number of characters
Module Code	88	4
Significant Digits Next Field	55	4
Account Code/CDAR	126	16

57.2.5 Line Number module 307

Prior to this feature, Line Number module 307 was used only for TOPS AMA recording. The Line Number field in module 307 is expanded to make this module applicable to AIN Release 0.1 AMA recording.

Line Number module 307 (see Table 346) records the original calling party ID, incoming terminating number, or automatic number identification (ANI)

delivered. The AMA parameter, AMALineNumber, is recorded in this module. Module 307 may appear up to two times in the same AMA record.

Table 346 Line Number module 307

Information	Table number	Number of characters
Module Code	88	4
Line Number Type	423	4
Numbering Plan Area	16	6
Line Number	17	8

OAMP

Part : “OAMP” consists of the following chapters:

- Chapter 58.:“Operational measurements”
- Chapter 59.:“AIN message tracing tool”
- Chapter 60.:“Translation verification tool”
- Chapter 61.:“Test Queries tool”
- Chapter 62.:“Other CI commands”
- Chapter 63.:“Logs”

58. Operational measurements

AIN SSP performs traffic measurements and maintenance measurements on AIN SSP calls. The following OM groups apply to an AIN SSP:

- AIN
- AINACG
- FTROM
- AINOGOFF
- AINOFSUB
- AINICOFF
- AINICSUB
- AINNCR

The AIN OM group is the platform for traffic and maintenance measurements. The AINACG OM group provides measurements for Automatic Code Gapping (ACG). The FTROM OM group is the platform to capture feature data block high-water marks and seizures. The other OM groups listed above act as AIN message counters.

58.1 AIN OM group

AIN Essentials SSP performs traffic measurements and maintenance measurements on AIN Essentials SSP calls. The OM group called AIN has been created for traffic and maintenance measurements that may be used by various AIN Essentials SSP applications. This group contains a key field, AIN_MSGSET, in which the name of the AIN Essentials SSP application must be specified. For AIN Essentials OMs, the key value “R01” must be contained in this field. Thus, AIN Essentials OMs belong to OM group AIN, under key R01.

The AIN Essentials SSP OMs contained in the AIN OM group under key R01 are summarized in Table 347 and described in the following subsections

Table 347 Operational measurements

OM name	Register name
Traffic measurements	
AIN Essentials Triggers	TRIG, TRIG2 (Note)
AIN Shared Interoffice Calls	INTROFF, INTROFF2 (Note)
AIN calls	AINCALL, AINCALL2
Maintenance measurements	
AIN Call Processing Failure Before Initial Query	CPFLBFQ
AIN Call Processing Failure After Initial Query	CPFLAFQ
Resource Failure Before Initial Query caused by Transaction ID	TIOVFBFQ
Resource Failure Before Initial Query, Caused by Component ID	CIOVFBFQ
Resource Failure After Query, Caused by Transaction ID	TIOVFAFQ
Resource Failure After Query, Caused by Component ID	CIOVFAFQ
SSP Time-out Awaiting Off-board Processor	RSPTMOUT
Invalid Command Message	INVCMDMG
Invalid Command Sequence	INVCMDSE
Maximum Queries Exceeded	MAXQEXCD
Maximum Parameter Count Exceeded per AMA Record	AMAMAX
AMA Parameters Received Prior to AMASlpID	AMASLPID
AMA Parameters Received in Conversation Package	AMACONV
Note: These are overflow registers.	

58.1.1 Traffic measurements

In addition to non-AIN SSP related traffic measurements, the AIN SSP keeps track of the following AIN SSP specific traffic measurements.

58.1.1.1 AIN Service Enablers triggers

This measurement counts the number of times an AIN Service Enablers trigger occurs; that is, the number of times an AIN Service Enablers trigger is encountered and all its criteria are met.

58.1.1.2 AIN shared interoffice calls

This measurement counts the number of times the Shared_Interoffice_Trunk trigger occurs and all its criteria are met.

58.1.1.3 AIN calls

This measurement counts the number of AIN calls that occur on an SSP during the OM transfer period. An AIN call is as any call which triggers at least once.

Calls which fail after triggering are still AIN calls. Calls which escape from a trigger are not AIN calls. Calls which are forwarded by the SSP are considered one call.

AIN calls are separated by a message set according to the message set of the first trigger encountered by the call. A message set of R01 indicates AIN Essentials. A message set of R02 indicates AIN Service Enablers.

58.1.2 Maintenance measurements

Maintenance measurements keep count of the number of irregularity events detected by the SSP. It is possible that an irregularity event may fall under several categories. In this situation, the most specific measurement is used to count the event. The following subsections describe the various maintenance measurements that affect AIN SSP calls and AIN SSP TSTQuery.

58.1.2.1 AIN call processing failure before initial query

This measurement counts the number of AIN SSP calls that have failed due to an AIN SSP hardware or software initialization failure or AIN SSP call processing failure that occurred before the first AIN SSP query message was sent. Non AIN SSP-related call processing and initialization failures are measured by currently existing OMs.

58.1.2.2 AIN call processing failure after initial query

This measurement counts the number of AIN SSP calls that have failed due to an AIN SSP hardware or software initialization failure or AIN SSP call processing failure that occurred after a query was sent to an off-board processor. Non-AIN SSP-related call processing and initialization failures are measured by currently existing OMs.

58.1.2.3 Resource unavailable before initial query

Currently, there are two OMs that keep track of this call irregularity. Each is based on a different cause of the irregularity.

58.1.2.3.1 Transaction ID overflow or incorrect

This measurement counts the number of AIN SSP all failures that occur before the first AIN SSP query was sent and the failure was caused by an unavailable transaction identification resource or an incorrect transaction identification.

58.1.2.3.2 Component ID overflow

This measurement counts the number of AIN SSP call failures that occur before the first AIN SSP query was sent. The failure occurred because the component identification resource was unavailable.

58.1.2.4 Resource unavailable after initial query

There are two OMs that keep track of this call irregularity. Similar to the previous OMs, each is based on a different cause of the failure.

58.1.2.4.1 Transaction ID overflow or incorrect

This measurement counts the number of AIN SSP call failures that occur after the initial query was sent. In this case the failure occurred because the transaction identification resource was unavailable or the transaction identification provided was incorrect.

58.1.2.4.2 Component ID overflow

This measurement counts the number of AIN SSP call failures that occur after the initial query was sent and the failure occurred because the component identification resource was unavailable.

58.1.2.5 SSP time-out awaiting off-board processor

This measurement counts the number of AIN SSP call failures and AIN SSP TSTQuery failures that occurred because the SSP has timed-out awaiting a response from an off-board processor.

58.1.2.6 Invalid command message

This measurement counts the number of times a message is received from an off-board processor that is not decipherable or has bad data.

58.1.2.7 Invalid command sequence

This measurement counts the number of times a message from an off-board processor is received incomplete or not in sequence.

58.1.2.8 Maximum queries exceeded

This measurement counts the number of AIN SSP call that failed because the limit on the number of AIN SSP queries per call was exceeded.

58.1.2.9 Maximum AMA parameters exceeded

This measurement counts the number of times an AMA parameter was received more times than allowed by the SSP for one AMA record.

58.1.2.10 AMA parameters received prior to AMASlpID parameter

This measurement counts the number of times the SSP received AMA parameters before the AMASlpID parameter was sent for the call.

58.1.2.11 AMA parameters received in a Conversation package

This measurement counts the number of times AMA parameters were received in a conversation package.

58.2 AINACG OM group

Group AINACG provides measurements for the automatic code gapping (ACG) feature in the SSP for AIN Essentials and Service Enablers. It is used to monitor blocking of AIN queries by ACG, ACG control list overflows, and count changes to ACG control lists. See Table 348.

Table 348 AINACG OM group

OM register	Description or item counted
BLKCASCP	blocked calls due to AIN SCP overload control
BLKCASMS	blocked calls due to AIN SMS overload control
SCPOVLDO	SCP overload, list overflowed
SMSOVLDO	SMS overload, list overflowed
CTRLCHA	control list changed

58.3 FTROM OM group

Group FDBEXT is the platform to capture feature data block (FDB) high-water marks and seizures. Only AIN-related FDBs measurements are supplied. See Table 349.

Table 349 FDBEXT OM group

OM register	Description or item counted
FTRHI	the maximum number of FDBs of each type that are in simultaneous use during an OM transfer period
FTRSEIZ	the number of FDBs of each type that are successfully allocated
FTRSEIZ2	extension register for FTRSEIZ

At the beginning of each transfer period, the FTRSEIZ and FTRSEIZ2 active registers are initialized to zero. The active register is incremented when a request for a particular type of FDB is successful.

At the beginning of each transfer period, the FTRHI active register is initialized to the number of FDB that are currently in use. The active register is updated continuously throughout the transfer period whenever the number of FDBs that are currently in use exceeds the previously recorded value.

At the end of the transfer period, the active registers are transferred to the holding register where it is retained without change until it is overwritten at the end of the next transfer period.

The OM group FTROM provides one tuple for each of the 511 current FDB types. This provides a more granular breakdown of FDB usage than what is listed in the EXT OM group.

The info field for the FTROM group contains the size of the FDB. Possible sizes are SMALL, MEDIUM, LARGE, X_LARGE, and CRITICAL. The size information allows one to relate the FDB type to the FDB size as stored in the EXT OM group under the corresponding tuples, as listed in Table 350.

Table 350 Feature data block types for the EXT OMs

Index	EXT_FORMAT_CODE	Office parameter	Size
81	SMALL_FEATURE_DATA	NO_OF_SMALL_FTR_DATA_BLKs	Small
82	MEDIUM_FEATURE_DATA	NO_OF_MEDIUM_FTR_DATA_BLKs	Medium
83	LARGE_FEATURE_DATA	NO_OF_LARGE_FTR_DATA_BLKs	Large
TBD	EXTRA_LARGE_FEATURE_DATA	NO_OF_EXTRA_LARGE_FTR_DATA_BLKs	Xlarge

58.4 OMs that count AIN messages

AIN Essentials provides 59 OM registers to count call-related and noncall-related messages that are passed between the SSP and the SCP. These OMs count messages which are part of a transaction initiated by a trigger which was datafilled in the TRIGDIG or TRIGINFO table with the MSGSET equal to R01.

The purpose of these message counters is to provide traffic engineering, monitoring, and maintenance capabilities. They are only active if SOC order codes AIN00002 and AIN00006 are turned on.

The 59 OM registers are organized into the five OM groups as summarized in Table 351.

Table 351 Message counter OM groups

OM group	Call relation	Direction	Subscription	Description
AINOGOFF	Call-related	Outgoing	Office	See Section 58.4.1 on page 934.
AINOGSUB	Call-related	Outgoing	Subscribed	See Section 58.4.2 on page 935.
AINICOFF	Call-related	Incoming	Office	See Section 58.4.3 on page 937.
AINICSUB	Call-related	Incoming	Subscribed	See Section 58.4.4 on page 937.
AINNCR	Noncall-related	Both	N/A	See Section 58.4.5 on page 938.

Separate OM registers are provided for each type of message being counted. If a message can be sent from the SSP as a result of more than one kind of trigger or event, a separate OM register is provided for each trigger and event type. An OM register is incremented each time its corresponding message is successfully sent or received. A message is considered successfully sent once it has been encoded into the TCAP protocol. A message is considered successfully received once it has been decoded from the TCAP protocol.

Decoding TCAP messages involves several stages of error checking. The message is counted once the message parameters are decoded even if there are errors in the message parameters. Messages are not counted if an error is detected in the TCAP package or component. These include: all fatal protocol errors; errors as a result of a bad combination of message, package or component type; invalid response message; bad correlation IDs; duplicated messages.

A message is classified as office or subscribed based on the classification of the trigger which initiates the TCAP transaction. Table 352 shows the trigger classifications used by AIN Essentials OMs:

Table 352 Trigger type classification

TDP	Trigger	Classification
Origination_Attempt	Off-Hook_Immediate	Subscribed
Info_Collected	Off-Hook_Delay	Subscribed
Info_Collected	Shared_Interoffice_Trunk	Subscribed
Info_Analyzed	Specific_Digit_String	Office
Info_Analyzed	N11	Office
Info_Analyzed	Public_Feature_Code	Subscribed
Info_Analyzed	Specific_Feature_Code	Subscribed
Info_Analyzed	Customized_Dialing_Plan	Subscribed
Network_Busy	AFR (Note)	Subscribed
O_Called_Party_Busy	O_Called_Party_Busy	Subscribed
O_No_Answer	O_No_Answer	Subscribed
Termination_Attempt	Termination_Attempt	Subscribed
Note: Although the AFR trigger can be provisioned as either office or subscribed, all messages sent as a result of this trigger are counted as subscribed.		

58.4.1 AINOGOFF OM group

The AINOGOFF group contains 10 registers which count call-related, outgoing, office based, Essentials messages. These registers, their corresponding message types, and the trigger or event type are presented in Table 353 in order of detection points.

Table 353 AINOGOFF OM group

OM register	Message	Trigger or Event	TDP or EDP
TOIASDS	Info_Analyzed	Specific_Digit_String	TDP-R
TOIAN11		N11	
EONB	Network_Busy	Network_Busy	EDP-R
EOOCB	O_Called_Party_Busy	O_Called_Party_Busy	EDP-R
EOONA	O_No_Answer	O_No_Answer	EDP-R
EOOANS	O_Answer	O_Answer	EDP-N
IOTN	Termination_Notification		
IOCIFR	Call_Info_From_Resource		
IORCLR	Resource_Clear		
IOCLOSO	Close		

58.4.2 AINOGSUB OM group

The AINOGSUB group contains 20 registers which count call-related, outgoing, subscribed, Essentials messages. These registers, their corresponding message types, and the trigger or event type are presented in Table 354 in order of detection points.

Table 354 AINOGSUB OM group

OM register	Message	Trigger or Event	TDP or EDP
TSOAOHI	Origination_Attempt	Off-Hook_Immediate	TDP-R
TSICOH	Info_Collected	Off-Hook_Delay	TDP-R
TSICSIT		Shared_Interoffice_Trunk	
TSIAPFC	Info_Analyzed	Public_Feature_Code	TDP-R
TSIASFC		Specific_Feature_Code	
TSIACDP		Customized_Dialing_Plan	
TSNBAFR	Network_Busy	AFR	TDP-R
ESNB		Network_Busy	EDP-R
TSOCBCB	O_Called_Party_Busy	O_Called_Party_Busy	TDP-R
ESOCB			EDP-R
TSOANA	O_No_Answer	O_No_Answer	TDP-R
ESONA			EDP-R
ESOANS	O_Answer	O_Answer	EDP-N
TSTATTA	Termination_Attempt	Termination_Attempt	TDP-R
ESTBSY	T_Busy	T_Busy	EDP-R
ESTNA	T_No_Answer	T_No_Answer	EDP-R
ISCIFR	Call_Info_From_Resource		
ISRCLR	Resource_Clear		
ISCLOSO	Close		
ISTN	Termination_Notification		

58.4.3 AINICOFF OM group

The AINICOFF group contains 9 registers which count call-related, incoming, office-based, Essentials messages. These registers and their corresponding message types are presented in Table 355.

Table 355 AINICOFF OM group

OM register	Message
IOCON	Continue
IOAR	Analyze_Route
IODISC	Disconnect
IOSTR	Send_To_Resource
IOCRE	Cancel_Resource_Event
IOCITR	Call_Info_To_Resource
IOSN	Send_Notification
IORRBE	Request_Report_BCM_Event
IOCLOSI	Close

58.4.4 AINICSUB OM group

The AINICSUB group contains 11 registers which count call-related, incoming, subscribed, Essentials messages. These registers and their corresponding message types are presented in Table 356.

Table 356 AINICSUB OM group

OM register	Message
ISAR	Analyze_Route
ISCON	Continue
ISAUTHT	Authorize_Termination
ISFC	Forward_Call
ISDISC	Disconnect
ISSTR	Send_To_Resource
ISCRE	Cancel_Resource_Event
ISCITR	Call_Info_To_Resource
ISSN	Send_Notification
ISRRBE	Request_Report_BCM_Event
ISCLOSI	Close

58.4.5 AINNCR OM group

The AINNCR group contains 11 registers which count all noncall-related messages. These registers and their corresponding message types are presented in Table 357.

Table 357 AINNCR OM group

OM register	Message
NACG	ACG
NAOVFW (Note)	ACG_Overflow
NAGCR (Note)	ACG_Global_Ctrl_Restore
NAGCRS (Note)	ACG_Global_Ctrl_Restore_Success
NUPREQ	Update_Request
NUPDAT	Update_Data
NMFC	Monitor_For_Change
NMSUCC	Monitor_Success
NSREP	Status_Reported
NUPD	Update
NUSUCC	Update_Success
Note: The NAOVFW, NAGCR, and NAGCRS OM registers are only active if SOC order code AIN00210 is turned on for AIN Service Enablers.	

58.5 AIN Essentials SSP feature operational measurements

AIN Essentials SSP is activated in the same manner as any call processing feature through the Feature Processing Environment. Several OMs have been added to measure AIN Essentials SSP feature activities which are listed in Table 358.

Table 358 AIN Essentials feature operational measurements

OM name	Register	Group
AIN Call Disconnected by Response Message	TFRAIND	TRMTFR2
AIN Call Routed to Final Treatment	TFRAINP	TRMTFR2
Usage of AIN Feature Blocks	118 AIN_FTR_BLK	EXT
Usage of AIN Processing Blocks	122 AIN_PROCESSING__BLK	EXT
ACG gapped call due to SCP overload control	BLKCASCP	AINACG
ACG gapped call due to AIN SMS overload control	BLKASMS	AINACG
ACG SCP control list overflowed	SCPOVLDO	AINACG
ACG SMS control list overflowed	SMSOVLDO	AINACG
ACG control list changed	CTRLCHA	AINACG

58.6 Non-AIN Essentials SSP specific maintenance measurements

TR-NWT-001284 specifies requirements for several maintenance measurements in addition to those discussed above. These OMs are currently provided on an office-wide basis by the SSP and do not necessarily provide measurements that are specific to AIN Essentials SSP. These office-wide OMs are:

- Network Management Control Blocks Call (except for ACG, see Table 348 on page 931)
- Incoming Calls Abandoned
- All IEC Trunks Busy
- All Telco Trunks Busy

58.7 Billing measurements

For billing operational measurements, please refer to Section 56.2 “Billing operational measurements” on page 912.

OM group AINICOFF

OM description

Advanced intelligent networks incoming office-based (AINICOFF) counts AIN Service Enablers office-based messages sent from service control point (SCP) to the service switching point (SSP). AINICOFF monitors the incoming traffic to the SSP.

When the SSP sends a message that is the result of more than one kind of trigger or event, a separate OM register provides a count for each trigger and event type. An OM register increments when its corresponding message is correctly sent or received. A message is correctly sent when it is encoded into the transaction capability application part (TCAP) protocol. A message is correctly received when it is decoded from the TCAP protocol.

To decode a TCAP message involves several stages of error checking. The message is counted after the message parameters are decoded, even when there are errors in the message parameters. A message is not counted when an error is detected in the TCAP package or component.

Errors in the TCAP package or component are as follows:

- all fatal protocol errors
- errors as a result of a bad combination of message, package or component type
- invalid response message
- bad correlation identifiers
- duplicated messages

AINICOFF contains nine registers which count call-related, incoming, office-based, Service Enablers messages. Messages datafilled as R02 in tables TRIGDIG or TRIGINFO are counted.

The following office-based triggers can be subscribed to:

- Specific_Digit_String
- N11

Release history

OM group AINICOFF was introduced in NA008.

OM group AINICOFF (continued)

Registers

The following OM group AINICOFF registers display on the MAP terminal as follows:

IOAR	IOCON	IODISC	IOSTAR
IOCRE	IOCITR	IOSN	IORRBE
IOCLOSI			

Group structure

OM group AINICOFF provides one tuple per office.

Key field:

None

Info field:

None

Associated OM groups

AIN Service Enablers message counts are provided by the following associated OM groups:

- AIN outgoing office-based (AINOGOFF) counts the AIN Service Enablers office-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN outgoing subscription-based (AINOGSUB) counts the AIN Service Enablers subscription-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming subscription-based (AINICSUB) counts the AIN Service Enablers subscription-based messages sent from the SCP to the SSP. It monitors the incoming subscription traffic to the SSP.
- AIN non-call-related (AINNCR) counts the AIN messages that are passed between the SSP and SSP on a non-call-related basis.
- Advanced intelligent networks (AIN) is the platform for AIN traffic and maintenance measurements. Messages datafilled as R01 in tables TRIGDIG or TRIGINFO are counted by OM group AIN.
- AIN automatic code gapping (AINACG) provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It monitors the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes made to the ACG control lists.

The associated OM group validation formulas are as follows:

OM group AINICOFF (continued)

- total of AINICOFF group + total of AINOGOFF group + total of AINOFSUB group + total of AINICSUB group = total call-related messages
- total of AINICOFF group + total of AINICSUB group + AINNCR registers NACG + NAGCR + NUPREQ + NMFC = total incoming Service Enablers messages received from the SCP

Associated functional groups

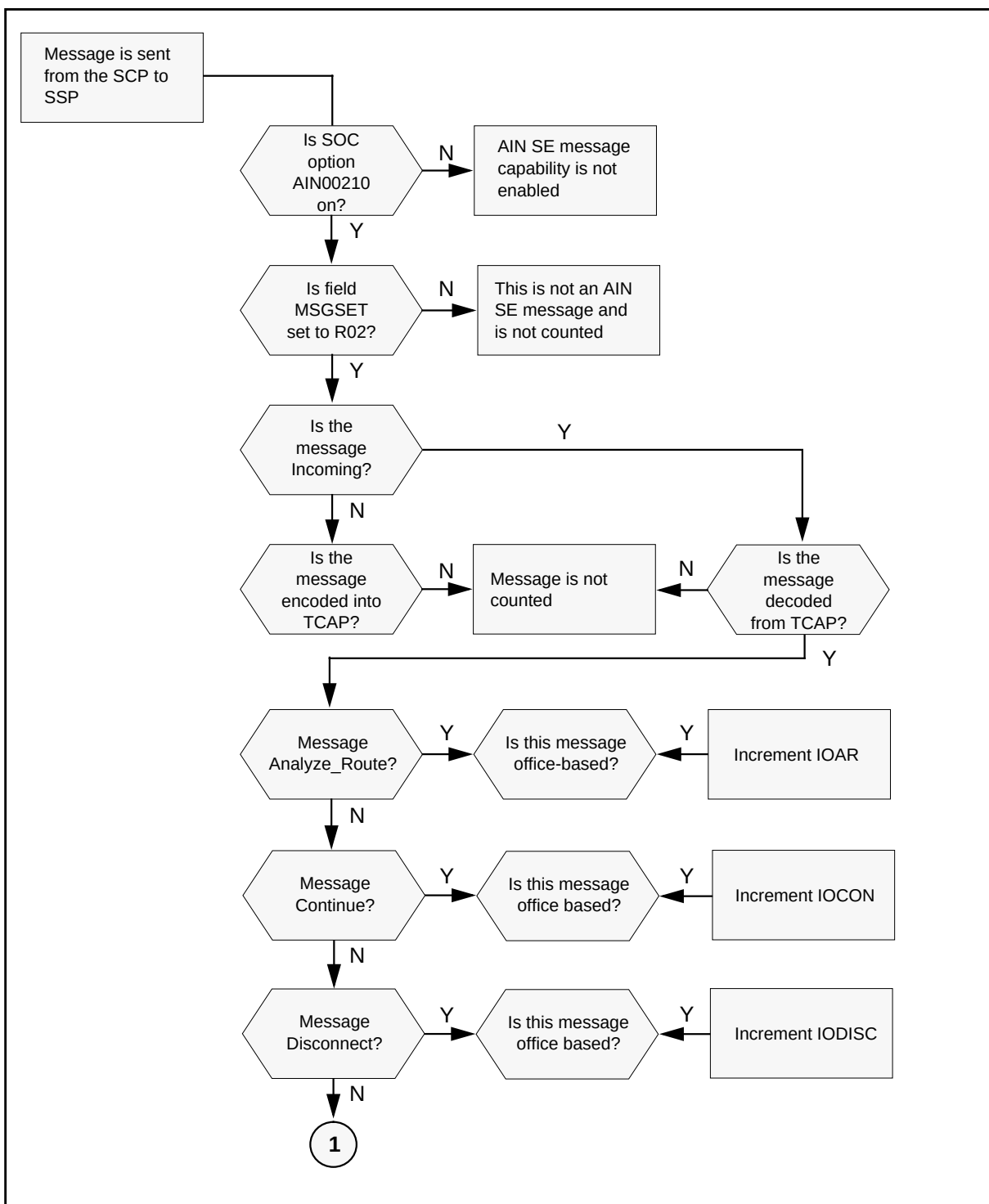
Not applicable

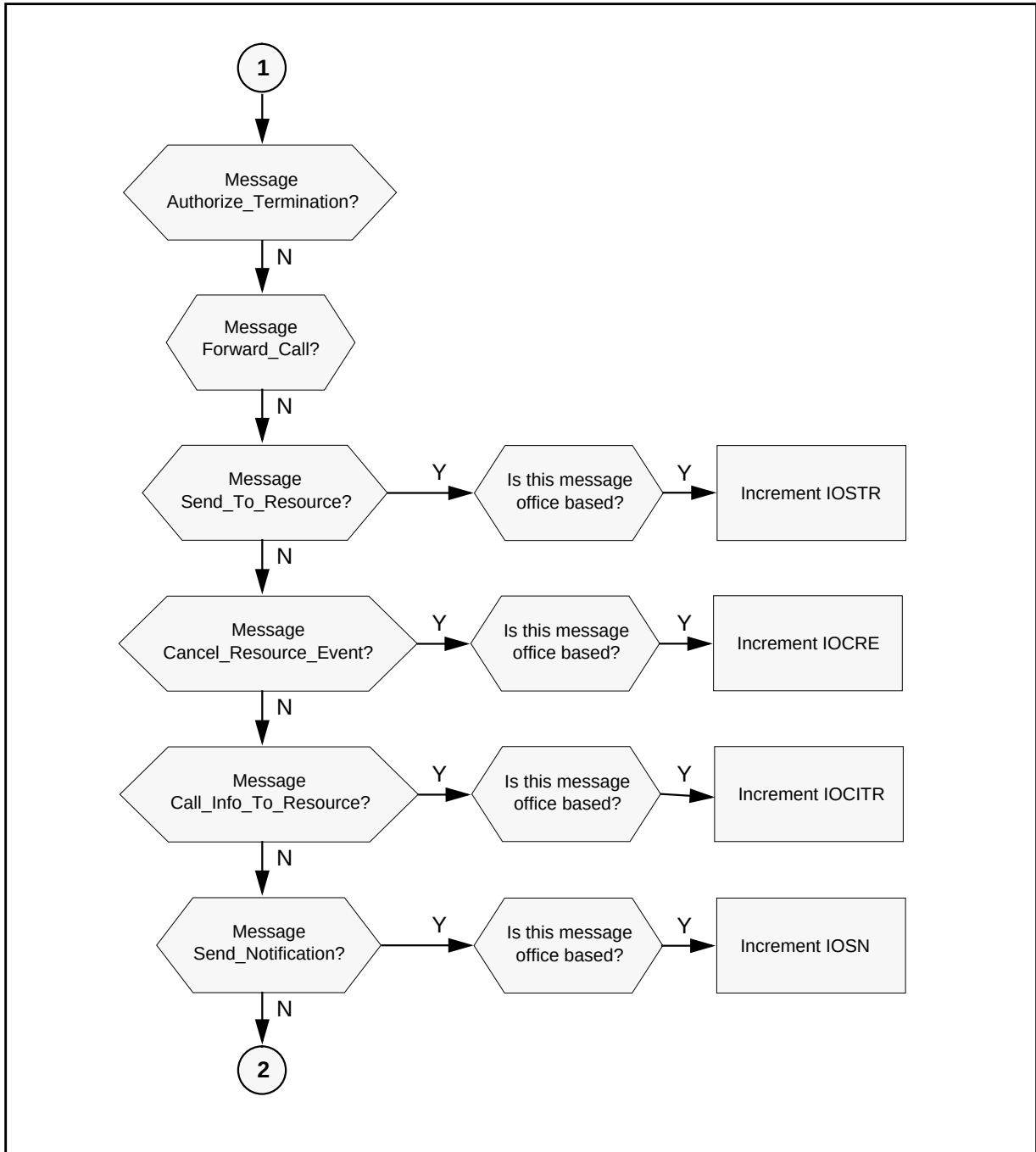
Associated functionality codes

Not applicable

OM group AINICOFF (continued)

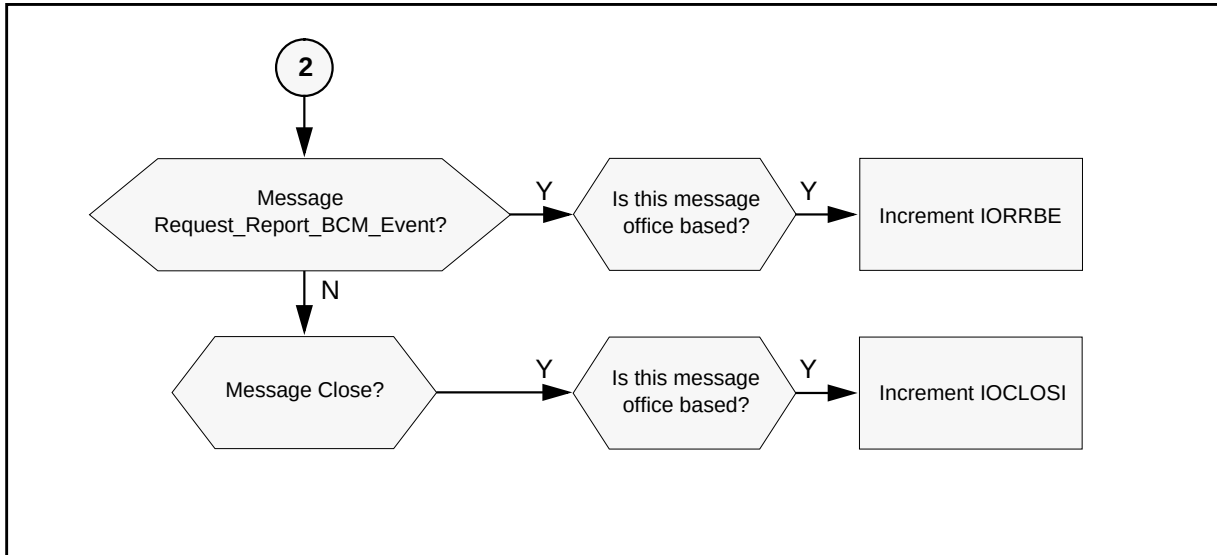
Figure 228 OM group AINICOFF registers



OM group AINICOFF (continued)**Figure 229 OM group AINICOFF registers .**

OM group AINICOFF (continued)

Figure 230 OM group AINICOFF registers .



Register IOAR

IO Analyze_Route (IOAR) counts the Analyze_Route messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOAR release history

Register IOAR was introduced in NA008.

Associated registers

ISAR counts the Analyze_Route messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message. Registers IOAR + ISAR = total Analyze_Route messages.

Associated logs

None

Extension registers

None

Register IOCON

IO Continue (IOCON) counts the continue messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOCON release history

Register IOCON was introduced in NA008.

OM group AINICOFF (continued)

Associated registers

ISCON counts the Continue messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message. Registers IOCON + ISCON = total Continue messages.

Associated logs

None

Extension registers

None

Register IODISC

IO Disconnect (IODISC) counts the Disconnect messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IODISC release history

Register IODISC was introduced in NA008.

Associated registers

ISDISC counts the Disconnect messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message. Registers IODISC + ISDISC = total Disconnect messages.

Associated logs

None

Extension registers

None

Register IOSTR

IO Send_To_Resource (IOSTR) counts the Send_to_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOSTR release history

Register IOSTR was introduced in NA008.

Associated registers

ISSTR counts the Send_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

IORCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

OM group AINICOFF (continued)

ISRCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

IOCRE counts the Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISCRE counts the Cancel_Resource_Event messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

The validation formula for associated registers are as follows:

- $IOSTR + ISSTR = \text{total Send\_To\_Resource messages}$
- $IOCRE + ISCRE = \text{total Cancel\_Resource\_Event messages}$

Associated logs

None

Extension registers

None

Register IOCRE

IO Cancel_Resource_Event (IOCRE) counts the Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOCRE release history

Register IOCRE was introduced in NA008.

Associated registers

ISCRE counts the Send_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

IORCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

ISRCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

IOSTR counts the Send_to_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISSTR counts the Send_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

OM group AINICOFF (continued)

The validation formula for associated registers are as follows:

- $\text{IOCRE} + \text{ISCRE} = \text{total Cancel\_Resource\_Event messages}$
- $\text{IOSTR} + \text{ISSTR} = \text{total Send\_To\_Resource messages}$

Associated logs

None

Extension registers

None

Register IOCITR

IO Call_Info_To_Resource (IOCITR) counts the Call_Info_To_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOCITR release history

Register IOCITR was introduced in NA008.

Associated registers

ISCITR counts the Call_Info_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message. Registers $\text{IOCITR} + \text{ISCITR} = \text{total Call\_Info\_To\_Resource messages}$.

IOCIFR counts the Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

ISCIFR counts the Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register IOSN

IO Send_Notification (IOSN) counts the Send_Notification messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IOSN release history

Register IOSN was introduced in NA008.

OM group AINICOFF (continued)

Associated registers

ISSN counts the Send_Notification messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message. Registers $\text{IOSN} + \text{ISSN}$ = total Send_Notification messages.

IOTN counts the Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

ISTN counts the Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register IORRBE

IO Request_Report_BCM_Event (IORRBE) counts the Request_Report_BCM_Event messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message. Registers $\text{IORRBE} + \text{ISRRBE}$ = total Request_Report_BCM_Event messages.

Register IORRBE release history

Register IORRBE was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register IOCLOSI

IO Close (IOCLOSI) counts the Close messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

Register IORRBE release history

Register IORRBE was introduced in NA008.

OM group AINICOFF (end)

Associated registers

None

Associated logs

None

Extension registers

None

OM group AINICSUB

OM description

Advanced intelligent network incoming subscription-based (AINICSUB) counts AIN Service Enablers subscription-based messages sent from the service control point (SCP) to the switching point (SSP). It is used to monitor the incoming subscription traffic to the service SSP.

The SSP can send messages that are the result of more than one kind of trigger or event. A separate OM register provides a count for each trigger and event type. An OM register increments when its corresponding message is correctly sent or received. A message is correctly sent when it is encoded into the transaction capability application part (TCAP) protocol. A message is correctly received when it is decoded from the TCAP protocol.

To decode a TCAP message involves several stages of error checking. The message is counted after the message parameters are decoded, even when there are errors in the message parameters. A message is not counted when an error is detected in the TCAP package or component.

Errors in the TCAP package or component are as follows:

- all fatal protocol errors
- errors as a result of a bad combination of message, package or component type
- invalid response message
- bad correlation identifiers
- duplicated messages

AINICSUB contains 11 registers that count call-related, incoming, subscribed, AIN Service Enablers messages. Messages datafilled as R02 in tables TRIGDIG or TRIGINFO are counted.

The following triggers can be subscribed to either by line or by group:

- Off-Hook_Immediate
- Off-Hook_Delay
- Shared_Interoffice_Trunk
- Public_Feature_Code
- Specific_Feature_Code
- Customized_Dialing_Plan
- automatic flexible routing (AFR)

OM group AINICSUB (continued)

Note: The AFR trigger is provisioned as either office-based or subscribed. All messages sent as a result of this trigger are counted as subscribed.

- O_Called_Party_Busy
- O_No_Answer
- Termination_Attempt

Release history

OM group AINICSUB was introduced in NA008.

Registers

The following OM group AINICSUB registers display on the MAP terminal as follows:

ISAR	ISCON	ISAUTHT	ISFC
ISDISC	ISSTR	ISCRE	ISCITR
ISSN	ISRRBE	ISCLOSI	

Group structure

OM group AINICSUB provides one tuple per office.

Key field:

None

Info field:

None

Associated OM groups

The following are associated OM groups that provide AIN Service Enablers message counts:

- AIN outgoing office-based (AINOGOFF) counts the AIN Service Enablers office-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN outgoing subscription-based (AINOGSUB) counts AIN Service Enablers subscription-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming office-based (AINICOFF) counts AIN Service Enablers office-based messages sent from the SCP to the SSP. It is used to monitor the incoming traffic to the SSP.

OM group AINICSUB (continued)

- AIN non-call-related (AINNCR) counts the AIN messages that are passed between the SSP and SSP on a non-call-related basis.
- Advanced intelligent networks (AIN) is the platform for AIN traffic and maintenance measurements. Messages datafilled as R01 in tables TRIGDIG or TRIGINFO are counted by OM group AIN.
- AIN automatic code gapping (AINACG) provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It monitors the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes made to the ACG control lists.

The associated OM group validation formulas are as follows:

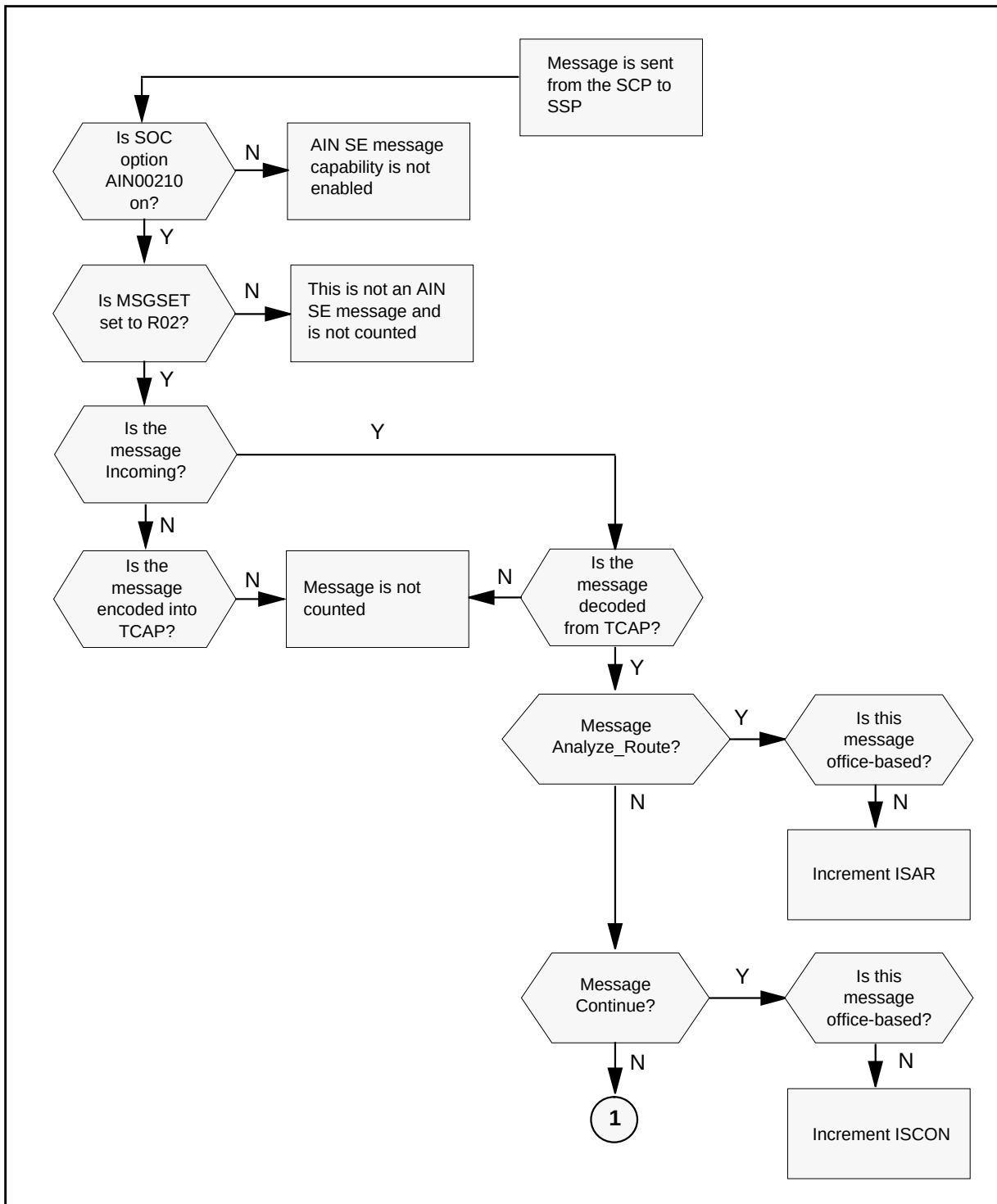
- total of AINICSUB group + total of AINICOFF group = total of all incoming call-related Service Enablers messages
- total of AINICSUB group + total of AINICOFF group + AINNCR registers NACG + NAGCR + NUPREQ + NMFC = total incoming Service Enablers messages received from the SCP
- total of AINICSUB group + total of AINOGSUB group + total of AINICOFF group + total of AINOGOFF group = total call-related messages

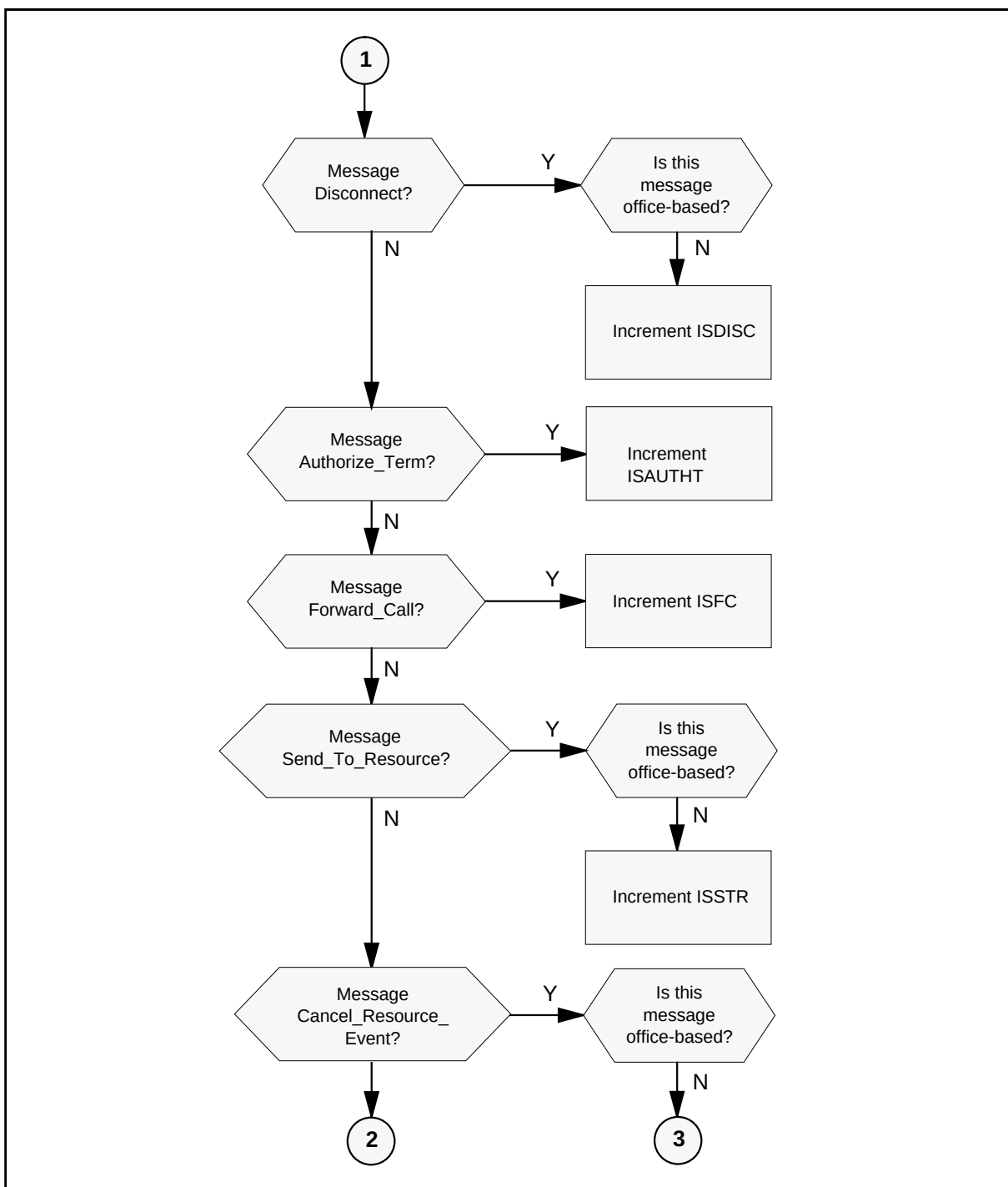
Associated functional groups

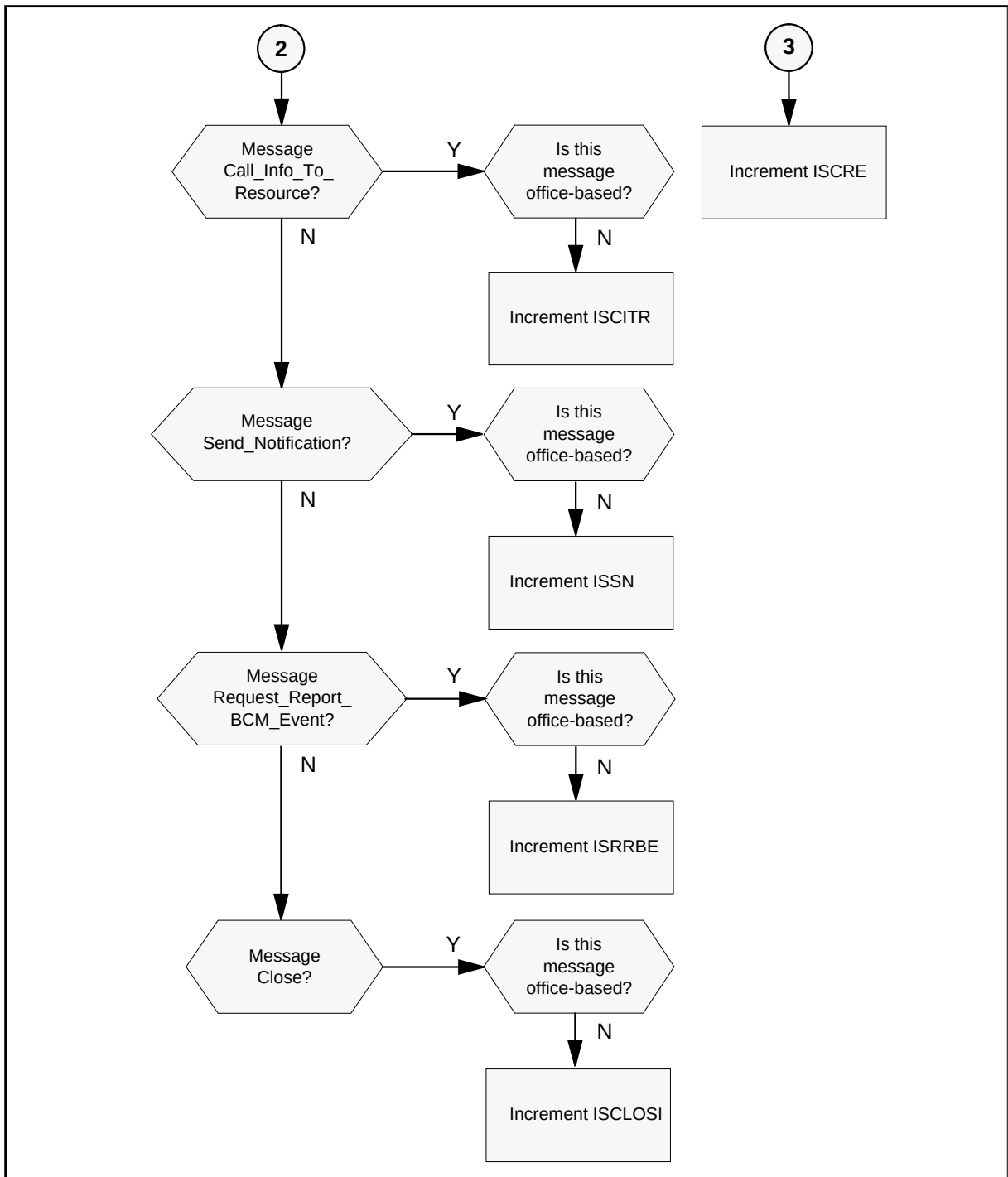
Not applicable

Associated functionality codes

Not applicable

OM group AINICSUB (continued)**Figure 231 OM group AINICSUB registers**

OM group AINICSUB (continued)**Figure 231 OM group AINICSUB registers (Continued)**

OM group AINICSUB (continued)**Figure 231 OM group AINICSUB registers (Continued)**

OM group AINICSUB (continued)

Register ISAR

IS Analyze_Route (ISAR) counts the Analyze_Route messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message.

Register ISAR release history

Register ISAR was introduced in NA008.

Associated registers

IOAR counts the Analyze_Route messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message. Registers ISAR + IOAR = total Analyze_Route messages.

Associated logs

None

Extension registers

None

Register ISCON

IS Continue (ISCON) counts Continue messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISCON release history

Register ISCON was introduced in NA008.

Associated registers

IOCON counts the continue messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message. Registers ISCON + IOCON = total Continue messages.

Associated logs

None

Extension registers

None

Register ISAUTHT

IS Authorize_Termination (ISAUTHT) counts Authorize_Termination messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISAUTHT release history

Register ISAUTHT was introduced in NA008.

OM group AINICSUB (continued)

Associated registers

None

Associated logs

None

Extension registers

None

Register ISFC

IS Forward_Call (ISFC) counts Forward_Call messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISFC release history

Register ISFC was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ISDISC

IS Disconnect (ISDISC) counts the number of Disconnect messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISDISC release history

Register ISDISC was introduced in NA008.

Associated registers

IODISC counts the Disconnect messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message. Registers IODISC + ISDISC = total Disconnect messages

Associated logs

None

Extension registers

None

OM group AINICSUB (continued)

Register ISSTR

IS Send_To_Resource counts the Send_To_Resource messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISSTR release history

Register ISSTR was introduced in NA008.

Associated registers

IOCRE counts the Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message.

IOSTR counts the Send_to_Resource messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message.

ISRCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that is initiated by a subscribed message.

IORCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that is initiated by an office-based message.

The validation formula for associated registers are as follows:

- $\text{IOCRE} + \text{ISCRE} = \text{total Cancel\_Resource\_Event messages}$
- $\text{IOSTR} + \text{ISSTR} = \text{total Send\_To\_Resource messages}$

Associated logs

None

Extension registers

None

Register ISCRE

IS Cancel_Resource_Event (ISCRE) counts the number of Cancel_Resource_Event messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISCRE release history

Register ISCRE was introduced in NA008.

Associated registers

IOCRE counts the Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message.

OM group AINICSUB (continued)

ISSTR counts the Send_To_Resource messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

IOSTR counts the Send_to_Resource messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message.

ISRCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that is initiated by a subscribed message.

IORCLR counts the Resource_Clear messages sent from the SSP to the SCP, in a transaction that is initiated by an office-based message.

The validation formula for associated registers are as follows:

- $IOCRE + ISCRE = \text{total Cancel\_Resource\_Event messages}$
- $ISSTR + IOSTR = \text{Total Send\_To\_Resource messages}$

Associated logs

None

Extension registers

None

Register ISCITR

IS Call_Info_To_Resource (ISCITR) counts Call_Info_To_Resource messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISCITR release history

Register ISCITR was introduced in NA008.

Associated registers

IOCITR counts the Call_Info_To_Resource messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message. Registers $IOCITR + ISCITR = \text{total Call\_Info\_To\_Resource messages}$

IOCIFR counts the Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that is initiated by an office-based message.

ISCIFR counts the Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that is initiated by a subscribed message.

Associated logs

None

OM group AINICSUB (continued)

Extension registers

None

Register ISSN

IS Send_Notification (ISSN) counts the Send_Notification messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISSN release history

Register ISSN was introduced in NA008.

Associated registers

IOSN counts the Send_Notification messages received at the SSP from the SCP, in a transaction that is initiated by an office-based message. Registers $\text{IOSN} + \text{ISSN} = \text{total Send\_Notification messages}$.

IOTN counts the Termination_Notification messages sent from the SSP to the SCP, in a transaction that is initiated by an office-based message.

ISTN counts the Termination_Notification messages sent from the SSP to the SCP, in a transaction that is initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register ISRRBE

IS Request_Report_BCM_Event (ISRRBE) counts Request_Report_BCM_Event messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message. Registers $\text{ISRRBE} + \text{IORRBE} = \text{total Request\_Report\_BCM\_Event messages}$.

Register ISRRBE release history

Register ISRRBE was introduced in NA008.

Associated registers

None

Associated logs

None

OM group AINICSUB (end)

Extension registers

None

Register ISCLOSI

IS Close (ISCLOSI) counts Close messages received by the SSP from the SCP, in a transaction that is initiated by a subscribed message.

Register ISCLOSI release history

Register ISCLOSI was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

OM group AINNCR

OM description

Advanced intelligent networks non-call-related (AINNCR) counts AIN Service Enablers non-call-related messages. These messages are passed between the service control point (SCP) and the service switching point (SSP).

Note: A non-call-related (NCR) message refers to a message that does not affect call processing.

The SSP can send messages that are the result of more than one kind of trigger or event. A separate OM register provides a count for each trigger and event type. An OM register increments when its corresponding message is correctly sent or received. A message is correctly sent when it is encoded into the transaction capability application part (TCAP) protocol. A message is correctly received when it is decoded from the TCAP protocol.

To decode a TCAP message involves several stages of error checking. The message is counted after the message parameters are decoded, even when there are errors in the message parameters. A message is not counted when an error is detected in the TCAP package or component.

Errors in the TCAP package or component are as follows:

- all fatal protocol errors
- errors as a result of a bad combination of message, package or component type
- invalid response message
- bad correlation identifiers
- duplicated messages

AINNCR contains nine registers that count all non-call-related AIN Service Enablers messages. Messages datafiled as R02 in tables TRIGDIG or TRIGINFO are counted.

Release history

OM group AINNCR was introduced in NA008.

Registers

The OM group AINNCR registers display on the MAP terminal as follows:

OM group AINNCR (continued)

NACG	NAOVFW	NAGCR	NAGCRS
NUPREQ	NUPDAT	NMFC	NMSUCC
NSREP			

Group structure

OM group AINNCR provides one tuple per office.

Key field:

None

Info field:

None

Associated OM groups

The following associated OM groups provide message counts for AIN Service Enablers:

- AIN outgoing office-based messages (AINOGOFF) counts the AIN Service Enablers office-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming office-based messages (AINICOFF) counts AIN Service Enablers office-based messages sent from the SCP to the SSP. It is used to monitor the incoming traffic to the SSP
- AIN outgoing subscription-based messages (AINOGSUB) counts the AIN Service Enablers subscription-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming subscription-based messages (AINICSUB) counts the AIN Service Enablers subscription-based messages sent from the SCP to the SSP. It monitors the incoming subscription traffic to the SSP.
- Advanced intelligent networks (AIN) is the platform for AIN traffic and maintenance measurements. Messages datafilled as R01 in tables TRIGDIG or TRIGINFO are counted by OM group AIN.
- AIN automatic code gapping (AINACG) provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It monitors the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes made to the ACG control lists.

The associated OM group validation formulas are as follows:

- total of AINNCR group = total non-call-related messages

OM group AINNCR (continued)

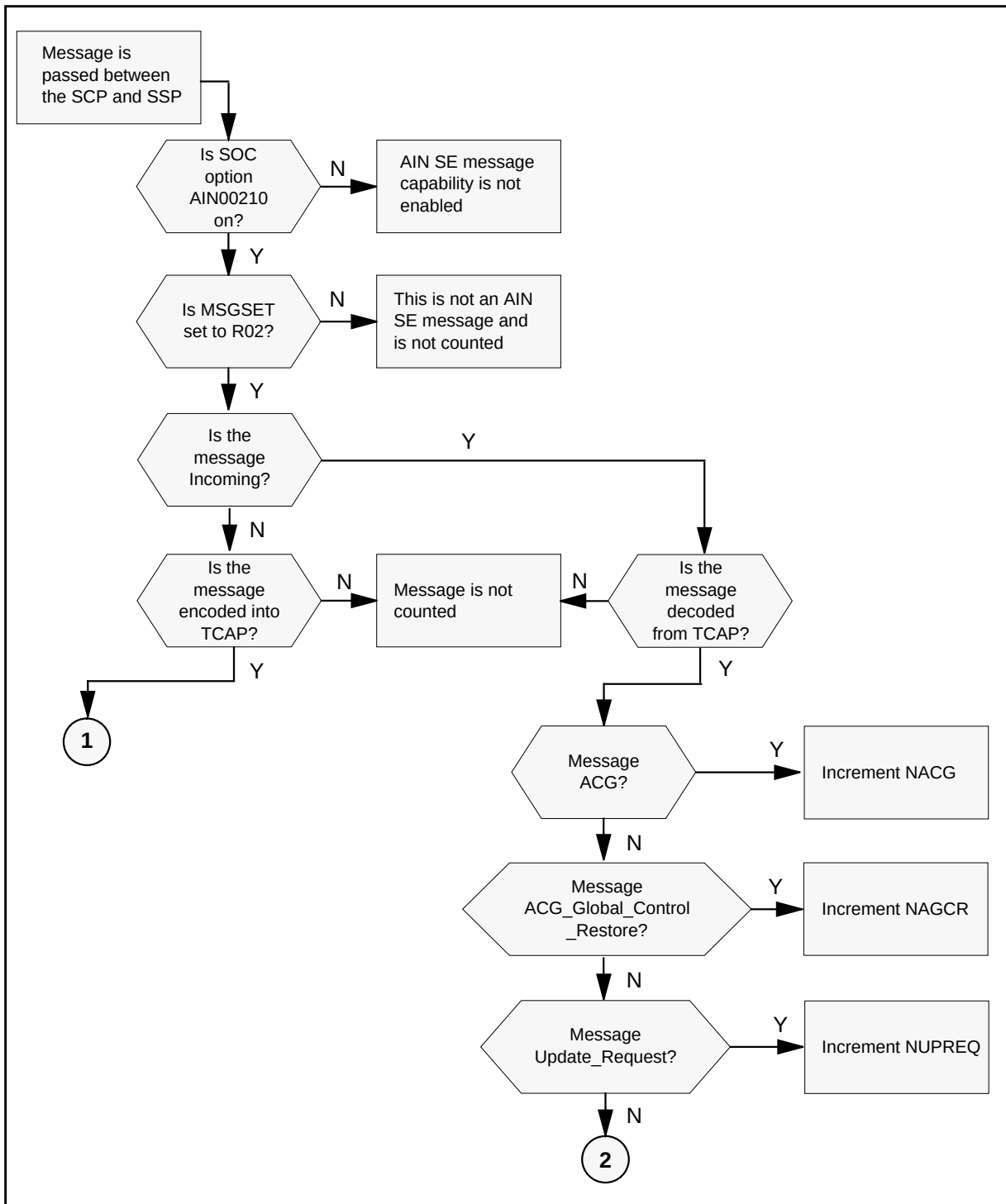
- AINNCR registers NAOVFW + NAGCRS + NUPDAT + NMSUCC + NSREP + total of AINOGSUB group + total of AINOGOFF group = total outgoing messages
- AINNCR registers NACG + NAGCR + NUPREQ + NMFC + total of AINICSUB group + total of AINICOFF group = total incoming messages

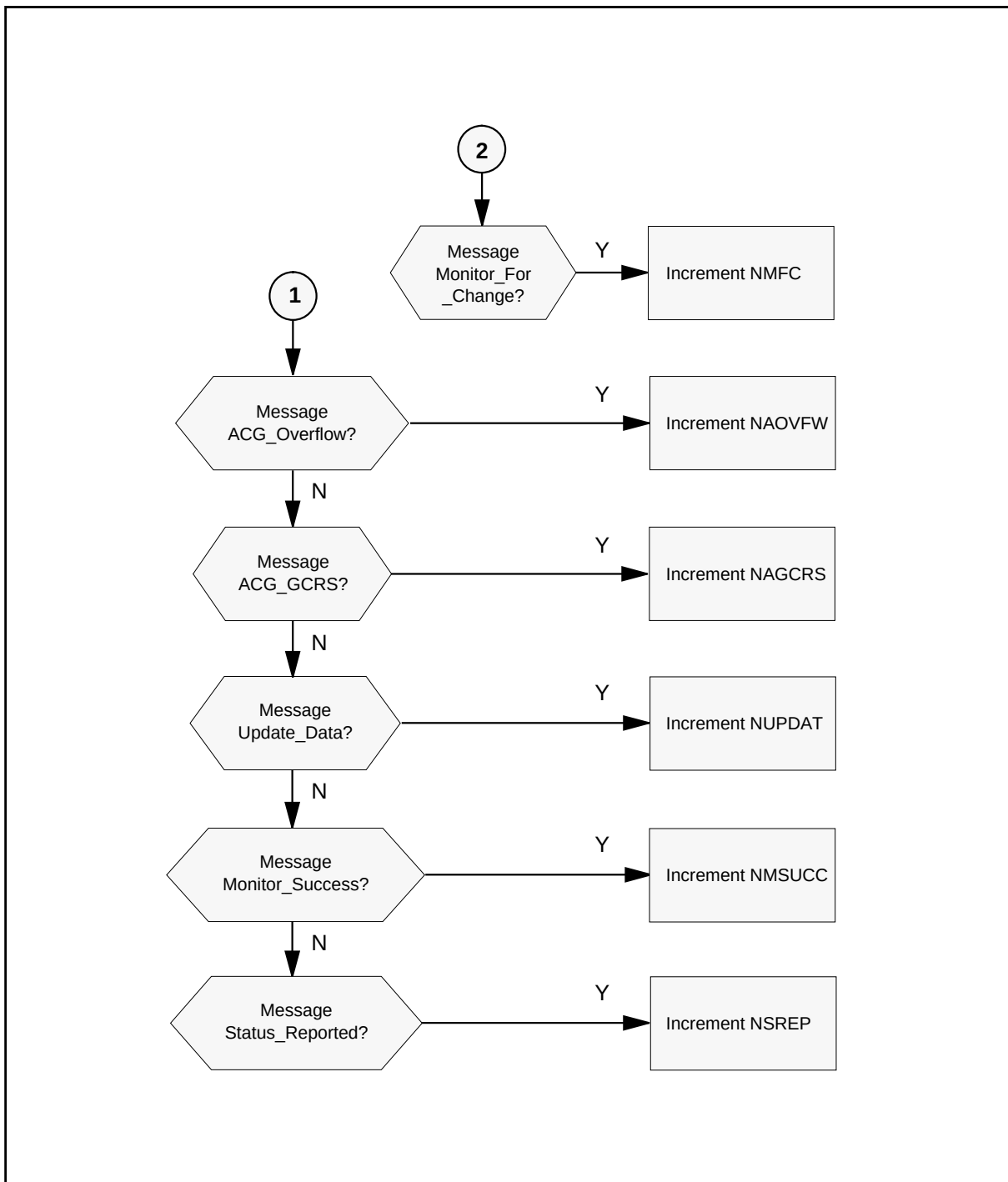
Associated functional groups

Not applicable

Associated functionality codes

Not applicable

OM group AINNCR (continued)**Figure 232 OM group AINNCR registers**

OM group AINNCR (continued)**Figure 232 OM group AINNCR registers (Continued)**

OM group AINNCR (continued)

Register NACG

N automatic code gapping (NACG) counts automatic codev gapping messages received at the SSP from the SCP.

The following are validation formulas for register NACG:

- AINNCR registers $NACG + NAGCR + NUPREQ + NMFC$ = total of all incoming, non-call-related messages
- AINNCR registers $NACG + NAGCR + NUPREQ + NMFC$ + total of AINICSUB group + total of AINICOFF group = total incoming messages
- AINNCR registers $NACG + NUPREQ + NAGCR + NMFC$ = total of all incoming, unsolicited, non-call-related messages

Register NACG release history

Register NACG was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NAOVFW

N ACG_Overflow (NAOVFW) counts ACG_Overflow messages sent from the SSP to the SCP.

The following are validation formulas for register NAOVFW:

- AINNCR registers $NAOVFW + NAGCRS + NUPDAT + NMSUCC + NSREP$ = total of all outgoing non-call-related messages
- AINNCR registers $NAOVFW + NAGCRS + NUPDAT + NMSUCC + NSREP$ + total of AINOFSUB group + total of AINOFSOFF group = total outgoing messages

Register NAOVFW release history

Register NAOVFW was introduced in NA008.

Associated registers

None

OM group AINNCR (continued)

Associated logs

None

Extension registers

None

Register NAGCR

N ACG_Global_Control_Restore (NAGCR) counts

ACG_Global_Control_Restore messages received at the SSP from the SCP.

The following are validation formulas for register NAGCR:

- $\text{AINNCR registers NAGCR} + \text{NACG} + \text{NUPREQ} + \text{NMFC} = \text{total of all incoming, non-call-related messages}$
- $\text{AINNCR registers NAGCR} + \text{NACG} + \text{NUPREQ} + \text{NMFC} + \text{total of AINICSUB group} + \text{total of AINICOFF group} = \text{total incoming messages}$
- $\text{AINNCR registers NAGCR} + \text{NACG} + \text{NUPREQ} + \text{NMFC} = \text{total of all incoming, unsolicited, non-call-related messages}$

Register NAGCR release history

Register NAGCR was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NAGCRS

N ACG_Global_Control_Restore_Success (NAGCRS) counts

ACG_Global_Control_Restore_Success messages sent from the SSP to the SCP.

The following are validation formulas for register NAGCRS:

- $\text{AINNCR registers NAGCRS} + \text{NAOVFW} + \text{NUPDAT} + \text{NMSUCC} + \text{NSREP} = \text{total of all outgoing non-call-related messages}$
- $\text{AINNCR registers NAGCRS} + \text{NAOVFW} + \text{NUPDAT} + \text{NMSUCC} + \text{NSREP} + \text{total of AINOFSUB group} + \text{total of AINOFSOFF group} = \text{total outgoing messages}$

OM group AINNCR (continued)

Register NAGCRS release history

Register NAGCRS was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NUPREQ

N Update_Request (NUPREQ) counts Update_Request messages received at the SSP from the SCP.

The following are validation formulas for register NUPREQ:

- $\text{AINNCR registers NUPREQ} + \text{NAGCR} + \text{NACG} + \text{NMFC} = \text{total of all incoming, non-call-related messages}$
- $\text{AINNCR registers NUPREQ} + \text{NACG} + \text{NAGCR} + \text{NMFC} + \text{total of AINICSUB group} + \text{total of AINICOFF group} = \text{total incoming messages}$
- $\text{AINNCR registers NUPREQ} + \text{NAGCR} + \text{NACG} + \text{NMFC} = \text{total of all incoming, unsolicited, non-call-related messages}$

Register NUPREQ release history

Register NUPREQ was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NUPDAT

N Update_Data (NUPDAT) counts Update_Data messages sent from the SSP to the SCP.

The following are validation formulas for register NUPDAT:

OM group AINNCR (continued)

- AINNCR registers NUPDAT + NAGCRS + NAOVFW + NMSUCC + NSREP = total of all outgoing non-call-related messages
- AINNCR registers NUPDAT + NAGCRS + NAOVFW + NMSUCC + NSREP + total of AINOFSUB group + total of AINOGOFF group = total outgoing messages

Register NUPDAT release history

Register NUPDAT was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NMFC

N Monitor_For_Change (NMFC) counts Monitor_For_Change messages received at the SSP from the SCP.

The following are validation formulas for register NMFC:

- AINNCR registers NMFC + NACG + NAGCR + NUPREQ + total of AINICSUB group + total of AINICOFF group = total incoming messages
- AINNCR registers NMFC + NAGCR + NUPREQ + NACG + total of AINICSUB group + total of AINICOFF group = total incoming messages
- AINNCR registers NMFC + NAGCR + NACG + NUPREQ = total of all incoming, unsolicited, non-call-related messages

Register NMFC release history

Register NMFC was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

OM group AINNCR (continued)

Register NMSUCC

N Monitor_Success (NMSUCC) counts Monitor_Success messages sent from the SSP to the SCP.

The following are validation formulas for register NMSUCC:

- $\text{AINNCR registers NMSUCC} + \text{NAGCRS} + \text{NUPDAT} + \text{NAOVFW} + \text{NSREP} = \text{total of all outgoing non-call-related messages}$
- $\text{AINNCR registers NMSUCC} + \text{NAGCRS} + \text{NAOVFW} + \text{NUPDAT} + \text{NSREP} + \text{total of AINOFSUB group} + \text{total of AINOGOFF group} = \text{total outgoing messages}$

Register NMSUCC release history

Register NMSUCC was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register NSREP

N Status_Reported (NSREP) counts Status_Reported messages sent from the SSP to the SCP.

The following are validation formulas for register NSREP:

- $\text{AINNCR registers NSREP} + \text{NAGCRS} + \text{NUPDAT} + \text{NMSUCC} + \text{NAOVFW} = \text{total of all outgoing non-call-related messages}$
- $\text{AINNCR registers NSREP} + \text{NAGCRS} + \text{NAOVFW} + \text{NUPDAT} + \text{NMSUCC} + \text{total of AINOFSUB group} + \text{total of AINOGOFF group} = \text{total outgoing messages}$

Register NSREP release history

Register NSREP was introduced in NA008.

Associated registers

None

Associated logs

None

OM group AINNCR (end)

Extension registers

None

OM group AINOGOFF

OM description

Advanced intelligent network outgoing office-based (AINOGOFF) counts AIN Service Enablers office-based messages sent from the service switching point (SSP) to the service control point (SCP). It monitors the outgoing traffic to the SCP.

The SSP can send messages that are the result of more than one kind of trigger or event. A separate OM register provides a count for each trigger and event type. An OM register increments when its corresponding message is correctly sent or received. A message is correctly sent when it is encoded into the transaction capability application part (TCAP) protocol. A message is correctly received when it is decoded from the TCAP protocol.

To decode a TCAP message involves several stages of error checking. The message is counted after the message parameters are decoded, even when there are errors in the message parameters. A message is not counted when an error is detected in the TCAP package or component.

Errors in the TCAP package or component are as follows:

- all fatal protocol errors
- errors as a result of a bad combination of message, package or component type
- invalid response message
- bad correlation identifiers
- duplicated messages

AINOGOFF contains 10 registers that count call-related, outgoing, office-based, Service Enablers messages. Messages datafilled as R02 in tables TRIGDIG or TRIGINFO are counted.

The following office-based triggers can be subscribed to:

- Specific_Digit_String
- N11

Release history

OM group AINOGOFF is introduced in NA008.

Registers

OM group AINOGOFF registers display on the MAP terminal as follows:

OM group AINOGOFF (continued)

TOIASDS	TOIAN11	EONB	E00CB	
	E00NA	E00ANS	I0TN	IOCIFR
	I0RCLR	IOCLOSO		

Group structure

OM group AINOGOFF provides one tuple per office.

Key field:

none

Info field:

none

Associated OM groups

The following associated OM groups provide AIN Service Enablers message counts:

- AIN incoming office-based (AINICOFF) counts AIN Service Enablers office-based messages sent from service control point (SCP) to the service switching point (SSP). It monitors the incoming traffic to the SSP.
- AIN outgoing subscription-based (AINOGSUB) counts the AIN Service Enablers subscription-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming subscription-based (AINICSUB) counts the AIN Service Enablers subscription-based messages sent from the SCP to the SSP. It monitors the incoming subscription traffic to the SSP.
- AIN non-call-related (AINNCR) counts the AIN messages that are passed between the SSP and SSP on a non-call-related basis.
- Advanced intelligent networks (AIN) is the platform for AIN traffic and maintenance measurements. Messages datafilled as R01 in tables TRIGDIG or TRIGINFO are counted by OM group AIN.
- AIN automatic code gapping (AINACG) provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It monitors the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes made to the ACG control lists.

The associated OM group validation formulas are as follows:

- total of AINOGOFF group + total of AINOGSUB group = total outgoing call-related Service Enablers messages

OM group AINOGOFF (continued)

- AINOGOFF registers TOIASDS + TOIAN11 + AINOGSUB registers TSIAPFC + TSIASFC + TSIACDP + TSNBAFR + TSOCBCB + TSONANA + TSOAOHI + TSICOHD + TSICSIT = total of all originating Service Enabler trigger detection point (TDP) messages.
- AINOGOFF registers EONB + EOONA + EOOANS + EOOCB + AINOGSUB registers ESNB + ESOANS + ESONA + ESOCB + ESTBSY + ESTNA = total Service Enablers event detection point (EDP) messages
- total of AINOGOFF group + total of AINOGSUB group + total of AINICOFF group + total of AINICSUB group = total call-related messages
- total of AINOGOFF group + total of AINOGSUB group + AINNCR registers NAOVFW + NAGCRS + NUPDAT + NMSUCC + NSREP = total outgoing messages
- AINOGOFF registers TOIASDS + TOIAN11 + AINOGSUB registers TSIAPFC + TSIASFC + TSIACDP = total Info_Analyzed messages

Associated functional groups

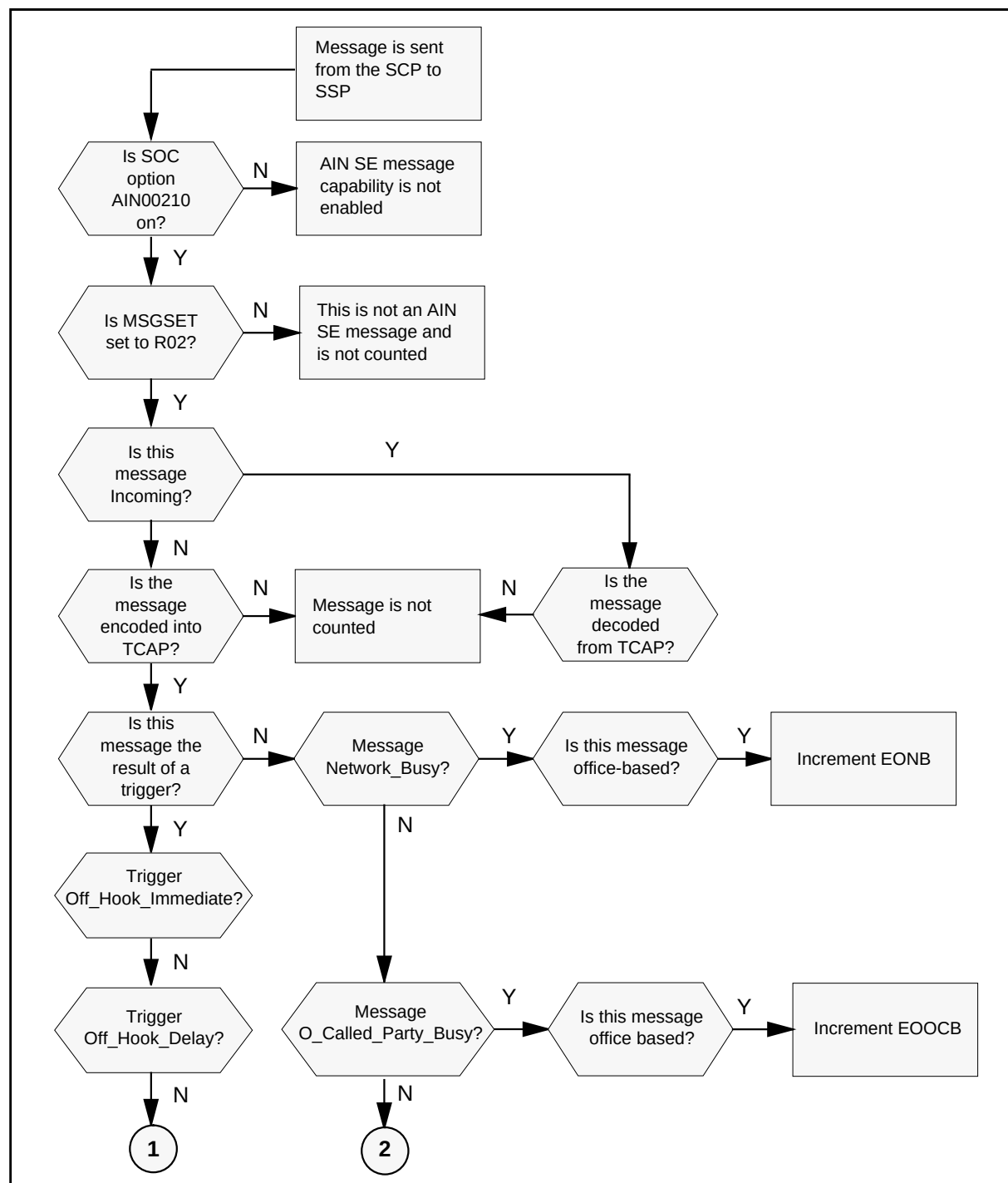
Not applicable

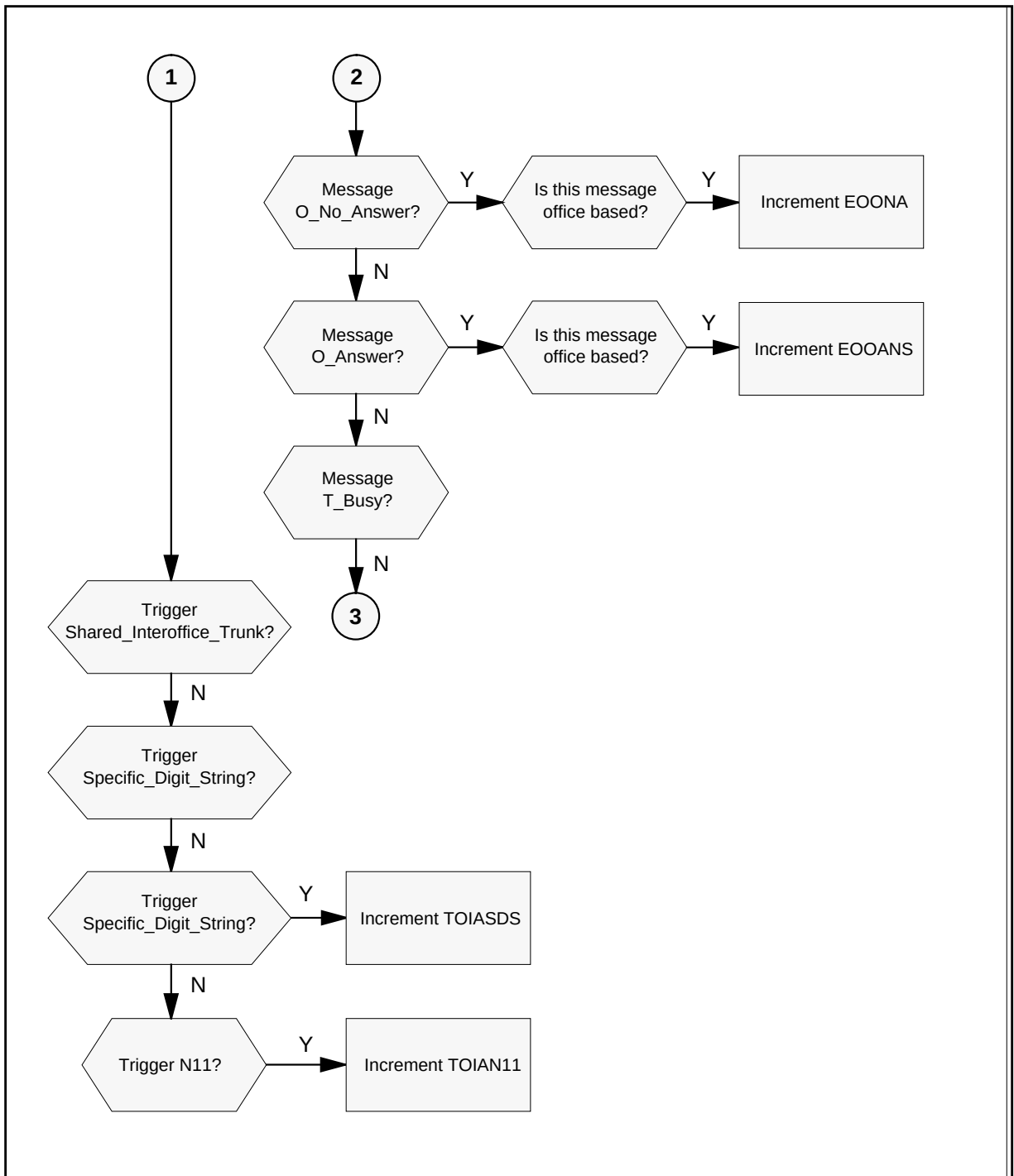
Associated functionality codes

Not applicable

OM group AINOGOFF (continued)

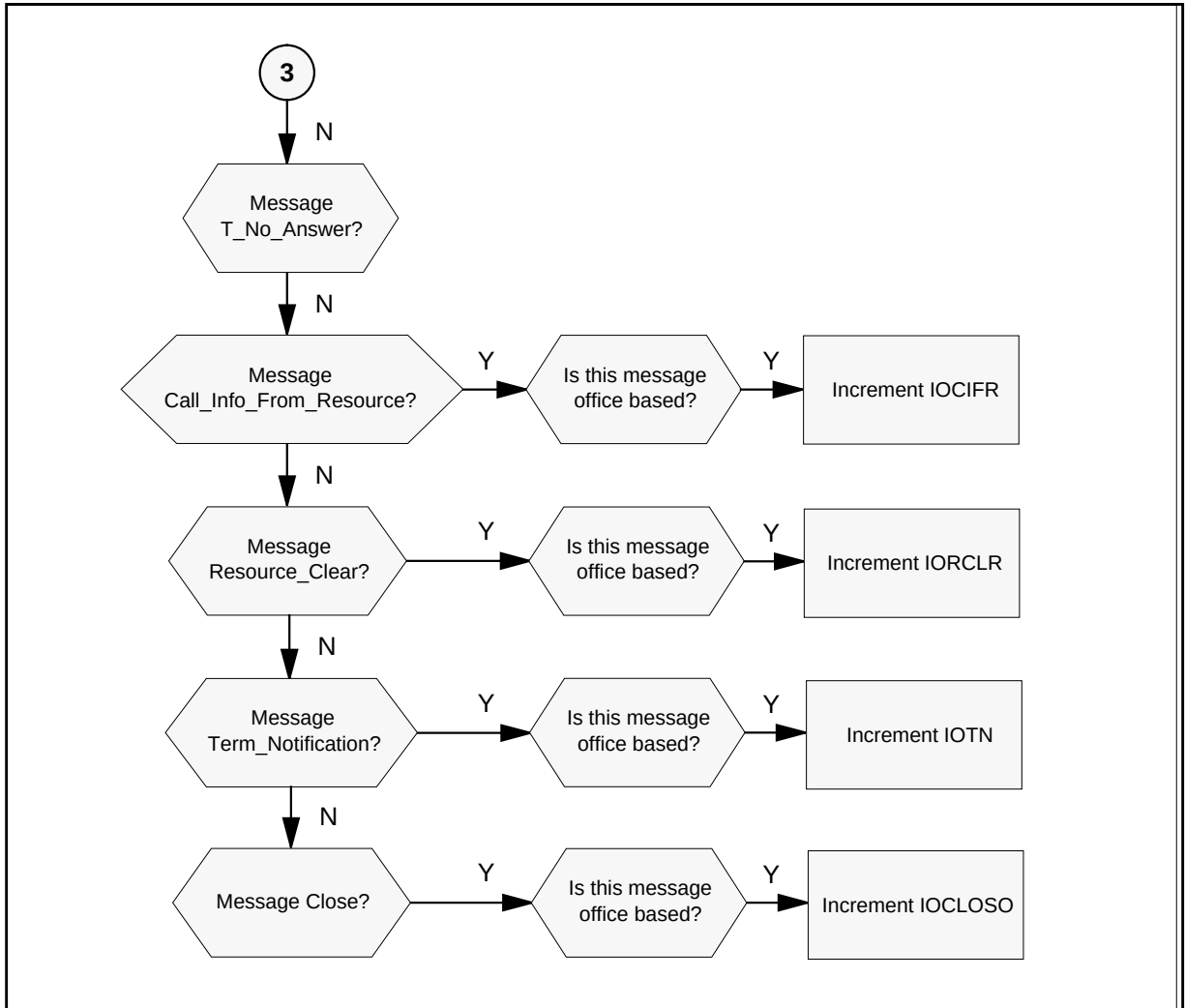
Figure 233 OM group AINOGOFF registers



OM group AINOGOFF (continued)**Figure 233 OM group AINOGOFF registers (Continued)**

OM group AINOGOFF (continued)

Figure 233 OM group AINOGOFF registers (Continued)



Register TOIASDS

TO Info_Analyzed for Specific_Digit_String (TOIASDS) counts Info_Analyzed messages sent from the SSP to the SCP as a result of a Specific_Digit_String trigger at the Info_Analyzed trigger detection point

Register TOIASDS release history

Register TOIASDS was introduced in NA008.

Associated registers

None

OM group AINOGOFF (continued)

Associated logs

None

Extension registers

None

Register TOIAN11

TO Info_Analyzed for N11 (TOIAN11) counts Info_Analyzed messages sent from the SSP to the SCP, as a result of a N11 trigger at the Info_Analyzed trigger detection point.

Register TOIAN11 release history

Register TOIAN11 was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register EONB

EO Network_Busy (EONB) counts the number of Network_Busy messages sent from the SSP to the SCP, as a result of a Network_Busy event request.

Register EONB release history

Register EONB was introduced in NA008.

Associated registers

ESNB counts Network_Busy messages sent from the SSP to the SCP, as a result of a Network_Busy event request.

The validation formula for associated registers are as follows:

- AINOGSCUB register ESNB + AINOGOFF registers EONB + TSNBAFR = total Network_Busy messages
- AINOGOFF registers EONB + EOONA + EOOANS + EOOCB + AINOFSUB registers ESNB + ESOANS + ESONA + ESOCB + ESTBSY + ESTNA = total Service Enablers event detection point (EDP) messages

OM group AINOGOFF (continued)

Associated logs

None

Extension registers

None

Register EOOCB

EO O_Called_Party_Busy (EOOCB) counts O_Called_Party_Busy messages sent from the SSP to the SCP, as a result of an O_Called_Party_Busy event request.

Register EOOCB release history

Register EOOCB was introduced in NA008.

Associated registers

ESOCB counts O_Called_Party_Busy messages sent from the SSP to the SCP, as a result of an O_Called_Party_Busy event request. AINOGSUB registers $ESOCB + TSOCBCB + AINOGOFF$ register EOOCB = total O_Called_Party_Busy messages.

Associated logs

None

Extension registers

None

Register EOONA

EO O_No_Answer (EOONA) counts O_No_Answer messages sent from the SSP to the SCP, as a result of an O_No_Answer event request.

Register EOONA release history

Register EOONA was introduced in NA008.

Associated registers

ESONA counts O_No_Answer messages sent from the SSP to the SCP, as a result of a O_No_Answer event request. AINOGSUB registers $ESONA + TSONANA + EOONA$ = total O_No_Answer messages.

Associated logs

None

Extension registers

None

OM group AINOGOFF (continued)

Register EOOANS

EO O_Answer (EOOANS) counts O_Answer messages sent from the SSP to the SCP, as the result of an O_Answer event request.

Register EOOANS release history

Register EOOANS was introduced in NA008.

Associated registers

ESOANS counts O_Answer messages sent from the SSP to the SCP, as a result of a O_Answer event request. AINOGSUB register ESOANS + AINOGOFF register EOOANS = total O_Answer messages.

Associated logs

None

Extension registers

None

Register IOTN

IO Termination_Notification (IOTN) counts Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

Register IOTN release history

Register IOTN was introduced in NA008.

Associated registers

ISTN counts Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

IOSN counts Send_Notification messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISSN counts Send_Notification messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

OM group AINOGOFF (continued)

Register IOCIFR

IO Call_Info_From_Resource (IOCIFR) counts Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

Register IOCIFR release history

Register IOCIFR was introduced in NA008.

Associated registers

ISCIFR counts Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message. AINOGSUB register ISCIFR + AINOGOFF register IOCIFR = total Call_Info_From_Resource messages.

IOCITR counts Call_Info_To_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISCITR counts Call_Info_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register IORCLR

IO Resource_Clear (IORCLR) counts Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

Register IORCLR release history

Register IORCLR was introduced in NA008.

Associated registers

ISRCLR counts Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message. AINOGSUB register ISRCLR + AINOGOFF register IORCLR = total Resource_Clear messages.

IOSTR counts Send_to_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

IOCRE counts Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

OM group AINOGOFF (end)

ISSTR counts Send_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

ISCRE counts Cancel_Resource_Event messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register IOCLOSO

IO Close (IOCLOSO) counts Close messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.

Register IOCLOSO release history

Register IOCLOSO was introduced in NA008.

Associated registers

ISCLOSO counts Close messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message. AINOGSUB register ISCLOSO + AINICOFF register IOCLOSI + AINICSUB register ISCLOSI + AINOGOFF register IOCLOSO = total closed messages.

Associated logs

None

Extension registers

None

OM group AINOGSUB

OM description

Advanced intelligent networks outgoing subscription-based (AINOGSUB) counts AIN Service Enablers subscription-based messages sent from the service switching point (SSP) to the service control point (SCP). AINOGSUB monitors the outgoing traffic to the SCP.

The SSP can send messages that are the result of more than one kind of trigger or event. A separate OM register provides a count for each trigger and event type. An OM register increments when its corresponding message is correctly sent or received. A message is correctly sent when it is encoded into the transaction capability application part (TCAP) protocol. A message is correctly received when it is decoded from the TCAP protocol.

To decode a TCAP message involves several stages of error checking. The message is counted after the message parameters are decoded, even when there are errors in the message parameters. A message is not counted when an error is detected in the TCAP package or component.

Errors in the TCAP package or component are as follows:

- all fatal protocol errors
- errors as a result of a bad combination of message, package or component type
- invalid response message
- bad correlation identifiers
- duplicated messages

AINOGSUB contains 20 registers that count call-related, outgoing, subscribed, Service Enablers messages. Messages datafiled as R02 in tables TRIGDIG or TRIGINFO are counted.

The following triggers can be subscribed to by line or group:

- Off-Hook_Immediate
- Off-Hook_Delay
- Shared_Interoffice_Trunk
- Public_Feature_Code
- Specific_Feature_Code
- Customized_Dialing_Plan
- automatic flexible routing (AFR)

OM group AINOGSUB (continued)

Note: The AFR trigger can be provisioned as either office-based or subscribed. All messages sent as a result of this trigger are counted as subscribed.

- O_Called_Party_Busy
- O_No_Answer
- Termination_Attempt

Release history

OM group AINOGSUB was introduced in NA008.

Registers

OM group AINOGSUB registers display on the MAP terminal as follows:

TSOA0HI	TSICOHD	TSICSIT	TSIAPFC
TSIASFC	TSIACDP	TSNBAFR	ESNB
TSOCBCB	ESOCB	TSONANA	ESONA
ESOANS	TSTATTA	ESTBSY	ESTNA
ISCIFR	ISRCLR	ISCLOSO	ISTN

Group structure

OM group AINOGSUB provides one tuple per office.

Key field:

None

Info field:

None

Associated OM groups

The following associated OM groups provide AIN Service Enablers message counts:

- AIN outgoing office-based (AINOGOFF) counts AIN Service Enablers office-based messages sent from the SSP to the SCP. It monitors the outgoing traffic to the SCP.
- AIN incoming office-based (AINICOFF) counts AIN Service Enablers office-based messages sent from service control point (SCP) to the service switching point (SSP). It monitors the incoming traffic to the SSP.
- AIN incoming subscription-based (AINICSUB) counts the AIN Service Enablers subscription-based messages sent from the SCP to the SSP. It monitors the incoming subscription traffic to the SSP.

OM group AINOGSUB (continued)

- AIN non-call-related (AINNCR) counts the AIN messages that are passed between the SSP and SSP on a non-call-related basis.
- Advanced intelligent networks (AIN) is the platform for AIN traffic and maintenance measurements. Messages datafilled as R01 in tables TRIGDIG or TRIGINFO are counted by OM group AIN.
- AIN automatic code gapping (AINACG) provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It monitors the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes made to the ACG control lists.

The associated OM group validation formulas are as follows:

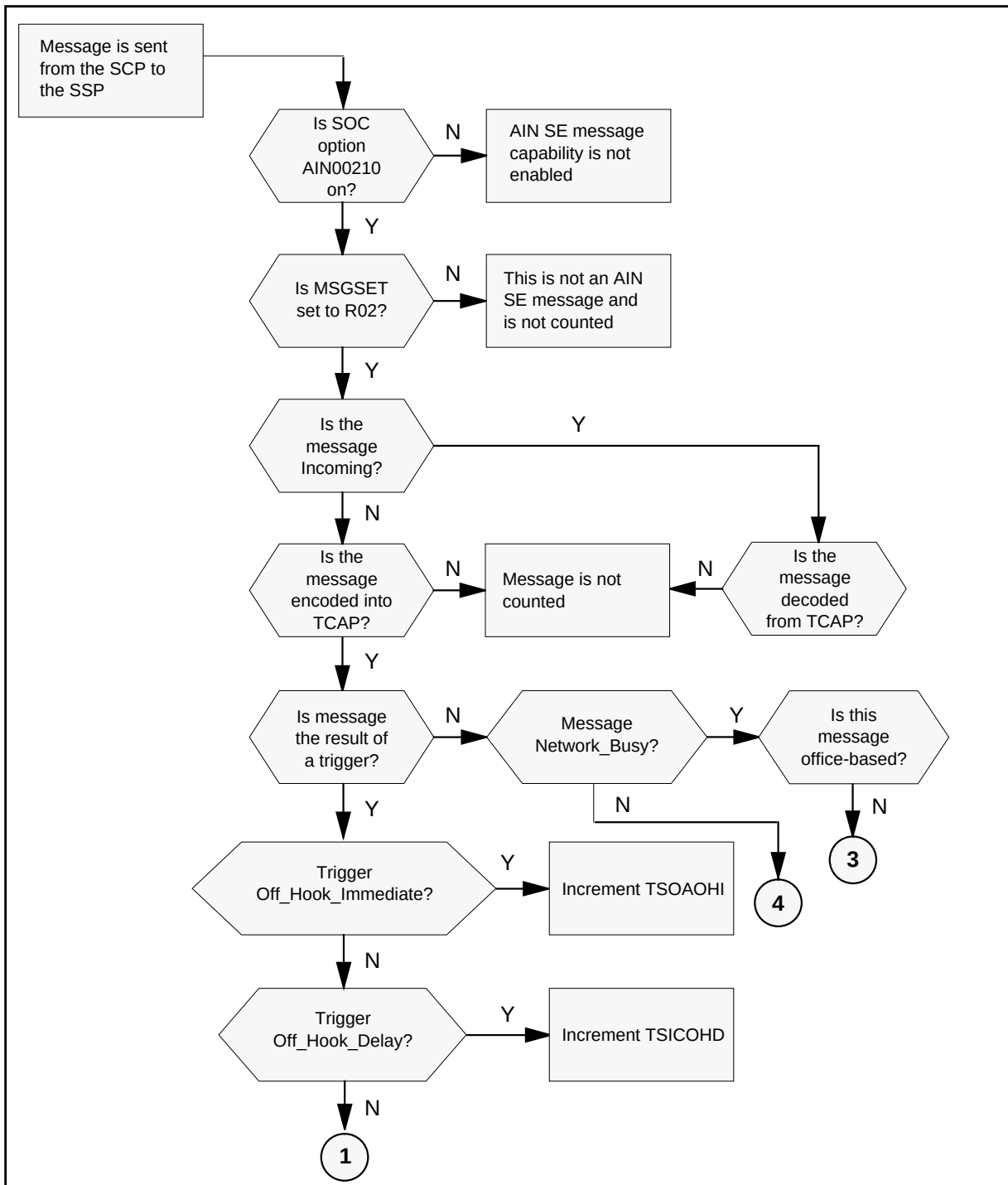
- total of AINOGSUB group + total of AINOGOFF group = total outgoing call-related Service Enabler messages
- AINOGOFF registers TOIASDS + TOIAN11 + AINOGSUB registers TSIAPFC + TSIASFC + TSIACDP + TSNBAFR + TSOCBCB + TSONANA + TSOAOHI + TSICOHD + TSICSIT = total originating basic call model (BCM) Service Enablers trigger detection point (TDP) messages
- AINOGOFF registers EONB + EOONA + EOOANS + EOOCB + AINOGSUB registers ESNB + ESONA + ESOANS + ESOCB + ESTBSY + ESTNA = total Service Enablers event detection point (EDP) messages
- total of AINOGSUB group + total of AINICSUB group + total of AINICOFF group + total of AINOGOFF group = total call-related messages
- total of AINOGSUB group + total of AINOGOFF group + AINNCR registers NAOVFW + NAGCRS + NUPDAT + NMSUCC + NSREP = total outgoing messages
- AINOGOFF registers TOIASDS + TOIAN11 + AINOGSUB registers TSIAPFC + TSIASFC + TSIACDP = total Info_Analyzed messages
- AINOGOFF register EONB + AINOGSUB registers ESNB + TSNBAFR = total Network_Busy messages

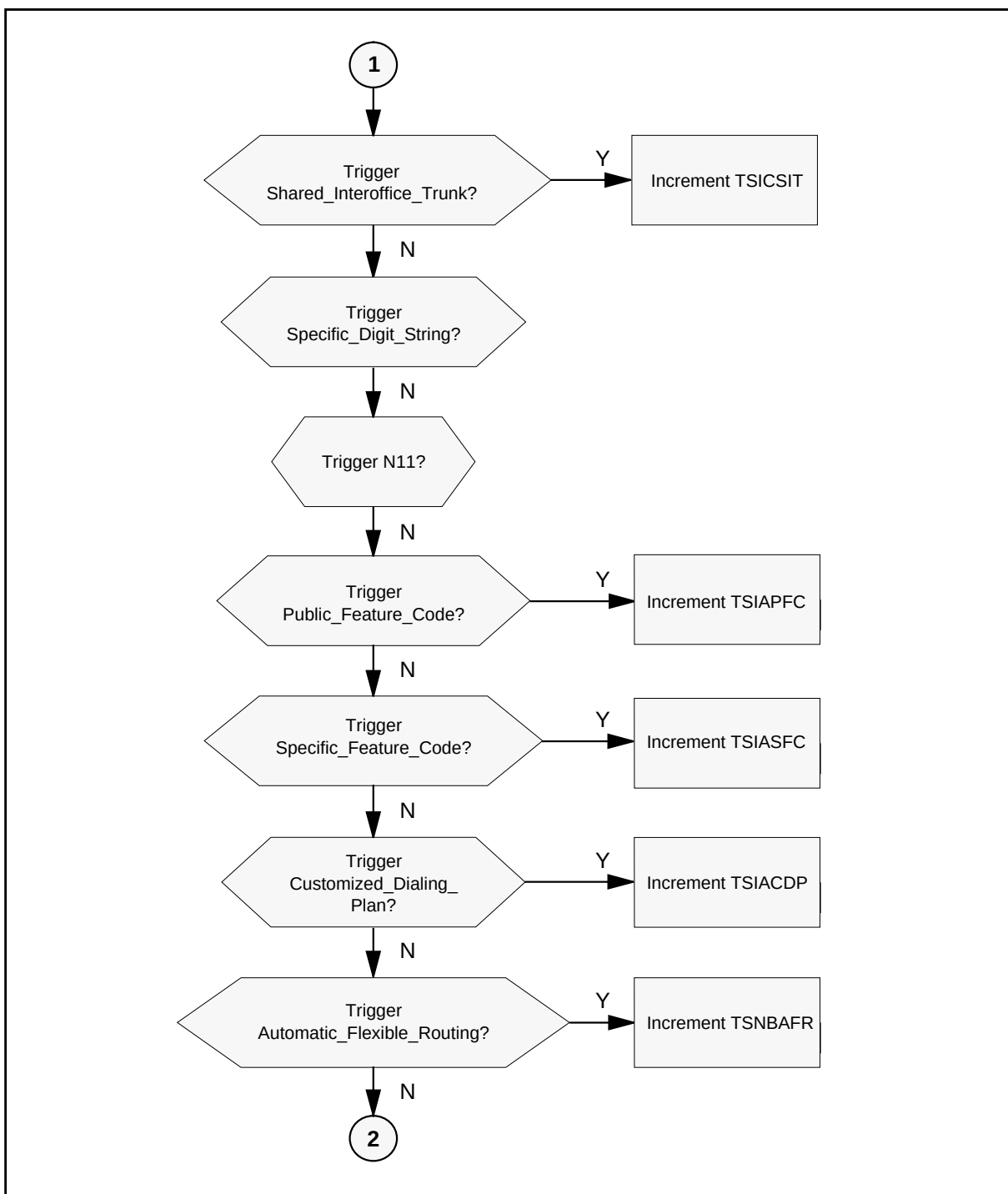
Associated functional groups

Not applicable

Associated functionality codes

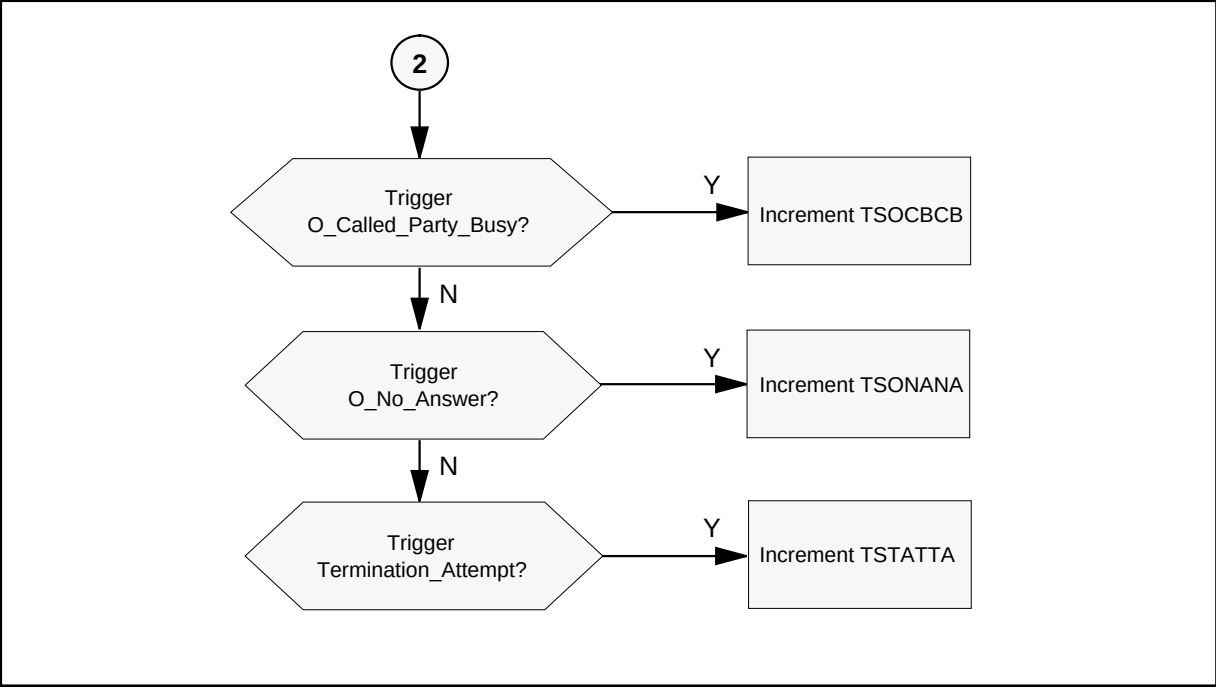
Not applicable

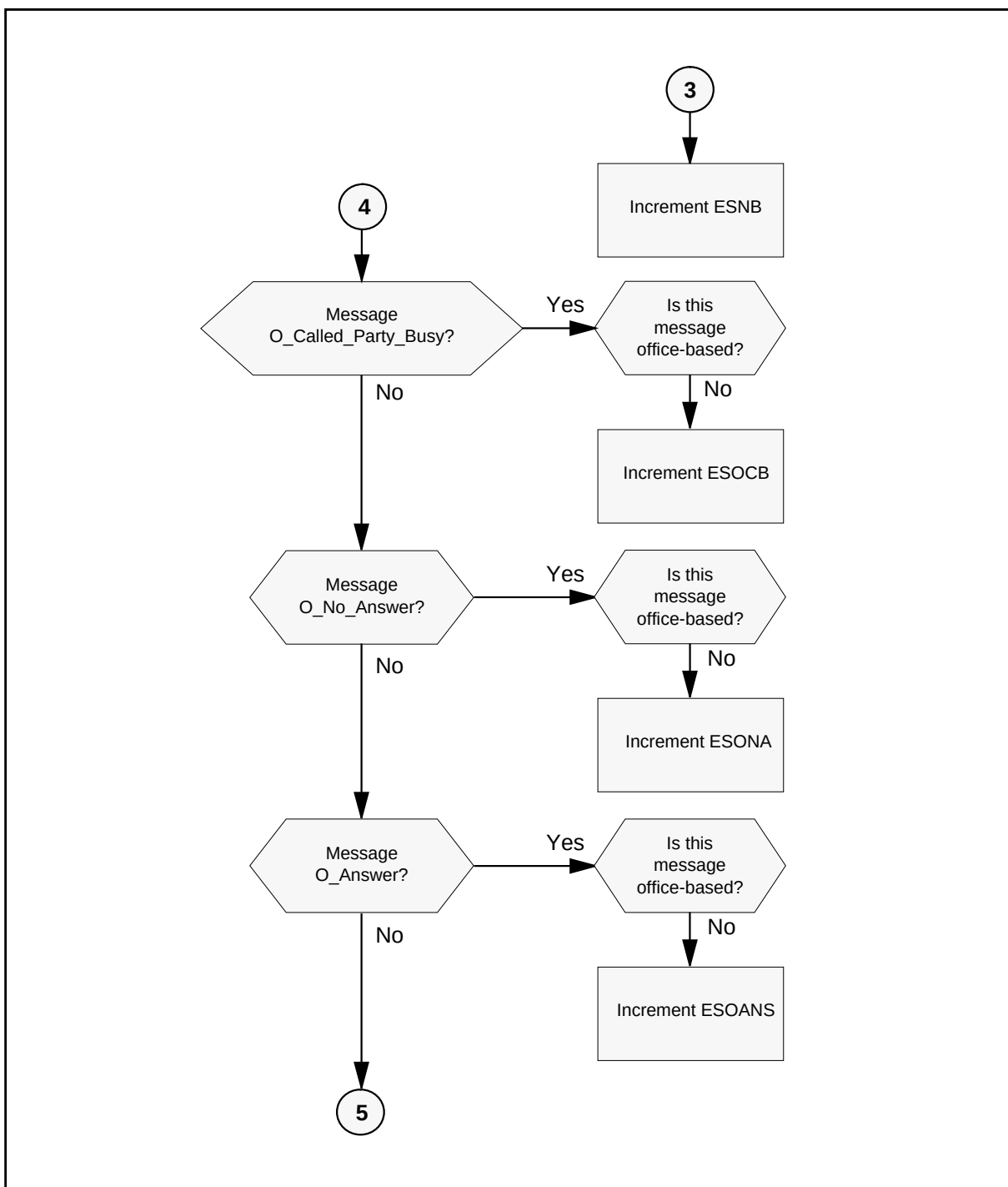
OM group AINOGSUB (continued)**Figure 234 OM group AINOGSUB registers**

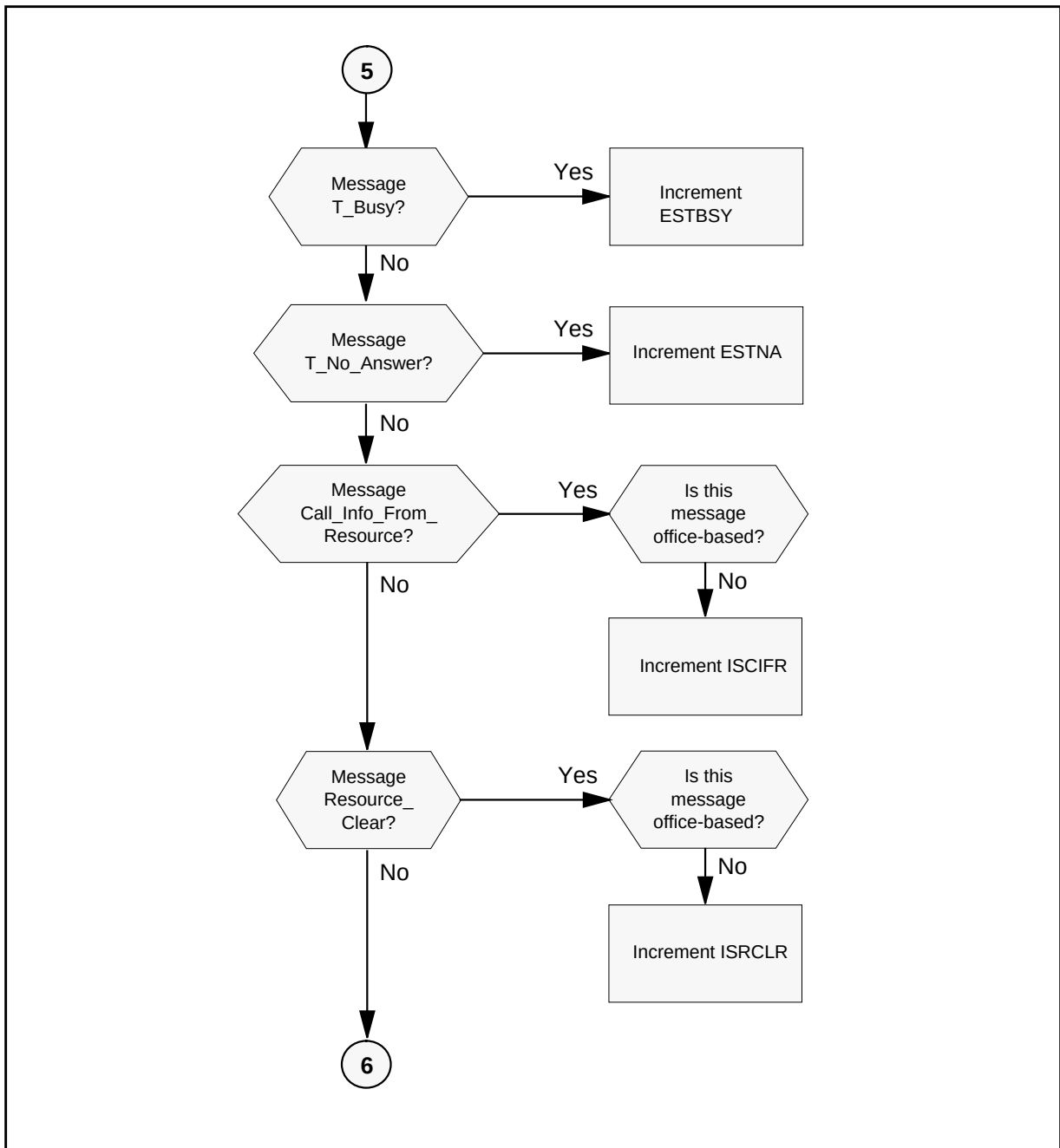
OM group AINOGSUB (continued)**Figure 234 OM group AINOGSUB registers (Continued)**

OM group AINOGSUB (continued)

Figure 234 OM group AINOGSUB registers (Continued)

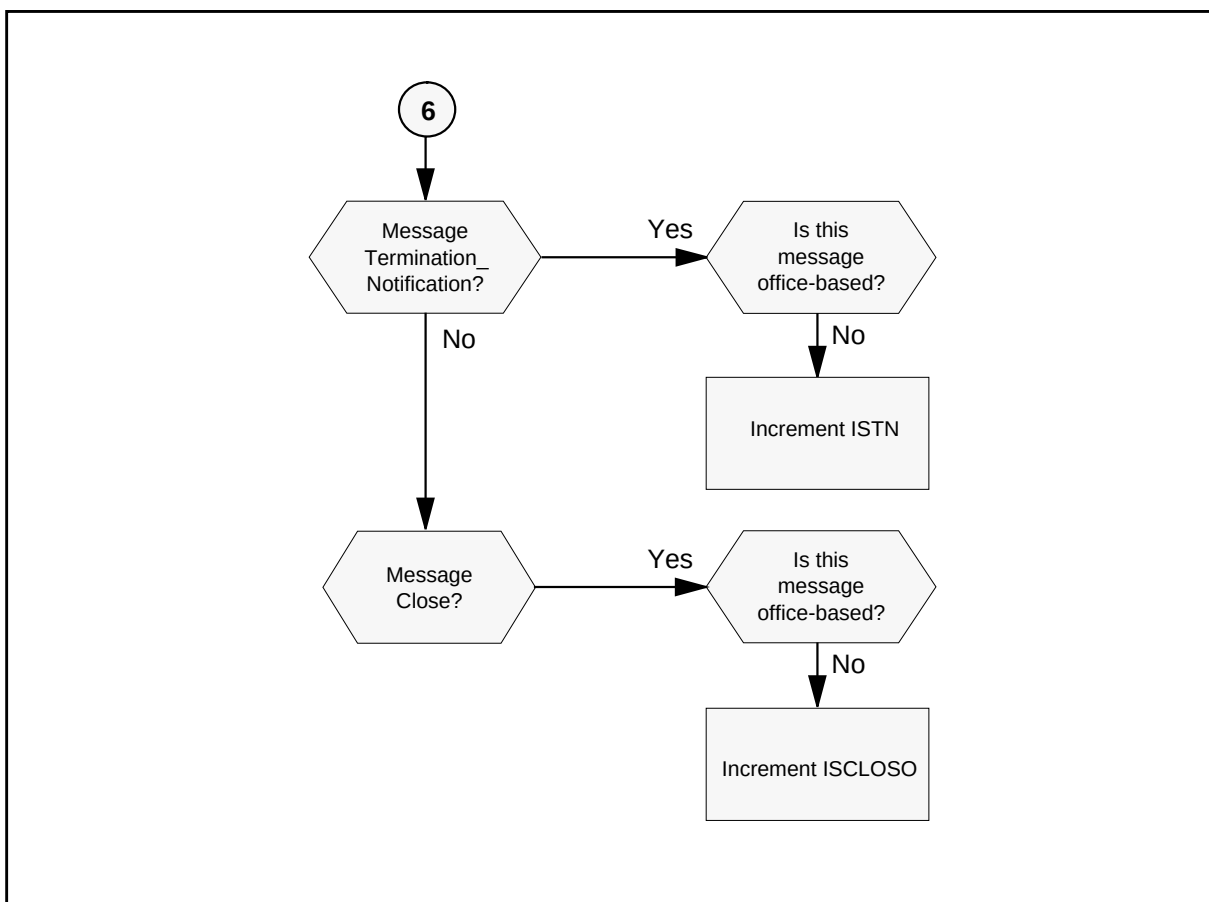


OM group AINOGSUB (continued)**Figure 234 OM group AINOGSUB registers (Continued)**

OM group AINOGSUB (continued)**Figure 234 OM group AINOGSUB registers (Continued)**

OM group AINOGSUB (continued)

Figure 234 OM group AINOGSUB registers (Continued)



Register TSOAOHI

TS Origination_Attempt at the OffHook_Immediate (TSOAOHI) counts Origination_Attempt messages sent from the SSP to the SCP, as a result of a OffHook_Immediate trigger at the Origination_Attempt trigger detection point (TDP).

Register TSOAOHI release history

Register TSOAOHI was introduced in NA008.

Associated registers

None

Associated logs

None

OM group AINOGSUB (continued)

Extension registers

None

Register TSICOHD

TS Info_Collected message for the OffHook_Delay (TSICOHD) counts Info_Collected messages sent from the SSP to the SCP, as a result of an OffHook_Delay trigger.

Register TSICOHD release history

Register TSICOHD was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register TSICSIT

TS Info_Collected message for the Shared_Interoffice_Trunk (TSICSIT) counts Info_Collected messages sent from the SSP to the SCP, as a result of a Shared_Interoffice_Trunk trigger at the Info_Collected TDP.

Register TSICSIT release history

Register TSICSIT was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register TSIAPFC

TS Info_Analyze message for the Public_Feature_Code (TSIAPFC) counts Info_Analyzed messages sent from the SSP to the SCP, as a result of a Public_Feature_Code trigger at the Info_Analyzed TDP.

OM group AINOGSUB (continued)

Register TSIAPFC release history

Register TSIAPFC was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register TSIASFC

TS Info_Analyze message for the Specific_Feature_Code (TSIASFC) counts Info_Analyzed messages sent from the SSP to the SCP, as a result of a Specific_Feature_Code trigger at the Info_Analyzed TDP.

Register TSIASFC release history

Register TSIASFC was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register TSIACDP

TS Info_Analyze message for the Customized_Dialing_Plan (TSIACDP) counts Info_Analyzed messages sent from the SSP to the SCP, as a result of a Customized_Dialing_Plan trigger at the Info_Analyzed TDP.

Register TSIACDP release history

Register TSIACDP was introduced in NA008.

Associated registers

None

Associated logs

None

OM group AINOGSUB (continued)

Extension registers

None

Register TSNBAFR

TS Network_Busy message for the AFR (TSNBAFR) counts Network_Busy messages sent from the SSP to the SCP, as a result of an automatic flexible routing (AFR) trigger at the Network_Busy TDP.

Register TSNBAFR release history

Register TSNBAFR was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ESNB

ES Network_Busy (ESNB) counts Network_Busy messages sent from the SSP to the SCP, as a result of a Network_Busy event request.

Register ESNB release history

Register ESNB was introduced in NA008.

Associated registers

EONB counts the number of Network_Busy messages sent from the SSP to the SCP, as a result of a Network_Busy event request. AINOGOFF register EONB + AINOGSUB registers ESNB + TSNBAFR = total Network_Busy messages.

Associated logs

None

Extension registers

None

Register TSOCBCB

TS O_Called_Party_Busy for the O_Called_Party_Busy (TSOCBCB) counts O_Called_Party_Busy messages sent from the SSP to the SCP, as a result of an O_Called_Party_Busy trigger.

OM group AINOGSUB (continued)

Register TSOCBCB release history

Register TSOCBCB was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ESOCB

ES O_Called_Party_Busy message for the O_Called_Party_Busy (ESOCB) counts the number of O_Called_Party_Busy messages sent from the SSP to the SCP as a result of a O_Called_Party_Busy EDP-R.

Register ESOCB release history

Register ESOCB was introduced in NA008.

Associated registers

EOOCB counts O_Called_Party_Busy messages sent from the SSP to the SCP, as a result of an O_Called_Party_Busy event request. AINOGOFF register EOOCB + AINOGSUB registers ESOCB + TSOCBCB = total O_Called_Party_Busy messages.

Associated logs

None

Extension registers

None

Register TSONANA

TS O_No_Answer message for the O_No_Answer (TSONANA) counts the number of O_No_Answer messages sent from the SSP to the SCP as a result of an O_No_Answer trigger.

Register TSONANA release history

Register TSONANA was introduced in NA008.

Associated registers

None

OM group AINOGSUB (continued)

Associated logs

None

Extension registers

None

Register ESONA

ES O_No_Answer (ESONA) counts O_No_Answer messages sent from the SSP to the SCP, as a result of an O_No_Answer event request. AINOGOFF register EOONA + AINOGSUB registers ESONA + TSONANA = total O_No_Answer messages

Register ESONA release history

Register ESONA was introduced in NA008.

Associated registers

EOONA counts O_No_Answer messages sent from the SSP to the SCP, as a result of an O_No_Answer event request. AINOGOFF register EOONA + AINOGSUB registers ESONA + TSONANA = total O_No_Answer messages.

Associated logs

None

Extension registers

None

Register ESOANS

ES O_Answer counts O_Answer messages sent from the SSP to the SCP, as a result of an O_Answer event request.

- AINOGOFF register EOOANS + AINOGSUB register ESOANS = total O_Answer messages
-

Register ESOANS release history

Register ESOANS was introduced in NA008.

Associated registers

EOOANS counts O_Answer messages sent from the SSP to the SCP, as the result of an O_Answer event request. AINOGOFF register EOOANS + AINOGSUB register ESOANS = total O_Answer messages.

OM group AINOGSUB (continued)

Associated logs

None

Extension registers

None

Register TSTATTA

TS Termination_Attempt for the Termination_Attempt (TSTATTA) counts Termination_Attempt messages sent from the SSP to the SCP, as a result a Termination_Attempt trigger.

Register TSTATTA release history

Register TSTATTA was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ESTBSY

ES T_Busy (ESTBSY) counts T_Busy messages sent from the SSP to the SCP, as a result of a T_Busy event request.

Register ESTBSY release history

Register ESTBSY was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ESTNA

ES T_No_Answer (ESTNA) counts T_No_Answer messages sent from the SSP to the SCP, as a result of a T_No_Answer event request.

OM group AINOGSUB (continued)

Register ESTNA release history

Register ESTNA was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register ISTN

IS Termination_Notification (ISTN) counts Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

Register ISTN release history

Register ISTN was introduced in NA008.

Associated registers

IOTN counts Termination_Notification messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.
AINOGOFF register IOTN + AINOGSUB register ISTN = total Termination_Notification messages.

IOSN counts Send_Notification messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISSN counts Send_Notification messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register ISCIFR

IS Call_Info_From_Resource (ISCIFR) counts Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

OM group AINOGSUB (continued)

Register ISCIFR release history

Register ISCIFR was introduced in NA008.

Associated registers

IOCIFR counts Call_Info_From_Resource messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message.
AINOGOFF register IOCIFR + AINOGSUB register ISCIFR = total Call_Info_From_Resource messages.

IOCITR counts Call_Info_To_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISCITR counts Call_Info_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register ISRCLR

IS Resource_Clear (ISRCLR) counts Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

Register ISRCLR release history

Register ISRCLR was introduced in NA008.

Associated registers

IORCLR counts Resource_Clear messages sent from the SSP to the SCP, in a transaction that was initiated by an office-based message. AINOGOFF register IORCLR + AINOGSUB register ISRCLR = total Resource_Clear messages.

IOSTR counts Send_to_Resource messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

ISSTR counts Send_To_Resource messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

IOCRE counts Cancel_Resource_Event messages received at the SSP from the SCP, in a transaction that was initiated by an office-based message.

OM group AINOGSUB (end)

ISCRE counts Cancel_Resource_Event messages received by the SSP from the SCP, in a transaction that was initiated by a subscribed message.

Associated logs

None

Extension registers

None

Register ISCLOSO

IS Close (ISCLOSO) counts Close messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message.

Register ISCLOSO release history

Register ISCLOSO was introduced in NA008.

Associated registers

IOCLOSO counts Close messages sent from the SSP to the SCP, in a transaction that was initiated by a subscribed message. AINOGSUB register ISCLOSO + AINICOFF register IOCLOSI + AINICSUB register ISCLOSI + AINOGOFF register IOCLOSO = total closed messages.

Associated logs

None

Extension registers

None

OM group OAFLTRIG

OM description

Operator Services System Advanced Intelligent Network (OSSAIN) Float Triggers

The OSSAIN OM group OAFLTRIG provides peg counts for actions related to OSSAIN float trigger processing. These measurements cover float trigger processing causing call control to transfer to an OSSAIN function or control list.

The OSSAIN call float trigger tables (OACNNPRF, OADSCPRF, OATLKPRF, OACAUPRF, and OADTFPRF) must be datafilled with trigger events and actions, and a datafilled trigger event must occur for these registers to be pegged.

Release history

OM group OAFLTRIG was introduced in NA006.

Registers

OM group OAFLTRIG registers display on the MAP terminal as follows:

```
OMSHOW OAFLTRIG ACTIVE

OAFLTRIG

CLASS:  ACTIVE
START:1996/12/03 06:30:00 MON; STOP:1996/12/03 06:46:18 MON;
SLOWSAMPLES:          9 ; FASTSAMPLES:          97

          OAFLTFUN   OAFLTCTL   OATRIGFL
0          319        21         0
```

Group Structure

OM group OAFLTRIG provides one tuple for each office.

Key field:

None

Info field:

None

OM group OAFLTRIG (continued)

Associated OM groups

OAINQMS

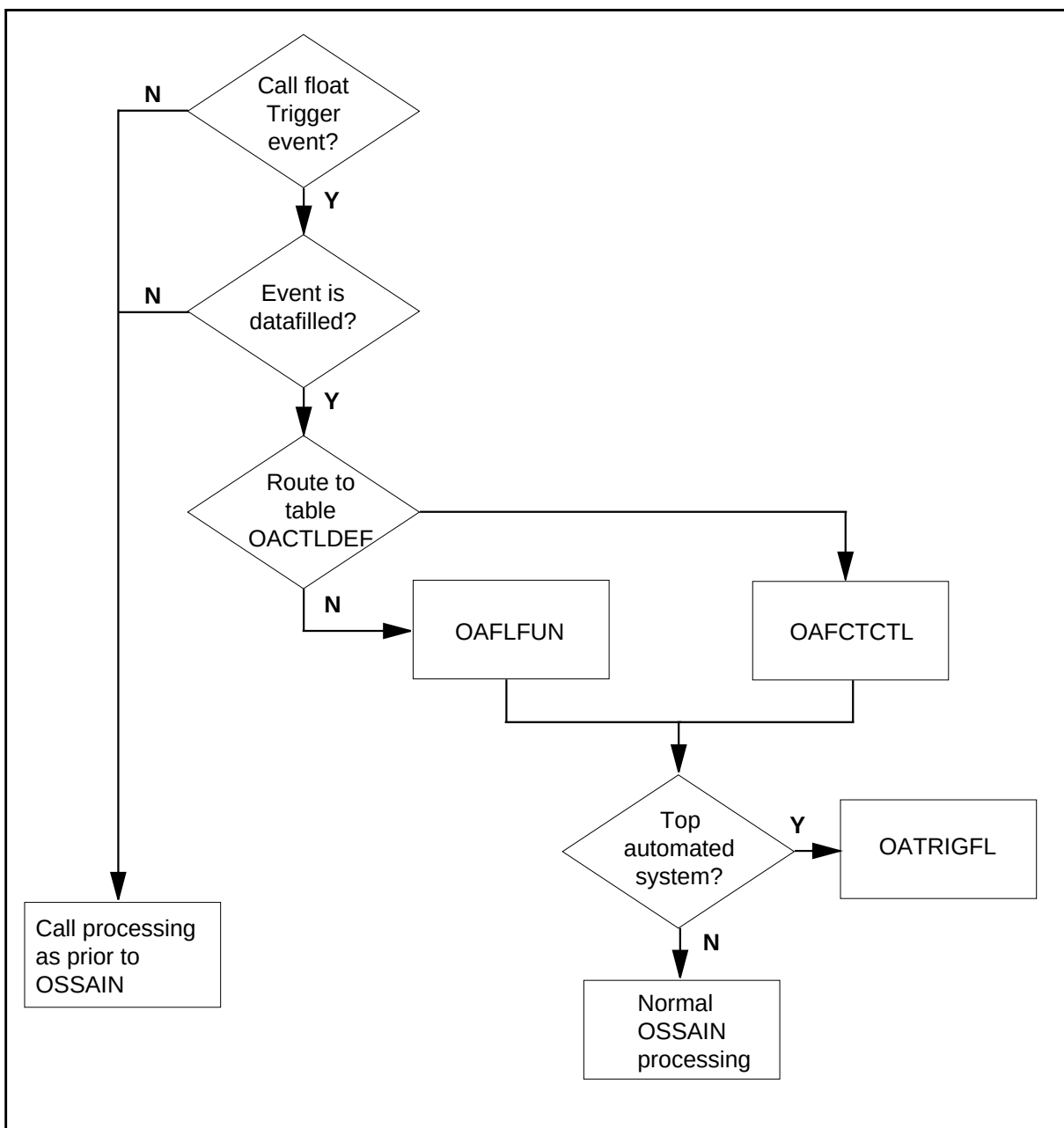
Associated functional groups

NA006Functional group ENSV Enhanced Services (ENSV0001) is associated with OM group OAFLTRIG

Associated functionality codes

The functionality codes associated with OM group OAFLTRIG are shown in the following table.

Functionality	Code
Operator Services AIN	ENSV0014 (NA006)

OM group OAFLTRIG (continued)**Figure 235 OM group OAFLTRIG registers****Register OAFLTCTL**

OSSAIN Float to a Control List

Calls in the floated state that trigger causing call control to be successfully passed to an OSSAIN Control List (in table OACTLDEF).

OM group OAFLTRIG (continued)

For test case(s), make an OSSAIN call that performs float trigger processing to an OSSAIN Control List.

Register OAFLTCTL release history

Register OAFLTCTL was introduced in NA006.

Associated registers

None

Associated logs

None

Extension registers

None

Register OAFLTFUN

OSSAIN Float to a Function

Calls in the floated state that triggered causing call control to be successfully passed to an OSSAIN Function (in table OAFUNDEF).

For test case(s), make an OSSAIN call that performs float trigger processing to an OSSAIN Function.

Register OAFLTFUN release history

Register OAFLTFUN was introduced in NA006.

Associated registers

None

Associated logs

None

Extension registers

None

Register OATRIGFL

OSSAIN Trigger Failure

This register indicates a trigger failure due to calls in the floated state that trigger and attempt to pass control to a Traffic Operator Position System (TOPS) automated system. Passing call control to a TOPS automated system via trigger processing is not allowed. This can occur as a result of 1) passing

OM group OAFLTRIG (end)

control to an OSSAIN Function which is a TOPS automated system or 2) passing control to an OSSAIN Control List in which the first OSSAIN Function is a TOPS automated system.

For test case(s), make an OSSAIN call that performs float trigger processing to an OSSAIN Function datafilled as a TOPS automated system.

Register OATRIGFL release history

Register OATRIGFL was introduced in NA006.

Associated registers

None

Associated logs

Log number: OAIN303

Extension registers

None

OM group AINACG

OM description

Advanced intelligent network (AIN) automatic code gapping (AINACG)

This operational measurement (OM) group provides operational measurements for the automatic code gapping (ACG) feature in the SSP. It is used to monitor the blocking of AIN R0.1 queries by ACG, ACG control list overflows, and changes that are made to ACG control lists..

Release history

OM group AINACG was introduced in NA005

Registers

The following OM group AINACG registers display on the MAP terminal as follows:

BLKCASCP CTRLCHA	BLKCASMS	SCPOVLDO	SMSOVLDO

Group structure

OM group AINACG provides one tuple per office.

Key field:

None

Info field:

None

Associated OM groups

None

Associated functional groups

The following functional group is associated with OM group AINACG:

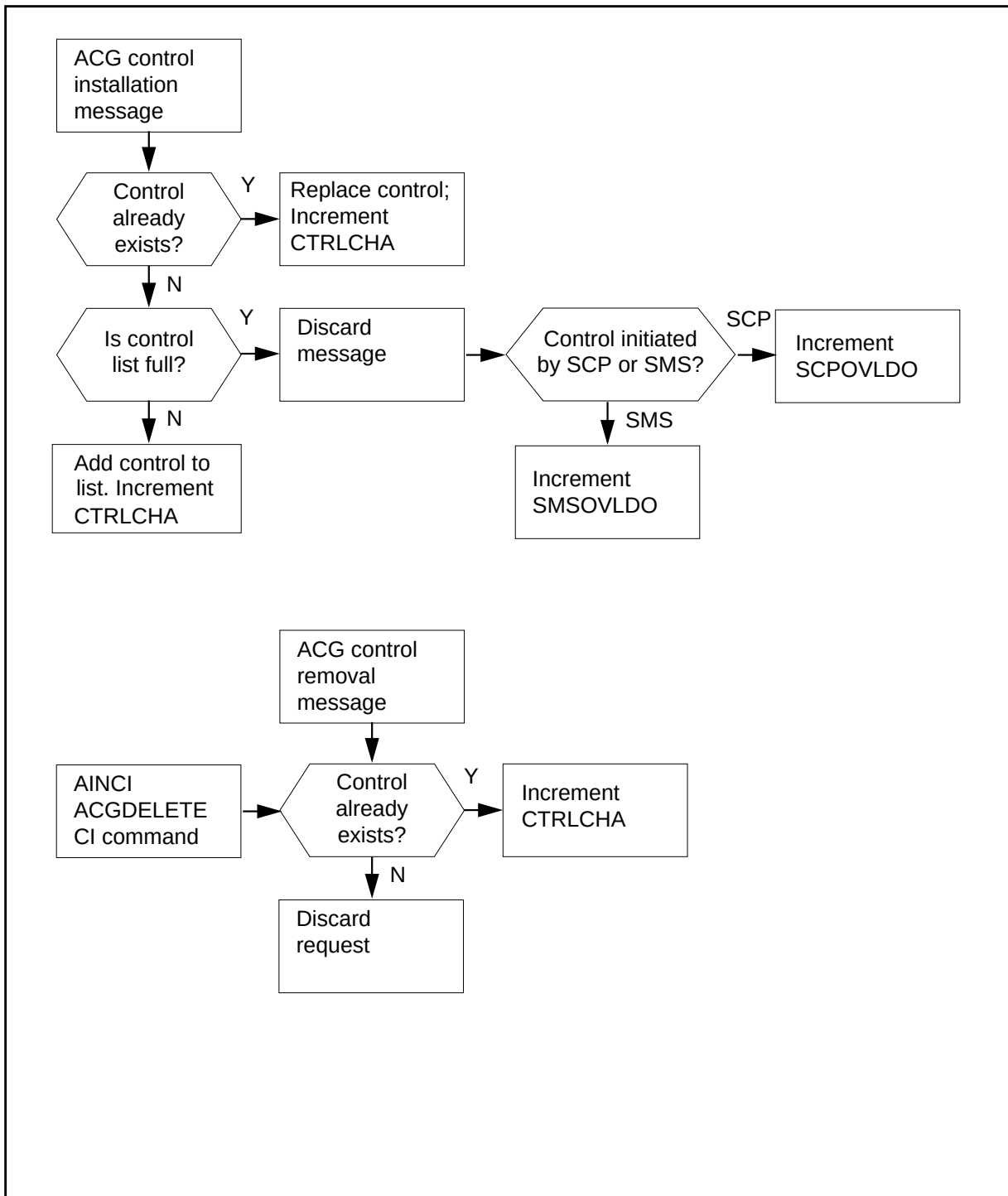
AIN Call Model Control (AIN00007)

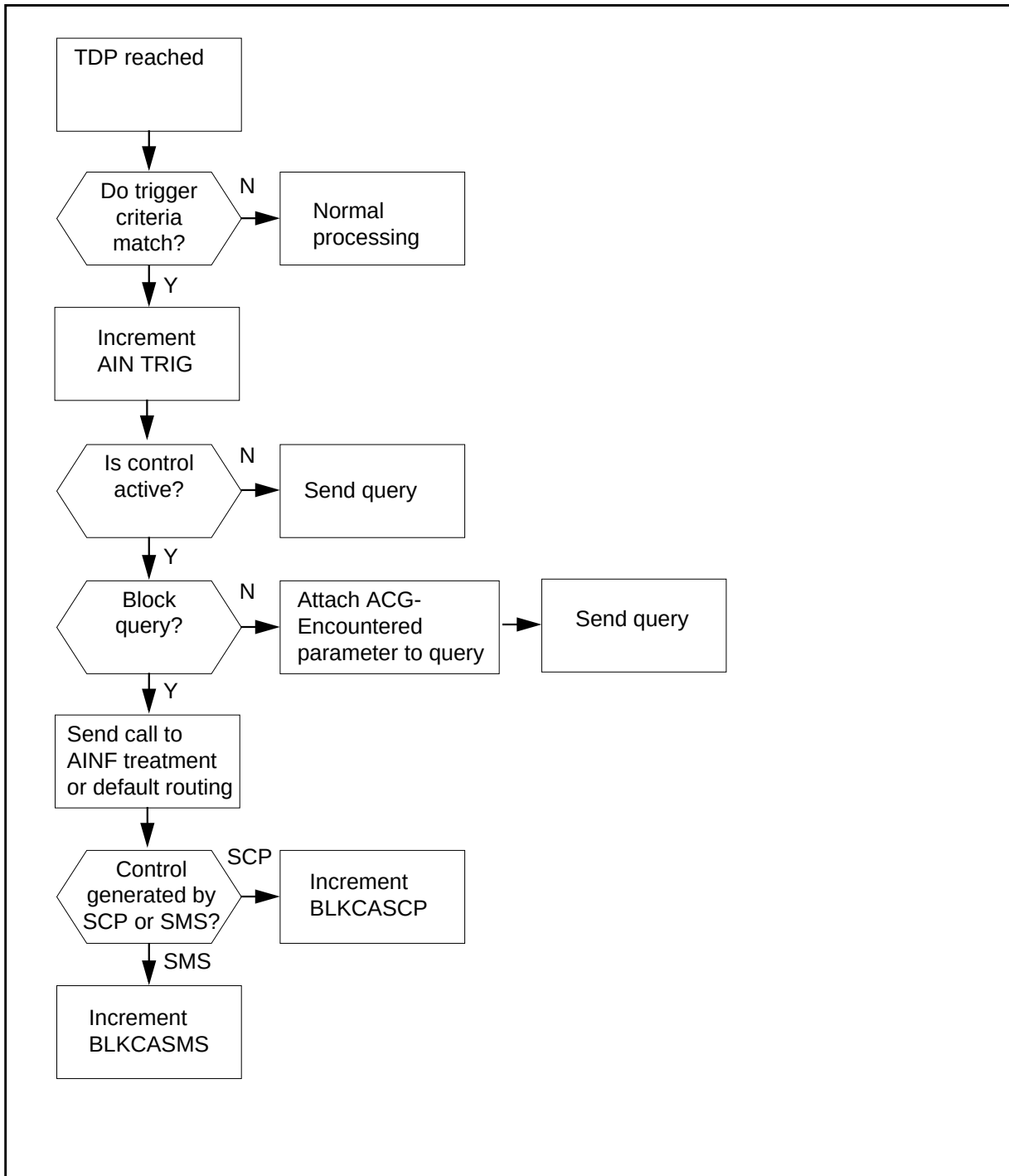
OM group AINACG (continued)

Associated functionality codes

The functionality code associated with OM group AINACG is shown in the following table.

Functionality	Code
AIN Call Model Control	AIN00007

OM group AINACG (continued)**Figure 236 OM group AINACG registers CTRLCHA, SCPOVLDO, and SMSOVLDO**

OM group AINACG (continued)**Figure 237 OM group AINACG registers BLKCASCP and BLKCASMS**

OM group AINACG (continued)

Register BLKCASCP

Blocked call/query due to SCP overload controls

This register counts the number of AIN calls that are blocked by AIN ACG SCP overload control and are sent to either AIN default routing or AIN final treatment.

Register OAFLTCTL release history

Register BLKCASCP was introduced in NA005.

Associated registers

None

Associated logs

None

Extension registers

None

Register BLKCASMS

Blocked call/query due to SMS initiated controls.

This register counts the number of AIN calls that are blocked by AIN ACG SMS originated code control and are sent to either AIN default routing or AIN final treatment.

Register TSICOHD release history

Register TSICOHD was introduced in NA008.

Associated registers

None

Associated logs

None

Extension registers

None

Register CTRLCHA

Control list changes. Register CTRLCHA counts the number of times the following events occur:

- an AIN ACG item is added to the service control point (SCP) overload control list

OM group AINACG (continued)

- an AIN ACG item is added to the service management system (SMS) originated control list
- an existing control item in either list is replaced or removed

Note: When a control item is removed from the SCP or SMS control list using ACG restore functionality, it is not reflected in the CTRLCHA register

Register OATRIGFL release history

Register CTRLCHA was introduced in NA005.

Associated registers

None

Associated logs

Log AIN610 indicates addition or replacement of an existing control. Log AIN611 indicates removal of a control.

Extension registers

None

Register SCPOVLDO

SCP overload list overflow.

This register counts the number of times that no more ACG control items can be added to the AIN ACG SCP overload control list because the list is full.

Register TSIAPFC release history

Register SCPOVLDO was introduced in NA005.

Associated registers

None

Associated logs

Log AIN300 indicates the SCP control list overflow.

Extension registers

None

Register SMSOVLDO

SMS overload list overflow.

OM group AINACG (end)

This register counts the number of times that no more ACG control items can be added to the AIN ACG SMS originated control list because the list is full.

Register TSIASFC release history

Register =SMSOVLDO was introduced in NA005.

Associated registers

None

Associated logs

Log AIN301 indicates the SMS control list overflow.

Extension registers

None.

59. AIN message tracing tool

AINTrace (AIN TCAP Message Tracing) is a single-user CI tool available through the maintenance and administrative position (MAP) terminal. The tool displays CCS7 TCAP messages associated with a particular call. The messages can be to or from an off-board processor (for example, an SCP or adjunct). AIN messages are captured for a particular line or for a trunk by selecting the desired agent's terminal identifiers (TID) for tracing.

Using the AINTRACE CI commands, you can select TIDs by specifying a directory number (DN), line equipment number (LEN), ID number (for basic rate interface sets) or trunk group name and member number. You can add up to 40 selected TIDs to the list. You can also remove TIDs from the list. After selecting TIDs, you can set AINTRACE to start tracing. You must stop tracing to add TIDs to or remove TIDs from the list.

You can use AINTRACE for LNP tracing.

AINTRACE commands

The following AINTRACE functions are available:

- entering the AINTRACE environment
- selecting and removing line or TIDs from the tracing list
- starting and stopping the tracing process
- querying selected terminals and the status of the AINTRACE tool
- stepping backward and displaying the messages for a numeric step value
- quitting from the AINTRACE environment

Tracing of call messages on a maximum of 40 TIDs occurs in the interval between entries of the START and STOP commands.

Access the AINTRACE command from the CI MAP level by typing

>AINTRACE

and pressing the Enter key.

The following AINTRACE commands are available:

- HELP
- STATUS
- SELECT
- REMOVE
- START
- STOP
- FORMAT
- QUIT

Each option is described in the following sections.

HELP command

The HELP command displays the AINTRACE commands and a brief description of each command.

STATUS command

The STATUS command displays the current status of the tracing tool, the list of selected terminals, and the text format.

SELECT command

The select command provides various ways of selecting an originating terminal (line or trunk) for tracing. You can use the command more than once to select more than one terminal. For tracing Termination Attempt messages, use the Select command to select the originator of the call, instead of the terminator as is done with the TERMATT trigger.

SELECT command: DN

Use the following syntax to select a terminal by DN.

>SELECT DN <dn>

where <dn> is the selected terminal, based on a directory number.

Example:

>SELECT DN 6211185

Note: The SELECT DN command functions only on a switch that supports lines.

SELECT command: LEN

Use the following syntax to select a LEN.

>SELECT LEN <site> <frame> <bay> <drawer> <card>

where <site> is an optional site parameter (the default is HOST)
<frame> is a frame number
<bay> is a bay number
<drawer> is a drawer number
<card> is a card number

Examples:

>SELECT LEN 27 0 12 16
>SELECT LEN REM1 1 0 15 31

The SELECT LEN option selects a terminal based on the given LEN, consisting of an optional site parameter and four numbers that specify the frame, bay, drawer, and card of the desired equipment. Use the SELECT LEN command only on a switch that supports lines.

When you select a LEN where virtual identifier (VID) mapping is used (for example, keys on an EBS set), the command maps all VIDs to a single TID. As a result, the command selects all VIDs for tracing. Also see Section , "SELECT command: terminal" on page 80-3.

SELECT command: trunk

Use the following syntax to select a trunk.

>SELECT TRK <clli> <ckt>

where <clli> is a trunk name
<ckt> is the trunk circuit number

Example:

>SELECT TRK IBNMFITOG 3

SELECT command: terminal

Use the following syntax to select a terminal by node and terminal number.

>SELECT TID <node> <term>

where <node> is the terminal node
<term> is the terminal number

Example:

>SELECT TID 2 251

You can select a maximum of 10 TIDs at a time.

You can use the “SELECT TID” syntax with VIDs. When entering the command, specify the virtual TID node and terminal numbers instead of the TID node and terminal numbers.

SELECT command: LTID

Use the following syntax to select a logical terminal.

>SELECT LTID <ltgrp> <ltnum> <key>

where <ltgrp> is an LTID group on a BRI set
<ltnum> is the LTID number on the BRI set
<key> is the key for the line you want to trace

Note: The key must be a DN and not a feature key on the BRI set.

Examples:

>SELECT LTID ISDN 201
>SELECT LTID ISDN 201 3

SELECT command: attendant console

Use the following syntax to select an attendant console for tracing.

>SELECT AC <attnd_con_clli>

where <attnd_con_clli > is the attendant console CLLI for the terminal

Example:

>SELECT AC ATTKDKB

SELECT command: dynamic packet trunk

Use the following syntax to select a dynamic packet trunk (DPT) for tracing.

>SELECT DPT <clli> <string>

where <clli > is the DPT CLLI for the terminal, and <string> is the string associated with the CLLI

Example:

>SELECT DPT DPTEANTEGR 101

REMOVE command

The REMOVE command removes terminals from the list. The syntax of the REMOVE command is similar to that of the SELECT command. Use the STOP command to stop tracing before removing any terminals from the list.

REMOVE command: syntax 1

Use the following syntax to clear the terminal selection list.

>REMOVE ALL

REMOVE command: syntax 2

Use the following syntax to remove a terminal from the selection list, based on the directory number.

>REMOVE DN <dn>

where <dn> is a directory number

Example:

>REMOVE DN 6211185

REMOVE command: syntax 3

Use the following syntax to remove a terminal from the selection list based on the parameters that you enter. When you select a LEN where VID mapping is used (for example, keys on an EBS set), the command maps all VIDs to a single TID. As a result, the command removes all VIDs. Also see Syntax 6.

>REMOVE LEN <site> <frame> <bay> <drawer> <card>

where <site> is an optional site parameter (the default is HOST)
<frame> is a frame number
<bay> is a bay number
<drawer> is a drawer number
<card> is a card number

Examples:

>REMOVE LEN 0 0 13 24

>REMOVE LEN REM1 1 0 15 21

REMOVE command: syntax 4

Use the following syntax to remove a trunk from the selection list, based on the CLLI and circuit number.

>REMOVE TRK <clli> <ckt>

where <cli> is a trunk name
<ckt> is the trunk circuit number

Example:

>REMOVE TRK IBNMFITOG 5

REMOVE command: syntax 5

Use the following syntax to remove a terminal, based on the node and terminal number.

>REMOVE TID <node> <term>

where node is the terminal node
term is the terminal number

Example:

>REMOVE TID 23 1042

REMOVE command: syntax 6

Use the following syntax to remove a logical trunk from the selection list.

>REMOVE LTID <ltgrp> <ltnum> <key>

where ltgrp is an LTID group on a BRI set
ltnum is the LTID number on the BRI set
key is the key for the line

Examples:

REMOVE AC <attnd_con_cli>

REMOVE command: syntax 7

Use the following syntax to remove an attendant console from the selection list.

>REMOVE AC <attnd_con_cli>

where <attnd_con_cli> is the attendant console CLI for the terminal

Examples:

>REMOVE AC ATTKDKB

REMOVE command: syntax 8

Use the following syntax to remove a DPT from the selection list.

>REMOVE DPT <dpt_clli>

where <dpt_clli> is the DPT CLLI for the terminal

Examples:

**>REMOVE DPT
DPTEANTEGATM**

START command

The START command starts tracing activity for calls originating on the selected terminals.

In log AINT 700 , AINTRACE captures all TCAP messages on the interface, query and response in conversation, that have terminals matching any of those in the list.

STOP command

The STOP command stops tracing activity that originates on the selected terminals and no further messages are captured in log AINT 700.

Use the STOP command to stop tracing activity before you add or remove terminals from the list.

FORMAT command

The FORMAT command determines the way in which messages display on the MAP terminal when you use the OPEN or BACK commands. The default format is hexadecimal.

Syntax:

>FORMAT <option>

where <option> is one of
 - text to indicate text display
 - hex to indicate hexadecimal display
 - both to indicate hexadecimal and text display

Example:

>FORMAT both

QUIT command

The QUIT command leaves the AINTRACE environment and returns to the CI level.

Supported messages and parameters

The AINTRACE tool supports AIN Essentials and AIN Service Enablers messages and parameters, see Table 80-1 on page 80-10 and Table 80-2 on

page 80-13.

Table 80-1 AIN Service Enabler messages reported by AINTRACE (Sheet 1 of 4)

Type	Message
SSP call-related messages	Call_Info_From_Resource
	Close
	CTR_Clear
	Failure_Outcome
	Info_Analyzed
	Info_Collected
	Network_Busy
	O_Abandon
	O_Answer
	O_Called_Party_Busy
	O_Disconnect
	O_Mid_Call
	O_No_Answer
	O_Suspected
	O_Term_Seized
	Origination_Attempt
	Resource_Clear
	Success_Outcome
	T_Answer
	T_Busy
	T_Disconnect
	T_Mid_Call
	T_No_Answer
	Termination_Attempt
	Term_Resource_Available
	Timeout

Table 80-1 AIN Service Enabler messages reported by AINTRACE (Sheet 2 of 4)

Type	Message
SCP or adjunct call-related messages	Acknowledge
	Analyze_Route
	Authorize_Termination
	Call_Info_To_Resource
	Cancel_Resource_Event
	Close
	Collect_Information
	Connect_To_Resource
	Continue
	Create_Call
	Disconnect
	Disconnect_Leg
	Forward_Call
	Merge_Call
	Move_Leg
	Offer_Call
	Originate_Call
	Reconnect
	Send_To_Resource
	Split_Leg

Table 80-1 AIN Service Enabler messages reported by AINTRACE (Sheet 3 of 4)

Type	Message
noncall-related messages	ACG
	ACG_Global_Ctrl_Restore
	ACG_Global_Ctrl_Restore_Success
	ACG_Overflow
	Control_Request
	Echo_Reply
	Echo_Request
	Furnish_AMA_Information
	Monitor_For_Change
	Monitor_Success
	NCA_Data
	NCA_Request
	NCA_Response
	Query_Request
	Query_Response
	Request_Report_BCM_Event
	Send_Notification
	Status_Reported
	Termination_Notification
	Update
	Update_Data
	Update_Request
	Update_Success

Table 80-1 AIN Service Enabler messages reported by AINTRACE (Sheet 4 of 4)

Type	Message
abnormal	Application_Error
	Report_Error
	Failure_Report
Note: Messages in shaded areas are not supported for this release.	

Table 80-2 lists supported parameters for supported messages. All unsupported incoming parameters are displayed in HEX regardless of whether the formatting option selected was “Text” or “HEX.” New and changed parameters are indicated by bold text.

Table 80-2 Parameters supported by AINTrace in NA011 (Sheet 1 of 2)

AccessCode	CloseCause	NotificationIndicator
ACGEncountered	CollectedAddressInfo	ONoAnswerTimer
AlternateBillingIndicator	CollectedDigits	OriginalCalledPartyID
AlternateCarrier	ConnectTime	OutpulseNumber
AlternateTrunkGroup	ControlCauseIndicator	OverflowBillingIndicator
AMAAAlternateBillingNumber	ControllingLegTreatment	PassiveLegTreatment
AMABusinessCustomerID	DestinationAddress	Prefix
AMADigitsDialedWC	DisconnectFlag	PrimaryBillingIndicator
AMALineNumber	DisplayText	PrimaryTrunkGroup
AMAMeasure	EchoData	RedirectingPartyID
AMAMeasurement	EDPNotification	RedirectionInformation
AMAsIpID	EDPRequest	ResourceType
Amp1	ErrorCause	SecondAlternateBillingIndicator
AnswerIndicator	FacilityGID	SecondAlternateCarrier
ApplicationErrorString	FacilityMemberID	SecondAlternateTrunkGroup
BearerCapability	FacilityStatus	Spid
BusyCause	FailureCause	StatusCause
BusyType	ForwardCallIndicator	StrParameterBlock
CalledPartyID	GapDuration	Tcm

Table 80-2 Parameters supported by AINTrace in NA011 (Sheet 2 of 2)

CalledPartyStationType	GapInterval	TerminationIndicator
CallingPartyBGID	GenericAddress	TimeoutTimer
CallingPartyID	GenericAddressList	TNoAnswerTimer
Carrier	GenericName	TranslationType
CarrierUsage	GlobalTitleAddress	TriggerCriteriaFlag
ChargeNumber	IPReturnBlock	TriggerCriteriaType
ChargePartyStationType	Lata	UserID
ClearCause	MonitorTime	VerticalServiceCode
ClearCauseData	NetworkSpecificFacilities	

SOC idle warning

Since the AIN00210, AIN00220, AIN00230, AIN0024X SOC options control parameter use, AINTrace warns the user that SOC options are idle in the following scenarios:

- AIN Release 1 SOC (AIN00210), AIN Release 2 SOC (AIN00220), AIN Release 3 SOC (AIN00230), and AIN Release 4 SOC (AIN0024X) are all idle.
- AIN Release 1 SOC (AIN00210) is on but the AIN SOC options of the later Releases are idle.
- AIN Release 2 SOC (AIN00220) are on but the AIN SOC options of the later Releases are idle.
- AIN Release 3 SOC (AIN00230) are on but the AIN SOC options of the later Releases are idle.

Table 80-3 summarizes the behavior of AINTrace when the controlling SOC options are in an idle state.

Table 80-3 AINTrace Behaviour for SOC-idle messages and parameters

Scenario	AINTrace behaviour
Incoming message is supported, but it is controlled by an SOC option that is currently idle.	The message is displayed with the warning “message is associated with SOC option <option name> that is currently idle.” The option-names are as follows: • AIN Service Enablers Release 1 (AIN00210) • AIN Service Enablers Release 2 (AIN00220) • AIN SE R3 - GETS EACR (AIN00231) • AIN SE R4 - ISDN IW (AIN00241) • AIN SE R4 - OTS (AIN00242) • AIN SE R4 - TCM Control (AIN00243) • AIN SE R4 - Collect Info (AIN00244) • AIN SE R4 - OHF Esc ICM (AIN00245)
Incoming parameters are supported, but are controlled by an SOC option that is currently idle.	The parameter is displayed with the warning “parameter is associated with SOC option <option name> that is currently idle.” The option names are listed immediately above.

Details on the AIN SE Release 4 SOC options are provided in Table 80-4

Table 80-4 AIN SE Release 4 SOC Options (Sheet 1 of 2)

Feature	SOC Option
Base AIN SE Release 4	AIN00240
Channel_Setup_PRI Trigger	AIN00241
Prefix Triggers	AIN00242
T_Answer Event	AIN00243
T_Busy Trigger	AIN00243

Table 80-4 AIN SE Release 4 SOC Options (Sheet 2 of 2)

Feature	SOC Option
T_No_Answer Trigger	AIN00243
Collect_Information Response	AIN00244

Viewing AIN 700 logs using the LOGUTIL tool

The AIN 700 logs can be viewed using the LOGUTIL tool. The following instructions describe the use of the LOGUTIL tool for viewing AIN 700 logs:

- To view the AIN 700 logs, the user opens the log ('OPEN AIN 700'). The last generated log is displayed. The full set of LOGUTIL traversal commands are available. ('BACK [ALL],' 'FORWARD [ALL],' 'FIRST,' etc.).
- To view real-time AINTRACE-captured messages, invoke the 'START' command. LOGUTIL tool will start dumping the logs. Logs can be filtered using the command line 'DELREP PRT2 PM NETM LINE AUD AUDT.'
- For best performance, the user should have two separate MAPCI sessions for AINTRACE and for the LOGUTIL tool. When one MAPCI session is used for both, the following issues are involved
 - Because both AINTRACE and the LOGUTIL tool use the same commands, they mask each other depending on which tool command was entered last. When the LOGUTIL tool was entered last, AINTRACE's commands are executed by specifying the AINTRACE command. To specify AINTRACE, type 'AINTRACEDIR.<command>' (for example, 'AINTRACEDIR.STOP')
 - When the user has invoked continuous log dumping in the LOGUTIL tool ('START; WHILE TRUE (SLEEP 100)'), the volume of logs being dumped may cause difficulty in invoking further commands. To halt log dumping, invoke the LOGUTIL STOP command. Note that quitting from the LOGUTIL tool ('QUIT') will not halt log dumping.
- AINTRACE must not be tracing messages when the user wishes to use the SELECT or REMOVE command.

AINTRACE example 1

Table 80-5 on page 80-18 shows an example of using AINTRACE. The call scenario originates a call that hits an SDS trigger, sending a multi-component message containing a Continue operation and a Request_Report_BCM operation, and then terminates the call. AINTRACE captures the messages

sent between the SSP and SCP and decodes the AIN Service Enablers messages and parameters.

Table 80-5 SDS trigger, Continue and Request_Report_BCM, with Close response (Sheet 1 of 2)

>aintrace AINTRACE: >select dn 7225035 2 MADN members found 2 terminals selected >start Tracing started. Messages will be logged to log AINT 700. >stop Tracing stopped. Messages were logged to log AINT 700. >logutil >open AINT 700 COMI09BC AINT700 NOV07 14:57:16 9900 INFO AINTrace Report TID: 173 256 Agent: LEN HOST 02 0 02 01 DN 7225035 KEY 1 Direction: Incoming TCAP Package Type: Response Transaction IDs: Hex ID = 40000000 Component Sequence: Component Type: Invoke(Last) Component ID(s): Hex ID = FF Decimal ID = 255 Message: Close UserId Dn: 6137225035 Bearer Capability: Speech Close Cause: Call Terminated >back COMI09BC AINT700 NOV07 14:57:12 9900 INFO AINTrace Report TID: 173 256 Agent: LEN HOST 02 0 02 01 DN 7225035 KEY 1 Direction: Incoming TCAP Package Type: Conversation With Permission Transaction IDs: Hex ID = 40000000 Component Sequence: Component Type: Invoke(Last) Component ID(s): Hex ID = 01 Decimal ID = 1 Hex ID = 76 Decimal ID = 118 Message: Continue Component Sequence: Component Type: Invoke(Last) Component ID(s): Hex ID = 02 Decimal ID = 2 Hex ID = 76 Decimal ID = 118 Message: Request_Report_BCM_Event SDS .			

Table 80-5 SDS trigger, Continue and Request_Report_BCM, with Close response (Sheet 2 of 2)

>back

COMI09BC AINT700 NOV07 14:57:10 9900 INFO AINTrace Report

TID: 173 256

Agent: LEN HOST 02 0 02 01 DN 7225035 KEY 1

Direction: Incoming

TCAP Package Type: Conversation With Permission

Transaction IDs: Hex ID = 8F0000

Component Sequence:

Component Type: Invoke(Last)

Component ID(s): Hex ID = 76 Decimal ID = 118

Message: Info_Analyzed

UserId Dn: 6137225035

BearerCapability: speech

CalledPartyID: 6136212234

Nature of Number: Subscriber number

Numbering Plan: ISDN Numbering Plan

TriggerCriteriaType: npaNXXXXXX

ChargeNumber: 6137225035

Nature of Number: ANI of the calling party; national number

Numbering Plan: ISDN Numbering Plan

CallingPartyID: 6137225035

Nature of Number: Non-unique national number

Numbering Plan: ISDN Numbering Plan

Presentation Indicator: Presentation allowed

Screen Indicator: Network provided

ChargePartyStationType: IdentifiedLine - No Special Treatment

Carrier: 0110

Carrier Selection: Selected identification code presubscribed and
not input by calling party

Limitations

AINTRACE has the following limitations and restrictions:

- AINTRACE is a single user tool.
- The maximum number of TIDs which can be selected at a time is 40.
- AINTRACE has no facility for tracing calls or retaining data over a restart. On a restart, messages are preserved while all other data is lost and the tool is re-initialized.
- AINTRACE does not capture a message when any non-call-related error occurs while building a query message or when a protocol error occurs.
- AINTRACE does not capture messages that are not part of a transaction.
- AINTRACE is not designed to handle all erroneous TCAP messages.

When an agent's TID is mapped to virtual identifiers (VIDs), (as in the case where there is more than one DN for each LEN) then the TID itself cannot be traced. Information can be collected against the VIDs.

Although AINTRACE has the capability of tracing VIDs that are associated with a TID, AINTRACE cannot trace feature keys, even when the feature key has a VID assigned to it. AINTRACE can only trace lines or trunks.

60. Translation verification tool

The translation verification tool (TRAVER) is a utility that enables a craftsperson to examine translation and routing data of a simulated call for maintenance and verification purposes. The routing and translation data is displayed for a single leg of a call and the originating and terminating agents of the call leg are specified by the user. All lines and trunk groups currently supported by AIN Essentials SSP are supported by TRAVER.

This utility has been enhanced to display AIN Essentials SSP-specific information. No AIN Essentials SSP query is launched by this utility. AIN Essentials SSP can be activated by transitioning the two key ASOC options to the ON state. Regardless of whether these ASOC options are in the ON or IDLE state, TRAVER will always display AIN Essentials SSP-specific information. With AIN Essentials SSP not activated, that is, option AIN00002 and AIN00006 are in the IDLE state, TRAVER provides a method for craftspeople to verify AIN Essentials SSP-specific information before activating AIN Essentials SSP in the office.

When the TRAVER command is executed, call processing is simulated and each TDP in the originating and terminating call models will be encountered. When a TDP is encountered, the following actions take place:

- Subscription to any of the triggers at the TDP is determined. In the originating call model, for triggers that may be subscribed on different bases, trigger subscription is checked in the following order of precedence:
 - individual (line or trunk group) based triggers
 - customer group based triggers
 - office based triggers

Note: Subscriptions to triggers for the terminating call model are DN based.

- If no triggers are subscribed at the TDP, an informational message is displayed and the call processing simulation continues.
- If a trigger is subscribed at the TDP, the entry from table TRIGGRP that defines the trigger is displayed. Criteria checking is then performed. For

the Off-Hook Immediate, Off-Hook Delay, and Termination Attempt triggers, the activation state is also checked. This check is treated by TRAVER as an additional form of criteria checking.

- Messages are displayed if TRAVER encounters a trigger that is either applicable or inapplicable to a subscriber.
- If the trigger is subscribed but its criteria is not met, an informational message is displayed and simulation of call processing continues.
- If trigger is subscribed and criteria is met but neither of the AIN00002 or AIN00006 ASOC options are in the ON state, a message is displayed and simulation of call processing continues. Please refer to Chapter 21.: “Software optionality control” on page 415 for more details on TRAVER behavior when the ASOC options are in the IDLE state.
- If the trigger is subscribed, its criteria is met, and both the AIN00002 and AIN00006 ASOC options are in the ON state, an informational message is displayed and the entry in table TRIGINFO or TRIGDIG that specifies the messaging and protocol information for this trigger is displayed. Simulation of the call finishes at this point.

The AIN Table TRIGGRP indexes into Table TRIGINFO or TRIGDIG for SCP/adjunct related information. The GTT field in table TRIGINFO or TRIGDIG indexes into table C7GTTTYPE and the TT value is datafilled under the GTNUM field in table C7GTTTYPE. The source of GTV value depends on the GTSOURCE (also known as STPGTSCD in TR-NWT-001284) in table TRIGINFO or TRIGDIG. When the GTSOURCE is specified as “default source” (only default GTSOURCE is currently supported), the GTV value, depending upon triggers, could be the digits field of the ChargeNumber parameter or that of the CalledPartyID parameter. The GTV value together with the GTT field in Table TRIGINFO or TRIGDIG indexes to Table C7GTT for GTT result. TRAVER displays the corresponding tuples in Table C7GTTTYPE and C7GTT. Moreover, if the ChargeNumber is populated with SPB option for line origination and is used to derive GTV, then the corresponding tuple from Table LENFEAT, IBNFEAT or KSETFEAT will also be displayed.

Special consideration is given to the AFR trigger. This trigger occurs at the Network Busy TDP which will only be encountered if all routes in the route list are busy. Since TRAVER is only a call simulation, routes will not be busy and criteria for this trigger will never be met. Therefore, TRAVER handles the AFR trigger in the following way. If AFR is encountered in the route list then subscription to the AFR trigger is checked. If the AFR trigger is subscribed, an informational message is displayed indicating that triggering would take place if all routes were busy. The corresponding TRIGGRP and TRIGINFO table entries are displayed and simulation of call processing continues.

The Termination Attempt TDP will only be encountered if simulation of call processing is not terminated by “triggering” at any of the originating TDPs.

For AIN Essentials SSP triggers, it is possible to specify trigger criteria based on call type. TRAVER assumes “voice” as the default call type. If the user wishes to test calls of other call types, the TRAVER BC (bearer capability) option should be used.

Figure 239 shows the TRAVER output that simulates a call made from a POTS line specified by DN 6211172 where no digits are dialed. Triggering takes place at the Off-Hook Immediate trigger.

Figure 239 Example TRAVER output

```

>traver l 6211172 n b
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 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
HOST 00 0 02 01 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE TRIGGRP
LNTRIGGRP_ALBERT ORIGATT
. OFFHKIMM ( CT VBINFO)$ JAZZINFO
Trigger R01 OFFHKIMM is applicable to individual POTS line.
Trigger R01 OFFHKIMM: Trigger is active. (Use AINCI CHANGESTATE command
to alter activation state.)
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE LENFEAT
. . . TUPLE NOT FOUND
. . . TABLE C7GTT
. . . AINJAZZ 6136211172 6136211172 SSNOONLY (AINTTEST) $
AIN Orig Attempt TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

AIN Orig Attempt TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

```

60.1 Limitations

TRAVER has the following limitations and restrictions:

- TRAVER does not build into a generated query message all the parameters that real call processing support. The user must manually add any missing parameters with TSTQuery.

- TRAVER does not support the Network_Busy TDP and LNP triggers for query message building.
- TRAVER does not support the attendant console agent for query message building.
- Calls that route through TR-NWT-000533 E800 are not traced by TRAVER, however calls that use AIN Service Enablers' toll-free service are.
- LEAS traffic is not supported in TRAVER for query messages populating the Lata parameter.

60.2 TRAVER command

The TRAVER command and its options are:

```
>TRAVER    <ORIG> ...
                L <LINE> STRING ...
                TR <CLLI> STRING ...
                <DIGITS OR N FOR NO DIGITS> STRING
                [<CDNIE> CDN ...
                [<TNSIE> {TNS ...} ...
                [<BC> {BC <BCNAME> STRING}} ...
                [<AIN_OPTIONS> {AIN [<AIN_CHG> {AINCHG
<DIGITS> STRING}}]
                                                [<AIN_MQG>
{AINMQG}}}]
                [<AININFO>]{AINRES} ...
                <TRACE> {T, NT, B} ...
                [<BILLNO> STRING] ...
```

60.3 AINCHG option

The option AINCHG is used to simulate

- ChargeNumber digits sent by SCP if TRAVER's AINRES option is present and the Response contains a ChargeNumber parameter, or
- ANI digits for MF trunks, CPN digits for PRI trunks, and ISDNUP ChargeNumber digits for ISUP trunks.

Note: TRAVER can simulate three responses: Analyze_Route, Forward_Call, and Continue. Only the first two can possibly contain a ChargeNumber parameter.

In the case of line origination, AINCHG option is ignored if AINRES option is not also specified since the originator's ANI should be used as the ChargeNumber unless it is specified by the SCP. However, since ANI does not exist for trunks, AINCHG has to be specified for TRAVER or GTV defaults to 0s.

In order to achieve maximum flexibility, the option AINCHG accepts up to 18 digits as input. However, any input that is not 10-digits long is left-justified and is filled with 0s (or truncated) to 10 digits before it is used as the source of the GTV to index into table C7GTT.

Table 362 shows a sample TRAVER output for a simulated call originating on an ISUP trunk. Charge number digits were provided for the trunk using the AINCHG option.

Table 362 Example TRAVER output using AINCHG option

```

>traver tr aintat_ibn317ti1 6136218000 ain ainchg 6137228001 t
TABLE TRKGRP
AINTAT_IBN317TI1 IBNTI 0 ELO NCRT COMKODAK 0 0 6137228002 ANSDISC 0 N N N
N N Y
      N 0 0 N N N N N $ NATL $
. . TABLE TRKAIN
. . AINTAT_IBN317TI1 TRKTRIGGRP2_AUTO
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 6 COL L 1
TABLE IBNXLA: XLANAME PXDK
PXDK 613 NET N N 3 N NDGT N N DOD N 0 NONE $
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 1
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.

```

Table 362 Example TRAVER output using AINCHG option (Continued)

```

. 621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 Y 932 2 ( 436) ( 1) ( 84) ( 0) 2 $
. SUBTABLE HNPACODE
. 6218 6219 DN 613 621
TABLE TRIGGRP
TRKTRIGGRP2_AUTO INFOCOL
. OFFHKDEL ( ESC )$ ROCKINFO
Trigger AIN OFFHKDEL is applicable to individual IBN trunk.
Trigger AIN OFFHKDEL: Trigger is active.
    (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGESC
. . TUPLE NOT FOUND
. . TABLE TRIGINFO
. . ROCKINFO EVENT TCAP R01 SS7 AINROCK DFLT $
. . . TABLE C7GTTYPE
. . . AINROCK ANSI7 5 $
. . . TABLE C7GTT
. . . AINROCK 6137228001 6137228001 PCSSN (AINTATM_RTESET2 AIN01 0) $ SSN
AIN Info Collected TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

60.4 AINMQG option

The AINMQG option allows for the creation of query messages at certain TDPs. TRAVER saves the query message to a file which can be subsequently loaded into the TSTQuery tool for transmission to the SCP.

See Section 60.4.12 “TRAVER examples with AINMQG option”.

Figure 240 shows a sample output file resulting from the AINMQG option. The file can be subsequently imported by the TSTQuery tool and sent to the SCP.

Figure 240 TRAVER output file resulting from AINMQG option

```
SetAppl R01
SetMsg Info_Analyzed
BearerCapability speech
CalledPartyID 3 1 6132545000
CallingPartyID 1 1 0 3 61362550000
Carrier 1 0110
ChargeNumber 3 1 6136255000
Lata 0 0 111
TriggerCriteriaType npaXXXXXX
UserId Dn 6132545000
```

Table 363 lists the TDPs and triggers where TRAVER can build a message. Table 363 also lists the parameters supported in TRAVER for those messages.

Note: Not all parameters are applicable to all triggers.

Table 363 Triggers, messages and parameters supported by TRAVER

TDP	Trigger	Parameter	Description
Origination_Attempt	OHI	BearerCapability	Section 60.4.2 on page 1040
		CallingPartyID	Section 60.4.4 on page 1042
		Carrier	Section 60.4.8 on page 1044
		ChargeNumber	Section 60.4.5 on page 1042
		Lata (Note)	Section 60.4.7 on page 1044
		TriggerCriteriaType	Section 60.4.9 on page 1045
		UserID (Note)	Section 60.4.10 on page 1045

Table 363 Triggers, messages and parameters supported by TRAVER (Continued)

TDP	Trigger	Parameter	Description
Info_Collected	OHD INTEROFF	AccessCode	Section 60.4.1 on page 1040
		BearerCapability	Section 60.4.2 on page 1040
		CallingPartyID	Section 60.4.3 on page 1041
		Carrier	Section 60.4.8 on page 1044
		ChargeNumber	Section 60.4.5 on page 1042
		CollectedAddressInfo	Section 60.4.6 on page 1043
		Lata (Note)	Section 60.4.7 on page 1044
		TriggerCriteriaType	Section 60.4.9 on page 1045
		UserID (Note)	Section 60.4.10 on page 1045
Info_Analyzed	PODP N11 CDP PODPFEAT	AccessCode	Section 60.4.1 on page 1040
		BearerCapbility	Section 60.4.2 on page 1040
		CallingPartyID	Section 60.4.3 on page 1041
		CalledPartyID	Section 60.4.4 on page 1042
		Carrier	Section 60.4.8 on page 1044
		ChargeNumber	Section 60.4.5 on page 1042
		CollectedAddressInfo	Section 60.4.6 on page 1043
		Lata (Note)	Section 60.4.7 on page 1044
		TriggerCriteriaType	Section 60.4.9 on page 1045
		UserID (Note)	Section 60.4.10 on page 1045
		VerticalServiceCode	Section 60.4.11 on page 1046
Termination_Attempt	TAT	BearerCapability	Section 60.4.2 on page 1040
		CalledPartyID	Section 60.4.3 on page 1041
		CallingPartyID	Section 60.4.4 on page 1042
		ChargeNumber	Section 60.4.5 on page 1042
		Lata (Note)	Section 60.4.7 on page 1044
		TriggerCriteriaType	Section 60.4.9 on page 1045
		UserID (Note)	Section 60.4.10 on page 1045
Note: This parameter is only partially supported.			

When TRAVER detects that a trigger's criteria have been met it builds the appropriate message as much as possible from the TRAVER call context. If values for any portion of the message (for example, the charge number for a trunk originated call) are not available in the existing TRAVER call context, then the TRAVER user is interactively prompted for the values needed. If the parameter is mandatory, the user must provide a value. If the parameter is optional, the user can choose not to provide a value.

Table 364 summarizes parameters which are supported by TRAVER for the AINMQG option. It shows for each agent how the parameter values are determined from the call scenario based on the type of agent with which the trigger is associated. All agents that TRAVER currently supports for triggering are supported for message generation, except for the attendant console agent.

Table 364 Summary of TRAVER methods to generate parameters

Parameter	Agent			
	Line	PRI	ISUP	MF
AccessCode	D	-	-	-
BearerCapability	D	D	D	D
CalledPartyID	D	D	D	D
CallingPartyID	D	D/P	P	P
ChargeNumber	D	D	D	D
CollectedAddressInfo	D	D	D	D
Lata	D	D	D	D
Carrier	D	D	D/P	D/P
TriggerCriteriaType	D	D	D	D
UserID	D	D	D	D
VerticalServiceCode	D	-	-	-
Legend D = derived from call context and/or static datafill P = prompted for when needed - = Not supported or not applicable				

The following sections detail how the parameters are populated by TRAVER.

Some sections provide a precedence list for the population of parameters by TRAVER. This list contains conditions based on command line options, datafill, or other data. TRAVER uses this list sequentially until it encounters a condition that is satisfied, at which point it populates the parameter based on that satisfied condition.

60.4.1 AccessCode

The following access codes are supported:

- access code to public environment (9+)
- access code to private routes (ESN (6+))
- SCP feature access codes (*XX)

All access codes are datafilled in IBNXLA and must be matched in this table for the parameter to be populated.

The AccessCode parameter uses the AINDigits format and its fields are populated as follows:

- Nature of Number is set to “not applicable”
- Numbering Plan is set to “unknown or not applicable”
- Digits contains an access code of one to five digits.

60.4.2 BearerCapability

The BearerCapability parameter is populated in the following sequence:

- entry on the command line via the BC option
- BearerCapability dialed (for private agents)
- subscribed in one of the following tables: KSFEAT, IBNFEAT, DNATTRS, TRKGRP
- the default BearerCapability in table OFCENG or ‘56KDATA’ for data calls

Table 365 shows the mapping between TRAVER BearerCapability values and those populated in the BearerCapability parameter.

Table 365 Mapping of TRAVER BC option to AIN BearerCapability values

TRAVER BC option value	AIN BearerCapability value
SPEECH	speech
64KDATA	b64kbps
64KX25	packetModeData (Note 1)
56KDATA	b56kbps
DATAUNIT	b56kbps
64KRES	b64kbps (Note 2)
3_1KHZ	f31kHzaudio
7_KHZ	f7kHzaudio
VOICE_DATA	(Note 3)
64K_RATE_AD_DATA	(Note 3)
Note 1: Not supported by AIN Service Enablers Note 2: Not supported due to GR restriction Note 3: Not supported by DMS-100 switches	

60.4.3 CalledPartyID

This parameter contains the address of the called party when the SSP detects the PODP, N11, or Termination_Attempt trigger. It follows the AIN Digits format.

For public calls triggering at PODP and N11, Table 366 specifies the values that can populate the CalledPartyID fields.

Table 366 CalledPartyID field values for public calls

CalledPartyID field	Values
Numbering Plan	ISDN
Digits	10 digits for national or local calls 3 to 5 digits for international calls

The value of the Nature of Number fields is determined through translations.

For private calls triggering at Termination_Attempt, Table 367 specifies the values that can populate the CalledPartyID fields:

Table 367 CalledPartyID field values for private calls

CalledPartyID field	Values
Nature of Number	Not Applicable
Numbering Plan	Private
Digits	10-digit address

60.4.4 CallingPartyID

Table 368 contains the rules TRAVER uses to populate the fields of the CallingPartyID parameter.

Table 368 TRAVER population of CallingPartyID parameter based on call type

CallingPartyID field	Line Originator	Trunk Originator
Digits	10-digit DN of the originating line (if 7 digit then prefix NPA)	The values are prompted for. To see which values are possible for these fields, see TR-NWT-000317 for ISUP and see TR-NWT-001268 for PRI. (Note 1)
Nature of Number	unique national number or non-unique national number	
Numbering Plan	ISDN	
Presentation Restriction Indicator	presentation allowed or presentation restricted (Note 2)	
Screening Indicator	network provided	
Note 1: For PRI trunks the mapping in document TR-NWT-000444 is used and for ISUP trunks there is a 1:1 mapping.		
Note 2: This information is found in either DNATTRS or the LENFEAT, IBNFEAT, or KSETFEAT tables.		

For trunks, the digit field is populated based on the prompt for ISUP, PRI and MF non-local trunks

60.4.5 ChargeNumber

This parameter is populated by the AINCHG option if it appears on the TRAVER command line. For lines, the AINRES option must also appear on the command line, otherwise, the AINCHG number is ignored. If the

AINCHG option does not appear on the command line, the population of the parameter is dependent on the agent as follows:

- for lines (in precedence order):
 - SPB datafilled in one of the “FEAT” tables
 - CallingPartyID parameter value
- for ISUP trunks (in precedence order):
 - BILLNO option on TRAVER command line
 - billing number datafilled in the TRKGRP table, if applicable
 - derived CallingPartyID parameter

- for local MF/PTS trunks:

Billing number datafilled in the TRKGRP table, if applicable

Note: If BILLNO is on command line, it is ignored for local MF and PTS trunks.

- for PRI trunks (in precedence order):
 - BILLNO option on TRAVER command line
 - billing number datafilled in the TRKGRP table, if applicable
 - charge number in Table LTDATA/LTDEFS
 - derived CallingPartyID parameter
- for VFG trunks:
 - BILLNO in the VIRTGRPS table

60.4.6 CollectedAddressInfo

This parameter is sent when address digits are present and one of the following triggers is detected:

- the Off-Hook_Delay trigger
- the Shared_Interoffice_Trunk trigger
- the CDP trigger

The values used in populating the CollectedAddressInfo parameter are identical to those used for the CalledPartyID parameter, except for:

- The Digits field for a local call is populated with just the digits dialed (that is, seven digits, NPA not prefixed).
- For CDP triggering at extension numbers, the RPT digits determine how the digits get populated. For RPTDIGS with value ‘trans’ the 10-digit NA number is provided.

60.4.7 Lata

This parameter is sent by the SSP to the SCP or adjunct. The appropriate equal access tables must be datafilled (for example, LATANAME or LINEATTR).

The Lata parameter uses the AINDigits format, with fields populated as follows:

- Nature of Number is set to “not applicable”
- Numbering Plan is set to “unknown or not applicable”
- The digits field contains the digits corresponding to the lata derived through translations (that is, LINEATTR). The digits are in the LATANAME table.

The lata to be used is that of the triggering facility. TRAVER does not support LEAS trunks in the TRKLATA table.

60.4.8 Carrier

This parameter contains the carrier selection information and the carrier identification to which a call should be routed. The Carrier parameter is only applicable if the office is an EAEO.

The carrier is specified as XXX or XXXX and can be entered on the command line, picked up through translations, or subscribed to. In all cases the CarrierID field of this parameter is derived from the OCCINFO table.

The carrier is chosen in the following order:

- if the 10XXX, 101XXXX, “tns” or “cic” parameter is specified on the command line then
 - Carrier is picked up from command line
 - Carrier selection field is set to “Selected carrier identification code presubscribed and input by calling party”
- if the carrier is not specified on the TRAVER command line then
 - For public MF and ISUP trunks, prompt the user for the carrier
 - For all other agents, carrier is picked up through the following:
 - translations data (for example, IBNXLA EA option, LTCALLS)
 - subscription data (from the DNATTRS tables or “FEAT” tables such as LENFEAT or IBNFEAT)
- Carrier selection field is set to “Selected carrier identification code presubscribed and not input by calling party”.
- If the call is intra-lata non-toll then the “LEC” carrier code is used (0110).

60.4.9 TriggerCriteriaType

This parameter indicates the type of event that caused a trigger to occur. For triggers involving digit criteria, the trigger encountered is determined by the individual, group and office subscription data.

Table 369 lists the triggers that TRAVER can encounter and the corresponding TriggerCriteriaType value populated in the TriggerCriteriaType parameter.

Table 369 Trigger to TriggerCriteriaType mapping

Trigger encountered	TriggerCriteriaType Value
Off-Hook Immediate	Offhook Immediate
Offhook Delay	Offhook Delay
Shared Interoffice Trunk	Shared Interoffice Trunk
three-digit PODP	NPA
four-digit PODP	NPAN
five-digit PODP	NPANX
six-digit PODP	NPANXX
seven-digit PODP	NPANXXX
eight-digit PODP	NPANXXXX
nine-digit PODP	NPANXXXXX
ten-digit PODP	NPANXXXXXX
N11	N11
CDP Access Code	Customized Access
CDP Intercom Code	Customized Intercom
Termination Attempt	Termination Attempt
PODPFEAT	Vertical Service Code

60.4.10 UserID

This parameter contains the identity of the triggering facility. In situations where triggering occurs at or after the Termination_Attempt trigger the originating facility is the subscriber of the Termination_Attempt trigger.

In the case of the triggering agent being a trunk, since TRAVER never allocates facilities, it cannot know whether the trunk is PRI or ISUP. Therefore, by default, trunk subgroup 0 is used as the agent.

UserID is a mandatory query parameter. Therefore, failure to derive a calling party number for building the UserID parameter results in the call being sent to AINF treatment. In this case TRAVER does not build a query message and nothing is saved to file.

The values supported for the UserID parameter are:

- DN
 - for a line, uses the ten digit DN of the line
 - for PRI trunks, the DN is derived from the calling party number. The calling party number is derived as follows:
 - otherwise the default calling party number associated with the trunk group is taken from the table LTDATA (DN option) and used to build the UserID parameter
 - if the received or derived calling party number is ten digits in length then it is used to populate the UserID parameter
- TrunkGroupID

TrunkGroupID is populated with the contents of field ADNUM in table CLLI, corresponding to the name of the public trunk.
- PrivateFacilityGID

PrivateFacilityGID is populated with the contents of field ADNUM in table CLLI, corresponding to the name of the private trunk. VSC is not supported at the Off-hook_Delay trigger.

60.4.11 VerticalServiceCode

The VerticalServiceCode parameter contains the SCP vertical service code collected from the SSP (usually of the form *XX). The SCP VSC parameter is only supported for RES lines at the PFC trigger.

The fields of this parameter are populated as follows by TRAVER:

- Nature of Number is set to “not applicable”.
- Numbering Plan is set to “unknown or not applicable”.
- the digits field contains a VSC of one to ten digits inclusive, but the first digit may be an asterisk (*) or octothorpe (#). Both the asterisk or octothorpe should be sent with the digits in a query message. This field is populated in the same way as the SCP feature access codes (*XX) in the AccessCode parameter.

60.4.12 TRAVER examples with AINMQG option

Table 370 and Figure 241 on page 1050 each show a sample output of TRAVER using the AINMQG option.

Table 370 Example TRAVER output using AINMQG option

```
>traver l 6255000 2545000 AIN AINMQG b
TABLE IBNLINES
HOST 02 0 05 03 0 DT STN RES 6255000 200 $
TABLE LINEATTR
200 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
RESG200 AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG200 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG200 NXLA RXCMN200 RESGSTAR 0 RES
TABLE DIGCOL
RES specified: RES digit collection
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
```

Table 370 Example TRAVER output using AINMQG option (Continued)

```

TABLE IBNXLA: XLANAME RXCMN200
TUPLE NOT FOUND
Default from table XLANAME:
RXCMN200
(NET N N 0 N NDGT N Y GEN ( LATTR 262) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
262 1FR NONE NT FR01 0 613 EAP1 L613 TOPS 0 NIL NILSFC LATA1 0 NIL NIL 00
Y RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
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.
. 2 4 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 424) ( 1) ( 84) ( 0) 2
. SUBTABLE HNPACODE
. 254 255 LRTE 719
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPCODE INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
. CDPCODE ( DG CDPTRAF)$ NIL
Trigger AIN CDPCODE is applicable to customer group.

```

Table 370 Example TRAVER output using AINMQG option (Continued)

```

TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger AIN N11 is applicable to office.
. PODP ( DG PODPDIG)$ NILTrigger AIN PODP is applicable to office.
. . TABLE TRIGDIG
. . PODPDIG PODP 6132545000 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6132545000 6132545000 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Building the AINMQG query message.
Please enter storage location: <File Device> <File name])
>sfdev PODP
AINMQG Query message saved in file.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINRES option for further information

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

```

Figure 241 Example TRAVER output using AINMQG option with no trace (nt)

```
>traver l 6255000 2545000 AINMQG nt
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
AINMQG option selected, building message...
Please enter storage location ([device] [file name])
>sfdev PDDP
Use the AINRES option for further information

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

60.5 AINRES option

The TRAVER's AINRES option simulates processing of certain responses from an off-board processor. With this option, the TRAVER displays the AIN information encountered after the specified response is received. Hence, none of the pre-query information is displayed. There are four response messages supported by the AINRES option:

- Analyze Route

With this response, the terminating agent parameter must be a DN, a route list or a carrier. If the terminating agent is a route list, the call resumes at the Selecting Route point in call and the only TDPs that may be encountered are Network Busy and Termination Attempt. If the terminating agent is a DN or carrier, simulation of the call resumes at the Analyzing Information point in call and only the Information Analyzed, Network Busy and Termination Attempt TDPs may be encountered.

- Forward Call

This option operates in the same manner as the Analyze Route response option.

- Continue

TRAVER output begins at the Information Analyzed TDP. The purpose of the Continue response is to instruct the SSP to continue processing at the next trigger in the Information Analyzed TDP. Since this is only a simulated call and it is not known which trigger was last processed, TRAVER displays all triggers subscribed by the originator at the Information Analyzed TDP and continues simulation of the call. The Network Busy and Termination Attempt TDPs may be encountered.

- Authorize Termination

The AINRES TRAVER AT (Authorize Termination) option allows routing and billing information to be displayed after encountering the Termination Attempt TDP. When this option is used, the Origination Attempt (ORIGATT), Information Collected (INFOCOL) and Information

Analyzed (INFOANAL) TDPs are not displayed in the TRAVER, but the Termination Attempt (TERMATT) TDP is displayed.

Table 371 shows the TRAVER output for a simulated call that tries to terminate at 6211172 and triggers at TERMATT. The off-board processor responds with a Forward Call message with CDN 6137227030 and no carrier. The SSP routes the call according to the instructions in the FC response and terminates at DN 6137227030.

Table 371 Example TRAVER output using AINRES option

```

>traver l 6211172 n cdn na 6137227030 ainres r01 fc b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. CDNPUB (CDN NA $) (CDN IN $) ( BC 3_1KHZ (CDN NA)$) ( BC 3_1KHZ (CDN
IN)$)$
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 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
HOST 00 0 02 01 S AIN AIN LNTRIGGRP_ALBERT
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIGGRP_ALL
TABLE PXLAMAP
. Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
. 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
Trigger R01 N11 is applicable to office.

```

Table 371 Example TRAVER output using AINRES option (Continued)

```

613 984 1 ( 267) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 613 613 HNPA 0
. 722 722 NPOSDN 613 722
TABLE TRIGGRP
OFCTRIGGRP_ALL INFOANAL
. N11 ( DG N11DIG)$ NIL
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 722
TABLE DNINV
613 722 7030 L HOST 00 1 10 06
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE LCASCRCN
613 L613 ( 13) OPTL N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

60.6 TRAVER enhancements for the DMS trigger item interface

TRAVER supports trigger items implemented in the DMS Trigger Item Provisioning Interface.

When the value of the AIN_OFFICE_TRIGGRP tuple in the DMS table OFC VAR is `TIID' traver performs office wide trigger checking using the Trigger Item Provisioning Interface.

If a supported digit string based trigger (PODP, N11, LNP) is subscribed at the INFOANAL TDP, traver will display a message indicating whether the trigger is applicable or not at this TDP.

If the following conditions occur:

- the table name “TRIGITM” is displayed.
- the tuple in TRIGITM that matches the dialed digits is displayed.
- the trigger criteria for that trigger item are matched.

Then, the following items are displayed:

- the table name OFCTIID followed by the assignment tuple from the office wide trigger item assignment table OFCTIID.
- The table name TRIGITM.
- The tuple of the subscribed trigger item in table TRIGITM .
- the table name C7GTTYPE.
- The corresponding tuple of table C7GTTYPE.
- The table name C7GTT.
- The corresponding tuple of table C7GTT.

For AFR trigger item subscription, the AFR trigger occurs at the NETBUSY TDP, and is only encountered if all routes in the route list are busy. Since TRAVER is a call simulation, routes are not busy and criteria for this trigger are never met. Therefore, if AFR is encountered in the route list, subscription to the AFR trigger is checked. If the AFR trigger is subscribed, a message is displayed indicating that triggering would take place if all routes are busy. Tuples from tables OFCTIID, TRIGITM, C7GTTYPE, and C7GTT are displayed.

Figure 242 shows a typical TRAVER output.

Figure 242 Sample of TRAVER output

```

>TRAVER L 6136216054 2132550001 B
TABLE IBNLINES
HOST 00 1 08 02 0 DT STN RES 6216054 200 $
TABLE LINEATTR
200 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL
00 Y
RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
RESG200 AIN AIN CUSTTRIGGRP_CDP
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG200 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG200 NXLA RXCMN200 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME RXCMN200
TUPLE NOT FOUND
Default from table XLANAME:
RXCMN200
      (NET N N 0 N NDGT N Y GEN ( LATTR 200) (EA ITT Y 0) $ $)$ 9

```

Figure 243 Sample TRAVER output (Continued)

```

TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
200 1FR NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL
00 Y
RESG200 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 213 250 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 999 1 ( 298) ( 1) ( 84) ( 0) 3
. SUBTABLE HNPACODE
. 213 215 HNPA 0
. 255 255 LRTE 800
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CUSTTRIGGRP_CDP INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger AIN CDPCODE is applicable to customer group.
Trigger AIN SDS is applicable to office.
TABLE OFCTIID
SDSTRG1 04 ON
. TABLE TRIGITM
. (04 SDSTRG1) SDS 213255 ULK EVENT R02 SS7 AINJAZZ $
. . TABLE C7GTTYPE
. . AINJAZZ ANSI7 3 $
. . TABLE C7GTT
. . AINJAZZ 2132550001 2132550001 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

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

```

61 TSTQuery tool

TSTQuery is a menu-driven utility that enables operating company personnel to send AIN test queries to an SCP and display the incoming responses from the SCP.

TSTQuery provides the following capabilities:

- populate the parameters of an AIN query message
- read query message information from a file
- save query message information to a file
- send the query message
- allow responses to conversation messages
- generate a log of the outgoing and incoming messages
- overwrite the T1 timer for a given test query
- support of CCS7 and Ethernet transport protocol
- on-line help

Note: No billing records are generated from TSTQuery.

TSTQuery is a multi-user tool. The number of users is limited only by the number of MAPCI sessions that can be active at the same time. TSTQuery can have only one test transaction active at a time. After a test query is sent, the transaction must be closed by a response or some other sequence before another initial test query can be sent.



CAUTION

Possible loss of service

Avoid using the TSTQuery tool during peak traffic periods because of the low central processing unit (CPU) priority of command interpreter (CI) commands and the consequent impact on the T1 timer. Exercising this tool does not affect switch traffic.

Limitations

The TSTQuery tool has the following limitations and restrictions:

- Messages that originate from TSTQuery increment messaging OMs and the SOC counters that count event usage.
- The introduction of underscores into the message names means that TSTQuery files saved prior to NA009 cannot be loaded into versions of TSTQuery available as part of NA009 or later.
- Update_Data message is no longer valid as of NA009. Any TSTQuery files containing an Update_Data message cannot be loaded into versions of TSTQuery available as part of NA009 or later.
- The NEL (Next Event List) transmitted in the EDP-Request and EDP-Notification message parameters of the message Request_Report_BCM_Event (RRBCME) is not sanity checked or enforced. When any RRBCME message is received, all of the event request and notification messages are available for the user to send. It is up to the user to comply with the NEL sent in the RRBCME.
- The number of bytes that can populate the IPReturnBlock parameter is limited by the DMS Command Interface which restricts the number of characters that can be entered on a line. Since a byte can take up one, two or three characters, the actual number of bytes that can be entered depends on the size of the individual bytes entered.
- The SCP may attempt to cancel a non-user interruptible announcement when zero digits are collected by sending a Cancel_Resource_Event operation in a Conversation Package (GR-1298-CORE).

Supported messages and parameters

TSTQuery supports both AIN Essentials and AIN Service Enablers messages and parameters, depending on the selected values (either R01 and R02). Table 82-1 on page 82-5, Table 82-2 on page 82-8 and Table 82-3 on page 82-13 list the messages and parameters supported by TSTQuery for AIN Essentials and AIN Service Enablers (R01 and R02 application values). Note that TSTQuery

uses the AIN Service Enablers' (R02) implementation of parameters for R01

parameters that have been updated in GR1299.

Table 82-1 AIN Service Enablers messages reported by TSTQuery (Sheet 1 of 4)

Type	Message
SSP call-related messages	Call_Info_From_Resource
	Close
	CTR_Clear
	Failure_Outcome
	Info_Analyzed
	Info_Collected
	Network_Busy
	O_Abandon
	O_Answer
	O_Called_Party_Busy
	O_Disconnect
	O_Mid_Call
	O_No_Answer
	O_Suspected
	O_Term_Seized
	Origination_Attempt
	Resource_Clear
	Success_Outcome
	T_Answer
	T_Busy
	T_Disconnect
	T_Mid_Call
	T_No_Answer
	Termination_Attempt
	Term_Resource_Available
	Timeout

Table 82-1 AIN Service Enablers messages reported by TSTQuery (Sheet 2 of 4)

Type	Message
SCP or adjunct call-related messages	Acknowledge
	Analyze_Route
	Authorize_Termination
	Call_Info_To_Resource
	Cancel_Resource_Event
	Close
	Collect_Information
	Connect_To_Resource
	Continue
	Create_Call
	Disconnect
	Disconnect_Leg
	Forward_Call
	Merge_Call
	Move_Leg
	Offer_Call
	Originate_Call
	Reconnect
	Send_To_Resource
	Split_Leg

Table 82-1 AIN Service Enablers messages reported by TSTQuery (Sheet 3 of 4)

Type	Message
non-call-related messages	ACG
	ACG_Global_Ctrl_Restore
	ACG_Global_Ctrl_Restore_Success
	ACG_Overflow
	Control_Request
	Echo_Reply
	Echo_Request
	Furnish_AMA_Information
	Monitor_For_Change
	Monitor_Success
	NCA_Data
	NCA_Request
	NCA_Response
	Query_Request
	Query_Response
	Request_Report_BCM_Event
	Send_Notification
	Status_Reported
	Termination_Notification
	Update
	Update_Data
	Update_Request
	Update_Success

Table 82-1 AIN Service Enablers messages reported by TSTQuery (Sheet 4 of 4)

Type	Message
abnormal	Application_Error
	Report_Error
	Failure_Report
Note: Messages in shaded areas are not supported for this release.	

The following is the key to Table 82-2 on page 82-8 and Table 82-3 on page 82-13:

- B — both AIN Essentials and AIN Service Enablers support the parameter
- SE — only AIN Service Enablers supports the parameter
- a dash (-) — GR-1299 does not define the parameter
- X — GR-1299 defines the parameter, but TSTQuery does not support the parameter

Table 82-2 Outgoing messages and parameters supported by TSTQuery (Sheet 1 of 5)

	SSP call-related messages														non-call-related	abnormal
Parameters	Call_Info_From_Resource	Close	Info_Analyzed (TDP-R)	Info_Collected (TDP-R)	Network_Busy	O_Answer (EDP-R)	O_Called_Party_Busy	O_No_Answer	Origination_Attempt	Resource_Clear	T_Answer (EDP-N)	T_Busy (TDP-R and EDP-R)	Termination_Attempt	T_No_Answer	Termination_Notification	Error
AccessCode	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
ACGEncountered	-	-	B	B	B	-	SE	SE	B	-	-	SE	B	SE	-	-
AMAMeasurement	-	-	-	-	-	-	-	-	-	SE	-	-	-	-	-	-

Table 82-2 Outgoing messages and parameters supported by TSTQuery (Sheet 2 of 5)

	SSP call-related messages														non-call-related	abnormal
Parameters	Call_Info_From_Resource	Close	Info_Analyzed (TDP-R)	Info_Collected (TDP-R)	Network_Busy	O_Answer (EDP-R)	O_Called_Party_Busy	O_No_Answer	Origination_Attempt	Resource_Clear	T_Answer (EDP-N)	T_Busy (TDP-R and EDP-R)	Termination_Attempt	T_No_Answer	Termination_Notification	Error
AMASequence Number	-	-	X	X	X	-	X	X	X	-	-	X	X	X	-	-
Amp1	X	S E	B	B	B	X	S E	S E	B	B	X	X	B	X	S E	-
Amp2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
ApplicationError String	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B
BearerCapability	-	S E	B	B	B	S E	S E	S E	B	-	S E	S E	B	S E	-	-
BusyCause	-	-	-	-	-	-	S E	-	-	-	-	S E	-	-	B	-
BusyType	-	-	-	-	-	-	-	-	-	-	-	S E	-	-	-	-
CalledPartyID	-	-	B	-	B	-	S E	S E	-	-	-	S E	B	S E	-	-
CalledPartyStation Type	-	-	-	-	-	-	-	-	-	-	-	X	B	X	-	-
CallingPartyBGID	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-
CallingPartyID	-	-	B	B	B	-	S E	S E	B	-	-	S E	B	S E	-	-

Table 82-2 Outgoing messages and parameters supported by TSTQuery (Sheet 3 of 5)

	SSP call-related messages														non-call-related	abnormal
Parameters	Call_Info_From_Resource	Close	Info_Analyzed (TDP-R)	Info_Collected (TDP-R)	Network_Busy	O_Answer (EDP-R)	O_Called_Party_Busy	O_No_Answer	Origination_Attempt	Resource_Clear	T_Answer (EDP-N)	T_Busy (TDP-R and EDP-R)	Termination_Attempt	T_No_Answer	Termination_Notification	Error
Carrier	-	-	B	B	B	-	S E	S E	B	B	-	-	-	-	-	-
ChargeNumber	-	-	B	B	B	-	S E	S E	B	-	-	S E	B	S E	-	-
ChargeParty StationType	-	-	B	B	B	-	S E	S E	B	-	-	S E	B	S E	-	-
ClearCause	-	-	-	-	-	-	-	-	-	B	-	-	-	-	-	-
ClearCauseData	-	-	-	-	-	-	-	-	-	S E	-	-	-	-	-	-
CloseCause	-	S E	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CollectedAddress Info	-	-	B	B	-	-	-	-	-	B	-	-	-	-	-	-
CollectedDigits	-	-	B	B	-	-	-	-	-	B	-	-	-	-	-	-
ConnectTime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-
CTRConnection	-	-	X	-	-	-	X	X	-	-	-	X	X	-	-	-
EchoData	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-
Extension Parameter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 82-2 Outgoing messages and parameters supported by TSTQuery (Sheet 4 of 5)

	SSP call-related messages														non-call-related	abnormal
Parameters	Call_Info_From_Resource	Close	Info_Analyzed (TDP-R)	Info_Collected (TDP-R)	Network_Busy	O_Answer (EDP-R)	O_Called_Party_Busy	O_No_Answer	Origination_Attempt	Resource_Clear	T_Answer (EDP-N)	T_Busy (TDP-R and EDP-R)	Termination_Attempt	T_No_Answer	Termination_Notification	Error
FailureCause	-	-	-	-	-	-	-	-	-	B	-	-	-	-	-	-
GenericAddresses List	-	-	SE	SE	-	-	-	-	-	-	-	-	-	-	-	-
GenericName	-	-	-	-	-	-	-	-	-	-	-	SE	B	SE	-	-
IPReturnBlock	SE	-	-	-	-	-	-	-	-	SE	-	-	-	-	-	-
Lata	-	-	B	B	B	-	SE	SE	B	-	-	SE	B	SE	-	-
NetworkSpecific Facilities	-	-	SE	-	-	-	-	-	-	-	-	-	-	-	-	-
Notification Indicator	-	-	-	-	SE	SE	SE	SE	X	-	SE	SE	-	SE	-	-
OriginalCalled Party ID	-	-	B	B	B	-	SE	SE	-	-	-	SE	B	SE	-	-
Prefix	-	-	SE	SE	SE	-	SE	SE	-	-	-	-	-	-	-	-
RedirectingPartyID	-	-	B	B	B	-	SE	SE	-	-	-	SE	B	SE	-	-

Table 82-2 Outgoing messages and parameters supported by TSTQuery (Sheet 5 of 5)

	SSP call-related messages														non-call-related	abnormal
Parameters	Call_Info_From_Resource	Close	Info_Analyzed (TDP-R)	Info_Collected (TDP-R)	Network_Busy	O_Answer (EDP-R)	O_Called_Party_Busy	O_No_Answer	Origination_Attempt	Resource_Clear	T_Answer (EDP-N)	T_Busy (TDP-R and EDP-R)	Termination_Attempt	T_No_Answer	Termination_Notification	Error
Redirection Information	-	-	B	B	B		S E	S E	-	-	-	S E	B	S E	-	-
RTPService Indicator	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Sap	-	-	X	X	X	-	X	X	X	-	-	X	X	X	-	-
STRConnection	-	-	X	-	-	-	X	X	-	-	-	X	X	X	-	-
TCM	-	-	B	B	B	-	-	-	-	-	-	-	B	-	-	-
Termination Indicator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-
TriggerCriteria Type	-	-	B	B	B	-	S E	S E	B	-	-	S E	B	S E	-	-
UserID	-	S E	B	B	B	S E	S E	S E	B	-	S E	S E	B	S E	-	-
VerticalService Code	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-

Table 82-3 Incoming messages and parameters supported by TSTQuery (Sheet 1 of 5)

	SCP or adjunct call-related messages											non-call-related messages			abnormal
Parameters	Analyze_Route	Authorize_Termination	Call_Info_To_Resource	Cancel_Resource_Event	Close	Collect_Information	Continue	Disconnect	Forward_Call	Offer_Call	Send_To_Resource	ACG	Request_Report_BCM_Event	Send_Notification	Error
AlternateBillingIndicator	B	-	-	-	-	SE	-	-	B	-	-	-	-	-	-
AlternateCarrier	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
AlternateDialingPlanInd	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
AlternateTrunkGroup	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
AMAAAlternateBillingNumber	B	B	-	-	-	SE	B	B	B	SE	B	-	-	-	-
AMABusinessCustomerID	B	B	-	-	-	-	B	B	B	SE	B	-	-	-	-
AMADigitsDialedWC	B	B	-	-	-	SE	B	B	B	SE	B	-	-	-	-
AMALineNumber	B	B	-	-	-	SE	B	B	B	SE	B	-	-	-	-
AMAMeasure	-	-	-	-	-	-	-	-	-	-	SE	-	-	-	-
AMASequenceNumber	X	X	-	-	-	X	X	X	X	X	X	-	-	-	-
AMAServiceProviderID	X	X	-	-	-	X	X	X	X	X	X	-	-	-	-
AMASlpID	B	B	-	-	-	SE	B	B	B	SE	B	-	-	-	-

Table 82-3 Incoming messages and parameters supported by TSTQuery (Sheet 2 of 5)

	SCP or adjunct call-related messages											non-call-related messages			abnormal
Parameters	Analyze_Route	Authorize_Termination	Call_Info_To_Resource	Cancel_Resource_Event	Close	Collect_Information	Continue	Disconnect	Forward_Call	Offer_Call	Send_To_Resource	ACG	Request_Report_BCM_Event	Send_Notification	Error
Amp1	B	B	B	S E	B	X	B	B	B	S E	B	-	-	-	-
Amp2	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
AnswerIndicator	-	-	-	-	-	-	-	-	-	-	B	-	-	-	-
ApplicationErrorString	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B
BearerCapability	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-
CalledPartyID	B	-	-	-	-	S E	-	-	B	-	-	-	-	-	-
CallingPartyBGID	S E	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CallingPartyID	B	B	-	-	-	-	-	-	B	S E	-	-	-	-	-
Carrier	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
CarrierUsage	S E	-	-	-	-	-	-	-	S E	-	-	-	-	-	-
ChargeNumber	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
ChargePartyStationType	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
CloseCause	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-
CollectedDigits	-	-	-	-	-	S E	-	-	-	-	-	-	-	-	-

Table 82-3 Incoming messages and parameters supported by TSTQuery (Sheet 3 of 5)

	SCP or adjunct call-related messages											non-call-related messages			abnormal
Parameters	Analyze_Route	Authorize_Termination	Call_Info_To_Resource	Cancel_Resource_Event	Close	Collect_Information	Continue	Disconnect	Forward_Call	Offer_Call	Send_To_Resource	ACG	Request_Report_BCM_Event	Send_Notification	Error
ControlCauseIndicator	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-
ControlEncountered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ControllingLegTreatment	-	B	-	-	-	-	-	-	-	SE	-	-	-	-	-
DestinationAddress	-	-	-	-	-	-	-	-	-	-	SE	-	-	-	-
DisconnectFlag	-	-	-	-	-	-	-	-	-	-	B	-	-	-	-
DisplayText	-	B	-	-	-	-	-	-	-	SE	-	-	-	-	-
DPCConverter	-	-	-	-	-	X	-	-	-	-	X	-	-	-	-
EchoData	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-
EDPNotification	-	-	-	-	-	-	-	-	-	-	-	-	SE	-	-
EDPRequest	-	-	-	-	-	-	-	-	-	-	-	-	SE	-	-
ExtensionParameter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ForwardCallIndicator	SE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GapDuration	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-
GapInterval	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-

Table 82-3 Incoming messages and parameters supported by TSTQuery (Sheet 4 of 5)

	SCP or adjunct call-related messages											non-call-related messages			abnormal
Parameters	Analyze_Route	Authorize_Termination	Call_Info_To_Resource	Cancel_Resource_Event	Close	Collect_Information	Continue	Disconnect	Forward_Call	Offer_Call	Send_To_Resource	ACG	Request_Report_BCM_Event	Send_Notification	Error
GenericAddressList	SE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GlobalTitleAddress	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-
NetworkSpecificFacilities	SE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ONoAnswerTimer	-	-	-	-	-	-	-	-	-	-	-	-	SE	-	-
OutpulseNumber	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
OverflowBillingIndicator	B	-	-	-	-	SE	-	-	B	-	-	-	-	-	-
PassiveLegTreatment	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
Prefix	B	-	-	-	-	-	-	-	SE	-	-	-	-	-	-
PrimaryBillingIndicator	B	B	-	-	-	SE	B	B	B	SE	B	-	-	-	-
PrimaryTrunkGroup	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
RedirectingPartyID	B	-	-	-	-	-	-	-	SE	-	-	-	-	-	-
RedirectionInformation	SE	-	-	-	-	-	-	-	SE	-	-	-	-	-	-
ResourceType	-	-	SE	-	-	-	-	-	-	-	B	-	-	-	-

Table 82-3 Incoming messages and parameters supported by TSTQuery (Sheet 5 of 5)

	SCP or adjunct call-related messages											non-call-related messages			abnormal
Parameters	Analyze_Route	Authorize_Termination	Call_Info_To_Resource	Cancel_Resource_Event	Close	Collect_Information	Continue	Disconnect	Forward_Call	Offer_Call	Send_To_Resource	ACG	Request_Report_BCM_Event	Send_Notification	Error
RTPReroutingNumber	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
SecondAlternateBilling Indicator	B	-	-	-	-	S E	-	-	B	-	-	-	-	-	-
SecondAlternateCarrier	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
SecondAlternateTrunk Group	B	-	-	-	-	-	-	-	B	-	-	-	-	-	-
ServiceContext	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-
ServiceProviderID	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-
StrParameterBlock	-	-	S E	-	-	-	-	-	-	-	B	-	-	-	-
TCM	B	B	-	-	-	-	-	-	B	-	-	-	-	-	-
TNoAnswerTimer	-	-	-	-	-	-	-	-	-	-	-	-	S E	-	-
TranslationType	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-
TriggerCriteriaFlag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UserID	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-

Using TSTQuery

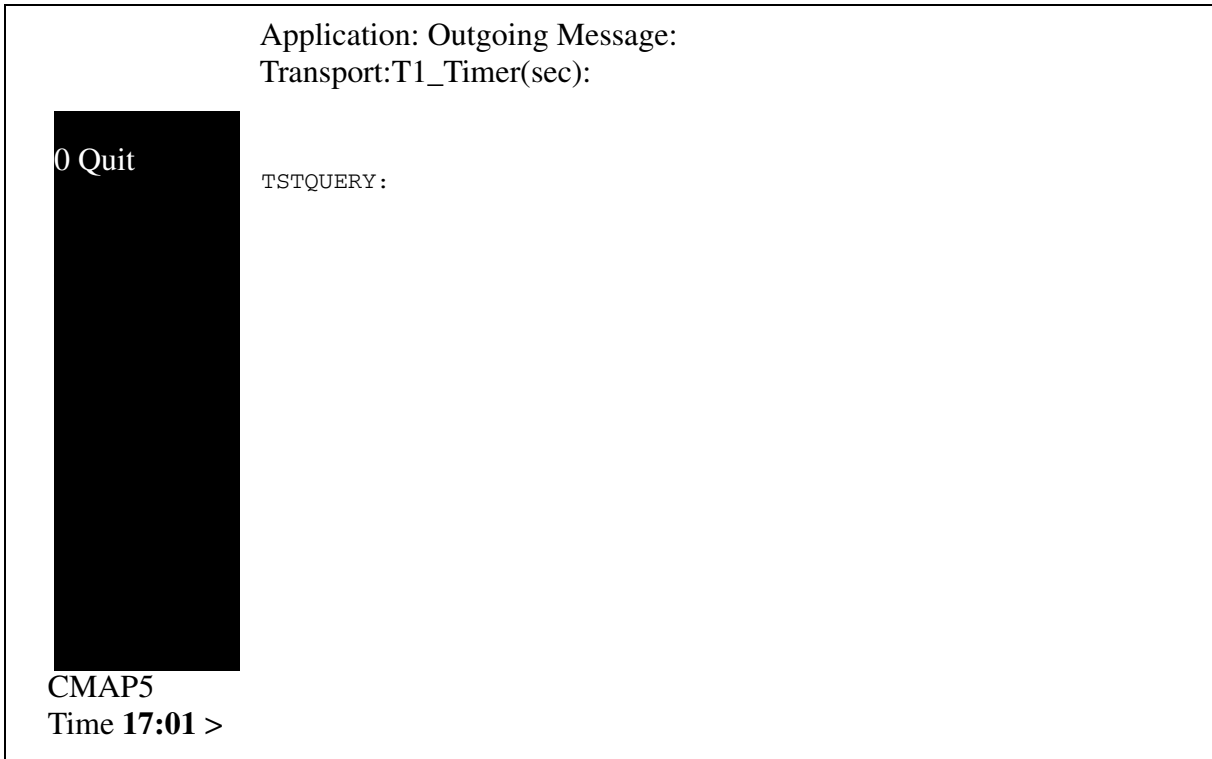
Before a test query can be sent, various pieces of information must be specified:

- Application—R01 or R02.
- Transport—value is SS7 (for CCS7) or TCPIP (for Ethernet).
- T1 Timer Value—range is 1–99 seconds; default is 3 seconds.
- Message—must be one of the AIN SSP query message types.
- Message parameters—the message parameters supplied depend on the query message type.

This information can be specified by the user by loading a file using the READ_ menu option or by manually entering the information using the CI commands provided by the TSTQuery. All the message settings are displayed on the screen except for the message parameters which can be viewed using the see Parm_ menu option. For a query to be launched, the application, transport and query message type must be specified. If AIN software is not present in the office, no AIN information is displayed.

To run the TSTQuery utility, enter the TESTTOOL menu in the MAPCI utility and select the TSTQUERY option from the menu. The TSTQuery menu is displayed in Figure 82-1 on page 82-19.

Figure 82-1 TSTQuery main menu



Alternatively, access TSTQuery from the CI level of the MAP terminal by typing

>MAPCI;TESTTOOL;TSTQUERY

and pressing the Enter key.

The query is sent using the SEND menu option. If an Automatic Code Gapping Control exists for the Global Title Address included in the query, the ACGEncountered parameter is automatically added to the query (Automatic Code Gapping does not gap test queries).

When the SEND option is used, the user may choose to save the message information in a file. When TSTQuery waits for a response, no further commands may be executed.

After a query is sent, one of the following possible events can occur:

- A Response message is received before timer expired—The message is displayed on the screen and, if previously specified, dumped to a file.
- A Conversation message is received before timer expired—The conversation message is displayed. The user may generate a message to respond to the conversation message received. If the user does not respond

with the correct information or does not respond within a specified period of time, an error message is displayed.

- **Response Time-Out**—The message was not received within the time specified by the T1 timer. An error message is displayed.

Help may be obtained by entering **HELP** at the command prompt.

TSTQuery menu commands

When you start a TSTQuery session, a menu appears on the MAP terminal. Each menu option is described in the following paragraphs.

You can use short forms of parameters with the **ClrParm**, **ListParm**, and **see Parm** commands. The short forms of parameters display on the screen when you enter either the **SetMsg** or **ListParm** commands.

QUIT command

This command terminates the current TSTQuery session. All information is lost unless you used the **Save** command to store the information in a file. If you enter the **Quit** command in the middle of a transaction, the transaction and all parameter values are lost.

READ command

This command reads the file from a previously saved query. It prompts you for the name of the file that contains the query information. The **Read** command reuses the existing **Read CI** command, so all rules for using the **CI Read** command apply to the **TSTQuery Read** command. For more information on the syntax of an input file, see Section , "Input from a file" on page 82-22.

SAVE command

This command allows you to save the contents of a query in a file. You are prompted for the device name and file name. You can access the file using the **Read** command for future queries. **Save** overwrites existing files with the same name.

SetAppl command

This command allows you to select the AIN application to be tested, such as AIN R01 or R02. If you do not specify a value for this command, the screen displays all possible values.

For AIN Service Enablers, the menu option **SetAppl** accepts R02 as a valid application message set. This value displays in the **Application** field of the MAPCI window.

SeTrnsp command

This command lets you select the transport medium. The DMS switch supports Signaling System 7 (SS7) for AIN. You must specify GTTname and GTTsource.

SeT1 command

This command lets you overwrite the value of the T1 timer for a given test query. The T1 timer times the response. If a response is not received from the SCP within the time-out period, a time-out error occurs and the TSTQuery tool informs AIN generic message handler of this event by sending a T1 error message. If you do not specify a T1 timer value, the command uses a default value of 3 seconds.

SetMsg command

This command allows you to specify an AIN message for the current query. When you enter this command with a valid AIN message, the screen displays the allowed parameters for that message. Each parameter also has a command allowing you to set a value for it. If you do not specify a value following the command, all acceptable values for the command display on the screen.

ClrParm command

This command allows you to clear the value of a parameter. If you enter Clrparm ALL, the system clears the values of all specified parameters. Clearing the value of a parameter means that the parameter is not sent.

ListParm command

This command lists all the parameters that are valid for the message specified for the current query.

SeeParm command

This command allows you to see the current values of parameters, either one parameter at a time or for all the specified parameters. It also enables you to view the specified application, transport, or message. The valid options for this command are ALL, application, transport, message, and the name of a parameter.

Send command

This command allows you to send an AIN message to the SCP, depending on the application chosen by SetApp1. You can save the response by specifying a valid file name and device name.

Input from a file

You can input all of the information needed to send a query from a CI file. You can load this file using the Read command from the TSTQUERY menu. The following syntax rules apply to CI files that you use for TSTQuery commands:

- The file contains only TSTQuery commands.
- Each file line contains only one command.
- A plus sign (+) at the end of a line means that the command continues on the next line.
- The order of commands must be SetAppl and SetMsg.

Example of a CI TSTQuery file:

```
>SetAppl R01
>SeT1 2
>SetMsg InfoAnalyzed
>ChargeNumber 5 5 2 2 1234
>BearerCapability SPEECH
>SeTrnsp SS7 AINGTT Charge
```

ACG

If ACG controls are active, the system enters the ACGEncountered parameter from the ACG database. You cannot enter an ACGEncountered parameter manually.

Response delay

If no error occurs during the transaction and the SCP sends a response within the period specified by the T1 timer, then the MAP display displays a response message. If you chose to direct the SCP response to a named file when you sent the query, the system saves the SCP response in a file while it is being displayed.

Error message

The TSTQuery tool displays an error message on the screen if any of the following events occur:

- The system receives no answer from the SCP within the period specified by the T1 timer.
- The system receives an erroneous query.
- The SCP sends a corrupted response.
- You did not reply to a conversation request message from the SCP within the time-out period governed by AIN generic message handler.

TSTQuery processing of messages

The send command causes TSTQuery to send the composed message. If a response is expected, TSTQuery waits for the components of the SCP's response. This section explains how TSTQuery processes those components.

The most common query and response scenario is:

1. The user composes the query message and uses the send command.
2. TSTQuery sends the message through the transport previously specified with setTransp.
3. TSTQuery waits the number of seconds specified by the T1 timer.
4. If a message is received before the T1 timer expires, then it and any other messages sent in the same package are dumped to the screen, log and file, if specified
5. If no message is received before the T1 timer expires, then TSTQuery sends the appropriate error message to the SCP and the appropriate output devices.
6. Control returns to the user.

Other messages, such as conversation messages, are sent the same way with the following differences:

- TSTQuery may wait for a response, or not
- the response is processed differently

The user should not quit TSTQuery while there are any:

- outstanding Send_Notifications or Termination_Notifications requests
- open STR conversation transactions
- open NEL transaction

If the user does quit TSTQuery when a transaction is open, an automatic audit process closes the open transaction. Similarly, the user can use the disp_trid command to manually close the open transaction.

In general, once the message has been sent, TSTQuery determines, based on the message, whether to wait for a response from the SCP or not. For example, the SCP is not expected to respond to notification messages, such as Termination_Notification. However, queries, such as the Info_Analyzed message, and messages that TSTQuery has sent as part of a conversation require, do require a response. TSTQuery also supports more elaborate message exchanges with the SCP such as Send_Notification, ACG as described in the "DMS-100 Family AIN Service Enablers Product

Specification, Release NA009". The following points are common to all response message processing:

- TSTQuery supports the display of incoming multi-component packages. ACG may arrive as part of these packages and are dumped to the screen or to a file. The NCR application processes these messages according to GR-1298 and TSTQuery cannot respond to them. TSTQuery receives the components of any response package in the same way as the DMS SSP applications; one component at a time. TSTQuery waits after each message sent for either an incoming component or the T1 timer to expire. If a component is received before the timer expires then TSTQuery dumps the message and then resets the timer to wait for any further components from the same message or further TCAP packages. Each component is processed as a message when it is received by TSTQuery. When TSTQuery's T1 timer expires before a new component appears, control is returned to the MAP so the user can react to the incoming messages.
- Part of TSTQuery's response processing updates the messages that are legal to send, given the transactions the SCP has open. For AIN Essentials and AIN Service Enablers, when TSTQuery is started or is outside of an ongoing conversation, it allows the user to send the basic SSP AIN query messages:
 - Origination_Attempt
 - Info_Collected
 - Info_Analyzed
 - Termination_Attempt
 - Network_Busy
 - O_Called_Party_Busy (applicable to AIN Service Enablers only)
 - O_No_Answer (applicable to AIN Service Enablers only)
 - T_Busy (applicable to AIN Service Enablers only)
 - T_No_Answer (applicable to AIN Service Enablers only)

After most conversations, the Error message can also be sent but not immediately after another error message.

See Section , "Send_Notification" on page 82-24 to Section , "ACG" on page 82-26 for details on which messages are permitted to be sent.

Send_Notification

The information in this section applies to AIN Essentials and AIN Service Enablers.

If the SCP has sent a Send_Notification message, it is expecting a Termination_Notification message from the SSP when the associated call has completed. TSTQuery tracks whether or not a Send_Notification has arrived and allows the user to build the corresponding Termination_Notification only if one has arrived.

Note: It is the user's responsibility to ensure that the mandatory EchoData parameter contains the same six bytes that were in the original Send_Notification message.

Send_To_Resource

The information in this section applies to AIN Essentials and AIN Service Enablers.

If the SCP responds to a query with a Send_To_Resource message then TSTQuery restricts you to send only the messages that are legal in the context of the STR's persistent transaction: Resource_Clear and Error. TSTQuery also handles the special case of the SCP sending a Cancel_Resource_Event while the transaction is still open.

TSTQuery transparently handles the management of the persistent transaction. The user does not need to track or enter the transaction to create Resource_Clear messages for the conversation.

Request_Report_BCM_Event

The information in this section applies AIN Service Enablers only.

This incoming message extends the set of legal messages the TSTQuery user can compose. Once the message has been received, the user is allowed to compose and send any of the event notification and request messages:

- Network_Busy
- O_Called_Party_Busy
- O_No_Answer
- T_Busy
- T_No_Answer
- T_Answer
- O_Answer

The Close message is also available to close the transaction without using an event message.

The RRBCME specifies which events are to be armed in its EDPRequest and EDPNotification parameters. TSTQuery does not enforce this by restricting

which messages you can compose. It is up to you to compose the messages the call scenario requires. This includes ensuring the messages are properly flagged as notifications or requests using the NotificationIndicator parameter.

TSTQuery transparently tracks the transaction through the event notification or request transaction id of the RRBCME and ensures that the correct transaction ID is used for the EDP messages.

ACG

The information in this section applies to AIN Essentials and AIN Service Enablers.

The SCP may choose to send an ACG message in the same package as a response. TSTQuery displays this message and the non-call-related application receives this message as well.

62. Other CI commands

CI (command interpreter) commands allow a craftsperson to perform various administration and maintenance tasks on the DMS switch. For AIN Essentials SSP, several query commands are enhanced and are described in the following sections.

62.1 Query commands

The query commands are enhanced to display AIN Essentials SSP information for DNs, LENSs and logical terminals that have subscribed to AIN. The query commands enhanced include: QDN, QLEN, QLT, QDNWRK, and QCUST. If the agent subscribes to AIN Essentials on an individual basis, “AIN” or “AINDN” will be listed as an option. The AIN Essentials SSP group name (AINGRP) from table TRIGGRP that defines the triggers subscribed by the agent is also displayed.

Figure 245 shows an example query of DN 7225027 that subscribes to AIN Essentials SSP. The group of triggers it subscribes to is specified by AINGRP1. In this case, AINGRP1 and its associated triggers would be datafilled in table TRIGGRP. Please refer to section Section 20.1.1 “Table TRIGGRP” on page 375 for more information on table TRIGGRP.

Figure 245 Example Query command

```
>qdn 7225027
-----
LEN:HOST 00 1 09 24
TYPE:SINGLE PARTY LINE
SNPA:613
DIRECTORY NUMBER:7225027
LINE CLASS CODE:PSET (WITH DISPLAY)
CUSTGRP:COMKODAKSUBCRP: 0NCOS; 0 RING: Y
ADDONS: NONEEXTENSION: N
CARDCODE: 6X21ACGND: NPADGRP: PPHON BNV: NLMNO: Y
PM NONDE NUMBER:80
PM TERMINAL NUMBER:313
OPTIONS:
PRK NAME PUBLIC TWO SEVEN AIN AINGRP1

      KEY      DN
      ----      -
      1         DN7225027
      KEY      FEATURE
      ----      -
      1         AIN AINGRP1
      2         PRK
-----
>
```

62.2 Line query tool support for the DMS trigger item interface

The following line query tools support the DMS trigger item interface:

- QLEN and QLENWRK
- QDN and QDNWRK
- QLT
- QIT
- QGRP

The output of the line query tools includes line, customer group and office-wide AIN subscription data.

If the AIN_OFFICE_TRIGGRP office parameter is set to “TIID”, the office option portion of the line query output appears as “AIN TIID”, indicating that one or more subscriptions to office wide trigger items are in use.

See Figure 246 and Figure 247 for sample outputs.

Figure 246 Sample QLEN output

```

>QLEN HOST 00 0 10 26
-----
LEN:      HOST 00 0 10 26
TYPE: SINGLE PARTY LINE
SNPA: 613
DIRECTORY NUMBER:      6213112
LINE CLASS CODE:      1FR
IBN TYPE: STATION
CUSTGRP:      RESG200      SUBGRP: 0  NCOS: 0
SIGNALLING TYPE: DIGITONE
LINE TREATMENT GROUP:      0
LINE ATTRIBUTE INDEX:      400
CARDCODE: 6X17AC      GND: N  PADGRP: STDLN  BNV: NL MNO: N
PM NODE NUMBER      :      169
PM TERMINAL NUMBER :      347
OPTIONS:
DGT
RES OPTIONS:
AIN INDIVTRIG
CND NOAMA
CUSTOMER GROUP OPTIONS:
AIN CUSTTRIG
OFFICE OPTIONS:
U3WC AIN TIID
-----

```

Figure 247 Sample QDN output

```

>qdn 6215110
-----
DN:      6215110      (NON-UNIQUE)
TYPE: SINGLE PARTY LINE
SNPA: 613  SIG: DT      LNATTIDX: 167
LINE EQUIPMENT NUMBER:      HOST 00 0 00 23
LINE CLASS CODE:      PBX
CARDCODE: 6X17AC      GND: N  PADGRP: STDLN  BNV: NL MNO: N
PM NODE NUMBER      :      76
PM TERMINAL NUMBER :      24
OPTIONS:
HOT DGT
OFFICE OPTIONS:
AIN TIID
-----

```

62.3 MAKEAMA command

The MAKEAMA CI command is used by a craftsperson to generate AMA records for testing purposes. MAKEAMA is enhanced by AIN Essentials SSP to generate new AIN Essentials SSP AMA Structures 220 and 221 and support the new Call Type code 047. The syntax for the MAKEAMA command is:

```
>MAKEAMA <call code> [<quantity>] [<structure code>]
```

For example, to generate one AMA record for a Call Type 047 in Structure 220, the command is:

```
>MAKEAMA 047 1 220
```

62.4 AMADUMP and CALLDUMP commands

The AMADUMP and CALLDUMP CI commands have been modified to support the new Structures 220 and 221 as well as the new Call Type Code 047.

62.5 AINTCPCI command

AINTCPCI is a directory of CI commands introduced for the Ethernet AIN Essentials SSP. The commands under this directory are used to add, delete and display mapping of the remote TCP/IP socket on the off-board processor to the AIN Essentials SSP application on the SSP.

Before the TCP/IP socket can be mapped, the AIN Essentials SSP subsystem on the adjunct must be defined in table C7LOCSSN. For more information on this table please refer to Section 20.6 “Message routing tables” on page 409.

To enter the AINPCI directory and define the remote TCP/IP socket, the set of commands are

```
>AINTCPCI
```

```
>ADDAPPL <application_name> <application_instance>
```

```
<IP_address> <TCP_port_number>
```

where:

- **<application_name>** is the AIN Essentials SSP application on the SSP
- **<application_instance>** identifies the off-board processor
- **<IP_address>** is the IP address of the off-board processor
- **<TCP_port_number>** is the port number for the AIN Essentials SSP application at the off-board processor

For example, to define the TCP/IP socket for application instance 2 at IP address “41 208 0 159” and TCP port number “217” for AIN Essentials SSP the command is

```
>ADDAPPL AINR01 2 41 208 0 159 217
```

To change the TCP/IP socket for an application instance, the old value must first be deleted using the delete command and the new value assigned using the ADD command. The syntax for the delete command is:

```
>DELAPPL <application_name> <application_instance>
```

Values assigned to an application instance may be displayed using the query command

```
>DISPAPPL <application_name> <application_instance>
```

62.6 AINMKRES tool

The AINMKRES tool creates a CI command environment, under which the user can convert the existing AIN POTS lines to the compatible RES lines.

To enter the AINMKRES directory, type

```
>AINMKRES
```

To convert all the eligible AIN POTS lines to RES, type:

```
>ALL
```

To convert all the AIN POTS lines within a given range of line equipment numbers (LEN), type:

```
>RANGE START <LEN> STOP <LEN>
```

62.7 AINCI command interpreter directory

AINCI is the name of a directory of CI commands. This directory is intended to contain all AIN CI commands that have been created since NA005B. Currently, the CI commands in this directory can be grouped in the following categories:

- **Trigger activation state administration** — Two CI commands are used to display and modify the activation states for a given AIN subscriber to Off-Hook Immediate, Off-Hook Delay, or Termination Attempt triggers.
- **Automatic Code Gapping commands** — Two CI commands are used to display the control lists and delete specified control items from the control lists.

To enter the AINCI directory, type the following

>AINCI

The following sections describe the CI commands that can be used from within the AINCI directory.

62.7.1 Trigger activation state administration

The following CI commands are used to administer the trigger activation states for AIN subscribers to Off-Hook Immediate, Off-Hook Delay, or Termination Attempt triggers:

62.7.1.1 SHOWSTATE

This CI command is used to display the activation state(s) for a given AIN subscriber to Off-Hook Immediate, Off-Hook Delay, or Termination Attempt triggers.

The syntax of the SHOWSTATE command is as follows:

>SHOWSTATE <agent> <trigger-type> [<bearer_capability>]

where:

- **<agent>** is either a DN, a CLLI, or an Administrative Number
The DN should correspond to a line- or DN-subscribed agent, and the CLLI or Administrative Number should correspond to a trunk-subscribed agent.
- **<trigger-type>** is either OFFHKIMM, OFFHKDEL, or TERMATT (denoting the Off-Hook Immediate, Off-Hook Delay, and Termination Attempt triggers, respectively)
- **<bearer_capability>** is either SPEECH, 3_1KHZ, 56KDATA, or 64KDATA

Note: This parameter is optional.

For example, to show the activation state for a line (with a DN of 7221234) subscribed to an Off-Hook Immediate trigger when the call in progress has the Speech bearer capability, the appropriate command is

>SHOWSTATE DN 7221234 OFFHKIMM SPEECH

62.7.1.2 CHANGESTATE

This CI command is used to modify the activation state(s) for a given AIN subscriber to Off-Hook Immediate, Off-Hook Delay, or Termination Attempt triggers.

The syntax of the CHANGESTATE command is as follows:

```
>CHANGESTATE <agent> <trigger-type> [<bearer_capability>]
<state>
```

where:

- **<agent>** is either a DN, a CLI, or an Administrative Number
The DN should correspond to a line- or DN-subscribed agent, and the CLI or Administrative Number should correspond to a trunk-subscribed agent.
- **<trigger-type>** is either OFFHKIMM, OFFHKDEL, or TERMATT (denoting the Off-Hook Immediate, Off-Hook Delay, and Termination Attempt triggers, respectively)
- **<bearer_capability>** is either SPEECH, 3_1KHZ, 56KDATA, or 64KDATA

Note: This parameter is optional. If bearer capability is not provided, the changestate is meant for all applicable bearer capabilities.

- **<state>** is either ON or OFF

For example, to set the activation state to ON for a line (with a DN of 6311234) subscribed to a Termination Attempt trigger when the call in progress has the 64KDATA bearer capability, the appropriate command is

```
>CHANGESTATE DN 6311234 TERMATT 64KDATA ON
```

62.7.2 Automatic code gapping commands

The following CI commands are used to display the ACG control lists and delete specified controls from the control lists:

62.7.2.1 ACGDISPLAY

This CI command is used to display the control lists. There are two control lists: an SCP list and an SMS list.

The syntax of the ACGDISPLAY command is as follows:

```
>ACGDISELAY [<list_type>] [<gap_type>]
```

where:

- **<list_type>** is either SCP_LIST, SMS_LIST, or ALL

Note: This parameter is optional. If list_type is omitted the default is to print all lists.

- **<gap_type>** is either ZERO_GAP or NON_ZERO_GAP.

Note: This parameter is optional and can only be included if a list_type of SMS_LIST has been entered. If list_type is SMS_LIST and the gap_type parameter is omitted, then both ZERO_GAP and NON_ZERO_GAP controls are displayed.

62.7.2.2 ACGDELETE

This CI command is used to delete a specified control from an ACG control list. Only one control is deleted by this command.

The syntax of the ACGDELETE command is as follows:

```
>ACGDELETE <list_type> <tt_name><gta>
```

where:

- **<list_type>** is either SCP_LIST or SMS_LIST
- **<tt_name>** is the GTT name as datafilled in table C7GTTYPE
- **<gta>** is the Global Title Address (digits)

For example, to delete the GTA/TT combination of 613621/AINJAZZ from the SCP control list, type:

```
>ACGDELETE SCP_LIST AINJAZZ 613621
```

63. Logs

AIN Essentials SSP specific logs are generated when AIN Essentials SSP queries are sent using the Test Queries utility. Logs are generated for the following Test Query events:

- In some cases, logs are generated during callup.
- A Test Query message is sent to an off-board processor.
- A message is received from an off-board processor in response to a Test Query message.
- Test Queries attempted to send an incorrect/incomplete message to an off-board processor. The error was detected by the SSP and the message is not sent.
- A message was received from the off-board processor in response to a Test Query message and the message received contains an error.

The Test Query logs will contain the following information:

- log name/number which indicates whether the report is for an incoming or outgoing message
- date/time
- log sequence number
- message decoded in a human-readable format (the extent of the TCAP information that will be displayed is currently under investigation)

AIN Essentials SSP -specific logs may also be generated upon some error conditions during call processing. AUD logs may be generated in the case of software errors. These error conditions are limited to software and not protocol errors.

AIN Essentials SSP -specific logs are also generated to report Automatic Code Gapping events.

AIN300

Explanation

The Advanced Intelligent Network (AIN) subsystem generates an AIN300 log report when the service control point (SCP) control list overflows. That is, when an attempt is made to add a control to the SCP list that is full. The control is not added and the service switching point (SSP) does not behave according to the SCP request. The severity of the overflow condition depends on the current network situation.

Log AIN300 is generated once in any five minute period. On the subsequent report, the number of attempts to generate this log since the previous report is listed in the UNREPORTED_OVERFLOWES field.

This log report pertains to AIN Essentials and up.

Format

The format for log report AIN300 follows:

```
office * AIN300 mmmdd hh:mm:ss seqno TBL ACG/SOCC SCP
Control List Overflow
  AIN ACG SCP Control List Overflow
  ACTION: Analyze list for stale controls.
  GTA: < >          TT_Name: < >
  UNREPORTED_OVERFLOWES: < >
```

Note: Log AIN300 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN300 follows:

```
COMR05AB * AIN300 Feb01 14:25:44 1400 TBL ACG/SOCC SCP
Control List Overflow
  AIN ACG SCP Control List Overflow
  ACTION: Analyze list for stale controls.
  GTA: 613722          TT_Name: AINJAZZ
  UNREPORTED_OVERFLOWES: 4
```

Field descriptions

The following table explains each of the fields in the log report:

AIN300 (end)

Field	Value	Description
GTA	NPANXXXXXX	Global title address. Indicates the called or charge number to gap queries on.
TT_Name	As entered in table C7GTTYPE, field GTTNAME	Translation type name. Can indicate a service, a group of services, or a software release, depending on datafill.
UNREPORTED_ OVERFLOWS	numeric	Indicates the number of attempts that were made to generate this log report since the last report of this type was generated. Attempts to generate this report within 5 min of a previously generated report are suppressed by the ACG application.

Action

Analyze the SCP control list for stale controls. Use the ACGDELETE command in the CI AINCI directory to delete any stale controls.

Associated OM registers

Group AINACG, register SCPOVLDO

Additional information

You can use table LOGCLASS to suppress generation of this report. Do not use table LOGCLASS to threshold reporting of this log, because thresholding is performed by the ACG application.

AIN301

Explanation

The Advanced Intelligent Network (AIN) subsystem generates this report when the SMS control list overflows, that is, an attempt is made to add a control to the SMS control list which is full. The control is not added and the SSP does not behave according to the SMS request. The severity of this condition depends on the current network situation.

This log is generated, at most, once in any 5-min period. On the subsequent report, the number of attempts to generate this log since the previous report is listed in the UNREPORTED_OVERFLOWES field.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN301 follows:

```
office * AIN301 mmmdd hh:mm:ss seqno TBL ACG/SOCC SMS
Control List Overflow
  AIN ACG SMS Control List Overflow
  ACTION: Analyze list for stale controls.
  GTA: < >      TT_Name: < >
  UNREPORTED_OVERFLOWES: < >
```

Note: Log AIN301 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN301 follows:

```
COMR05AB * AIN301 Feb01 14:25:44 1400 TBL ACG/SOCC SMS
Control List Overflow
  AIN ACG SMS Control List Overflow
  ACTION: Analyze list for stale controls.
  GTA: 613722      TT_Name: AINJAZZ
  UNREPORTED_OVERFLOWES: 4
```

Field descriptions

The following table explains each of the fields in the log report:

AIN301 (end)

Field	Value	Description
GTA	NPANXXXXXX	Global title address. Indicates the called or charge number to gap queries on.
TT_Name	As entered in table C7GTTYPE, field GTTNAME	Translation type name. Can indicate a service, a group of services, or a software release, depending on datafill.
UNREPORTED_ OVERFLOWS	numeric	Indicates the number of attempts that were made to generate this log report since the last report of this type was generated. Attempts to generate this report within 5 min of a previously generated report are suppressed by the ACG application.

Action

Analyze the SMS control list for stale controls. Use the ACGDELETE command in the CI AINCI directory to delete any stale controls.

Associated OM registers

Group AINACG, register SMSOVLDO

Additional information

You can use table LOGCLASS to suppress generation of this report. Do not use table LOGCLASS to threshold reporting of this log, because thresholding is performed by the ACG application.

AIN302

Explanation

The Advanced Intelligent Network (AIN) subsystem generates this report when the SSP receives an ACG message containing a translation type (TT) that is currently not datafilled in table C7GTTYPE in the SSP.

This log is generated, at most, once in any 5-min period. On the subsequent report, the number of attempts to generate this log since the previous report is listed in the SUPPRESSED field.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN302 follows:

```
office * AIN302 mmmdd hh:mm:ss seqno TBL Unknown TT
      AIN ACG Unknown Translation Type number.
      ACTION: Check table C7GTTYPE for the specified TT number.
      List Type: <>
      GTA: <>                TT: <>
      SUPPRESSED: <>
```

Note: Log AIN302 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN302 follows:

```
COMR05AB * AIN302 Feb01 14:29:08 0600 TBL Unknown TT
      AIN ACG Unknown Translation Type number.
      ACTION: Check table C7GTTYPE for the specified TT
      number.
      List Type: SCP
      GTA: 613722                TT: 6
      SUPPRESSED: 0
```

Field descriptions

The following table explains each of the fields in the log report:

AIN302 (end)

Field	Value	Description
List_Type	SCP or SMS	Indicates: • SCP control list for automatic controls • SMS control list for manual controls
GTA	NPANXXXXXX	Global title address. Indicates the called or charge number to gap queries on.
TT	As entered in table C7GTTYPE, field GTNUM	Translation type. Can indicate a service, a group of services, or a software release, depending on datafill.
SUPPRESSED	numeric	Indicates the number of attempts that were made to generate this log report since the last report of this type was generated. Attempts to generate this report within 5 min of a previously generated report are suppressed by the ACG application.

Action

Check table C7GTTYPE to determine whether the TT number is present and whether it should be included in the table.

Associated OM registers

None

Additional information

You can use table LOGCLASS to suppress generation of this report. Do not use table LOGCLASS to threshold reporting of this log, because thresholding is performed by the ACG application.

AIN303

Explanation

The Advanced Intelligent Network (AIN) subsystem generates this report when the SSP receives an ACG message and the ACG work queue is already full.

This log is generated, at most, once in any 5-min period. On the subsequent report, the number of attempts to generate this log since the previous report is listed in the SUPPRESSED field.

Format

The format for log report AIN303 follows:

```
office * AIN303 mmmdd hh:mm:ss seqno TBL ACG/SOCC_Queue
      AIN ACG Work Queue Overflow
      ACTION: Increase processor time for ACG.
      SUPPRESSED: < >
```

Note: Log AIN303 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN303 follows:

```
COMR05AB * AIN303 Feb01 14:29:08 0600 TBL ACG/SOCC_Queue
      AIN ACG Work Queue Overflow
      ACTION: Increase processor time for ACG.
      SUPPRESSED: 2
```

Field descriptions

The following table explains each of the fields in the log report:

AIN303 (end)

Field	Value	Description
SUPPRESSED	numeric	Indicates the number of attempts that were made to generate this log report since the last report of this type was generated. Attempts to generate this report within 5 min of a previously generated report are suppressed by the ACG application.

Action

The ACG work queue runs at SOS Scheduler class AUXCP. The timeslice available to AUXCP can be set using office parameter AUXCP_CPU_SHARE in table OFCENG. Exercise care if changing this parameter, because many other office applications use AUXCP.

Associated OM registers

None

Additional information

You can use table LOGCLASS to suppress generation of this report. Do not use table LOGCLASS to threshold reporting of this log, because thresholding is performed by the ACG application.

AIN500

Explanation

Log AIN500 records successful AIN Update message requested activation state changes for trigger item IDs. Log AIN500 allows telephone operating companies to monitor changes to trigger item activation states. The log output provides details on each Update message attempt so that undesirable change requests can be monitored. Downstream processing can monitor the logs and verify the source point code and subsystem number (SSN), to validate the service control point (SCP) that requests an update. Log AIN500 can be used to verify that all desired activation changes are complete.

Format

The format for log report AIN500 follows:

```
<load name> * AIN500 <date> <time> <seqno> TBL Successfull  
trigger item update  
Message Type: Update  
SSP User Resource:<user resource id> = <resource data  
value>  
TDP: e<1 to 34>  
SubNum: <N11,LNP,SDS,AFR>  
STATE: <ON/OFF>  
Source: SCP; PC: <0 to 255>-<0 to 255>-<0 to 255>, SSN:  
<0 to 255>
```

Example

An example of log report AIN500 follows:

```
COMR09AJ * AIN500 JAN02 11:52:45 4100 TBL Successfull  
trigger item update  
Message Type: Update  
SSP User Resource: LocalSSPID = TEST  
TDP: e17  
SubNum: AFR  
STATE: OFF  
Source: SCP; PC: 253-253-251, SSN: 236
```

Field descriptions

The following table explains each of the fields in the log report:

Field	Value	Description
Message Type	Message Type: Update	Indicates the Update message.

AIN500 (end)

Field	Value	Description
Source	SCP or PC: nnn-xxx-xxx, SSN: xxx	The values nnn and xxx are numbers from 0-255, representing the point code (PC) and the signaling subsystem number (SSN) of the SCP that initiated the Update message.
SSP Resource ID	Local SSPID	Identifies the SSP User Resource ID that the Update message has indicated. For NA009, it is a fixed string.
Trigger Detection Point	TDP: e1 to e34	The value identifies the detection point in the AIN call model.
Trigger Subnumber		
Activation Status	State: ON or OFF	The value indicates the current activation state of the trigger item ID.

Action

No immediate action is required for log AIN500.

Associated OM registers

There are no associated OM registers for log AIN500.

Additional information

Not applicable

AIN501

Explanation

Log AIN501 records unsuccessful AIN Update message request for activation state changes of trigger item IDs.

Log AIN501 is not generated in the situations that follow:

- The service switching point (SSP) returns a reject component with an incorrect parameter problem code.
- The SSP returns a failure report indicating a rate too high condition.
- The SSP returns an application error indicating an erroneous data value, or an unexpected parameter sequence.

Format

The format for log report AIN501 follows:

```
<load name> * AIN501 <date> <time> <seqno> TBL Successful
trigger item update
Message Type: Update
SSP User Resource: <user resource id> = <resource data value>
TDP: e<1 to 34>
SubNum: <N11,LNP,SDS,AFR>
STATE: <ON/OFF/—>
Source: SCP; PC: <0 to 255>—<0 to 255>—<0 to 255>, SSN: <0 to
255>
```

Example

An example of log report AIN501 follows:

```
COMR09AJ    *  AIN501 JAN02 11:52:45 4100 TBL  Un-successfull
trigger item update
Message Type: Update
SSP User Resource: LocalSSPID              = TEST
TDP: e4
SubNum: N11TRIG1
STATE: ON
Source: SCP; PC: 253-253-251, SSN: 236
```

Field descriptions

The following table explains each of the fields in the log report:

AIN501 (end)

Field	Value	Description
Message Type	Message Type: Update	Indicates the Update message.
Source	SCP or PC: nnn- nnn- nnn, SSN: xxx	The values nnn and xxx are numbers from 0-255, representing the point code (PC) and the signaling subsystem number (SSN) of the SCP that initiated the Update message.
SSP Resource ID	Local SSPID	Identifies the SSP User Resource ID that the Update message has indicated. For NA009, it is a fixed string.
Trigger Detection Point	TDP: e1 to e34	The value identifies the detection point in the AIN call model.
Trigger Subnumber		
Activation Status	State: ON or OFF	The value indicates the current activation state of the trigger item ID.

Action

No immediate action is required for log AIN501.

Associated OM registers

There are no associated OM registers for log AIN501.

Additional information

Not applicable

AIN510

Explanation

The advanced intelligent network (AIN) subsystem generates this report when operating company personnel enable automatic call gapping (ACG).

This report indicates the date and time when ACG was enabled.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN510 follows:

```
COMD08AB * AIN510 <Date> <Time> <Seqno> RTS ACG State
The AIN ACG Functionality is now turned ON .
```

Example

An example of log report AIN510 follows:

```
COMD08AB * AIN510 Feb01 14:29:08 0600 RTS ACG State
The AIN ACG Functionality is now turned ON .
```

Field descriptions

The following table explains each of the fields in the log report:

Field	Value	Description
Date	mmmdd	Indicates month and day
Time	hh:mm:ss	Indicates hour, minute, second
Seqno	nnnn	the sequence number of this report

Action

There is no action required.

Associated OM registers

None

Additional information

You enable ACG with the ACGONOF command in the AINCI tool.

AIN511

Explanation

The advanced intelligent network (AIN) subsystem generates this report when operating company personnel disable automatic call gapping (ACG).

This report indicates the date and time when ACG was disabled.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN511 follows:

```
COMD08AB * AIN511 <Date> <Time> <Seqno> OFFL ACG State
The AIN ACG Functionality is now turned OFF .
```

Example

An example of log report AIN511 follows:

```
COMD08AB * AIN511 Feb01 14:29:13 0602 OFFL ACG State
The AIN ACG Functionality is now turned OFF .
```

Field descriptions

The following table explains each of the fields in the log report:

Field	Value	Description
Date	mmdd	Indicates month and day
Time	hh:mm:ss	Indicates hour, minute, second
Seqno	nnnn	the sequence number of this report

Action

There is no action required.

Associated OM registers

None

Additional information

You disable ACG with the ACGONOF command in the AINCI tool.

AIN600

Explanation

Log AIN600 is generated when the send command is issued to send a message to the service control point (SCP). The log is generated by the send command when telephone operating personnel use the query tool at the TSTQUERY level of the MAP terminal. Log AIN600 indicates an attempt was made to send a message to the SCP. When errors or responses are encountered, subsequent reports are generated.

Format

Log AIN600 is updated in NA009 to log the new messages and parameters introduced into TSTQuery. The format for log report AIN600 follows:

```
COMI09BC    AIN600 < date> <time> <sequence no> INFO Test Query
Attempt
  User Name: < >
  SessionID: < >
  Application: < >
  T1 Timer: < >
  Transport: < >
  GTT Name: < >
  GTT Source: < >
  Message: <>
  <Parameters>: <>
```

Example

An example of log report AIN600 follows:

```
COMI09BC    AIN600 JAN02 15:50:40 9900 INFO Test Query
Attempt
  User Name: ADMIN
  SessionID: 12527
  Application: R02
  T1 Timer: 30
  Transport:  TCPIP
             Application Instance Number: 0
  Message: Info_Collected
  BearerCapability: speech
  UserId Dn:  6137225085
```

AIN600 (continued)**Field descriptions**

The following table explains each of the fields in the log report:

Field	Value	Description
UserName	local datafill	This field indicates the name of the MAP CI user (for example, TEAM11)
SessionID	0 to 32767	This field indicates the number identification of the session.
Application	R01	This field indicates the message set in use (for example, AIN Essentials)
T1 Timer		This field indicates a preset time to wait for an incoming message.
Transport	SS7, TCPIP	This field indicates the transport type used.
GttName	local datafill	This field indicates the global title translation name for SCCP routing.
GttSource	local datafill	This field indicates the global title translation name source (for example, charge or default)
Message	messages and parameters of the AIN Essentials message set	This field indicates the messages and parameters of the AIN Essentials message set.
ACGEncountered, AMAMeasurement, AccessCode, BusyCause, BusyType, CalledPartyStationType, ClearCause, ClearCauseData, CollectedAddressInfo, CollectedDigits, ConnectTime, FailureCause, GenericName, IPReturnBlock, Lata, OriginalCalledPartyID, TerminationIndicator, VerticalServiceCode	The parameters corresponding to the outgoing messages, the parameter field names and their values.	This field indicates the values populated in the outgoing message parameters.

Action

No immediate action.

1100 Logs

AIN600 (end)

Associated OM registers

Not applicable

Additional information

Not applicable

AIN601

Explanation

Log AIN601 is generated when the send command is issued to the service control point (SCP) and an SCP response is received. The log is generated by the send command when telephone operating personnel use the query tool at the TSTQUERY level of the MAP terminal. Log AIN601 indicates that an error was encountered during an attempt to send a message to the SCP, and that the message was not sent.

Format

The format for log report AIN601 follows:

```
COMI09BC   AIN601 < date> <time> <sequence no> INFO Test Query
Response
  User Name: < >
  SessionID: < >
  Elapsed Time Between Query and Response:
    <Min> minute(s) <Sec> second(s) <mill> millisecond(s)
  Conversation: < >
  Trans ID:
  Far End Trans ID:
  Corr ID: < >
  SCP Response Message < >
  <parameters>
```

Example

An example of log report AIN601 follows:

AIN601 (continued)

```

COMI09BC      AIN601 JAN02 15:50:40 0000 INFO Test Query
Response
    User Name: ADMIN
    SessionID: 12527
    Elapsed Time Between Query And Response:
      0 minute(s) 0 second(s) 303 millisecond(s)
    Conversation: No
    Trans ID: 2
    Far End Trans ID: 65021
    Corr ID: 1
    SCP Response Message: Analyze_Route
    Called Party ID: 7225031
      Nature of Number: Subscriber number
      Numbering Plan: ISDN Numbering Plan
    AMA SLP ID: 123456789

```

Field descriptions

The following table explains each of the fields in the log report:

Field	Value	Description
UserName	local datafill	This field indicates the name of MAPCI-level user (for example. TEAM11)
SessionId	0 to 32767	This field indicates the number identification of the session.
ElapsedTimeBetweenQuery andResponse	Empty string	This field indicates the elapsed time between the query and the response.
<Min>	0 to 32767	This field indicates the number of minutes that have elapsed since the query was sent from TstQuery.
<Sec>	0 to 32767	This field indicates the number of seconds that have elapsed since the query was sent from TstQuery.
<Mill>	0 to 32767	This field indicates the number of milliseconds that have elapsed since the query was sent from TstQuery
Conversation	Yes, No	This field indicates whether or not the message is a conversation.
TransID	0 to 65535	This field indicates whether TstQuery originated transaction ID or not.

AIN601 (end)

Field	Value	Description
FarEndTransID	0 to 65535	This field indicates when the incoming message is a conversation. When it is a conversation, this is the SCP's transaction ID for the conversation. When the incoming message is a response, there is no SCP transaction ID and this value is the service switching point (SSP) transaction ID.
CorrID	0 to 255	This field should contain a correlation ID from the incoming transaction capabilities application part (TCAP) message. The ID could be the invoke ID.
SCPResponseMessage	incoming messages	This field indicates when the message has come in response to the send command.
<parameters>	Incoming message parameters	This field indicates the values populated in the outgoing message parameters.

Action

No immediate action.

Associated OM registers

Not applicable

Additional information

Not applicable

AIN602

Explanation

Log AIN602 is generated each time an operating company personnel uses the send command and a send error is encountered. The send error is encountered while using the test query tool at the TSTQUERY level of the MAP terminal. Log AIN602 indicates that an error was encountered and the message was not sent to the service control point (SCP).

Format

The format for log report AIN602 follows:

```
COMI09BC    AIN602 <date> <time> <sequence no> INFO Test Query
Error
    <ErrorMessage>
    User Name: < >
    SessionID: < >
    Application: < >
    Transport: < >
    GTT Name: < >
    GTT Source: < >
    Message: <>
    <parameters>
    T1 Timer: <>
```

Example

An example of log report AIN602 follows:

```
COMI09BC    AIN602 JAN02 15:50:40 9900 INFO Test Query
Error
    <Unable to send a query due to transport out of service>
    User Name: ADMIN
    SessionID: 12527
    Application: R02
    Transport:  TCPIP
        Application Instance Number: 0
    Message: InfoCollected
    BearerCapability: speech
    UserId Dn:  6137225085
    T1 Timer: 30
```

AIN602 (continued)**Field descriptions**

The following table explains each of the fields in the log report:

Field	Value	Description
<ErrorMessage>	No data in query to the SCP, Unexpected data encountered, Invalid event ID or transaction ID encountered, Invalid parameters encountered, The application subsystem does not exist, No TCAP transaction IDs available, Application out of Service, Unrecognized Game Interface Return Code	This field indicates the interpretation of the error messages received from the messaging interface.
User Name	local datafill	This field indicates the MAP CI user (for example, TEAM11).
SessionId	0 to 32767	This field indicates the number identification of the session.
Application	R01, R02	This field indicates the message set in use (for example, AIN Essentials or Service Enablers).
Transport	SS7, TCPIP	This field indicates the transport type used to send the messages.
GTT Name	local datafill	This field indicates the global title translation name used for signalling connection control part (SCCP) routing.
GTT Source	local datafill	This field indicates the GTT name source (for example, charge or default).
Message	Outgoing messages	This field indicates the outgoing message.

AIN602 (end)

Field	Value	Description
<parameters>	Outgoing message parameters	This field indicates the outgoing message parameters.
T1 Timer		This field indicates the set time to wait for an incoming message.

Action

No immediate action.

Associated OM registers

Not applicable

Additional information

Not applicable

AIN610

Explanation

The Advanced Intelligent Network (AIN) subsystem generates this report whenever an ACG control list is changed. Changes include adding or replacing a control. This report indicates the contents of the control, the affected list, and whether the control was added or replaced.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN610 follows:

```
office AIN610 mmmdd hh:mm:ss seqno INFO ACG/SOCC
Control List Change
    AIN ACG Control List Change
    Change_Event: < >      List_Type: < >
    GTA: < >              Duration (10 msec): < >
    TT_Name: < >          Interval (10 msec): < >
```

Note: Log AIN610 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN610 follows:

```
COMD05AJ      AIN610 JAN01 21:31:44 4624 INFO ACG/SOCC
Control List Change
    AIN ACG Control List Change
    Change_Event: CONTROL ADDED      List_Type: SCP
    GTA: 613621                      Duration (10 msec): 6400
    TT_Name: AINJAZZ                 Interval (10 msec): 400
```

Field descriptions

The following table explains each of the fields in the log report:

AIN610 (end)

Field	Value	Description
Change_Event	CONTROL ADDED or CONTROL REPLACED	Indicates whether the control was an addition to the specified list or replaced an existing control in the specified list
List_Type	SCP or SMS	Indicates: • SCP control list for automatic controls • SMS control list for manual controls
GTA	NPANXXXXXX	Global title address. Indicates the called or charge number to gap queries on.
TT_Name	As entered in table C7GTTYPE, field GTTNAME	Translation type name. Can indicate a service, a group of services, or a software release, depending on datafill.
Duration	numeric	Indicates the gap duration in 10-ms units.
Interval	numeric	Indicates the gap interval in 10-ms units.

Action

No immediate action is required. Use this report to monitor control list activity or for security purposes.

Associated OM registers

Group AINACG, register CTRLCHA

Additional information

You can use table LOGCLASS to threshold or suppress the reporting of this log.

AIN611

Explanation

The Advanced Intelligent Network (AIN) subsystem generates this report whenever a control is removed from the indicated ACG control list. This report is generated when a control is removed using service control point (SCP) or service management system (SMS) removal messages, or using the service switching point (SSP) delete command. This report is not generated when a control expires.

This log report pertains to AIN release 0.1 and up.

Format

The format for log report AIN611 follows:

office	AIN611 mmmdd hh:mm:ss seqno INFO ACG/SOCC Control Removed AIN ACG control removed from list. List_Type: < > GTA: < > TT_Name: < >

Note: Log AIN611 is modified in NA008 so that it no longer refers to AIN 0.1 on the second line.

Example

An example of log report AIN611 follows:

COMD05AJ	AIN611 JAN01 21:50:27 7646 INFO ACG/SOCC Control Removed AIN ACG control removed from list. List_Type: SCP GTA: 613621 TT_Name: AINJAZZ

Field descriptions

The following table explains each of the fields in the log report:

AIN611 (end)

Field	Value	Description
List_Type	SCP or SMS	Indicates: • SCP control list for automatic controls • SMS control list for manual controls
GTA	NPANXXXXXX	Global title address. Indicates the called or charge number to gap queries on.
TT_Name	As entered in table C7GTTYPE, field GTTNAME	Translation type name. Can indicate a service, a group of services, or a software release, depending on datafill.

Action

No immediate action is required. Use this report to monitor control list activity or for security purposes.

Associated OM registers

Group AINACG, register CTRLCHA

Additional information

You can use table LOGCLASS to threshold or suppress the reporting of this log.

AIN612

Explanation

Log AIN612 indicates when the service control point (SCP) control list or service management system (SMS) control list (or both) have been restored (controls removed) as requested. This log is generated when controls are removed either as a result of the service switching point (SSP) receiving an ACG_Global_Ctrl_Restore message from the SCP, or when the SSP restore command ACGRESTORE is invoked.

Format

The format for log report AIN612 follows:

```
COMD08AJ  AIN612 mmmdd hh:mm:ss ssdd INFO ACG/SOCC Control
List Restored
  AIN ACG Control List Restored.
  List Type: < >    Request Type: < >
  Number of Controls Deleted: < >
  Source: < >
```

Example

An example of log report AIN612 follows:

```
COMD08AJ      AIN612 JAN01 21:50:27 7646 INFO ACG/SOCC
Control List Restored
  AIN ACG Control List Restored.
  List_Type: SMS    Request_Type: Exclude Zero-Gap SMS
  Controls
  Number of Controls Deleted: 45
  Source: SCP; PC:100-105-106,      SSN:51

COMD08AJ      AIN612 JAN01 14:50:00 7646 INFO ACG/SOCC
Control List Restored
  AIN ACG Control List Restored.
  List_Type: SCP      Request_Type: All
  Number of Controls Deleted: 10
  Source: SSP
```

Field descriptions

The following table explains each of the fields in the log report:

AIN612 (end)

Field	Value	Description
Date:	mmmdd	the date that the log is generated
Time:	hh:mm:ss	the time that the log is generated
Seqno:	ssdd	the sequence number of the log
List_Type	SCP or SMS or SCP and SMS	SCP or SMS or SCP and SMS Control Lists
Request_Type	All or Exclude Zero-gap SMS Controls	all controls are removed or all but zero-gap controls are removed (SMS only)
Source	SSP, SCP; PC:nnn-nnn-nnn, SSN:xxx	SSP-initiated (AINCI, ACGRESTORE command) or SCP-initiated restore using ACG_Global_Ctrl_Restore message (where nnn and xxx are numbers from 0-255, representing the point code (PC) and the signaling subsystem number (SSN) of the SCP that initiated the restore request
Number of Controls Deleted	0-512	the total number of controls removed from the control list(s)

Action

Not applicable

Associated OM registers

Group AINACG, register CTRLCHA

Additional information

Not applicable

GAME100

Explanation

The Advance Intelligent Network (AIN) subsystem contains generic AIN Messaging Environment (GAME). The GAME subsystem generates GAME100 log. The GAME100 log is generated when GAME software encounters a mismatch in handling of specific message type (e.g. R01, R02, DINA etc.). At generation of this log, which indicates that the service switching point (SSP) was unable to send an error message to service control point (SCP). The open transaction is closed as well due to error in handling.

The GAME100 log is for for AIN Essentials and subsequent releases.

Format

The log report format for GAME100 is as follows:

```
office * GAME100 mmmdd hh:mm:ss seqno INFO GAME_ERR_REPORT
      ERR = < >
      MSGSET = < >
      TRANS BLOCK = < >
```

Example

An example of log report GAME100 follows:

```
S3_500_17BL CM GAME100 APR04 05:10:16 0504 INFO GAME_ERR_REPORT
      ERR = MSGSET MISMATCH
      MSGSET = R01
      TRANS BLOCK = 434F 204B 203D 4F43 534E 4C4F 2045 3233
                    4446 4446 6F4C 706F 6465 7020 7461 2064
                    3137 3846 3135 2020 2020 2020 4520 455F
                    5252 525F 5045 524F 2054 0000 4120 454C
                    5452 0420 215F 2494 2141 0003 2141 7788
```

Field descriptions

The following table describes each field in the log report:

Field	Value	Description
ERR	Text	This describes the error type encountered.
MSGSET	R01, R02, DINA, IN, etc.	This field is the message set in use (for example, AIN Service Enablers).
TRANS BLOCK	Hex Data	This is the data which corresponds to the error that occurred.

Action

This is an info log. No action is required.

If any drastic call processing problems are seen with this log, then this log provides very valuable information to support engineers.

Associated OM registers

There are no associated OM registers.

Additional information

There is no additional information.

PRI looparounds

Part: “PRI looparounds” consists of the following chapters:

- Chapter 64.:“Introduction”
- Chapter 65.:“Determining PRI agents”
- Chapter 66.:“Datafilling information”
- Chapter 67.:“Triggers and parameters”
- Chapter 68.:“AIN-PRI feature interactions”
- Chapter 69.:“Processing response messages”

64. Introduction

This chapter provides an overview of the reasons for using primary rate interface (PRI) looparound trunks and information for provisioning these trunks.

64.1 Why use PRI looparounds?

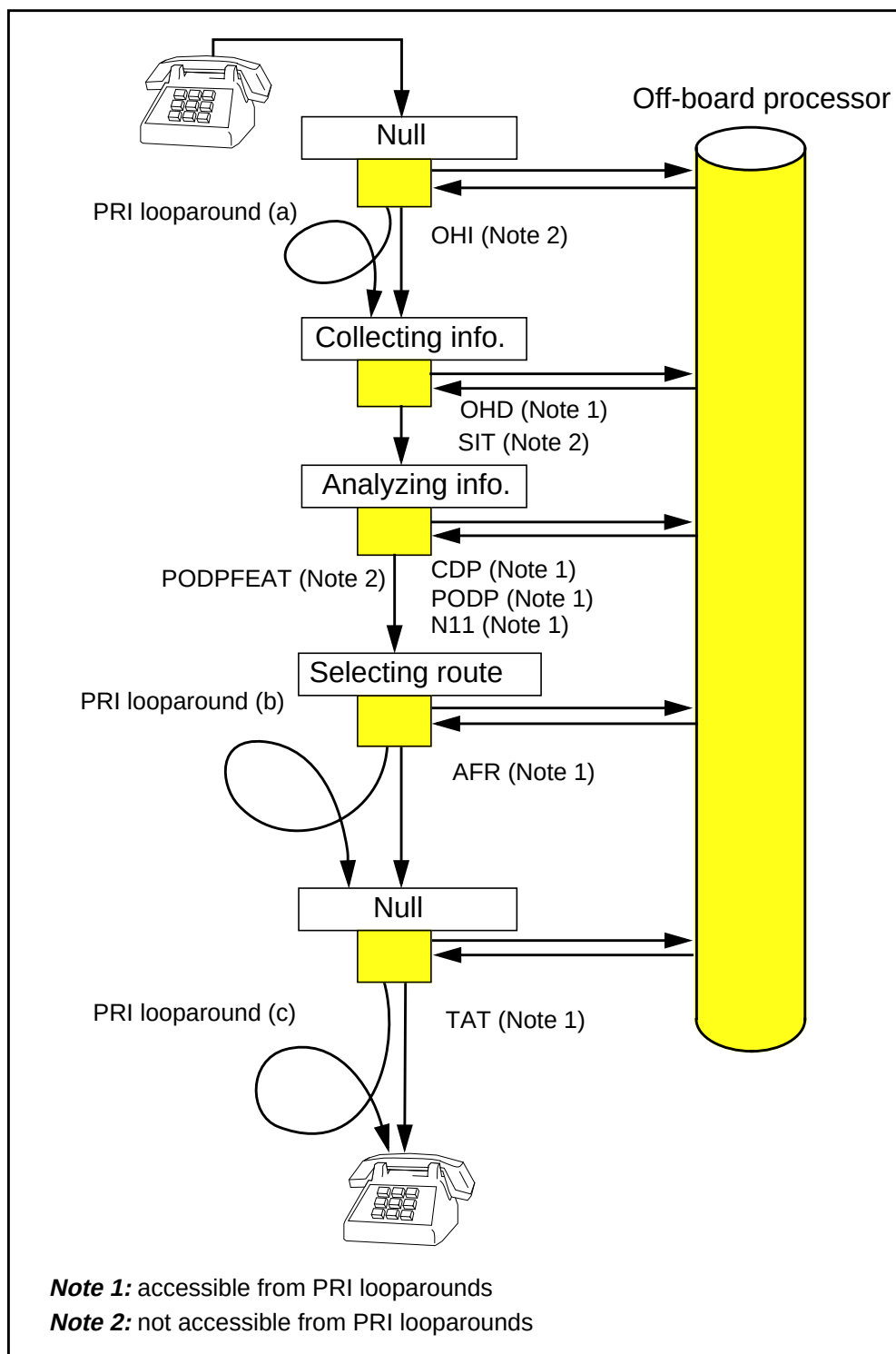
With the AIN Essentials offering, there are limitations to the agents and features supported. Several methodologies exist to decrease the limitations and restrictions associated with AIN Essentials. This document deals with one such methodology—the use of PRI looparounds.

Through judicious use of PRI looparounds, the current release of AIN Essentials can provide

- trigger support for several non-AIN agents
- post-query support for Calling Name and Number Display feature

The AIN Essentials service switching point (SSP) uses PRI looparounds to enhance its ability to provide AIN services. Points a, b, and c in Figure 248 show the points in call (PIC) where a PRI looparound might be used.

Figure 248 Categories of PRI looparounds



Note: Figure 248 shows only the points in call (PIC) that have trigger detection points (TDP) associated with them.

64.1.1 Trigger support for several non-AIN agents

The PRI looparounds are used to ensure that the non-AIN agents can encounter the triggers in the originating (a) and the terminating (b) call models shown in Figure 248. Please refer to Table 378 “AIN indirectly supported agents through PRI looparound” on page 1122.

64.1.2 Post-query support for Calling Name and Number Display

The PRI looparound (c) in Figure 248 is used to allow the Calling Number Display feature to work properly if the service control point (SCP) changes the calling party ID information. For example, if the SCP response message contains a CallingPartyID parameter different from the one sent to the SCP in the query message, the call should be routed over a PRI looparound trunk in order to provide the new calling party ID information to the terminating agent.

64.2 Restrictions and limitations

The PRI looparound cannot provide unsupported AIN agents with access to all triggers. Three triggers, off-hook immediate (OHI), Public Office Dialing Plan feature (PODPFEAT), and shared interoffice trunk (SIT), cannot be accessed by PRI trunks. For further information on triggers, refer to Section 67.1 “Triggers” on page 1195.

PRI does not carry all the information contained in AIN parameters. The ChargePartyStationType, RedirectingPartyID, and TCM parameters are completely unsupported by PRI. The ChargeNumber, PrimaryCarrier, and RedirectionInformation parameters are supported in a limited manner. For further information on parameters, refer to Section 67.2 “Parameters” on page 1196.

For calls originating from attendant consoles going over PRI looparound trunks, subsequent digit collection is not performed once the call has routed over the trunk. Two examples of this restriction are

- For the customized dialing plan (CDP) feature access code (FAC) trigger, if additional digits are to be collected after encountering the refinable translation result (FTR) selector, the attendant console will not be able to enter these digits.
- If an attendant console originates a call over a PRI looparound to AIN and a Send_to_Resource message is returned from the SCP requesting digits to be entered, the announcement is heard but digits cannot be entered from the keypad of the attendant console.

The integrated services digital network (ISDN) sets that require MainROM must be equipped with release 1.53 or later in order to perform digit collection across a PRI trunk when no answer supervision is previously sent.

The following are two examples of call scenarios in which release 1.53 or later is required to perform digit collection:

- A call from an ISDN set routes over PRI. The incoming PRI trunk triggers and sends a query to the database. A Send_to_Resource message is received without the AnswerIndicator and requests digit collection.
- A call from an ISDN set routes over PRI. The incoming PRI trunk performs Integrated Business Network (IBN) translation and encounters the FTR selector with NORM, VAR, or FIXED digit collection.

64.3 Hardware required

The implementation of PRI looparounds requires a minimum of additional hardware and a Digitone receiver (DTR) pool for all trunks.

When a call originates from a PRI trunk and results in a Send_to_Resource response message from the SCP, a DTR must be attached to the PRI trunk to collect digits over the PRI interface. Because the universal tone receiver (UTR) is not supported by PRI, the DTR is required.

The DTR is found in the maintenance trunk module (MTM). It receives digitones and produces a decoded binary output. The Nortel engineering code for the DTR is NT2X48AB.

64.4 Provisioning information

Trunk groups assigned with a common language location identification (CLLI) can exist only within the same peripheral module and will require their own separate D-channel and perhaps backup D-channel per trunk group.

A backup D-channel is also useful for DS-1 maintenance on the port. However, the prime channel must be set on a lower-numbered port card.

Unlike the ISDN user part (ISUP) trunks, PRI does not provide the continuity check feature. For more information about how to datafill the extended peripheral module (XPM) for PRI, please refer to *Integrated Services Digital Network Primary Rate Interface Translation Guide*, 297-2401-360.

65. Determining PRI agents

This chapter lists the agents that are fully supported by AIN, the agents supported by PRI looparound trunks in the origination and termination phases of a call, and the agents that are directly supported by the Termination Attempt (TERMATT) trigger in the termination phases of a call.

65.1 Agent groups

There are three groups of agent types in the NA009 software release:

- fully supported by AIN
- unsupported by AIN
- supported by AIN TERMATT

Supported agents can use the AIN application directly.

Calls from unsupported agents do not trigger at the AIN trigger detection points. Therefore, by redirecting the calls from the unsupported agents to the PRI trunks (which are supported) and looping them back to the DMS, these calls are given the same triggering potential as a directly supported agent, except for Off-Hook Immediate (OHI), Public Office Dialing Plan feature (PODPFEAT), and Shared Interoffice triggers (SIT).

In the termination phases of a call, some calls are redirected to the PRI trunks and others are directly supported by the TERMATT trigger.

65.2 Agents directly supported by AIN Essentials originating call model (OCM) and terminating call model (TCM) triggers

Table 375 lists the public agents and lists the private agents that are directly supported by AIN Essentials. PRI looparound trunks are not required to

support these agents. Only North American protocols and trunks are supported.

Table 375 AIN directly supported public agents

Agents	Line class code and trunk group type	Type
POTS Individual flat rate, residence	1FR	Line
POTS individual measured rate, residence	1MR	Line
Residential Enhanced Services lines	RES 1FR, RES 1MR (except coin lines)	Line
Private branch exchange rate	PBX	Line
Private branch exchange message rate	PBM	Line
Intertoll	IT	Trunk
Incoming end office	TI	Trunk
Two-way end office	T2	Trunk
Primary rate interface	PRA	Trunk
Access to carrier	ATC	Trunk

Table 376 AIN directly supported private agents

Agents	Line class code and trunk group type	Type
Integrated Business Network (Centrex)	IBN	Line
Electronic Business Set	EBS (except data units and ISDN functional signaling)	Line
ISDN BRI Meridian Feature Transparency	MFT	Line
Integrated Business Network	IBNTI, IBNT2	Trunk
Primary Rate Interface	PRA	Trunk

65.3 Agents partially supported by AIN Essentials

Table 377 lists agents that are partially supported by AIN Essentials. For each agent, there is a list of supported originating triggers. These triggers may be

encountered without the use of PRI looparounds. All remaining originating triggers can only be encountered through a PRI looparound trunk.

Table 377 AIN partially supported agents

Agents	Line class code/ trunk group type	Type	Supported originating triggers
Coin Dial Tone First (Note 1)	CDF	Line/Coin	CDP, PODP, N11, AFR (office-based)
Coin Coin First (Note 1)	CCF	Line/Coin	CDP, PODP, N11, AFR (office-based)
Coin Free Dialing (Note 1)	CFD	Line/Coin	CDP, PODP, N11, AFR (office-based)
Coin Semi Post Pay (Note 1)	CSP	Line/Coin	CDP, PODP, N11, AFR (office-based)
Zero-Minus Denied (Note 1)	ZMD	Line/Coin	CDP, PODP, N11, AFR (office-based)
Zero-Minus/ Zero-Plus Allowed (Note 1)	ZMZPA	Line/Coin	CDP, PODP, N11, AFR (office-based)
Basic Rate Interface NI-1	NI-1 BRI	Line/Other	CDP, PODP, N11, AFR (office-based), AFR(group-based)
DATAPATH	DATA/ PDATA	Line/DATA	OHI, OHD, PODP, CDP, N11, AFR (office based)
2-Party Flat Rate	2FR	Line/Party	OHI, OHD, PODP, N11, AFR (office-based)
4-Party Flat Rate	4FR	Line/Party	OHI, OHD, PODP, N11, AFR (office-based)
2-Way WATS (Note 2)	2WW	Line/WATS	CDP, PODP, N11, AFR (office-based), AFR (group-based)
Enhanced 2-Way WATS (Note 2)	ETW	Line/WATS	CDP, PODP, N11, AFR (office-based), AFR (group-based)
INWATS (Note 2)	INW	Line/WATS	CDP, PODP, N11, AFR (office-based), AFR (group-based)
OUTWATS (Note 2)	OWT	Line/WATS	CDP, PODP, N11, AFR (office-based), AFR (group-based)
Enhanced OUTWATS (Note 1)	EOW	Line/WATS	CDP, PODP, N11, AFR (office-based), AFR (group-based)
Virtual Facility Group	VFG	IBN/POTS	CDP, PODP, N11, AFR (office based), AFR (group based)

Table 377 AIN partially supported agents (Continued)

Agents	Line class code/ trunk group type	Type	Supported originating triggers
Operator	OP	Trunk	PODP, N11
SuperCAMA	SC	Trunk	PODP, N11
OutgoingCAMA	OC	Trunk	PODP, N11
Operator Incoming	OI	Trunk	PODP, N11
Cellular 2A (MF)	CELL	Trunk	PODP, N11, AFR (office based)
Cellular 2A (ISUP)	ISUP IT (CELL 2A option)	Trunk	PODP, N11, AFR (office based)
Cellular 1/2B (MF)	PX (LOCALCMC = Y)	Trunk	PODP, N11, AFR (office based)
Cellular 1/2B (ISUP)	ISUP IT (CELL 2B option)	Trunk	PODP, N11, AFR (office based)
PBX/DID	P2/PX	Trunk	PODP, N11, AFR (office based)
Virtual Access to Private Network	VAPN	Trunk	PODP, AFR (Office based)
Note 1: Coin lines can be type standard coin lines or residential enhanced coin lines. Trigger CDP is acceptable to the residential type only. Note 2: WATS lines can be standard WATS lines or residential enhanced WATS lines. Trigger CDP and AFR (group based) are applicable to the residential type only.			

65.4 Agents indirectly supported by AIN (OCM triggers) through PRI looparounds

Table 378 lists agents that are indirectly supported by AIN through the PRI looparounds.

Table 378 AIN indirectly supported agents through PRI looparound

Agents	Line class code and trunk group type	Type
Telex	TWX	Line/Other
8-Party flat rate	8FR	Line/Party
10-Party flat rate	10FR	Line/Party

65.5 Agents partially supported by AIN through TERMATT

Table 378 lists agents that are partially supported by AIN through TERMATT. The agents listed in Table 379 can directly encounter the TERMATT trigger, but they cannot subscribe to it.

Table 379 AIN directly supported agents through TERMA

Agents	Line class code and trunk group types	Types
Coin Dial Tone First	CDF	Line/Coin
Coin Coin First	CCF	Line/Coin
Coin Free Dialing	CFD	Line/Coin
Coin, Semi Post Pay	CSP	Line/Coin
Zero-Minus Denied	ZMD	Line/Coin
Zero-Minus/Zero-Plus Allowed	ZMZPA	Line/Coin
Datapath	DATA	Line/Data
POTS Data	PDATA	Line/Data
2-Party Flat Rate	2FR	Line/Party
4-Party Flat Rate	4FR	Line/Party
Basic Rate Interface NI-1	BRI NI-1	Line/Other
2-Way WATS	2WW	Line/WATS
Enhanced 2-Way WATS	ETW	Line/WATS
INWATS	INW	Line/WATS
OUTWATS	OWT	Line/WATS
Enhanced OUTWATS	EOW	Line/WATS
Virtual Facility Group	VFG	IBN/POTS
SuperCAMA	SC	Trunk (Note)
Outgoing CAMA	OC	Trunk (Note)
PBX/DID	PX/P2	Trunk
Cellular 2A (MF)	CELL	Trunk
Cellular 2A (ISUP)	ISUP IT (CELL 2A option)	Trunk
Cellular 1/2B (MF)	PX (LOCALCMC = Y)	Trunk

Table 379 AIN directly supported agents through TERMA (Continued)

Agents	Line class code and trunk group types	Types
Cellular 1/2B (ISUP)	ISUP IT (CELL 2B option)	Trunk
Access to Carrier	ATC	Trunk
Operator	OP	Trunk
Operator Incoming	OI	Trunk
Enhanced 911	E911	Trunk (Note)
Virtual Access to Private Network	VAPN	Trunk
Note: Partial TERMATT support; see the appropriate functional description for details.		

66. Datafilling information

This chapter describes the datafill required to implement PRI looparounds.

Note: In the tables in this section, the columns headed “Entry for PRI” contain values that have been tested. These values do not cover all the possible values for a particular field.

66.1 Data assignment

This section describes the data tables and entries that are required to set up the PRI trunk. lists the table entries.

Table 380 Data tables for PRI trunk

Table name	Definition	Reference NTP number	Volume
CLLI	common language location identifier	297-1001-451	2
TRKGRP	trunk group	297-1001-451	8
TRKSGRP	trunk subgroup	297-1001-451	8
TRKMEM	trunk member	297-1001-451	8
LTGRP	logical terminal group	297-1001-451	5
LTDEF	logical terminal definition	297-1001-451	5
LTDATA	logical terminal data	297-1001-451	5
LTCALLS	logical terminal calls	297-1001-451	5
LTMAP	logical terminal mapping	297-1001-451	5
NCOS	network class of service	297-1001-451	5

66.1.1 Table CLLI

Table common language location identifier (CLLI) codes are used to identify the trunk group uniquely.

Figure 249 shows a datafill example for table CLLI.

Figure 249 Datafill example for table CLLI

TABLE CLLI			
OHDLOOPG	1701	4	OHD_PRI_LOOP_OUTGOING
OHDLOOPIC	1702	4	OHD_PRI_LOOP_INCOMING
CDPLOOPG	1703	4	CDP_PRI_LOOP_OUTGOING
CDPLOOPIC	1704	4	CDP_PRI_LOOP_INCOMING
PODPLLOOPG	1705	4	PODP_PRI_LOOP_OUTGOING
PODPLLOOPIC	1706	4	PODP_PRI_LOOP_INCOMING
AFRLLOOPG	1707	4	AFR_PRI_LOOP_OUTGOING
AFRLLOOPIC	1708	4	AFR_PRI_LOOP_INCOMING
TATLOOPG	1709	4	TAT_PRI_LOOP_OUTGOING
TATLOOPIC	1710	4	TAT_PRI_LOOP_INCOMING

66.1.2 Table TRKGRP

Table trunk group (TRKGRP) contains customer-defined data associated with each trunk group that exists in the switching unit. Table 381 describes the fields in TRKGRP.

Table 381 Field description for table TRKGRP

Field or subfield	Entry for PRI	Explanation
GRPKEY	see subfield	Group key This field consists of subfield CLLI.
CLLI	alphanumeric	Common language location identifier From table CLLI, type trunk group name.
GRPINFO	see subfields	Group information This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, CUSTNAME, SUBGRPNO, SELSEQ, NCOS, BILLDN, SUPV, DISCTSEL, INTRAGRP, DIGIT0, DIGIT1, DTI, TES, CDR, SMDR, TRC, ALTNCOS, TRKDSR, LSCFN, ALTLSCFN, LSCINCPT, ALSCINCPT, IGA, FDN, FDV, FLASH, DPX, PREEMPT, AIODOPT, REORIG, OFFNETOPT, COFFTYP, and OPTIONS.
GRPTYP	IBNT2	Group type
TRAFSNO	numeric	Traffic separation number

Table 381 Field description for table TRKGRP (Continued)

Field or subfield	Entry for PRI	Explanation
PADGRP	NPDGP	PAD group Type the name of the originating PAD group from table PADDATA.
NCCLS	NCBN, NCID, NCIM, NCIT, NCLT, NCOF, NCON, NCOT, NCRT, NCTC, or NOSC	Operational measurements no-circuit class
CUSTNAME	alphanumeric	Customer group name
SUBGRPNO	0	Subgroup number
CONTMARK	+	Continuation mark
SELSEQ	ASEQ, DSEQ, MIDL, LIDL, CWCTH, CCWCTH, CNTLENV, CNTLODD, WIDEBAND	Select sequence
NCOS	numeric	Network class of service
BILLDN	numeric	Billing directory number
SUPV	ANSDISC, DISCONLY, FAKEANS or NODISC	Supervision
DISCTSEL	numeric	Disconnect timing selector
INTRAGRP	Y or N	Intragroup
DIGIT0	0-9, B, C, D, E, F, N	Digit 0
DIGIT1	0-9, B, C, D, E, F, N	Digit 1

Table 381 Field description for table TRKGRP (Continued)

Field or subfield	Entry for PRI	Explanation
DTI	Y or N	Dial tone incoming
TES	Y or N	Toll essential service
CDR	Y or N	Call detail recording
SMDR	Y or N	Station message detail recording
TRC	numeric	Terminating restriction code
ALTNCOS	numeric	Alternate class of service
TRKDSR	Y or N	Trunk distinctive ringing
LSCFN	numeric	Line screening code flag number
ALTLSCFN	numeric	Alternate line screening code flag number
LSCINCPT	numeric	Line screening code flexible intercept
ALSCINCP	numeric	Alternate line screening code flexible intercept
IGA	Y or N	Ignore answer
FDN	Y or N	Automatic flexible routing toll denied
FDV	Y or N	Automatic flexible routing toll diverted
FLASH	Y or N	Flash
DPX	Y or N	Datapath loop extension
PREEMPT	N	Preempt
AIDOPT	see subfield	Automatic identification of outward dialing options This consists of subfield AIOD.
AIOD	Y or N	Automatic identification of outward dialing
REORIG	Y or N	Reorigination
OFFNETOPT	see subfield	Offnet options This field contains subfield OFFNET.
OFFNET	Y or N	Offnet

Table 381 Field description for table TRKGRP (Continued)

Field or subfield	Entry for PRI	Explanation
COFFTYP	NATL	Connected office type NATL for national trunks
OPTIONS	see subfield	Options This field contains subfield OPTION.
OPTION	LTID	Option The system enters LTID.
LTID	see subfields	Logical terminal group This field contains subfields LTGRP and LTNUM.
LTGRP	ISDN	Logical terminal ID
LTNUM	numeric	Logical terminal number

Figure 250 shows a datafill example for table TRKGRP.

Figure 250 Datafill example for table TRKGRP

TABLE TRKGRP
OHDLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ OHDLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL AIN TRKTRIGGRP_OHD \$ CDPLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ CDPLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ PODPLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ PODPLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ AFRLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 617228888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ AFRLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ TATLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$ TATLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N N N 0 0 N 0 0 0 0 N N N N N N N N N NATL \$

66.1.3 Table TRKSGRP

Table trunk subgroup (TRKSGRP) lists the supplementary information for each subgroup that is assigned to one of the trunk groups listed in table TRKGRP. Input data must be specified for one or two subgroups for each trunk group listed in table TRKGRP, excluding trunk groups that are defined in table TRKGRP as maintenance (MAINT) group type. Table 382 describes the fields in TRKSGRP.

Table 382 shows a datafill example for table TRKSGRP.

Table 382 Field description for table TRKSGRP

Field or subfield	Entry for PRI	Explanation
SGRPKEY	see subfields	Subgroup key This field contains subfields CLLI and SGRP.
CLLI	alphanumeric	Common language location identifier
SGRP	0	Subgroup number
CARDCODE	DS1SIG	Card code
SGRPVAR	see subfield	Variable subgroup data This field consists of subfield SIGDATA and refinements PSPDSEIZ, PARTDIAL, VERSION, CRLENGTH, BCHNEG, BCHGLARE, IFCLASS, CONFIG, LOCATION, SAT, ECSELECT, TRKGRDTM, L1FLAGS, PARMNAME, DCHNL, and DCHBCKUP.
SIGDATA	ISDN	Signaling data
PSPDSEIZ	numeric	Permanent signal or partial dial on seizure timing
PARTDIAL	numeric	Partial dial timing
VERSION	87Q931	Protocol version
CRLENGTH	numeric	Call reference length
BCHNEG	Y or N	B-channel negotiation
BCHGLARE	YIELD or STAND	B-channel glare
CONTMARK	+ or \$	Continuation mark

Table 382 Field description for table TRKSGRP (Continued)

Field or subfield	Entry for PRI	Explanation
IFCLASS	NETWORK USER (Note 1)	Interface class Type NETWORK if it is the network end. Type USER if the PRA link is considered the user end of the protocol.
CONFIG	PT_PT or PT_MLT_PT	Configuration
LOCATION	LOCALEO PVTNET or USER	Location
SAT	Y or N	Satellite
ECSELECT	see subfield	Echo canceler selector This field contains subfield ECSTAT.
ECSTAT	EXTERNAL INNOTONE INTERNAL or UNEQ	Echo canceler status
NSMATCH	Y or N	Noise match control Datafill this field when ECSTAT = INNOTONE or INTERNAL.
AUTOON	Y or N	Auto re-enable control Datafill this field when ECSTAT = INNOTONE or INTERNAL.
TRKRD TM	numeric	Trunk guard timing
ADJNODE	alphanumeric	Adjacent node

Table 382 Field description for table TRKSGRP (Continued)

Field or subfield	Entry for PRI	Explanation
L1FLAGS	Y or N	Layer 1 flags This field is used by ISDN PRA trunks to indicate whether or not the DTCl sends layer 1 flags when the D-channel is flag-fill mode. Type Y if the connection is between DMS and a different vendor. Type N for DMS-to-DMS connections.
CONTMARK	+ or \$	Continuation mark
PARMNAME	alphanumeric or DEFAULT	ISDNPARM name Type a name in table ISDNPARM. This field associates the information found in table ISDNPARM with PRI defined by table TRKSGRP tuple.
DCHNL	see subfield	D-channel The entries in this field define the main D-channel to be used for PRA interface. This field consists of subfield PMTYPE. D-channel is recommended to be set up at the beginning or end of the trunk groups channels.
PMTYPE	DTCl or LTC (Note 2)	Peripheral module type
Note 1: The trunk must be set up with one end as “Network” and the other end as “User”. Note 2: DTCl is the recommended peripheral module.		

Figure 251 Datafill example for table TRKSGRP

```

TABLE TRKSGRP

OHDLOOPOG 0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 4 22 64K HDLC $
OHDLOOPIC 0 DS1SIG ISDN 20 20 87Q931 2 N YIELD USER
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 5 22 64K HDLC $
CDPLOOPOG 0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 4 21 64K HDLC $
CDPLOOPIC 0 DS1SIG ISDN 20 20 87Q931 2 N YIELD USER
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 5 21 64K HDLC $
PODLOOPOG 0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 4 20 64K HDLC $
PODLOOPIC 0 DS1SIG ISDN 20 20 87Q931 2 N YIELD USER
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 5 20 64K HDLC $
AFRLOOPOG 0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 4 19 64K HDLC $
AFRLOOPIC 0 DS1SIG ISDN 20 20 87Q931 2 N YIELD USER
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 5 19 64K HDLC $
TATLOOPOG 0 DS1SIG ISDN 20 20 87Q931 2 N STAND NETWORK
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 4 18 64K HDLC $
TATLOOPIC 0 DS1SIG ISDN 20 20 87Q931 2 N YIELD USER
PT_PT USER N UNEQ 160 N DEFAULT DTCI 0 5 18 64K HDLC $

```

66.1.4 Table TRKMEM

Table trunk member (TRKMEM) lists the data for each trunk specified in tables TRKGRP and TRKSGRP. Table 383 describes the fields in TRKMEM.

Table 383 Field description for Table TRKME

Field or subfield	Entry for PRI	Explanation
CLLI	alphanumeric	Common language location identifier
EXTRKNM	numeric	External trunk number
SGRP	0	Subgroup number
MEMVAR	see subfield	Variable data for members This field contains subfield PMTYPE.
PMTYPE	DTCI or LTC	Peripheral module type
DTCINO	numeric	ISDN digital trunk controller number Note: Use this field only when PMTYPE = DTCI.

Table 383 Field description for Table TRKME (Continued)

Field or subfield	Entry for PRI	Explanation
DTCICKTNO	numeric	ISDN digital trunk controller circuit number Note: Use this field only when PMTYPE = DTCL.
DTCICKTTS	numeric	ISDN digital trunk controller circuit time-slot Note: Use this field only when PMTYPE = DTCL.
LTCNO	numeric	Line trunk controller number Note: Use this field only when PMTYPE = LTC.
LTCCKTNO	numeric	Line trunk controller circuit number Note: Use this field only when PMTYPE = LTC.
LTCCKTTS	numeric	Line trunk controller circuit time-slot Note: Use this field only when PMTYPE = LTC.

Figure 252 shows a datafill example for table TRKMEM.

Figure 252 Datafill example for table TRKMEM

TABLE TRKMEM					
OHDL00POG	1	0	DTCL	0	4 5
CDPL00POG	1	0	DTCL	0	4 9
PODPL00POG	1	0	DTCL	0	4 11
AFRL00POG	1	0	DTCL	0	4 13
TATL00POG	1	0	DTCL	0	4 15
OHDL00PIC	1	0	DTCL	0	5 5
CDPL00PIC	1	0	DTCL	0	5 9
PODPL00PIC	1	0	DTCL	0	5 11
AFRL00PIC	1	0	DTCL	0	5 13
TATL00PIC	1	0	DTCL	0	5 15

66.1.5 Table LTGRP

Table logical terminal group (LTGRP) associates a logical group name with terminal types that can be datafilled in that group. The group ISDN is a permanent entry in table LTGRP. Table 384 describes the fields in LTGRP.

Table 384 Field description for table LTGRP

Field or subfield	Entry for PRI	Explanation
GROUP	ISDN	Logical terminal group name
GROUPNO	0-31	Logical terminal group number
OPTIONS	SAPI16 or \$	Logical terminal options

Figure 253 shows a datafill example for table LTGRP.

Figure 253 Datafill example for table LTGRP

TABLE LTGRP
ISDN 0 \$

66.1.6 Table LTDEF

Table logical terminal definition (LTDEF) defines the logical terminals and their access privileges. It can be used to allow ISDN subscribers to access the full range of Meridian Digital Centrex (MDC) feature products and also to allow the operating company to have different functional protocols in use by different vintage ISDN terminals. Table 385 describes the fields in LTDEF.

Table 385 Field description for table LTDEF

Field or subfield	Entry for PRI	Explanation
LTKEY	see subfields	Logical terminal key It contains subfields LTGRP and LTNUM.
LTGRP	ISDN	Logical terminal group
LTNUM	1 to 1022	Logical terminal number
LTAP	B	Logical terminal access privilege
CLASSREF	see subfield	Logical terminal class This field consists of subfield LTCLASS
LTCLASS	PRA	Logical terminal class

Table 385 Field description for table LTDEF (Continued)

Field or subfield	Entry for PRI	Explanation
NUMBCHNL	1-479	Number of B-channels
NUMCALLS	1-479	Number of calls
INCCALLS	0-479	Incoming calls
OUTCALLS	0-479	Outgoing calls
VARISSUE	see subfields	Variant issue This field consists of subfields VARIANT and ISSUE.
VARIANT	NTNAPRI	Variant type NTNAPRI - NT PRI
ISSUE	V1	Issue
PROFNAME	alphanumeric or NIL	Profile name This field is the key to Table PRIPROF.
OPTION	NCMD, NOPMD, NOVBD, NOVOICE, PGRPID, ONEPLNC, or SZGRDTM	Options

Figure 254 shows a datafill example for table LTDEF.

Figure 254 Datafill example for table LTDEF

TABLE LTDEF												
ISDN 901	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 902	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 903	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 904	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 905	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 906	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 907	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 908	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 909	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	
ISDN 910	B	PRA	23	23	5	5	NTNAPRI	V1	NIL	NOPMD	\$	

66.1.7 Table LTDATA

Table logical terminal data (LTDATA) stores service-related data associated with the logical terminal identifier, which is the key to this table. Subscription parameters related to ISDN primary rate access (PRA) protocol-independent services are supported in this table.

The DN selector entries in table LTDATA are required to conform to the guidelines given in Section 67.2.5 “CallingPartyID” on page 1201, for populating the CallingPartyID parameter.

Table 390 describes the fields in LTDATA.

Table 386 Field description for table LTDATA

Field or Subfield	Entry for PRI	Explanation
LTDKEY	See subfields	Logical terminal data key This field contains subfields LTGRP, LTNUM, and DATATYPE.
LTGRP	ISDN	Logical terminal group
LTNUM	1 to 1022	Logical terminal number
DATATYPE	DN or SERV	Logical terminal data type: - Type DN for directory number. - Type SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface.
LTDRSLT	See subfield	Logical terminal result It consists of subfield DATATYPE.
DATATYPE	DN or SERV	Logical terminal data type
AUDTRMT	Y or N	Audible treatment Note: Use this field only when DATATYPE = SERV.
CGNREQD	Y or N	Calling party number required Note: Use this field only when DATATYPE = SERV.
CGNDELV	ALWAYS, NEVER or SCREENED	Calling party number delivery Note: Use this field only when DATATYPE = SERV.

Table 386 Field description for table LTDATA (Continued)

Field or Subfield	Entry for PRI	Explanation
CDNDELV	NEVER or ALWAYS	Called party number delivery Note: Use this field only when DATATYPE = SERV.
DFLTCGN	See subfields	Default calling party number. This subfield consists of subfields SNPA, NXX and STATION. Note: Use this field only when DATATYPE = DN.
SNPA	Numeric	Serving numbering plan area. Type in area code. Note: Use this field only when DATATYPE = DN.
NXX	0-9, N, B, C, D, E or F	NXX Type the first 3 characters of the DN. Note: Use this field only when DATATYPE = DN.
STATION	0-9, N, B, C, D, E or F	Station Type the last 4 characters of the DN. Note: Use this field only when DATATYPE = DN.
OPTION	CHG	Note: Use this option only when DATATYPE = SERV

When a PRI looparound is being used for PX and P2 trunks with per-trunk signaling (PTS), it is recommended that the CHG option be used to provide the billing number of the PX trunk, as the CallingPartyID information is not provided over the looparound trunk.

Figure 255 shows a datafill example for table LTDATA.

Figure 255 Datafill example for table LTDATA

TABLE LTDATA									
ISDN 901	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 902	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 903	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 904	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 905	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 906	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 907	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 908	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 909	SERV	SERV	N	N	ALWAYS	ALWAYS	\$		
ISDN 910	SERV	SERV	N	N	ALWAYS	ALWAYS	CHG	\$	
ISDN 901	DN	DN 613 722 9999	\$						
ISDN 902	DN	DN 613 722 9999	\$						
ISDN 903	DN	DN 613 722 9999	\$						
ISDN 904	DN	DN 613 722 9999	\$						
ISDN 905	DN	DN 613 722 9999	\$						
ISDN 906	DN	DN 613 722 9999	\$						
ISDN 907	DN	DN 613 722 9999	\$						
ISDN 908	DN	DN 613 722 9999	\$						
ISDN 909	DN	DN 613 722 9999	\$						
ISDN 910	DN	DN 613 722 9999	\$						

66.1.8 Table LTCALLS

Table logical terminal calls (LTCALLS) stores service-related data, such as translations that are associated with the call type. It is accessed by a multipart key and logical terminal identifier (LTID) in field LTID. Table 387 describes the fields in LTCALLS.

Table 387 Field description for table LTCALLS

Field or subfield	Entry for PRI	Explanation
LTID	See subfields	Logical terminal identifier This field contains subfields LTGNUM, LTGRP, LTNUM, and CALLTYP.
LTGNUM	See subfield	Logical terminal group number This field contains subfields LTGRP and LTNUM.
LTGRP	ISDN	Logical terminal group Type the trunk group name from table LTDEF
LTNUM	1 to 1022	Logical terminal number Type the trunk group number from table LTDEF.

Table 387 Field description for table LTCALLS (Continued)

Field or subfield	Entry for PRI	Explanation
CALLTYP	PUB or PVT	Call type - Type PUB for public. - Type PVT for private.
XLARTSEL	See subfield	Translation route selector This field contains subfields XLARTE, LINEATTR, CUSTGRP, SUBGRP, and NCOS.
XLARTE	XLAIBN, XLALEC, or RTEREF	Translation route - Type XLAIBN for Integrated Business Network for PBX-type or MDC-type offices. - Type XLALEC for local exchange carrier for POTS-type, PBX-type, or MDC-type offices. - Type RTEREF to route the call to the appropriate table. Note: The XLAREC selector cannot be used when field CALLTYP = PVT.
LINEATTR	0 to 1023	Line attribute Type a number from 0 to 1023 for the index into table LINEATTR. Note: Use this field only when XLARTE = XLAIBN or XLARTE = XLALEC.
CUSTGRP	Alphanumeric	Customer group name Type the customer group name. Note: Use this field only when XLARTE = XLAIBN.
SUBGRP	0 to 7	Subgroup Type a number from 0 to 7 for the customer subgroup. Note: Use this field only when XLARTE = XLAIBN.

Table 387 Field description for table LTCALLS (Continued)

Field or subfield	Entry for PRI	Explanation
NCOS	0 to 255	Network class of service Type a number from 0 to 255 for the key to the NCOS table. Note: Use this field only when XLARTE = XLAIBN.
TABNAME	OFRT or IBNRTE	Table name Type OFRT or IBNRTE for the routing table. Note: Use this field only when XLARTE = RTEREF.
INDEX	0 to 1023	Index Type a number from 0 to 1023 for the extended route reference index. Note: Use this field only when XLARTE = RTEREF.
OPTIONS	EA	Options This option is required for equal access routing.

Figure 256 shows a datafill example for table LTCALLS.

Figure 256 Datafill example for table LTCALLS

```

TABLE LTCALLS

ISDN 901 PUB XLALEC 601 EA ITT Y $
ISDN 902 PUB XLALEC 601 EA ITT Y $
ISDN 903 PUB XLALEC 601 EA ITT Y $
ISDN 904 PUB XLALEC 601 EA ITT Y $
ISDN 905 PUB XLALEC 601 EA ITT Y $
ISDN 906 PUB XLALEC 601 EA ITT Y $
ISDN 907 PUB XLALEC 602 EA ITT Y $
ISDN 908 PUB XLALEC 602 EA ITT Y $
ISDN 909 PUB XLALEC 603 EA ITT Y $
ISDN 910 PUB XLALEC 603 EA ITT Y $
%
ISDN 901 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 902 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 903 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 904 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 905 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 906 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 907 PVT XLAIBN 0 COMKODAK 0 62 $
ISDN 908 PVT XLAIBN 0 COMKODAK 0 62 $
ISDN 909 PVT XLAIBN 0 COMKODAK 0 0 $
ISDN 910 PVT XLAIBN 0 COMKODAK 0 0 $

% The XLAIBN selector can be used for PUB calls. If so,
% the entry would look like the following:

ISDN 902 PUB XLAIBN 0 COMKODAK 0 0 $

```

66.1.9 Table LTMAP

Table logical terminal mapping (LTMAP) maps the logical terminals to a line equipment number (LEN) and the terminal equipment interface (TEI), depending on the logical terminal access privilege (LTAP). Table 388 describes the fields in LTMAP.

Table 388 Field description for table LTMAP

Field or subfield	Entry for PRI	Explanation
LTKEY	See subfields	Logical terminal key It contains subfields LTGRP and LTNUM.
LTGRP	ISDN	Logical terminal group
LTNUM	1 to 1022	Logical terminal number
MAPPING	See subfield	Logical terminal mapping This field contains subfield MAPTYPE.
MAPTYPE	CLLI	Logical terminal mapping type

Table 388 Field description for table LTMAP (Continued)

Field or subfield	Entry for PRI	Explanation
CLLI	Alphanumeric	Common language location identifier Type the CLLI of the PRA trunk that the logical terminal is assigned to.
LEN	See subfields	Line equipment number For ISDN lines, field LEN consists of subfield LTID.
OPTION	TEI	Option
TEI	0-63 Enter a \$ to end the tuple	Terminal endpoint identifier

Figure 257 shows a datafill example for table LTMAP.

Figure 257 Datafill example for table LTMAP

TABLE LTMAP		
ISDN 901 CLLI	OHDL00POG	TEI 0 \$
ISDN 902 CLLI	OHDL00PIC	TEI 0 \$
ISDN 903 CLLI	CDPL00POG	TEI 0 \$
ISDN 904 CLLI	CDPL00PIC	TEI 0 \$
ISDN 905 CLLI	PODPL00POG	TEI 0 \$
ISDN 906 CLLI	PODPL00PIC	TEI 0 \$
ISDN 907 CLLI	AFRL00POG	TEI 0 \$
ISDN 908 CLLI	AFRL00PIC	TEI 0 \$
ISDN 909 CLLI	TATL00POG	TEI 0 \$
ISDN 910 CLLI	TATL00PIC	TEI 0 \$

66.1.10 Table NCOS

Table network class of service (NCOS) consists of network class of service numbers that are assigned to attendant consoles (AC), Integrated Business Networks (IBN), or Residential Enhanced Services (RES) stations, as well as the incoming or incoming side of two-way IBN trunk groups, authorization codes, and customer groups. Each customer group can have up to a maximum of 256 NCOS numbers.

Figure 258 shows a datafill example for table NCOS.

Figure 258 Datafill example for table NCOS

TABLE NCOS												
COMKODAK	60	OHDPRI	0	0	XLAS	XOHD	NXLA	NDGT	\$			
COMKODAK	61	CDPPRI	0	0	XLAS	XCDP	NXLA	NDGT	\$			
COMKODAK	62	AFRPRI	0	0	XLAS	XAFR	NXLA	NDGT	\$			

66.2 Translations

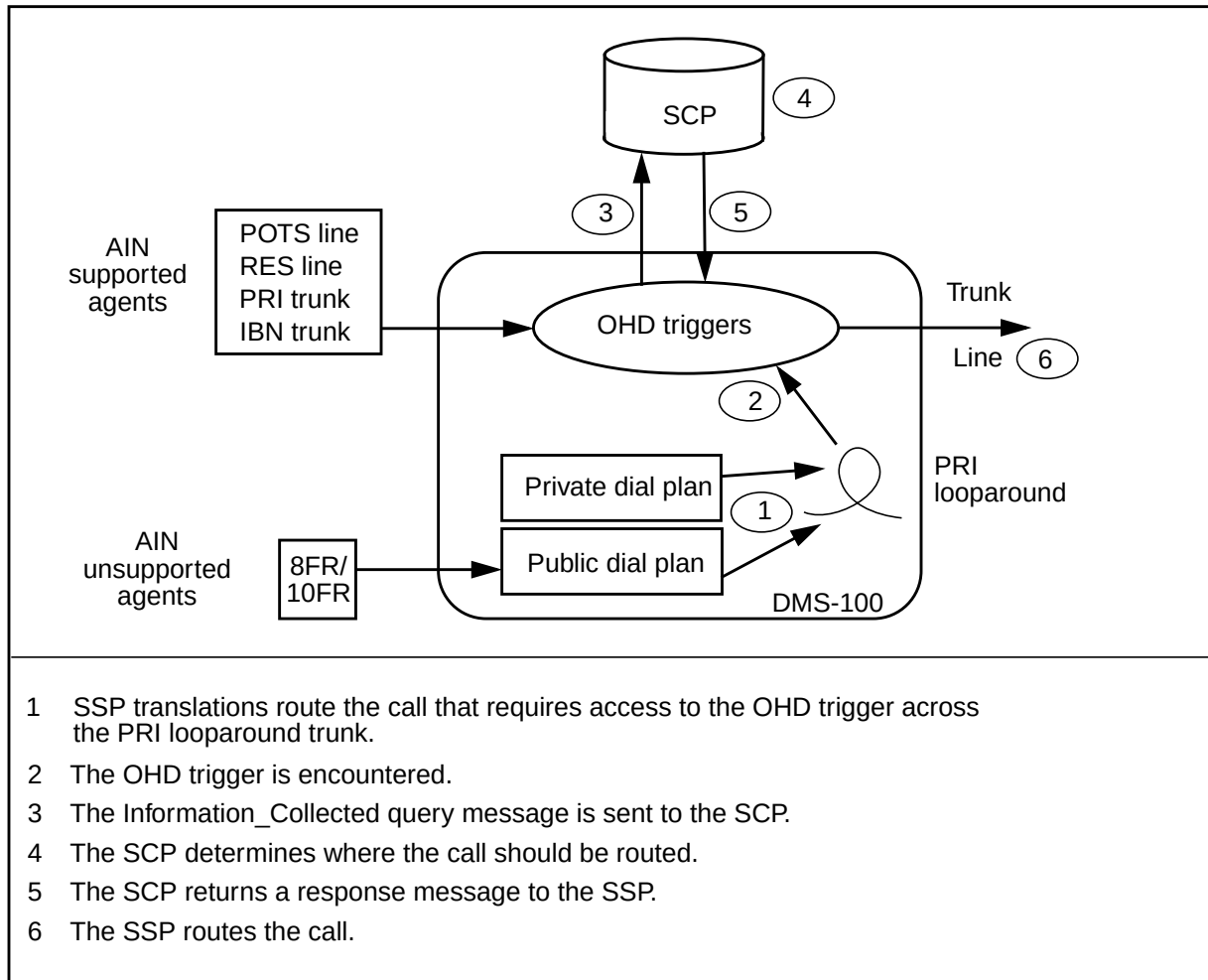
This section contains sample TRAVER displays of the following triggers: off-hook delay (OHD), customized dialing plan (CDP), Public Office Dialing Plan/N11 (PODP/N11), automatic flexible routing (AFR), and Termination Attempt (TERMATT). Proper datafill and translation for the PRI looparound is required to enable unsupported AIN agents to encounter these triggers.

66.2.1 Off-hook delay (OHD) trigger

The off-hook delay trigger is applicable to the PRI trunk. Therefore, it is possible to route calls across the PRI trunk in order to encounter this trigger. For this trigger, all calls must be routed over the PRI trunk.

Note: There are exceptions to this. For example, 800 service and 911 service must not be routed over PRI trunks. Please refer to Figure 262 on page 1146 for an example.

Figure 259 shows originating agents routing over a PRI loop in order to encounter the OHD trigger. The applicable SCP responses include Send_to_Resource, Analyze_Route, and Disconnect.

Figure 259 Unsupported agents going to the OHD trigger**66.2.1.1 OHD translation impact of PRI**

In order to route all calls over PRI trunks, the translations for the originating agent need to be changed. For unsupported public agents, changing the translations can be done by adding a new Line Attribute Index (Lineattr) for this agent. This index identifies a new pretranslator for the agent to use. This pretranslator will be datafilled so that all calls will route over the PRI trunk. The incoming side of the PRI trunk will be datafilled with the original Line Attribute of the originating agent, or a similar one, and will be subscribed to the off-hook delay trigger. If several line attributes exist for the unsupported agents, additional PRI trunk groups may be required. Figures 260 through 263 show datafill examples.

Figure 260 Datafill example for table LINEATTR

TABLE LINEATTR

28 TWX NONE NT FR01 0 613 OPR1 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00 N \$

Figure 261 Datafill example for table STDPRTCT

TABLE STDPRTCT

OPR1

Figure 262 Datafill example for table STDPRTCT.STDPRT

TABLE STDPRTCT.STDPRT

```

0      1799 T NP 0 OFRT 295 3 18 NONE
1800 1800 N DD 1 NA
1801 910  T NP 0 OFRT 295 3 18 NONE
911  911  T OA 0 OFRT 102 3 3 NONE
912  999  T NP 0 OFRT 295 3 18 NONE

```

Figure 263 Datafill example for table OFRT

TABLE OFRT

295 ISA N N N OHDL00POG PUB NONE N N 0 \$

For unsupported private agents a new NCOS can be assigned to the agent, which will have a new preliminary translator name. This translator will be datafilled to route all calls over the PRI looparound trunk. The incoming side of the PRI trunk will be datafilled with the original NCOS of the unsupported agent and will be subscribed to the off-hook delay trigger. If several NCOS exist for the unsupported agents, additional PRI trunk groups may be required. Figures 264 through 267 show datafill examples.

Figure 264 Datafill example for table XLANAME

TABLE XLANAME

XOHD ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 290 \$ \$ 9

Figure 265 Datafill example for table NCOS

```
TABLE NCOS
COMKODAK 0      OHDPRI 0 0 XLAS XOHD NXLA NDGT $
```

Figure 266 Datafill example for table IBNXLA

```
TABLE IBNXLA
XOHD 0 ATT 1
XOHD 91800 NET N Y N 1 N POTS Y Y DOD N 80 NONE $
XOHD 9911 NET N Y N 1 N POTS Y Y DOD N 80 NONE $
```

Figure 267 Datafill example for table IBNRTE

```
TABLE IBNRTE
290 ISA N N N OHDL00POG PVT 0 PVT 0 $
```

66.2.1.2 OHD billing implications of PRI

For public calls it is possible to have billing records produced on both the outgoing and the incoming side of the trunk. The AIN record will only be produced on the incoming side of the trunk. In order to prevent the creation of a billing record on the outgoing side of the trunk, the translations should be set up so that the call is nonbillable.

For private calls, no additional billing records will be produced. However, additional SMDR records may be produced depending on the datafill in the IBN translation tables.

Since no Charge Number parameter exists in the Q931 protocol, no charge number information is propagated to the incoming side of the trunk. As a result, if the originating agent has the special billing (SPB) option, the SPB number will not be propagated over the trunk.

The billing records produced on the incoming side of the trunk will use the charge number used in the query as the originating number. Section 67.2.6 “ChargeNumber” on page 1203, describes how the charge number parameter is populated.

66.2.1.3 Feature impacts

Special consideration must be taken for a non-AIN public agent with the Toll Denied (TDN) option. Any calls from Toll Denied lines routed over the PRI

looparound trunk must retain their TDN restriction. To do this, the incoming side of the PRI looparound trunk must be toll denied.

There is no way to directly assign TDN to the incoming end of the PRI looparound trunk. Instead, calls are routed privately over the PRI trunk. The customer group translations from the incoming end of the PRI trunk always route the call into the public environment with TDN set.

Non-AIN public lines with the TDN option must be assigned a unique Line Attribute, which is different from lines of the same type without the TDN option.

66.2.1.4 Line trace to PRI looparound—OHD trigger

Table 389 traces a call from the line to the PRI looparound trunk.

Table 389 TRAVER output for a line trace to PRI looparound trunk—OHD trigger

```
traver l 6214622 6211091 b
TABLE LINEATTR
28 TWX NONE NT FR01 0 613 OPR1 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
Originator is supported for AIN Termination Attempt Trigger
only, therefore other AIN info is not processed.
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
OPR1 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
```

Table 389 TRAVER output for a line trace to PRI looparound trunk—OHD trigger (Continued)

```

. 6 910 T NP 0 OFRT 295 3 18 NONE
. . TABLE OFRT
. . 295 ISA N N N OHDLPOOG PUB NONE N N 0
. . . TABLE TRKGRP
. . . OHDLPOOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC
0 Y N N N N
. . . N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 810) $
. . . TABLE LTCALLS
. . . ISDN 810 PUB XLALEC 0 $
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 OHDLPOOG N CDN E164 L 6211091 NIL_NSF BC SPEECH

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

66.2.1.5 Incoming PRI trace—OHD trigger

Table 390 shows an incoming call trace to the PRI looparound trunk—OHD trigger.

**Table 390 TRAVER output for an incoming call trace to the PRI looparound trunk—
OHD trigger**

```

>traver tr OHDLLOOPIC n cdn e164 6211091 ainchg 6136211410 b
TABLE TRKGRP
OHDLLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6136218888 ANSDISC 0 Y N N N N
      N N 0 0 N 0 0 0 0 N N N N N N N N NATL (LTID ISDN 811) $
TABLE LTCALLS
ISDN 811 PUB XLALEC 601 (EA ITT Y) $
. . TABLE TRKAIN
. . OHDLLOOPIC TRKOFFHKDEL
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE LINEATTR
601 IBN NONE NT FR01 0 613 EAP1 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
EAP1 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 6 6 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
TABLE HNPACONT
613 Y 932 2 ( 385) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 6211 6214 DN 613 621
TABLE TRIGGRP
TRKOFFHKDEL INFOCOL
. OFFHKDEL ( ESC )$ JAZZINFO

```

**Table 390 TRAVER output for an incoming call trace to the PRI looparound trunk—
OHD trigger (Continued)**

```

Trigger R01 OFFHKDEL is applicable to individual IBN trunk.
Trigger R01 OFFHKDEL: Trigger is active.
    (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGESC
. . TUPLE NOT FOUND
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136211410 6136211410 SSNONLY (AINTTEST) $
AIN Info Collected TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

AIN Info Collected TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

>

```

66.2.1.6 Off-Hook Delay call from an attendant console (AC)

Table 391 shows the TRAVER from an attendant console (AC) to the trunk.

**Table 391 TRAVER output for OHD call from an attendant console (AC)—
from an AC to the trunk**

```

traver c attkdkb 28900 b
TABLE ATTCONS
ATTKDKB COMKODAK 0 0 Y 4X08AB REM3 01 1 05 03 REM3 01 1 05 04 REM3 01 1 05 05 N
$
TABLE NCOS
COMKODAK 0 0 0 OHDPRI ( XLAS XOHD NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 2 RPT
TABLE IBNXLA: XLANAME XOHD
TUPLE NOT FOUND
Default from table XLANAME:
XOHD
      (ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 290 $) $ 9
TABLE DIGCOL
NDGT specified: digits collected individually
Originator is not an AIN agent, therefore AIN info is not processed.
TABLE IBNRTE
290 ISA N N N OHDLLOOPOG PVT 0 PVT 0
. TABLE TRKGRP
. OHDLLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N
N N N
.      N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 822) $
. TABLE LTCALLS
. ISDN 822 PVT XLAIBN 0 COMKODAK 0 11 $
EXIT TABLE IBNRTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

**Table 391 TRAYER output for OHD call from an attendant console (AC)—
from an AC to the trunk (Continued)**

DIGIT TRANSLATION ROUTES	
1 OHDL00POG	N CDN PVT L 28900 PRVT 0 BC SPEECH
TREATMENT ROUTES. TREATMENT IS: GNCT	
1 *OFLO	
2 LKOUT	
+++ TRAYER: SUCCESSFUL CALL TRACE +++	

Table 392 shows the TRAYER output from the trunk to the trigger.

**Table 392 TRAVER output for OHD call from an attendant console—
from the trunk to the trigger**

```

>traver tr OHDL00PIC n cdn pvt 28900 ainchg 6136218888 b
TABLE TRKGRP
OHDL00PIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N
      N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 823) $
TABLE LTCALLS
ISDN 823 PVT XLAIBN 0 COMKODAK 0 11 $
. . TABLE TRKAIN
. . OHDL00PIC TRKOFFHKDEL
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE NCOS
COMKODAK 11 0 0 PKDK ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 28 EXTN N N Y 613 722 5 $
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE TRIGGRP
TRKOFFHKDEL INFOCOL
. OFFHKDEL ( ESC )$ JAZZINFO
Trigger R01 OFFHKDEL is applicable to individual IBN trunk.

```


**Table 392 TRAVER output for OHD call from an attendant console—
from the trunk to the trigger (Continued)**

```

Trigger R01 OFFHKDEL: Trigger is active.
    (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136218888 6136218888 SSNONLY (AINTTEST) $
AIN Info Collected TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

AIN Info Collected TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

>

```

66.2.1.7 *XX access codes for OHD and CDP triggers

The off-hook delay (OHD) and the customized dialing plan (CDP) triggers may be encountered when “*XX\” access codes are dialed. In these cases the query which is sent to the SCP contains “XX” in the AccessCode parameter (subsequent digits dialed are sent in the CollectedAddressInfo or CollectedDigits parameters).

Note: Access codes may contain up to 7 digits after the “*”.

However, the Q931 PRI protocol does not support outputting the “*”. Therefore, only the “XX” access code and subsequent digits are received from the PRI looparound trunk and used to translate the call. The call will translate differently than AIN-supported agents in the same customer group.

A suggested workaround for this problem is obtained by modifying the translations to change “*” to “11” before going over the PRI looparound trunk

and change “11” back to “*” at the incoming side of the PRI looparound trunk. The following explains how the datafill is done for this workaround:

Perform digit manipulation on the route using the DIGMAN table and prefix the accesscode with a “11”. On the incoming side, the IBNXLA table is used to replace the “11” with a “*” using the STAR selector (for example, CXDK 11 STAR). Translations proceed to the feature translator where the “XX” is already datafilled. The call triggers and sends “*XX” in the AccessCode parameter and the subsequent digits in the CollectedAddrInfo or the CollectedDigits parameters. Please refer to Figures 268 through Table 394 for datafill and TRAVER examples.

Note: “#” is similar to “*” except that the OCT selector is used instead of the STAR selector.

The implications of this workaround are as follows:

- Special routes (with DIGMAN) are required to prefix the “11” for BRI calls that are to trigger at the off-hook delay trigger when a “*” is dialed.
- The “11” must be uniquely datafilled in the translator to represent a star.
- If the PRI looparound trunk uses the same translator as the supported agents in the group, the supported agents will be able to dial “11XX” directly and trigger in the same way as “*XX”. If users are not to be allowed to dial “11XX” directly and trigger, the PRI looparound trunk must use a different translator than the supported agents in the customer group.

Figure 268 Datafill example for table DIGMAN

TABLE DIGMAN 606 (CL BEG) (INC 11) \$

Figure 269 Datafill example for table IBNXLA

TABLE IBNXLA CXDK 11 STAR \$

Table 393 TRAYER output for attendant console (AC) trace to PRI looparound—*XX

```

traver c attkdkb b333 b
TABLE ATTCONS
ATTKDKB COMKODAK 0 0 Y 4X08AB REM3 01 1 05 03 REM3 01 1 05 04 REM3 01 1 05 05 N
$
TABLE NCOS
COMKODAK 0 0 0 OHDPRI ( XLAS XOHD1 XCDP1 NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK STAR COL S 1
TABLE IBNXLA: XLANAME XCDP1
XCDP1 333 ROUTE N Y N 0 N 3 3 NDGT Y T IBNRTE 294 $
TABLE DIGCOL
NDGT specified: digits collected individually
Originator is not an AIN agent, therefore AIN info is not processed.
TABLE IBNRTE
294 ISA N N N OHDLLOOPOG PVT 0 PVT 606
. TABLE TRKGRP
. OHDLLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N
N N N
. N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 822) $
. TABLE LTCALLS
. ISDN 822 PVT XLAIBN 0 COMKODAK 0 0 $
. TABLE DIGMAN
. 606 (CL BEG) (INC 11)
. EXIT TABLE DIGMAN

EXIT TABLE IBNRTE

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

Table 393 TRAVER output for attendant console (AC) trace to PRI looparound—*XX (Continued)

```

DIGIT TRANSLATION ROUTES

1 OHDL00POG          N CDN PVT L 11333 PRVT 0 BC SPEECH

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *0FLO
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Table 394 TRAVER output for an incoming call trace—*XX

```

>traver tr ohdloopic n cdn pvt 11333 ainchg 62136218888 b
TABLE TRKGRP
OHDLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N
      N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 823) $
TABLE LTCALLS
ISDN 823 PVT XLAIBN 0 COMKODAK 0 11 $
. . TABLE TRKAIN
. . OHDLOOPIC TRKOFFHKDEL
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE NCOS
COMKODAK 11 0 0 PKDK ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2) ( ERWT )$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 1 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.

```

Table 394 TRAVER output for an incoming call trace—*XX (Continued)

```

TABLE IBNXLA: XLANAME PXDK
PXDK 11 STAR
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CUSTFEAT
CUSTFEAT 333 FTR 3 AIN NORM
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE TRIGGRP
TRKOFFHKDEL INFOCOL
. OFFHKDEL ( ESC )$ JAZZINFO
Trigger R01 OFFHKDEL is applicable to individual IBN trunk.
Trigger R01 OFFHKDEL: Trigger is active.
  (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136218888 6136218888 SSNONLY (AINTTEST) $
AIN Info Collected TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

+++ TRAVER: SUCCESSFUL CALL TRACE +++

AIN Info Collected TDP: trigger criteria met, querying the database.

```

Table 394 TRAYER output for an incoming call trace—*XX (Continued)

```

Use the AINRES option for further information
Feature FTRAIN      not supported by TRAYER

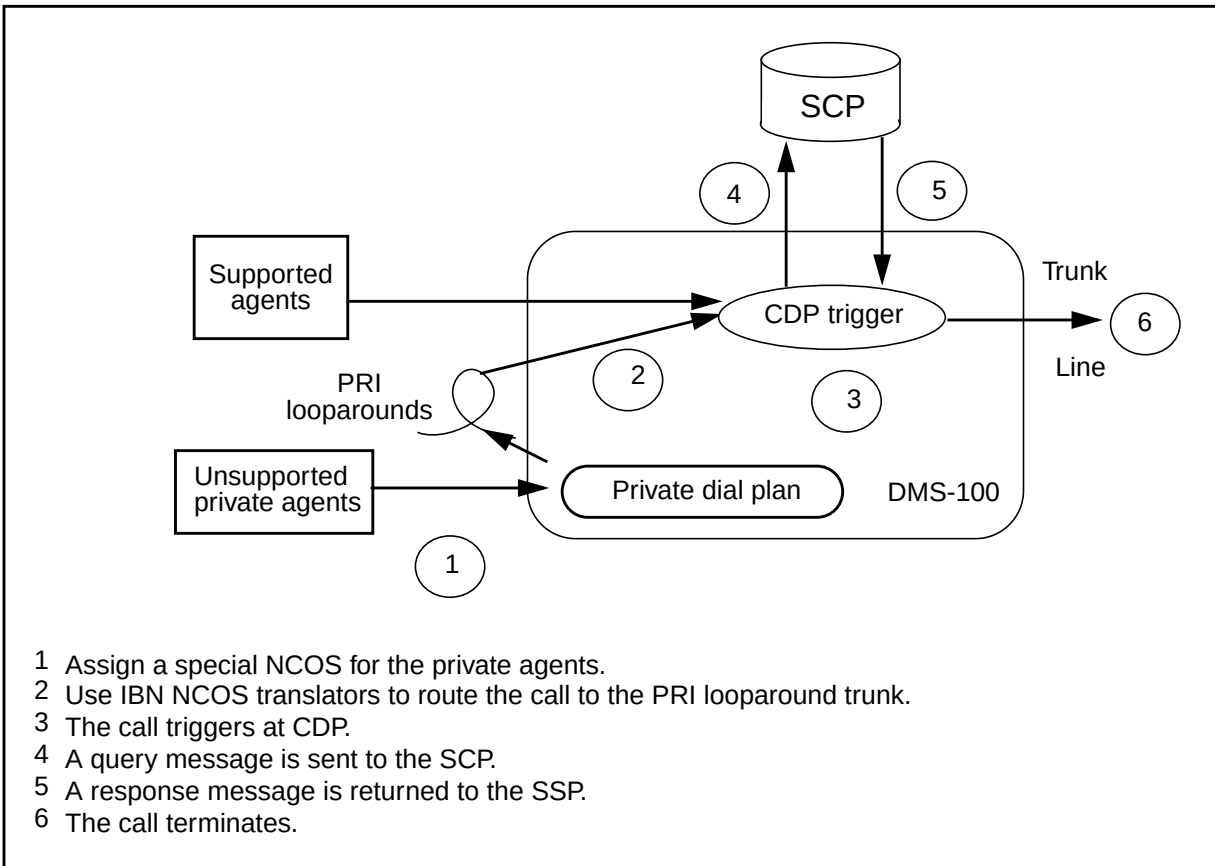
+++ TRAYER: SUCCESSFUL CALL TRACE +++

>

```

66.2.2 Customized dialing plan (CDP) trigger

The CDP trigger is encountered when specific digits are dialed in a private dialing plan environment; for example, office extensions. Since PRI trunks can be part of a private dialing plan, a PRI looparound trunk can access the CDP trigger. In Figure 270, a non-AIN private line agent is used to demonstrate how it can encounter the CDP trigger after going through the PRI looparound.

Figure 270 Unsupported agents going to the CDP trigger

66.2.2.1 CDP translation impact of PRI

For unsupported private agents such as AC, a new NCOS can be assigned to the agent that will have a new preliminary translator name. This translator will be datafilled to route selected calls over the PRI looparound trunk using the ROUTE selector. The incoming side of the PRI trunk will be datafilled to be in the same customer group as the originator and will also have the same NCOS as the originating unsupported agent. If several NCOS exist for the unsupported agents, additional PRI trunk groups may be required. Figures 271 through 274 show datafill examples.

Figure 271 Datafill example for table XLANAME (CDP trigger)

```
TABLE XLANAME
XCDP $ 9
```

Figure 272 Datafill example for table NCOS (CDP trigger)

```
TABLE NCOS
COMKODAK 0 CDPPRI 0 0 XLAS XCDP NXLA NDGT $
```

Figure 273 Datafill example for table IBNXLA (CDP trigger)

```
TABLE IBNXLA
XCDP 25 ROUTE N Y N 0 N 3 5 NDGT Y T IBNRTE 291 $
```

Figure 274 Datafill example for table IBNRTE (CDP trigger)

```
TABLE IBNRTE
291 ISA N N N CDPL00POG PVT 0 PVT 0 $
```

In order to route calls over the PRI looparound trunk, the preliminary translator will be datafilled with a ROUTE selector that points to a route list containing the PRI trunk. Because of this, supported AIN agents will not loop over the PRI trunk since the ROUTE selector is used to select AIN access code digits.

An advantage of this method is that existing translations are not affected by the PRI looparound trunk. If the PRI looparound is not required in the future, the only modification needed will be to change the NCOS of the originating agent back to the original NCOS.

66.2.2.2 CDP billing implications

Since the call does not enter the public environment, no additional billing records will be produced. However, station message detail recording (SMDR) records may be produced for the outgoing and incoming sides of the PRI trunk.

Since no charge number parameter exists in the Q931 protocol, no charge number is propagated to the incoming side of the trunk. As a result, if the originating agent has the special billing (SPB) option, the SPB number will not be propagated over the trunk.

The billing records produced on the incoming side of the trunk will use the charge number used in the query as the originating number. Section 67.2.6 “ChargeNumber” on page 1203, describes how the charge number parameter is populated.

66.2.2.3 Line trace to PRI looparound (CDP trigger)

Table 395 traces a call from an attendant console (AC) to the PRI looparound trunk.

Table 395 TRAVER output for an attendant console (AC) trace to PRI looparound (CDP trigger)

```
traver c attdkdkb 25111 b
TABLE ATTCONS
ATTDKDB COMKODAK 0 0 Y 4X08AB REM3 01 1 05 03 REM3 01 1 05 04 REM3 01 1 05 05 N
$
TABLE NCOS
COMKODAK 0 0 0 CDPRI ( XLAS XCDP NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 2 RPT
TABLE IBNXLA: XLANAME XCDP
XCDP 25 ROUTE N Y N 0 N 3 5 NDGT Y T IBNRTE 291 $
TABLE DIGCOL
NDGT specified: digits collected individually
Originator is not an AIN agent, therefore AIN info is not processed.
TABLE IBNRTE
291 ISA N N N CDPL00POG PVT 0 PVT 0
```


Table 395 TRAYER output for an attendant console (AC) trace to PRI looparound (CDP trigger) (Continued)

. TABLE TRKGRP
. CDPL00POG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N N
. N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 826) \$
. TABLE LTCALLS
. ISDN 826 PVT XLAIBN 0 COMKODAK 0 11 \$
EXIT TABLE IBNRTE
 +++ TRAYER: SUCCESSFUL CALL TRACE +++
 DIGIT TRANSLATION ROUTES
 1 CDPL00POG N CDN PVT L 25111 PRVT 0 BC SPEECH
 TREATMENT ROUTES. TREATMENT IS: GNCT
1 *OFLO
2 LKOUT
 +++ TRAYER: SUCCESSFUL CALL TRACE +++

66.2.2.4 Incoming PRI trace (CDP trigger)
Table 396 shows an incoming call trace.

Table 396 TRAYER output for an incoming call trace (CDP trigger)

```

>traver tr CDPL00PIC n cdn pvt 25111 ainchg 6137228888 b
TABLE TRKGRP
CDPL00PIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N
N N
      N 0 0 N 0 0 0 0 N N N N N N N N NATL (LTID ISDN 827) $
TABLE LTCALLS
ISDN 827 PVT XLAIBN 0 COMKODAK 0 11 $
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE NCOS
COMKODAK 11 0 0 PKDK ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 2 RPT
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 25 EXTN N N Y 613 722 5 $
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPCODE INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL

```

Table 396 TRAVER output for an incoming call trace (CDP trigger) (Continued)

```

Trigger R01 CDPCODE is applicable to customer group.
. . TABLE TRIGDIG
. . CDPDIG CDPCODE 25111 CDPCODE TRANS EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6137228888 6137228888 SSNONLY (AINTTEST) $
AIN Info Analyzed TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

AIN Info Analyzed TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

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

>

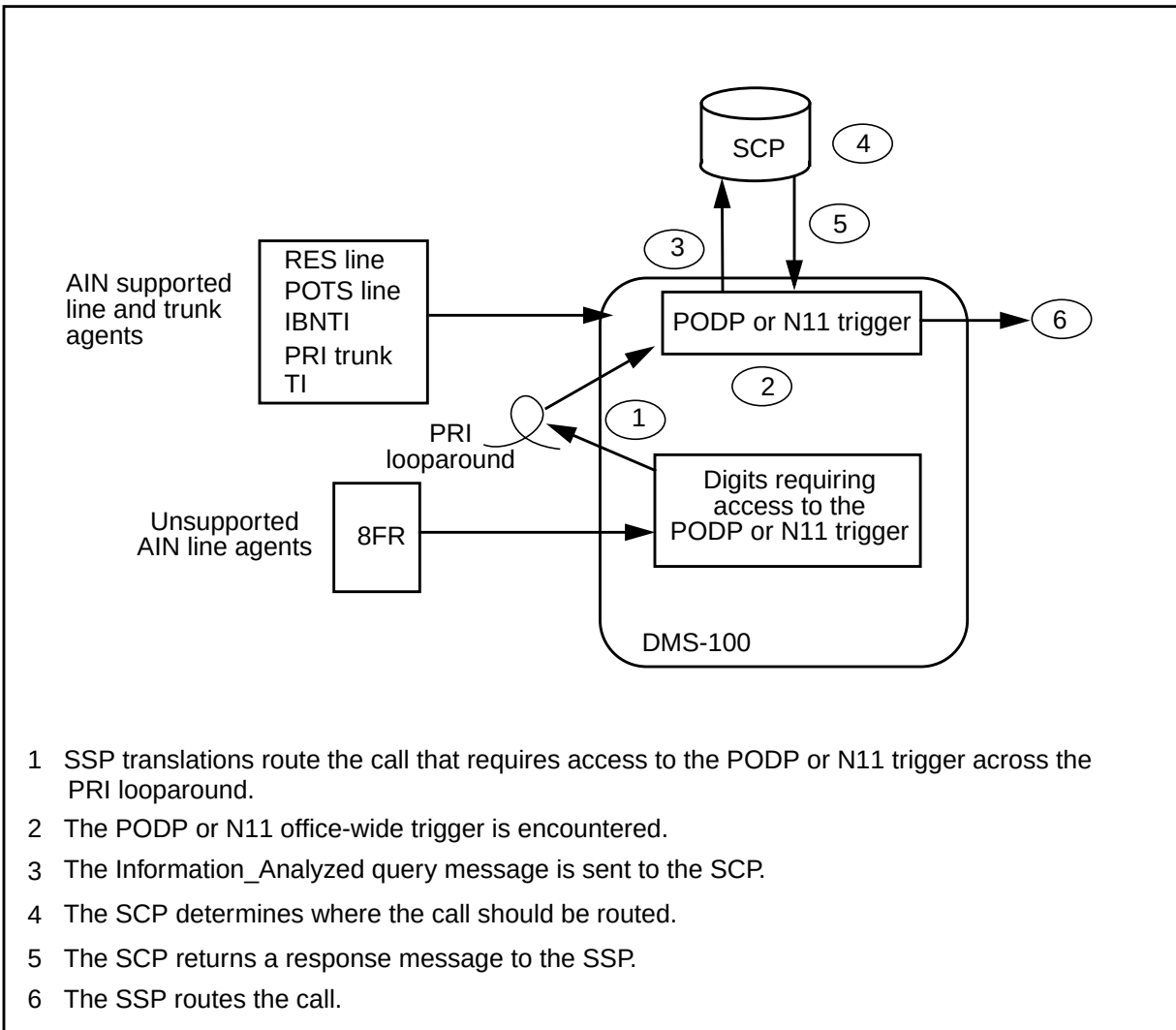
```

66.2.2.5 *XX access codes for OHD and CDP triggers

Please refer to Section 66.2.1.7 , “*XX access codes for OHD and CDP triggers,” on page 1155.

66.2.3 Public Office Dial Plan (PODP) and N11 triggers

The PODP and N11 triggers can be encountered when specific digits are dialed in the public environment. Since PRI trunks can be part of the public dialing plan, a PRI looparound trunk can access the PODP and N11 triggers. Figure 275 shows how the unsupported line and trunk agents have the potential to access the PODP trigger through the PRI looparound.

Figure 275 Unsupported agents going to the PODP trigger**66.2.3.1 PODP/N11 translation impact of PRI**

To encounter the PODP or N11 trigger, unsupported AIN line or trunk agents need a new Line Attribute Index (Lineattr), which provides a new pretranslator name. This new pretranslator routes the call to the PRI looparound.

For unsupported private agents, the new Line Attribute Index can be obtained by using a new NCOS, which has a new preliminary translator.

The incoming PRI trunk group is datafilled with the original Line Attribute Index associated with the unsupported AIN agents. When the agents have the potential to encounter the PODP trigger after the PRI looparound, the original Line Attribute Index carried forward by the incoming side of the PRI trunk is datafilled as the PRI incoming trunk. Figures 276 through 279 show datafill examples.

Note: Only the 411 and 774-xxxx calls will go over PRI looparounds.

Figure 276 Datafill example for table STDPRTCT.STDPRT (PODP/N11 trigger)

```
011 011 N DD 3 IN
12 19 N DD 1 NA
2 410 N NP 0 NA
411 411 T NP 0 OFRT 296 3 3 NONE
412 773 N NP 0 NA
774 774 T NP 0 OFRT 296 7 11 NONE
775 9 N NP 0 NA
```

Figure 277 Datafill example for table OFRT (PODP/N11 trigger)

```
296 ISA N N N PODPLOOPOG PUB NONE N N 0 $
```

Figure 278 Datafill example for table LINEATTR (PODP/N11 trigger)

Table LINEATTR

```
601 IBN NONE NT FR01 0 613 EAP1 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
```

Figure 279 Datafill example for table IBNXLA (PODP/N11 trigger)

Table IBNXLA

```
XCDP 9 NET N Y N 1 N POTS Y N DOD N 601 NONE $
```

66.2.3.2 PODP billing implications

For calls routed over PRI looparound trunks for the PODP trigger, it is possible to have three billing records created—the first on the line-to-trunk leg, the second on the trunk-to-trigger leg, and the third due to the PODP trigger. For calls not routed over the PRI looparound trunk, there are two billing records created. In order to prevent the creation of the extra record for PRI calls, the translations for either the line-to-trunk leg or the trunk-to-trigger leg of the call must be set up to be nonbillable.

66.2.3.3 Line trace to PRI looparound (coin) (PODP trigger)

Table 397 traces a call from a line to the PRI looparound from a public agent.

Table 397 TRAVER output for line trace to a PRI looparound trunk from a public agent (PODP trigger)

```

traver l 6214622 7749999 b
TABLE LINEATTR
28 TWX NONE NT FR01 0 613 PPR1 L613 TSPS 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
Originator is supported for AIN Termination Attempt Trigger
only, therefore other AIN info is not processed.
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
PPR1 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 774 774 T NP 0 OFRT 296 3 18 NONE
. . TABLE OFRT
. . 296 ISA N N N PODPLOPOG PUB NONE N N 0
. . . TABLE TRKGRP
. . . PODPLOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC
0 Y N N N N
. . . N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 816) $
. . . TABLE LTCALLS
. . . ISDN 816 PUB XLALEC 0 $
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT

```

Table 397 TRAVER output for line trace to a PRI looparound trunk from a public agent (PODP trigger) (Continued)

```

. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAxLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 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
TABLE EASAC
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 PODPL00POG      NCDN E164 L 7749999 NIL_NSF BC SPEECH

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 *0FLO
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

66.2.3.4 Incoming PRI trace (PODP trigger)

Table 398 traces an incoming call.

Table 398 TRAVER output for an incoming call trace (PODP trigger)

```

>traver tr podploopic n cdn e164 7749999 b
TABLE TRKGRP
PODPLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N N
      N N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 817) $
TABLE LTCALLS
ISDN 817 PUB XLALEC 601 (EA ITT Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE LINEATTR
601 IBN NONE NT FR01 0 613 EAP1 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
EAP1 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
. 7 886 T NP 0 OFRT 40 3 15 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office.
. . TABLE TRIGDIG
. . PODPDIG PODP 6137749999 PODP EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6137749999 6137749999 SSNONLY (AINTTEST) $

```


Table 398 TRAVER output for an incoming call trace (PODP trigger) (Continued)

```
AIN Info Analyzed TDP: trigger criteria met, querying the database.  
Use the AINRES option for further information
```

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

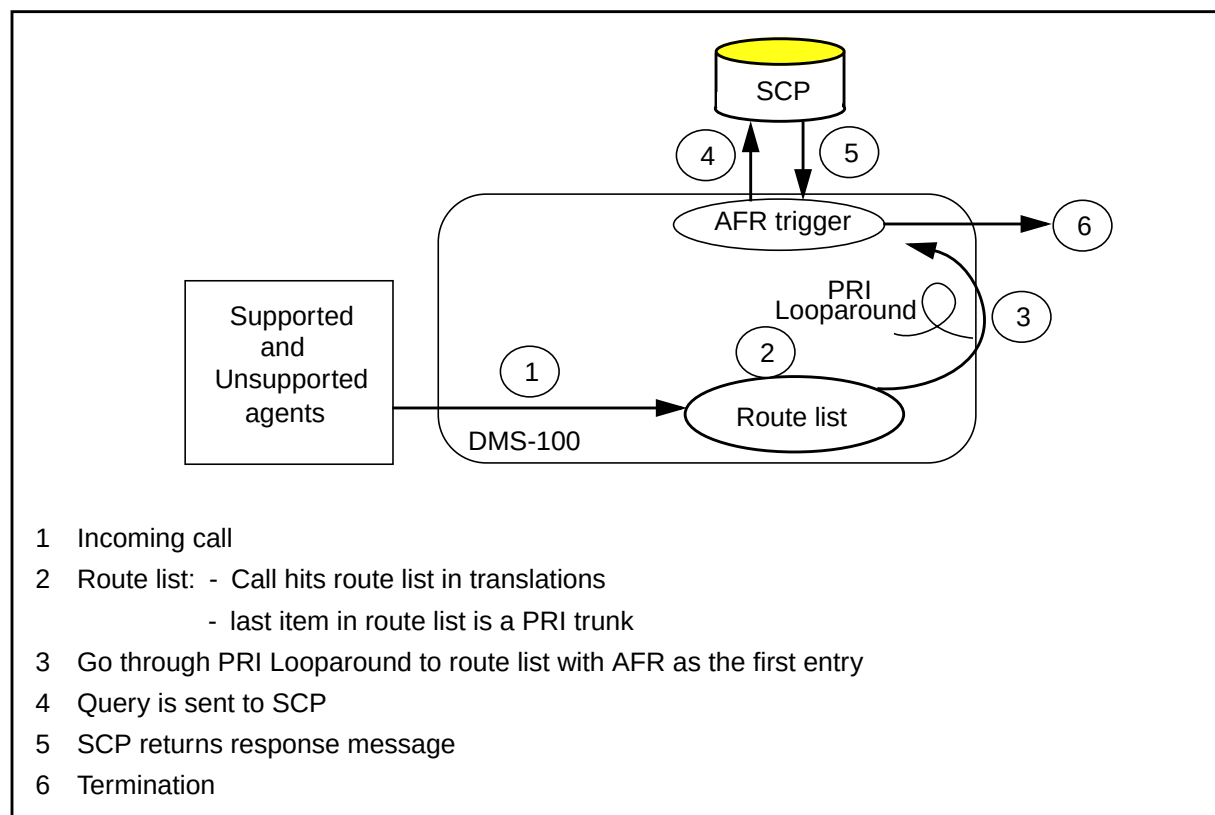
```
AIN Info Analyzed TDP: trigger criteria met, querying the database.  
Use the AINRES option for further information
```

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

```
>
```

66.2.4 Automatic flexible route (AFR) trigger

The AFR trigger can be encountered in the private or public environment when a route list is being searched. If all of the routes are busy and the last item in the list is an AFR selector, then the trigger can be encountered. A PRI looparound trunk can provide access to the AFR trigger in both the private or public environment. Figure 280 shows how the unsupported line and trunk agents have the potential to access the AFR trigger through the PRI looparound.

Figure 280 Unsupported agents going to the AFR trigger**66.2.4.1 AFR translation impact**

For the AFR trigger, calls from supported and unsupported agents will be routed over the PRI trunk before encountering the AFR trigger.

For public calls, the call will encounter a route list using public translations. The route list can contain a number of trunks but the last entry should be the PRI looparound trunk. If all of the other trunks in the list are busy, then the call will route over the PRI looparound trunk. On the incoming side of the trunk, the call will retranslate using a new pretranslator to encounter a route list that has the AFR selector as the first entry.

Figures 274 through 277 show datafill examples.

This translation scheme impacts subscription to the AFR trigger on an individual basis. Since all agents can have calls routed over the PRI trunk before encountering the AFR trigger, the subscription information of the originator will be lost.

Figure 281 Datafill example for table HNPACONT.HNPACODE (AFR trigger)

```
TABLE HNPACONT.HNPACODE
775 775 LRTE 99
```

Figure 282 Datafill example for table HNPACONT.RTEREF (AFR trigger)

```
TABLE HNPACONT.RTEREF
99 S D AIN_BUZY_TRK
    S D AIN_DUMMY_TRK
    S D AFRL00POG
```

Note: Figures 276 through 278 give examples of the datafill used on the incoming side of the PRI trunk only.

Figure 283 Datafill example for table STDPRTCT (AFR trigger)

```
TABLE STDPRTCT
APRO
```

Figure 284 Datafill example for table STDPRTCT.STDPRT (AFR trigger)

```
TABLE STDPRTCT.STDPRT
0 10487 N NP 0 NA
10488 10488 EA DD 5 P PEA1 ITT Y OFRT 900 5 20 N
10489 774 N NP 0 NA
775 775 T NP 0 OFRT 199 3 15 NONE
776 9 N NP 0 NA
```

Figure 285 Datafill example for table OFRT (AFR trigger)

```
TABLE OFRT
199 AFR JAZZINFO
```

Private calls work in a manner that is similar to public calls. Instead of using public translations, the route list is encountered in private translations. The incoming side of the trunk will have a new NCOS, which will have a preliminary translator that will route the call to a route list (which has the AFR selector as the first entry). Figures 279 through 284 show datafill examples.

Figure 286 Datafill example for table IBNXLA (AFR trigger)

```
TABLE IBNXLA
CXDK 8 ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 292 $
```

Figure 287 Datafill example for table IBNRTE (AFR trigger)

```
TABLE IBNRTE
292 N N N N N ISUPIBOG 0
    N N N N N ISUPIBNZW 0
    ISA N N N AFRLOOPOG PVT 0 PVT 0 $
```

Note: Figure 283 through 286 give examples of the datafill used on the incoming side of the PRI trunk only.

Figure 288 Datafill example for table XLANAME (AFR trigger)

```
TABLE XLANAME
XAFR $ 9
```

Figure 289 Datafill example for table NCOS (AFR trigger)

```
TABLE NCOS
COMKODAK 18 AFRPRI 0 0 XLAS XAFR NXLA NDGT $
```

Figure 290 Datafill example for table IBNXLA (AFR trigger)

```
TABLE IBNXLA
XAFR 8 ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 293 $
```

Figure 291 Datafill example for table IBNRTE (AFR trigger)

```
TABLE IBNRTE
293 AFR JAZZINFO $
```

66.2.4.2 AFR billing implications

For public calls it is possible to have billing records produced on both the outgoing and the incoming side of the trunk. The AIN record will only be

produced on the incoming side of the trunk. In order to prevent the creation of a billing record on the outgoing side of the trunk, the translations should be set up so that the call is nonbillable.

For private calls, no additional billing records will be produced. However, additional SMDR records may be produced depending on the datafill in the IBN translation tables.

Since no Charge Number parameter exists in the Q931 protocol, no charge number information is propagated to the incoming side of the trunk. As a result, if the originating agent has the special billing (SPB) option, the SPB number will not be propagated over the trunk.

The billing records produced on the incoming side of the trunk will use the charge number used in the query as the originating number. Section 67.2.6 “ChargeNumber” on page 1203, describes how the charge number parameter is populated.

66.2.4.3 AFR trigger from a public agent

The following TRAVERS are for the AFR trigger from a public agent. Figure 399 shows the line-to-trunk portion of the call.

**Table 399 TRAVER output for the AFR trigger from a public agent—
line-to-trunk portion**

```

traver l 6214622 7751091 b
TABLE LINEATTR
28 TWX NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
Originator is supported for AIN Termination Attempt Trigger
only, therefore other AIN info is not processed.
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 7 800810 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 385) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 775 775 LRTE 99
. SUBTABLE RTEREF
. 99 S D AIN_BUZY_TRK
. S D AIN_DUMMY_TRK

```

**Table 399 TRAYER output for the AFR trigger from a public agent—
line-to-trunk portion (Continued)**

```

.      S D AFRL00POG
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
613 L613 ( 18) OPTL N
. SUBTABLE LCASCR
. TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUNDDEFAULT IS TO LEAVE XLA RESULT UNCHANGED
LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 AIN_BUZY_TRK          7751091          ST
2 AIN_DUMMY_TRK         7751091          ST
3 AFRL00POG             N CDN E164 L 7751091 NIL_NSF BC SPEECH

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

Figure 400 shows the TRAYER for the trunk-to-trigger section of the call.

Table 400 TRAVER output for the AFR trigger from a public agent—trunk-to-trigger portion

```

>traver tr afrloopic n cdn e164 7751091 ainchg 6136211410 b
TABLE TRKGRP
AFRLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N
N N
      N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 819) $
TABLE LTCALLS
ISDN 819 PUB XLALEC 602 (EA ITT Y) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE LINEATTR
602 IBN NONE NT FR01 0 613 APR0 L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
APR0 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 775 775 T NP 0 OFRT 199 3 15 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger R01 PODP is applicable to office.

```


Table 400 TRAYER output for the AFR trigger from a public agent—trunk-to-trigger portion (Continued)

```

AIN Info Analyzed TDP: trigger criteria not met.
. . TABLE OFRT
. . 199 AFR JAZZINFO
TABLE TRIGGRP
OFCTRIG NETBUSY
. AFR $ NIL
Trigger R01 AFR is applicable to office.
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6136211410 6136211410 SSNONLY (AINTTEST) $
AIN Network Busy TDP: trigger criteria met,
querying the database if network is busy.
. . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE  N
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAOLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD
TABLE OCCINFO
ITT 0488 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
TABLE EASAC
TUPLE NOT FOUND

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

**Table 400 TRAVER output for the AFR trigger from a public agent—
trunk-to-trigger portion (Continued)**

```
AIN Network Busy TDP: trigger criteria met,  
querying the database if network is busy.
```

```
TREATMENT ROUTES.  TREATMENT IS: GNCT
```

```
1 *OFLO
```

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

```
>
```

66.2.4.4 AFR trigger from a private agent

The following TRAVERs are for the AFR trigger from a private agent. Figure 401 shows the line-to-trunk portion of the call.

**Table 401 TRAYER output for the AFR trigger from a private agent—
line-to-trunk portion**

```

traver c attkdkb 86218901 b
TABLE ATTCONS
ATTKDKB COMKODAK 0 0 Y 4X08AB REM3 01 1 05 03 REM3 01 1 05 04 REM3 01 1 05 05 N
$
TABLE NCOS
COMKODAK 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 8 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CXDK
CXDK 8 ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 292 $
TABLE DIGCOL

```

**Table 401 TRAYER output for the AFR trigger from a private agent—
line-to-trunk portion (Continued)**

```

NDGT specified: digits collected individually
Originator is not an AIN agent, therefore AIN info is not processed.
TABLE IBNRTE
  292 N N N N N ISUPIBNOG 0
      N N N N N ISUPIBN2W 0
      ISA N N N AFRL00POG PVT 0 PVT 0
. TABLE TRKGRP
. AFRL00POG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N
N N N N
.      N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 830) $
. TABLE LTCALLS
. ISDN 830 PVT XLAIBN 0 COMKODAK 0 0 $
EXIT TABLE IBNRTE

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ISUPIBNOG          86218901          ST
2 ISUPIBN2W          86218901          ST
3 AFRL00POG          N CDN  PVT  L  86218901 PRVT 0 BC SPEECH

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

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

Table 402 shows the TRAYER from the trunk to the trigger.

Table 402 TRAVER from the trunk to the trigger

```

>traver tr AFRL00PIC n cdn pvt 86218901 ainchg 6137228888 b
TABLE TRKGRP
AFRL00PIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N
N N
      N 0 0 N 0 0 0 0 N N N N N N N N NATL (LTID ISDN 831) $
TABLE LTCALLS
ISDN 831 PVT XLAIBN 0 COMKODAK 0 18 $
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE NCOS
COMKODAK 18 0 0 AFRPRI ( XLAS XAFR NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
COMKODAK PXDK CXDK CUSTFEAT 0 KDK
TABLE DIGCOL
KDK 8 POTS Y
TABLE IBNXLA: XLANAME XAFR
XAFR 8 ROUTE N Y N 0 N 3 15 NDGT Y T IBNRTE 293 $
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE CUSTSTN
COMKODAK AIN AIN CDPCODE
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
CDPCODE INFOANAL
. CDPCODE ( DG CDPDIG)$ NIL
Trigger R01 CDPCODE is applicable to customer group.
. CDPCODE ( DG CDPTRAF)$ NIL
Trigger R01 CDPCODE is applicable to customer group.
TABLE TRIGGRP

```

Table 402 TRAVER from the trunk to the trigger (Continued)

```
OFCTRIG INFOANAL
. PODP ( DG CPCDIG) (ESCEA ) (ESCOP )$ NIL
Trigger R01 PODP is applicable to office.
. N11 ( DG N11DIG)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger R01 PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE IBNRTE
293 AFR JAZZINFO
TABLE TRIGGRP
OFCTRIG NETBUSY
. AFR $ NIL
Trigger R01 AFR is applicable to office.
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 6137228888 6137228888 SSNONLY (AINTTEST) $
AIN Network Busy TDP: trigger criteria met,
querying the database if network is busy.
EXIT TABLE IBNRTE

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

Table 402 TRAVER from the trunk to the trigger (Continued)

```
AIN Network Busy TDP: trigger criteria met,  
querying the database if network is busy.
```

```
TREATMENT ROUTES.  TREATMENT IS: GNCT
```

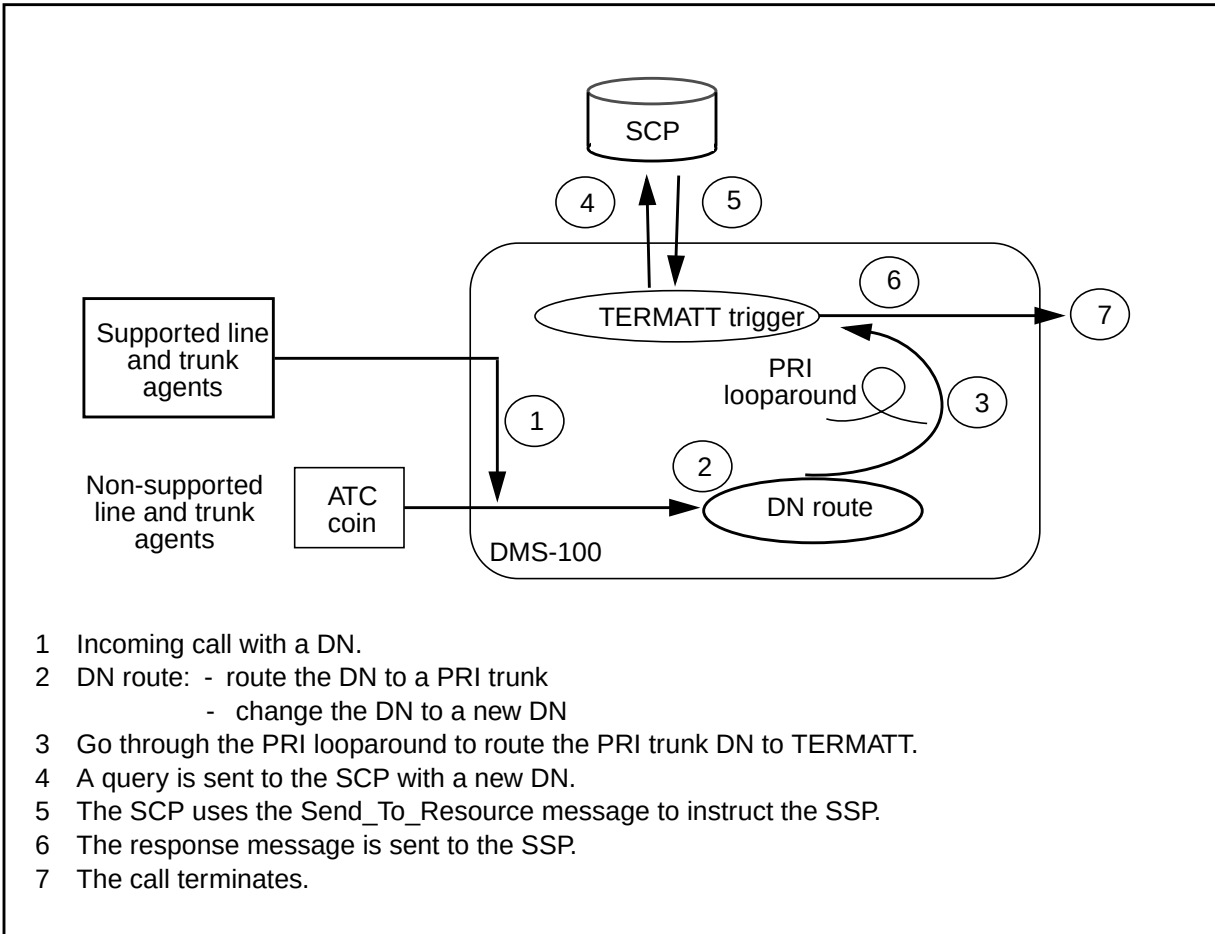
```
1 *OFLO
```

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

```
>
```

66.2.5 TERMATT (Termination Attempt) trigger

Figure 292 provides an example of a PRI looparound solution for a terminating service that subscribes at the TERMATT trigger. Both supported and unsupported originating agents are routed over the PRI trunks by the DN route.

Figure 292 Unsupported agents going to the TERMATT trigger**66.2.5.1 TERMATT translation impact of PRI**

For the TERMATT trigger, calls from supported and unsupported agents will be routed over the PRI trunk before encountering the TERMATT trigger.

The DN dialed by the originator encounters an entry in table DNROUTE that will route the call over a PRI trunk. On the incoming side of the PRI trunk, the called DN will have the NPA-NXX changed to a unique NPA-NXX combination for the office, which is not directly accessible by any agent in the office. This new number is the DN that subscribes to the TERMATT trigger.

Figures 293 through 300 show datafill examples for the associated tables.

Figure 293 Datafill example for table DNROUTE (TERMATT trigger)

TABLE DNROUTE
613 788 2525 T OFRT 298

Figure 294 Datafill example for table OFRT (TERMATT trigger)

```
TABLE OFRT
298 ISA N N N TATLOOPPOG PUB NONE N N 0 $
```

Figure 295 Datafill example for table LINEATTR (TERMATT trigger)

```
TABLE LINEATTR
604 IBN NONE NT FR01 0 999 TTWX L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
```

Figure 296 Datafill example for table TOFCNAME (TERMATT trigger)

```
TABLE TOFCNAME
613 788
```

Figure 297 Datafill example for table HNPACONT (TERMATT trigger)

```
TABLE HNPACONT
819
```

Figure 298 Datafill example for table HNPACONT.HNPACODE (TERMATT trigger)

```
TABLE HNPACONT.HNPACODE
788 788 DN 819 622
```

Figure 299 Datafill example for table STDPRTCT (TERMATT trigger)

```
TABLE STDPRTCT
TTWX
```

Figure 300 Datafill example for table STDPRTCT.STDPRT (TERMATT trigger)

```
TABLE STDPRTCT.STDPRT
2 9 N NP 0 NA
```

66.2.5.2 TERMATT billing implications

For calls routed over PRI looparound trunks for the TERMATT trigger, it is possible to have three billing records created—the first on the line-to-trunk leg,

the second on the trunk-to-trigger leg, and the third due to the TERMATT trigger. If calls to a TERMATT trigger were not routed over a PRI looparound trunk, there would only be two billing records created. In order to prevent the creation of the extra record for PRI calls, the translations for either the line-to-trunk leg or the trunk-to-trigger leg of the call should be set up to be nonbillable.

When a Authorize_Termination response message is received, the billing record that is produced will contain the NPA-NXX of the DN that subscribes to the TERMATT trigger. If a Forward_Call response message is received, the originating number field of the AIN billing record will contain the NPA-NXX of the DN subscribed to the TERMATT trigger. This also occurs when calls originate from the TERMATT DN.

66.2.5.3 Feature implications

If an Authorize_Termination response message is received and the call interacts with a terminating feature, such as a simplified message desk interface (SMDI), the feature uses the new DN instead of the dialed DN.

If a TERMATT call receives a Forward_Call response message, any features that are subsequently encountered will use the new NPA-NXX combination instead of the dialed DN. One way to change the calling party ID to match the dialed DN is to return a Forward_Call response message with a CallingPartyID parameter that matches the dialed DN.

Similarly, if the TERMATT agent originates a call, any subsequent features that are encountered will use the new NPA-NXX combination. One way to change the calling party number is to subscribe the TERMATT agent to the off-hook delay trigger and have an Analyze_Route response message return with a CallingPartyID that matches the dialed DN.

When the CallingPartyID is returned in the Forward_Call or Analyze_Route response messages, it is not used by every subsequent feature that may be encountered. To ensure that this CallingPartyID is used by all features, the call must be routed over another PRI looparound trunk.

The Series Completion (SCMP) feature cannot be programmed with the published DN used for the TERMATT trigger since the published DN is not a valid line in the office. The SCMP target DN must be a valid line within the office. However, the SCMP target DN can be programmed with the DN that is subscribed to the TERMATT trigger. If this is done, a call forwarded by SCMP terminates directly on the line that subscribes to the TERMATT trigger and will not route over a PRI looparound or encounter the trigger.

66.2.5.4 Line trace to PRI looparound (TERMATT trigger)

Table 403 traces a call from the line to the PRI looparound trunk.

Table 403 TRAVER output for a line trace to PRI looparound trunk (TERMATT trigger)

```

>traver l 6214622 7882525 b
TABLE LINEATTR
28 TWX NONE NT FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
Originator is supported for AIN Termination Attempt Trigger
only, therefore other AIN info is not processed.
TABLE LENFEAT
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE STDPRTCT
P621 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 78 800810 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 932 2 ( 387) ( 1) ( 84) ( 0) 0
. SUBTABLE HNPACODE
. 788 788 DN 613 788
TABLE TOFCNAME
613 788
TABLE DNINV
613 788 2525 T OFRT 298

```

Table 403 TRAYER output for a line trace to PRI looparound trunk (TERMATT trigger) (Continued)

```

AIN Term Attempt TDP: no subscribed trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
. TABLE OFRT
. 298 ISA N N N TATLOOPOG PUB NONE N N 0
. . TABLE TRKGRP
. . TATLOOPOG IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y
N N N N N
. . N 0 0 N 0 0 0 0 N N N N N N N N NATL (LTID ISDN 820) $
. . TABLE LTCALLS
. . ISDN 820 PUB XLALEC 0 $
. EXIT TABLE OFRT
TABLE LCASCRCN
613 L613 ( 18) OPTL N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
OPTL NP N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
LATA IS NIL, THEREFORE NOT AN EQUAL ACCESS CALL

+++ TRAYER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 TATLOOPOG N CDN E164 L 7882525 NIL_NSF BC SPEECH

```

Table 403 TRAVER output for a line trace to PRI looparound trunk (TERMATT trigger) (Continued)

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

>
```

66.2.5.5 Incoming PRI trace (TERMATT trigger)

Table 404 shows an incoming call trace.

Table 404 TRAVER output for an incoming call trace to PRI looparound (TERMATT trigger)

```
>traver tr tatloopic n cdn e164 7882525 b
TABLE TRKGRP
TATLOOPIC IBNT2 0 NPDGP NCRT COMKODAK 0 ASEQ 0 6137228888 ANSDISC 0 Y N N N
N N
      N 0 0 N 0 0 0 0 N N N N N N N N N NATL (LTID ISDN 821) $
TABLE LTCALLS
ISDN 821 PUB XLALEC 604 $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP OFCTRIG
TABLE LINEATTR
604 IBN NONE NT FR01 0 819 TTWX L613 TSPS 0 NIL NILSFC LATA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
TTWX (32896) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
```

Table 404 TRAVER output for an incoming call trace to PRI looparound (TERMATT trigger) (Continued)

```

. KEY NOT FOUND
. DEFAULT VALUE IS:   N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
819 Y 600 1 ( 99) ( 1) ( 79) ( 0) 0
. SUBTABLE HNPACODE
. 788 788 DN 819 622
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
OFCTRIG INFOANAL
. N11 ( DG N11DIG)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPDIG)$ NIL
Trigger R01 PODP is applicable to office.
. N11 ( DG N11TRAF)$ NIL
Trigger R01 N11 is applicable to office.
. PODP ( DG PODPTRAF)$ NIL
Trigger R01 PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
819 622
TABLE DNINV
819 622 2525 L HOST 05 0 14 09
TTABLE DNFEAT
819 622 2525 (AINDN TERMATT) $
TABLE TRIGGRP
TERMATT TERMATT
. TERMATT ( CT VBINFO)$ JAZZINFO
Trigger R01 TERMATT is applicable to directory number.

```

Table 404 TRAYER output for an incoming call trace to PRI looparound (TERMATT trigger) (Continued)

```
Trigger R01 TERMATT: Trigger is active.
  (Use AINCI CHANGESTATE command to alter activation state.)
. . TABLE TRIGINFO
. . JAZZINFO EVENT TCAP R01 SS7 AINJAZZ DFLT $
. . . TABLE C7GTTYPE
. . . AINJAZZ ANSI7 3 $
. . . TABLE C7GTT
. . . AINJAZZ 8196222525 8196222525 SSNONLY (AINTEST) $
AIN Term Attempt TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

+++ AIN TRAYER: SUCCESSFUL CALL TRACE +++

AIN Term Attempt TDP: trigger criteria met, querying the database.
Use the AINRES option for further information

+++ AIN TRAYER: SUCCESSFUL CALL TRACE +++

>
```


67. Triggers and parameters

This chapter lists the triggers and describes the parameters contained in the messages sent from the service switching point (SSP) to the service control point (SCP).

67.1 Triggers

The AIN Essentials offering supports the nine triggers listed in Table 405.

Table 405 AIN triggers supported

AIN triggers supported	Can be encountered from a PRI looparound
off-hook immediate (OHI)	No
off-hook delay (OHD)	Yes
shared interoffice trunk (SIT)	No
3- to 10-digit Public Office Dialing Plan (PODP)	Yes
N11	Yes
customized dialing plan (CDP)	Yes
PODP Feature Code (PODPFEAT)	No
automatic flexible routing (AFR)	Yes
Termination Attempt (TERMATT)	Yes

Of the nine triggers listed in Table 405, only six of them can be accessed by PRI looparound trunks for calls dialed from unsupported AIN agents. The off-hook immediate, shared interoffice trunk and Public Office Dialing Plan Feature Code triggers cannot be accessed from PRI looparound trunks. The off-hook immediate trigger is accessible only from lines. The shared interoffice trunk trigger on DMS is accessible only from intertoll type trunks. Therefore, calls going over PRI looparound trunks cannot access the shared

interoffice trigger. The PODP Feature Code trigger is accessible only from 1MR and 1FR RES lines, which fully support it.

67.2 Parameters

For PRI looparounds, only the parameters contained in the messages sent from the SSP to the SCP (or adjunct) need to be considered. Therefore, in this section, only messages from the SSP to the SCP (or adjunct) are implied. Table 406 shows the messages, along with the triggers at which these messages could be sent.

Table 406 Messages sent from triggers with or without PRI looparounds

Message from SSP to SCP or adjunct	Triggers that could send the message	Triggers accessible via PRI looparounds which could send the message
Origination_Attempt	Off-Hook Immediate	N/A
Information_Collected	Off-Hook Delay, Shared Interoffice Trunk	Off-Hook Delay
Information_Analyzed	3- to 10-digit PODP, N11, Customized Dialing Plan, PODP Feature Code	3- to 10-digit PODP, N11, CDP, PODP Feature Code
Network_Busy	Automatic Flexible Routing	Automatic Flexible Routing
Termination_Attempt	Termination Attempt	Termination Attempt
Resource_Clear	All of the above	All of the above

Table 407 lists the AIN parameters contained in the messages described in Table 406. For each AIN parameter, Table 407 lists any PRI parameters that directly correspond to the AIN parameter or are used to derive the AIN parameter.

Table 407 AIN parameters versus PRI parameters

AIN parameter supported by AIN Essentials	Messages that contain an AIN parameter	PRI parameter directly corresponding to or used to derive AIN parameter	Notes
AccessCode	Information_Collected (O), Information_Analyzed (O)	Called Party Number	See Section 67.2.1 "AccessCode" on page 1199
BearerCapability	Origination_Attempt (M), Information_Collected (M), Information_Analyzed (M), Network_Busy (M), Termination_Attempt (M)	Bearer Capability	
CalledPartyID	Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	Called Party Number	
CalledPartyStationType	Termination_Attempt (O)	N/A	
CallingPartyID	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	Calling Party Number	
ChargeNumber	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	Calling Party Number	See Section 67.2.6 "ChargeNumber" on page 1203
ChargePartyStationType	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	N/A	See Section 67.2.7 "ChargePartyStationType" on page 1204
ClearCause	Resource_Clear (M)	Cause	
CollectedAddressInfo	Information_Collected (O), Information_Analyzed (O), Resource_Clear (O)	Called Party Number	See Section 67.2.9 "CollectedAddressInfo" on page 1204
CollectedDigits	Information_Collected (O), Information_Analyzed (O), Resource_Clear (O)	Called Party Number	See Section 67.2.10 "CollectedDigits" on page 1204
FailureCause	Resource_Clear (O)	Cause	

Table 407 AIN parameters versus PRI parameters (Continued)

AIN parameter supported by AIN Essentials	Messages that contain an AIN parameter	PRI parameter directly corresponding to or used to derive AIN parameter	Notes
LATA	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	N/A	See Section 67.2.11 "FailureCause" on page 1205
OriginalCalledPartyID	Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	Original Called Number	
PrimaryCarrier	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Resource_Clear (O)	Transit Network Selection	See Section 67.2.14 "PrimaryCarrier" on page 1205
RedirectingPartyID	Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	N/A	See Section 67.2.15 "RedirectingPartyID" on page 1205
RedirectionInformation	Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	Original Called Number	See Section 67.2.16 "RedirectionInformation" on page 1206
TCM (Travelling Class Mark) (partially supported)	Information_Collected (O), Information_Analyzed (O), Network_Busy (O)	N/A	See Section 67.2.17 "Tcm" on page 1206
TriggerCriteriaType	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	N/A	
UserID	Origination_Attempt (M), Information_Collected (M), Information_Analyzed (M), Network_Busy (M), Termination_Attempt (M)	Calling Party Number	See Section 67.2.19 "UserID" on page 1206

Table 407 AIN parameters versus PRI parameters (Continued)

AIN parameter supported by AIN Essentials	Messages that contain an AIN parameter	PRI parameter directly corresponding to or used to derive AIN parameter	Notes
Vertical Service Code	Information_Collected (O), Information_Analyzed (O)	Called Party Number	See Section 67.2.20 "VerticalServiceCode" on page 1207
ACG Encountered	Origination_Attempt (O), Information_Collected (O), Information_Analyzed (O), Network_Busy (O), Termination_Attempt (O)	N/A	See Section 67.2.21 "ACGEncounter" on page 1207.
Generic Name	Termination_Attempt (O)	N/A	See Section 67.2.22 "GenericName" on page 1207
Legend: N/A — Not Available M — Mandatory O — Optional			

The following parameters are not supported in AIN Essentials

- AIN maintenance parameter (AMP)
- CallingPartyBGID

67.2.1 AccessCode

For PRI looparounds, the AccessCode parameter is populated with the information received by the called party number information element.

Note: When the “*XX” or “#XX” feature access codes are dialed, the AccessCode parameter is populated instead of the VerticalServiceCode parameter.

This parameter is found in the Information Collected and the Information Analyzed messages.

67.2.2 BearerCapability

The BearerCapability parameter corresponds to the bearer capability information element in the PRI protocol.

Table 408 shows the BearerCapability parameter mapping between the AIN bearer capability and the PRI bearer capability.

Table 408 AIN bearer capability versus PRI bearer capability

AIN bearer capability	PRI bearer capability
Speech	Speech
f31kHzaudio	3.1 kHz audio
b56kbps	Unrestricted digital with rate adaptation
b64kbps	Unrestricted digital

67.2.3 CalledPartyID

The CalledPartyID parameter corresponds to the called party number information element in the PRI protocol. Table 409 shows the mapping between the fields for the CalledPartyID parameter and the called party number information element.

Table 409 CalledPartyID parameter to called party number information element mapping

CalledPartyID parameter	Called party number information element	Mapping
Nature of number	Type of number	DMS generated
Numbering plan	Numbering plan ID	DMS generated
Address digits	Number digits	Direct mapping

Table 410 shows the mapping between the nature of number and the type of number fields.

Table 410 Mapping between the Nature of Number and the Type of Number

Nature of number	Type of number
International number 0000100	International numbering plan 0001
National number 0000011	National number 0010
Subscriber number 0000001	Local number 0100
Otherwise	Unknown 0000

Table 411 shows the mapping between the numbering plan and the numbering plan ID fields.

Table 411 Mapping between the Numbering Plan and the Numbering Plan ID

Numbering plan	Numbering plan ID
ISDN numbering plan 0001	ISDN numbering plan 001
Private 0101	Private 101
Otherwise	Unknown 000

The CalledPartyID parameter is found in the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.4 CalledPartyStationType

The CalledPartyStationType parameter is populated solely on the characteristics of the terminating agent. Therefore, it is not affected by PRI looparounds.

This parameter is found in the Termination_Attempt message.

67.2.5 CallingPartyID

For PRI trunks, the calling party number information element is the parameter that corresponds to the CallingPartyID parameter. Table 412 shows the

mapping between the fields for the CallingPartyID parameter and the calling party number information element.

Table 412 CallingPartyID parameter to calling party number information element mapping

CallingPartyID parameter	Calling party number information element	Mapping
Nature of number	Type of number	DMS generated
Numbering plan	Numbering plan ID	DMS generated
Presentation restriction	Presentation indicator	Direct mapping
Screening restriction	Screening indicator	Direct mapping
Address digits	Number digits	Direct mapping

Table 413 shows the mapping between the nature of number and the type of number fields.

Table 413 Mapping between the nature of number and the type of number

Nature of Number	Type of Number
Non-unique international number 1110100	International number 001
Unique international number 0000100	
Non-unique national number 1110011	National number 010
Unique national number 0000011	
Non-unique subscriber number 1110001	Local number 100
Unique subscriber number 0000001	
Otherwise	Unknown 000

Table 414 shows the mapping between the numbering plan and the numbering plan ID fields.

Table 414 Mapping between the numbering plan and the numbering plan ID

Numbering plan	Numbering plan ID
ISDN numbering plan 0001	ISDN numbering plan 001
Private 0101	Private 101
Otherwise	Unknown 000

The calling party number information element does not have a presentation restriction indication field for the Name Display feature.

For PRI looparound trunks, the DN that is used to populate the CallingPartyID parameter is derived from the calling party number (CPN). The CPN is derived as follows:

- If the received CPN numbering plan indicator (NPI) is PUBLIC and 10-digits in length, it is used to populate the CallingPartyID parameter.
- Otherwise, the default CPN associated with the trunk group is taken from table LTDATA (DN option) and used to build the CallingPartyID parameter.

The CallingPartyID parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.6 ChargeNumber

The ChargeNumber parameter does not correspond to any parameter in the PRI protocol. The charge number is not conveyed across PRI looparound trunks. Therefore, when PRI looparounds are used, the ChargeNumber parameter is populated by the calling party number (CPN) from the PRI trunk as follows:

- The default CPN associated with the trunk group is taken from table LTDATA (DN option) and used to populate the ChargeNumber parameter.
- Otherwise, the billing number associated with the IBN PRI trunk is taken from table TRKGRP (BILLDN option) and used to populate the charge number.

- If the CPN is received and the numbering plan indicator (NPI) is both PUBLIC and 10-digits long, the CPN is used to populate the charge number.

Note: The BILLDN option is only available for IBN PRI trunk types.

If the CallingPartyID and the ChargeNumber parameters are different (as in the case of call forwarding), a wrong charge number may be derived. For example, if A calls B but is forwarded to C, and B has to use a PRI looparound to get to C, the charge number conveyed by the PRI looparound is the same as the calling party ID; whereas, A should be the calling party ID and B the charge number.

The ChargeNumber parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.7 ChargePartyStationType

The ChargePartyType parameter does not correspond to any PRI parameter. Because of protocol limitations, this parameter is not conveyed across the PRI trunks.

This parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.8 ClearCause

The ClearCause parameter corresponds to the cause information element of PRI.

This parameter is found in the Resource_Clear message.

67.2.9 CollectedAddressInfo

The CollectedAddressInfo parameter does not directly map into any PRI parameter. However, the information that is used to populate this parameter is conveyed by the called party number information element of PRI.

This parameter is found in the Information_Collected, the Information_Analyzed, and the Resource_Clear messages.

67.2.10 CollectedDigits

The CollectedDigits parameter does not directly map into any PRI parameter. However, the information that is used to populate this parameter, is conveyed by the called party number information element of PRI.

This parameter is found in the Information_Collected, the Information_Analyzed, and the Resource_Clear messages.

67.2.11 FailureCause

The FailureCause parameter corresponds to the cause information element of PRI.

This parameter is found in the Resource_Clear message.

67.2.12 LATA

There is no corresponding PRI parameter for the LATA parameter. Since the LATA parameter is not populated for trunk originations, it is not populated when the call goes through PRI looparounds.

This parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.13 OriginalCalledPartyID

The OriginalCalledPartyID parameter corresponds to the original called number information element of the PRI protocol.

This parameter is found in the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.14 PrimaryCarrier

PRI looparound trunks use the transit network selection information element to convey the primary inter-LATA carrier (PIC) information, but only for equal-access offices and only when the equal-access carrier code (10XXX) has been dialed. The PIC information, corresponding to the agents with presubscribed PIC options, is lost when going over PRI looparound trunks.

When a trigger is hit by a PRI looparound, and the SCP (or adjunct) sends a Send_to_Resource message with normal digit collection and the user dials 10XXX + 1 + 10 digits, the Resource Clear message sent by the SSP does not contain the carrier code dialed by the user (the carrier code information is lost).

This parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Resource_Clear messages.

67.2.15 RedirectingPartyID

The RedirectingPartyID parameter should correspond to the redirection number information element of the PRI protocol. However, because of DMS PRI limitations, the redirection number information element is not sent over

PRI. This would affect calls that forward more than once. For example, if A calls B, and B is forwarded to C, and C is forwarded over a PRI looparound trunk to D, the redirecting party ID information (in this case C) is lost. As a result, D may not have the right charge number.

This parameter is found in the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.16 RedirectionInformation

The RedirectionInformation parameter contains the original redirecting reason, the redirecting reason, and the redirection counter. Since the redirection number information element is not supported by the DMS implementation of PRI, the redirection reason field cannot be populated in the RedirectionInformation parameter. However, the original redirecting reason and the redirection counter are populated using the information derived from their corresponding fields in the original called number information element.

This parameter is found in the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination-Attempt messages.

67.2.17 Tcm

Because of PRI looparounds, the Tcm parameter is not populated in the query messages.

This parameter is found in the Information_Collected, the Information_Analyzed, and the Network_Busy messages.

67.2.18 TriggerCriteriaType

The TriggerCriteriaType parameter is populated on the type of event that caused a trigger to occur. Since the population of this parameter depends solely on the datafill at the SSP, PRI looparounds do not affect the population.

This parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.19 UserID

The DN used to populate the UserID parameter is derived by choosing the first available option from the following list:

- If a 10-digit public OriginalCalledParty parameter is received, then it is used to populate the UserID parameter
- Else, if a 10-digit public CallingPartyNumber parameter is received, then it is used to populate UserID parameter

- Else, the default calling party number associated with the trunk group is taken from the table LTDATA (DN option) and used to build the UserID parameter
- Since the UserID parameter is a mandatory query parameter, if all of the above fail, the call is sent to AINF treatment

When a terminating trigger has been encountered, the termination DN is used to populate the UserID parameter.

This parameter is found in the Origination_Attempt, the Information_Collected, the Information_Analyzed, the Network_Busy, and the Termination_Attempt messages.

67.2.20 VerticalServiceCode

As of BCS36, the only time that a VerticalServiceCode parameter is populated in a query message occurs when the originator is a RES line. When a call originating from a RES line is routed over a PRI looparound trunk, it appears as having been originated from a private agent. Therefore, the AccessCode parameter is populated instead of the VerticalServiceCode parameter.

This parameter is found in the Information_Collected and the Information_Analyzed messages.

67.2.21 ACGEncounter

The ACGEncounter parameter does not directly correspond to any PRI parameter. The SSP automatically adds this parameter to ungapped queries when ACG controls apply to the query. The query Global Title Address (GTA) is used to determine if existing ACG controls apply. Depending on the trigger, either the called party ID or the charge number is used as the GTA. Please refer to Section 67.2.3 “CalledPartyID” on page 1200, and Section 67.2.6 “ChargeNumber” on page 1203, for the population of the CalledPartyID and ChargeNumber parameters.

This parameter is found in the Origination_Attempt, Information_Collected, Information_Analyzed, Network_Busy, or Termination_Attempt.

67.2.22 GenericName

The GenericName presentation field of the GenericName parameter represents the vertical service code activated by the originator on a per-call basis.

68. AIN-PRI feature interactions

This chapter describes interactions between AIN Essentials and PRI looparound trunks for a subset of DMS features supported by AIN Essentials.

68.1 AIN-supported features

For an exhaustive list of features supported by AIN Essentials, a description of the features interworking with AIN Essentials, and corresponding restrictions and limitations, please refer to Part “Interactions” on page 113.

Features not listed in Part “Interactions” are not supported by AIN Essentials. Unsupported features have not been tested with AIN Essentials and should not be used in conjunction with AIN Essentials.

68.2 Feature interactions

Table 415 indicates, by shading, which AIN-supported features have been identified as having notable interactions with PRI looparounds.

Note: This is not an exhaustive list of AIN-supported features. For an exhaustive list of AIN-supported features, please refer to Part “Interactions” on page 113.

Table 415 Feature interaction summary

Feature	PRI interaction issues
Series Completion	None
Denied Origination	OffHookImmediate not applicable. See Section 68.2.1 “Denied Origination (DOR)” on page 1212.
Denied Termination	None
Do Not Disturb	None
Make Set Busy	None

Table 415 Feature interaction summary (Continued)

Feature	PRI interaction issues
Make Set Busy Intragroup	Intragroup indication lost. See Section 68.2.2 "Make Set Busy Intragroup" on page 1212.
Single Line Variety Package	None
Key Short Hunt Group	None
Multiline Hunt Group	None
Three-way Calling	NDC and display work differently. See Section 68.2.3 "Three-way Calling" on page 1212.
Meet-Me Conference	Interaction problems exist. See Section 68.2.4 "Meet-me Conference" on page 1213.
Automatic Line	Off Hook Immediate does not apply. See Section 68.2.5 "Automatic Line (AUL)" on page 1213.
Call Transfer	Call Transfer restrictions affected. See Section 68.2.6 "Call transfer (CXR)" on page 1213.
Feature Group A	None
E911	Does not work with PRI. See Section 68.2.7 "E911" on page 1213.
Ring Again/Network Ring Again	Calls using PRI cannot use Ring Again/Network Ring Again. See Section 68.2.8 "Ring Again (RAG)/Network Ring Again (NRAG)" on page 1213.
Call Forwarding	Non-AIN calls using PRI are affected. See Section 68.2.9 "Call Forwarding (CF)" on page 1213.
Callback Queuing	Calls using PRI cannot use Callback Queuing. See Section 68.2.10 "Call-Back Queuing" on page 1214.
IBN Distinctive Ringing	Problems arise in determining call type. See Section 68.2.11 "IBN Distinctive Ringing" on page 1215.

Table 415 Feature interaction summary (Continued)

Feature	PRI interaction issues
Teen Services Distinctive Ringing	None
CLASS Distinctive Ringing	None
Call Waiting	Cannot force Call Waiting on terminating agent. See Section 68.2.12 "Call Waiting (CWT)" on page 1215.
Speed Call	None
Cancel Call Waiting	None
Teen Services Dist. Ring./Call Waiting	None
CLASS Dist. Ring./Call Waiting	None (Note)
Simplified Message Desk Interface	None
CLASS Customer-Originated Trace	None (Note)
CLASS Automatic Callback/Recall	Do not work with PRI looparound trunks. See Section 68.2.13 "CLASS Automatic Callback/Recall" on page 1215 (Note).
CLASS Calling Number Delivery	None (Note)
CLASS CND Blocking	None (Note)
CLASS Dialable Directory Number Delivery	None (Note)
CLASS Selective Call Acceptance	None (Note)
CLASS Selective Call Rejection	None (Note)
CLASS Selective Call Forwarding	None (Note)
CLASS Bulk Calling Line Identification	None (Note)
CLASS Calling Name Delivery	Various issues. See Section 68.2.14 "CLASS Calling Name Delivery (TR-1188)" on page 1215.
E800	E800 calls cannot be originated by PRI looparound trunks. See Section 68.2.15 "PRI Interactions with E800 Service" on page 1216.

Table 415 Feature interaction summary (Continued)

Feature	PRI interaction issues
Note: In all CLASS features, if the CallingPartyID parameter is not received or it is not a 10-digit national number, then the DN datafilled in table LTDATA is used. The same applies to SMDI.	

The following sections describe the feature interaction issues in greater detail.

68.2.1 Denied Origination (DOR)

For AIN-supported agents, the OHI trigger takes precedence over the Denied Origination feature. If an AIN agent subscribes to the OHI trigger at the Origination Attempt trigger detection point, that agent may be able to originate a call even if the agent subscribes to the Denied Origination feature. This is compatible with the AIN Essentials specification.

Agents not supported by AIN must use PRI looparounds to achieve some measure of AIN support. PRI looparounds cannot trigger at OHI. As a result, OHI cannot take precedence over the Denied Origination feature. For any unsupported AIN agent, AIN never overrides the Denied Origination feature.

68.2.2 Make Set Busy Intragroup

Adding a PRI looparound trunk to a call scenario, which involves the Make Set Busy Intragroup feature, adversely affects the functioning of this feature. The PRI looparound trunk does not accurately indicate that the call is intragroup. For example, adding a PRI looparound trunk to a call that would have received a busy indication makes it receive a ringing indication. Similarly, a call that would receive a ringing indication receives a busy indication.

Note: The Make Set Busy Intragroup feature should not be used in conjunction with PRI looparounds.

68.2.3 Three-way Calling

PRI looparound trunks disrupt the relationship between the Three-way Calling feature and the No Double Connect feature. The No Double Connect feature prevents the subscriber from taking part in a conference call. When PRI looparound trunks are added to the call scenario, the Three-way Calling feature and the No Double Connect feature are unable to communicate. As a result, Three-way Calling is established even though one participant should not be permitted to join.

This implies that using PRI looparounds incapacitates No Double Connect. It is recommended that agents subscribing to No Double Connect should use PRI looparounds only on AIN calls.

PRI looparound trunks also disrupt the accurate updating of display phones. PRI looparound trunks do not provide for transmission of the necessary information between all parties on the call. As a result, displays may not indicate that the call is conferenced. The exact results depend on where PRI looparound trunks occur within the call scenario.

68.2.4 Meet-me Conference

PRI looparounds do not support flash and code control capabilities. Any Meet-me Conference participant whose call traverses a PRI looparound en route to the conference bridge is unable to use the Meet-me Conference capabilities that require flashing and code control.

68.2.5 Automatic Line (AUL)

When the Automatic Line feature is applied to lines that subscribe to the AIN OHI trigger, OHI overrides the Automatic Line feature.

PRI looparounds do not support OHI. There is no way for OHI to override Automatic Line on non-AIN supported lines.

Note: This is not an interaction problem between the Automatic Line feature and AIN. Lines not supported by AIN do not have access to the OHI trigger. This section merely highlights a difference in operation between an AIN-supported agent and an AIN-unsupported agent.

68.2.6 Call transfer (CXR)

It is possible to place restrictions on call transfer capabilities when the call is intragroup. For the call traversing PRI looparound trunks, it is important to maintain the identity of the call. This can be done for private calls over PRI looparounds by ensuring that the customer group of the incoming PRI looparound trunk is the same as that of the terminating line. If the call is being transferred over a PRI looparound trunk and it is intended to be intragroup, then the translations must be set up to reflect that the call is intragroup.

68.2.7 E911

The E911 feature uses special trunks to allow the emergency service bureau to maintain the connection even if the caller goes on-hook. PRI looparound trunks do not support this capability. It is recommended that emergency service calls do not use PRI looparound trunks.

68.2.8 Ring Again (RAG)/Network Ring Again (NRAG)

When any call uses a PRI looparound trunk, the call cannot use the Ring Again/Network Ring Again features.

68.2.9 Call Forwarding (CF)

There are several limitations with PRI and Call Forwarding interworking.

Calls that are forwarded over trunks and encounter AIN triggers will populate certain query parameters in a manner that is different from calls forwarded from a line. When a call is forwarded over a trunk, the calling party ID, which is sent over the trunk, contains the DN of the originator of the call and not the DN of the forwarding agent. As a result, calls forwarded over a PRI looparound trunk may populate the UserID, the CallingPartyID, and ChargeNumber parameters with the calling party ID instead of the DN of the forwarding agent. Please see Section 67.2 “Parameters” on page 1196, for guidelines on populating these parameters.

The PRI_Setup message can contain the redirection count and the original redirecting reason, but it does not contain any other redirecting reason. As a result, if a call is forwarded several times, with the last forward over a PRI looparound to an AIN trigger, the AIN query will contain the correct redirection count and original redirecting reason, but the redirecting reason field will be populated as “Unknown/Not Available”.

It is possible to place restrictions on Call Forwarding capabilities when the call is intragroup. For the call traversing PRI looparound trunks, it is important to maintain the identity of the call. This can be done for private calls over PRI looparounds by ensuring that the customer group of the incoming PRI looparound trunk is the same as that of the terminating line. If the call is being forwarded over a PRI looparound trunk and it is intended to be intragroup, then the translations must be set up to reflect that the call is intragroup.

Call Forwarding includes checking to prevent looping. For example, suppose subscriber A call forwards the phone to subscriber B, and subscriber B call forwards the phone to subscriber A. If someone phones A (or B), a loop would be established. Call Forwarding prevents this scenario. However, PRI looparound trunks cannot carry the information required to allow Call Forwarding to prevent looping.

Certain types of Call Forwarding perform a “look ahead” before actually forwarding the call. If the agent to which the call is forwarded is busy, the call is not forwarded. PRI looparound trunks do not support the necessary messaging to allow Call Forwarding to determine whether the agent is busy.

These are some of the potential pitfalls associated with PRI and Call Forwarding interworking.

68.2.10 Call-Back Queuing

The Call-Back Queuing (CBQ) feature is intended for local calls to a single switch. Call-Back Queuing is not supported for PRI looparound trunks.

68.2.11 IBN Distinctive Ringing

The IBN Distinctive Ringing feature allows the subscriber to differentiate incoming calls, based on their call type, by providing distinctive ringing patterns for each call type.

PRI looparound trunks do not provide accurate call type information to the called party. As a result, an IBN Distinctive Ringing subscriber may receive an inaccurate ringing pattern for calls arriving by a PRI looparound trunk.

68.2.12 Call Waiting (CWT)

Call Waiting has several variations. Some Call Waiting variants have limitations when interworking with PRI looparound trunks.

PRI looparound trunks do not accurately report whether a call is an intragroup call. Since PRI looparound trunks provide the Call Waiting Intragroup (CWI) feature with inaccurate information, CWI does not function as expected when PRI looparound trunks are involved in the call.

Note: The call completes; Call Waiting is provided when it should not be provided, and it is not provided when it should be provided.

The Dial Call Waiting (CWD) and Call Waiting Origination (CWO) features both require information to be transferred from the originating end office to the terminating end office. PRI looparound trunks are incapable of transferring the required information. When a subscriber to CWD or CWO makes a call that routes over a PRI looparound trunk, the subscriber cannot make use of either feature.

For restrictions on AIN relative to Call Waiting, please refer to NTP 297-8003-350, *NA DMS-100 Translations Guide*.

68.2.13 CLASS Automatic Callback/Recall

The Automatic Callback and Automatic Recall features do not work with PRI looparound trunks.

68.2.14 CLASS Calling Name Delivery (TR-1188)

The Calling Name Delivery (CNAMD) feature requires end-to-end ISUP connectivity. The GenericName parameter is used by the CNAMD feature as an indication of where the originator has invoked a name-blocking feature, such as CNAB. PRI looparound trunks do not carry the GenericName parameter. Calls originating over PRI cannot query the TR-1188 database to determine name display information. However, calls coming in over PRI and tandeming out over ISUP may query the TR-1188 database in a subsequent office.

PRI looparound trunks are unable to carry the above information. If a PRI looparound is added to a call scenario that supported Calling Name Delivery, the new call scenario does not support Calling Name Delivery.

68.2.15 PRI Interactions with E800 Service

E800 Service does not support PRI looparound trunks as originating agents. This is a limitation of the E800 Service.

69. Processing response messages

This chapter summarizes the processing of response messages.

69.1 PRI agent interworking

Response messages may provide the SSP with directions on how to route the call. PRI trunks do not interwork with all other agents supported by the DMS. When using PRI looparounds, it is important to ensure that the routes selected can interwork with PRI. See Chapter 65.: “Determining PRI agents” on page 1119 for a list of PRI-compatible agents.

69.2 CallingPartyID parameter

When a CallingPartyID (CGN) parameter is received, it is used for populating subsequent AIN queries and for subsequent signaling over ISUP or PRI trunks. It is used for the following sets:

- RES
- EBS
- MFT
- BRI

It is used for the following features that may subsequently be encountered:

- SMDI
- Distinctive Ringing Call Waiting
- Customer-Originated Trace
- Automatic Recall
- CLASS Calling Number Display
- CLASS Dialable Number Display
- CLASS Calling Number Delivery Blocking
- Selective Call Acceptance
- Selective Call Rejection
- Selective Call Forwarding

- BCLID
- Anonymous Caller Rejection
- CLASS Calling Name TR Compliancy—Presidential
- Toll Alert
- EBS, MFT, BRI Calling Number Delivery (some restrictions apply for Three-way Calling [3WC] and Call Forwarding features)

The CallingPartyID parameter received in the response message is not used when subsequently encountering other features. If a call is directed intraswitch by the response, the call must be directed over a PRI looparound trunk in order for the CGN to be used on the intraswitch call.

69.3 Other PRI or response message issues

If an attendant console originates a call over a PRI looparound to AIN, and a Send_to_Resource conversation is returned from the SCP requesting digits to be entered, the announcement is heard but digits cannot be entered from the keypad of the attendant console.

For AIN calls originating on a PRI trunk, an Answer message will be returned over the trunk when a Send_to_Resource conversation message is returned from the database, regardless of the presence of the AnswerIndicator parameter. This will cause any AMA record that was opened on the outgoing side of the trunk to be marked as answered and timing will begin from that point. In addition, coins deposited in coin phones will not be returned.

If a call is routed over a PRI trunk to hit an originating call model trigger, then the Speed Call dial plan of the originating line is not used if Speed Call is invoked on a Send to Resource operation. If the type of Speed Call is Network Speed Call (NSC), then it is possible to use the NSC variant if it is set up for the customer group associated with the trunk.

Requirements

Part : “Requirements” consists of the following chapters:

- Chapter 70.:“Development summary”
- Chapter 71.:“Product support”

70. Development summary

This chapter describes the capabilities and the release schedules of the software developed for the DMS AIN Essentials SSP.

A summary of the incremental capabilities included in each release is presented in the following tables:

- Table 416 “Feature listing for BCS35 and BCS36” on page 1222 describes the functions and/or features that were developed in BCS35 and BCS36.
- Table 423 “Feature listings developed for NA001” on page 1229 describes the functions and/or features that were developed for post-BCS36 Development.
- Table 424 “Summary of NA001 PRSDOCs” on page 1230 describes the functions and/or features that were developed for NA001.
- Table 425 “Feature listings developed for NA002” on page 1230 describes the functions and/or features that were developed for NA002.
- Table 427 “Feature listings developed for NA003” on page 1232 describes the functions and/or features that were developed for NA003.
- Table 429 “Feature listings developed for NA004B” on page 1234 describes the functions and/or features that were developed for NA004B.
- Table 431 “Feature listings developed for NA005B” on page 1238 describes the functions and/or features that were developed for NA005B.
- Table 433 “Feature listings for NA006B development” on page 1244 describes the functions and/or features that were developed for NA006B.
- Table 435 “Feature listings for NA007 development” on page 1248 describes the functions and/or features that were developed for NA007.
- Table 436 “Feature listings for NA008 development” on page 1250 describes the functions and/or features that were developed for NA008.
- Table 437 “Feature listings for NA009 development” on page 1251 describes the functions and/or features that were developed for NA009.

70.1 BCS36 development

The first release of the AIN Essentials SSP product was delivered in BCS36. Due to its complexity, the development of the AIN Essentials SSP product spans BCS35 and BCS36. There was no AIN Essentials software delivered in BCS35.

Table 416 describes the functions and/or features that were developed in BCS35 and BCS36.

Table 416 Feature listing for BCS35 and BCS36

Feature number	Feature title	Description
BCS35		
AR0219	Trigger Tables	provides table control for provisioning triggers
AR0222	FPE Based Trigger Processors	implements trigger processors which run in the feature processing environment (FPE)
AR0223	Line CP to Support Originating and Terminating Triggers	restructures basic line call processing to map the DMS call processing into the AIN basic call model
AR0224	FPE to Support Info Collect/Analyze Triggers	restructures FPE utilities to provide trigger mechanisms to support information collected and analyze trigger detection points (TDP)
AR0225	Basic Trunk Trigger Processing I	restructures basic trunk type call processing to map the trunk call processing into the AIN call model
AR0226	Message Encoder/Decoder I	is a preparatory feature for AR0374 Message Encoder/Decoder II
AR0227	Message Handler Application Interface	provides an internal software interface and message handling capability between the various AIN applications and their market specific encoders and decoders
AR0298	AFR Trigger Preparatory	provides the ability to send a query to an off-board processor when all routes in the routing list of a call are unavailable
AD4443	RDB Enhancements for Conversational Messaging	provides transaction ID management and timing facilities for the generic AIN message encoder/decoder
AD4446	Generic RDB Interface Package	provides a generic data communication interface to AIN applications for requesting data from a remote database (RDB)

Table 416 Feature listing for BCS35 and BCS36 (Continued)

Feature number	Feature title	Description
BCS36		
AR0228	AIN Feature Interactions	deals with selected interactions of switch-based features with the AIN Essentials software. It positions these features at the appropriate location within the AIN basic call model, and allows these features to interact with the off-board processor.
AR0229	Trigger Processing II	is a continuation of AR0222, and completes the implementation of FPE trigger processors
AR0231	Recorded Announcements Enhancements	enables the SSP to map SCP and adjunct announcement codes to SSP announcement codes so that the SSP may play announcements, collect digits, and pronounce digits as instructed by the SCP or adjunct
AR0235	Basic Call Processing II	the feature restructures basic trunk call processing software into the AIN Essentials SSP basic call model. In addition, the AIN trigger detection points (TDP) applicable for trunk facilities will be implemented.
AR0238	AIN Release 0.1 AMA	implements the AIN Essentials SSP billing system using the Bellcore AMA format.
AR0239	AINSSP Tool: Test Queries I	provides operating companies with the capability of initiating AIN Essentials test queries to an off-board processor and receiving off-board processor responses using a user-friendly, menu-driven man-machine interface. It also allows sending test queries which cannot be distinguished from normal application (e.g. AIN Essentials) queries.
AR0242	AIN OM	provides the AIN Essentials SSP traffic and maintenance measurements based on the sections 2.10.5 and 2.10.6 of TR-1284, issue 1, excluding automatic code gapping (ACG), Network Management Control, and Abandon - After Outpulsing. It also establishes the operational measurement platform for other AIN applications.
AR0374	Message Encoder/Decoder II	the feature provides an application protocol interface between the SSP and the off-board processor. It provides application layer messages, parameters, and protocol procedures, to encode query messages sent to the off-board processor and decode responses received from the off-board processor. The application layer protocol is based on the ANSI transaction capabilities application part (TCAP) application service element (ASE).

Table 416 Feature listing for BCS35 and BCS36 (Continued)

Feature number	Feature title	Description
AR0422	AIN Essentials on TCP/IP Transport Protocol	modifies the AIN Essentials SSP message simulator, test query, trigger processing, and trigger table to support interaction with the TCP/IP transport protocol. Both CCS7 and TCP/IP transports are supported. This feature is for lab trial applications only.
AR0449	AINSSP Base: AIN TRAVER	enhances translation verification (TRAVER) to handle AIN-specific information in an AIN office. AIN enhancements will enable TRAVER to display AIN userID specific information such as trigger and TDP subscription. The TrnsLVf utility is similar to TRAVER but it is invoked from the TTP level of the MAP. Note that the TrnsLVf utility was modified to support AIN triggering.
AR0450	AIN 0.1 Product Description	provides an overall description of AIN Essentials SSP and provides a reference to detailed information contained in the various AIN Essentials SSP design documents
AR0521	TCAP over Ethernet	enables AIN Essentials SSP to access services offered by an application service provider located on an off-board processor on an Ethernet local area network. It provides an interface between the message encoder/decoder and TCP/IP software to implement messaging over Ethernet using ANSI TCAP ASE.

Table 417 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in BCS36.

Table 417 Summary of BCS36 PRSDOCs

PRSDOC number	PRSDOC title	Description
BQ11959	AIN 0.1 Routing to TOPS Extension	provides support for AIN Essentials operator-requested call routing to a Nortel Traffic Operator Position System (TOPS). An AIN Essentials call that has sent a query message to an off-board processor, either a service control point (SCP) or adjunct, can receive a response message with the necessary parameters that indicate the call is to be routed to an operator. This functionality is provided by the Analyze Route and the Forward Call responses. Routing of these operator-requested AIN calls is only supported to a DMS TOPS position.

70.2 BCS36 extensions

Incremental development delivered the following functionalities in BCS36.

70.2.1 PRI userID

The primary rate interface (PRI) userID feature provides the ability to use the originating directory number (DN) to populate the PRI userID message parameter (which contains the identity of the originating facility). The DN must be a public number, so that the actual identity of the caller can be identified. This functionality supports both primary rate access (PRA) trunk types and PRI signaling trunks.

The userID contains the DN of the originating line or PRI for all originating triggers. The termination DN is used to populate the userID where a terminating trigger has been encountered. This parameter always contains the calling party number of the facility and not its billing number.

The DN is 10 digits, encoded in binary coded decimal (BCD).

For PRI trunks, the DN used to populate the UserID is derived by choosing the first available option from the following list:

- If a 10-digit public Original Called Party parameter is received, then it is used to populate UserID
- Else, if a 10-digit public Calling Party Number parameter is received, then it is used to populate UserID
- Else, the default Calling Party Number associated with the trunk group is taken from the table LTDATA (DN option) and used to build the UserID
- Since UserID is a mandatory query parameter, if all of the above fail, the call is sent to AINF treatment

70.2.2 Routing to TOPS

The routing to TOPS capability provides the functionality to route AIN Essentials SSP calls to TOPS operators via TOPS trunks that support automatic number identification information (ANI II) digits.

Routing to an operator at a TOPS position can be accomplished by populating the CalledPartyID parameter in an Analyze Route or Forward Call response with one of the following nature of numbers:

- No Address Present, Operator Requested
- National Number, Operator Requested
- International Number, Operator Requested

70.2.3 Station Message Detail Recording (SMDR)

The SMDR feature enables an AIN Essentials SSP to generate call records.

If a Meridian Digital Centrex (MDC) line or trunk originates a call that requires a SMDR call record based on the originating line or trunk group data, or integrated business network (IBN) translation datafill, the SMDR record will be generated regardless of whether or not the call is an AIN call. The SMDR generated is a result of the dialed digits. The CLD NO field of the SMDR call record will contain the number dialed by the originator, not the routing number returned by the off-board processor. Any retranslation that occurs as a direct result of an AIN response does not produce an additional SMDR record.

AIN Essentials calls support a new DF04 extension record. This extension record is generated for AIN Essentials calls through the AIN01 option in customer group datafill in table CUSTSMDR. Creating a new extension record avoids the need to modify existing SMDR records.

70.2.4 Datafillable subsystem numbers

The datafillable subsystem numbers capability allows flexibility in datafilling subsystem numbers in tables C7LOCSSN and C7NETSSN. Table 418 and 419 show example datafill.

Table 418 Table C7LOCSSN

SSNAME	SSNUMBER	MININST	REPLINFORE	TFMI	PCNAMES
AIN01	99	1	N	N	\$

Table 419 Table C7NETSSN

PCNAME	SSNAMES
OTTAWA_RTESET	(AIN01 100) \$

70.2.5 Provisioning enhancement

The provisioning enhancement feature provides the ability to edit (add, change, delete) entries in table TRIGDIG without having to turn off AIN Essentials SSP in the office.

70.2.6 Multiple Appearance Directory Number (MADN) origination and support

The Multiple Appearance Directory Number (MADN) origination and support development provides support for MADN lines, enabling MDC originating calls to interwork with AIN Essentials SSP. It provides support for subscription of these lines to originating AIN Essentials SSP triggers as well as support for triggering at the Termination Attempt trigger if the calls originate from a MADN line.

Trigger group subscription for MADN lines is done in tables IBNFEAT or KSETFEAT. MADN lines cannot subscribe to the Termination Attempt trigger.

70.2.7 Call forwarding feature package (optional)

The call forwarding feature package is optional and activatable. Call forwarding involves translation, identification, routing, and termination. Therefore, this feature enables calls forwarded by switch-based features to trigger at the following AIN Essentials TDPs:

- InfoAnalyzed
- InfoCollected
- Network Busy
- TerminationAttempt

The following forwarding features are supported:

- Call Forwarding All Calls (CFW)
- Call Forwarding Busy (CFB)—MDC
- Call Forwarding Busy Line (CFBL)—POTS & RES
- Call Forwarding Don't Answer (CFD)—MDC
- Call Forwarding Don't Answer (CFDA)—POTS & RES
- Call Forwarding Fixed (CFF)
- Call Forwarding Group Don't Answer (CFGDA)—POTS
- Call Forwarding Intragroup (CFI)
- Call Forwarding on a Per Key Basis (CFK)
- Call Forwarding Universal (CFU)
- Call Forwarding Call Waiting (CFCW)
- Remote Call Forwarding (RCF)
- Selective Call Forwarding (SCF)

The following line types are supported:

- Plain ordinary telephone service (POTS)
- Integrated Business Network (IBN)
- Residence Enhanced Services (RES)

70.3 Post-BCS36 development

Decoupling is an effort across DMS to divide the software up into layers that could be developed and released on independent intervals. The resulting

structure, post decoupling, will appear as shown in Table 420, for North American DMS100-based products.

Table 420 New software deployment structure

NA001	NA002	NA003	NA004B	NA005B	NA006B	NA007	NA008	NA009
CNA01	CNA02	CNA03	CNA04	CNA05	CNA06	CNA07	CNA08	CNA09
CCM01	CCM02	CCM03	CCM04	CCM05	CCM06	CCM07	CCM08	CCM09
SHR02			SHR04	SHR05	SHR06	SHR07	SHR08	SHR09
TL02			TL04	TL05	TL06	TL07	TL08	TL09
Base03			Base05	Base06	Base07	Base08	Base09	Base10
Note: NA001, NA002, and NA003 together make up what would have been known as BCS37, using the old nomenclature. CSP02 (Communication System Platform release 02) is the term used to refer to SHR02+TL02+Base03; NA001, NA002 and NA003 are all therefore CSP02-based loads. The terms NA001, NA002, NA003, NA004B, NA005B, NA006B, NA007, and NA008 refer to the collection of software to be released together. For example, NA001 includes CNA01, CCM01 + CSP02.								

In this new environment, separate Activity IDs are required for each development release unit (DRU) which is modified, that is, each of the above boxes. For AIN Essentials SSP, we have one feature during decoupling in order to divide our software into the appropriate boxes. We also have a feature in TL02, as well as features in the CCM (100 Common) and CNA (100 North American) layers, as described in Table 421.

Table 421 Feature listings developed for post-BCS36

Feature number	Feature title	Description
Decoupling		
AR0968	AIN Decoupling	In order to satisfy the corporate directive of decoupling, feature AR0968 was created. The purpose of this activity is to move several AIN symbols from the TL layer to the CCM layer, thereby reducing dependency on the TL layer. This allows greater flexibility in developing future features, since CCM layers are planned to be released at more frequent intervals than the TL layers.

Table 422 summarizes the supplemental functionality described by the PRSDOCs written for post-BCS36 AIN Essentials.

Table 422 Summary of post-BCS36 PRSDOCs

PRSDOC number	PRSDOC title	Description
BX15802	Table TRIGGRP/TRIGINFO size reductions	This development helps to avoid future dump and restore problems and allows future expansion in table TRIGGRP. The following two changes are made: • decreases the maximum number of TRIGDATA entries per tuple in table TRIGGRP from 28 to 16. Each TRIGDATA entry is composed of TRIGGER, CRITERIA, and INFONAME. • decreases the maximum size of table TRIGINFO from 16383 tuples to 255 tuples • Starting from BCS36+, the maximum number of TRIGDATA entries per tuple supported in table TRIGGRP is reduced from 28 to 16 to allow future expansion in table TRIGGRP such as adding a new field or adding new trigger types.

70.4 NA001 development

Table 423 summarizes the feature listings developed for NA001.

Table 423 Feature listings developed for NA001

Feature number	DRU	Feature title	Description
AR0893	TL02	DMSTL Layer Changes for AIN 0.1	No new functionality is provided by this activity. Its purpose is to make changes in the TL02 layer that will be required to develop AIN Essentials features in NA002 and NA003.
AG3291	CCM01	AINSSP: AIN Call Forwarding Interworking	In BCS36, feature AR0904 was developed as a BCS36 extension feature, and delivered by a series of patches. Feature AG3291 submits the source corresponding to those patches into the CCM01 stream. The purpose of this activity is to enable AIN Essentials triggers in the originating and terminating basic call models to be encountered while the second leg of a forwarded call is being established.

Table 424 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in NA001.

Table 424 Summary of NA001 PRSDOCs

PRSDOC number	PRSDOC title	Description
BX16654	Change the size of TRIGDATA field in table TRIGGRP	This development reduces the range of TRIGDATA field in table TRIGGRP from a vector of up to 28 to 16 entries. During dump and restore, only the first 16 TRIGDATA entries will be restored, the rest will be discarded. The type of field TRIGDATA is AIN_DATA_VECTOR.
Note: This is a continuation and improvement of the work done in BCS36+ under PRS BX15802. Refer to BX15802 PRS DOC for details about PRS BX15802.		

70.5 NA002 development

Table 425 summarizes the feature listings developed for NA002.

Table 425 Feature listings developed for NA002

Feature number	DRU	Feature title	Description
AR0941 AR1064	CCM02 CNA02	Enhanced TR Compliance—I	The purpose of the Enhanced TR Compliance activity is to provide an increased level of compliance to Bellcore TR-TSY-001284 in the following areas: Calling Number Presentation Restriction population in queries sent to the SCP/adjunct, TRAVER enhancements, and Test Queries enhancements. Because of the size of this work, it is being divided between NA002 and NA003. In NA002, preparatory work was developed for several of the work items, and some functionality changes were made. For example, the TRAVER and test queries portions of the Enhanced TR Compliance feature are expected to be completed in NA002. This feature requires changes to both the CNA02 and CCM02 DRUs.
AR0942	CCM02	AINSSP:SCP Control of Answer Supervision - PREP	This is a preparatory feature for activity AG3296 "AINSSP: SCP Control of Answer Supervision". No functionality was enabled by this feature. All functionality designed is disabled until release of feature AG3296.

Table 426 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in NA002.

Table 426 Summary of NA002 PRSDOCs

PRSDOC number	PRSDOC title	Description
BX21883	AIN0.1: Reduce Potential AIN/NFA Interaction Through OPTOPT	Since network facility access (NFA) and AIN have known interaction problems at the Offhook Delay trigger, the coexistence of the two features on a line is blocked. As a result of this change the service order (SO) system does not allow the addition of the NFA option to a line if the AIN option exists, or vice versa.
BX20999	AIN0.1: Avoid Name/Number Mismatch If New Number Received	The following interaction between proprietary name display and AIN is addressed. If AIN is involved on the call, and a new calling party directory number is returned from the AIN off-board processor, this calling party number takes precedence over the true calling party directory number. The directory number returned from the AIN off-board processor becomes the calling party number for this call, and may be displayed if the terminating agent has the Calling Number Delivery (CND) option. The name associated with the true calling party should not be displayed, as it is not associated with the new calling party number. Given that name display is not currently supported by AIN, and that number display is only supported when terminating to a RES/CLASS (Custom Local Area Signaling Services) set, this Problem Resolution System (PRS) solution addresses a very specific interaction only. It does not address display interactions in general. This PRS addresses inter-nodal calls which originate from a PRI trunk member only.

70.6 NA003 development

Table 427 summarizes the feature listings developed for NA003.

Table 427 Feature listings developed for NA003

Feature number	DRU	Feature title	Description
AG3289	CCM03	Trigger Enhancements Table	This activity enhances the AIN trigger tables to provide increased flexibility in adding, deleting or modifying trigger data for trigger groups that have been subscribed to. Similarly, the assignment of AIN data to subscription tables is modified to allow for greater flexibility in data assignment. This feature includes: enhancements made to the trigger group table, agent subscription checking at run-time call-processing, and TRAVER enhancements.
AG3294 AN1066	CCM03 CNA03	Enhanced Compliance—II TR	The purpose of this activity is to provide an increased level of compliance to TR-TSY- 001284 in the following areas: parameter population in queries sent to the SCP or adjunct, processing of responses received from the SCP or adjunct, AMA enhancements, and some feature interactions.
AR1061 AR1060	CCM03 CNA03	Default Routing	This activity addresses an AIN Service Enablers requirement made available in AIN Essentials. Default routing is intended to provide a mechanism for a call to be allowed to continue processing, instead of being routed to AIN final treatment, if a T1 timer expires or an SSP return on error message is encountered.
AR0940 AN1065	CCM03 CNA03	Agent Interworking to Termination Attempt	In order for an agent to be able to trigger at the Termination Attempt trigger, both the originator and the terminator of the call must be valid AIN agents. This activity relaxes this restriction somewhat by allowing additional originating agents to trigger when they enter the terminating call model. This activity also interacts with the existing call forwarding feature so that if a call originated by one of these additional agents is forwarded, the call may trigger at TDPs it encounters during the second leg of the call.
AG3296	CCM03	SCP Control of Answer Supervision	This activity addresses the provision of answer indication on AIN calls originated by PRI, ISUP or per trunk signaling (PTS) trunks, as controlled by the presence or absence of the AnswerIndicator parameter in the Send_to_Resource message.

Table 427 Feature listings developed for NA003 (Continued)

Feature number	DRU	Feature title	Description
AR0943	CCM03	AIN Call Forwarding Enhancements	This feature looks at resolving some of the restrictions present in AG3291: IBN and RES call forwarding validation, IBN and RES Call Forward Group Don't Answer External. In addition, this activity addresses calls that are conferenced by the 3-way calling feature which ignores AIN triggers during Call Forwarding Don't Answer if the call is conferenced while the base station is ringing.

Table 428 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in NA003.

Table 428 Summary of NA003 PRSDOCs

PRSDOC number	PRSDOC title	Description
BX24369	Increase max index of AINANNS table accepted by GAME	Implemented functionality in this activity allows a range of a System Announcement ID parameter, used in a Send_to_Resource response, to be 1 to 32767. It removes a limitation imposed by the TR-NET-001285 requirement (R) 6-1250. The listed requirement allows the range of System Announcement ID to be from 1 to 255. Bell Operating Companies have expressed concern that this range is too narrow. In order to meet their concern, this activity has changed the range to be from 1 to 32767.
BX26038	Use CallingPartyID for EBS, IBN Display ACRJ and CNAMD/	This development facilitates deployment of services based on the AIN Essentials platform. It decreases the number of PRI looparounds needed. It will achieve this by increasing the compliance of the DMS AIN Essentials offering to the following requirements of the TR-NWT-001285 document (R)-2.6-239),(R)-2.6-231, and (R)-2.8-50. The feature enables the DMS SSP to use a CallingPartyDN and DNPresentationRestriction field values, provided in a CallingPartyID parameter of the Forward_Call, Authorize_Terminal and Analyze_Route AIN SCP responses. The AIN SCP provided data in the CallingPartyID parameter is used by the software implemented by this feature for the DN and name display features on EBS, MFT and BRI sets and for CLASS sets an Automatic Caller Rejection and TCAPNM feature.

Table 428 Summary of NA003 PRSDOCs (Continued)

PRSDOC number	PRSDOC title	Description
BX37700	ESL Line Traps and Swers with Certain AIN 0.1 Responses	This development prevents a Service Order subscription of the ESL option to a line which already subscribes to AIN and/or AINDN. This feature also prevents a Service Order subscription of the AIN or AINDN options to a line which already subscribes to the ESL option.

70.7 NA004B development

Table 429 summarizes the feature listings developed for NA004B.

Table 429 Feature listings developed for NA004B

Feature number	DRU	Feature title	Description
AG3293	CCM04	AIN AGENTS - ATC	This activity enables Access to Carrier (ATC) trunks (Note 1) to encounter AIN Essentials triggers. Supported ATC trunks are: FGD (Note 2) over ISUP and MF trunks, and FGB over MF trunks. The call processing of an ATC trunk call allows the ATC trunk to encounter triggers at the Information Analyzed and Network Busy TDPs. Note 1: In this case, ATC trunks refer to those trunks that appear in table TRKGRP with a GRPTYP of ATC. Note 2: EAPLAN, Equal Access, FGD, and feature group D are all synonymous.
AG3295	CCM04	AINSSP: CCM BRI I/W TO TERM CALL MODEL	This activity enhances the basic rate interface (BRI) agent to be an AIN Essentials TERMATT supported agent. As a result of this activity, a call originating from a BRI agent can trigger at the Termination Attempt TDP if the necessary trigger criteria are satisfied. This activity also interacts with the existing call forwarding feature so that if a call originated by one of these additional agents is forwarded, the call may trigger at TDPs it encounters during the second leg of the call. Note 3: The BRI agent still cannot subscribe to the Termination Attempt trigger.

Table 429 Feature listings developed for NA004B (Continued)

Feature number	DRU	Feature title	Description
AG4163 AG4167	CCM04 CNA04	Advanced Intelligent Network Software Optionality Control Phase 1	Software optionality control (SOC) is part of the overall DMS evolution product delivery paradigm which allows software features to be delivered to the customer in a timely fashion while preventing its use until the customer has purchased the appropriate password file. These features can be grouped to form units called options. The intent is for Product CM Loads (PCLs) and SOC to replace the old software packaging scheme and reduce the number of different loads needed globally. There will be five AIN options introduced under this project. They are as follows: AIN Primer Option (AIN00001), AIN Essentials Option (AIN00002), AIN Call Management Option (AIN00006), AIN Call Model Control Option (AIN00007), and AIN Default Routing Option (AIN00010).
AG4158	TL04	AIN Enhanced Trigger-Related Data Operations	This is a preparatory feature for work to be done in NA005.
AR0375	CCM04	AINSSP: Send Termination Notification - Preparatory Feature	This is a preparatory feature for AINSSP: Send Termination Notification. There will be no visible functionality provided by this feature. AR0375 will provide the foundation for the delivery of Send Termination Notification in a future AINSSP release.
AR0376 AR1238	CCM04 SHR04	AINSSP: AIN Display Prep	This is a preparatory activity for Display Text work to be done in NA005. When a call triggers at a Termination Attempt trigger detection point (TDP), a Termination Attempt message is sent to the SCP. If certain conditions for line originated and ISUP trunk originated calls are met, the Generic Name parameter is included with the query. For line originations that trigger, if an AIN response returns a CallingPartyID that is different from the originator's DN, then the originator's proprietary name will not be included in an ISUP IAM or PRI setup message, if the call routes over one of these trunks. The only visible aspect is the Generic Name parameter conditionally included in the Termination Attempt query sent to the SCP.

Table 429 Feature listings developed for NA004B (Continued)

Feature number	DRU	Feature title	Description
AR0387	CCM04	AIN R0.1 PODP Feature Code Trigger for RES Agents	This activity supports Public Office Dialing Plan (PODP) Feature Code trigger for the AIN Essentials SSP software. The PODP Feature Code trigger provides a way of querying the SCP when the vertical service code is dialed for the PODP. This feature will enable RES 1FR lines and RES 1MR lines to subscribe to the PODP feature on an individual basis.
AR0423	CCM04	AINSSP: Agent I/W to Term Call Model II	This activity is a continuation of the AR0940 activity, which was implemented in NA003. This activity increases the agent support for Termination Attempt trigger by converting a set of selected non-AIN agents to AIN Essentials TERMATT supported agents. The converted agents can directly trigger at TERMATT, but cannot subscribe to TERMATT. The following are the non-AIN agents that are selected for interworking with the Termination Attempt Trigger: 8 FR party lines, 10 FR party lines, TWX lines, and E911 trunks. This activity also interacts with the existing call forwarding feature so that if a call originated by one of these additional agents is forwarded, the call may trigger at TDPs it encounters during the second leg of the call.
AR1276 AR1215 AR1162	CCM04 SH03 TL03	AIN trunk group subscription enhancements	This activity introduces a new table (TRKAIN) to provide a new way of subscribing to AIN functionality on a trunk group basis. This functionality replaces the old way of datafilling the AIN option on a trunk group basis in table TRKGRP.
AR1325	CCM04	AIN Support of 15-Digit International Direct Digit Dialing (IDDD)	This activity makes changes to AIN application software to support 15-digit direct dialing for international calls. These changes are being made as a result of the new CCITT international numbering plan requirement which increases the number of international digits dialable from 12 to 15.
AR1390	CCM04	AINSSP: AIN Support for T-Selector	This activity enables calls to route via the DN, ST, and T selectors during AIN Essentials response processing of TrunkGroup parameters.

Table 430 summarizes the supplemental functionality described by the PRSDOCs written for AIN in NA004B.

Table 430 Summary of NA004B PRSDOCs

PRSDOC number	PRSDOC title	Description
BX34154	SAID / AIN Interworking	This activity provides limited interaction between the Speech Activated Intelligent Dialing (SAID) feature (NC0418) and AIN Essentials capabilities. However, it does not provide support for AIN Essentials with the following: • SAID Stringing of Digits (SOD) (AN0434) • Universal SAID (USAID) • Remote Network Facility Access (NFRA) The AIN Essentials OFFHKIMM trigger will always take precedence over SAID (implicit). A SAID call will encounter other AIN Essentials triggers normally as if the SAID feature is not in the call.
BX49946	Routing STR to Tones	This activity enhances the functionality provided by Send_to_Resource (STR) allowing calls to be routed to selected hard-coded tones in addition to custom announcements.
BX57846	AIN 0.1 and E800 (U.S.) Preliminary Interworking	This activity provides limited inter-working between the AIN Essentials Offhook Delay trigger and the E800 (Enhanced 800) U.S. market service. The E800 (U.S.) service is described as per requirements in TR533. This interaction applies to call scenarios with the following restrictions: • the triggering agent is restricted to AIN Essentials supported line agents • the trigger encountered is Offhook Delay • an AMAslpID parameter is not returned in an Analyze_Route response with an 800 number from the AIN Essentials SCP • the number service code (NSC) requested is an E800 for the U.S. market only

70.8 NA005B development

Table 431 summarizes the features developed for AIN Essentials in NA005B.

Table 431 Feature listings developed for NA005B

Feature number	DRU	Feature title	Description
AG3290 AR1612	CCM05 CNA05	AINSSP: Automatic Code Gapping (ACG) and SOCC	ACG is a network mechanism used in the control of network congestion. If an SCP becomes congested with queries, it can request that SSPs causing the overload slow down or stop sending queries for a desired length of time. Code gapping can be initiated from the SCP in two ways: (1) automatically via SCP initiated code control; and (2) manually via Service Management System (SMS) Originated Code Control (SOCC).
AG4164 AG4168	CCM05 CNA05	AIN Enhanced Trigger-Related Data Operations	This feature enables triggers to be activated or deactivated for a given AIN agent subscription, AIN trigger type, and AIN bearer capability. The activation states will be stored in a new table called TRIGASGN. Activation states will be stored only for the OFFHKIMM, OFFHKDEL, and TERMATT trigger types. Feature AR1630 (Update Request) is dependent on this feature.
AR1630	CNA05	AINSSP: Update Request for Trigger Activation/Deactivation	The Update_Request Non-Call Related message is used by an SCP to request the SSP to activate or deactivate an Off-Hook Immediate, Off-Hook Delay, or Termination Attempt trigger for a userID subscribed to a given bearer capability.
AR0420 AR1647	CCM05 CNA05	AINSSP: AIN and E800 I/W	Activity AR0420 provides interworking between US E800 and AIN Essentials. A call will be able to perform both E800 processing and AIN Essentials processing in the US market.
AR0812	CCM05	AIN Support for Coin Line	This feature supports COIN lines for office-wide triggers (3- to 10-digit PODP, N11, and automatic flexible routing (AFR)). Furthermore, it supports RES COIN lines for customer group wide triggers and customized dialing plan (CDP) Feature Access Code. Agents to be supported include: CCF (Coin First), CSP (Coin Semi-Postpaid), CDF (Coin Dial-tone First), CFD (Coin Free Dialing), ZMD (Zero Minus Denied), and ZMZPA (Zero Minus Zero Plus Allowed).

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1438	CCM05	AINSSP: Send Termination Notification	AR1438 is the continuation of preparatory activity AR0375 in NA004B. This activity enables the SSP to report a Termination Notification (TN) message to the SCP upon the reception of a Send Notification (SN) request. The Termination Notification message contains the termination information about an AIN call after the call has reached a NULL point in call (PIC) state.
AR1535 AR1440 AR1634	CCM05 CNA05	AINSSP: Display Text to Terminating RES Agents	AR1535 is the continuation of preparatory activity AR0376 (CCM04). This activity supports the DisplayText parameter terminating on RES lines only. Before this activity, the SSP ignored the DisplayText parameter received from the SCP. The DisplayText parameter can only be received in an Authorize Termination response when triggering at the Termination Attempt trigger. This activity decodes the DisplayText parameter received in the response, and sends the relevant DisplayText information to the CPE when terminating on a RES agent.
AR1441	CCM05	AINSSP: WATS Line Interworking to AIN (Phase 1)	This feature supports WATS lines for office-wide triggers (3- to 10-digit PODP, N11, and AFR). Furthermore, it supports RES WATS lines for customer group wide triggers (CDP and AFR). Agents to be supported include Inward WATS (INW), Outward WATS (OWT), Two-Way WATS (2WW), Enhanced Outward WATS (EOTW), and Enhanced Two-Way WATS (ETW).
AR1443	CCM05	AINSSP: BRI Interworking to AIN (Phase 1)	This feature supports BRI lines for customer group wide triggers (CDP and AFR) and office-wide triggers (3- to 10-digit PODP, N11, and AFR).
AR1502 AR1633 AR1680	CCM05 CNA05 APC05	AINSSP: AIN S/W Restructure	Re-structuring of AIN code is required such that any application (for example, intelligent network application protocol (INAP)) building on base AIN software can do so with minimal impact on AIN Essentials.
AR1503	SHR05	AINSSP: AIN Tool Enhancements	This feature will enhance AIN tools to facilitate the deployment of AIN services.

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1613 AR1507	CCM05	AINSSP: AIN 0.1 GAME Enhancements	This activity makes changes to the AIN Essentials specific sections of the Generic AIN Messaging System (GAME) to properly handle: non-call related (NCR) operations, multiple-component messaging, and error scenarios in single- and multiple-component messages.
AR1634	SHR05	AINSSP: AIN Call Processing SHR Changes	This feature will be used to allow changes to the SHR DRU for the Display Text and Software Restructuring features.
AR1507	SHR05	AINSSP: Non Call Related SHR Changes	This feature will be used to allow changes to the SHR DRU for the ACG, Update Request, Send Termination Notification, and GAME features.
AR1636	CCM05	AINSSP: Interactions with Auth & Act Codes	This activity provides the AIN Essentials feature interactions with auth/account codes and station specific auth codes.
AR1637	CCM05	AINSSP: AIN 0.1 Interworking with AIN 0.0	This feature supports AIN Essentials interworking with AIN Primer. Within a single call there is a requirement to invoke triggers from both AIN Primer and AIN Essentials applications. This requirement is partially supported as follows: • all 0.0 triggers can subsequently encounter 0.1 TAT. • any of the following AIN Essentials triggers (OHD, CDP feature access code, PODP feature code, or TAT) can encounter the following AIN Primer triggers (DN trigger or 3/6/10 digit PODP trigger). Chaining of these basic scenarios to form more complex calls is supported.
AR1638	CCM05	AINSSP: Interactions with ACB/AR	This activity will provide enhanced automatic call back/automatic recall (ACB/AR) functionality in the AIN Essentials service environment. This enhancement will enable usage of the ACB/AR features in some currently blocked call scenarios. The feature interaction portion of the activity will be focused on the following features: ACB/AR scans entire hunt group and ACB/AR usage sensitive pricing (USP).

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1640	CCM05	AINSSP: Feature Interactions III	This activity tests and documents interactions between AIN Essentials triggers and the following features and line options: Blind Transfer Recall, Blind Transfer Recall Identification, Call Hold (CHD), Denied Incoming (DIN), Executive Busy Override (EBO), Group Intercom All call (GIAC), Meridian business set intercom (ICM), intercept service (INT), Key Set Music On Hold (KSMOH), and Softkey Transfer. Based on the results of testing, the features and options will be assigned proper support classes. This activity will also provide support for interactions between AIN Essentials triggers and Group Intercom (GIC).
AR1641	CCM05	AINSSP: Interactions with Display Features	This activity tests and documents interactions between AIN Essentials triggers and the following features: autodisp, clidsp, centrex name display, name and reason display, network dial plan display, and network EBS display. This activity will also provide support for interactions between AIN Essentials triggers and calling name delivery (CNAMD). Based on the results of testing, the features will be assigned a proper support class.
AR1642	CCM05	AINSSP: Feature Interactions I	This activity tests and documents the AIN Essentials feature interactions with: hunt group options: Bridged Night Number (BNN), stop hunt, make- busy key (MBK), random make busy, multiple position hunt, night service DN, TRMBOPT, Terminating Billing Option (TBO), and Call Direct Hold, Customer Data Change (CDC).
AR1644	CCM05	AINSSP: Interactions with VFG	This activity provides the AIN Essentials feature interactions with virtual facility groups (VFGs), and VFG look-ahead.
AR1646	CCM05	AINSSP: Interactions with Call Park/Call Pickup	This activity provides the AIN Essentials feature interactions with Directed Call Park (DCPK), Directed Call Pickup non barge-in (DCPU)/DCPU with barge-in, Call Park (CPK), CPK identification, call pickup (CPU), and Trunk Answer From Any Station (TAFAS).

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1648	CCM05	AINSSP: Interactions with MADN Features	This activity provides support for interactions between AIN Essentials triggers and the following Multiple Appearance Directory Number (MADN) capabilities: MADN terminations, Secondary Call Forwarding on MADN (CFMDN), Executive Busy Override on MADN (EBOM), MADN Ring Forward (MRF/MRFM), Privacy/Privacy Release (PRV/PRL), MADN Release (MREL), MADN Lamp (MLAMP), EKTS Hold (EHLD), MADN Hold, and MADN EXB.
AR1649	CCM05	AINSSP: Interactions with DISA/Rest Dialing	This activity provides support for interactions between AIN Essentials triggers and the direct inward system access (DISA) and reset dialing features.

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1650	CCM05	AINSSP: Feature Interactions II	This feature tests and documents the interactions between AIN Essentials and the following features and line options: • Automatic Call Distribution (ACD) originations • Automatic Call Distribution (ACD) terminations • Automatic Dialing (AUD) • Class Message Waiting Indicator (CMWI) • Code Restrictions (CRL) • Custom IBN Disconnect Treatment (CDT) • Cutoff On Disconnect (COD) • Executive Message Waiting (EMW) • Expensive Route Warning Tone (ERWT) • Feature Group B (FGB) • Flash Ignore (FIG) • Flexible Intercept (FLEXI) • International Direct Distance Dialing via Automatic Route Selection (IDDD via ARS) • Manual Line (MAN) • No Double Connection (NDC) • Station Message Waiting (MWT) • Suspend/Request Suspension (SUS/RSUS) • Time Of Day (TOD) routing
AR1651	CCM05	AINSSP: VAPN Agent I/W to Termatt	This activity supports the interworking of Virtual Access to Private Network (VAPN) agents to encounter the AIN Essentials TERMATT trigger.
AR1656	CCM05	AINSSP: P2/PX Trunk Support for AIN (Prep)	This activity provides support for P2 and PX trunks to encounter office-wide AIN Essentials triggers. Office-wide triggers include PODP, N11, and AFR triggers.

Table 431 Feature listings developed for NA005B (Continued)

Feature number	DRU	Feature title	Description
AR1657	CCM05	AINSSP: Party Lines (2FR/4FR) Interworking to AIN (Phase 1)	This feature supports 2FR and 4FR lines for individual based triggers (OFFHKIMM, OFFHKDEL) and office-wide triggers (PODP, N11, and AFR).
AR1658	SHR05	AINSSP: Line Agent Support SHR Changes	This feature will be used to allow changes to the SHR DRU for the Line Agent support features.
AR1659	SHR05	AINSSP: Trunk Agent Support SHR Changes	This feature will be used to allow changes to the SHR DRU for the Trunk support features.
AQ1474	CCM05	AINSSP: AIN and SMDR Interworking	This activity supports the AIN Essentials feature interactions with SMDR.
AG4550	CNA05	AINSSP: AIN SOC (Phase II)	This feature implements the ASOC strategy in NA005. One new option (AIN00008: AIN Display Services Option) is defined by this feature.

Table 432 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in NA005B.

Table 432 Summary of NA005B PRSDOCs

PRSDOC number	PRSDOC title	Description
BX70933	AIN 0.1 Support of Local Trunk calls rerouting to IEC	This activity allows public-trunk-originated-non-FGD-signaling calls (POTS TI, T2, and IT) with any signaling type (for example, DigiPulse or DigiTone) to be rerouted by AIN Essentials to interexchange carriers (IECs) in certain circumstances.

70.9 NA006B development

Table 433 summarizes the feature listings for NA006B development.

Table 433 Feature listings for NA006B development

Feature number	DRU	Feature title	Description
AN1751	CCM06	AINSSP: POST VFG InfoAnalyzed and NetBusy Triggering	This activity will add AIN Essentials InfoAnalyzed and NetBusy triggering (PODP, N11, CDP, AFR) after throttling a virtual facility group (VFG).

Table 433 Feature listings for NA006B development (Continued)

Feature number	DRU	Feature title	Description
AR1501	CCM06 CNA06	Response Translations Enhancements	This feature provides capabilities for associating LATA to IBN customer groups for AIN Essentials parameter population purposes.
AR1532 AN1818	CCM06 CNA06	AINSSP: Interworking with SAID SOD	This activity provides support for interactions between AIN Essentials triggers (excluding Shared Interoffice, PODPFEAT, and CDP) and Speech Activated Intelligent Dialing (SAID) Stringing-of-Digits (SOD).
AR1645 AN1826	CCM06 CNA06	AINSSP: AIN I/W ADSI Features	This activity provides feature interworking between AIN Essentials triggers and the following Analog Display Services Interface protocol features: Spontaneous Call Waiting Identification (SCWID) and Spontaneous Call Waiting Identification with Disposition (DSCWID).
AR1687	CCM06	STR to Standard Announcements	This feature provides a customer with the ability to do a Send to Resource (STR) operation to a Standard Announcement for terminating (non-interruptible) announcements.
AR1691	CNA06	AIN PODP Response Processing Enhancements	This feature provides enhancements to PODP response translations as required in GR-1298.
AR1700 AR1781	CCM06 CNA06	AINSSP: 0.1 Interworking with 0.0 (Phase 2)	This feature enhances 0.0 and 0.1 interworking to include the ability of any 0.0 trigger to be followed by 0.1 PODP, and to allow 0.1 OHI, CDP, N11, and PODP to be followed by the 0.0 DN and PODP triggers.
AR1780	SHR06	AINTRACE	This feature provides customer usable tools to trace TCAP messages. Messages can be displayed in both Hex and text formats
AR1785	CNA06	AINSSP: AIN Feature Interactions	This activity provides limited support for interactions between AIN Essentials triggers and various switch-based features.

Table 433 Feature listings for NA006B development (Continued)

Feature number	DRU	Feature title	Description
AR1786 AR1959	CCM06 CNA06	AINSSP: DISA Interactions with AIN Originating Triggers	This activity provides the ability to encounter AIN Essentials triggers after going through the direct inward system access (DISA) feature. These triggers are: • Offhook Immediate • Offhook Delay • PODP • N11 • AFR (Office-based) • CDP (Group-based)
AR1790	CCM06	AINSSP: BRI Agent Development	This activity enhances AIN Essentials trigger support for ISDN BRI. Support is provided for: • Offhook Immediate • Offhook Delay • PODPFEAT • Termination Attempt
AR1809	CNA06	AINSSP: DATA/PDATA Line Agent Development	This feature allows DATA and PDATA line agents to encounter the AIN Essentials individual line-based (Offhook Delay, Offhook Immediate), office-based (3- to10-digit PODP, N11, AFR) and group-based CDP triggers without the need for PRI looparound trunks.
AR1791 AR1807 AR1794	CCM06 CNA06 SHR06	AINSSP: Trunk Agent Development 1	This activity enables trunk agents OC, SC, OP, and OI to encounter AIN Essentials office based triggers. Triggers PODP and N11 are supported. In addition, OI and OP trunks only encounter TERMATT. Optional AIN subscription for trunk OP is also supported via table TRKGRP.
AR1792 AR1808 AR1794	CCM06 CNA06 SHR06	AINSSP: Trunk Agent Development 2	This feature allows P2/PX and CELL trunks to encounter AIN Essentials office based triggers PODP, N11 and AFR and VAPN trunks to encounter AIN Essentials office based triggers PODP and AFR without the need for PRI looparound trunks.

Table 433 Feature listings for NA006B development (Continued)

Feature number	DRU	Feature title	Description
AR1805 AR1804 AR1938	CCM06 CNA06 TL06	AINSSP: Monitor Resource Phase 1	This prep activity implements a subset of the requirement for Monitor Resource. Monitor Resource allows the SCP to query the SSP about the status, either busy or idle, of a line or multiline hunt group, and can ask the SCP to monitor that line or multiline hunt group for a specified period of time, until the time runs out or the line or multiline hunt group changes the desired state.
AR2030 AF6326	CNA06 CCM06	AINSSP: CPC LNP Escape Criteria	This activity implements the three escape criteria required by CPC LNP. The escape criteria are: • ESCDN - Escape if DN resident • ESCOP - Escape if Operator call • ESCEA - Escape if Equal Access Call Note: Since CPC LNP has been made obsolete, support for the ESCDN criteria against the PODP trigger has been removed.
AR1241	SH03	AINTRACE - AIN Message Tracing Tool	This activity introduces a new tool: AINTRACE. AINTRACE is primarily for global product support and personnel who have a need to trace AIN Essentials messages by line or trunk. Users can select desired terminal identifiers (TIDs) for tracing. Related TCAP messages in hex, along with TIDs and time stamp, are stored in a buffer and can be displayed.

Table 434 summarizes the supplemental functionality described by the PRSDOCs written for AIN Essentials in NA006B.

Table 434 Summary of NA006B PRSDOCs

PRSDOC number	PRSDOC title	Description
BQ19654	AIN 0.1 ACG Enhancement	This activity allows ACG SMS and SCP initiated controls to survive cold restarts, ACG SMS - initiated controls survive reload restart and all SWACTs. This feature also creates the AINCI command, ACGONOFF, which is used to turn ACG ON or OFF.

Table 434 Summary of NA006B PRSDOCs (Continued)

PRSDOC number	PRSDOC title	Description
BQ20838	AIN0.1 Coin Escape Criteria	This feature adds a new criteria option to table TRIGGRP. The option prevents certain coin originated calls from triggering at the AIN0.1 3-10 PODP Trigger for a given trigger group.
BX01079	AIN0.1: TRAVER should have AUTHTERM AINRES option.	This PRS adds the Authorize Termination option to TRAVER.
BY01489	AIN0.1 LPIC Route Used when LEC Carrier	When AIN sends a LEC carrier, the call is routed using the LEC route for INTRA LATA traffic while INTER LATA traffic is sent to treatment.

70.10 NA007 development

Table 435 summarizes the feature listings for NA007 development.

Table 435 Feature listings for NA007 development

Feature number	DRU	Feature title	Description
AJ4008 AJ4009	CNA07 CCM07	AINSSP: Display Text for MDC Agents	This feature is enhanced by increasing its agent support to include Meridian Digital Centrex (MDC) agents, and line types: Integrated Business Network (IBN, line class code (LCC) of IBN), Meridian business set (MBS, LCC series M5— excluding ISDN), and electronic business set (EBS, LCC of PSET).
AJ4005 AJ4006	CNA07 CCM07	AINSSP: Calling Party BGID	This feature implements the AIN R0.1 query population of the CallingPartyBGID parameter in compliance with Bellcore specification TR-NWT-001284.

Table 435 Feature listings for NA007 development (Continued)

Feature number	DRU	Feature title	Description
AJ3999 AJ4000 AJ4001	CNA07 CCM07 TL07	AINSSP: Trk - FGD interworking	This feature is enhanced as follows: • All triggers applicable to local trunks are supported: PODP, N11, and AFR • LATA screening performed for local trunk calls • Incoming calls from ATC trunks are allowed to be rerouted • Configurations that include MF IT trunks are supported • A billing record of call code 110 and a structure code defined by the SSP are generated when the AMASLPID is not in the SCP response
AJ4281	CNA07	MF Inter-Toll Trunk Translation Enhancement (accommodating 0ZZXXX(X) AIN Translations)	This feature resolves the translation datafill limitation in AIN Essentials with respect to 0+ calls on incoming MF IT trunks using FGD signaling and having an SSP selector specified in subtable STDPRT of table STDPRTCT.
AR2104 AR2103 AR2178	CNA07 CCM07 SHR07 TL07	AIN Response Translations Simplification	This activity provides the capability to reuse existing pretranslators and transition datafill for AIN response translation alleviating the pre-NA007 requirement of defining separate pretranslators for each call type. AIN response translation can reuse the triggering agent's translation datafill or define a new pretranslator for response translation of multiple call types.

There are no PRSDOCs written for AIN Essentials in NA007.

70.11 NA008 development

Table 436 summarizes the feature listings for NA008 development.

Table 436 Feature listings for NA008 development

Feature number	DRU	Feature title	Description
AQ1585 AQ1586	CNA08 CCM08	AIN 0.1: Monitor Resource Enhancements	This activity enables the functionality developed under the NA006 preparatory work implemented by feature AR1805, AR1804, and AR1938. As well, support is added for COIN, K-SET, and ISDN BRI agents. Monitor Resources allows the SSP to respond to SCP-originated queries about the busy or idle status of a line, and allows the SSP to monitor the line, in response to such a query, for a specified period of time until the line changes to the desired state or until the specified time elapses. Monitor Resources is based on TR-1284.
AQ1587 AQ1588	CNA08 CCM08	AIN 0.1: Additional Line Agent Support	Presently, AIN Essentials triggers support a list of line agents which does not cover all line types. Specifically, PODPFEAT, OFFHKDEL, and TERMATT do not support Coin and WATS agents and line class codes DATA and PDATA. This feature extends trigger support to the above line agents. It will be provided via feature release of the NA008 stream on the DMS 100/200 switch.
AQ1589 AQ1590	CNA08 CCM08	AIN 0.1: Routing to FGC/OTC Carriers	The Advanced Intelligent Network (AIN) was originally designed to allow routing over Feature Group D (FGD) carriers when a Carrier Identification Code (CIC) is returned in a Service Control Point (SCP) response. However, customers have been routing over Feature Group C (FGC) carriers and Operating Telephone Company (OTC) carriers. This has resulted in the generation of incorrect Automatic Message Accounting (AMA) records. Calls complete but the billing records are either not generated or parameter population is incorrect. This feature provides AIN Essentials with the ability to generate the proper billing record on the EAEO or AT.

There are no PRSDOCs written for AIN Essentials in NA008.

70.12 NA009 development

Table 437 summarizes the feature listings for NA009 development.

Table 437 Feature listings for NA009 development

Feature number	DRU	Feature title	Description
AF7136 AF7137	CNA09 CCM09	AIN SE Trigger Upgrade CalledPartyID Parameter	This feature is part of a set of CalledPartyID response processing upgrades enhancing GR-1298 compliance for the AIN Service Enablers product.
AJ4926	CNA09	SDS, N11, Encounter TAT and NELs on Attendant Console	This activity provides partial support for AIN to the Attendant Console (AC). The name Attendant Console in this document is applicable to the Nortel Meridian Digital Centrex (MDC) Attendant Console. The console will support the Public Office Dialing Plan (PODP) trigger in AIN 0.1, the corresponding Specific Digit String (SDS) trigger in AIN 0.2 and the N11 trigger. It will also support encountering the Termination Attempt (TAT) trigger, which is subscribed on another agent. The SCP response messages will be supported as they are currently supported by AIN 0.1 and AIN 0.2.
AJ4999	CNA09	AIN SE Send/Termination Notification Message Enhancements	This activity modifies the functionality of handling multiple Send_Notification (SN) requests within the same TCAP transaction and removes the restriction on SN message in conjunction with Send_To_Resource (STR) or Call_Info_To_Resource (CITR) messages in a Conversation Package.

Table 437 Feature listings for NA009 development (Continued)

Feature number	DRU	Feature title	Description
AU2509 AU2582 AU2617	CNA09 CCM09 SHR09	AINSSP Response Translation Simplification II	This activity is a continuation of the AIN Response Translation Simplification Part I feature that was developed in the NA007 release. The purpose of the overall AIN response translation simplification effort is to reduce the high cost of ownership associated with response translation for the AIN platform. In NA007, the public side of response translation was addressed with a digit conversion and prefixing solution which converted the AIN SCP response into a format which could be translated by the triggering agent's translation datafill. Thus, reducing the amount of redundant translation datafill required for AIN. This feature continues to reduce the cost of ownership associated with AIN response translation by providing public network access support for private line and trunk agents, and enhanced functionality for public IT trunks using FGD signalling.
AU2626	CNA09	AIN Creation of Huge HDB	There are three different sizes of History Data Blocks (HDB): Medium, Large and XLarge. Currently, XLarge is the largest available having a size of 140 words. It is clear that even the XLarge size is becoming too small for many applications such as AIN which uses XLarge HDBs for holding the information contained in the response message from the SCP. This HDB has reached its storage limit; it is anticipated that new parameters will be added to the response message. To alleviate this problem, the size of XLarge will be increased to 157 words. In addition, a new HDB size, Huge (253 words), will be created, but not used. The AIN response message may migrate from size XLarge to Huge in future releases.

Table 437 Feature listings for NA009 development (Continued)

Feature number	DRU	Feature title	Description
AU2632 AU2633	CNA09 CCM09	AINSE Service Administration—Tables	This feature implements trigger items as defined in Bellcore GR-1298. The required enhancements to table control and call processing software are covered under activities AU2632/3 and AU2634/5 respectively. These features are the first phase of a multi-release plan. The functionality in NA009 includes the following: 1 Administration of 32,000 trigger items (tuples). Trigger types are limited to the office wide variety, namely: - a Specific_Digit_String (SDS, a.k.a. PODP) - b N11 - c LNP - d Automatic Flexible Routing (AFR) trigger on an office subscription basis only 2 Administration of 32,000 office wide assignments to trigger items 3 Support for enabling and disabling assignments to trigger items via either table control or network messaging (i.e. Update message) 4 Support of enabling and disabling trigger items via table control 5 Administration of escape items for SDS and LNP trigger items 6 Call processing enhancements to support the aforementioned trigger and escape types 7 TRAVER enhancements to support the aforementioned trigger and escape types 8 Allocate digilator resource for the DMS table OFCTIID 9 AIN Trigger Item Transition Tool for converting office triggers to functionally equivalent set of trigger items

Table 437 Feature listings for NA009 development (Continued)

Feature number	DRU	Feature title	Description
AU2634 AU2635	CNA09 CCM09	AINSE Service Administration—TCC	See description for AU2632 and AU2633.
AU2641 AU2642 AU2643	CNA09 CCM09 SHR09	Traver/TstQuery Integration	This feature enhances the Traver TRAnslations VERification facility so that it can optionally construct and store AIN messages. The message is stored in a DMS file which can be read into the TstQuery tool for transmission as a test query to a Service Control Point (SCP). This feature also enhances TstQuery to enable it to build and send AIN Service Enablers (R02) messages and parameters, and to display incoming AIN Service Enablers messages and parameters.

Table 437 Feature listings for NA009 development (Continued)

Feature number	DRU	Feature title	Description
AU2648	CNA09 SHR09	AIN Adaption for SCCP Segmentation	The Advanced Intelligent Network (AIN) Messaging Component of the Service Switching Point (SSP) platform acts as an interface between the SSP and the Service Control Point (SCP). It is responsible for encoding messages to be sent to the SCP and decoding messages received from the SCP. The messages are encoded or decoded within AIN and via the Signalling Connection Control Part (SCCP) are passed on to the proper CCS7 protocols. Previously, the maximum size of a message that the AIN software and SCCP could process was 256 bytes. By segmenting the message in the SCCP layer, i.e. cutting it up into more manageable sized pieces, this amount of data that can be carried by the SCCP has been increased to 1024 bytes. The impact of this on a telco is that where previously they always could send such messages as DisplayText and SendToResource, they can now send a great deal more information with them. This would allow such parameters and messages as DisplayText and SendToResource to convey nearly four times as much information to the end user. The purpose of this feature is to adapt the current AIN SSP software to the increased data passing capabilities provided by this SCCP Segmentation.

Table 437 Feature listings for NA009 development (Continued)

Feature number	DRU	Feature title	Description
AU2650 AF7318	CNA09 CCM09	AINSE SERVORD Support for VDN Subscription to AIN	This activity allows virtual DNS (VDN) to be defined and subscribed to AIN using SERVORD commands. This allows operating companies to use flow through provisioning to assign a VDN with a Termination_Attempt (TAT) trigger. This functionality reduces the need to manually co-ordinate the provisioning of TAT triggers that are assigned to a VDN, providing a streamlined common operation to operating companies. This feature enhances the existing Servord commands NEWDN and OUTDN to support AIN VDNs. The Servord ADO, DEO and CHF features are extended to support modification of options on virtual DNS.
AU2731	CNA09	AIN OMs for Telco Engineering	This feature provides a set of new operational measurements to assist in the AIN memory resource engineering of the SSP. A count of the number of AIN calls on the SSP will be created to provide basic AIN usage information. A new OM group will be provided to count FDBs by type. This information may assist telcos manage their switch resource engineering because: • Engineering formulas can be applied to describe resource use on a more functional level and on a more granular basis • The effects of new services can be determined given a finer description of the resources it requires. Information will be available from other services from which to base this estimation • If FDBs types change sizes between releases, the engineering effects of these changes can be more accurately determined

There are no PRSDOCs written for AIN Essentials in NA009.

71. Product support

AIN Essentials product support by Nortel will be provided under standard Customer Service Center (CSC) and Global Product Support (GPS) policies and procedures when the product approaches GA status.

When the telco has a problem they cannot resolve, they contact the Nortel regional CSC. The regional prime opens a Customer Service Report (CSR).

The regional prime works the issue with the appropriate specialty group within CSC as required. If the problem is not resolvable at this point, then it will be referred to the appropriate Nortel GPS group for corrective action or answer.

Corrective action may consist of a workaround, a “fix” in a future software release, an incremental software update (patch), documentation change, or a request for feature toward new or changed functionality.

When a problem is resolved or answered, the solution is provided to the customer who can then authorize closure of the CSR.

71.1 Customer acceptance

Customer acceptance is generally the result of a successful VO at the customer’s premise. A team comprising Nortel, and the customer evaluate product performance by executing a series of test cases and an in service trial. Exceptions to the expected results are documented and prioritized via CSR/PRS. Serious faults will be corrected prior to completion of the VO. Minor faults may be deferred to a future release. Regulatory approvals generally apply to hardware products but are not required for software.

71.2 Tool development

There are two tools that are being used to aid the development and testing of an AIN Essentials SSP. It should be noted that these tools are Northern Telecom-internal tools. They are used for lab testing only and are not part of the AIN Essentials SSP product and hence, are not supported.

71.2.1 TCAP Description Language (TDL)

TDL is a tool that can be used to decode a TCAP hexadecimal character stream into human-readable form, based on a user-defined TDL description file. A TDL description file defines the rules for translating the hexadecimal character stream into a desired format. TDL runs on a UNIX workstation.

71.2.2 Message simulator

The Message Simulator is a tool that simulates an off-board processor sending and receiving TCAP messages to and from the AIN Essentials SSP application. It supports all incoming and outgoing messages discussed in Section 4.10.

The Message Simulator generates off-board processor responses and initiates off-board processor originated messages to send to the SSP. To generate responses, the simulator uses criteria based on the SSP message to generate and send the appropriate response. To initiate off-board processor originated messages, the user enters a CI message-initiation command.

The Message Simulator runs on DMS-100 and DMS-100/200 switches. It is designed to be easily enhanced and modified for future AIN SSP releases.

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Advanced Intelligent Network Essentials

Service Implementation Guide

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