

Critical Release Notice

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The content of this customer NTP supports the
SN07 (DMS) software release.

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

Bookmark Color Legend

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

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

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

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

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

Attention!

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

Publication History

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

December 2004

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

Volume 1-12

No changes

Volume 13

Added Virtual Office Worker (VOW) by A00002011

Volume 14-16

No changes

Volume 17

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

Volume 18-23

No changes

Volume 24

Added OSSAIN XA-Core Data Messaging Capacity Enhancements by A00005160

Volume 25

No changes

September 2004

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

Volume 1

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

Volume 2-3

No changes

Volume 4

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

Volume 5-10

No changes

Volume 11

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

Volume 12

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

Volume 13-15

No changes

Volume 16

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

Volume 17

Modified – Datafilling RES Advanced Custom Calling (900 FP) by CR Q00834222

Modified – Datafilling RES Advanced Custom Calling (CSMI) by CR Q00683891

Modified – Datafilling RES Advanced Custom Calling (CWAS) by CR Q00891675-01

Modified – Datafilling RES Advanced Custom Calling (Enhanced CSMI) by CR Q00683891

Volume 18

No changes

Volume 19

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

Volume 20

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

Volume 21-24

No changes

Volume 25

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

March 2004

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

Volume 1- 9

No changes

Volume 10

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

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

Volume 11-16

No changes

Volume 17

Modified - Call Screening, Monitoring, and Intercept (CSMI) for Q00659151

Modified - RES Simultaneous Ringing for Q00715967.

Modified - Usage Sensitive Three-way Calling (U3WC) for Q00703423-03.

Volume 18

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

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

- change to description of interaction with SOC RES00011 for CR Q00735537.

Volume 19

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

- Distinctive Ringing/Call Waiting (DRCW)

- Selective Call Acceptance (SCA)

- Selective Call Forwarding (SCF)

- Selective Call Rejection (SCJ)

Volume 20

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

- 2 Datafilling Emergency Number Services, E911 PRI PSAP Delivery

Volume 21-25

No changes

September 2003

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

Volume 1

New - Panther support for third-party RMs

Modified - E911 trunk groups

Volume 2-11

No changes

Volume 12

Modified - Query Functional Station Grouping

Volume 13-14

No changes

Volume 15

Modified - VMX Interface

Volume 16

No changes

Volume 17

Modified - Call Screening, Monitoring, and Intercept (CSMI)

Modified - Enhanced CSMI

Modified - Long Distance Alerting

Modified - Long Distance Alerting Enhancement (LDAE)

Modified - Service Order Simplification for MADN Extension Bridging

Volume 18

Modified - Call Logging (CALLOG) Modified - Universal Voice Messaging

Modified - Voice Mail Easy Access (VMEA)

Volume 19

Modified - CMS AR Screening of Private Calls (CASOP)

Modified - In-Session Activation (ISA)

Volume 20

Modified - DMS Integrated E911 PSAP Functionality

Modified - E911 Incoming Wireless Calls

Modified - E911 Incoming Wireless Calls (MF)

Modified - E911 ISUP Parameter Enhancements

Volume 20 (continued)

Modified - E911 ISUP Trunking

Modified - E911 Tandem

Modified - E911 Translations Robustness

Modified - VFG Support for E911 (LOC and/or ISUP/ANI Call)

Volume 21-25

No changes

June 2003

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

New Critical Release Notice added.

Volume 1-25

No changes

297-8021-350

DMS-100 Family

North American DMS-100

Translations Guide Volume 20 of 25
Emergency Services

LET0015 and up Standard 14.02 May 2001

DMS-100 Family

North American DMS-100

Translations Guide Volume 20 of 25

Emergency Services

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NTP Content Summary

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10-digit Translations, Trunk Tables

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Meridian Digital Centrex (MDC) Part 2 of 6

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Meridian Digital Centrex (MDC) Part 4 of 6

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Emergency Number Services, GETS0001

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1 Introduction to Emergency Number Services

Understanding Emergency Number Services translations

Emergency Number Services (ENS) software provides the Enhanced 911 (E911) functionalities. The E911 is a quick and reliable method for subscribers to reach emergency services. Emergency services include police, fire, and ambulance.

Basic concepts and terminology

You must understand the E911 concepts and terminology before you attempt to enter data for E911 translations. These concepts and terminology appear in the following paragraphs. Other sections explain the method to configure a DMS-100/200 tandem switch for E911 service.

Basic 911 (B911) service allows an end office to receive 911 calls from subscribers. The end office can route the 911 calls to a public safety answering point (PSAP). The PSAP is an agency or facility that receives and responds to emergency calls that require one or more emergency services. These emergency services include police, fire, poison, and ambulance service.

The B911 offers wire center limits as a base for PSAPs. A DMS-100 switch that contains E911 software becomes an E911 tandem. This tandem can receive phone calls from many end offices. The tandem routes the phone calls from end users to the correct PSAPs. Wire center limits do not affect the routing of the phone calls.

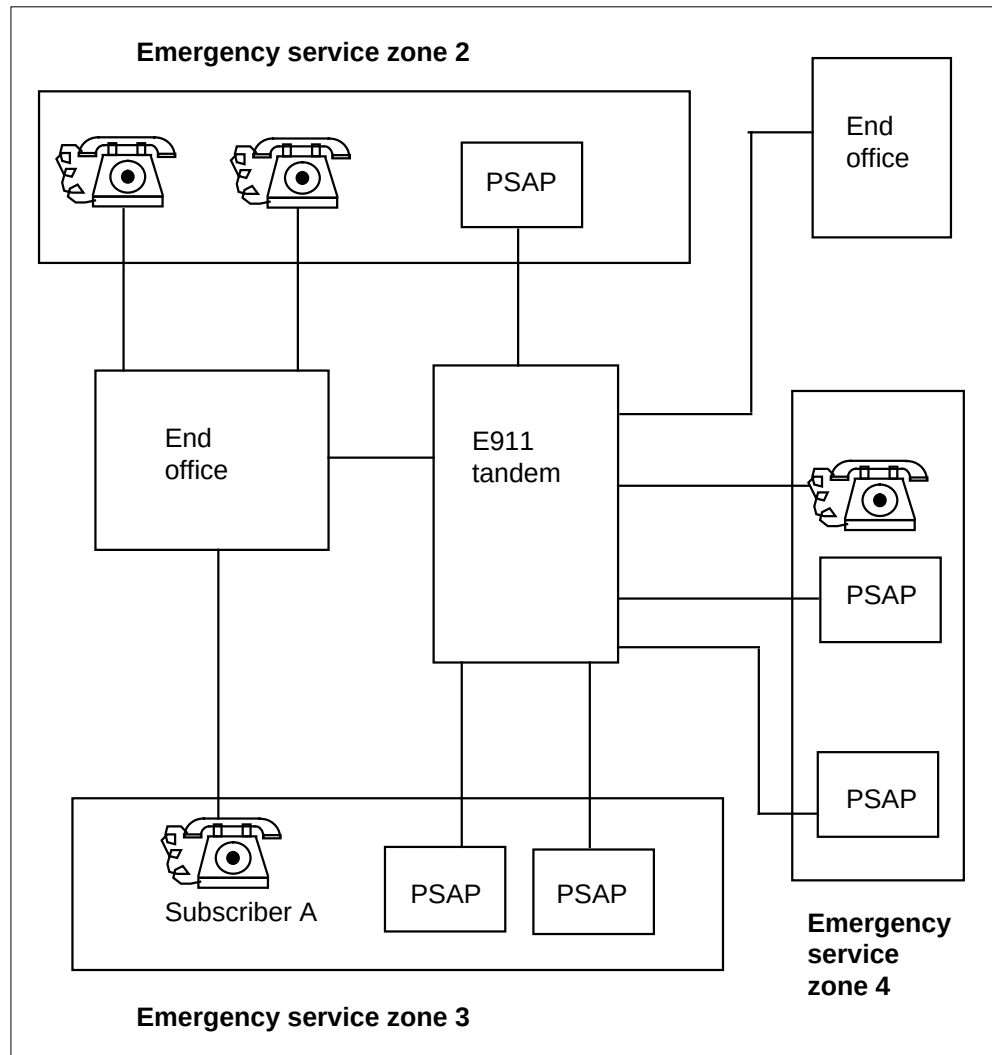
The system assigns each subscriber to an emergency service zone (ESZ). The ESZ is a geographical area in which the same set of PSAPs serve all residents. Each emergency service zone contains a maximum of seven PSAPs. The seven PSAPs include one primary PSAP and six secondary PSAPs.

Identification of PSAPs in the E911 tandem

You can use datafill at the E911 tandem to identify the PSAPs and give the PSAPs attributes. The key elements to define PSAPs appear in the following list:

- PSAP unique name
- PSAP directory number
- emergency service number that the E911 tandem uses to identify the primary and secondary PSAPs of a particular emergency service zone
- specified primary and secondary PSAPs

An E911 geographical area arrangement appears in the following figure. In the figure subscriber A can connect to the PSAP that best serves the location of the subscriber.

Figure 1-1 E911 configuration

Description of E911 services

Descriptions of E911 services appear in the following paragraphs.

Selective routing

The association of an emergency service number with the directory number of the subscriber can occur. When this event occurs, the E911 tandem can route a call to the primary PSAP based on the directory number. This selective routing is one of the primary differences between E911 and B911 service. Selective routing allows the E911 tandem to automatically route a 911 call to the primary PSAP the system assigns the caller.

Alternate routing

The E911 tandem routes the call to an alternate directory number or route. This condition occurs if the system cannot route a call to a PSAP.

Forwarding of automatic number identification to the PSAP

The E911 service offers the operating company the option to allow the calling number to forward from the E911 tandem to a PSAP. This functionality allows the calling number to forward with display capability. For example, Meridian business sets are a display capability. The forwarding of automatic number identification offers fixed features. For example, the PSAP attendant can use the automatic number identification to access an automatic location identification (ALI) database.

The Line Overflow to Route or Line Overflow to Directory Number feature can cause a call to overflow from a PSAP. This overflow causes delivery of the ANI of the caller to occur. If the overflow call routes to an access tandem to carrier (ATC) trunk group, the delivery of the automatic number identification of the PSAP occurs. The delivery of the automatic number identification of the caller does not occur.

Selective transfer

When a 911 call routes to the primary PSAP, the PSAP attendant can transfer the call. The PSAP attendant transfers the call to the specified secondary PSAP that the subscriber requires. Selective transfer is like selective routing. Selective transfer bases the selection of the PSAP on the emergency service number of the subscriber. In this occurrence, the PSAP is the secondary answering point. Selective transfer bases this number on the directory number of the subscriber if the supply of the NTX451 package occurs. If this condition does not apply, selective transfer bases the number on the emergency service number of the incoming trunk.

When a call transfers over a non-ATC trunk, the delivery of the automatic number identification of the caller occurs. When a call transfers over an ATC trunk, the delivery of the automatic number identification of the PSAP occurs.

Emergency directory number route

The E911 system allows the operating company to define an emergency directory number route. A description of the functionalities the emergency directory number route can perform appears in following list:

- route an E911 call to a primary PSAP that the E911 tandem does not directly serve. The location of the primary PSAP of the caller is off another tandem. An E911 call involves tandem-to-tandem translations.
- transfer an E911 call to an agent off the E911 tandem that is not a PSAP. This functionality occurs if an agency can handle emergencies for many

emergency service numbers. Emergency service numbers include a poison control center. In this configuration, the agent is a secondary PSAP.

- transfer a call to an agency that the E911 tandem does not directly serve. An example is an emergency center that serves an area like a state agency. In this configuration, the agency is a secondary PSAP. As with selective routing, a transferred call involves tandem-to-tandem translations.

Direct access to automatic location identification controller for Line and Automatic Call Distribution PSAPs

The E911 software supports asynchronous American Standard Code for Information Interchange (ASCII) data communication. This data communication occurs between the E911 tandem switch and an automatic location identification database. This data communication travels through an AT&T automatic location identification controller. This data communication can travel through a Computer Consoles Incorporated compatible open interface for automatic location identification. This capability provides information about emergency callers to line and Automatic Call Distribution PSAP operators.

The automatic location identification database management system uses the automatic number identification of the caller to locate important caller information. An example of important caller information is the street address or health history.

The emergency call connects to the PSAP. When this connection occurs, the E911 tandem sends the PSAP operator position number to the automatic location identification database management system. This position number identifies for the database management system which agent position at the PSAP must receive database output.

Automatic Call Distribution group PSAP configurations

Automatic Call Distribution (ACD) is a set of features. These features provide the capability to handle many incoming calls to at least one central directory number. The system distributes these calls to a set of telephones which answering agents operate.

The assignment of ACD groups to the ACD PSAP option can occur. This functionality allows ACD group configurations to handle E911 service. The E911 enhancements to ACD allow calling party information to travel to an ACD Management Information System. The ACD Management Information System stores and processes ACD call processing information.

Direct access to automatic location identification controller for selective routing database updates

The Dial-up to ALI Database for SRDB Update feature allows the direct transfer of selective routing database (SRDB) updates. The SRDB updates

transfer from an automatic location identification database. This transfer occurs with a voice-grade line, modem, and Kermit protocols. The DMS switch or the automatic location identification data center controls the voice-grade line, modem, and Kermit protocols. After the file transfer is complete, use the SRDBUPD command to update the database. The update file contains recent change commands. The SRDBUPD command executes the recent change commands.

Virtual facility group support for incoming Integrated Services Digital Network User Part and local calls to E911

The Virtual Facility Group Support for Incoming ISUP and Local Calls to E911 feature routes and transfers end office calls. Non-E911 trunks carry the end office calls to the E911 tandem. This feature allows console termination of calls that travel on incoming Integrated Services Digital Network User Part (ISUP), or SuperCAMA (SC) trunks. Incoming calls translate to an E911 virtual facility group. Incoming calls also route to a primary PSAP based on the directory number of the subscriber.

This feature provides local access to E911 for subscriber lines on the E911 tandem. This capability does not use loop-around trunks.

The E911 Remote Call Event Record feature

The E911 Remote Call Event Record feature generates remote call event records. This feature generates these records over an asynchronous multiprotocol controller link to an external device. These records have a format like the E911212 logs. These records contain the same information as the E911212 logs. This information includes events like when the E911 attendant answers, transfers, and disconnects a call.

The generation of remote call event records occur only for Line and ACD PSAPs. Each PSAP can have an associated linkset. Records for that PSAP can transmit over the linkset. An external device receives the information in one of two formats. The two formats are the long format and the short format. The long format contains a header line, the E911 call data line and a blank line for each call. The short format contains one line for each call. The short format does not have a header.

Warm SWACT and E911 terminations

For E911 terminations, a warm switch of activity (SWACT) affects calls in a talking state that the system maintains. The system drops calls in a transient state. For E911 terminations the system routes the calls a different way. The following examples describe what happens when a warm SWACT occurs and establishment of a call does not occur.

Note: An SMU with an enhanced integrated services digital network (ISDN) signaling preprocessor (EISP) card does not support E911 PSAP

calls. An SMU that terminates one or more PSAPs cannot have an EISP card.

PSAP as the termination of a two-port call

In this example, the calling party dials 911, and the receiving party does not answer the call. If a warm SWACT occurs, the call does not complete to the current member of the PSAP hunt group. The call terminates to the next idle member of the group. If idle members are not present, the system routes the call to the route or DN. Option Line Overflow to Route (LOR) or option Line Overflow to Directory Number (LOD) specify the route or DN. If the group does not have the LOR or LOD option, the system routes the call to treatment. The subscriber must dial again.

PSAP as the termination of a three-port call

In this example, an answering point answers the call. That answering point connects to a PSAP. This connection makes the PSAP the add-on party in a conference call. If a warm SWACT occurs during the addition of the PSAP, the system drops the PSAP. The call collapses to the original two parties.

E911 Warm SWACT Enhancement

The E911 Warm SWACT Enhancement allows E911 calls to retain flash hook capability for features that the subscriber activates. These calls are in progress during a controlled warm SWACT. The following are the features that the subscriber activates that can retain flash hook capability:

- three-way calling
- single button transfer
- E911 ringback
- any E911 ACD feature

ATTENTION

The assignment of option essential line (ELN) to the PSAP activates E911 Warm SWACT Enhancement. This feature affects every ELN call in progress during a controlled warm SWACT.

Note: The E911 Warm SWACT Enhancement does not apply to E911 calls that occur during a warm SWACT that is not controlled. A warm SWACT that is not controlled is a warm SWACT that occurs when the system detects a fault. These E911 calls cannot activate flash-activated features. The system ignores conference, transfer, call park, and busy override key messages from a business set.

Signaling for E911

The signaling protocols for E911 appear in the following paragraphs. The paragraphs explain voice and data flows for E911 according to operating areas. The explanation of operating areas begin at the end office and ends at the public safety answering point (PSAP). In the operating areas, the paragraphs highlight the types of trunks each area can use. The paragraphs highlight the types of signaling the trunks can support. The end office and the tandem support dedicated trunks and trunks that are not dedicated.

End office to E911 tandem—dedicated trunks

Dedicated E911 trunks from the end office to the tandem support both multifrequency (MF) and dial pulse (DP) formats. Datafill specifies the trunks as MF or DP. The MF and DP signaling formats are correct only for called digit collection. Collection of automatic number identification (ANI) digits always occurs as MF signals.

The following signaling formats are acceptable:

- MF signaling
 - KP-911-ST + MF ANI
 - KP-11-ST + MF ANI
 - KP-1-ST + MF ANI
 - (direct seizure) + MF ANI
- DP signaling
 - 911 + MF ANI
 - 11 + MF ANI
 - 1 + MF ANI
 - (direct seizure) + MF ANI

Note: In the preceding formats, KP refers to key pulse and ST to start signal.

Usage notes

If you want direct seizure, MF signaling can recognize a direct seizure several seconds before DP signaling. The MF signaling is recommended because an operating difference is not present in direct seizure for MF signaling or DP signaling.

The DP digit formats 1 and 11 are acceptable. Digit collection must time-out before the system sends the 1 or 11 to the central control of the tandem switch. The tandem expects three digits. The tandem waits to determine if three digits outpulse from the end office. The operating company must configure the

trunks for 911 to output. The time-out of the tandem to wait for the other digits does not delay the translations.

Other called digits will output correctly. The system generates a log message when the numbers called are not 911, 11, or 1. Emergency directory number routes are affected. Other called digit collections can output. When this condition occurs, the receiving tandem uses national translations, not E911 translations, to complete the call. This capability supports trunk tests and tandem-to-tandem national translations through E911 trunks.

How ANI is encoded

The system always receives the ANI information as MF signaling. The ANI information uses signaling formats according to the type of ANI format sent over the trunk. The following are the signaling formats ANI information uses:

- Bellcore Standard ANI format
 - KP + I (information digit) + 7D (seven-digit directory number) + ST (start)
 - KP+II+7D+ST

The start signal can be ST2P for ANI failure.

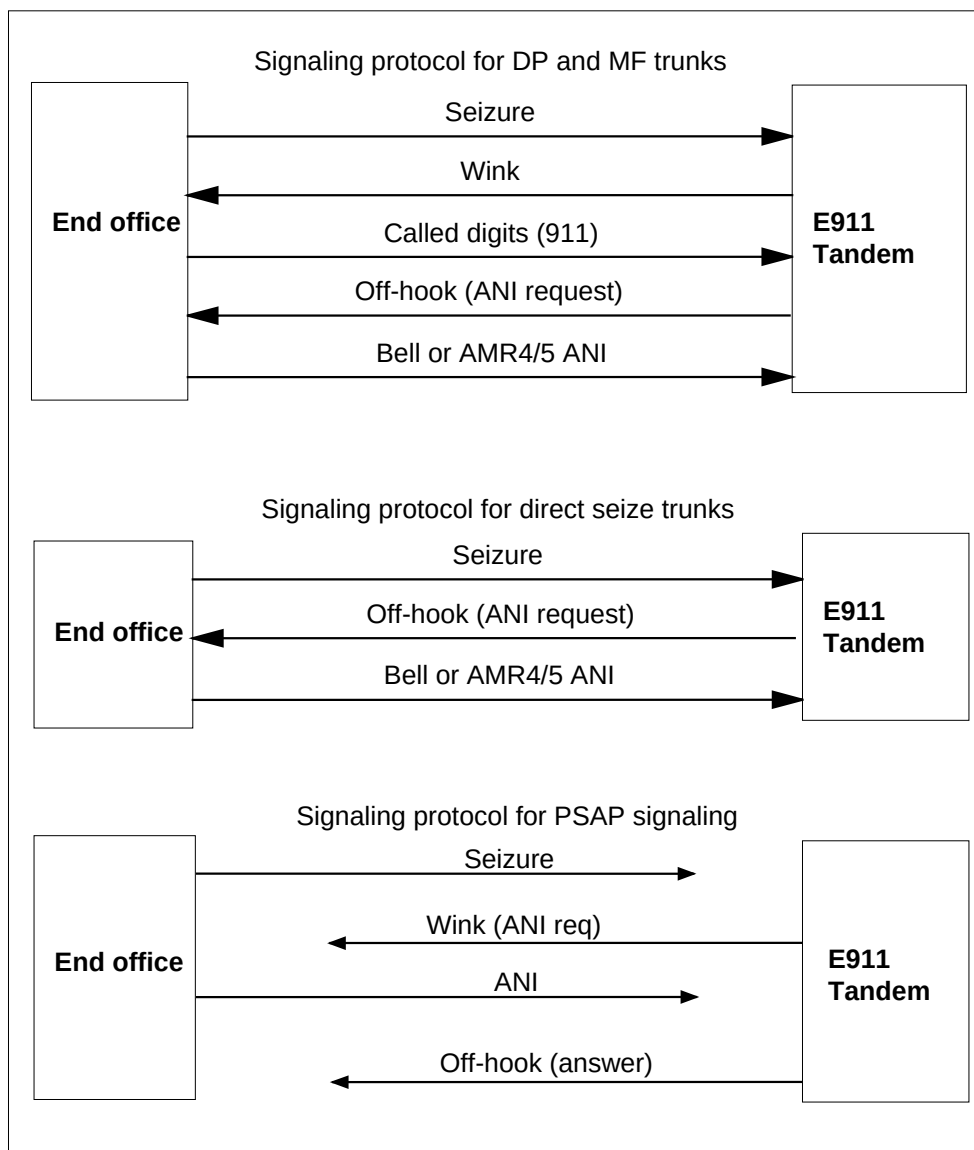
- North Electric AMR 4/5 formats:
 - AMR4A - KP + CAT (two category digits) + 7D + ST
 - AMR4B - KP + CM (Class Mark digit) + CAT + 7D +ST
 - AMR5A - KP + CAT + 7D + ST
 - AMR5B - KP + CAT + 7D + ST
 - AMR5C - KP + CAT + 7D + ST

The start signal can be ST2P for ANI failure.

Note: The AMR5 A, B, or C formats are different only in the type of ST digit expected.

The protocols the end office uses to forward the ANI to the tandem appear in the following figure.

Figure 1-2 E911 signaling protocols from the end office to the tandem



When problems occur, the tandem continues to attempt to complete the E911 call. Problems can include the lack of MF receivers or universal tone receivers, or digit reception problems.

The protocols the tandem uses depend on the type of signaling that the trunk supports. The following are the different types of protocols:

- DP signaling
 - forwarding of called digits

When the tandem detects a seizure the tandem returns a wink signal. The wink signal instructs the end office to start to send called digits. Standard timing occurs for the arrival of the first and following digits. When the tandem receives all the digits the tandem compares the digits against the DP signaling formats. The DP signaling formats include 911, 11, or 1. The system generates a log if a mismatch occurs. The system obtains an MF receiver without regard to the digits the system receives. The call progresses to ANI collection.
 - forwarding of the ANI

When attachment of the receiver occurs, the tandem sends an ANI request signal to the end office. The ANI request signal is a steady off-hook. The tandem waits for the ANI digits. If an MF receiver is not available, the system generates a log report. The tandem generates the steady off-hook to satisfy signaling requirements. The generation of the steady off-hook does not depend on the availability of an MF receiver. The system routes the call like an ANI failure occurred.
- MF signaling
 - forwarding of called digits

When the tandem detects a seizure the tandem attaches an MF receiver and returns a wink signal. The wink signal instructs the end office to start to send called digits. If an MF receiver is not available, the system generates a log report. The call routes as default. Standard timing occurs for the arrival of the first and following digits. When the tandem receives all the digits, the tandem compares the digits against the MF signaling formats. The MF signaling formats are KP-911-ST, KP-11-ST, or KP-1-ST. The system generates the E911201 log report if a mismatch occurs. The call progresses to an ANI collection without regard to the digits the system receives.
 - forwarding of the ANI

The tandem sends an ANI request signal to the end office. The ANI request signal is a steady off-hook. The tandem waits for the ANI digits. The system does not have to obtain an MF receiver. The system has an MF receiver
- Direct seizure
 - forwarding of called digits

The system does not forward the called digits with this type of trunk. When the tandem detects a seizure the tandem attaches an MF receiver.

The tandem requests the end office to forward the ANI. The ANI is a steady off-hook.

- forwarding of the ANI

If an MF receiver is not available, the system generates a log. The system generates the steady off-hook to satisfy signaling requirements. The system routes the call like an ANI failure occurred.

- PSAP signaling

- forwarding of called digits

The system does not forward called digits with this type of trunk. When the tandem detects a seizure, the tandem sends a wink. The tandem requests the end office to forward the ANI.

- forwarding of the ANI

When the end office forwards the ANI, the E911 tandem sends an off-hook signal to the end office.

Associated datafill

Datafill contains the attributes to define the types of signaling, ANI formats, and the amount of time to expect ANI. See translations for E911 in this document for information about table fields and the datafill entry order.

End office to E911 tandem—nondedicated trunks

These trunks use message signaling formats. These message signaling formats are Common Channel Interoffice Signaling Number 6, Common Channel Signaling Number 7, and foreign exchange signaling formats. The system marks calls as 911 calls during translations. See translations for E911 in this document for a sample E911 call flow trace.

E911 tandem to PSAP—Line Appearance on a Digital Trunk PSAP

Line status messages are converted to A-bit and B-bit signaling at the Subscriber Carrier Module-100 Urban (SMU). The system sends the line status messages over DS-1 links as the system does for the SMU-Remote Carrier Urban configuration. The channel bank converts the DS-1 channels to analog trunks. In analog trunks, the system encodes features and messages as a switchhook flash or dialed digits.

The SMUs can support a maximum of 20 Line Appearance on a Digital Trunk (LDTs). The SMUs that serve LDT PSAPs are only for E911 service.

- Determining the sending of ANI

To terminate a 911 call to a LDT PSAP, the E911 tandem determines if ANI routes to the PSAP. A PSAP can require ANI to access an ALI database. This database provides important information about the subscriber and the location of the subscriber. Datafill can determine if a

PSAP has an ANI console. Datafill can determine if a PSAP wants to receive ANI. This datafill occurs through the service order system for every LDT PSAP.

Note: Each LDT can support a maximum of 24 PSAPs.

If the system must forward the ANI spill, the tandem sends the ANI information to the LDT node on the SMU. The tandem instructs the SMU to seize the trunk to the PSAP.

When the SMU receives the ANI request from the PSAP, the SMU outpulses the ANI information. The SMU must receive the ANI request signal wink in a fixed time limit. Datafill sets this time limit. If the SMU does not receive the wink in the specified time the SMU reports a ringing trouble message. The SMU reports the message to the central control. Call processing attempts to terminate the call to the next idle member of the PSAP hunt group.

If the PSAP is entered to not expect ANI (ANISPILL=N). The PSAP can be configured to not send a wink or the PSAP sends a wink but does not expect ANI. When these conditions occur the central control instructs the SMU to seize the trunk and not to send ANI. The central control instructs the SMU to ignore requests from the PSAP that ask the SMU to send an ANI.

- ANI formats

Options determine if the system can forward ANI information from the tandem to the PSAP as standard MF pulses. The information the system outpulses is KP-ID-NXX-XXXX+ST. The forwarding elements make up the ANI format. The elements appear in the order the system sends the elements.

- KP (key pulse digit)
- ID (information digit represents numbering plan digit or numbering plan area)
- ANI (billing number of the calling party, normally NXX-XXXX)
- ST (start signal)

The identification digit can have a single-digit or three-digit format. Vendors use a single-digit format with an encoded numbering plan digit. This numbering plan digit supports flashing ANI. A three-digit format is also available. This three-digit format represents the numbering plan area. This numbering plan area does not support flashing ANI.

The signaling protocols to forward ANI to an LDT PSAP appear in the following figure. The PSAP contains data that sends a wink and expects ANI. See translations for E911 in this document for details on data entry in the ANISPILL option for an LDT PSAP.

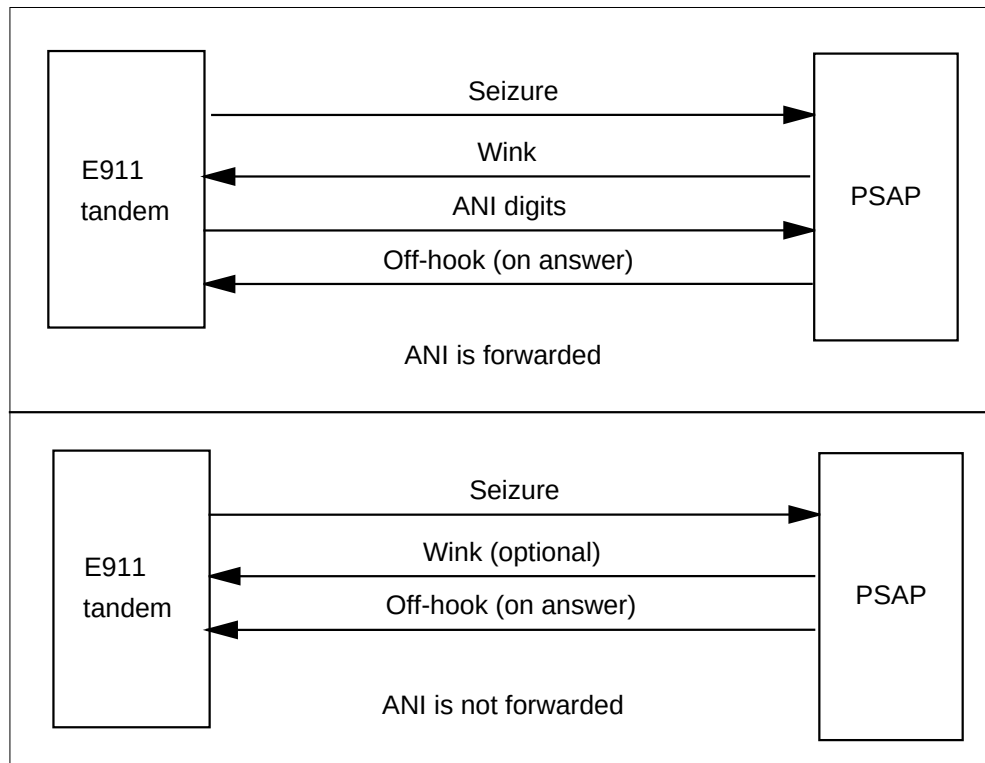
E911 tandem to PSAP—Line and Automatic Call Distribution PSAPs

The system sends ANI to Line and Automatic Call Distribution (ACD) PSAPs if the ACD PSAPs have displays. The ACD PSAPs must have data in the display option to send information to the telephone set display.

Note: The ANI display on the Line and ACD Meridian business sets does not flash. The type of FLASH setting in datafill does not affect the ANI display.

Line and ACD PSAP positions, that are Meridian business sets with display capability, receive ANI information of the calling party. This condition occurs when the call terminates to that position. The ANI information the position receives is in a ten-digit format.

Figure 1-3 Signaling protocols for forwarding ANI to LDT PSAP



For Line and ACD PSAPs with displays:

- The ANI format is NPA + NXX + XXXX
where NPA is the five-digit numbering plan area of the incoming E911 trunk group data. The NXX + XXXX is the directory number of the calling party.
- The ANI fail format is NPA + 911 + OTTT
where NPA is the five-digit numbering plan area of the incoming E911 trunk group data. The TTT is the emergency service central office number that contains data in the E911 trunk group data.

For anonymous calls to PSAP where the caller dials the seven-digit number of the PSAP:

- The system does not support the ANI display. Datafill controls the ability to receive anonymous calls.

Preparing to datafill E911

The following information is necessary to correctly enter the data of E911 service in the DMS tandem office. See the translations and data schema sections of this document for directions to enter the following data:

- public safety answering point hunt group or Automatic Call Distribution group information. This group information includes group type, member directory numbers, and feature options.
- The E911 trunk group data. This group data includes the serving numbering plan area, the emergency service number and the emergency service central office number or code. This group also includes the signaling format associated with each group or the E911 virtual facility group data. This group includes the serving numbering plan area, emergency service number, and emergency service central office number
- selective routing database files. If the inclusion of the selective routing database option occurs, identifying subscriber directory numbers and directory number ranges. The directory number ranges associate with emergency service zone.

Functional groups for E911

The E911 functional group requires the DMS SuperNode Platform—BASE0001, TEL00001, and BAS00003. The functional group name, ordering code, and an additional requirement for E911 appear in the following paragraph.

ENS E911, ENS00005

To operate, ENS E911 requires MDC Standard, MDC00003.

See the following table for short descriptions of the functionalities that comprise the ENS00005 functional group.

Table 1-1 Functionalities in ENS E911, ENS00005

Functionality ordering code	Functionality name	Description
ENS00001 (refer to Note 1)	ENS LDT PSAP	This functionality provides the E911 Tandem capability. This functionality delivers the 911 call to a customer premises-based PSAP through the LDT node of the SMU. Other capabilities include ANI delivery to PSAP, default routing, alternate routing, central office transfer, Virtual Facility Group (VFG) support, and ringback. Central office transfer includes selective, fixed and manual.
ENS00002	ENS ACD PSAP	This functionality provides the same E911 Tandem capability as ENS LDT PSAP. This functionality routes the call to a DMS Meridian Automatic Call Distribution (ACD) group defined as a PSAP. The ACD system selects the next available PSAP agent. The system delivers the call. Complete messaging is present between the E911 and ACD software. Direct connections are available for external ALI databases and call event loggers.
ENS00003 (refer to Note 2)	ENS Standard SRDB	This functionality provides E911 selective routing capabilities. These capabilities can depend on each directory number, thousands group, NXX, or Numbering Plan Area (NPA). This feature optimizes the association between the telephone number and ENS number. A more efficient selective routing database can serve large geographical areas. Direct access to ALI database systems allows for automatic updates. Memory management functions allow for visibility in memory use.
ENS00004 (refer to Note 3)	ENS Large SRDB	This functionality provides large capacity SRDB to support a maximum of 32 million entries. Large capacity SROB can support all possible entries in a four area code-served area.
Note 1: The ENS00001 requires the BAS SCM/SMS/SMU (BAS00016) functional group. Note 2: The ENS00003 requires ENS LDT PSAP (ENS00001) or ENS ACD PSAP (ENS00002) functionalities. Note 3: The ENS00004 requires ENS LDT PSAP (ENS00001) or ENS ACD PSAP (ENS00002) functionalities.		

Procedures for datafilling table E911SRDB

Use the following to enter data in Table E911SRDB for the E911 Selective Routing Database feature package:

- the table editor and standard DMS table commands
- the DMOPRO command
- the SRDBUPD command
- the RC:TNESN: command
- updates from an automatic location identification database

The DMOPRO command executes a file of standard DMS-100 table editor commands to fill or change a table. Refer to *Translations Guide* for a description of the DMOPRO command.

The E911 Selective Routing Database feature package (NTX451AA) support the SRDBUPD and RC:TNESN: commands. The SRDBUPD is for initial load or update. The RC:TNESN: is a service order command. This section discusses the SRDBUPD and RC:TNESN: commands.

This section discusses how to update from an automatic location identification database. The optional feature package Dial-up into ALI Database for SRDB Update (NTXN60AA) supports this capability. The DMS switch or the automatic location identification data center controls the updates from an automatic location identification database.

Limits

Like normal selective routing database operation, update mechanisms only accept an emergency service number entered in Table E911ESN. Error messages can vary. How error messages vary depends on the method you use to enter data in a table. The following message appears if you attempt to enter an emergency service number that is not in Table E911ESN:

ESN not datafilled in Table E911ESN. Error Code = 3

Table E911SRDB size limits apply. The table can contain data to a maximum of 300 000 tuples for an NT40 and 800 000 for a DMS SuperNode.

You must enter all numbering plan digits in Table E911NPD. If you do not enter the numbering plan digit information, the following error message appears:

NPD not datafilled in Table E911NPD ERROR CODE = 2

When a request of an update for Table E911SRDB occurs, the system checks office parameter E911_PSAPS_USING_1_INFO_DIGIT. If this parameter is N, the following error message appears and message processing stops:

Three digit ANI not supported. ERROR CODE = 21.

Recent change records

Recent change records are messages that contain the data that updates Table E911SRDB. Attached processor and non-attached processor are the two formats supported for these messages. Another name for attached processor is a single-line format. Another name for non-attached processor is multiline format. When an update starts, the DMS software determines the format that applies. The DMS software responds according to the update.

Single-line format

A recent change file in single-line format contains a header record, a trailer record, and terminal number- emergency service number (TNESN) records. The TNESN records have the current change messages to update Table E911SRDB. The TNESN are between the header and trailer records.

The header record, from left to right, includes an identifier for the office the data is for. The header record also includes a sequence number and an optional comment field. The date follows the optional comment field. The following is an example of a header record in single-line format:

E911A, 002, optional comment field/PDSP06-MAR-89

The trailer record includes the same office identifier as the header record. The trailer record includes the number of recent change records in the file and an optional comment field. Another name for the trailer record is the record count message. The following is an example of a trailer record in single-line format:

E911A, 7, optional comment field

The number of records field in the trailer record is for use in a summary statement. This summary statement prints often the system reads the trailer record. The summary statement indicates the number of recent change messages the software thinks travelled and the actual number received. The summary statement indicates the number of recent change messages that correctly update to the database. This statement also indicates the number of messages that fail the update. The following is an example of a summary statement:

TAPE TRAILER INDICATES 7 RC MESSAGES SENT.
7 RC MESSAGES RECEIVED, 4 UPDATED E911 SRDB, 3 FAILED.

The TNESN records have each recent change message that updates Table E911SRDB. The TNESN records are between the header and trailer records. A diagonal (/) separates fields in the message. An exclamation symbol (!) terminates the message.

The following are examples of correctly formatted recent change messages in single-line format:

```
RC:TNESN:/TN 6211111/ESN 12345/NPD 0!RC:TNESN:/NOG 6212/ESN
11111/NPD 1!
```

In the first example, the TNESN record associates a single directory number (TN 6211111) with an emergency service number (ESN 12345). The retrieval of the numbering plan area for the directory number occurs from Table E911NPD. Table E911NPD associates numbering plan digits with numbering plan areas. This example identifies the numbering plan digit as NPD 0. The numbering plan digit field is optional. The system assumes a default value of 0 if the numbering plan digit field does not appear.

In the second example, the TNESN message associates a thousands group (NOG 6212) with an emergency service number (ESN 111). The thousands group includes directory numbers from 621-2000 to 621-2999. Index Table E911NPD with the numbering plan digit (NPD 1) to locate the numbering plan area.

These messages can combine to display an example of a complete recent change file in single-line format. This single-line format includes a header, two TNESN messages and a trailer. The TNESN messages include a numbering plan digit. The omission of this numbering plan digit can occur. If this omission occurs, the NPD field defaults to 0.

```
E911A, 001, PROMATS TAPE FOR E911/PDSP06-MAR-89
RC:TNESN:/TN 6211111/ESN 12345/NPD 0!
RC:TNESN:/NOG 6212/ESN 11111/NPD 1!
E911A, 2, END OF FILE
```

Multiline format

The multiline format differs from the single-line format. The multiline format does not contain a header record. The multiline format can contain three other types of records. The following are the three types of records:

- an emergency service number limit record
- a terminal number/emergency service number assignment record
- a trailer record, also known as a record count message

The emergency service number limit record indicates the limit on the number of public safety answering points assigned to a thousands group. An example

of a multiline format including an emergency service number limit record follows:

```
RC:TNESN:
NPD 0
ESNLM 6
THGRP 6212
!
```

In the example, NPD 0 is the numbering plan digit for the thousands group to which the emergency service number limit message relates. The ESNLM 6 is the emergency service number limit. The THGRP 6212 is the thousands group. The numbering plan digit is optional for NPD 0. The numbering plan digit maps to the correct numbering plan area in Table E911NPD. The exclamation symbol (!) terminates the message.

The emergency service number limit (ESNLM 6) is a number from 1 to 6. The ESNLM 6 designates the maximum emergency service numbers that this thousands group can associate with. The DMS-100 software accepts but ignores this record type. The DMS-100 software accepts emergency service numbers from 0 to 15999.

The terminal number/emergency service number record assigns an emergency service number to a specified telephone number. This message causes a change or addition to the selective routing database. If the terminal number is in the database, the emergency service number changes to the correct value. If the terminal number is not in the database, the addition of the terminal number to the database occurs.

The following is an example of a multiline format that includes a terminal number/emergency service number record:

```
RC:TNESN:
ESN 11111
NPD 0
TN 7823120
ORD 782312
!
```

In the example, ESN 11111 is the emergency service number assigned to this telephone number. The ESN 11111 is a number of a maximum of five digits from 0 to 15999. The NPD 0 is the switch numbering plan digit for this the thousands group. The NPD 0 is a one-digit number from 0 to 3. The system maps the numbering plan digit to the numbering plan area in Table E911NPD. The numbering plan digit is optional for NPD 0. The telephone number in the example is TN 7823120. The telephone number is the seven-digit number to which the system assigns the public safety answering point. The service order

number in the example is ORD 782312. The service number is a six-digit number assigned for the telephone number. The DMS-100 software ignores this field.

The trailer message, or record count, is the last message in the multiline format. The trailer message can be the only message in the recent change file. The following is an example that displays the format for the record count message:

```
RC: "RECORD COUNT=XXXX"
```

The record count (XXXX) is a four-digit number between 0 and 6000. Right-justified and zero-filled is always the format for the record count. When the system can support the feature package Dial-up to ALI Database for SRDB Update (NTXN60AA). When this condition occurs the update summary log indicates the record count from this message. The update summary log indicates the number of records read from the file. The following is an example of this functionality:

```
RC: TNESN:
    ESN 751
    NPD 1
    TN 8480518
    ORD 848051
    !
RC: "RECORD COUNT = 0002"
```

The record count message always occurs as part of the count. In the example, one record and one record count message appears. The record count total indicates two records or messages.

Datafilling Table E911SRDB using the SRDBUPD command

The SRDBUPD command interpreter command allows a user to update Table E911SRDB from a tape or disk. The SRDBUPD TAPE is the tape option. The SRDBUPD TAPE loads and updates Table E911SRDB from a peripheral data storage processor (PDSP) formatted magnetic tape. The SRDBUPD FILE is the file option. The use of SRDBUPD TAPE with SRDBUPD FILE loads and updates Table E911SRDB from an automatic location identification database.

The NC0501 is the SRDB Update Enhancements feature. This feature allows the SRDBUPD TAPE or SRDBUPD FILE command to read recent changes files. The files are in the single-line format or multiline format.

Updating from tape

To perform initial loads or updates of Table E911SRDB from a PDSP-formatted magnetic tape, use the following procedure.

Procedure 1-1 Datafilling Table E911SRDB from magnetic tape

At your current location:

- 1** Make sure that initial loads of Table E911SRDB complies with the datafill order section "Datafill sequence" describes
- 2** Place an AT&T PDSP-formatted magnetic tape on an available E911 tandem tape drive. Make sure that the tape drive is on and is on-line.
- 3** Enter the following command at the command interpreter level of the MAP terminal.

>SRDBUPD TAPE <driveno> <Y/N> <filename> <devicename>

where:

TAPE

indicates tape update from an update from a stored file. Also indicates the current use of a PDSP-formatted tape.

driveno

is the number of the drive which contains the tape. The number includes 0 to 15.

Y/N

indicates if a file records error messages and journal file messages.

filename

specifies the name of the file which records messages. For multiple message files, the message filenames are named filename01, filename02, up to a maximum of 32 files.

devicename

specifies the device that contains the message file if the previous parameter is Y.

While the SRDBUPD command runs, the system issues a response for each recent change message the system processes. If the command creates a message file, the system stores system-generated messages in the message file. If this condition does not apply, the message files appear at the MAP terminal. Error messages indicate the recent change message cannot run. Other system messages indicate when another tuple already defines a directory number or thousands group. The messages appear when attempts to enter or change the number or group occur in a range of directory numbers. A tuple already defines the range of directory numbers. The following message appears when the SRDBUPD command completes:

Tape trailer indicates 7 RC messages sent.
7 RC messages received, 4 updated E911SRDB,
3 failed.

- 4** If the SRDBUPD command creates one or more message files, use standard file-editing MAP commands to display and print the contents. The file-editing command used depends on the storage device specified in the SRDBUPD command and the output device chosen.

Refer to "System messages" for a description of system responses that can occur while the SRDBUPD command runs.
- 5** Remove the tape from the drive.

Updating from file

The SRDBUPD command updates the selective routing database after a file transfers from the automatic location identification database. A dial-up interface to the database can transfer files.

Update Table E911SRDB with the SRDBUPD command after the transfer of a recent change file from the automatic location identification database. Use the following steps.

Procedure 1-2 Datafilling Table E911SRDB with SRDBUPD command

At your current location:

- 1 Before you can use the recent change file to update Table E911SRDB, you must list this file. List this file to notify the DMS operating system of the location of this file. Enter one of the following commands. The location of the file determines the command used.

For SFDEV

>LISTSF

For a tape unit

>LIST T#

where

#

is the tape device number

For a disk unit

>DISKUT

>LISTVOL <volume name> ALL

- 2 Enter the following command at the command interpreter level of the MAP terminal.

>SRDBUPD FILE <filename> <Y/N> <filename> <devicename>

where:

FILE

is an exact character string that indicates the update is from a file.

filename

is the filename of the recent change file.

YN

indicates if a file records error messages and journal file messages.

filename

specifies the name of the file which records messages if the previous parameter is Y. For multiple message files, the message files names are named filename01, filename02, up to a maximum of 32 files.

devicename

specifies the device that contains the message file if the previous parameter is Y.

While the SRDBUPD command runs, the system issues a response for each recent change message the system processes. If the command creates a message file, the system stores system-generated messages in the message

file. If this condition does not apply, the system-generated messages appear at the MAP terminal. Error messages indicate the recent change message cannot run. When another tuple already defines a directory number or thousands group. The messages appear when attempts to enter or change the number or group occur in a range of directory numbers. A tuple already defines the range of directory numbers.

The following message appears when the SRDBUPD command completes.

Record count message indicates 7 RC messages sent. 7 RC messages received, 4 updated E911SRDB, 3 failed.

- 3 If the SRDBUPD command creates one or more message files, use standard file-editing MAP commands to display and print the contents. The file-editing command used depends on the storage device specified in the SRDBUPD command and the output device chosen.

Refer to "System messages" for a description of system responses that can occur while the SRDBUPD command executes.

Datafilling Table E911SRDB with the RC:TNESN: command

To update Table E911SRDB through the service order system (SERVORD), use the RC: TNESN: command interpreter command. This update command is in SERVORD because the Remote Memory Administration System (RMAS) dials up the DMS switch. The RMAS dials up the DMS switch and enters SERVORD to perform daily service changes.

The single line format and the multiline format of the RC:TNESN command accept five-digit ESNs. The 110-Digit SRDB Update feature allows the command to accept an NDD or an NPA.

RC:TNESN:/TN 621111/ESN 12345/NPD 0!

a terminal number-emergency service number (TNESN) record associated with a single directory number (TN 621111)

an ESN of 12345

the NPD is 0

RC:TNESN:/TN 621111/ESN 12345/NPD 919!

a terminal number-emergency service number (TNESN) record associated with a single directory number (TN621111)

an ESN of 12345

the NPA is 919

You can use the RC: TNESN: command on a dial-up link. The parameters that apply to the RC: TNESN: command appear in the following table. Include these command parameters in the order described. The system can accept these command parameters as correct input to the RC: TNESN: command.

The customer requirements and the operating characteristics of the RMAS determine the procedure for conducting a dial-up session.

SERVORD update data format

The following command documentation prints at the terminal when you type any characters in front of RC: TNESN. The documentation describes the correct syntax for the command.

```
RC:TNESN: - E911 Selective Routing Database
              Terminal Update Facility
=====
This CI command allows the DMS to read recent change
messages via dialup terminal to update the E911 Table
E911SRDB. This command is only for use by the RMAS
dialup. This command does not follow normal SERVORD
prompting. Fields ESN, NPD, TN, and ORD are parameters.
Parms: <enter esn> {ESN <esnno> {0 to 15 999} }
      [ {<npd field> {NPD <npdno> 0 to 3 } } ]
      <tn field> {TN <tnno> {20000000 to 99999999} }
      [ <ord field> {ORD <ordno> {20000000 to 99999999} } ]
      [ <end of rc msg> {$} ]
      [ <confirm> {Y} ]
```

Table 1-2 Parameters for dial-up data format (Sheet 1 of 2)

Parameter	Value	Description
enter esn	ESN	Enter the characters ESN before the emergency service number.
esnno	0-15 999	The emergency service number.
npd	NPD	The characters NPD signal data entry in the optional field.
npdno	0 -3	The numbering plan digit number for use with single-digit automatic number identification.
tn	TN	The characters TN label the next number as the telephone number.
tnno	7 digits (0-9)	The telephone number of the customer.
ord	ORD	The characters ORD signal the next field as the order number.
ordno	6 digits (0-9)	The order number.

Table 1-2 Parameters for dial-up data format (Sheet 2 of 2)

Parameter	Value	Description
end of rc msg	\$	This character signals the end of input.
confirm	Y	This character, after the \$, means the system does not prompt you to confirm, reject or edit.

An example of the only correct format for TNESN messages in dial-up terminal updates appears below. The message ends with \$ or a Y. If you enter the Y after the \$, the system does not prompt you to confirm, reject, or edit. Note that you must send the fields in the following order:

```
RC:TNESN: ESN 11111 NPD 1 TN 6221234 ORD 622123 $
```

The ESN 11111, NPD 1, the single directory number 6221234, and the order number 622123 compose this TNESN message. The ORD field does not use the DMS E911 system and the system ignores this field. The ORD field includes an order number.

Example service order update session

Examples of how to use the RC:TNESN: command interpreter command to update the selective routing database follow. All examples include the NPD field. The messages do not require the NPD field to be correct. If the NPD field is not present, use the default numbering plan digit of 0.

>servord

>rc:tnesn: esn 11111 tn 6211234 ord 621123 \$

```
COMMAND AS ENTERED: ESN 2 NPD 0 TN 6211234  
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT  
>Y
```

```
1989/05/04 10:28:11.099 THUR. JOURNAL FILE RECORD ID 12345
```

>rc:tnesn: esn 111 tn 7811111 ord 781111 \$

```
COMMAND AS ENTERED: ESN 111 NPD 0 TN 7811111  
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT  
>Y
```

```
ESN Not Datafilled in Table E911ESN ERROR CODE = 3  
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
```

>abort

>rc:tnesn: esn 11111 tn 5201111 ord 520111 \$ Y

```
COMMAND AS ENTERED: ESN 111 NPD 0 TN 5201111  
1989/05/04 10:28:12.099 THUR. JOURNAL FILE RECORD ID 12357
```

When you enter the recent change message, the fields echo back and the request to confirm, edit, or reject appears. The RMAS looks for this response.

If the system receives any item other than a Y, the RMAS does not continue to process the recent change message. When RMAS sends the Y, the DMS switch updates the selective routing database that uses the given fields.

A journal file of responses or an error message appears on the screen. If an error occurs, and the system prompts the user to confirm, reject, or edit. An example of an error is when the emergency service number does not contain data. The RMAS aborts if the RMAS does not see the journal file response.

Direct access to the automatic location identification database for selective routing database update

Feature package NTXN60AA, Dial-up into ALI Database for SRDB Update, allows the transfer of recent change files. The recent change files transfer directly from the automatic location identification database. This feature package does not use a formatted tape or a remote transfer through an RMAS interface. This feature package uses a multiprotocol controller, Kermit protocol, a Hayes-compatible modem, and a file-transfer script or command interpreter command.

The three primary options the feature package offers appear in the following list:

- background file transfer or transfer and update processing under DMS table control.
- background file transfer and update processing under automatic location identification data center control, with support from DMS table control.
- manual file transfer or transfer update initiated by a command interpreter command. The command interpreter command operates as the front or background processes in the DMS switch.

Refer to the chapter "Dial-up into ALI DB for SRDB Update" for details on how to operate and enter data in this feature package for transferring files and updating Table SRDBUPD.

System messages

The responses associated with every update method, including table control, appear below. With RC:TNESN command, the system does not display error codes.

The following message can appear below a message for a recent change message:

RC message received: <RC:TNESN command>

The DMS-100 file system messages and database messages associated with Table E911SRDB manipulations can appear while the SRDBUPD command executes. An explanation of these messages follows.

Invalid TN: TN is 7 digits <0 - 9> ERROR CODE = 9

The input recent change message contained an incorrectly formatted terminal number to associate with an emergency service number.

System action: The recent change message does not change the selective routing database.

User action: Correct the TN field and manually enter the recent change message.

Table change not allowed during dump. ERROR CODE = 4

This message appears when you attempt to change a table in table E911SRDB during ONP

Invalid ESN: ESN is <0 - 15999> ERROR CODE = 10

The input recent change message contains an incorrectly formatted emergency service number to change the selective routing database.

System action: The recent change message does not change the selective routing database.

User action: Correct the emergency service number and manually enter the recent change message.

Invalid NPD: NPD is <0, 1, 2, 3> ERROR CODE = 11

The recent change message contains numbering plan digits that are not 0, 1, 2, or 3.

System action: The recent change message does not change the selective routing database.

User action: Correct the numbering plan digit and manually enter the recent change message.

Invalid NOG: NOG is 4 digits <0 - 9> ERROR CODE = 12

The recent change message can contain a number group that is not four digits. The recent change message can contain a character not in the numeric range 0 through 9.

System action: The recent change message does not change the selective routing database.

User action: Correct the number group and manually enter the recent change message.

TN or NOG missing from RC message. ERROR CODE = 13

The recent change field does not contain the TN or NOG fields.

System action: The recent change message does not change the

selective routing database.

User action: Edit the recent change message to include a correctly formatted terminal number, and manually enter the terminal number.

User action: Correct the number group and manually enter the recent change message.

ESN missing from RC message ERROR CODE = 14

The RC message does not contain an ESN.

System action: The recent change message does not change the selective routing database.

User action: Edit the recent change message to include a correct emergency service number and manually enter the terminal number.

Unrecognizable data ERROR CODE = 8

The data is not in the correct order or the system cannot interrupt the data as a recent change message.

System action: The update mechanism will advance one ! to try to find the beginning of the next recent change message. After three of these errors, the update stops.

User action: Inspect tape or file data for correct data and format.

NPD <npd value> is not datafilled in Table E911NPD ERROR CODE = 2

The numbering plan digit specified in the recent change message is in the correct range. Table E911NPD does not contain the NPD.

System action: The recent change message does not change the selective routing database.

User action: Check the data of Table E911NPD or correct the NPD field and manually enter the recent change message.

ESN <esn value> is not datafilled in Table E911ESN ERROR CODE = 3

The emergency service number specified in the recent change message is in the correct range. Table E911ESN does not contain the ESN. System action: The recent change message does not change the selective routing database. User action: Check the data of Table E911ESN or correct the ESN field and manually enter the recent change message.

The following message appears below each of the above messages:

COULD NOT ALLOCATE STORE. ERROR CODE = 1

The addition of tuples does not occur. Store is not available.

TABLE IS FULL. ERROR CODE = 5

The addition of tuples does not occur because the addition of the maximum number of tuples already occurred.

ERROR CODE = 6

A file system error message. Error occurred writing messages to the response file. The addition of the tuple occurred, but execution of the command stops. The addition of tuples does not occur. Store is not available.

ERROR CODE = 7

A journal file system error message. An error occurred creating a journal file entry for the table change. The addition of the tuple occurs.

TUPLE <NPA DN> IS INCLUDED IN HIGHER RANGE OF: <NPA DN>

ERROR CODE = 0 1990/06/07 12:15:35.65/WED

Journal file record ID 63

System action: The recent change message attempts to change this tuple. The system deletes the tuple not required.

TUPLE <NPA DN> IS INCLUDED IN HIGHER RANGE OF <NPA DN>.

TUPLE WILL NOT EXIST INDIVIDUALLY

This message can appear when you enter an add command. This message appears if the table contains a tuple with a higher range and the same ESN.

TUPLE <NPA DN> IS INCLUDED IN HIGHER RANGE OF <NPA DN>.

TUPLE NO LONGER EXISTS INDIVIDUALLY

This message can appear when you enter a change command to change the ESN of a tuple. This message appears if the table contains a tuple with a higher range and the same ESN. As a result, the system deletes the current range tuple.

TUPLE <NPA DN> IS INCLUDED IN HIGHER RANGE OF: <NPA DN>

ERROR CODE = 0 1990/06/07 12:15:38.65/WED

Journal file record ID 0000

System action: The system does not run the recent change message that attempts to add the tuple. The journal file record ID 0000 indicates the command did not fail. The system does not create the journal file listed. If the journal file is not available, the second line of the response is as follows

JOURNAL FILE NOT AVAILABLE

TUPLE <NPA DN> ALREADY HAS ESN OF XXX ERROR CODE = 0

System action: The table already contains the tuple you attempt to add. The execution of the command does not occur.

TUPLE <NPA DN> ADDED ERROR CODE = 0 or

TUPLE <NPA DN> CHANGED ERROR CODE = 0

1990/06/07 12:15:35.65/WED Journal file record ID 63

System action: The command executes a recent change message.

Journal file record 63 provides the details.

THRESHOLD FOR BAD DATA REACHED, SRDBUPD ABORTED

ERROR CODE = 17

Three transmitted records in sequence contain faults.

System action: Execution stops.

INVALID MSG COUNT. ERROR CODE=18

The system cannot read the message count in the record count message.

System action: Update continues. A message to indicate the number of messages applied to the selective routing database does not appear.

User action: Verify that the correct number of additions and/or changes to the database are complete.

The following message can appear when the update completes:

RECORD COUNT MESSAGE INDICATES X RC MESSAGES SENT

System action: Completion of update occurred. User action: The system does not require user action.

NPA <VALUE OF NPA> IS NOT DATAFILLED IN E911NPD AS SNPA.

ERROR CODE = 25

This message appears when table E911NPD does not contain the entered NPA. This message also appears when the office parameter E911_PSAPS_USING_1_INFO_DIGIT is Y and the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT is N.

NPA MUST BE THREE DIGITS. ERROR CODE = 29

This message displays when the entered NPA is not three digits.

NPA DOES NOT EXIST IN TABLE HNPACONT. ERROR CODE = 26

This message appears when table HNPACONT does not contain the entered NPA.

NPA AND NPD CANNOT BE ENTERED TOGETHER. ERROR CODE = 28

This message appears when you enter NPA and NPD in the same command.

NPA MUST BE ENTERED. ERROR CODE = 27

This message appears when you do not enter the NPA. This message also displays when the office parameter E911_PSAPS_USING_1_INFO_DIGIT is N. This message appears when the office parameter E911_PSAPS_USING_1_INFO_DIGIT is Y

the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT is also Y.

NPA IS NOT DATAFILLED IN E911NPD AS SNPA.

This message can appear when table E911NPD does not contain the entered NPA. This message appears when the office parameter E911_PSAPS_USING_1_INFO_DIGIT is Y and the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT is N.

The following messages appear for the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT:

OFFICE PARAMETER E911_PSAPS_USING_1_INFO_DIGIT MUST BE N PRIOR TO CHANGING THE VALUE OF THIS PARM TO N.

This message appears if the parameter value changes from Y to N and the office parameter E911_PSAPS_USING_1_INFO_DIGIT is Y.

NUMDIGS OF HUNT GROUP <HUNT GROUP NUMBER> MUST BE CHANGED TO 3 BEFORE CHANGING THIS PARM.

This message appears if the value of this parameter changes from N to Y. This message appears when entries in table HUNTGRP have ANISPILL at Y and NUMDIGS at 1.

Tape-specific messages

The following messages apply to tape errors when updating from tape in the single line or multiline format:

TAPEMARK FOUND, SRDBUPD ABORTED ERROR CODE = 15

The end-of-tape mark occurs before the tape trailer message. Execution stops.

INCORRECT HEADER FORMAT. SRDBUPD ABORTED. ERROR CODE = 16.

Damage to the tape header occurs. Execution stops.

IDB FOUND

Message generates when the system reads the first data block from the tape.

System action: normal event

The following message can generate when updating from a tape in multiline format:

TAPEMARK FOUND, SRDBUPD ABORTED ERROR CODE=15

The end-of-tape mark occurred in the recent change message before the record count message.

System action: Execution continues. The terminating message does not indicate the number of records sent.

User action: Check to determine if you must apply a second tape to the selective routing database. Verify that the correct number of additions and/or changes occurred to the database.

SRDBUPD command optional error code 0 messages

The following message travels during several situations after the insertion of the SRDBUPD command.

ERROR CODE = 0

This error message indicates that changes do not occur to table E911SRDB. This error message also indicates that an update attempt succeeded. For example, attempts to enter a directory number (DN) in table E911SRDB for the same ESN and the DN now in the table can occur. In this event a message with the following appears in the data.

ERROR CODE = 0

These messages can occur many times during an SRDB update that overloads journal files.

Option SUPPRESS_SRDBUPD_ERR_0 in table E911OFC (Enhanced 911 Office) controls the optional output of error code 0 messages. If table E911OFC contains this option, the system does not generate error code 0 messages.

The **ERROR CODE = 0** message with messages that did not have an error code before.

File-specific messages

The following messages apply when updating from a file in either the single-line or multiline format:

UNEXPECTED END OF FILE ERROR CODE = 19

End of file found in recent change message file before record count message.

ABORT: on expected input <buffer name>

Buffer read from file is shorter than the minimum length.

The system can print the following message when updating from a file in the single-line format:

INCORRECT HEADER FORMAT. SRDBUPD ABORTED. ERROR CODE=16.

The header line in the recent change file contains faults.

System action: Update terminates.

Check the format of the single-line recent change file for errors.

2 Datafilling Emergency Number Services

The following chapter describes the Emergency Number Services, ENS00005, functionality.

Dial-Up into ALI DB for SRDB Update

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00004

Note: Beginning with NA004, functionality ordering code ENS00004 (ENS Large SRDB) replaces functionality ordering code ENS00003 (ENS Standard SRDB).

Release applicability

BCS32 and later versions

Requirements

The Dial-up into ALI DB for SRDB Update feature needs one of the following requirements to operate:

- ENS LDT PSAP, ENS00001
- ENS ACD PSAP, ENS00002

Description

This feature package allows the transfer of selective routing database updates directly from an automatic location identification database. The feature uses a voice-grade line, a modem and Kermit protocols to accomplish the transfer. The Kermit protocols are under the control of the DMS-100 switch or the ALI data centre. This feature also offers the option to update the database with the SRDBUPD command after the file transfer is complete.

The update file contains recent change commands. The improved SRDBUPD command executes these change commands. The SRDBUPD command processes PDSP-formatted files that are on magnetic tape.

Option SUPPRESS_SRDBUPD_ERR_0 in table Enhanced 911 Office (E911OFC) controls the optional output of error code 0 messages for the SRDBUPD command.

The data link in use to accomplish an update can be a dial-up or dedicated link. The multiprotocol controller that operates in asynchronous mode supports the data link. Use of the dial-up link occurs when the DMS-100 switch initiates the transfer. Use of the dedicated link occurs when the ALI data centre initiates the transfer. The ALI data centre issues direct commands to start Kermit routines.

Dial-Up into ALI DB for SRDB Update (continued)

The DMS switch or the ALI data centre can run a file transfer as a background process defined through Table SRDBXFR. The MAP terminal can run a file transfer under the control of the command interpreter (CI) command, SRDBREQ. This command is for maintenance testing of the data link. Command SRDBREQ can initiate a transfer as a foreground or background process. A second command, QSRDBXFR, shows the file transfer results or the state of a transfer during the transfer process.

Translations table flow

A reference to table SRDBXFER begins the translations flow associated with an outgoing (dial-up link) or incoming (dedicated link) file transfer. Table SRDBXFER defines the time and method of the transfer. Fields MPC and MPCLINK in the selected tuple define the key fields in Tables MPC and MPCLINK. The key fields identify the number of the multiprotocol controller and the number of the multiprotocol controller link assigned to the transfer.

A reference to table E911NPD occurs when the update of the selective routing database occurs. The reference to table E911NPD is necessary to convert numbering plan digit numbers to numbering plan area values. The numbering plan digit numbers are encoded in the recent change commands. The numbering plan area values are in table E911SRDB.

Table Enhanced 911 Office (E911OFC) option

SUPPRESS_SRDBUPD_ERR_0 controls the optional output of error code 0 messages during the SRDBUPD command. The datafill of SUPPRESS_SRDBUPD_ERR_0 in table E911OFC indicates that error code 0 messages are not output. Error code 0 messages are output if table E911OFC for SUPPRESS_SRDBUPD_ERR_0 does not contain an entry. Error code 0 messages are output if the messages that did not have a defined error code before do not contain entries.

Limits

Dial-up into ALI DB for SRDB Update does not have limits.

Interactions

Dial-up into ALI DB for SRDB Update does not have functionality interactions.

Activation/deactivation by the end user

The SRDBREQ command from the MAP terminal can initiate a dial-up session as a foreground or background process. Use of table SRDBXFER occurs to schedule file transfers over a dial-up link or a dedicated link. The DMS-100 switch initiates the dial-up link. The ALI data centre initiates the dedicated link.

Dial-Up into ALI DB for SRDB Update (continued)

Billing

Dial-up into ALI DB for SRDB Update does not affect billing.

Station Message Detail Recording

Dial-up into ALI DB for SRDB Update does not affect Station Message Detail Recording.

Datafilling office parameters

The office parameters that Dial-up into ALI DB for SRDB Update uses appear in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters that Dial-up into ALI DB for SRDB Update uses

Table name	Parameter name	Explanation and action
<i>OFCENG</i>	SRDBUPD_SWITCH_ID	This parameter is the identification number of the switch that the ALI system assigns. The system incorporates the identification number in the name of recent change files to transfer. The defined value is x in the format for the recent change file, mmmddx.SEQ.
Note: () denotes the default value.		

Office parameter activation method

The office parameter activates immediately.

Office parameter limits

The parameter value must change from the default to an alphabetical symbol. This change must occur to allow the file name to be entered in Table SRDBXFER.

Provisioning rules

Planning with the ALI data centre is necessary to determine the value of this parameter.

Dial-Up into ALI DB for SRDB Update (continued)

Datafill sequence

The tables that require datafill to implement Dial-up into ALI DB for SRDB Update appear in the following table. The tables appear in the correct entry order.

Datafill tables required for Dial-up into ALI DB for SRDB Update

Table	Purpose of table
MPC	Table MPC specifies the asynchronous protocol file for the multiprotocol controller load.
MPCLINK	Table MPCLINK defines the link and protocol information for each multiprotocol controller card entered in Table MPC.
SRDBXFER	Table SRDBXFER defines two different background file transfer operations. The ALI data centre initiates one operation. The E911 tandem initiates the second operation.
E911OFC	Table E911OFC specifies the option for suppression of the error code 0 messages from the SRDBUPD command.

Datafilling table MPC

The datafill for Dial-up into ALI DB for SRDB Update for table MPC appears in the following table. The fields that apply to Dial-up into ALI DB for SRDB Update appear. Refer to the data schema section of this document for a description of the other fields.

Datafilling table MPC

Field	Subfield or refinement	Entry	Explanation and action
DLDFILE		alphanumeric	This field must specify the asynchronous protocol file for the latest available multiprotocol controller load. The file format is MPCA<BCS cycle/load designation>. An example of the entry is MPCA28AG.

Datafill example for table MPC

Refer to the data schema section of this document. This section contains examples of tuples in Table MPC configured to support an ASYNC link.

Datafilling table MPCLINK

Table MPCLINK defines the link and protocol information for each multiprotocol controller card in Table MPC. Each link configured on each multiprotocol controller card has a tuple. Settings for the link must match the

Dial-Up into ALI DB for SRDB Update (continued)

modem settings. Enter data in this table to provide the interface to the ALI database. The interface allows selective routing database update link capabilities. You must enter data in table MPC before Table MPCLINK.

Note: You must put the multiprotocol controller link in service before you enter data in Table SRDBXFER. You can complete this action if you access the IOD (input/output device) level of the MAP display.

Datafill for Dial-up into ALI DB for SRDB Update for table MPCLINK appears in the following table. The fields that apply to Dial-up into ALI DB for SRDB Update appear. Refer to the data schema section of this document for a description of the other fields.

Datafilling table MPCLINK (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
PRTLCLDAT		ASYN	The protocol value is ASYN.
	BAUDRATE	numeric	(depends on hardware)
	MODMCTRL	DIAL	Enter DIAL. Use the MODMCTRL value DIAL when the link is not a dedicated link. The link is not a dedicated link when the DMS tandem uses the dial-up mode to initiate a file transfer. The DIAL option allows commands to transmit to the modem to control the connection. The options for dedicated links are NOMODM, PARTIAL and FULLMODM.
	L1IDLY	numeric	The default value is 100. Adjustment of this parameter affects the speed of the file transfers. Refer to the <i>Operational Measurements Reference Manual</i> for details.
	LNKDOWN	200	Enter 200.
	STOPBITS	numeric	Hardware-dependent
	PARITY	numeric	Hardware-dependent
	CHARBITS	numeric	Hardware-dependent
	LINEMODE	FULL	Enter FULL.
	NCHARTMO	0	Enter 0.
	NCHTMOIN	0	Enter 0.

Dial-Up into ALI DB for SRDB Update (continued)**Datafilling table MPCLINK (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	IMODE	BLK	Enter BLK.
	OMODE	BLK	Enter BLK.
	FCHARCNT	0	Enter 0.
	ECHO	OFF	Enter OFF.
	FLOWCTRL	NOFLOW	Enter NOFLOW.
	APLDEFN	NONE	Enter NONE.
	L2IDLY		The default value is 200. Adjustment of this parameter affects the speed of the file transfers. Refer to the <i>Operational Measurements Reference Manual</i> for details.
	XPARENT	NODLE	Enter NODLE.
	STRID	\$	Enter \$.

Datafill example for table MPCLINK

Sample datafill in Table MPCLINK for the Dial-up into ALI DB for SRDB Update feature package appears in the following table. Refer to the data schema section of this document for examples of tuples in Table MPC configured to support an ASYNC link.

MAP example for table MPCLINK

LINKKEY	PRTCLDAT
17 2	
ASYNC 55 (MODMCTRL DIAL) (BAUDRATE B1200) (PARITY EVEN)	
\$ \$	

Dial-Up into ALI DB for SRDB Update (continued)

Datafilling table SRDBXFER

Table SRDBXFER defines two different background file transfer operations. The ALI data centre initiates one operation. The E911 tandem initiates the second operation. The fields in each tuple specify the following:

- the direction from which the transfer is managed
- the multiprotocol controller link
- the date and time of a DMS-controlled transfer
- the type of link. The link can be a dial-up or a dedicated link.

You must enter data in tables MPC and MPCLINK before you enter data in table SRDBXFER. Enter data in table SRDBXFER to provide dial-up into ALI database for selective routing database update link capabilities. Addition of a maximum six tuples can occur in this table. A maximum of two tuples can be incoming.

Datafill for Dial-up into ALI DB for SRDB Update for table SRDBXFER appears in the following table. The fields that apply to Dial-up into ALI DB for SRDB Update appear. Refer to the data schema section of this document for a description of the other fields.

Datafilling table SRDBXFER (Sheet 1 of 4)

Field	Subfield or refinement	Entry	Explanation and action
KEY			The key is a character string that contains a maximum of eight characters. Each tuple must have a different entry in this field. In one mode, the SRDBREQ command uses the key field to determine the file transfer parameters.
DATA		see subfields	This field contains the subfields that define file transfer parameters.
	DIRECT	INCOMING or OUTGOING	The entry INCOMING specifies that the ALI data centre must monitor multiprotocol controller links for incoming file transfer commands. The entry OUTGOING indicates that the E911 tandem controls the file transfer. The INCOMING links are dedicated. If you enter OUTGOING the links are dedicated or dial-up.

Dial-Up into ALI DB for SRDB Update (continued)

Datafilling table SRDBXFER (Sheet 2 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	SAVEDEV (INCOMING tuple)	alphanumeric	Enter a character string with a maximum of 20 characters that identifies a DMS file device. The DMS file device stores the files that the ALI system sends. Correct entries are SFDEV, a disk volume or a mounted tape volume.
	MPC (INCOMING tuple)	numeric	Enter the multiprotocol controller number that is in table MPC.
	MPCLINK (INCOMING tuple)	numeric	Enter the multiprotocol controller link number that is in Table MPCLINK.
	ERASERC (INCOMING tuple)	Y or N	Enter Y or N. This subfield indicates if the RC file and the error file are erased. This action occurs after the tandem uses the files.
	SCHEDULE (OUTGOING tuple)	see subfields	This field contains subfields that identify when the transfer that the tuple defines occurs. You cannot define tuples with identical time periods.
	PERIOD (OUTGOING tuple)	DAILY or WEEKLY	Enter DAILY or WEEKLY. If you enter DAILY, only TIME must completely define the schedule. If you enter WEEKLY, both TIME and DAY must completely define the schedule.
	TIME (OUTGOING tuple)	numeric	Enter the time of day specified on a 24-h clock (HHMM).
	DAY (OUTGOING tuple)	MON, TUE, WED, THU, FRI, SAT or SUN	Enter the day of the week for the scheduled WEEKLY transfer. Correct entries are MON, TUE, WED, THU, FRI, SAT and SUN. Use this field only if the PERIOD field contains the WEEKLY entry.
	REQFILE (OUTGOING tuple)	YESTERDAY or TODAY	Enter YESTERDAY or TODAY. This subfield indicates the scheduled day that a request for the recent change file occurs.

Dial-Up into ALI DB for SRDB Update (continued)**Datafilling table SRDBXFER (Sheet 3 of 4)**

Field	Subfield or refinement	Entry	Explanation and action
	CONNTYPE (OUTGOING tuple)	DEDICATED or DIALUP	Enter DEDICATED or DIALUP. This subfield indicates the type of link for the connection to the ALI database. The link can be a dedicated link or a dial-up link. A modem dials up to make the connection if the link is a dial-up link.
	SAVEDEV (OUTGOING tuple)	alphanumeric	Enter a character string with a maximum of 20 characters that identifies a DMS file device. This DMS file device stores the files that the ALI system sends. Correct entries are SFDEV, a disk volume, or a mounted tape volume. The system prints a warning message if the system cannot find the device when the table receives a new tuple.
	MPC (OUTGOING tuple)	numeric	Enter the multiprotocol controller number that table MPC already contains.
	MPCLINK (OUTGOING tuple)	numeric	Enter the multiprotocol controller link number that is in table MPCLINK.
	UPDATE (OUTGOING tuple)	Y or N	Enter Y or N. The scheduler/monitor can request an update of the SRDB after the transfer of the recent change file. This subfield indicates if the update must occur.
	ERASERC (OUTGOING tuple)	Y or N	Enter Y or N. After the tandem processes the recent change file, the file can be erased. This subfield indicates if this action must occur. If the selective routing database update is not part of the transfer process, the file cannot be erased.

Dial-Up into ALI DB for SRDB Update (continued)

Datafilling table SRDBXFER (Sheet 4 of 4)

Field	Subfield or refinement	Entry	Explanation and action
	CONNFILE (OUTGOING tuple)	alphanumeric	Enter a character string of a maximum of 16 characters that identifies the name of the script file of KERMIT. The character string must also identify the modem commands that connect the tandem to the ALI database and control the file transfer. The system generates an E911217 log report if the system cannot find the connection script. Changes to subfield CONNFILE are active immediately. If a daily and weekly tuple use the same CONNFILE, the tuples overlap on one day. The weekly transfer process takes priority over the daily process on the day the tuples overlap. The system does not check to make sure transfer schedules defined in different tuples do not overlap. This condition does not apply with identical periods. When overlap occurs, the transfer in progress preempts any other processes that start during the transfer period. When this condition occurs, an E911217 log report indicates the cancellation of the scheduled transfers.
	CONNDEV (OUTGOING tuple)	alphanumeric	Enter a character string of a maximum of 20 characters that identifies the DMS file device on which CONNFILE resides. Correct entries are SFDEV, a disk volume or a mounted tape volume. The system prints a warning message if the system cannot find the device when the table receives a new tuple.
	ENABLED (OUTGOING tuple)	Y or N	Enter Y or N. Enter Y to indicate that the transfer process this tuple defines is allowed to run. Enter N to suspend this process temporarily.

Datafill example for table SRDBXFER

Sample datafill for table SRDBXFER appears in the following example.

Dial-Up into ALI DB for SRDB Update (continued)

MAP example for table SRDBXFER

KEY
XFERDATA

REGULAR OUTGOING DAILY 0200 YESTERDAY DIALUP
D000SCRATCH 3 1 Y Y CONNFILE01 D000TEST Y
SATONLY OUTGOING WEEKLY 0500 SAT YESTERDAY DIALUP
D000SCRATCH 3 1 Y Y CONNFILE01 D000TEST Y
INCOMALI INCOMING D000TEST 1 3 Y

Dial-Up into ALI DB for SRDB Update (continued)

Error messages for table SRDBXFER

Messages that warn when an entry error occurs appear at the MAP terminal. The warning messages are as follows:

- A message appears if you attempt to enter data in Table SRDBXFER before you enter the required multiprotocol controller values in Tables MPC and MPCLINK. The following message appears:
 - MPC (or MPCLINK) not entered in Table MPC (or MPCLINK)
- If you attempt to enter SFDEV as the storage location for a CONNFILE, the following message appears:
 - Warning: SFDEV is not a recommended storage location for a CONNFILE, because SFDEV is normally for temporary storage.
- If you attempt to add a tuple with a CONNFILE that is not present, the following message appears:
 - Warning: CONNFILE is not a current option on CONNDEV. Transfer fails if CONNFILE is not present by the scheduled transfer time.

Datafilling table E911OFC

Datafill for Dial-up into ALI DB for SRDB Update for table E911OFC appears in the following table. The fields that apply to Dial-up into ALI DB for SRDB Update appear. See the data schema section of this document for a description of the other fields.

Datafilling table E911OFC

Field	Subfield or refinement	Entry	Explanation and action
E911OPTN			This field specifies the E911 options active for a office.
		SUPPRESS_ SRDBUPD_ ERR_0	This option suppresses error code 0 messages from the SRDBUPD command. Enter SUPPRESS_SRDBUPD_ERR_0.

Datafill example for table E911OFC

Sample datafill for table E911OFC appears in the following example.

Dial-Up into ALI DB for SRDB Update (continued)

MAP example for table E911OFC

E911OPTN

SUPPRESS_SRDBUPD_ERR_0

Tools for verifying translations

Dial-up into ALI DB for SRDB Update does not use translation verification tools.

SERVORD

Dial-up into ALI DB for SRDB Update does not use SERVORD.

Operation

Table SRDBXFER defines method for file transfers. The procedures and other information in this chapter that support these activities include:

- the operation of file transfers that the DMS switch or the ALI data centre controls
- the manual transfer of selective routing database update files with the SRDBREQ command
- the monitor of file transfer activity with the QSRDBXFR command
- the manual update of the selective routing database with recent change files with the SRDBUPD command

SRDB update sessions controlled by the DMS switch

The DMS switch uses a dedicated link or a dial-up link through the multiprotocol controller and a Hayes-compatible modem. The DMS switch receives the recent change file through one of these methods. The DMS scheduler/monitor software updates the selective routing database after the switch receives the recent change file.

The DMS switch scans the tuples in Table SRDBXFER. The DMS switch scans the tuples to determine when to initiate the transfer of a selective routing database update file. At the specified time, the switch uses information from

Dial-Up into ALI DB for SRDB Update (continued)

the correct tuple to set up and conduct the data transfer. The switch uses the following information:

- the type of device that stores the incoming file
- the name of the connection file needed to dial up the ALI data centre through the modem

The connection file is a script that contains Kermit protocol and Hayes modem commands. The protocol and commands are for communication over the asynchronous link with the ALI database.

If the SRDBXFER indicates a dial-up session, the dial-out sequence contains the commands that initiate the following actions:

- the setup of the modem
- the dialing of the data centre number
- the direction of the database processor actions
- the disconnection of the call
- the reset of the modem

A dedicated session uses a different script for the asynchronous link dedicated to the ALI database. The different script is a subset of commands from the dial-up. When a dedicated session uses a different script, the commands that set up the modem connection are not required.

You can create a dial-out script file or a script file for a DMS-controlled transfer on a dedicated asynchronous link. Perform the steps in the following procedure to create one of these script files.

Creating script files for DMS-controlled selective routing database update file transfer

At your current location, perform the following actions:

- 1 You can use the line editor as one option to create the script. The line editor is available at the command interpreter level of the MAP terminal. To initiate a session with the line editor, type:

>EDIT <file name>

where

file name

is a character string that contains a maximum of 16 characters that identify the file to the DMS operating system

Dial-Up into ALI DB for SRDB Update (continued)

- 2 Enter the separate commands of the script file. You must observe the following rules:
- Place a single command on each line.
 - All commands and associated parameters must be in uppercase letters unless single quotes enclose the commands or parameters.
 - Separate line lengths must be less than 80 characters. This length includes leading spaces.
 - INPUT initiates text entry.
 - QUIT must be the last command.

Refer to the command descriptions and sample file that follow this procedure for more information on how to create the script. Other line editor commands required to enter and edit the text file include the following:

INPUT

adds a new line at current position of the internal pointer

DOWN

moves the pointer through the file one line at a time

DELETE

removes the line at the position of the pointer

QUIT

exits from editor

- 3 When the script file is complete, save the script file for the first time. To save, type:

>SAVE <device name>

where

device name

indicates the DMS storage device in which the connection script file must be placed. Options include SFDEV, a tape unit or disk volume. Subsequent save processes do not require the inclusion of the device name in the command. Option FILE saves the file and exits from the line editor.

- 4 Before you can enter the connection script file in Table SRDBXFER, you must list the script file. You must list the script file to inform the DMS operating system of the script file location. The location of the stored file determines the command you must enter. The commands are as follows:

For SFDEV, type

>LISTSF

For a tape unit, type

>LIST T#

where

#

is the tape device number

For a disk unit, type

>DISKUT or DSKUT

>LISTVOL <volume name> ALL

Dial-Up into ALI DB for SRDB Update (continued)

The best method that designs a connection script file follows. Start each separate function with an IFFAIL statement that has an associated message that defines the function. Code the function that the IFFAIL statement labels. Repeat the sequence for each separate function.

A standard script for a dial-up session appears in the following example. If the SRDBXFER tuple defines the connection type as dedicated, a DMS-controlled (outgoing) connection script does not include all functions. The outgoing connection script does not include the first two and last two IFFAIL functions that appear in the example.

Dial-Up into ALI DB for SRDB Update (continued)

Example dial-out connection script file

```
IFFAIL 'Could not restore modem default settings'
  TYPE 'ATZ' Y
  WAITFOR 'OK' Y 2

IFFAIL 'Nobody's home answering the phone'
  TYPE 'ATDT5559626' Y
  WAITFOR 'CONNECT' Y 30

IFFAIL 'User id or password incorrect'
  TYPE 'USER1' Y
  TYPE 'USER1PW' Y
  WAITFOR '$' N 2

IFFAIL 'The Remote Kermit could not be invoked'
  TYPE 'KERMIT' Y
  WAITFOR 'KERMIT>' N 2

IFFAIL 'Send could not be initiated on the remote side'
  TYPE 'SEND %RCNAME' Y
  RECEIVE
  WAITFOR 'Transfer Complete.' Y 5
  WAITFOR 'Kermit>' N 5

IFFAIL 'Receive could not be initiated on the remote side'
  TYPE 'RECEIVE' Y
  SEND %STATNAME
  WAITFOR 'Transfer Complete.' Y 5
  WAITFOR 'Kermit>' N 5

IFFAIL 'Could not successfully exit remote Kermit'
  TYPE 'EXIT' Y
  WAITFOR '$' N 2

IFFAIL 'Could not take modem
offline'
  TYPE 'BYE' Y
  DELAY 2
  TYPE '+++' N
  DELAY 1
  WAITFOR 'OK' Y 5
  TYPE 'ATH0' Y
  WAITFOR 'OK' Y 5

IFFAIL 'Could not restore the modem default settings'
  TYPE 'ATZ' Y
  WAITFOR 'OK' Y 2
  QUIT
```

Dial-Up into ALI DB for SRDB Update (continued)

The following table contains reference information used when you program connection script files. The table explains the commands that appear in the previous example of a connection script file. The feature package contains these commands for the creation of connection script files. The commands invoke Kermit protocol and Hayes modem commands.

Connection script file command (Sheet 1 of 2)

Script command	Description
IFFAIL <msg>	Command <msg> is a string that single quotation marks enclose. The string is the message that appear in log reports. This command defines the message that the system generates if an error, like a timeout, occurs when you execute the commands. The message appears between this command and the next IFFAIL command. If an error occurs in script processing before the first IFFAIL command executes, the system generates the standard message. Error during dialout script process.
TYPE <string> <scr>	This command sends the <string>, that single quotation marks enclose, to the remote session or to the modem. The place at which the string is to execute determines the destination of the string. The <scr> parameter indicates if you must send a carriage return. A Y indicates that you send a carriage return. An N indicates that you do not send a carriage return. If the selective routing database update session is on a dial-up link, the first TYPE messages transmit to the modem. This action activates the link. When the connection is set up, all TYPE messages transmit to the remote session. The TYPE messages do not transmit to the remote session if the messages follow a TYPE message with a +++ string. The TYPE message followed by a +++ string directs the messages to the modem.
WAITFOR <expected> <ecr> <delay>	This command identifies the <expected> character string that occurs after a response to the previous command that the script issues. The remote application or modem responds to the previous command. Single quotation marks enclose the <expected> string. The <ecr> parameter indicates if a carriage return is expected. A Y indicates that a carriage return is expected. Enter N to indicates a carriage return is not expected. The <delay> parameter is a five-digit value (maximum 32767) that identifies the number of seconds to wait before the issue of the IFFAIL message.

Dial-Up into ALI DB for SRDB Update (continued)

Connection script file command (Sheet 2 of 2)

Script command	Description
SEND <filename>	This command executes the Kermit send command. The Kermit send command causes the specified file <filename> to transmit through the modem to the remote application. If the name of the file is available at runtime, the command without quotation marks includes the name. If the name of the file is not available, use of filename parameters %RCNAME or %STATNAME can occur. These parameters are required because recent change files and status files differ between selective routing database update sessions. The selective routing database update application in the DMS switch generates the actual filename at runtime. For recent change filenames, the application uses the REQFILE value from the SRDBXFER tuple and the office parameter SRDBUPD_SWITCH_ID and date. The naming standard used for the requested file is mmmddx.SEQ. The letters mmm are the first three letters of the month. The letter x specifies the switch identifier. The letters SEQ is an exact character string.
RECEIVE	This command executes the Kermit receive command. The Kermit receive command causes the selective routing database update process to wait. The update process waits for the arrival of the file from the remote application that the send command requested.
DELAY <time>	This command uses the <time> integer to define the delay in seconds between one script file command and the next command.
QUIT	This command terminates the current DMS-controlled selective routing database update process. The QUIT command sends error information to the process.

Errors can occur during the transfer of the recent change file or the update of the selective routing database. Error messages are stored at a location that the tuple that schedules the transfer specifies for the following reasons:

- these actions occur in the background without a terminal display
- these actions occur during scheduled transfers that occur with the use of table control

The name of the file is the same name as the transferred file. The file extension is ERR. The schedule indicates if an update of the selective routing database

Dial-Up into ALI DB for SRDB Update (continued)

must occur immediately after the transfer. The schedule also indicates if the erasure of the file must occur after the update. If you defer the update, you must use the SRDBUPD command.

SRDB update sessions under control of the ALI data centre

Table SRDBXFER defines the method of transfer for background files. The ALI data centre and DMS table control the method of transfer. For these conditions, an asynchronous, use of dedicated data link occurs. Requirements to set up or reset modem parameters or to activate and deactivate the link are not present. The tuple associated with file transfer in Table SRDBXFER contains only a DMS device. This DMS device stores the recent change file when the DMS device receives the file. Also defined is the dedicated link that the DMS switch must monitor. The DMS switch monitors the dedicated link for incoming commands from the data centre. The DMS switch also monitors for an indication of the need for file erasure after the use of files. Two links can be in use for an E911 tandem office for this purpose.

The ALI data centre sends commands as character strings. These commands direct file transfer on the dedicated link. The DMS executes these commands. This process uses three commands:

- RECEIVE
- SEND <filename>
- SRDBUPD <filename>

The RECEIVE and SEND commands are the same as the commands that table Connection script file command describes. This table appears in this document. This table is for the dial-out transfer. The SRDBUPD command is a nonmenu command that updates the selective routing database from tape. In this feature package, this command is improved to update the selective routing database with recent change files input. The input arrives directly from the ALI database. The only response the ALI data centre receives during the update process is OK or FAIL. The response indicates if the character string received is an acceptable command.

The process is programmed at the ALI data centre. Required responses are built into the package software. The operating company only must enter the correct fields in Table SRDBXFER. The ALI data centre initiates a selective routing database update file transfer. This data centre initiates the file transfer on the dedicated link to the DMS switch. The normal procedure that occurs for this process appears in the following table.

Each file transferred to the selective routing database under DMS control causes status files to transmit to the ALI data centre. The file name conforms

Dial-Up into ALI DB for SRDB Update (continued)

to the format in use for recent changes files that the DMS switch requests. The format is mmmddx. The file extension .MIZ replaces .SEQ. The file contains a single record that identifies the date and time that the switch received the mmmddx.SEQ file. The format of the record is MM/DD/YY hh:mm.

Selective routing database update sequence performed under automatic location identification (ALI) data centre control (Sheet 1 of 2)

ALI data centre	DMS-100 E911 tandem
Transmits the RECEIVE character string.	Acknowledges transmission with OK. If character string not received, the DMS-100 E911 tandem transmits FAIL.
If OK received, the ALI data centre shifts to Kermit send mode.	If OK sent, the DMS-100 E911 tandem executes the RECEIVE command to enter Kermit receive mode.
Transmits recent change file. The file name is in the form aaaaaaaa.RC, where aaaaaaaa contains alphanumeric characters, and RC is an exact file extension.	Acknowledges transmission with OK. If character string not received, the DMS-100 E911 tandem transmits the command FAIL. Converts file name to aaaaaaaa\$RC.
If recent change file is sent successfully, the ALI data centre transmits the SRDBUPD aaaaaaaa\$RC character string.	Acknowledges transmission with OK. If character string is not received, the DMS-100 E911 tandem transmits the command FAIL. If OK sent and the file name is correct, executes SRDBUPD command. If update is complete, the DMS-100 E911 tandem transmits OK. If the update is not complete, the DMS-100 E911 tandem transmits the command FAIL. Refer to SRDBUPD command description in this document for additional information.
Note 1: This process does not generate logs, alarms or operational measurements. The selective routing database update or Kermit processes that the commands invoke can produce logs, alarms or operational measurements. Note 2: The ALI data centre can restart the process at any time if the ALI data centre receives a FAIL message.	

Dial-Up into ALI DB for SRDB Update (continued)

Selective routing database update sequence performed under automatic location identification (ALI) data centre control (Sheet 2 of 2)

ALI data centre	DMS-100 E911 tandem
If OK received, the ALI data centre transmits the SEND aaaaaaaa\$ERR character string. The aaaaaaaa contains alphanumeric characters and ERR is an exact file extension.	Acknowledges transmission with OK. If character string not received, the DMS-100 E911 tandem transmits the command FAIL.
If OK received, the ALI data centre shifts to Kermit receive mode.	If OK sent, the DMS-100 E911 tandem executes the SEND command to enter Kermit send mode.
Receives aaaaaaaa\$ERR file from the DMS-100 E911 tandem.	File transfer is complete
Note 1: This process does not generate logs, alarms or operational measurements. The selective routing database update or Kermit processes that the commands invoke can produce logs, alarms or operational measurements. Note 2: The ALI data centre can restart the process at any time if the ALI data centre receives a FAIL message.	

Manually transferring selective routing database update files using the SRDBREQ command

The SRDBREQ command transfers a recent change file from the ALI database. This action occurs when you execute the command from the command interpreter (CI) level of the MAP terminal. The SRDBREQ also provides the option to update the selective routing database immediately after the transfer completes. A tuple in table SRDBXFER provides connection information. You also can specify connection information as command parameters. The SRDBREQ command also can suspend a recent change file transfer or an SRDB update while the transfer or update is in progress.

The design of command SRDBREQ causes the repetition of failed file transfers and the troubleshooting of link or modem problems.

Monitoring file transfer activity using the QSRDBXFR command

The QSRDBXFR command monitors the following items:

- the status of the transfer in progress
- the most recently completed transfer from the database
- the development of the transfer under DMS-100 control

Dial-Up into ALI DB for SRDB Update (continued)

You cannot use this command to monitor transfers under the control of the ALI system. When you execute the command from the CI level of the MAP terminal, the command reports two items of information:

- the results of the most recent transfer completed
- the status of the current transfer if a transfer is in progress

The syntax of the command is as follows:

>QSRDBXFR <cr>

System responses are as follows:

- The last transfer failed/succeeded
- The state of the current transfer <state>
- *where*

<state>

is idle, transfer in progress, or update in progress

Updating using the SRDBUPD command

The SRDBUPD command updates the selective routing database after a file transfers from the ALI database. The SRDBUPD command updates the database in one of three ways:

- The UPDATE field is N in the Table SRDBXFER tuple. The entry controls a scheduled transfer.
- The ALI data centre invokes the SRDBUPD command after the transmission of a recent change file. The ALI data centre invokes this command when the ALI data centre sends a character string to the DMS switch for execution.
- The SRDBREQ command with the NOUPDATE option set is used to transfer the recent change file.

The SRDBUPD command optional error code 0 messages

The insert of the SRDBUPD command sends the message **ERROR CODE = 0** during several situations. This error message indicates that changes did not occur in table E911SRDB. This error message also indicates the success of an update attempt. If you attempt to enter a directory number (DN) into table Enhanced 911 Selective Route Database Update (E911SRDB) for the same ESN and the DN that are present in the table, an appropriate message with **ERROR CODE = 0** displays in the data. These messages can occur frequently

Dial-Up into ALI DB for SRDB Update (end)

during an SRDB update. The frequent occurrence of these messages overloads the journal files.

Option SUPPRESS_SRDBUPD_ERR_0 in table Enhanced 911 Office (E911OFC) controls the optional output of error code 0 messages. The presence of the option in table E911OFC indicates that error code 0 messages are not output.

The output of the indication **ERROR CODE = 0** with messages that previously did not have error codes can be output. The indication is output if the operating company did not assign the option SUPPRESS_SRDBUPD_ERR_0.

Log reports associated with selective routing database updates from the ALI controller

Three log reports provide data on the update of the selective routing database directly from the ALI controller. The three log reports are the E911215, the E911216 and the E911217. Logs E911215 and E911216 are provided on an inbound update to SRDB.

DMS Integrated E911 PSAP Functionality

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00002

Release applicability

BCS29 and later versions

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Requirements

The DMS Integrated E911 PSAP Functionality has the following requirements for operation:

- MDC Minimum, MDC00001
- MDC Standard, MDC0003
- MBS Minimum, MDC00007
- Meridian ACD Base, ACD00001

Description

This feature package provides E911 functionality. This functionality includes the following features:

- line and automatic call distribution (ACD) public safety answering point (PSAP) functions
- automatic number identification (ANI) display for electronic business sets
- ANI with numbering plan digit
- ANI regeneration
- call transfer on trunk (see note below)
- PSAP testing
- fixed, manual, and selective transfer
- forwarding of calling party ANI on fixed, manual, and selective transfer
- alternate and default routing
- default routing by trunk group
- emergency directory number route (EDNR)
- night service

DMS Integrated E911 PSAP Functionality (continued)

- forced disconnect
- one- or four-digit information digit
- originator hold
- enhanced called party hold (ECPH)
- switchhook status tone
- three-way calling (3WC) chaining for PSAPs added to a current conference

Note: The 3WCPUB option automatically flashes to join the parties of a 3WC. When the second leg is an analog trunk on a TM shelf that uses DTMF senders, a manual flash must occur. The 3WC and 3WCPUB options cannot receive a flash that occurs in one second or less because of the limits of the DTMF_sender.

Operation

An E911 call is a 911 call received from an end office. An E911 tandem routes this call to a PSAP. The system can route the call from the end office to the tandem on an E911-type trunk or non E911-type trunk. An example of a non E911-type trunk is a message or foreign exchange trunk. This action occurs by one of the following methods:

- E911 trunk - A normal E911 call arrives on a dedicated E911 trunk with the called digits and ANI. For a direct seizure, the call arrives on a dedicated E911 trunk with ANI but no called digits.
- Non-E911 trunks - The E911 call comes in on a message trunk or foreign exchange trunk engineered to support E911 calls.

Note 1: The system provides support for originating E911 calls that use message and foreign exchange trunks. Do not use these trunks for E911 calls. Message trunks supported are Common Channel Inter-office Signaling (CCIS) 6 and Common Channel Signaling (CCS) 7 type trunks. Foreign exchange trunks supported are private branch exchange (PBX) and Integrated Business Network (IBN) foreign exchange trunks. Use the dedicated E911 trunks for all E911 traffic.

Note 2: Feature package NTP58AB, VFG Support for E911 (Inc and/or Loc ISUP/ANI Call), allows the operating company to set up a virtual facility group (VFG) as a pseudo-E911 trunk. This setup allows for the use of Integrated Services Digital Network (ISDN) User Part (ISUP) or SuperCAMA trunks routed through a VFG. This setup does not use E911 trunks.

Note 3: When provisioning options LINEPSAP, LDTPSAP, ACDPSAP, and PRIPSAP, table E911PSAP is automatically datafilled with the PSAP

DMS Integrated E911 PSAP Functionality (continued)

name and associated DN. Whenever any of these PSAP options is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field NATLXLA appears. When the value of field NATLXLA is 'Y', field PSAPDN in table E911PSAP is ten digits. When the value is 'N', field PSAPDN is seven digits. This value affects 911 call translations and routing. When a E911 call is translated, tables STDPRTCT and HNPACONT use the seven- or ten-digit PSAPDN.



DANGER

Change to the NATLXLA field entry for an existing PSAP

If your office does not support the appropriate seven-digit or ten-digit call translations, changing the entry for field NATLXLA field entry for an existing PSAP can cause problems in completing 911 calls to that PSAP.

ACD PSAP

An ACD PSAP is a PSAP that connects to an E911 tandem switch through a line. Meridian Digital Centrex (MDC) ACD software that operates in the switch supports the ACD PSAP. This software allows a large number of incoming calls to route to one central directory number (DN). The ACD PSAP capabilities include

- call distribution to answering agents
- load management to manage the incoming call load and available resources
- an interface to a downstream ACD Management Information System (ACDMIS) to monitor call activity and create reports

Detailed information on the entry of ACD groups appears in this chapter and later in the document.

The ACD PSAPs can use the call park feature. The assignment of call park (CPARK) for a customer group is in table CUSTSTN (Customer Group Station). Refer to the call park feature in this document for a description. The assignment of option ACD call park (ACDCPK) is in table ACDGRP (ACD Customer Group). Refer to the limits section of this document for information on the limits of call park for ACD PSAP.

Line PSAP

A Line PSAP is a PSAP that connects to an E911 tandem through a line. Each Line PSAP has a group of MDC lines. A Line PSAP differs from a line appearance on a digital trunk (LDT) PSAP. Entry of the lines on a Line PSAP

DMS Integrated E911 PSAP Functionality (continued)

does not occur on an LDT node. Line-to-trunk signaling conversion does not occur. A Line PSAP cannot receive ANI unless configured with a Meridian business set.

To create a Line PSAP, establish a multiline hunt group, distributed line hunt group, or DN hunt group of Integrated Business Network or Meridian business set lines. Add the new LINEPSAP option to the hunt group. You can use a SERVORD command to assign the LINEPSAP option to a multiline, distributed line, or DN hunt group. When you perform this action, an entry occurs in table HUNTGRP and table E911PSAP.

Line PSAPs can use the call park (PRK) feature. The assignment of option CPARK for a customer group is in table CUSTSTN. The assignment of option PRK to a line occurs through SERVORD. The assignment of the activation or deactivation codes for call park is in table IBNXLA (IBN Translation). Single-use sets use the codes. Business sets use the call park key. Refer to the call park feature in this document for additional details.

Note: Whenever a PSAP option is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field named NATLXLA appears. When the value of NATLXLA is 'Y', field PSAPDN in table E911PSAP is ten digits. When the value is 'N', field PSAPDN field is seven digits.

Signaling on E911 trunks

The three types of signaling protocol on E911 trunks are

- standard E911 signaling protocol (DP and MF trunks)
- direct seize signaling protocol (direct seize trunks)
- PSAP E911 signaling protocol

Standard E911 signaling protocol

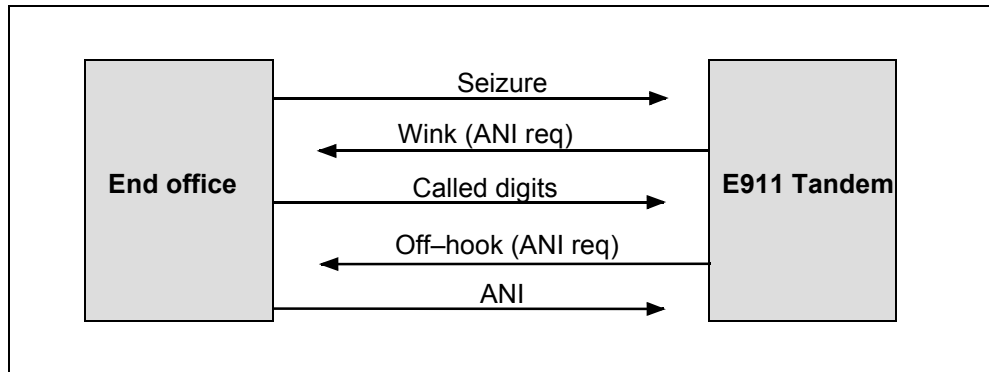
When the E911 tandem with DP or MF trunks detects a seizure, the tandem returns a wink signal. This signal instructs the end office to start to send called digits. When the tandem receives all the digits, the system compares the digits against the signaling formats (911, 11, or 1). The tandem generates a log if a mismatch occurs.

When the receiver is attached, the tandem sends an ANI request signal (steady off-hook) to the end office. The tandem waits for the end office to send the ANI digits.

The standard E911 signaling protocol appears in the following figure.

DMS Integrated E911 PSAP Functionality (continued)

Standard E911 signaling protocol



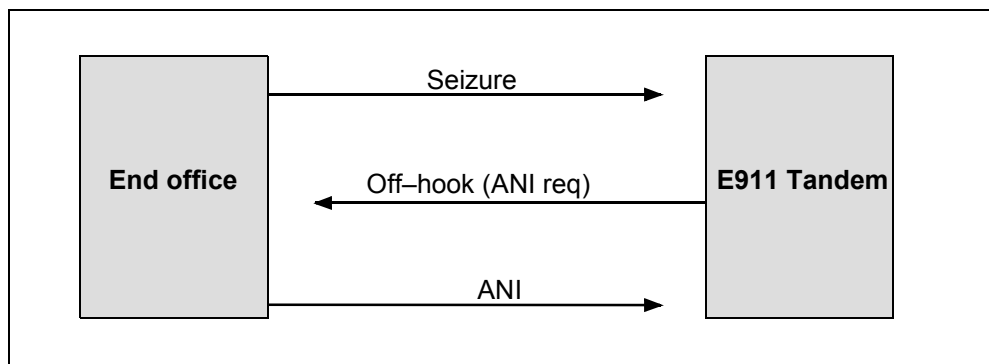
Direct seize signaling protocol

With direct seize signaling on trunks, the end office does not forward the called digits. When the tandem detects a seizure, the tandem attaches a receiver. The tandem requests the ANI from the end office. The ANI is a steady off-hook.

When a receiver is not available, the system generates a log. The system generates the steady off-hook to satisfy signaling requirements. The system routes the call like if an ANI failure occurs.

Direct seize signaling protocol appears in the following figure.

Direct seize signaling protocol



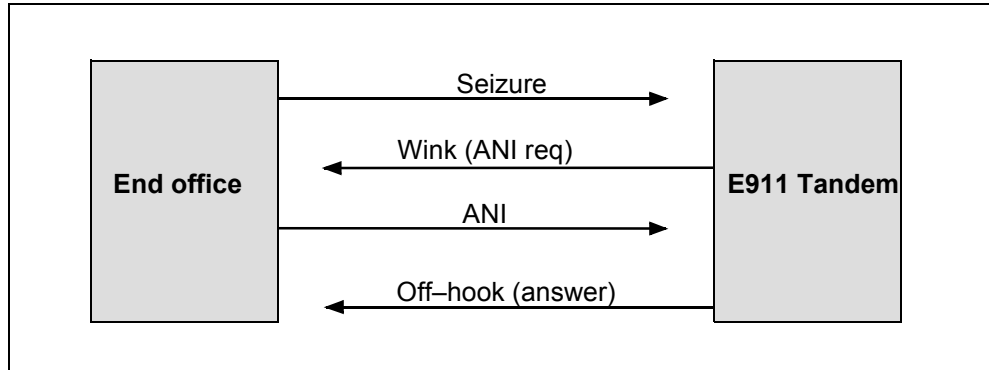
PSAP E911 signaling protocol

When an E911 tandem detects PSAP signaling incoming on an E911 trunk, the tandem returns a wink signal. This signal instructs the end office to send the ANI. The tandem receives the ANI and sends an off-hook back to the end office in response.

The PSAP trunk signaling protocol appears in the following figure.

DMS Integrated E911 PSAP Functionality (continued)

PSAP trunk signaling protocol



Translations table flow

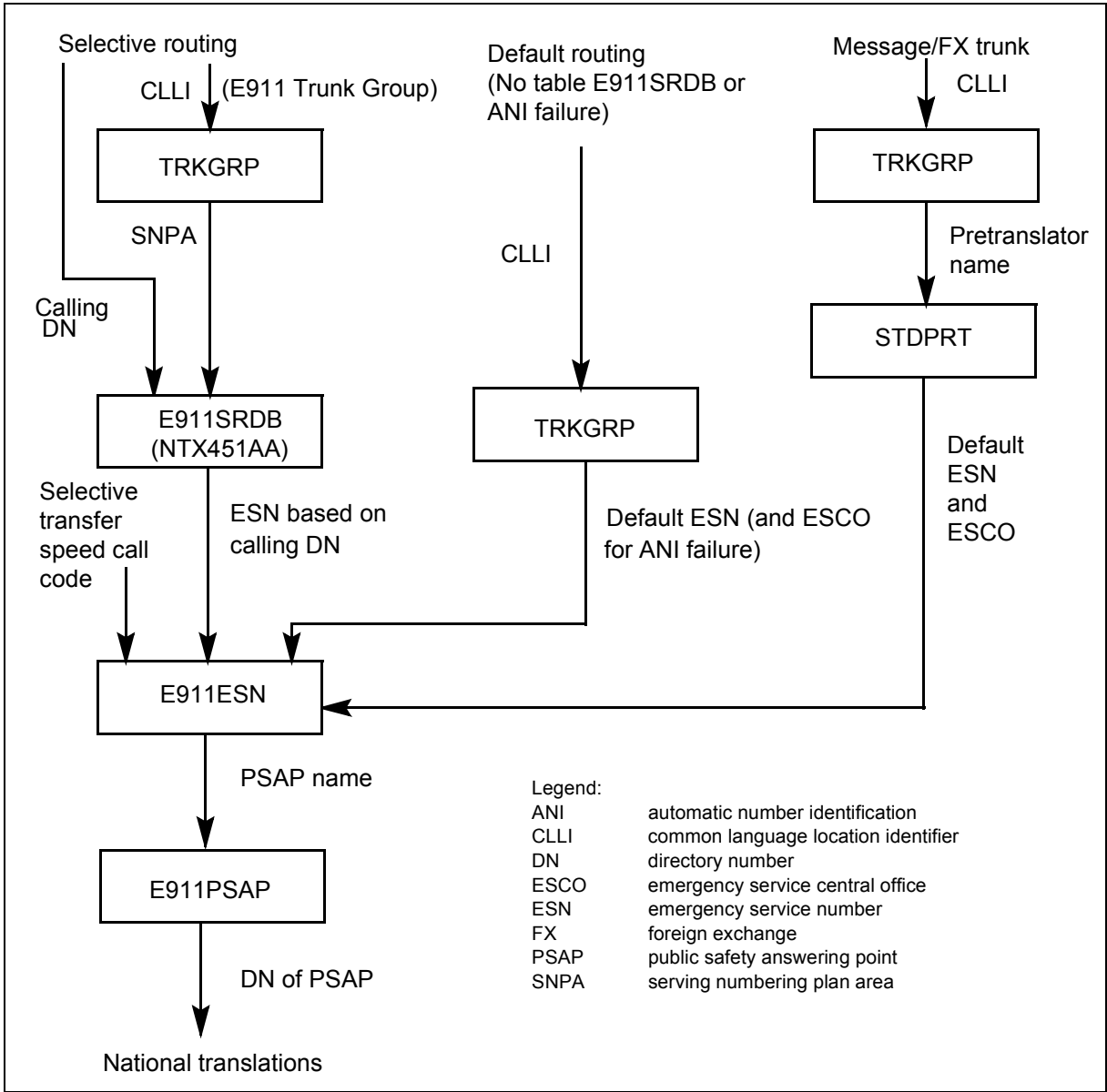
The activities normally associated with E911 calling translations are

- selective routing
- default routing
- E911 pretranslator routing
- selective call transfer
- tandem-to-tandem EDNR routing
- VFG routing

The correct access order of the tables associated with E911 translations appears in the following figure. The entry process for the tables appears in the following figure. This entry occurs during the call routing translation process for the DMS Integrated E911 PSAP Functionality package.

DMS Integrated E911 PSAP Functionality (continued)

Table flow for emergency call routing with E911 tandem capability



Selective routing

A calling party dials 911 with selective routing. When this action occurs, the system routes the call from the end office to the tandem on a trunk assigned in table TRKGRP.

DMS Integrated E911 PSAP Functionality (continued)

The system uses the following to index table E911SRDB:

- the serving numbering plan area (SNPA) associated with the common language location identifier (CLLI) of the trunk in table TRKGRP
- the directory number from the ANI spill

The system obtains the emergency service number (ESN) from table E911SRDB. The ESN indexes table E911ESN to obtain the primary PSAP name. The PSAP name indexes table E911PSAP to obtain the DN of that PSAP.

Selective routing can only occur with the E911 Database package, NTX451AA, installed. Table E911SRDB uses the location of the caller to supply an ESN. This action quickens emergency service delivery. After this action, the translation process is the same as for default and message routing.

The MAP examples for selective routing appear in the following figure.

MAP example for table TRKGRP

GRPKEY	GRPTYP.....	SNPA....	ORIGHOLD..	ESCO	ESN
E911MF	E911.....	919..	N.....	0521.....	213
E911DP	E911.....	919..	N.....	0521.....	214
E911TM8	E911.....	919...	N.....	0521.....	215

MAP example for table E911SRDB (Package NTX451AA required)

E911DN	ESN
919 821 N NNN	210
919 822 N NNN	211
919 744 N NNN	212

MAP example for table E911ESN

ESN....	PRIMPSAP	PSAP1	PSAP6
210....	CARYPOLICE	CARYFIRE.....	CARYAMBULANCE
211....	RALPOLICE	RALFIRE.....	RALAMBULANCE
212....	BOONPOLICE	NONE.....	BOONAMBULANCE

DMS Integrated E911 PSAP Functionality (continued)

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
CARYPOLICE	4691235	N
CARYFIRE	4671010	N
RALPOLICE	8321901	N
RALAMBULANCE	8462300	N
BOONPOLICE	5521900	N

Default routing

Default routing occurs when the system obtains the ESN from table TRKGRP instead of table E911SRDB. Default routing can occur under the following conditions:

- The optional selective routing database is not present. The operating company did not include NTX451AA in the tandem software.
- The selective routing database is present, but the system cannot find the ANI-based key. The table associated with the ESN for the selective routing database is table E911SRDB. An datafill error can cause this omission.
- The ANI failure in which the system did not forward the ANI digits correctly. If this event occurs, the system obtains the emergency service central office (ESCO) number from table TRKGRP. The system uses this number as an ANI substitute and forwards the number to the PSAP.

The only attribute for default routing that differs from selective routing is the ESN. In this setup, the ESN is in the ESN field of table TRKGRP.

Sample tables used for default routing appear in the following examples.

MAP example for table TRKGRP

GRPKEY	GRPTYP.....	SNPA....	ORIGHOLD...	ESCO	ESN
E911MF	E911.....	919..	N.....	0521.....	210
E911DP	E911.....	919..	N.....	0521.....	211
E911TM8	E911.....	919..	N.....	0521.....	212

DMS Integrated E911 PSAP Functionality (continued)**MAP example for table E911ESN**

ESN....PRIMPSAP	PSAP1.....PSAP6	
210....CARYPOLICE	CARYFIRE.....	CARYAMBULANCE
211....RALPOLICE	RALFIRE.....	RALAMBULANCE
212....BOONPOLICE	NONE.....	BOONAMBULANCE

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
CARYPOLICE	4691235	N
CARYFIRE	4671010	N
RALPOLICE	8321901	N
RALAMBULANCE	8462300	N
BOONPOLICE	5521900	N

E911 pretranslator routing

Sample tables for pretranslator routing appear in the following examples. The system supports this routing for message and foreign exchange trunks. Tables TRKGRP and TRKSGRP require the standard datafill to define the trunks and trunk signaling characteristics. For the trunk group type, the PRTNM field must contain a value that can index table STDPRTCT. This value allows the system to route E911 calls.

The translations table information that follows the figure describes the fields of subtable STDPRT. The system obtains ESN and ESCO from this table. The ESN indexes table E911ESN. When this action occurs, translations continue as with dedicated trunks. The system requires the ESCO because these trunks do not spill ANI. The ESCO serves in the replacement ANI forwarded to the PSAP.

The system does not use the ANI for the calling party. The system must obtain a replacement ANI and ESN through subtable STDPRT of table STDPRTCT. The pretranslator selector E911 handles E911 calls over these trunks.

Sample tables used for pretranslator routing appear in the following examples.

MAP example for table TRKGRP

GRPKEY	GRPTYP		PRTNM
CARYFX	TI		E911

DMS Integrated E911 PSAP Functionality (continued)**MAP example for table STDPRTCT.STDPRT**

FROMDIGS	TODIGS	PRERTSEL	ESN	ESCO
911	911	E911	210	0521

MAP example for table E911ESN

ESN....PRIMPSAP	PSAP1	PSAP6
210....CARYPOLICE	CARYFIRE.....	CARYAMBULANCE
211....RALPOLICE	RALFIRE.....	RALAMBULANCE
212....BOONPOLICE	NONE.....	BOONAMBULANCE

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
CARYPOLICE	4691235	N
CARYFIRE	4671010	N
RALPOLICE	8321901	N
RALAMBULANCE	8462300	N
BOONPOLICE	5521900	N

Selective transfer

The PSAP operator can use the speed calling code format *11 to *16 to designate call transfer to PSAP1 through PSAP6 from table E911ESN. When this action occurs, the system starts selective transfer. You must enter the same emergency services vertically in table E911ESN. Each ESN designated PSAP1 is for a fire DN entered in table E911PSAP.

Speed calling code *10 designates a selective transfer to the primary PSAP when dialed from any secondary PSAP. You can use speed call code *10 to transfer the call from a member of the primary PSAP to other members of the primary PSAP. You can also use *10 for overflow routing for the primary PSAP.

The secondary PSAP name in table E911ESN selects the DN of the secondary PSAP in table E911PSAP. The DN of the subscriber selects the ESN tuple if NTX451AA, E911 Database is installed and ANI is available. If these conditions are not present, the ESN of the incoming trunk group determines the selection. The system delivers the ANI of the originating party on selective

DMS Integrated E911 PSAP Functionality (continued)

transfers that route to non-access tandem-to-carrier trunks. The system delivers the ANI of the primary PSAP on transfers that route to these trunks.

Sample tables used for selective transfer appear in the following examples:

MAP example for table E911ESN

ESN.....PRIMPSAP	PSAP1.....PSAP6
210....CARYPOLICE	CARYFIRE.....CARYAMBULANCE
211....RALPOLICE	RALFIRE.....RALAMBULANCE
212....BOONPOLICE	NONE.....

MAP example for table E911PSAP

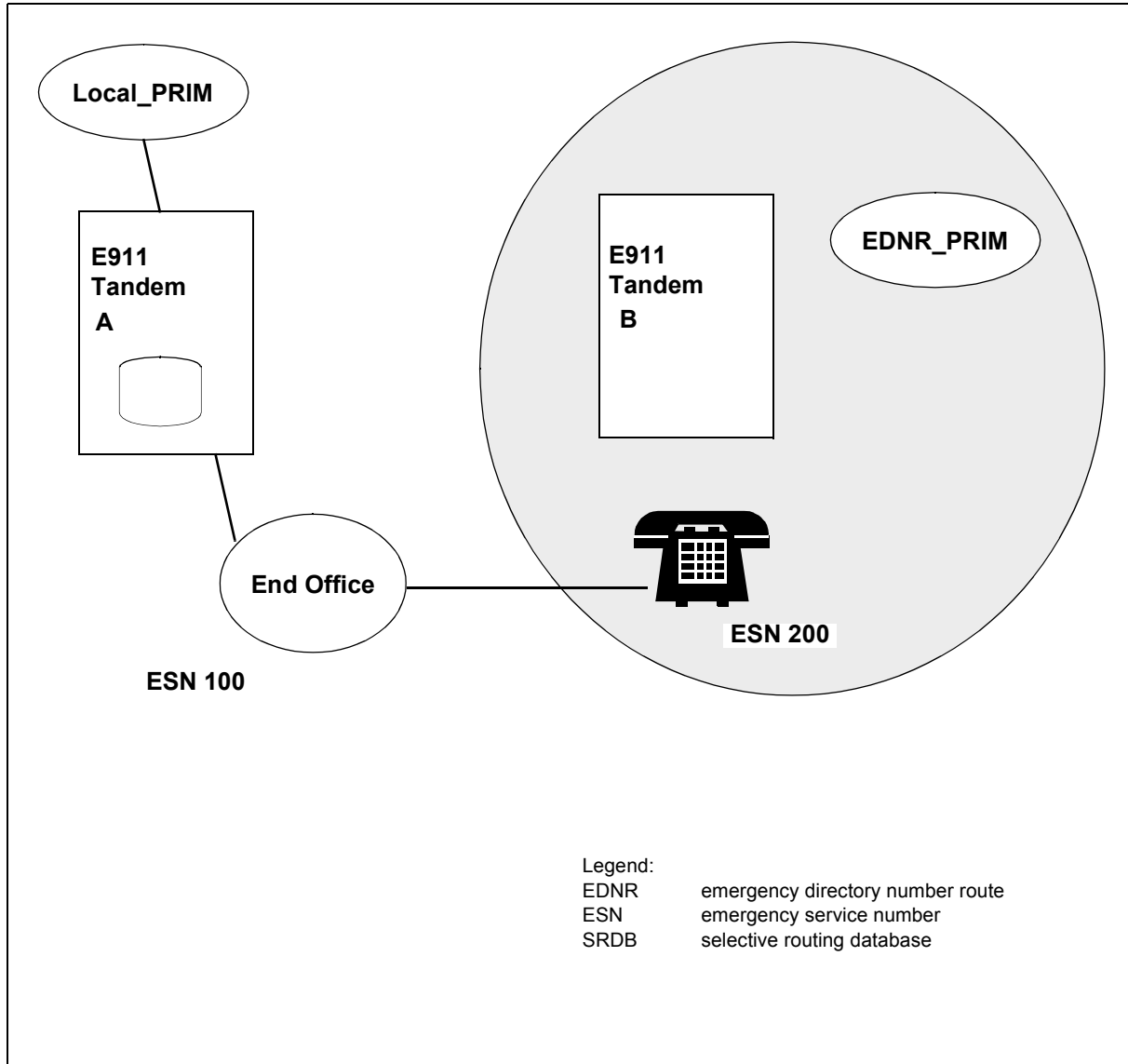
PSAPNAME	PSAPDN	EDNR
NONE	\$	N
CARYPOLICE	4691235	N
CARYFIRE	4671010	N
RALPOLICE	8321901	N
RALAMBULANCE	8462300	N
BOONPOLICE	5521900	N

EDNR usage with selective routing, tandem-to-tandem

You can use an EDNR to selectively route an E911 call to a primary PSAP that the E911 tandem does not directly serve. Another name for this routing is selective routing, tandem-to-tandem. This type of routing appears in the following figure.

DMS Integrated E911 PSAP Functionality (continued)

Tandem-to-tandem routing applications



The selective routing capabilities at tandem B affect the configuration at tandem A. You can configure translations at tandem A by one of the following two methods because of this condition:

- For tandem B to translate the 911 call again to determine the primary PSAP for routing, forward digits 911 to tandem B. This action is normal if tandem B has a selective routing database.
- Forward the seven-digit DN of the PSAP to tandem B. Forward these digits in place of 911. This action allows tandem B to route the call directly

DMS Integrated E911 PSAP Functionality (continued)

to the PSAP. Tandem B does not have to perform selective routing to route the call.

For the system to consider the call routed to tandem B an E911 call, the system must provide dedicated E911 trunking between the two tandems. The system can also consider the call an E911 call if translations at tandem B are engineered to allow the call to route through an E911 VFG. You must perform this action to preserve the associated set of E911 features. These features include ANI, automatic location identification, and originator hold if tandem B is a DMS switch.

Sample tables used for tandem-to-tandem routing appear in the following examples.

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
LOCAL_PRIM	6211235	N
EDNR_PRIM	7771010	Y
NONE	\$	

MAP example for table E911ESN

ESN....PRIMPSAP	PSAP1	PSAP6
100....LOCAL_PRIM	RALEIGHFIRE.....	RALEIGHAMBULANCE
200....EDNR_PRIM	NONE.....	NONE

Emergency directory number routes

Emergency directory number routes allow call transfers or routes to emergency agencies that are not E911 lines or LDTPSAPs. This feature allows calls to transfer or route to agencies that the E911 tandem switch does not directly serve. The EDNR functionality allows tandem-to-tandem routing or selective transfers from an E911 PSAP to a non-PSAP agency.

To selectively route or transfer an E911 call to an EDNR, table E911 PSAP must contain the agency name and dialed number. Table E911ESN must

DMS Integrated E911 PSAP Functionality (continued)

contain the agency name. You can use the EDNR as a primary or a secondary PSAP.



CAUTION

Loss of service

Loss of service can occur if the system routes E911 calls out of the E911 tandem on unsupported trunk types.

The system supports the OP (local TSPS pulsing-recommended), A5 (North Electric AMR5), OC (local ANI to toll CAMA), IT (no ANI, toll connecting), TO (no ANI, outgoing end office), and T2 (no ANI, two-way end office) trunk types to route E911 calls to outgoing trunks.

Note: The system supports ISUP signalling on these trunk types. The system can support a TO trunk that uses C7UP signalling in place of STD.

Call transfer, tandem-to-tandem

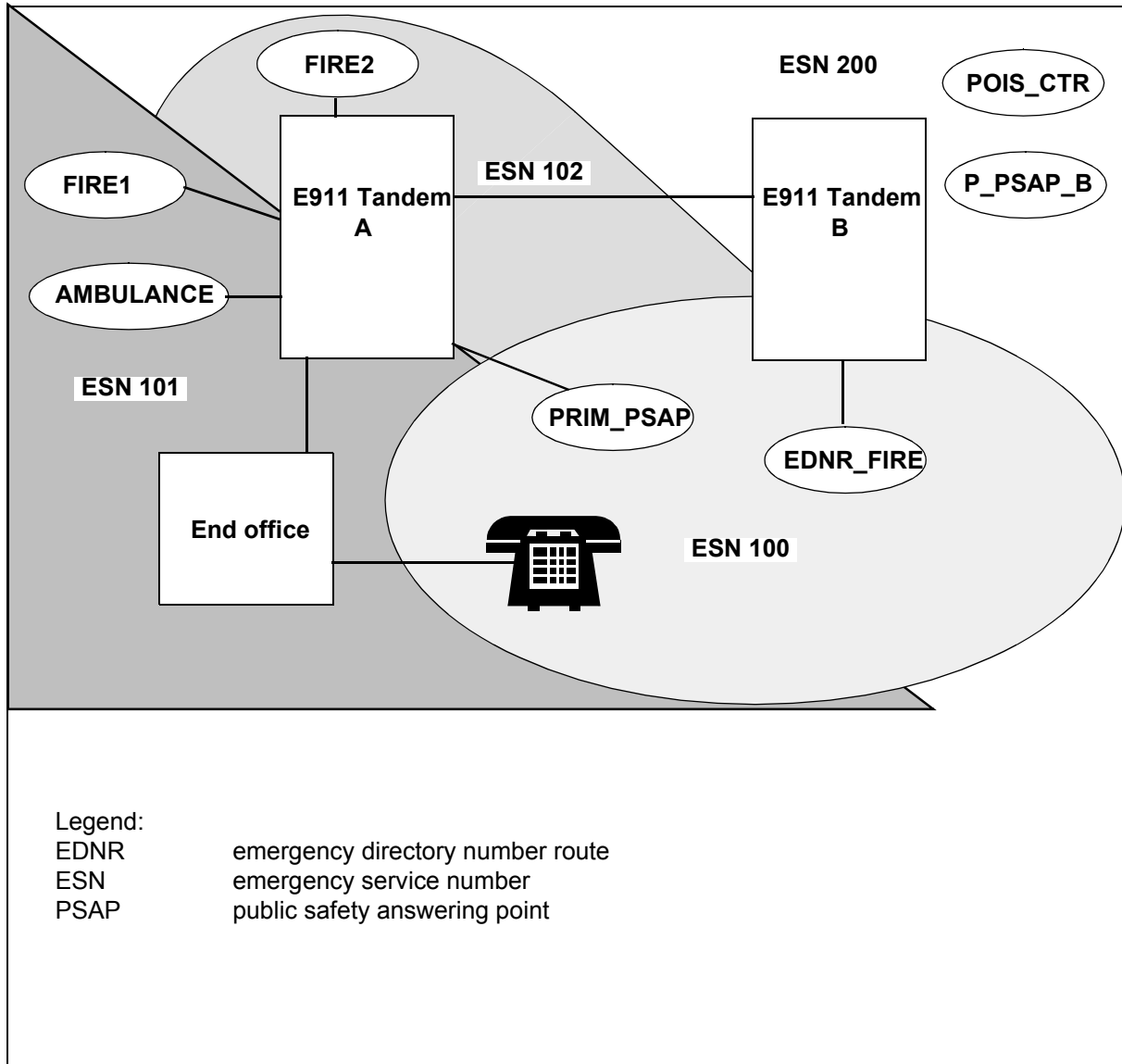
The system can use an EDNR to selectively transfer an E911 call to a secondary PSAP. The E911 tandem that hosts the primary PSAP of the caller does not serve this secondary PSAP directly. If this event occurs, table E911ESN provides the EDNR of the PSAP name from table E911PSAP as a secondary PSAP. This action allows the PSAP attendant to use selective transfer capabilities.

The DN entered against the EDNR in table E911PSAP allows the system to route the call to a trunk outgoing to the second tandem. The delivery of the seven-digit DN of the secondary PSAP to the second tandem allows the call to complete directly to that PSAP.

An arrangement in which a second E911 tandem services two secondary PSAPs appears in the following figure.

DMS Integrated E911 PSAP Functionality (continued)

Tandem-to-tandem transfer application



Sample tables used for tandem-to-tandem transfer appear in the following examples.

DMS Integrated E911 PSAP Functionality (continued)

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
PRIM_PSAP	6211235	N
EDNR_FIRE	7771010	Y
NONE	\$	

MAP example for table E911ESN

ESN...PRIMPSAP	PSAP1....PSAP2.....	PSAP3....	PSAP6
100..PRIM_PSAP	EDNR_FIRE ...	AMBULANCE...	POIS_CTR...NONE
101..PRIM_PSAP	FIRE1.....	AMBULANCE...	POIS_CTR...NONE
102..PRIM_PSAP	FIRE2.....	AMBULANCE...	POIS_CTR...NONE

The system interprets the call as an E911 call at the second tandem when one of the following conditions occur:

- An E911 trunk terminates the call to the second tandem.
- Translations allow the system to access an E911 VFG at the second tandem. This action must occur before the system delivers the call to the secondary PSAP.

For the second condition, the DN delivered to the tandem must invoke the virtual facility. The VFG must be able to translate to the seven-digit DN of the PSAP. The DN delivered to the tandem and the actual DN of the secondary PSAP are different.

Call control at the second tandem

When the system presents a call at the second tandem, the tandem performs E911 functions and translations. The digits received as the called number determine how the second tandem performs these operations:

- If the called number is 911, 11 or 1, the tandem associates an ESN with the caller through the selective routing database. The tandem can associate the ESN through one of the default methods. One of these methods is trunk group datafill. When the tandem obtains the ESN, the tandem associates a primary PSAP with the ESN. The tandem proceeds to route the call to the PSAP.
- If the called number is not 911, 11 or 1, the tandem associates an ESN with the caller, as described previously. The tandem does not attempt to route

DMS Integrated E911 PSAP Functionality (continued)

the call to a primary PSAP. The tandem uses the digits received to route the call.

In both conditions, the tandem associates an ESN with the call. The PSAP attendant that answers the call can perform selective transfer. The second tandem uses the ESN and PSAP of the current tandem to perform any additional transfers. This information can differ from the ESN and PSAP of the first tandem. The multi-tandem arrangement does not have inherent intelligence that allows a second tandem to view the call in the same way as the first tandem.

Limits

The following limits apply to DMS Integrated E911 PSAP Functionality:

- You can add the LINEPSAP option to a hunt group with line class codes IBN, PSET, or M5xxx lines, where xxx is the model number of an M5000 series set.
- Do not route E911 calls to access tandem-to-carrier trunks during overflow conditions or selective transfer. The ANI spill is the pilot for the PSAP when you use these trunks.
- The LINEPSAP hunt group members cannot place 911 callers on hold. A LINEPSAP hunt group member receives a negative acknowledgement (NACK) treatment (T120) if the member attempts to hold a call. The customer group in table CUSTSTN (Customer Group Station) for the LINEPSAP hunt group must not have the call hold feature assignment. MBS telephones have a hold button to place calls on hold.
- The LINEPSAP hunt group members cannot place 911 callers on hold. A LINEPSAP hunt group member receives a negative acknowledgement (NACK) treatment (T120) if the member attempts to activate call park. The customer group in table CUSTSTN for the LINEPSAP hunt group must not have the call park feature assignment.
- The ALI (automatic line identification) functionality is not compatible with (PRK) on E911 PSAPs. The ALI functionality is not consistent with parked calls.
- The call park feature is not compatible with E911 Orighold (originator hold). The ability of the E911 tandem to hold a call during call park is not compatible for all call possibilities.
- The E911 subsystem generates the E911212 log for calls that a PSAP parks. The E911212 log appears at the time the retriever disconnects.
- The ACDPSAPs cannot activate any call hold features. You must not assign the call park (CPARK) and the call hold (CHD) features to the ACDPSAP customer group in table CUSTSTN.

DMS Integrated E911 PSAP Functionality (continued)

Feature limits associated with datafill and service orders appear in the specified sections of this chapter.

Interactions

The following paragraphs describe the interactions between DMS Integrated E911 PSAP Functionality and other functionalities.

Speed calling

The E911 PSAP reserves speed calling codes 10 to 16 for selective transfers. The system ignores tuples in table IBNSC for these codes during a selective call transfer. This action occurs if the selective transfer code associates with a correct secondary PSAP.

Activation/deactivation by the end user

The subscriber dials 911 to activate an emergency call to a PSAP operator. To deactivate the call, the subscriber goes on-hook. This action does not occur if the interoffice trunk group has the originator hold capability and the caller end office supports originator hold. If this condition occurs, the system maintains the call path through the tandem and the end office. The PSAP operator controls the disconnect. If the PSAP operator goes on-hook first, the tandem forces a disconnect. With Enhanced Called Party Hold (ECPH), the system maintains the call path from origination until the PSAP answers or until the ECPH timeout period lapses. This action is not affected if the caller goes on-hook.

Billing

The DMS Integrated E911 PSAP Functionality does not affect billing.

Station Message Detail Recording

The DMS Integrated E911 PSAP Functionality does not affect Station Message Detail Recording.

DMS Integrated E911 PSAP Functionality (continued)

Datafilling office parameters

The datafill for the office parameters appears in the following table. Refer to *Office Parameters Reference Manual* for directions on how to calculate each office parameter.

Office parameters by DMS Integrated E911 PSAP Functionality

Table name	Parameter name	Explanation and action
OFCVAR	E911_CHECK_DE FAULT_ESN	Specifies if you can enter an E911 trunk group in table TRKGRP if the trunk group does not have an ESN entered in table E911ESN. If this parameter is set to N, you can enter an ESN not entered in table E911ESN to table TRKGRP. The system provides a warning message and generates a log. If this parameter is set to Y, you cannot add this type of ESN to table TRKGRP. The following error message appears: ESN MUST BE IN TABLE E911ESN
OFCENG	E911_NUMBER_ OF_FDBS	Specifies the number of E911 feature data blocks to allocate in the office. The use of an E911 feature data block begins when a call terminates to a PSAP or to an ACD queue. The use of the feature data block continues until all parties in the call go on-hook. The following E911 functions do not work for a call that cannot get a feature data block: • originator hold (ORIGHOLD) • switchhook status tone • E911212 logs • disconnect timing • remote call event records • automatic location identification • ANI • ringback (ringback on hold functions, ringback does not function) • selective transfer
OFCENG	E911_NUMBER_ OF_FDBS (continued)	If a call cannot get a feature data block, the system generates an E911224 log. The value of this parameter must not exceed the value of NO_OF_CRITICAL_FTR_DATA_BLKs.

DMS Integrated E911 PSAP Functionality (continued)**Office parameters by DMS Integrated E911 PSAP Functionality**

Table name	Parameter name	Explanation and action
OFCVAR	E911_PSAP_DISCONNECT_TIME	When the calling party disconnects before the LDT PSAP the E911 tandem receives a call disconnect signal. The tandem sends an on-hook signal to the PSAP and starts a disconnect timer to receive an on-hook signal from the PSAP. If the timer expires, the system generates an E911204 log. The system can raise an alarm. These actions occur for a Line PSAP not equipped with a Meridian business set.
OFCVAR	E911_PSAP_OFFHK_ALARM_TIME	Specifies how long the alarm E911_PSAP_OFFHK remains active without manual clearing when the E911_PSAP_DISCONNECT_TIME timer expires. The system activates this timer when a PSAP remains off-hook and does not have a voice path with any other agent. The value of this office parameter is 0 s to 600 s. If you enter 0, the system does not activate the alarm.
OFCSTD	E911_PSAPS_USING_1_INFO_DIGIT	When set to N, all PSAPs use 3-digit information ANI. The number of allowed numbering plan areas increases to 16. Table E911NPD must be empty when you perform this action. You can only change this office parameter from Y to N. The NTX447AA functions normally require this parameter set to Y.
OFCENG	NO_OF_CRITICAL_FTR_DATA_BLKs	Specifies the number of feature data blocks reserved for critical features. Critical features include E911 which must always get a feature data block. The value of this parameter must equal or exceed the value of the E911_NUMBER_OF_FDBS parameter.

Office parameter activation method

The office parameter activation methods are as follows:

- E911_CHECK_DEFAULT_ESN - IMMEDIATE
- E911_NUMBER_OF_FDBS - IMMEDIATE
- E911_PSAP_DISCONNECT_TIME - IMMEDIATE
- E911_PSAP_OFFHK_ALARM_TIME - IMMEDIATE
- E911_PSAPS_USING_1_INFO_DIGIT - IMMEDIATE
- NO_OF_CRITICAL_FTR_DATA_BLKs - COLD RESTART

DMS Integrated E911 PSAP Functionality (continued)

Office parameter limits

The office parameter limits are as follows:

- You cannot change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N if table E911NPD contains entries. You must delete all entries from table E911NPD before you change the value of this parameter.
- You cannot change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N if table HUNTGRP contains entries with ANISPILL = Y and NUMIDIGS = 1. You must change NUMIDIGS to 3 before you change this parameter.
- You cannot change the office parameter E911_PSAPS_USING_1_INFO_DIGIT from N to Y.

Office parameter warning and error messages

The office parameter warning and error messages are as follows:

- The system generates an error message if you change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N and table E911NPD

DMS Integrated E911 PSAP Functionality (continued)

contains entries. You must first delete any E911 trunks with associated SNPA's in table E911NPD.

- Response: All entries from table E911NPD must be deleted prior to changing the value of this parameter.
- The system generates an error message if you change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N and table HUNTGRP contains entries with ANISPILL = Y and NUMIDIGS = 1.
 - Response: NUMIDIGS of hunt group must be changed to 3 before changing this parameter.
- The system generates an error message if you change office parameter E911_PSAPS_USING_1_INFO_DIGIT from N to Y.
 - Response: Not allowed to change this parameter from N to Y.
- The system generates a warning message if you change office parameter NO_OF_CRITICAL_FTR_DATA_BLKs.
 - WARNING: A COLD RESTART MUST BE PERFORMED TO ACTIVATE CHANGES TO THE VALUE OF THIS PARAMETER.
- The system generates an error message if you attempt to change the parameter E911_NUMBER_OF_FDBS to a value that exceeds NO_OF_CRITICAL_FTR_DATA_BLKs.
 - ERROR: E911_NUMBER_OF_FDBS has NOT been changed. The office parameter NO_OF_CRITICAL_FTR_DATA_BLKs must be increased before this parameter can be changed.

Provisioning rules

Each office parameter requires approximately one word.

Office parameter verification

E911_NUMBER_OF_FDBS

To verify this parameter, check for an E911223 log report after the cold restart. If the system did not generate an E911223 log, the system allocates the requested number of E911 feature data blocks.

If the E911 tandem cannot allocate the requested number of feature data blocks during a cold restart, the system generates an E911223 log. The E911223 log specifies the number of E911 feature data blocks requested and the number allocated.

DMS Integrated E911 PSAP Functionality (continued)

E911_PSAP_OFFHK_ALARM_TIME

To verify this parameter, take a PSAP off-hook. Wait for the number of seconds that the E911_PSAP_DISCONNECT_TIME parameter specifies to pass. The system generates alarm E911_PSAP_OFFHK. This alarm remains active for the number of seconds that E911_PSAP_OFFHK_ALARM_TIME defines.

NO_OF_CRITICAL_FTR_DATA_BLKs

If the switch cannot allocate the requested number of critical feature data blocks, a SWERR (software error) occurs.

You can set the number of critical feature data blocks to a number less than the number of E911_NUMBER_OF_FDBS. When this action occurs, the system generates an E911223 log. This log specifies the number E911 feature data blocks requested and the number of critical feature data blocks allocated.

If the system does not generate a SWERR or E911223 log after the cold restart, the system allocates the requested number of critical feature data blocks.

Datafill sequence

The tables that require datafill to implement DMS Integrated E911 PSAP Functionality appear in the following table. The tables appear in the correct entry order.

Datafill tables required for DMS Integrated E911 PSAP Functionality

Table	Purpose of table
LNINV	Line Circuit Inventory. The data for each line card slot that receives a line PSAP assignment appears in table LNINV.
HUNTGRP	Hunt Group. Table HUNTGRP contains the data for each of the hunt groups assigned in the DMS-100.
HUNTMEM	Hunt Group Member. This table defines the Line PSAP hunt group members.
ACDGRP	Automatic Call Distribution Group. To create an ACD PSAP group, use the table editor to add a tuple. This table only contains ACD PSAP entries.
DNROUTE	DN Route. This table contains the primary and additional PSAP DNs for the ACD PSAP group.

DMS Integrated E911 PSAP Functionality (continued)

Datafill tables required for DMS Integrated E911 PSAP Functionality

Table	Purpose of table
E911PSAP	Enhanced 911 Public Safety Answering Point. This table contains the names and DNs of PSAPs and EDNRs. Entry of data in this table only occurs for line PSAP. This document does not provide datafill procedures and examples because entry of this table occurs through SERVORD.
KSETFEAT	Business Set and Data-Unit Feature. This document does not provide datafill procedures or examples because entry of this table occurs through SERVORD.
E911ALI	Enhanced 911 Direct Access to AT&T ALI Controller. Enter this table if one of the following feature packages is present: • NTXN17AA (E911 Direct Interface to CCI ALI Database) • NTXN66AA (E911 Direct Access to Data Mgt. System ALI Database)
E911ESN	Enhanced 911 Emergency Service Number.
E911NPD	Enhanced 911 Numbering Plan Digit. Enter this table if feature package NTX451AA (E911 Database) is present.
E911RCER	Enhanced 911 Remote Call Event Record. Enter this table for line and ACD PSAPs only.
E911SRDB	Enhanced 911 Selective Routing Database. Enter this table if feature package NTX451AA (E911 Database) is present.
TRKGRP.E911	Enhanced 911 (E911) Trunk Group (Type #911).
TRKSGRP	Trunk Subgroup. This table defines additional parameters for DMS-100/200 trunk subgroups.
STDPRTCT.ST DPRT	Standard Pretranslator Subtable. Enter this table for E911 pretranslator routing only.
CUSTSTN	Customer Group Station Option.
IBNSC	IBN Speed Calling List.

Datafilling table LNINV

The data for each line card slot that has a line PSAP assigned appears in Table LNINV. Use the data schema section of this document to find information necessary to fill this table. You can make table entries for ACD PSAPs when you enter ACD groups.

DMS Integrated E911 PSAP Functionality (continued)

Datafilling table ACDGRP

To create an ACD PSAP group, use the table editor to add a tuple to table ACDGRP. The value ACDPSAP in the OPTIONS field defines the ACD group as a PSAP. Subfield ANONCALL controls when anonymous calls can terminate at the ACD PSAP group. This option only applies to the primary DN in the ACD PSAP group.

The system reroutes E911 calls terminated at an ACD PSAP if one of the following conditions is present:

- The maximum number of calls in the incoming call queue exceeds the maximum number. Field MAXCQSIZ defines the maximum number of calls. The system routes additional calls to the route specified in the THROUTE fields of table ACDGRP.
- The amount of time a call at the head of the queue waits for presentation to an idle agent exceeds the maximum time. Field MAXWAIT defines this time. When the amount of time exceeds the maximum time, the system does not queue incoming calls. The system uses the THROUTE fields to reroute additional calls.
- If you set the MAXWAIT or MAXCQSIZ field to zero, the system uses the THROUTE fields to reroute all calls.
- If you configure the ACD PSAP for night service, the system uses the NSROUTE fields in table ACDGRP to reroute all calls.
- The ACD base package provides other types of overflow. These types of overflow include enhanced overflow of enqueued calls and controlled interflow.

The THROUTE and NSROUTEs index table IBNRTE or table OFRT.

The ACD PSAP must be in table ACDGRP before you can enter a PSAP DN in table DNROUTE. You can add ACD stations through SERVORD.

To assign the DMS Integrated E911 PSAP Functionality feature package, enter data in table ACDGRP. To perform this action, enter the values in the following list in the table fields.

Datafill for the DMS Integrated E911 PSAP Functionality for table ACDGRP appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table. Refer to the data schema section of this document for a description of the other fields.

Note: When ACDPSAP is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field NATLXLA appears. When the value of field NATLXLA is 'Y', field PSAPDN in table E911PSAP is ten digits. When the value is 'N',

DMS Integrated E911 PSAP Functionality (continued)

field PSAPDN is seven digits. This value affects E911 call translations and routing.

Datafilling table ACDGRP

Field	Subfield	Entry	Explanation and action
OPTIONS		refer to subfield	Options. This field contains subfield OPTION.
	OPTION	ACDPSAP	Option. Enter ACDPSAP. This subfield identifies an ACD group as an E911 ACD PSAP group.
	ANONCALL	Y or N	Anonymous call. This subfield specifies if anonymous calls can terminate to this group. An anonymous call is a call that dials the 7-digit PSAP DN. The standard translations process this call. The value Y indicates anonymous calls can terminate to this group. The value N does not allow calls to terminate to this group. The system does not block supplementary DNs when this value is N. The system only blocks the primary DNs.

Datafill for ACDCPK for DMS Integrated E911 PSAP Functionality datafill for table ACDGRP appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table. Refer to the Customer Data Schema Reference Manual for a description of the other fields.

Datafilling table ACDGRP

Field	Subfield	Entry	Explanation and action
OPTIONS		refer to subfield	Options. This field contains subfield OPTION.
	OPTION	ACDCPK	Option. Enter ACDCPK. This subfield identifies an ACD group that allows the call park feature.
	CPKRECALL	Y or N	Call park recall. Enter Y to select the call park recall timer and datafill refinement CPKRTMR. If you do not require these options, enter N.

Field	Subfield	Entry	Explanation and action
	CPKRTMR	12 to 240	Call park recall timer. This subfield specifies the time limit for the recall timer for unanswered parked calls. The call recalls to the agent that initiated the call park request or to the ACD group incoming call queue. Note: CPKRTMR has priority over the call park recall timer in table CUSTSTN.

ACDNAME	CUSTGRP	ACDRNGTH	THROUTE
NSROUTE	PRIOPRO	DBG	MAXCQSZ
		MAXWAIT	
			ACDMIS
			MSQS
			DISTRING
			OBSWTONE
FRCNGTSV			
			OPTIONS
RALPOLICE	CUSTGRP1	12	OFRT 102
IBNRTE	15	0 N	5 12
		Y 0 0 N	\$
Y	5	10 15	WAIT N Y 1 Y 5
	N		Both Y
			(ACDPSAP Y) (ACDCPK Y 12) \$

DMS Integrated E911 PSAP Functionality (continued)

Error messages for table ACDGRP

The following error messages apply to table ACDGRP.

Error messages for table ACDGRP

Error message	Explanation and action
Cannot add ACDPSAP because the ACD group is already referenced by table DNROUTE.	The system generates this error message if you attempt to add the ACDPSAP option to an ACD group referenced through table DNROUTE. To add the ACDPSAP option, use SERVORD to remove the entry from table DNROUTE. Remove the ACD stations associated with the ACD group. Add the ACDPSAP option to the ACD group in table ACDGRP. Use SERVORD to enter the PSAP DN in table DNROUTE. After you complete this action, use SERVORD to enter the ACD stations.
All agents must be deleted from the ACD PSAP group before assigning the ACDPSAP option.	This error message appears if you add the ACDPSAP option after an ACD group has an agent assigned. The ACD group must have the ACDPSAP option before the assignment of agents.
ACDPSAP and MUSIC are incompatible if the AUDIOGRP in the AUDIO option has MUSIC set in table AUDIO.	The system generates a message when the audio group associated with the ACD PSAP specifies MUSIC treatment as the audio CHOICE. For this action to occur, the AUDIO option must be present or added. To prevent this problem, perform one of the following actions: • use an AUDIOGRP in the AUDIO option that does not specify MUSIC • change the AUDIOGRP in table AUDIO so that MUSIC is not specified as a CHOICE
Cannot delete ACDPSAP because the ACD group is already referenced by table DNROUTE.	This error message appears if you attempt to remove the ACDPSAP option from an ACD group in table ACDGRP. You can reference this option in table DNROUTE. You must remove the DN that refers to the ACD group from table DNROUTE before you can remove the ACDPSAP.

DMS Integrated E911 PSAP Functionality (continued)

Error messages for table ACDGRP

Error message	Explanation and action
All agents must be deleted from the E911 ACD PSAP group before removing the ACDPSAP option.	This message appears if you delete the ACDPSAP option before all agents are removed from the ACD group.
The specified audio group is referenced by an ACD PSAP in table ACDGRP. MUSIC is not allowed as an audio choice.	You can change an AUDIO group associated with an ACD PSAP group in table AUDIO. When you perform this action, software checks if MUSIC is the CHOICE option. If MUSIC is the CHOICE option, this error message appears.

Datafilling table DNROUTE

Table DNROUTE defines features of the ACD PSAP lines. The table contains the primary and auxiliary PSAP DNs for the ACD PSAP group. You can use the table editor to enter the primary DN in table DNROUTE. When you perform this action, the system automatically places the PSAP name and primary DN in table E911PSAP. The system generates the E911212 log report for each DN with an assigned priority of 0 (zero).

You can use auxiliary DNs as emergency lines that are distinguished from E911 calls. You must assign these emergency lines a lower priority. Auxiliary lines are not in table E911PSAP. You can call these lines if ANONCALL is N in table ACDGRP.

This table does not introduce any new fields or values in this table for the ACD PSAP. You can only enter one primary ACD PSAP DN in table DNROUTE for each ACD PSAP. Table ACDGRP must contain the ACD PSAP before you

DMS Integrated E911 PSAP Functionality (continued)

can enter primary and auxiliary PSAP DNs in table DNROUTE. After you enter data this table, use SERVORD to enter the ACD stations.

Datafilling table DNROUTE

Field	Subfield or refinement	Entry	Explanation and action
AREACODE		0 to 9999999 (1 to 7 digits)	Area code. The area code identifies an important geographical area that the switch serves. If you set office parameter ACTIVE_DN_SYSTEM in table OFCENG to North American, the area code must be three digits long.
OFCCODE		0 to 9999999 (0 to 7 digits)	Office code digit register. The office code is a subregion of the area code. If you set office parameter ACTIVE_DN_SYSTEM in table OFCENG to North American, the area code must be three digits in length. Table TOFCNAME must contain the office code.
STNCODE		0 to 99999999 (maximum of 8 digits)	Station code. The station code identifies a station in the terminating office (TOFC). If you set office parameter ACTIVE_DN_SYSTEM in table OFCENG to North American, the area code must be one or four digits in length. If you enter one digit, the system treats the number as a D-digit. The D-digit represents the fourth digit in the format ABC-DEFG. The system provides the D-digit the appropriate DN result. You can enter area code 613 and office code 226. If you enter 5 as the station code, the system routes any calls to a number that begins with 6132265 to the specified treatment. If 5 is the D-digit, you can enter the DNROUTE as 613 226 5 D OPRT. When you perform this action, the system routes any numbers for 6132265 to the operator treatment in table TMTCTL. You cannot have more than one meaning in the STNCODEs of one TOFC. You cannot specify 8594 and 859 as STNCODEs in one TOFC. Note: STNCODE is in DEFG format.

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following table.

DMS Integrated E911 PSAP Functionality (continued)

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
613	621	1235	
		FEAT ACD RALPOLICE PRIM 0 0 \$	
613	621	3784	
		FEAT ACD RALPOLICE SUPP 1 \$	

Error messages for table DNROUTE

The following error messages apply to table DNROUTE.

Error messages for table DNROUTE

Error message	Explanation and action
A PRIMARY ACDDN ALREADY EXISTS FOR THE SPECIFIED ACD GROUP	If you assign a second primary DN to an ACD PSAP, this error message appears.
The ACD group name associated with this DN is already used by another E911 PSAP in table E911PSAP	This error message appears if another E911 PSAP uses the group name selected for an ACD PSAP DN. To correct this problem, change the group name in table ACDGRP or remove the other E911 PSAP from table E911PSAP.
ACD PSAP group name associated with this DN is referenced by table E911ESN	You cannot delete an ACD DN tuple with an ACD group PSAP name that appears in table E911ESN. This action causes an error message to appear. To remove the entry from table DNROUTE, remove the PSAP name from the tuple in table E911ESN first.
LDTPSAP/LINEPSAP option data not updated PSAP name in use by other tables. Use TABREF E911PSAP to determine other references.	This error message occurs after an attempt to delete a tuple. This tuple belongs to an ACD PSAP group with a name that appears in Tables E911ESN and E911ALI.
Not allowed to change the DNTYPE for and ACD PSAP entry in DNROUTE. Delete and re-add it with the new DN type	If you attempt to change the DNTYPE of a DNROUTE entry for an ACD PSAP group, this error message appears.

DMS Integrated E911 PSAP Functionality (continued)

Datafilling table E911PSAP

Table E911PSAP contains the names and DNs of PSAPs and EDNRs. Selective routing and selective call transfer to an emergency agency require an EDNR under the following conditions:

- The emergency agency is not an E911 PSAP.
- The E911 central office switch does not serve the emergency agency.

When line hunt groups are configured, entry of this table automatically occurs through SERVORD. You can use the table editor commands to enter an EDNR.

The table contains the default tuple NONE \$. The \$ indicates that this PSAP does not have an associated DN. This tuple is always present. The system uses this tuple in table E911ESN when secondary PSAPs are not present. You can use the table editor only to add, delete or change EDNR tuples in table E911PSAP.

The key to this table is the name of a PSAP. One of two data fields associated with the key field is the 18-digit DN of the PSAP. The other data field specifies if the DN associates with an EDNR. This table contains an entry for each PSAP that the E911 office services.

The system uses table HUNTGRP to enter data in table E911PSAP when you add the LINEPSAP option to a hunt group. You can enter data in this table through table DNROUTE if an ACD PSAP is configured.

To define line PSAP names and DNs, use SERVORD to enter table E911PSAP. For ACD PSAP configurations, table DNROUTE enters data in this table automatically. You must enter data in table E911PSAP before you can use any of the PSAP names in the table E911ESN. This table appears later in this document.

The DMS Integrated E911 PSAP Functionality datafill for table E911PSAP appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table.

Note: When provisioning options LINEPSAP, LDTPSAP, ACDPSAP, and PRIPPSAP, table E911PSAP is automatically datafilled with the PSAP name and associated DN. When one of these options is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field NATLXLA appears. When the value of field NATLXLA is 'Y', PSAPDN field in table E911PSAP is ten

DMS Integrated E911 PSAP Functionality (continued)

digits. When the value is 'N', PSAPDN field is seven digits. This value affects E911 call translations and routing.

Datafilling table E911PSAP

Field	Subfield or refinement	Entry	Explanation and action
PSAPNAME		alphanumeric(1 to 16 characters)	PSAP name. This field names the PSAP that offers emergency service. Correct entries are 1 to 16 characters.
PSAPDN		numeric (18 digits)	PSAP DN. Enter the DN of a line PSAP, LDT PSAP, or ESN. The default is \$.
EDNR		Y or N	Emergency directory number route. Enter Y if an EDNR is used. If you enter table E911PSAP through table HUNTGRP, the system sets this field to N. If you set this field to N, you cannot change or delete tuples.

Datafill example for table E911PSAP

Sample datafill for table E911PSAP appears in the following table.

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
CARYPOLICE	4691235	N
NCRESCUE	19195585219	Y

Limits for table E911PSAP

The limits apply to table E911PSAP:

- You cannot delete or change an entry in table E911PSAP that is not an EDNR directly. You must use SERVORD commands to perform these operations.
- The maximum size of this table is 7000 tuples.
- You must remove the references to a tuple in tables E911ESN and E911ALI before you can remove a tuple from table E911PSAP.

DMS Integrated E911 PSAP Functionality (continued)

Error messages for table E911PSAP

The following error messages apply to table E911PSAP.

Error messages for table E911PSAP

Error message	Explanation and action
An EDNR DN cannot be less than seven digits	If you enter a PSAP entry in the table with less than seven digits for the PSAP DN, this error message appears.
Only PSAP entries with EDNR = Y can be added/changed/deleted from table E911PSAP.	If you change or delete an entry in table E911PSAP that is not an EDNR, this message appears.

Datafilling table E911ALI

Enter this table E911ALI if the tandem contains one of the following feature packages:

- NTXN17AA (E911 Direct Interface to CCI ALI Database)
- NTXN66AA (Direct Access to Data Mgt. System ALI Database)

Datafilling table E911RCER

The tandem can contain feature package NTXP99AB, E911 Remote Call Event Record. When this condition occurs, enter table E911RCER at this stage in the E911 data entry process.

Datafilling table E911ESN

The key to this table is an ESN. The result is a flash field and a maximum of seven PSAP names. An emergency service number is a three-digit number associated with an emergency service zone. This table contains an entry for each emergency service zone that the E911 office serves.

Use table E911ESN to assign the DMS Integrated E911 PSAP Functionality feature package. To perform this action, enter the values that appear in the fields in the following table. You must enter data in table E911PSAP before you enter data in table E911ESN.

Datafill for the DMS Integrated E911 PSAP Functionality for table E911ESN appears in the following table. The fields that apply to DMS Integrated E911

DMS Integrated E911 PSAP Functionality (continued)

PSAP Functionality appear in the table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table E911ESN

Field	Subfield or refinement	Entry	Explanation and action
ESN		numeric (0 to 15 999)	Emergency service number. A one to five-digit number that represents an emergency service zone. Correct entries are 0 to 15 999. You can add an ESN that is not in table E911ESN to table TRKGRP. The following warning message appears: ESN MUST BE IN TABLE E911ESN The system generates the following log report E911205: WARNING. ESN not present in table E911ESN THIS ESN MUST BE DATAFILLED IN TABLE E911ESN FOR 911 CALLS TO COMPLETE.
FLASH		N	Flash. This field alerts the LDT PSAP attendant that the calling party that uses this ESN requires attention. A Line PSAP or ACD PSAP does not understand the value Y. Enter N.
PRIMPSAP, PSAP1, PSAP2, PSAP3, PSAP4, PSAP5, PSAP6		alphanumeric (1 to 16 characters)	Primary PSAP. Secondary PSAPs. Values of these fields are the names of PSAPs previously entered in table E911PSAP. These values indicate the type of service provided. An example of a type of service provided is RALEIGHFIRE. You must enter all secondary PSAPs that provide a specified service as the same field. Enter fire as PSAP1. If an emergency service zone does not offer a specified emergency service, enter that field as NONE. The PSAP operator can dial selective transfer codes *11 through *16. These codes are associated with PSAP1 through PSAP6. Selective transfer code *10 dialed from any secondary PSAP causes a call to transfer to the primary PSAP. Selective transfer code *10 from the primary PSAP causes a call to transfer to another available member or to the overflow routing of the primary PSAP.

DMS Integrated E911 PSAP Functionality (continued)

Datafill example for table E911ESN

Sample datafill for table E911ESN appears in the following table.

MAP example for table E911ESN

ESN	FLASH	PRIMPSAP	PSAP1	PSAP2	PSAP3	PSAP4
PSAP5	PSAP6					
123	N	CARYPOLICE	CARYFIRE	NONE	NONE	NONE
NONE						
CARYAMBULANCE						

E911ESN limits

You cannot delete an entry in table E911ESN if references to the entry appear in the following tables:

- TRKGRP
- E911SRDB
- E911ALI
- subtable STDPRT of table STDPRTCT

Datafilling table E911SRDB

If the tandem has feature package NTX451AA, E911 Database, enter table E911SRDB at this stage in the E911 data entry process.

Datafilling table TRKGRP

The changes to this table are a new E911 trunk group type and the associated data. Use the E911 selector to enter the dedicated 911 trunks incoming to the E911. The E911 trunk group data contains several fields to support functions. These functions include operator hold, enhanced called party hold, direct seizure, and BELL or AMR format ANI.

To perform default routing of a 911 call, you must associate the ESN data field with the E911 trunk group type. The ESN in the E911 trunk group data associates with an ESN in table E911ESN. The system can use the default to route a 911 call and the ESN in the E911 trunk group data is not present in table E911ESN. When this condition occurs, the system cannot complete the call. The system sends the call to vacant code treatment.

An ESN in the E911 trunk group data is not always in table E911ESN. When you set the E911_CHECK_DEFAULT_ESN office parameter to N, the system generates a warning message and an E911205 log. If the trunk group default

DMS Integrated E911 PSAP Functionality (continued)

ESN is not entered in table E911ESN, the system cannot route calls on this trunk group. The system sends these calls to vacant code treatment.

An ESN in the E911 trunk group data is not always entered in table E911ESN. When you set the E911_CHECK_DEFAULT_ESN office parameter to Y, the system generates a message. When this action occurs, you cannot enter the tuple. You must enter the following tables before table TRKGRP:

- E911ESN
- HUNTGRP
- E911PSAP

This action changes the normal datafill sequence.

You must have entered the CLLI in the key field of table TRKGRP in table CLLI. Tables TRKSGRP and TRKMEM require trunk group information.

To assign the DMS Integrated E911 PSAP Functionality feature package, enter table TRKGRP. To perform this action, enter the values that appear in the fields of the following table. Subfields TRAFSNO, PADGRP, and NCCLS do not appear in the table because E911 does not modify the content of these subfields.

The DMS Integrated E911 PSAP Functionality datafill for table TRKGRP appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table.

Datafilling table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY			Group key. This field identifies the name of the trunk group.
	GRPTYP	E911	Group type. Enter E911.
	SNPA	numeric (5 digits)	Serving numbering plan area. This subfield serves the numbering plan area of the E911 trunk group that also has an NPD entered in the table E911NPD. If office parameter E911_PSAPS_USING_1_INFO_DIG is N, the system does not check table E911NPD for a numbering plan digit.

DMS Integrated E911 PSAP Functionality (continued)**Datafilling table TRKGRP**

Field	Subfield or refinement	Entry	Explanation and action
	ECPH TIME	numeric to 255	0 Enhanced Called Party Hold (ECPH) Time. A non-zero entry activates ECPH TIME and determines the amount of time ECPH remains active. The default entry is 0.
	ORIG HOLD	Y or N	Originator hold. The value of this subfield is Y if the end office at which this trunk originated supports the operator hold function. If the end office does not support the hold function, the value is N.
	SIG FMT	AMR4 AMR5 or BELL	Signaling format. Enter the format of the ANI information that is incoming on the trunk. If the format type is AMR4, enter AMR4. Enter refinement NCATDIGS. If the format type is AMR5, enter AMR5. Enter refinement NCATDIGS. If the format type is BELL, enter BELL. Enter refinement INFODIGS.
	NCATDIGS	numeric or 3)	(2 Number of category digits. This field is present only if you enter SIGFMT as AMR4 or AMR5. The value of this subfield indicates the number of category digits expected with the ANI.
	INFODIGS	numeric or 2)	(1 This subfield is only present if you enter SIGFMT as BELL. The value of this subfield indicates the number of information digits expected with the ANI.
	ANISEIZ	numeric to 30	2 ANI seizure timing. This subfield provides the time in seconds that this trunk waits for reception of the first ANI digit or signal. This reception occurs after the ANI request signal.
	ANIPDIAL	numeric to 30	2 ANI partial dial timing. This subfield provides the time in seconds that this trunk waits for reception of each ANI digit or signal after the first digit.
	ANIREQSG	REV or WK	ANI request signal. This subfield defines the ANI request. Enter REV for reverse or WK for wink.

DMS Integrated E911 PSAP Functionality (continued)**Datafilling table TRKGRP**

Field	Subfield or refinement	Entry	Explanation and action
	ESCO	numeric (0000 to 9999)	Emergency service central office. Four-digit number that represents the end office at which the E911 trunk originated.
	ESN	numeric (0 to 15 999)	Emergency service number. A one to five-digit number associated with the emergency service zone. This zone is used to obtain the DN of the primary PSAP to which the system default routes this call. If office parameter E911_CHECK_DEFAULT_ESN is set to N, you can assign an ESN that is not present in table E911ESN. If the parameter is not set to N, the ESN assigned must already be entered in table E911ESN.

Datafill example for table TRKGRP

Sample datafill for table TRKGRP appears in the following example. The TRAFSNO, PADGRP, and NCCLS fields appear after E911 (the group type field).

MAP example for table TRKGRP

GRPKEY	GRPINFO
E911TRK	
E911	20 ELO NCRT 613 123 Y BELL 1 10 10 WK 0848 123

Datafill for tables TRKGRP and TRKSGRP for E911 signaling protocol

To define the signaling protocol used between an end office and an E911 tandem, enter data in the following fields:

- field ANIREQSG of table TRKGRP
- field IPULSTYP of table TRKSGRP

DMS Integrated E911 PSAP Functionality (continued)

The following table provides the correct entry order.

Datafill for table TRKGRP and table TRKSGRP for E911 signaling protocols

Field ANIREQSG values	Field IPULSTYP values		
	MF	DP	NP
REV	MF E911 trunk signaling	DP E911 trunk signaling	Direct seize signaling
WK	not supported	not supported	PSAP signaling

See Table TRKDGRP for additional information on how to enter data in table TRKSGRP.

TRKGRP warning messages

The system generates standard table control error messages and the following warning messages.



DANGER

The system generates this warning message when the following events occur. An ESN is entered for an E911 trunk group that is not in table E911ESN. Office parameter E911_CHECK_DEFAULT_ESN is N.

ESN NOT PRESENT IN TABLE E911ESN. THIS ESN MUST BE DATAFILLED IN TABLE E911ESN FOR 911 CALLS TO COMPLETE.

The tuple is not added to table TRKGRP when the system generates the following message.



DANGER

The system generates this error message when the following events occur. An attempt is made to enter an emergency service number for an E911 trunk group that is not in table E911ESN. Office parameter E911_CHECK_DEFAULT_ESN is Y.ESN MUST BE IN TABLE E911ESN.

DMS Integrated E911 PSAP Functionality (continued)

Datafilling table TRKSGRP

Table TRKSGRP defines additional parameters for DMS-100/200 trunk subgroups.

The DMS Integrated E911 PSAP Functionality datafill for table TRKSGRP appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table.

Datafilling table TRKSGRP

Field	Subfield or refinement	Entry	Explanation and action
SGRPVAR		refer to subfields	Variable group data. This field contains several subfields. Only the subfields associated with this feature appear.
	IPULSTYP	MF, DP, NP	Incoming pulse type. This subfield defines the type of pulsing from an incoming or two-way trunk group. Enter MF for multi-frequency, DP for dial pulse, or NP for no pulse.

Datafill example for table TRKSGRP

See the data schema section of this document for examples of table TRKSGRP entries for E911 and OP trunk groups. These trunk groups are in an end office.

Datafilling table STDPRTCT.STDPRT

You can enter an E911 pretranslation selector and pretranslation result tuple in subtable STDPRT of table STDPRTCT. These features support 911 calls on message and foreign exchange trunks (non-E911 trunks).

Note: Message and foreign exchange trunks can also use VFGs.

The two fields that the pretranslation result defines are ESN and ESCO. The ESN field routes a 911 call to an associated PSAP. The ESCO field is used in the replacement ANI that the E911 tandem forwards to the PSAP. The replacement ANI is the ANI format sent to the PSAP for message and foreign exchange trunks. This action occurs because these types of trunks do not spill ANI.

The replacement ANI format for a PSAP that uses three information digits is NPA-911-0TTT. The digits TTT represent the emergency service central office. The digits NPA represent the serving numbering plan area of the incoming message or foreign exchange trunk group.

DMS Integrated E911 PSAP Functionality (continued)

The pretranslation selector E911 can be used only for pretranslators of message and foreign exchange trunks and not lines, coin or noncoin.

To assign the DMS Integrated E911 PSAP Functionality feature package, enter table STDPRCT.STDPRT. To perform this action, enter the following values in the table fields. Table E911ESN must already contain the value entered in the ESN field of the pretranslator tuple.

The DMS Integrated E911 PSAP Functionality datafill for table STDPRTCT.STDPRT appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table.

Note: When a PSAP option is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field NATLXLA appears. When the value of field NATLXLA is 'Y', PSAPDN field in table E911PSAP is ten digits. When the value is 'N', field PSAPDN is seven digits. The value of field NATLXLA affects 911 call translations and routing. When a E911 call is translated, tables STDPRTCT and HNPACONT use the seven- or ten-digit PSAPDN.

Datafilling table STDPRTCT.STDPRT

Field	Subfield or refinement	Entry	Explanation and action
PRERTSEL		E911	Pretranslator selector. This field is a selector for the data of the pretranslator.
	ESN	0 to 15 999	Emergency service number. A three-digit number that represents an emergency service zone. Translations uses this number to obtain the DN of the terminating PSAP for calls incoming on message and foreign exchange trunks. This action occurs if the pretranslator is in the trunk group data. Table E911ESN must contain the ESN before the ESN is a correct entry in table STDPRT.
	ESCO	0000 to 9999	Emergency service central office. The four-digit ESCO number that represents the end office where the message or foreign exchange trunk group originated.

Datafill example for table STDPRCT.STDPRT

Sample datafill for table STDPRCT.STDPRT appears in the following example.

DMS Integrated E911 PSAP Functionality (continued)**MAP example for table STDPRCT.STDPRT**

FROMDIGS	TODIGS	PRETRTE		
911	911	E911	123	0443
			(ESN)	(ESCO)

Datafilling table CUSTSTN

The E911 tandem can have trunks that require specialized supervision. For example, operator trunks. The PSAP operators can use these trunks during call transfer. For this action to occur, each customer group to which these PSAPs belong must have the CXFERSUP option in table CUSTSTN. The system can maintain two-party calls after the PSAP operator disconnects from the conference call. This option makes sure problems do not occur when the PSAP operator disconnects from the conference call.

To accommodate call transfers from PSAP positions, enter data in table CUSTSTN. To perform this action, use the table control to enter the values in the following table. Table CUSTHEAD must already contain the customer group tuple updated in table CUSTSTN.

The DMS Integrated E911 PSAP Functionality datafill for table CUSTSTN appears in the following table. The fields that apply to DMS Integrated E911 PSAP Functionality appear in the table.

Datafilling table CUSTSTN

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1 to 16 characters	Customer group name. Enter the customer group name of the customer group assigned the CXFERSUP option. Table CUSTHEAD contains the customer group name. Feature package NTX100AA, Integrated Business Network - Basic (IBN) provides the tables used to define customer groups.
OPTNAME		CXFERSUP	Option name. Enter the call transfer enhanced option CXFERSUP.
OPTION		see subfields	Option. This field contains subfields OPTION, CXTKIBN, CXTKPOTS and CXFERTON.

DMS Integrated E911 PSAP Functionality (continued)**Datafilling table CUSTSTN**

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	CXFERSUP	Option. Enter the option CXFERSUP.
	CXTKIBN	see subfields	Call transfer IBN trunks. This subfield contains subfields IBNTKSEL and ALLTRKS.
	IBNTKSEL	ALLIBN	IBN trunk selector. Enter ALLIBN.
	ALLTRKS	CONF	All trunks. Enter CONF to indicate that the system only allows conference on the Integrated Business Network trunks for this customer group.
	CXTKPOTS	see subfields	Call transfer POTS trunks. This subfield contains subfields POTSTKSEL and ALLTRKS.
	POTSTKSEL	ALLPOTS	POTS trunk selector. Enter ALLPOTS.
	ALLTRKS	ALLOW	All trunks. Enter ALLOW to indicate that the system allows all call transfers on plain old telephone service (POTS) trunks for this customer group.
	CXFERTON	N	Call transfer tone. Enter N to indicate that the system does not return a call transfer warning tone to the PSAP operator that attempts the transfer.

Datafill example for table CUSTSTN

Sample datafill for table CUSTSTN appears in the following example.

MAP example for table CUSTSTN

CUSTNAME	OPTNAME	OPTION
E911	CXFERSUP	CXFERSUP ALLIBN CONF ALLPOTS ALLOW N

Datafilling table IBNSC

Table IBNSC records fixed or manual speed calling codes from MDC lines. The system normally updates this table when the PSAP operator updates a speed call list. The LDT PSAP operators cannot program these lists. The operators must use table controls to make entries to the table. The system

DMS Integrated E911 PSAP Functionality (continued)

ignores entries in the range 11 to 16 during selective call transfer. These codes are used in table E911ESN.

Tools for verifying translations

The following example shows the output when TRAVER verifies the DMS Integrated E911 PSAP Functionality.

TRAVER output example for DMS Integrated E911 PSAP Functionality selective routing

```
traver tr e911trk '911' b n st2p 082295028 st
TABLE TRKGRP
E911DP E911 20 ELO NCRT 919 N BELL 1 10 10 N 0443 123
TABLE E911SRDB
919 822 5 028 211
TABLE E911ESN
211 N RALPOLICE RALFIRE RALFIRE2 NONE NONE NONE RALAMBLNCE
TABLE E911PSAP
RALPOLICE 8321901
TABLE HNPACONT
919 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 832 832 DN 919 832
TABLE TOFCNAME
919 832 1 Y C
TABLE DNINV
919 832 1901 H 65 0
TABLE DNATTRS
919 832 1901
(PUBLIC (NONUNIQUE) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
65 919 8321901 MLH N N N RCVD N N N N N Y LINEPSAP Y
RALPOLICE 5
TABLE HUNTMEM
65 0 N L HOST 00 0 01 01 N N
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE 9198321901
BILL 8225028
TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality default routing

```

traver tr e911trk '911' b
TABLE TRKGRP
E911MF E911 20 ELO NCRT 919 N BELL 1 10 10 N 0521 210
CALL DEFAULT ROUTED
TABLE E911ESN
210 N CARYPOLICE CARYFIRE NONE NONE NONE NONE CARYAMBULANCE
TABLE E911PSAP
CARYPOLICE 4691235
TABLE HNPACONT
919 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 469 469 DN 919 469
TABLE TOFCNAME
919 469 1 Y C
TABLE DNINV
919 469 1235 H 15 0
TABLE DNATTRS
919 469 1235
(PUBLIC (NONUNIQUE) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
15 919 4691235 MLH N N N RCVD N N N N N Y LINEPSAP Y
CARYPOLICE 5
TABLE HUNTMEM
15 0 N L HOST 00 0 00 01 N N
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE 9194691235
TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality for E911 pretranslator routing

```
>traver tr boonefx '911' b

TABLE TRKGRP
BOONEFX PX 10 ELO NCRT 2W NIL MIDL N P552 PBX1 704 LCL NONE
TSPS L704 N 32 NIL
    5514121 DIALTN Y MCI Y LATA1
TABLE STDPRTCT
P552 ( 1) ( 0)
. SUBTABLE STDPRT
. 911 911 E911 212 0789
TABLE E911ESN
212 Y BOONPOLICE NONE NONE NONE NONE NONE BOONAMBLNCE
TABLE E911PSAP
BOONPOLICE 5521900
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE  N
TABLE HNPACONT
704 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 552 552 DN 704 552
TABLE TOFCNAME
704 552 1 Y C
TABLE DNINV
704 552 1900 L HOST 00 0 00 01

TABLE DNATTRS
704 552 1900
    (PUBLIC (NONUNIQUE ) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
65 704 5521900 MLH N N N RCVD N N N N N Y LINEPSAP Y
RALPOLICE 5
TABLE HUNTMEM
65 0 N L HOST 00 0 01 01 N N

TABLE LCASCRCN
704 L704 ( 27) OPTL N
. SUBTABLE LCASCR
. 552 553
```

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality for E911 pretranslator routing (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                7045521900
TREATMENT ROUTES.    TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++TUPLE NOT FOUND
```

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality PSAP-to-PSAP routing for transfer

```
>traver 1 6216000 6216023 B

TABLE IBNLINES
PSAP 00 0 00 00 DT STN IBN 6216000 COMKODAK 0 0 613 $
TABLE DNATTRS
613 621 6000
(PUBLIC (NONUNIQUE ) $)$

TABLE DNGRPS
TUPLE NOT FOUND
TABLE NCOS
E911 0 0 0 UNREST z
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA,
VACTRMT, AND DIGCOL
E911 NXLA POTSLXLA NXLA 0 NDGT
TABLE DIGCOL
NDGT specified: digits collected individually.
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 POTSLXLA
TUPLE NOT FOUND
Default from table XLANAME:
POTSLXLA (NET N N 0 N POTS N Y DOD N O NONE) $
TABLE DIGCOL
POTS specified: POTS digit collection

TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS N 10 NIL NILSFC
LATA1 0 NIL NIL 00 N
TABLE STDPRTCT
P621 ( 1) ( 0)
. SUBTABLE STDPRT
621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE N
TABLE HNPACONT
613 128 1 ( 49) ( 1) ( 84)
. SUBTABLE HNPACODE
. 621 621 DN 613 621
```

DMS Integrated E911 PSAP Functionality (continued)

TRAYER output example for DMS Integrated E911 PSAP Functionality PSAP-to-PSAP routing for transfer (continued)

```

TABLE TOFCNAME
613 621 6 Y C
TABLE DNINV
613 621 6023 H 115 0
TABLE DNATTRS
613 621 6023
(PUBLIC (NONUNIQUE ) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
115 613 6216023 MLH N N N RCVD N N N N N Y LINEPSAP Y
DURPOLICE 10

TABLE HUNTMEM
115 0 N L PSAP 00 0 00 23 N N
TABLE LCASCRCN
613 L613 ( 13) MNDT N
. SUBTABLE LCASCR
. 621 622
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT
UNCHANGED
+++ TRAYER: SUCCESSFUL CALL TRACE +++
1 LINE                6136216023
TREATMENT ROUTES.    TREATMENT IS: GNCT
1 *OFLO
2 LKOUT
+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

Note: To activate E911 selective transfer, translations must be set to make sure access to the network does not require a special access number. An example of a special access number is 9. The E911 PSAP must be able to direct dial a seven-digit DN. This ability is a requirement because the system stores E911 PSAP DNs as seven-digit DNs in table E911PSAP.

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality tandem-to-tandem routing

```
traver tr e911icmf '911' b n st2p 82295028 st
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT 613 Y BELL 1 10 10 N 0692 111
TABLE E911SRDB
  613 621 5 001 200
TABLE E911ESN
200 YEDNR_PRIM NONE NONE NONE NONE NONE NONE
TABLE E911PSAP
EDNR_PRIM 7772000 Y
TABLE HNPACONT
613 911 2 (37) (1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 8777 777 HRTE 911
. SUBTABLE RTEREF
. 911 N S E911 OGOP 0 $ Y
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 E911OGOP 7772000 ST2P
BILL 06215001 ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality when entry to field NATLXLA is 'Y' in table ACDGRP

>traver tr e911ics7 911 b cdn 9197811478

```
TABLE TRKGRP
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 ATI NSCR 0613 000 N N
(E911 747 113 E911_STD)$
TABLE E911SRDB
919 781 1 453 111
TABLE E911ESN
111 Y ACDPSAPH2 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1
LINEPSAPMDC POLICE
TABLE E911PSAP
ACDPSAP2 6136212111 N
TABLE OFCVAR
AIN_OFFICE_TRIGGRP LNPOFFICE
TABLE HNPACONT
613 Y 917 2 (55) (1) (0) (0) 2 $
. SUBTABLE HNPACODE
. 61362121 6139 HNPA 0
. 621 621 DN 613 621
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 2111 FEAT ACD ACDPSAPH2 PRIM 0 0
TABLE DNFEAT
TUPLE NOT FOUND
```

- continue on next page -

DMS Integrated E911 PSAP Functionality (continued)

TRAVER output example for DMS Integrated E911 PSAP Functionality when entry to field NATLXLA is 'Y' in table ACDGRP (continued)

- continued from previous page -

```
TABLE DNATTRS
613 621 2111
(PUBLIC (SUPPRESS Y Y) (NAME ACDPSAPH2) $)
(PRIVATE (NAME ACDPSAPH2) $)$$
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
LNPOFFICE INFOANAL
.PODP (DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
.LNP (DG LNPDIG) (ESCEA) (ESCOP) (ESCDN) (ESCCN DD)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
AIN Term Attempt TDP: no subscribed trigger.
+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES
1 FEATURE 6136212111 ST
TREATMENT ROUTES. TREATMENT IS: GNCT 1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

- end -

SERVORD for Line and ACD PSAPs

Complete the datafill for the following required tables through SERVORD:

- HUNTGRP
- HUNTMEM
- E911PSAP
- KSETFEAT

DMS Integrated E911 PSAP Functionality (continued)

Table HUNTGRP contains the data for each of the hunt groups assigned in the DMS-100. This table now includes option LINEPSAP. You can add the LINEPSAP option to the following hunt groups:

- multiline hunt
- distributed line hunt
- DN hunt group with a line class code of IBN
- DN hunt group with one of the line class codes allowed for Meridian business sets (PSET or M5xx)

The SERVORD enters data in table HUNTMEM like table HUNTGRP when the establishment of a hunt group occurs. The table control error messages change for table HUNTMEM. This table does not contain specified E911 fields. The SERVORD does not supply E911 datafill for the table.

Table E911PSAP contains the names and DNs of PSAPs and EDNRs. Selective routing and selective call transfer to an emergency agency require an EDNR when the following conditions occur:

- The emergency agency is not an E911 PSAP.
- The E911 central office switch does not serve the emergency agency.

The addition of the three-way calling with public announcement (3WCPUB) option to table KSETFEAT makes this option available for specified Meridian business sets. These sets are configured as E911 Line or ACD PSAPs. Call transfer (CXR) is assigned to a feature key on the Meridian business set. The 3WCPUB is assigned to the primary DN key on the set. When the CXR key initiates a call, the system activates 3WCPUB.

To establish a hunt group, EST SERVORD command sets up a Line PSAP hunt group. The LINEPSAP SERVORD options determine which type of group the system creates. Additional SERVORD options in use in an E911 environment are

- CXR, 3WCPUB (call transfer, three-way calling with public announcement)
- speed calling long, speed calling user (SCL, SCU)
- denied origination (DOR)

DMS Integrated E911 PSAP Functionality (continued)

The LINEPSAP option identifies a PSAP that links to the E911 tandem office through lines. The creation of one of the following three types of Integrated Business Network hunt groups configures a Line PSAP:

- multiline hunt
- distributed line hunt
- DN hunt

Add the LINEPSAP option to the pilot DN. The following commands are available with the LINEPSAP option:

- EST (establish a hunt group)
- ADD (add a line to a current hunt group)
- ADO (add option)
- DEO (delete option)
- CHF (change feature information)
- CLN (change line equipment number)

Meridian business sets and 500/2500 single-line sets are configured as Line PSAPs through SERVORD. The functions of the Meridian business set keys used during E911 calls are configured through SERVORD.

The system uses data entered with the LINEPSAP option to fill the following tables:

- HUNTGRP
- IBNLINES
- HUNTMEM
- E911PSAP

You can use the table editor to establish an ACD PSAP in place of SERVORD. You must use the table editor to enter the ADO and DEO commands. These commands assign or remove the required SERVORD options. Required SERVORD options include CXR, 3WCPUB, SCL, and SCU. The system can support the ACD Management Information System agent-to-trunk transfer call event messages and the E911212 log report. This condition occurs if the ACD PSAP has 3WCPUB. To add new stations to ACD groups, use the command NEW in SERVORD.

Note: When a PSAP option is assigned or modified, a prompt for a 'Y' (yes) or 'N' (no) to field NATLXLA appears. Tables HUNTGRP and HUNTMEM have this field. When the value of field NATLXLA is 'Y', field PSAPDN in

DMS Integrated E911 PSAP Functionality (continued)

table E911PSAP is ten digits. When the value is 'N', field PSAPDN is seven digits. This value affects E911 call translations and routing.

SERVORD limits for Line and ACD PSAPs

The following limits apply when you use SERVORD to enter the LINEPSAP option:

- You must enter table LNINV with tuples that correspond to the hunt group lines before you create a Line PSAP hunt group.
- The LINEPSAP option is not compatible with the following options:
 - Automatic Line (AUL)
 - Bridged Night Number (BNN)
 - DIN
 - Do Not Disturb (DND)
 - FIG
 - HLD
 - line appearance on a digital trunk PSAP (LDTPSAP)
 - No Receiver Off-hook Tone (NOH)
 - Residential Call Hold (RCHD)
 - CSMP
 - Single Line Variety Package (SLVP)
- Do not use SERVORD to assign options HLD, call park (PRK) or directed call park (DPRK) to an agent of an ACDPSAP customer group. The ACDPSAPs cannot activate any call hold features.

Note 1: The Stop Hunt (SHU) option is not compatible with distributed line hunt groups. A line in a distributed line hunt group cannot perform alternate routing if the line is busy. Alternate routing cannot occur when a power outage occurs. The line can route the call to another member of the group if an answer does not occur. You can configure all types of alternate routing for DN hunt and multiline hunt groups.

Note 2: You must define the LINEPSAP option and the 3WCPUB option as compatible with PSET and M5xxx line class codes in table LCCOPT. Use the KSDATSUB EXT file to perform this action.

DMS Integrated E911 PSAP Functionality (continued)

- Use the EST command to create a hunt group and configure a pilot DN with the LINEPSAP option:
 - Make sure that an unassigned DN is available for use as the pilot DN.
 - Configure the pilot DN as part of an multiline hunt, distributed line hunt, or DN hunt group.
 - Define the line class code for the pilot DN as IBN, PSET, or M5xxx.
- You can only configure the pilot with the LINEPSAP option. The ADD command links other member lines to the pilot.
- You can require a line to have selective or fixed call transfer capabilities with a Line or ACD PSAP. To perform this action, you must specify the following three options with a SERVORD command:
 - three-way call with public announcement (3WCPUB)
 - call transfer (CXR) applied to the line or CXFER applied to the customer group that contains the line
 - speed calling long (SCL) or speed calling user (SCU)

The Line PSAP must have the Digitone signaling option. If the Line PSAP is a Meridian business set, the Line PSAP already has this capability. You must assign the 3WC or CXR option to an available Meridian business set key that initiates transfers. Hook-flash performs this function on 2500 sets.

- You cannot use LDT line equipment numbers in table LNINV in line PSAP SERVORD commands.
- Use the DEO command to remove the LINEPSAP option before you delete the pilot of the hunt group with the OUT SERVORD command. You must use the table control to remove the PSAPNAME entry in the associated table E911ESN tuples. You must perform this action before you can execute the DEO command. If you do not remove the PSAPNAME, the following error message appears:

```
LDTPSAP/LINEPSAP option data not updated.PSAP name in use by  
other tables.Use TABREF E911PSAP to determine other  
reference.
```

- You can use the CHF SERVORD command to remove other options associated with the LINEPSAP options.
- You can use the CLN command to change a line equipment number in the Line PSAP hunt group. Make sure the card codes for the new and old line equipment number in table LNINV are the same.
- To implement the night service for the Line PSAP, activate the Integrated Business Network features Random Make Busy (RMB) and Stop Hunt (SHU). Use the SERVORD commands to assign these options to the pilot

DMS Integrated E911 PSAP Functionality (continued)

of the DN or multiline hunt group (PSAP). A scan point circuit associates with each of these options. External keys can control these circuits. The SHU option is not compatible with DLH groups. To make night service available, you must assign the RMB option to each member of the group.

- A Line PSAP hunt group can have all lines busy and the Line Overflow to a Route (LOR) or Line Overflow to a DN (LOD) option assigned. When this condition occurs, the system sends calls to an alternate route or DN. The option in use determines where the system sends the call. When possible, the E911 tandem changes the ANI sent to the answering party from the pilot PSAP ANI to the calling party ANI. The calling party is not billed if the second leg of the call is long distance.
- If the Line PSAP has a power failure, the system uses the same method as night service to handle the call. This condition occurs if the scan point is configured to activate when the failure occurs.
- The Call Forward Group Don't Answer (CFGD) feature can be active for a Line PSAP. When this condition occurs, the E911 tandem waits a specified period before the tandem forwards the unanswered call. The range for this time period is from 12 s to 325 s. Without the CFGD, the system does not time option calls.

The CFGD option for a Line PSAP has the following fields:

- INTERNAL {Y, N}
 - If INTERNAL has the value Y, the system forwards the call to an idle member of the hunt group.
 - If INTERNAL has the value N, the system prompts for an external DN to which the system forwards the call. A CFGD number (CFGDN) can be the DN of a line (IBN or POTS) or a hunt group.
- SPECTIME {Y, N}
 - If SPECTIME has the value Y, the system prompts for a TIMEOUT value in the range 12 through 325. Call processing allows the PSAP TIMEOUT seconds to answer. After this time, call processing forwards the call.
 - If SPECTIME has the value N, call processing uses a CFDATO value in table CUSTSTN. After this time, call processing forwards the call. The default value is 30 s.

DMS Integrated E911 PSAP Functionality (continued)

SERVORD prompts

The SERVORD prompts that assign DMS Integrated E911 PSAP Functionality Line PSAP to a hunt group appear in the following table.

SERVORD prompts for DMS Integrated E911 PSAP Functionality Line PSAPs

Prompt	Correct input	Explanation
OPTION	LINEPSAP	This prompt configures a line-ended PSAP.
ANONCALL	Y or N	Enter Y to allow a caller to dial the PSAP DN to directly access the PSAP. The system uses standard translations to process the call. Enter N to limit dialing access to the PSAP to the number 911. The system uses E911 translations to process the call.
PSAPNAME	A maximum of 16 characters	This prompt is the name of the PSAP.
NATLXLA	Y or N	If the entry is 'Y', call translations to the PSAP are based on 10 digits and field PSAPDN in table E911PSAP is datafilled with ten digits. If the entry is 'N', call translations to the PSAP are based on seven digits and field PSAPDN is datafilled with seven digits.

SERVORD implementation for DMS Integrated E911 PSAP Functionality

The SERVORD examples that follow describe the following operations:

- how to create the DMS Integrated E911 PSAP Functionality Line PSAP
- how to assign options to this functionality

Creation and configuration of an ACD PSAP occurs through table control and ACD group SERVORDs. One of the following examples explains how to configure Meridian business set options on an ACD PSAP.

DMS Integrated E911 PSAP Functionality (continued)

Configuring an Integrated Business Line PSAP Multiline hunt group in prompt modex

>SERVORD

SO:

>EST

SONUMBER: NOW 87 11 23 AM

GROUPTYPE:

>MLH

(One of three hunt groups allowed for line PSAPs.
The other hunt groups are DNH and DLH.)

PILOT_DN:

>6211235

LCC:

>IBN

GROUP:

>E911

(Tables XLANAME, CUSTENG, CUSTSTD, CUSTHEAD,
.and NCOS define the MDC group. Refer to the
Customer Data Schema section of this document).

SUBGRP:

>0

NCOS:

>0

SNPA:

>919

LATANAME:

>L456

LTG:

>0

PILOT_LEN:

>HOST 0 0 0 1

(Table LNINV LEN identifier for the pilot)

MEM_LEN:

>\$

OPTION:

>LINEPSAP

ANONCALL:

>Y

PSAPNAME:

>DURHAMPD

OPTION:

>DGT

(An IBN line PSAP must have the options
DGT, 3WCPUB, and CXR.)

—continued—

DMS Integrated E911 PSAP Functionality (continued)

Configuring an Integrated Business Line PSAP multiline hunt group in prompt mode (continued)

```
OPTION:
>3WCPUB

LOOPCON:
>N          (Used with E911 call transfer. The value N links two
              parties to a three-way call.)

OPTION:
>CXR
CXFERTYP:
>CTALL      (This value allows all types of call transfers.
              It is best for E911.)

CXRRCL:
>N

METHOD:
>STD

OPTION:
>SCL        (If you require E911 selective call transfer,
              speed calling long is the correct option. The
              PSAP agent programs the actual speed calling codes.)

LISTYPE:
>L30

OPTION:
>$          (Terminates OPTION: prompts)

GROUPSIZE:
>2

COMMAND AS ENTERED:
EST NOW 87 11 23 AM MLH 6211235 IBN E911 0 0 919 L456 0
HOST 0 0 0 1 $ ( LINEPSAP Y DURHAMPD ) ( DGT )
( 3WCPUB N ) ( CXR CTALL N ) (STD) ( SCL L30) $ 2
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

Configuring an Integrated Business Line PSAP multiline hunt group in no-prompt mode

```
>EST $ MLH 6211235 IBN E911 0 0 919 L456 0 HOST 0 0 0 1 $
LINEPSAP Y DURHAMPD DGT 3WCPUB N CXR CTALL N STD
SCL L30 $ 2
```

DMS Integrated E911 PSAP Functionality (continued)

Adding member lines to an Integrated Business Network Line PSAP hunt group in prompt mode

```

>SERVORD
SO:
>ADD
SONUMBER:      Now 87 11 23 AM
GROUPTYPE:
>MLH           (One of three hunt groups allowed for line PSAPs.
                The other two hunt groups are DNH and DLH.)
LINK_LEN:
>HOST 0 0 0 1
MEM_LEN
>HOST 0 0 1 1 (Table LNINV LEN group member identifier.)
MEM_LEN:
>$
OPTION:
>DGT           (For E911 call transfer, a PSAP must have options
                DGT, 2WCPUB, and CXR.)
OPTION:
>3WCPUB
LOOPCON:
>N             (The value N links two parties to a three-way call.)
OPTION:
>CXR
CXFERTYP:
>CTALL         (This value allows all types of call transfers.
                This value is best for E911.)
CXRRCL:
>N
METHOD:
>STD
OPTION:
>SCU           (If you require E911 selective call transfer, use the
                speed calling user option.)
CONTLEN:
>HOST 0 0 0 1 (The table LNINV LEN identifier for the pilot)
SCU_TDN:
>Y
OPTION:
>$             (Terminates OPTION: prompts)

```

—continued—

DMS Integrated E911 PSAP Functionality (continued)

Adding member lines to an Integrated Business Network Line PSAP hunt group in prompt mode (continued)

```
GROUPSIZE:  
>2  
COMMAND AS ENTERED:  
ADD NOW 87 11 23 AM MLH HOST 0 0 0 1  
(HOST 0 0 1 1 ) $ (DGT) (3WCPUB N)  
(CXR CTALL N) (STD) (SCU HOST 0 0 0 1 Y)  
$ 2  
ENTER Y TO CONFIRM, N TO REJECT OR E TO  
EDIT  
>Y  
-end-
```

Adding member lines to an Integrated Business Network Line PSAP hunt group in no-prompt mode

```
>ADD $ MLH HOST 0 0 0 1 HOST 0 0 1 1 $ DGT 3WCPUB  
N CXR CTALL N STD SCU HOST 0 0 0 1 Y $ 2
```

DMS Integrated E911 PSAP Functionality (continued)

Configuring a hunt group and an MBS Line PSAP pilot in prompt mode

>SERVORD

SO:

>EST

SONUMBER: NOW 87 11 23 AM

GROUPTYPE:

>MLH (One of three hunt groups allowed for line PSAPs.
The other hunt groups are DLH and DLN.)

PILOT_DN:

>6211235

LCC:

>PSET (MBS LCCs include PSET and M5xxx. The digits xxx are the
specified business set model number.)

GROUP:

>E911 (Tables XLANAME, CUSTENG, CUSTSTD, CUSTHEAD
and NCOS define the MDC groups. Refer to the Customer
Data Schema Reference Manual.)

SUBGRP:

>0

NCOS:

>0

SNPA:

>919

LATANAME:

>L456

KEY:

>1 (Identifies the key associated with the pilot DN)

RINGING:

>Y (MBS only – The value Y specifies ringing to accompany
display flash.)

LTG:

>0

PILOT_LEN:

>HOST 0 0 0 1 (Table LNINV LEN identifier for the pilot)

MEM_LEN:

>\$

OPTION:

>LINEPSAP

ANONCALL:

>Y

—continued—

DMS Integrated E911 PSAP Functionality (continued)

Configuring a hunt group and an MBS Line PSAP pilot in prompt mode (continued)

```
PSAPNAME:  
>DURHAMPD  
OPTION:  
>$ (Terminates OPTION: prompts)  
GROUPSIZE:  
>2  
COMMAND AS ENTERED:  
EST NOW 87 11 23 AM MLH 6211235 PSET E911 0 0 919 L456  
1 Y 0 HOST 0 0 0 1 $ ( LINEPSAP Y DURHAMPD ) $ 2  
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT  
>Y  
-end-
```

Configuring a hunt group and an MBS Line PSAP pilot in no-prompt mode

```
>EST $ MLH 6211235 PSET E911 0 0 919 L456 1 Y 0 HOST 0 0 0 1  
$ LINEPSAP Y DURHAMPD $ 2
```

DMS Integrated E911 PSAP Functionality (continued)

Defining option keys for an MBS Line or ACD PSAP in prompt mode

```

>SERVORD
SO:
>ADO
SONUMBER:  NOW 87 11 23 AM
DN_OR_LEN:
>0 0 0 1
OPTKEY:      (Assigns key for three-way calling)
>1
OPTION:
>3WCPUB
LOOPCON:

>N            (For E911 call transfer. The value N links two
               parties to a three-way call. You can enter a 3WCPUB entry
               as an MBS option when LOOPCON is set to Y.
               When you perform this action, the following error message
               appears: An EBS is not an attendant console. LOOPCON
               must be set to N.)

OPTKEY:      (Assigns key for call transfer)
>4
OPTION:
>CXR
CXFERTYP:
>CTALL        (This value allows all types of call transfers.
               Use this value for E911.)

CXRRCL:
>N
METHOD:
>STD
OPTKEY:
>1
OPTION:
>SCL          (If you also require E911 selective call transfer,
               speed calling long is the correct option.)

LISTYPE:
>L30
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 87 11 23 AM 0 0 0 1 (1 3WCPUB N ) (4 CXR CTALL N )
( STD ) ( 1 SCL L30 ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y

```

DMS Integrated E911 PSAP Functionality (end)

Defining option keys for an MBS Line or ACD PSAP in no-prompt mode

>ADO \$ 0 0 0 1 1 3WCPUB N 4 CXR CTALL N STD 1 SCL L30 \$

E911 AIN Wireless Enhancements

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00011

Release applicability

E911 AIN Wireless Enhancements was introduced in NA012.

Requirements

E911 AIN Wireless Enhancements has no functional group requirements.

To operate, E911 AIN Wireless Enhancements requires the functional groups that follow:

- Enhanced 911, ENS00005
- E911 Routing via AIN, ENS00011 (for parameter expansion)

Description

E911 AIN Wireless Enhancements introduces two functionalities:

- E911 parameter expansion
- line appearance on a digital trunk (LDT) public safety answering point (PSAP) automatic number identification (ANI) spill protocol

E911 parameter expansion is an enhancement to the E911 Selective Routing through AIN 0.1 feature. E911 parameter expansion delivers a twenty-digit wireless 911 call to a PSAP using an intelligent advanced intelligent networking (AIN) query data link between the DMS switch and the automatic location identifier (ALI) database.

The ANI spill protocol adds the ability to define the ANI spill as single or double. The ANI spill protocol also defines the ANI source for an LDTPSAP with a single ANI stream.

Operation

E911 Parameter Expansion

E911 parameter expansion is an enhancement to the E911 Selective Routing through AIN 0.1 feature. The parameter expansion feature adds the ten-digit pseudo ANI (pANI) into the TERMATT query sent to the emergency services service control point (ESSCP). The E911 tandem software checks for a pANI (location) in the call before building the TERMATT query message. If the software finds a pANI, it places that information into the ChargeNumber

E911 AIN Wireless Enhancements (continued)

parameter in the TERMATT query. The ESSCP returns PSAP routing information in the FC response to the DMS-100 E911 Access Tandem which sends the mobile directory number (MDN) to the PSAP. The PSAP uses the MDN to query the ALI database which returns the pANI to identify the call origination cell sector to the PSAP.

ANI Spill Protocol

An LDTPSAP uses multi-frequency (MF) signalling which results in long call setup times. Many operating companies send a single key value directly from the ESSCP to the ALI system to reduce call setup times. The key value can replace either the ANI or the pANI, or can be a generated value, or the caller's MDN. The ESSCP uses the key to query location information from the ALI database over a high-speed connection instead of the slower MF link. The enhanced display (ENHDISP) option sends a double value (ANI and pANI) to the LDTPSAP. The ANI spill protocol allows the option to define an LDTPSAP with ENHDISP as a single stream ANI (SNGLSANI). LDTPSAPs with a single ANI stream are as follows:

- ENHDISP = Y with a single ANI digit spill
- ENHDISP = N

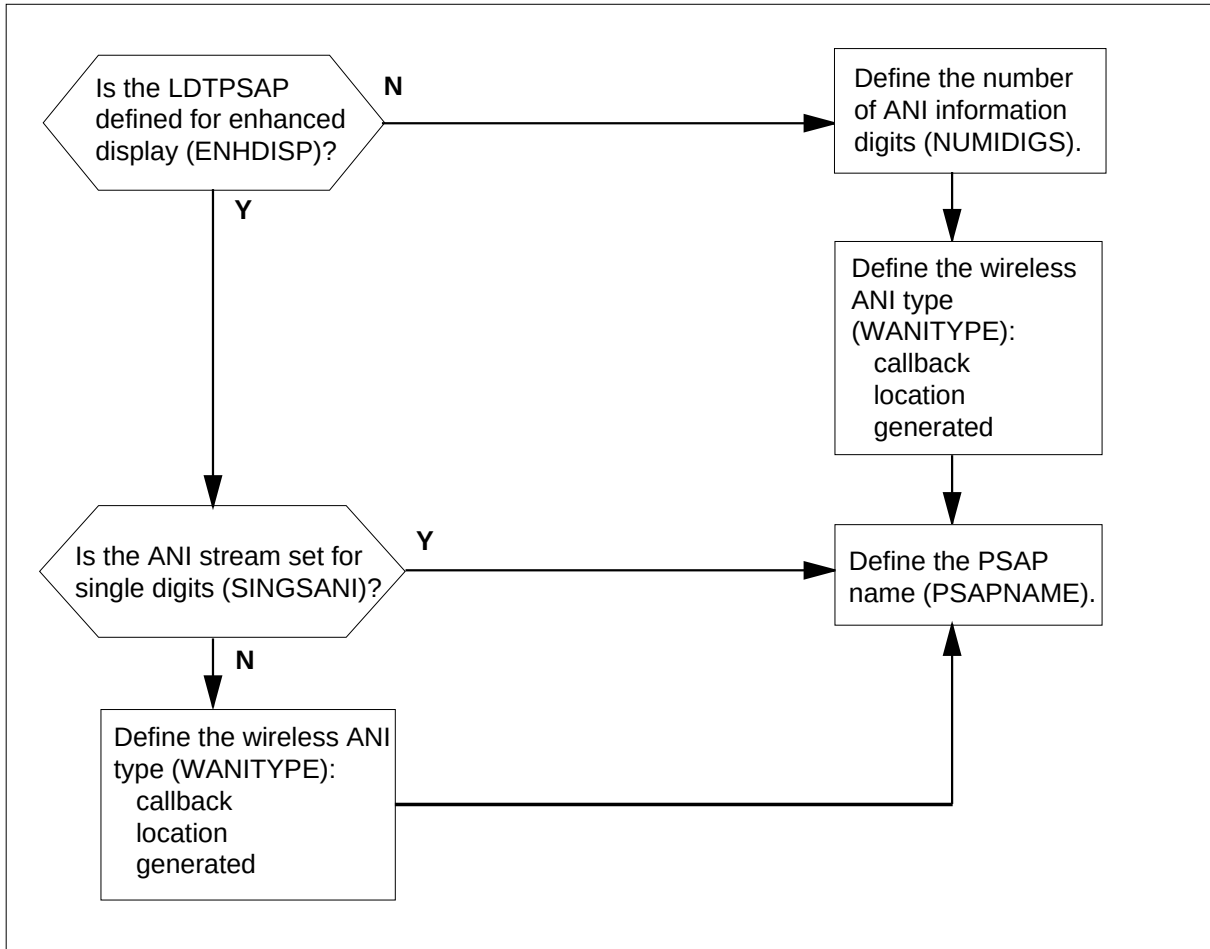
The ANI spill protocol also adds the ability to define a single stream wireless ANI type (WANITYPE) as one of the following:

- callback (MDN)
- location (pANI)
- generated (value created by the WLS911 ALI protocol)

The flowchart that follows shows the logic used with the ANI spill protocol.

E911 AIN Wireless Enhancements (continued)

ANI Spill Protocol decision flowchart



Translations table flow

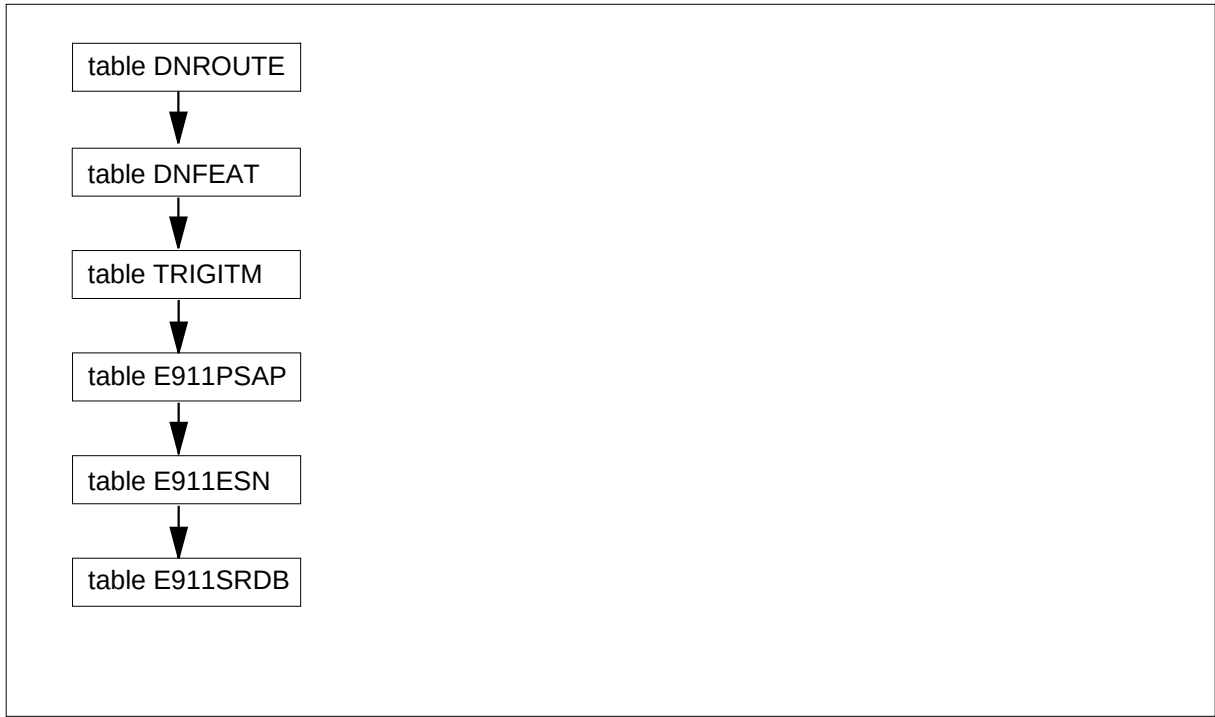
The list that follows includes the E911 AIN Wireless Enhancements translations tables for E911 Parameter Expansion:

- table DNROUTE
- table DNFEAT
- table E911PSAP
- table E911ESN
- table E911SRDB

The flowchart that follows provides the E911 AIN Wireless Enhancements translations process for E911 Parameter Expansion.

E911 AIN Wireless Enhancements (continued)

Table flow for E911 AIN Wireless Enhancements E911 Parameter Expansion



The table that follows lists the datafill content used in the flowchart.

Datafill example for E911 AIN Wireless Enhancements

Datafill table	Example data
DNROUTE	(refer to note below)
DNFEAT	(refer to note below)
TRIGITM	(refer to note below)
E911PSAP	(refer to note below)
E911ESN	(refer to note below)
E911SRDB	(refer to note below)
Note: The E911 and AIN feature provisioning for these tables is not new or changed. Refer to the <i>North American DMS-100 Translations Guide, AIN Service Switching Point (SSP) Provisioning Cookbook</i> . Refer to the <i>AIN Response Translations Guide</i> for E911 and AIN datafill guidelines	

Limitations and restrictions

E911 AIN Wireless Enhancements has no limitations or restrictions.

E911 AIN Wireless Enhancements does not interact with other functionalities.

E911 AIN Wireless Enhancements does not require activation or deactivation by the user.

E911 AIN Wireless Enhancements does not generate billing records or changes.

E911 AIN Wireless Enhancements does not generate office parameters.

The table that follows provides the datafill related to E911 parameter expansion for table TRIGITM. This table includes only those fields that apply directly to E911 Parameter Expansion.

Field	Subfield	Entry	Explanation and action
OPTIONS			Options. This field contains optional trigger attributes.
		POTUSE	Potential Use.
	E911		The POTUSE subfield to indicate the trigger is used for E911 calls.

Sample datafill for table TRIGITM appears in the following example.

```

20 E911TRIG
TERMaTT
      ULK  EVENT  R01      SS7      AINSIM
                                     $
                                     (POTUSE E911)$

```

E911 AIN Wireless Enhancements (continued)

SERVORD

The ANI Spill Protocol uses the Service Order System (SERVORD). SERVORD assigns the E911 AIN Wireless Enhancements feature to LDTPSAPs through table HUNTGRP.

SERVORD limitations and restrictions

E911 AIN Wireless Enhancements has no SERVORD limitations or restrictions.

SERVORD prompts

The table that follows provides the SERVORD prompts used to assign the ANI spill protocol to an LDTPSAP.

SERVORD prompts to assign ANI spill protocol to an LDTPSAP

Prompt	Correct input	Explanation
ENHDISP	Y or N	Indicates the PSAP is ready to receive the enhanced MF signaling.
WANITYPE	callback location generated	Prompted if SNGLSANI = Y, or (after NUMIDIGS) if ENHDISP = N. Defines the ANI stream source for single-digit LDTPSAP ANI streams. Callback = MDN, Location = pANI and Generated = WLS911 option generated spill.
NUMIDIGS	1 or 3	Number of information digits expected by LDTPSAP with ANI.

SERVORD example of an LDTPSAP with ENHDISP and double ANI spill

The SERVORD example that follows shows an example of an LDTPSAP with ENHDISP and a double ANI spill in prompt mode.

E911 AIN Wireless Enhancements (continued)

Example of an LDTPSAP with ENHDISP and double ANI spill

```
>ADO
SONUMBER:      NOW    99 6 24 AM
>
DN_OR_LEN
BRCU 00 0 07 12
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
ENHDISP:
> Y
SNGLANI:
> N
PSAPNAME:
>POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
BYSOTPCT:
> 50
NATLXLA:
> 0
OPTION:
> $
```

The SERVORD example that follows shows an example of an LDTPSAP with ENHDISP and a double ANI spill in the no-prompt mode.

SERVORD example of an LDTPSAP with ENHDISP and double ANI spill in no-prompt mode

```
> ADO $ BRCU 00 0 07 12 LDTPSAP Y Y Y N POLICE 0 0 0 50 0 $
```

SERVORD example LTDPSAP with ENHDISP and single ANI spill

The SERVORD example that follows shows an example of an LDTPSAP with ENHDISP and a single ANI stream. In this example, the "location" Wireless ANI Type (WANITYPE) defines the single ANI stream as the pANI.

E911 AIN Wireless Enhancements (continued)

Example of an LDTPSAP with ENHDISP and single ANI spill

```

>ADO
SONUMBER:      NOW    99 6 24 AM
>
DN_OR_LEN
BRCU 00 0 07 12
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
ENHDISP:
> Y
SNGLANI:
> Y
WANITYPE:
> LOCATION
PSAPNAME:
>POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
BYSOTPCT:
> 50
NATLXLA:
> 0
OPTION:
> $

```

The SERVORD example that follows shows how an example of an LDTPSAP with ENHDISP and a single ANI stream in the no-prompt mode.

SERVORD example of an LDTPSAP with ENHDISP and single ANI spill in no-prompt mode

```

> ADO $ BRCU 00 0 07 12 LDTPSAP Y Y Y Y LOCATION POLICE 0 0 0
50 0 $

```

SERVORD example an LTDPSAP with single MDN ANI spill

The SERVORD example that follows shows an example of an LDTPSAP without ENHDISP. In this example, the “callback” WANITYPE defines the single stream ANI as the MDN.

E911 AIN Wireless Enhancements (end)

Example of an LDTPSAP with single MDN ANI spill

```

>ADO
SONUMBER:      NOW    99  6  24  AM
>
DN_OR_LEN
BRCU 00 0 07 12
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
ENHDISP:
> N
NUMIDIGS:
> 1
WANITYPE:
> CALLBACK
NPD_MAPS:
> $
PSAPNAME:
> POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
BYSOTPCT:
> 50
NATLXLA:
> 0
OPTION:
> $

```

The SERVORD example that follows shows an example of an LDTPSAP without ENHDISP in no-prompt mode. In this example, the “callback” WANITYPE defines the single stream ANI as the MDN.

SERVORD example of an LDTPSAP with single MDN ANI spill in no-prompt mode

```

> ADO $ PSAP 0 0 0 0 LDTPSAP Y Y N 1 CALLBACK $ POLICE 0 0 0
50 0 $

```


E911 Alternate Routing and Alarm Enhancements

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00001

Release applicability

The E911 Alternate Routing and Alarm Enhancements was introduced in NA006.

Requirements

To operate, E911 Alternate Routing and Alarm Enhancements has the following requirements:

- Meridian Digital Centrex Minimum, MDC00001
- Meridian Digital Centrex Standard, MDC00003

Description

This feature adds three new areas of functionality to the Enhanced 911 Emergency Service (E911) product:

- alternate routing according to PSAP condition
- alarm on percentage of LDT PSAP Hunt Group members busy
- busy out LDT PSAP Hunt Group members on wink failure

Alternate routing according to PSAP condition

An end office receives 911 calls from subscribers. The end office routes the calls to public safety answering points (PSAP) through a DMS-100 E911 tandem office. If the E911 tandem office cannot complete a 911 call to a hunt group PSAP, alternate routing options are available. This feature explains how operating company personnel can use different routing methods to implement E911 alternate routing.

Note: A hunt group PSAP is a PSAP set up like a hunt group. This hunt group can be a line appearance on a digital trunk (LDT) PSAP or a line PSAP.

E911 Alternate Routing and Alarm Enhancements (continued)

The types of alternate routes depend on the reason the PSAP cannot answer the call. The PSAP conditions are as follows:

- All stations busy - the call cannot complete to the PSAP because available agents were on a call or system busy
- Wink failure - the call cannot complete to the PSAP because an equipment failure produces a wink fail condition at the PSAP
- Scan point set - The call cannot complete to the PSAP. Someone manually activates a scan point switch to busy out all members of the hunt group PSAP
- Unanswered call - the PSAP rings and the call does not complete.

Alarm on percentage of PSAP Hunt Group members busy

The configuration of the LDT PSAPs is like the configuration of hunt group lines on the DMS switch. The LDT PSAPs appear as trunks to the PSAP. This feature implements a hunt group alarm reporting system like the one trunks use. The system generates an alarm and log when a specified percentage of members of an LDT PSAP hunt group are busy.

Note: For this feature, busy states include a state other than a line state of call processing busy (CPB), installation busy (INB), or idle (IDL).

Busy out PSAP Hunt Group members on wink failure

The system takes an LDT PSAP hunt group member out of service when the far end fails to complete a call. The call is bad or no wink design. Random wink failures can occur. The system busies out the LDT PSAP hunt group members when two wink failures occur. These two wink failures must occur one after the other.

Operation

The following E911 functionalities appear in separate sections: alternate routing and alarm enhancements.

Alternate routing

The following are different methods to route 911 calls:

- Network Management (NWM) rerouting
- Emergency Directory Number Route (EDNR)
- Bridged Night Numbers (BNN)
- Line Overflow to DN (LOD)
- Line Overflow to Route (LOR)
- Inhibit Line Busy (ILB)

E911 Alternate Routing and Alarm Enhancements (continued)

- Inhibit Make Busy (IMB)
- Make Busy Key (MBK)
- Random Make Busy (RMB)
- Call Forward Group Don't Answer (CFGD)

A selective routing database (SRDB) look-up occurs when a 911 call arrives at an E911 tandem. This look-up determines the emergency service number (ESN) and the primary PSAP to which to route the call. The LDT and line PSAPs are normally configured as Distributed Line Hunt (DLH) groups with the LDTPSAP or LINEPSAP option. Network management rerouting can occur before terminating to the primary PSAP for an ESN. The application of an EDNR reroutes network management. The EDNR performs a 911 call check in table REROUTE before terminating on the primary PSAP. Features like CFGD, LOD, and LOR are for alternate routing after an attempt occurs to terminate to the PSAP hunt group. Use options ILB, IMB, MBK, and RMB to modify alternate routing. These alternate routing methods appear in the following sections.

Network Management rerouting

Scan points detect external dynamic overload control signals from PSAPs or emergency disaster recovery centers. An EDNR is built and entered as the primary PSAP for an emergency service number (ESN). The EDNR is a special translations DN pointing to an office route with two route selections. The entry in table OFRT has table REROUTE as the first selection and a retranslation selector (RT) as the second selection. The table REROUTE selection checks to see that the associated RRTE scan point is active. If the scan point is active, the system alters the routing of the 911 call according to datafill. The system alters the route according to the datafill in subtable NWMRROUT of table REROUTE. If the scan point is not active, the routing of the call proceeds to the second route selection in table OFRT. The second route selection retranslates to the DN of the normal PSAP for this ESN.

The steps to reroute NWM for E911 appear in the following list:

1. Define a scan point card in table NWMSC.
2. Define the reroute scan point in table NWMSCPT.
3. Define the office routes in table OFRT:
 - one for the PSAP EDNR that includes the reroute and the real PSAP
 - one for the reroute PSAP
4. Define the reroute route in table REROUTE and subtable NWMRROUT.

E911 Alternate Routing and Alarm Enhancements (continued)

5. Define the PSAP EDNR in tables DNROUTE and E911 PSAP.
6. Change all ESNs that deal with the real PSAP to the EDNR PSAP that references the NWM reroute.

See section "Datafill sequence" for sample datafill to reroute NWM.

Emergency Directory Number Routes

The EDNR functionality allows tandem-to-tandem routing or selective transfers of an E911 call from an E911 PSAP to an agency. The agency is not an E911 PSAP LDT, Line, or ACD PSAP. The E911 tandem does not serve the agency. Use the EDNR functionality with office routes that allow special functionality to take over the route of an E911 call. The EDNRs appear in the EDNR field in table E911PSAP.

Use table DNROUTE with EDNRs when a PSAP routes an E911 call out of the office. This routing uses tandem-to-tandem routing. You can enter a DN in this table. The DN points to a tuple in a routing table that removes the 911 call from office. The tuple takes the call to another E911 tandem or an agency that is out of the first E911 tandem.

See table E911 PSAP in the data schema section of this document for additional information about EDNR. See feature description "E911 - Tandem" in the translations section of this document for additional information about EDNRs.

Bridged Night Numbers

Bridged Night Numbers (BNN) is a SERVORD option. Assignment of BNN can occur to directory number hunt (DNH), multiline hunt (MLH), and distributed line hunt (DLH) groups. This method allows the operating company use of different directory numbers to reach the same hunt group. The operating company can use different directory numbers to reach a subset of that hunt group. The night service normally uses the BNN option. If the caller dials the BNN, or the system routes to the BNN, the system rings the members of the group. The BNN involves the double assignment of line equipment numbers (LEN).

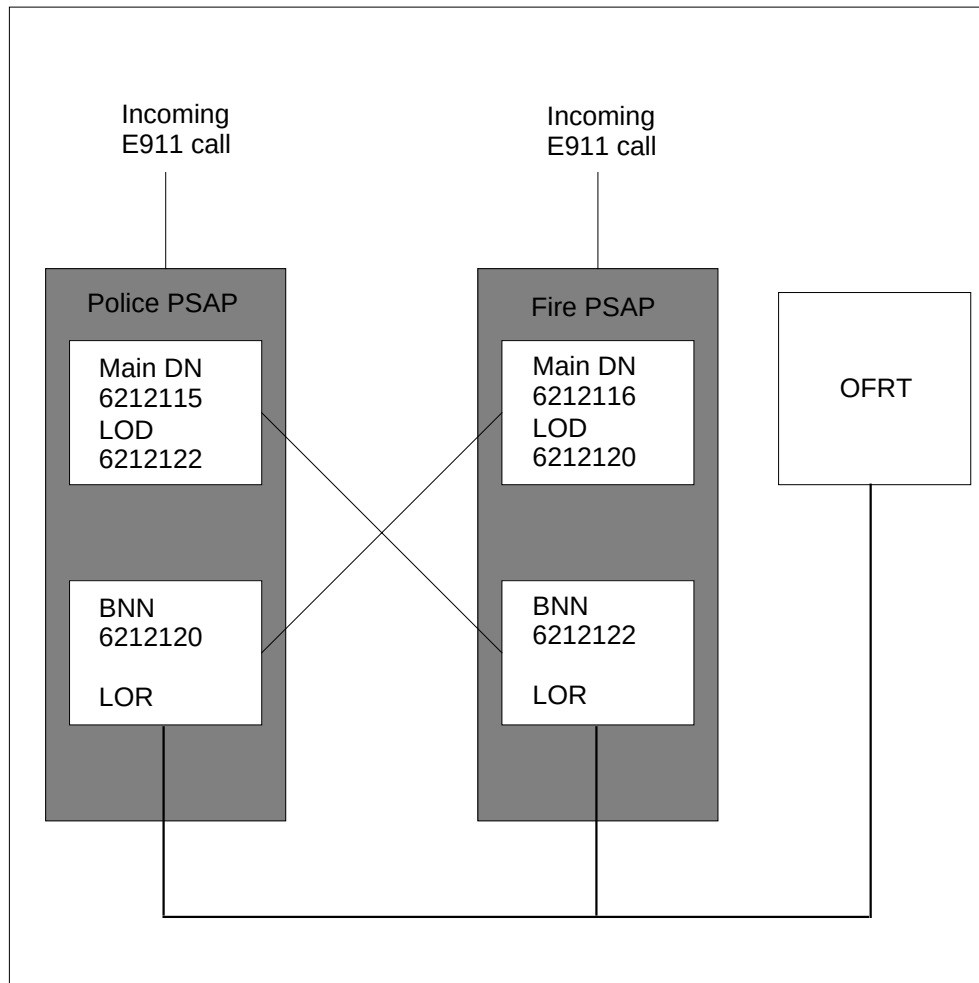
You can assign several BNNs to a main hunt group. Assign the BNNs for each line. A hunt can take place between the BNNs. If the BNNs form a hunt group, hunting occurs in sequence. Hunting does not occur in sequence when the assignment of option CIR occurs to the BNN group. If the BNN has the LOR or LOD option assigned, the following occurs. If the caller dials the BNN or the system routes to the BNN, the following occurs. Overflow routing follows these options and not those of the host hunt group.

E911 Alternate Routing and Alarm Enhancements (continued)

An example of BNN hunt groups appears in the following figure. A BNN group is built for each of the two LDTPSAP DLH groups. The BNN groups LOR to an office route that can route to TOPS or another tandem.

The first LDTPSAP DLH (Police) LOD to the BNN hunt group built on the second LDTPSAP DLH (Fire). The second LDTPSAP DLH LOD to the BNN hunt group built on the first LDTPSAP DLH (Police). This routing prevents 911 calls from bouncing between the two PSAPs and routing to treatment if both PSAPs were busy. The BNN groups have overflow routing that differs from the routing of the host hunt group. The two PSAPs can be in separate E911 tandems. This condition causes the trunks between the two tandems to tie up if both PSAPs are busy.

BNN that provides alternate routing



E911 Alternate Routing and Alarm Enhancements (continued)

Line Overflow to DN (LOD) and Line Overflow to Route (LOR)

The LOD and LOR are hunt group options applying to all members. Enter the LOD and LOR options through SERVORD. An incoming call overflows to the DN that the LOD option specifies if all members are busy. The LOR causes an incoming call to overflow to the specified route if all members are busy. A LOD or LOR occurs if two LDTPSAP wink failures occur in sequence when the system attempts to terminate a 911 call.

Different options are available to change how LOD and LOR work. These options are Inhibit Line Busy (ILB), Inhibit Make Busy (IMB), Make Busy Key (MBK), and Random Make Busy (RMB). The options appear in the following sections.

Inhibit Line Busy (ILB)

ILB is an option to the pilot of a DLH group. A busy tone occurs when incoming calls arrive and all members of the hunt group are busy. At least one member must be CPB. These calls do not overflow to the LOD or LOR route.

The ILB does not affect overflow routing if all circuits in the hunt group are out of service. A manual busy can place the circuits out of service. The ILB does not affect overflow routing if all circuits have two wink failures in sequence. Overflow routing is LOD or LOR.

The RMB option overrides the ILB option. Calls begin to overflow when RMB is active when the pilot has an assigned ILB option.

Inhibit Make Busy (IMB)

The IMB feature is a SERVORD option to a PSAP DLH group pilot. This option can work with option MBK. When options MBK and IMB are active on a line, an incoming call to that line hunts other group members. The incoming call does not overflow out of the hunt group.

Feature IMB uses a scan point to determine the state of the line. This scan point must be in table SCGRP (Scan Group).

Make Busy Key (MBK)

The MBK feature is a SERVORD option. The MBK option is only for the pilot of a DLH group. When this feature is active, all incoming calls hunt to another member of the hunt group. The calls overflow if all the members are busy. The call overflow is a LOD or LOR. This feature can provide a supervisor type position that only accepts calls when required.

A scan point activates feature MBK. This scan point must be a table SCGRP (Scan Group). The MBK option is only for the pilot of a DLH group.

E911 Alternate Routing and Alarm Enhancements (continued)

Random Make Busy (RMB)

The RMB feature is a SERVORD option for individual members of a PSAP DLH group. This feature provides a scan point circuit that an external key controls. The system makes the line permanently busy when the key activates. The line is normal when the key is not active.

Assignment of the same scan point can occur to one, several, or every line in the hunt group. This assignment depends on the lines the system must busy. The scan point must belong to one of the scan groups in table SCGRP.

Incoming calls to the PSAP DLH group can overflow with LOD or LOR when RMB is active. This arrangement provides alternate routing when the PSAP must evacuate or during a power failure.

Call Forward Group Don't Answer (CFGD)

The CFGD option allows the assignment of Call Forwarding Don't Answer to occur for each hunt group to a PSAP DLH group. With CFGD, calls to idle hunt group stations ring for a determined period of time. Calls forward to the next station in the hunt sequence, internal, or to a determined DN.

Note: See feature description "CDGDA for Hunt Groups" in the MDC translations section of this document. Additional information on the CFGD option appears in this document.

Alarm enhancements

The E911 alarm enhancements portions of this feature appear in the following sections.

Alarm on percentage of PSAP Hunt Group members busy

This feature adds three new alarms:

- E911_LDTBSY_MINOR (minor alarm)
- E911_LDTBSY_MAJOR (major alarm)
- E911_LDTBSY_CRITICAL (critical alarm)

These alarms alert the user that a percentage of members of an LDT PSAP hunt group are in a busy state. The percentage of PSAP hunt group members busy is a busy term. The busy term refers to any line state other than call processing busy (CPB), idle (IDL), or installation busy (INB). The CPB and INB are busy states that do not require an alarm.

E911 Alternate Routing and Alarm Enhancements (continued)

The busy states that cause concern are:

- SYSB (system busy)
- MB (manual busy)
- LMB (line module busy)
- PLO (permanent lock out)

When a specified percentage of members of an LDT PSAP hunt group are in a not wanted busy state, these alarms activate. The datafill allows the user to define the percentages of members busy that cause the system to raise these alarms.

Datafill activation of alarms

The percentage of busy members activate the alarms at the minor, major, and critical levels. Entry of these percentages occurs for each PSAP. Three new fields are present in the LDTPSAP option in table HUNTGRP. The fields allow entries for these alarm percentages to occur for a specified LDT PSAP. Enter the LDTPSAP option through the SERVORD system as an option associated with the hunt group pilot.

The addition of the following three fields occurs in the LDTPSAP option:

- MNALMPCT
- MJALMPCT
- CRALMPCT

The system can detect that an LDT PSAP has a percentage of hunt group members busy. When the system detects that an entry contains a minimum of one of the values, the corresponding alarm activates. If any of the alarm percentages is zero, the alarm that corresponds does not activate for that PSAP.

LDT PSAP percentage busy alarms audit

An audit of all LDT PSAPs on the E911 tandem determines when these alarms are to activate. The audit runs every three minutes. If the system busies out one of the PSAP hunt group members because of wink failure trouble, the following occurs. This audit can run sooner. This audit determines the percentage of busy members of each PSAP. If an LDT PSAP meets the conditions for a minor, major, or critical alarm, the system outputs an E911227 log. This output states the time, PSAP name, and alarm condition occurs. When a PSAP that meets the alarm conditions for a specified alarm level occurs, the alarm activates.

An example of the E911227 log is as follows:

E911 Alternate Routing and Alarm Enhancements (continued)

```
E911227 OCT12 14:21:02 1600 INFO E911 LDT PSAP PCT BUSY CONDITION
PSAPNAME = POLICE ALARM = MAJOR MEMBERS_INSV = 6
MEMBERS_OUT_OF_SERVICE = 10
```

You must monitor the E911227 to determine exactly which LDT PSAPs are in an alarm state.

An alarm can be in an activated state or lowered state. The alarm cannot activate a multiple times. If one of these alarms activates, and a second LDT PSAP meets the conditions for that alarm, a change does not occur. If a minimum of one LDT PSAP meets the percentage of busy alarm conditions, the alarm is an alert.

When the percentage of PSAP members that are busy exceeds two of the alarm percentages entered, the alarm activates. The alarm with the higher percentage entry activates. For example, if 50 per cent of PSAP members are busy, the following percentage exists. The minor alarm percentage is 10 per cent and the major alarm percentage is 40 per cent. The system does not allow two of the percentages of the alarm to be the same, except for zero. Different percentages render one of the alarms as useless. If a desire to not use a specified alarm is present, the percentage of that alarm levels must be zero. This alarm never activates.

Lowering of LDT PSAP percentage busy alarms

One of the LDT PSAP percentage busy alarms must activate. If the next audit determines that the LDT PSAPs do not meet the conditions for that alarm, the alarm lowers.

Three minutes can pass before the alarm lowers after the fixed alarm condition at the PSAP. This period of time exists because there are several minutes between audits. An audit that continuously runs affects real time and system performance.

Busy out PSAP Hunt Group members on wink failure

The E911 tandem can “busy out” an LDT PSAP hunt group member that causes wink fail trouble. The group member must fail to complete two consecutive call attempts to that member because of wink fail trouble. The system places that hunt group member into the manual busy (MB) line state.

Each LDT PSAP hunt group member in a busy out state produces an E911228 log. The technician must investigate the problem and manually return to service (RTS) the line. The line returns when a resolution for the cause of the wink failures occurs.

E911 Alternate Routing and Alarm Enhancements (continued)

If the operating company desires a higher level of alert than an E911228 log, the following is the desired setting. Alarm percentage settings can be low enough so that the alarm activates. The alarm activates when one member of the LDT PSAP hunt group goes into MB state.

Each wink failure at an LDT PSAP, produces an E911222 log. The E911228 log is additional.

If a member of an LDT PSAP hunt group is in a busy out state, the audit begins. Section "LDT PSAP percentage busy alarms audit" describes this audit. This audit runs every 3 min. This audit runs sooner when the system causes the PSAP lines to be in a busy out state.

Translations table flow

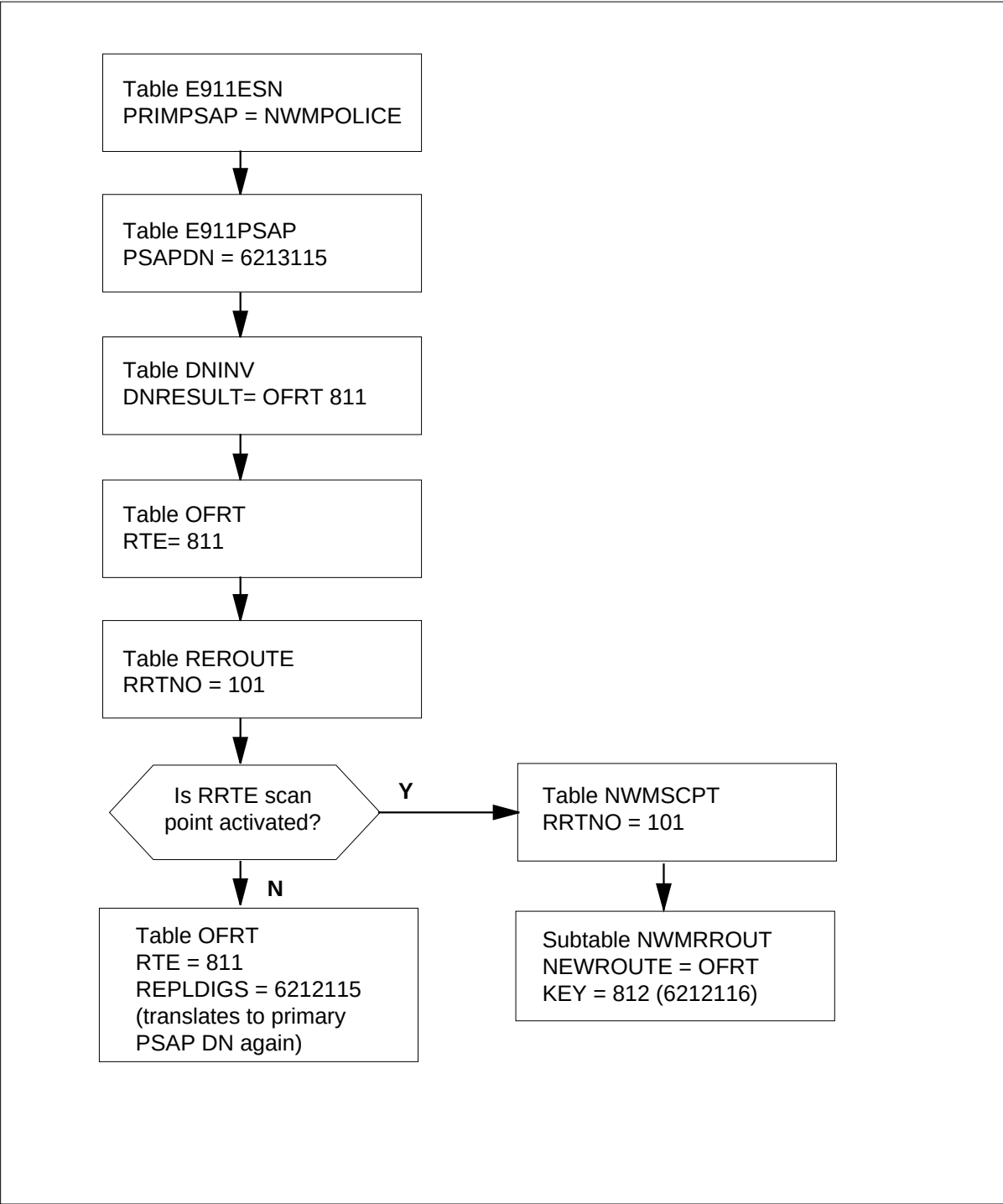
The translations tables for NWM rerouting appear in the following list:

- Table E911ESN
- Table E911PSAP
- Table DNINV
- Table OFRT
- Table REROUTE
- Subtable REROUTE.NWMRROUT
- Table NWMSC
- Table NWMSCPT

The E911 Alternate Routing and Alarm Enhancements translation process for NWM rerouting appears in the following flowchart.

E911 Alternate Routing and Alarm Enhancements (continued)

Table flow for E911 Alternate Routing and Alarm Enhancements



E911 Alternate Routing and Alarm Enhancements (continued)

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

Datafill example for E911 Alternate Routing using Network Management

Datafill table	Example data
E911ESN	300 N NWMPOLICE NONE NONE NONE NONE NONE NONE
E911PSAP	NWMPOLICE 6213115 N
DNROUTE	613 621 3115 T OFRT 811
OFRT	811 (RT 613 NP LCL 6212115 N M \$)\$
REROUTE	101 (1)
NWMRROUT	0 OFRT 812 100
NWMSC	0 MTM 2 13 0X10AA
NWMSCPT	0 0 0 RRTE 101 0

Limits

The limits for E911 Alternate Routing and Alarm Enhancements are as follows:

- Alarm percentages entered with the LDT PSAP option cannot have the same percentage, except zero. An alarm percentage entry of zero means that alarm can never activate for that LDT PSAP.
- The LDT PSAP audit for percentage of members busy runs at three minute intervals. Several minutes can occur between the time of a corrected alarm condition and the time the next audit lowers the alarm.
- after two consecutive wink failures, the system busies this feature out of the E911 LDT PSAP lines. The lines do not return to the IDL state.

Interactions

The E911 Alternate Routing and Alarm Enhancements does not have functionality interactions.

Activation/deactivation by the end user

The E911 Alternate Routing and Alarm Enhancements does not require activation or deactivation by the end user.

Billing

The E911 Alternate Routing and Alarm Enhancements does not affect billing.

E911 Alternate Routing and Alarm Enhancements (continued)

Station Message Detail Recording

The E911 Alternate Routing and Alarm Enhancements does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 Alternate Routing and Alarm Enhancements does not affect office parameters.

Datafill sequence

Datafill to implement E911 Alternate Routing and Alarm Enhancements appears in the following table. The tables appear in the correct entry order.

Note: This datafill sequence is an example for NWM rerouting only. Specified applications of NWM rerouting can differ.

Datafill tables required for E911 Alternate Routing and Alarm Enhancements

Table	Purpose of table
E911PSAP	Enhanced 911 Public Safety Answering Point. This table contains the names and DNS of PSAPs and emergency DN routes.
E911ESN	Enhanced 911 Emergency Service Number. This table contains all the PSAPs for each of the ESNs.
DNROUTE	Directory Number Route. This table lists information for writable DNS in a DMS switch.
OFRT	Office Route. This table is for routing in all DMS switches except DMS-300.
REROUTE	Network Management Reroute Control. This table defines reroute.
REROUTE. NWMRRROUT	Network Management Reroute Subtable. This table defines reroute.
NWMSC	Network Management Scan Group. This table contains the PEC of the scan card and the location.
NWMSCPT	Network Management Scan Point. This table identifies the function performed by each of the assigned scan points in the network management scan groups.

Datafilling table E911PSAP

Datafill for E911 Alternate Routing and Alarm Enhancements for table E911PSAP appears in the following table. The fields that apply to E911 Alternate Routing and Alarm Enhancements appear. See the data schema section of this document for a description of the other fields.

E911 Alternate Routing and Alarm Enhancements (continued)

Table HUNTGRP enters data in table E911PSAP. The Service Order (SERVORD) system creates a PSAP. The SERVORD assigns the LDTPSAP or LINEPSAP option to a hunt group. The entries are automatic.

The field EDNR (Y or N) appears in table E911PSAP to distinguish EDNR entries. The entry of this data occurs directly in table E911PSAP from PSAP DN entries. The SERVORD enters the DN entries. The table editor is for EDNR tuple entries.

Datafilling table E911PSAP

Field	Subfield or refinement	Entry	Explanation and action
PSAPNAME		alphanumeric (1 to 16 characters)	Public safety answering point name. Enter the name of the public safety answering point (PSAP) offering services. The default is NONE.
PSAPDN		numeric (18 digits)	Public safety answering point directory number. Enter the directory number (DN) of a line PSAP, line appearance on a digital trunk (LDT) PSAP, or emergency directory number route (EDNR). The default (\$) indicates that there is no DN associated with this PSAP. If a central office configuration provides E911 service to more than one numbering plan area (NPA), enter the PSAPs in the 7-digit format for the home NPA. Enter the PSAPs in the 10-digit format for the foreign NPA. Each entry must have a different PSAP name.
EDNR		Y	Emergency directory number route. Enter Y if an EDNR is in use. If table E911PSAP is entered through table HUNTGRP, the system sets this field to N. An N setting does not allow tuples to change or delete.

Datafill example for table E911PSAP

Sample datafill for table E911PSAP appears in the following example.

E911 Alternate Routing and Alarm Enhancements (continued)**MAP example for table E911PSAP**

PSAPNAME	PSAPDN	EDNR
NWMPOLICE	6213115	N

Datafilling table E911ESN

Datafill for E911 Alternate Routing and Alarm Enhancements for table E911ESN appears in the following table. The fields that apply to E911 Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table E911ESN

Field	Subfield or refinement	Entry	Explanation and action
ESN		0 to 15999	Emergency service number. Enter a number that is a maximum of five digits that represent an emergency service zone (ESZ).
FLASH		Y or N	Flash. Enter Y to alert the public safety answering point (PSAP) attendant that the calling party that uses this emergency service number (ESN) needs special attention. Enter Y to alert the PSAP that the call is incoming on a message or FX trunk. If this condition is not present, enter N (no).
PRIMPSAP		alphanumeric (1 to 16 characters)	Primary public safety answering point. Enter a PSAP name entered in table E911PSAP and intended to indicate the type of service provided. NONE is not a correct entry for the PRIMPSAP field.

Datafill example for table E911ESN

Sample datafill for table E911ESN appears in the following example.

E911 Alternate Routing and Alarm Enhancements (continued)**MAP example for table E911ESN**

ESN	FLASH PSAP5	PRIMPSAP PSAP6	PSAP1	PSAP2	PSAP3	PSAP4
300	N	NWMPOLICE	NONE	NONE	NONE	NONE
	NONE	NONE				

Datafilling table DNROUTE

Datafill for E911 Alternate Routing and Alarm Enhancements for table DNROUTE appears in this table. The fields that apply to E911 Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table DNROUTE (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
AREACODE		0 to 9999999 (1 to seven digits)	Area code. The area code identifies a major geographical area that the switch serves. With office parameter ACTIVE_DN_SYSTEM in table OFCENG set to North American, the area code must be three digits long.

E911 Alternate Routing and Alarm Enhancements (continued)

Datafilling table DNROUTE (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OFCCODE		0 to 9999999 (0 to seven digits)	Office code. The office code is a subregion of the area code. With office parameter ACTIVE_DN_SYSTEM in table OFCENG set to North American, the area code must be three digits long.
STNCODE		0 to 99999999 (a maximum of eight digits)	Station code. The station code identifies a different station in the terminating office (TOFC). With office parameter ACTIVE_DN_SYSTEM in table OFCENG set to North American, the station code must be one or four digits. To enter one digit treats the digit like a D-digit where the D-digit represents the fourth digit in the format ABC-DEFG. A D-digit receives the correct DN result. For example, if you enter area code 613 and office code 226, and enter 5 as the D-digit, the following occurs. The system routes any calls to a number beginning with 6132265 to the specified treatment.

Datafill example for table DNROUTE

Sample datafill for table DNROUTE appears in the following example.

MAP example for table DNROUTE

AREACODE	OFCCODE	STNCODE	
-----	-----	-----	-----
613	621	3115	T OFRT 811

Datafilling table OFRT

Datafill for E911 Alternate Routing and Alarm Enhancements for table OFRT appears in the following table. The fields that apply to E911 Alternate Routing

E911 Alternate Routing and Alarm Enhancements (continued)

and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table OFRT

Field	Subfield or refinement	Entry	Explanation and action
RTE		1 to 1023	Route reference index. If the record is the first in the route list, enter the route reference number assigned to the route list.
RTELIST		see subfield	Route list. This field consists of subfield RTESEL and refinements SNPA, TYPCALL, ORIGSCORE, REPLDIGS.
	RTESEL	RT	Route selector. Enter RT.
	SNPA	numeric	Serving numbering plan area. Enter the NPA of the HNPACONT table to which translation proceeds for translation of the replace digits.
	TYPCALL	DD or OA	Type of call. Enter the type of call associated with the replace digits: DD (direct dial) or OA (operator assisted).
	ORIGSCORE	LCL or NLCL	Originating source. Enter the originating source that associates with the replace digits, LCL (local) or NLCL (nonlocal).
	REPLDIGS	numeric a maximum of 11 digits)	Replace digits. Enter the digits that replace the dialed digits.

Datafill example for table OFRT

Sample datafill for table OFRT appears in the following example.

MAP example for table OFRT

RTE	RTELIST

811 (RT 613 NP LCL 6212115 N M \$) \$	

E911 Alternate Routing and Alarm Enhancements (continued)**Datafilling table REROUTE**

Datafill for E911 Alternate Routing and Alarm Enhancements for table REROUTE appears in the following table. The fields that apply to E911 Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table REROUTE

Field	Subfield or refinement	Entry	Explanation and action
RRTNO		0 to 1023	Reroute number. Range is 0-1023.
NWMRRROUT		0 to 15	Index into subtable REROUTE.NWMRRROUT. Range is 0-15.

Datafill example for table REROUTE

Sample datafill for table REROUTE appears in the following table.

MAP example for table REROUTE

RRTNO	NWMRRROUT
-----	-----
101	(1)

Datafilling table REROUTE.NWMRRROUT

Datafill for E911 Alternate Routing and Alarm Enhancements for table REROUTE.NWMRRROUT appears in the following table. The fields that apply to E911 Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table REROUTE.NWMRRROUT (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
RRTSUB		0 to 15	Reroute subtable index. Enter the index into subtable REROUTE.NWMRRROUT.
NEWROUTE		see subfields	New route. This field consists of subfields TABID and KEY.

E911 Alternate Routing and Alarm Enhancements (continued)**Datafilling table REROUTE.NWMRRROUT (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	TABID	IBNRTE IBNRT2 IBNRT3 IBNRT4 OFRT	Table identification. In a local/toll office enter table OFRT (Office Route) or one of the four IBNRTE (Integrated Business Network Route) tables. The activated Reroute feature redirects the percentage of traffic (level) to these tables.
	KEY	0 to 1023	Key. Enter the index into table specified in field TABID.
	LEVEL	0 to 100	Level. Enter the percentage of traffic redirected with the activated Network Management Reroute feature.

Datafill example for table REROUTE.NWMRRROUT

Sample datafill for table REROUTE.NWMRRROUT appears in the following example.

MAP example for table REROUTE.NWMRRROUT

RRTSUB	NEWROUTE	LEVEL

0	OFRT	812 100

Datafilling table NWMSC

Datafill for E911 Alternate Routing and Alarm Enhancements for table NWMSC appears in the following table. The fields that apply to E911

E911 Alternate Routing and Alarm Enhancements (continued)

Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NWMSC

Field	Subfield or refinement	Entry	Explanation and action
SCGROUP		0 to 255	Scan group. Enter the scan group number.
TMTYPE		MTM, TM8	Trunk module type. Enter the type of trunk module of the mounted circuit. Enter MTM for maintenance trunk module.
TMNO		0 to 2047	Trunk module number. Enter the number assigned to the trunk module of the mounted circuit.
TMCCTNO		0 to 29	Trunk module circuit number. Enter the trunk module circuit number of the assigned circuit.
CARDCODE		0X10AA	Card code. Enter the Northern Telecom product engineering code (PEC) for the scan card.

Datafill example for table NWMSC

Sample datafill for table NWMSC appears in the following example.

MAP example for table NWMSC

SCGROUP	TMTYPE	TMNO	TMCCTNO	CARDCODE

0	MTM	2	13	0X10AA

Datafilling table NWMSCPT

Datafill for E911 Alternate Routing and Alarm Enhancements for table NWMSCPT appears in the following table. The fields that apply to E911

E911 Alternate Routing and Alarm Enhancements (continued)

Alternate Routing and Alarm Enhancements appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table NWMSCPT

Field	Subfield or refinement	Entry	Explanation and action
SCGRPPT		see subfields	Scan group and point. This field is the key to the table and contains subfields SCGROUP and SCPT.
	SCGROUP	0 to 255	Scan group. Enter the scan group to which the scan point belongs. This entry corresponds to field SCGROUP in table NWMSC.
	SCPT	0 to 6	Scan point. Enter the scan point number.
NORMST		0 or 1	Normal state. This entry specifies the normal state of the scan point. Enter 0 (zero) if the scan point is normally off or open. Enter 1 if the scan point is normally on or closed.
SCDATA		see subfield	Scan data. This field contains subfield SCPTTYP and the refinements of the field.
	SCPTTYP	RRTE	Scan point type. Specify the scan point type. Enter RRTE for key reroute and datafill refinements RRTNO and RRTSUB.
	RRTNO	0 to 1023	Reroute number. If the entry in subfield SCPTTYP is RRTE, enter data in this refinement. Enter the reroute number of table REROUTE that associates with the scan point.
	RRTSUB	0 to 15	Reroute subtable index. If the entry in subfield SCPTTYP is RRTE, enter data in this refinement. Enter the index into subtable REROUTE.NWMRROUT that associates with the scan point.

Datafill example for table NWMSCPT

Sample datafill for table NWMSCPT appears in the following example.

E911 Alternate Routing and Alarm Enhancements (continued)

MAP example for table NWMSCT

SCGRPT		NORMST	SCDATA		

0	0	0	RRTE	101	0

Tools for verifying translations

The use of output from TRAVER to verify E911 Alternate Routing for NWM rerouting appears in the following example.

E911 Alternate Routing and Alarm Enhancements (continued)

TRAVER output example for NWM alternate routing

```

traver tr e911icmf 911 b
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT 613 Y BELL 1
10 10 REV 692 300
CALL DEFAULT ROUTED
TABLE E911ESN
300 N NWMPOLICE NONE NONE NONE NONE NONE
NONE
TABLE E911PSAP
NWMPOLICE 6213115 Y
TABLE HNPACONT
613 128 2 ( 42) ( 1) ( 0) ( 0) 0
. SUBTABLE HNPACODE
. 621 621 DN 613 621
Originator is supported for AIN Termina-
tion Attempt Trigger
only, therefore other AIN info is not
processed.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TRIGGRP_PODP
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 3115 T OFRT 811
AIN Term Attempt TDP: no subscribed
trigger.
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE OFRT
811 T RRTE 101
. TABLE RRTE
. . TABLE REROUTE
. . 101 ( 1)
. . . SUBTABLE NWMRROUT
. . . NOT ACTIVATED
RT 613 NP LCL 6212115 N N $
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE 6136212115
ST
TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```


E911 Alternate Routing and Alarm Enhancements (continued)

The previous TRAVER shows a default routing scheme. The system routes the call to the NWMPOLICE Emergency Directory Number Route (EDNR). The routing takes the call to office route 811 where the system checks the scan point. The system checks the scan point to see if the scan point is active. If the scan point is not active, the system routes the call to the proper PSAP (6212115).

If the scan point was active, call processing flow takes table OFRT 812. The system would route the call to another PSAP hunt group (6212116).

SERVORD

The SERVORD requirements for E911 Alarm Enhancements appear in the following sections.

SERVORD limits

The E911 Alternate Routing and Alarm Enhancements do not have SERVORD limits.

SERVORD prompts

The SERVORD prompts used to assign an LDT PSAP to a hunt group for E911 alarm enhancements appear in the following table.

SERVORD prompts for E911 Alarm Enhancements (Sheet 1 of 2)

Prompt	Correct input	Explanation
DN_OR_LEN	numeric	Specifies the DN or line equipment number (LEN) of the line.
OPTION	LDTPSAP	Specifies the option to add. Enter LDTPSAP.
ANONCALL	Y or N	Specifies if the PSAP allows calls to terminate through non-E911 translations (Y). Specifies if you can reach the PSAP by dialing 911 (N).
ANISPILL	Y or N	Specifies if the PSAP receives automatic number identification (ANI) from the E911 tandem. Enter Y or N. If ANISPILL = Y, enter a number for NUMIDIGS.
NUMIDIGS	1-3	Specifies the number of information digits that an LDTPSAP with ANI expects.
Note: Anything other than CPB, IDL, or INB is a busy state in this condition.		

E911 Alternate Routing and Alarm Enhancements (continued)

SERVORD prompts for E911 Alarm Enhancements (Sheet 2 of 2)

Prompt	Correct input	Explanation
PSAPNAME	a maximum of 16 characters	Specifies the name of the PSAP.
MNALMPCT	0 to 100	Specifies the percent of LDTPSAP hunt groups that must be in a service-affecting busy state before a minor alarm raises. See note.
MJALMPCT	0 to 100	Specifies the percent of LDTPSAP hunt groups that must be in a service-affecting busy state before a major alarm raises. See note.
CRALMPCT	0 to 100	Specifies the percent of LDTPSAP hunt groups that must be in a service-affecting busy state before a critical alarm raises. See note.
Note: Anything other than CPB, IDL, or INB is a busy state in this condition.		

SERVORD example for adding the LDT PSAP to a hunt group

The following SERVORD example shows how to add the LDTPSAP option to a hunt group pilot. Use the ADO (add option) command to add this option. The percentage busy alarm values settings to add this option are the following. The settings are 10 per cent, 50 per cent, and 75 per cent to add this option.

E911 Alternate Routing and Alarm Enhancements (end)

SERVORD example for E911 Alarm Enhancements in prompt mode

```
>ADO
SONUMBER:  NOV 95 10 13 AM
>
DN_OR_LEN:
> PSAP 0 0 19 1
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
NUMIDIGS:
> 1
MNALMPCT:
> 10
MJALMPCT:
> 50
CRALMPCT:
> 75
PSAPNAME:
> POLICE
OPTION:
>$
```

SERVORD example for E911 Alarm Enhancements in no-prompt mode

```
>ADO $ PSAP 00191 LDTPSAP Y Y 1 10 50 75 POLICE $
```

E911 Direct Access to Data Mgt. System ALI Database

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00002

Release applicability

BCS31 and later versions

Requirements

The E911 Direct Access to Data Mgt. System ALI Database feature does not have requirements.

Description

The E911 Direct Access to Data Mgt. System ALI Database feature provides direct access to an AT&T-compatible ALI controller. This feature provides access for the Line and ACD PSAP that connects to the E911 tandem. The package includes the following abilities:

- RS-232 asynchronous serial data link to the ALI controller
- AT&T compatible data link protocol
- alarms for data link maintenance

The following tables require datafill to support E911 access to the AT&T-compatible ALI controller:

- MPC
- MPCLINK
- MPCFASTA
- MPCLSET
- E911ALI

The first four tables support different uses of the multiprotocol controller cards. Table E911ALI provides direct ALI controller support for a Line and an ACD PSAP.

The values in the multiprotocol controller tables that support direct access to the AT&T-compatible ALI controller appear on page 2 for each table. Refer to the data schema section of this document for additional information about multiprotocol controller tables. This section contains a description of Table E911ALI.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Translations table flow

An incoming emergency call initiates a translation sequence that identifies the name of the PSAP in Table E911ESN. Table E911ALI uses the PSAP name to identify the link set and the multiprotocol controller link interface protocol. Table E911ALI uses these features to index the different multiprotocol controller tables.

Limits

The E911 Direct Access to Data Mgt. System ALI Database feature does not have limits.

Interactions

The E911 Direct Access to Data Mgt. System ALI Database feature does not have functionality interactions.

Activation/deactivation by the end user

The E911 Direct Access to Data Mgt. System ALI Database feature does not require activation or deactivation by the end user.

Billing

The E911 Direct Access to Data Mgt. System ALI Database feature does not affect billing.

Station Message Detail Recording

The E911 Direct Access to Data Mgt. System ALI Database feature does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 Direct Access to Data Mgt. System ALI Database feature does not affect office parameters.

Datafill sequence

Enter data in the tables that appear in the following table. Enter the datafill to allow the E911 tandem to send automatic number identification (ANI) records to the AT&T-compatible ALI controller. The E911 tandem sends the records through a multiprotocol controller port.

E911 Direct Access to Data Mgt. System ALI Database (continued)

The tables that require datafill to implement the E911 Direct Access to Data Mgt. System ALI Database feature appear in the following table. The tables appear in the correct entry order.

Tables required for the E911 Direct Access to Data Mgt. System ALI Database feature

Table	Purpose of table
MPC	Multi-Protocol Controller.
MPCLINK	Multi-Protocol Controller Link.
MPCFASTA	MPC Fast Applications.
MPCLSET	MPC Link-Set.
E911ALI	Enhanced 911 Direct Access to AT&T ALI Controller.

Datafilling table MPC

The datafill for E911 Direct Access to Data Mgt. System ALI Database for table MPC appear in the following tables. The fields that apply directly to E911 Direct Access to Data Mgt. System ALI Database appear in the following table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table MPC

Field	Subfield or refinement	Entry	Description
DLDFILE			This field must specify the asynchronous protocol file for the latest available multiprotocol controller load. The file format is MPCA<BCS cycle/load designation>, for example: MPCA28AG.

Datafill example for table MPC

Refer to the data schema section of this document for example tuples in Table MPC.

Datafilling table MPCLINK

This table defines the link and protocol information for each multiprotocol controller card entered in Table MPC. Each link configured on a multiprotocol controller card has one link. Links 2 and 3 are used for ALI connections.

The datafill for E911 Direct Access to Data Mgt. System ALI Database for table MPCLINK appear in the following table. The fields that apply directly to E911 Direct Access to Data Mgt. System ALI Database appear in the table.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Refer to the data schema section of this document for a description of the other fields.

Datafilling table MPCLINK

Field	Subfield or refinement	Entry	Description
PRTLCLDAT			The protocol value is ASYNC.
	BAUDRATE		(hardware dependent)
	MODMCTRL	FULLMODM	Enter FULLMODM
	L1IDLY	0	Enter 0
	LNKDOWN	200	Enter 200
	STOPBITS	S1	Enter S1
	PARITY	EVEN	Enter EVEN
	CHARBITS	BIT7	Enter BIT7
	LINEMODE	FULL	Enter FULL
	NCHARTMO	0	Enter 0
	NCHTMOIN	0	Enter 0
	IMODE	CHR	Enter CHR
	OMODE	BLK	Enter BLK
	FCHARCNT	0	Enter 0
	ECHO	OFF	Enter OFF
	FLOWCTRL	NOFLOW	Enter NOFLOW
	APLDEFN	A911	Enter A911
	L2IDLY	200	Enter 200
	XPARENT	NODLE	Enter NODLE
	STRID	\$	Enter \$

Datafill example for table MPCLINK

See the data schema section of this document for example tuples in Table MPCLINK.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Datafilling table MPCFASTA

This table identifies applications that use the multiprotocol controller fast utility. This utility is a fast input/output interface through the multiprotocol controller card. Each application requires a tuple in this table.

Enter data in this table to provide E911ALI controller link abilities to a Line or ACD PSAP. Tables MPC and MPCLINK must have correct multiprotocol controller numbers and multiprotocol controller link numbers. The tables must contain these numbers before you enter data in the MLCLIST field in this table.

The datafill to E911 Direct Access to Data Mgt. System ALI Database for table MPCFASTA appear in the following table. The fields that apply directly to E911 Direct Access to Data Mgt. System ALI Database appear in the following table. Refer to the data schema section of this document for a description of the other field.

Datafilling table MPCFASTA

Field	Subfield or refinement	Entry	Description
INDEX			A new value, ATT911AS, appears in this field for multiprotocol controller card links with direct access to an ALI controller.
AUDITFRQ			The correct value is 2.
UNITS			For this feature, the correct unit is minutes.
MLCLIST			For links with direct access to ALI controllers, the link channel value is 1. The multiprotocol controller links with AT&T-compatible ALI controller connections must appear in the list that associates with ATT911AS.

Datafill example for table MPCFASTA

See the data schema section of this document for example tuples in Table MPCFASTA.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Error messages for table MPCFASTA

The following error messages apply to table MPCFASTA.

Error messages for table MCFASTA

Error message	Description
You must delete the ATT911AS references from table E911ALI prior to deleting here.	Delete a tuple from Table MPCFASTA for the ATT911AS application. Remove references to the application in Table E911ALI. If you do not remove the references, this error message appears.
Audit Frequency must be 2 Minutes for the AT&T ALI protocol.	If you specify an audit frequency other than 2 min, this error message appears.
Link on MPC (the one being filled) is not A911.	If APLDEFN field in Table MPCLINK, that associates with the application that you enter, is not set to A911, this message appears.
Link on MPC (the one being filled) is not ASYNC.	If the PROTOCOL field in Table MPCLINK, that associates with the the application that you enter, is not set to ASYNC, this message appears.

Datafilling table MPCLSET

Enter data in this table to provide E911ALI controller link abilities to a Line or ACD PSAP. Enter the correct multiprotocol controller numbers and multiprotocol controller link numbers in tables MPC, MPCLINK, and MPCFASTA. Enter these numbers before you enter data in this table.

The datafill for E911 Direct Access to Data Mgt. System ALI Database for table MPCLSET appear in the following table. The fields that apply directly to E911 Direct Access to Data Mgt. System ALI Database appear in the

E911 Direct Access to Data Mgt. System ALI Database (continued)

following table. See the data schema section of this document for a description of the other fields.

Datafilling table MPCLSET

Field	Subfield or refinement	Entry	Description
LSETKEY			This field contains a new value, ATT911AS, for multiprotocol controller link sets with direct access to an ALI controller.
MLCLIST			For asynchronous applications, the channel value must be 1. Include every multiprotocol controller link that associates with each ALI controller.

Datafill example for table MPCLSET

Refer to the data schema section of this document for example tuples in Table MPCLSET.

Error messages for table MPCLSET

The following error messages apply to table MPCLSET.

Error messages for table MPCLSET

Error message	Description
You must delete the ATT911AS references from table E911ALI prior to deleting here.	Delete a tuple from table MPCLSET for the ATT911AS application. Make sure that the system delivers the corresponding tuples in table E911ALI. If the system does not deliver these tuples, this message appears.
The AT&T ALI controller has only one link. You have specified N.	Every tuple in table MPCLSET of the ATT911AS application must have two entries. In other occurrences, the system displays the error message. The N is the number of entries the user includes.

Datafilling table E911ALI

Table E911ALI contains one tuple for each Line or ACD PSAP that requires a direct link to an ALI controller. Enter data in table E911ALI. The following tables must have multiprotocol controller numbers, multiprotocol controller link numbers, and an application name:

E911 Direct Access to Data Mgt. System ALI Database (continued)

MPC

MPCLINK

MPCFASTA

MPCLSET

Table E911PSAP must contain the PSAP name.

See the Datafill Sequence in E911-Tandem or DMS Integrated E911 PSAP Functionality for information. See these sections for information about when data are entered in Table E911PSAP in relation to other tables. The other tables are in the E911 base packages. Enter data in this table to provide E911ALI controller link capabilities to a Line or ACD PSAP.

The datafill for the E911 Direct Access to Data Mgt. System ALI Database feature for table E911ALI appear in the following table. The fields that apply directly to E911 Direct Access to Data Mgt. System ALI Database appear in the following table. See the data schema section of this document for a description of the other fields.

Datafilling table E911ALI (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
PSAPNAME			This key field corresponds to the field with the same name in Table E911PSAP.
PSAPNUM		0 to 999	PSAP number. This field identifies the number of the PSAP that receives the ALI service. A one-to-one relationship occurs between the PSAP number and the PSAP name. Service orders identify the PSAP operator station numbers separately. The AT&T ALI system does not use the value entered. The E911 tandem uses the value to assign trunk numbers to each call. Each value entered in Table E911ALI has a set of trunk numbers. Correct entries are 0 to 999.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Datafilling table E911ALI (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
IFTYPE		ATT911AS	This field defines the type of interface between the multiprotocol controller and the ALI system. Enter ATT911AS.
LSETIDX			This number corresponds to the number of the multiprotocol controller link set in Table MPCLSET that the table uses to connect to an ALI system.

Datafill example for table E911ALI

Sample datafill for table E911ALI appear in the following example.

MAP example for table E911ALI

PSAPNAME	PSAPNUM	IFTYPE	LSETIDX
CARYPOLICE	3	ATT911AS	0
HILLSBOFIR	3	ATT911AS	0
HRDMILLFIR	2	ATT911AS	1

E911ALI limits

The E911ALI limits appear in the following list:

- the maximum size of this table is 7000 tuples.
- an ALI controller can serve one emergency directory number route.
- other PSAP agent positions have the position numbers entered through service orders. The system assigns position 1 to emergency directory number routes when an entry for a tuple occurs in Table E911ALI.

An ALI database management system uses agent position numbers to identify which display receives caller data. Two agents cannot have the same number. This condition applies to agents even if the agents are at the same or different PSAPs. If two agents have the same number, each agent receives the same data. For this reason, one emergency directory number route (agent position 1 by default) can associate with each ALI controller.

E911 Direct Access to Data Mgt. System ALI Database (continued)

Error messages for table E911ALI

The following error messages apply to table E911ALI.

Error messages for table E911ALI

Error message	Description
Link Set specified is not in Table MPCLSET for this application.	The multiprotocol controller link set number must have datafill in Table MPCLSET.. The table must contain the data before you attempt to enter data infield LSETIDX. In other occurrences, the system generates this error message.
The NONE PSAP may not receive ALI service.	The default PSAP (NONE) cannot have ALI service. If the system applies this service, the system displays the message.
WARNING Calls may be active on this PSAP. Deleting now may cause ALI messages to be missed. Re-Add this tuple to restore ALI service.	The ALI software determines that calls are active for this PSAP when you delete the PSAP tuple in Table E911ALI. The system generates this message.

Tools for verifying translations

The E911 Direct Access to Data Mgt. System ALI Database feature does not use tools for verifying translations.

SERVORD

The ALI option specifies that a PSAP agent position can receive subscriber data from an ALI database. The agent position number has the ALI option during service order entry. This number must correspond to the position number that the ALI database management system uses.

The ALI option is an additional line option to the individual Line PSAP hunt group and ACD group members. When you add the option to a Meridian business set, add the option to directory number appearances. Add the option separately to each directory number appearance that associates with the set.

To add the ALI option, the selected directory number or line equipment number must be a pilot or member of a PSAP group. Enter the pilot or member in Table E911ALI. To use the service order command ADO to add the ALI option to a PSAP directory number, refer to the following figure. The directory number has a 500/2500 single-line set.

E911 Direct Access to Data Mgt. System ALI Database (continued)

SERVORD limits

The E911 Direct Access to Data Mgt. System ALI Database feature does not have SERVORD limits.

SERVORD prompts

The SERVORD prompts give the E911 Direct Access to Data Mgt. System ALI Database feature to a separate directory number in a Line or ACD PSAP group. These SERVORD prompts appear in the following table.

SERVORD prompts for the E911 Direct Access to Data Mgt. System ALI Database feature

Prompt	Correct input	Description
OPTION	ALI	The prompt identifies a PSAP group member as a position that receives ALI database information during 911 calls.
POSNUM	0 to 99	The prompt identifies the PSAP position that requires ALI information to the ALI database.

Service order implementation

The ALI option specifies that a PSAP agent position can receive subscriber information from an ALI database. The agent position number has the ALI option during service order entry. The number must correspond to the position number that the ALI database management system uses.

The ALI option is a line option that is added to the individual hunt group and ACD group members. The ALI option is added to lines that have the LINEPSAP or ACDPSAP option assigned to the line. For PSAP agents to receive ALI service, the PSAP name must already be in Table E911ALI.

To add the ALI option, the selected directory number or line equipment number must be a pilot or member of a PSAP group. To use the service order command ADO to add the ALI option to a PSAP directory number, refer to the following example. The number has a 500/2500 single-line set.

E911 Direct Access to Data Mgt. System ALI Database (end)

Adding the ALI option to a Line or ACD PSAP position in prompt mode

```
>servord
S0:
>ado
SONUMBER:  NOW 87 11 23 AM
> (CR)
DN_OR_LEN:
>HOST 0 0 0 27
OPTION:
>ALI
POSNUM:
>12
OPTION:
>$
COMMAND AS ENTERED :
ADO NOW 87 11 23 AM HOST 00 0 00 27 ( ALI 12 ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>y
```

Adding the ALI option to a Line or ACD PSAP position in no-prompt mode

```
>ado $ HOST 0 0 0 27 ALI 12 $ (CR)
```

E911 Direct Interface to CCI ALI Database

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00002

Release applicability

BCS32 and later versions

Requirements

The E911 Direct Interface to CCI ALI Database does not have any requirements.

Description

This package provides direct access to a CCI-compatible automatic location identification (ALI) controller for a Line or automatic call distribution (ACD) public safety answering point (PSAP) that connects to the E911 tandem. This interface is not controlled. Other ALI vendors can use this interface. The abilities in this package include:

- RS-232 asynchronous serial data link to automatic number identification (ANI) controller
- CCI-compatible Life-911 to Positron ANI controller protocol
- alarms for data link maintenance

Operation

The tables that require datafill to support E911 access to the ALI controller are Tables MPC, MPCLINK, MPCFASTA, MPCLSET, and E911ALI. The first four tables support different uses of the multiprotocol controller (MPC) cards. Table E911ALI provides direct ALI controller support for Line and ACD PSAPs.

The values needed in the MPC tables that supports direct access to ALI appears in each table heading. Refer to the data schema section of this document for additional information about MPC tables. A complete description of Table E911ALI is available.

Translations table flow

An incoming emergency call starts a translation sequence that identifies the name of the PSAP in Table E911ESN. Table E911ALI uses the PSAP name to identify the link set. Table E911ALI uses the MPC link interface protocol to index the different MPC tables.

E911 Direct Interface to CCI ALI Database (continued)

Limits

The E911 Direct Interface to CCI ALI Database does not have limits.

Interactions

The E911 Direct Interface to CCI ALI Database does not have functionality interactions.

Activation/deactivation by the end user

The E911 Direct Interface to CCI ALI Database does not require activation or deactivation by the end user.

Billing

The E911 Direct Interface to CCI ALI Database does not affect billing.

Station Message Detail Recording

The E911 Direct Interface to CCI ALI Database does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 Direct Interface to CCI ALI Database does not affect office parameters.

Datafill sequence

The tables that require datafill to implement E911 Direct Interface to CCI ALI Database appear in the following table. The tables appear in the correct entry order.

Datafill tables for E911 Direct Interface to CCI ALI Database (Sheet 1 of 2)

Table	Purpose of table
MPC	Multi-Protocol Controller. This table identifies MPC card hardware to the E911 tandem.
MPCLINK	Multi-Protocol Controller Link. This table defines the link and protocol information for each MPC card entered in Table MPC.
MPCFASTA	The MPC Fast Applications. This table identifies applications that use the MPC fast utility. The last utility is a fast input/output interface through the MPC card.

E911 Direct Interface to CCI ALI Database (continued)

Datafill tables for E911 Direct Interface to CCI ALI Database (Sheet 2 of 2)

Table	Purpose of table
MPCLSET	MPC Link-Set. This table groups logical links in the MPC fast application in link sets for selective link transfers.
E911ALI	Enhanced 911 Direct Access to AT&T ALI Controller. Table E911ALI contains one tuple for each Line or ACD PSAP that require a direct link to an ALI controller.

Datafilling table MPC

Table MPC identifies MPC card hardware to the E911 tandem. Table MPC requires one tuple for each card that the switch supports. Enter data in table MPC before you enter data in Table MPCLINK. Enter data in this table to provide E911 ALI controller link abilities to Line or ACD PSAPs.

Datafill for E911 Direct Interface to CCI ALI Database for table MPC appears in the following table. The fields that apply directly to E911 Direct Interface to CCI ALI Database appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table MPC

Field	Subfield or refinement	Entry	Explanation and action
DLDFILE			This field specifies the asynchronous protocol file for the most current available MPC load. The file format is MPCA<BCS cycle/load designation>. For example, MPCA28AG.

Datafill example for table MPC

Refer to the data schema section of this document for example tuples in Table MPC.

Datafilling table MPCLINK

This table defines the link and protocol information for each MPC card in Table MPC. One tuple is for each link configured on each MPC card. Links 2 and 3 are for ALI connections. Enter a correct MPC number in table MPC before you enter data in table MPCLINK. Enter data in this table to provide E911 ALI controller link abilities to Line or ACD PSAPs.

Datafill for E911 Direct Interface to CCI ALI Database for table MPCLINK appears in the following table. The fields that apply directly to E911 Direct

E911 Direct Interface to CCI ALI Database (continued)

Interface to CCI ALI Database appear in the table. Refer to the data schema section of this document for a description of the other fields.

Datafilling table MPCLINK

Field	Subfield or refinement	Entry	Explanation and action
PRTLCLDAT			The protocol value is ASYNC
	BAUDRATE		(hardware dependent)
	MODMCTRL	FULLMODM	Enter FULLMODM
	L1IDLY	0	Enter 0
	LNKDOWN	200	Enter 200
	STOPBITS	S2	Enter S2
	PARITY	EVEN	Enter EVEN
	CHARBITS	BIT7	Enter BIT7.
	LINEMODE	FULL	Enter FULL
	NCHARTMO	0	Enter 0
	NCHTMOIN	0	Enter 0
	IMODE	CHR	Enter CHR
	OMODE	BLK	Enter BLK
	FCHARCNT	0	Enter 0
	ECHO	OFF	Enter OFF
	FLOWCTRL	NOFLOW	Enter NOFLOW
	APLDEFN	C911	Enter C911
	L2IDLY	200	Enter 200
	XPARENT	NODLE	Enter NODLE
	STRID	\$	Enter \$

Datafill example for table MPCLINK

See the data schema section of this document for example tuples in Table MPCLINK.

E911 Direct Interface to CCI ALI Database (continued)

Datafilling table MPCFASTA

This table identifies applications that use the MPC fast utility. The MPC fast utility is a fast input/output interface through the MPC card. Each application requires a tuple in table MPCFASTA. Enter the correct MPC numbers and MPC link numbers in tables MPC and MPCLINK. Enter this data before you enter data in the MLCLIST field in this table. Enter data in table to provide E911ALI controller link abilities to Line or ACD PSAPs.

Datafill for E911 Direct Interface to CCI ALI Database for table MPCFASTA appears in the following table. The fields that apply directly to E911 Direct Interface to CCI ALI Database appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table MPCFASTA

Field	Subfield or refinement	Entry	Explanation and action
INDEX			The introduction of the new value, OPN911AS in this field. This OPN911AS is for those MPC card links with direct access to an ALI controller.
AUDITFRQ			The correct value is 2.
UNITS			For this feature package, the correct unit is minutes.
RECOVERY			The correct entry is REGULAR.
MLCLIST			For links with direct access to ALI controllers, the link channel value is 1. MPC links with CCI-compatible ALI controller connections must appear in the list that associates with OPN911AS.

Datafill example for table MPCFASTA

See the data schema section of this document for example tuples in Table MPCFASTA.

E911 Direct Interface to CCI ALI Database (continued)

Error messages for table MPCFASTA

The following error messages apply to table MPCFASTA.

Error messages for table MPCFASTA

Error message	Explanation and action
You must delete the OPN911AS references from table E911ALI prior to deleting here.	You can delete a tuple from Table MPCFASTA for the OPN911AS application before you remove references to the tuple in Table E911ALI. If this condition occurs, this error message appears.
Audit Frequency must be 2 Minutes for the OPN ALI protocol.	If you specify an audit frequency other than 2 min, this error message appears.
Link on MPC (the one being filled) is not C911.	The system enters an application. If the APLDEFN field in Table MPCLINK that associates with this application is not C911, this message appears.
Link on MPC (the one being filled) is not ASYNC.	If the PROTOCOL field in Table MPCLINK that associates with the application is not ASYNC, the following message appears.

Datafilling table MPCLSET

Table MPCLSET groups logical links in the MPC fast application in link sets for selective link transfers. Define one link set for each ALI system connected to the E911 tandem. Use one tuple for each link set. For the CCI interface, two links are present for each set.

Enter correct MPC numbers and MPC link numbers in tables MPC, MPCLINK AND MPCFASTA. Enter these numbers before you enter data in Table MPCLSET. Enter data in this table to provide E911ALI controller link abilities to Line or ACD PSAPs.

Datafill for E911 Direct Interface to CCI ALI Database for table MPCLSET appear in the following table. The fields that apply directly to E911 Direct

E911 Direct Interface to CCI ALI Database (continued)

Interface to CCI ALI Database appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table MPCLSET

Field	Subfield or refinement	Entry	Explanation and action
LSETKEY			A new value, OPN911AS, is in this field for MPC link sets with direct access to an ALI controller.
MLCLIST			For asynchronous applications, the channel value must be 1. Include all MPC links that associate with a separate ALI controller.

Datafill example for table MPCLSET

See the data schema section of this document for example tuples in Table MPCLSET.

Error messages for table MPCLSET

The following error messages apply to table MPCLSET.

Error messages for table MPCLSET

Error message	Explanation and action
You must delete the OPN911AS references from table E911ALI prior to deleting here.	Before you delete a tuple from table MPCLSET for the OPN911AS application, deliver the related tuples in Table E911ALI. If this condition does not occur, this message appears.
Open interface ALI controllers have only two links. You have specified N.	All tuples in Table MPCLSET of the OPN911AS application must contain two entries. If this condition does not occur, this error message appears. N is the number of entries you can include.

Datafilling table E911ALI

Table E911ALI contains one tuple for each Line or ACD PSAP that requires a direct link to an ALI controller. Before you enter data in table E911ALI, enter MPC numbers and MPC link numbers in tables MPC, MPCLINK, MPCFASTA, and MPCLSET. Before you enter this data in Table E911ALI, enter an application name in tables MPC, MPCLINK, MPCFASTA, and MPCLSET. Table E911PSAP must contain the PSAP name.

E911 Direct Interface to CCI ALI Database (continued)

See the "Datafill Sequence" in "E911 - Tandem" or "DMS Integrated E911 PSAP Functionality" for information. Refer to this information to determine where Table E911PSAP occurs in the correct entry order of the tables in the E911 base packages. Enter data in this table to provide E911 ALI controller link abilities to Line or ACD PSAPs.

Datafill for E911 Direct Interface to CCI ALI Database for table E911ALI appears in the following table. The fields that apply directly to E911 Direct Interface to CCI ALI Database appear in the table. See the data schema section of this document for a description of the other fields.

How to enter data into table E911ALI

Field	Subfield or refinement	Entry	Explanation and action
PSAPNAME			This key field relates to the field with the same name in Table E911PSAP.
PSAPNUM		0 to 999	This field identifies the number of the PSAP that receive the ALI service. A one-to-one relationship is present between the PSAP number and the PSAP name. The service orders (SERVORDs) separately identify PSAP stations. The value must match the value that represents the PSAP in the ALI database management system. 0 (zero) to 999 are correct entries to allocate trunk numbers to separate calls.
IFTYPE		OPN911AS	Defines the type of interface between the MPC and the ALI system. Enter OPN911AS.
LSETIDX			This number relates to the number of the MPC link set in Table MPCLSET that the system uses to connect to an ALI system.

Datafill example for table E911ALI

Sample datafill for table E911ALI appears in the following example.

MAP example for table E911ALI

PSAPNAME	PSAPNUM	IFTYPE	LSETIDX
CARYPOLICE	3	OPN911AS	0
HILLSBOFIR	3	OPN911AS	0
HRDMILLFIR	2	OPN911AS	1

E911 Direct Interface to CCI ALI Database (continued)

E911ALI limits

The following are E911ALI limits:

- the maximum size of this table is 7000 tuples
- an ALI controller can serve only one emergency directory number (DN) route
- the system automatically receives an emergency DN route position 1 when you enter a tuple in Table E911ALI. This procedure is different from other PSAP agent positions that receive their position numbers through SERVORDs.

an ALI database management system uses agent position numbers to identify the display that receives caller data. In this condition, do not assign the same number to two agents if the agents are at the same or different PSAPs. If two agents have the same number, the two agents receive the same data. For this reason, one emergency DN route (agent position 1 by default) associates with each ALI controller.

Error messages for table E911ALI

The following error messages apply to table E911ALI.

Error messages for table E911ALI (Sheet 1 of 2)

Error message	Explanation and action
Link Set specified is not in Table MPCLSET for this application.	The MPC link set number is not in table MPCLSET before you attempt to enter data in field LSETIDX. This error message appears.
The NONE PSAP may not receive ALI service.	You cannot assign ALI service to the default PSAP (NONE). If an attempt to apply an ALI occurs, this message appears.
Invalid PSAP name to receive ALI service.	If the PSAP name in Table E911PSAP is not correct, this message appears.

E911 Direct Interface to CCI ALI Database (continued)**Error messages for table E911ALI (Sheet 2 of 2)**

Error message	Explanation and action
WARNING: This ALI interface may not allow more than one PSAPNUM to be datafilled. This datafill may cause invalid ALI displays.	If the PSAPNUM is different from one entry for other PSAPs in Table E911ALI, this message appears. If the PSAPs with different PSAPNUMs use different link sets that connect to different databases, the new table entry is correct. This table is correct even if the message appears.
WARNING Calls may be active on this PSAP. Deleting now may cause ALI messages to be missed. Re-Add this tuple to restore ALI service.	ALI software can determine that calls that continue activity for this PSAP during the deletion of the tuple for this PSAP in Table E911ALI. If this condition occurs, this message appears.

Tools for verifying translations

E911 Direct Interface to CCI ALI Database does not use tools for verifying translations.

SERVORD

The ALI option specifies that a PSAP agent position can receive subscriber information from an ALI database. The ALI option supplies the agent position number during SERVORD entry. The position number must correspond to the position number that the ALI database management system uses.

The ALI option is a line option that you can add to separate hunt group and ACD group members. When you add the option to a Meridian business set (MBS), add the option separately to each DN appearance associated with the set.

To add the ALI option, define the selected DN or line equipment number (LEN) as a pilot or member of a PSAP group. How to use the SERVORD command ADO appears in the following figure. Use this command to add the ALI option to a PSAP DN with a 500/2500 single-line set configuration.

SERVORD limits

The E911 Direct Interface to CCI ALI Database does not have SERVORD limits.

E911 Direct Interface to CCI ALI Database (continued)

SERVORD prompts

The SERVORD prompts appears in the following table. The system uses these prompts to assign E911 Direct Interface to CCI ALI Database to separate DNs on a Line or ACD PSAP group.

SERVORD prompts for E911 Direct Interface to CCI ALI Database

Prompt	Correct input	Explanation
OPTION	ALI	Identifies a PSAP group member as a position that receives ALI database information during 911 calls
POSNUM	0 to 99	Identifies the different PSAP position that requires ALI information to the ALI database.

SERVORD implementation

The ALI option specifies that a PSAP agent position can receive subscriber information from an ALI database. The ALI option supplies the agent position number during SERVORD entry. This number must relate to the position number that the ALI database management system uses. The assignment of the same position number to agents in the same PSAP can cause displays that you cannot predict at those positions. Position numbers are duplicates if the position numbers associate with the same PSAPNUM in Table E911ALI.

The ALI option is a line option that you can add to separate hunt group and ACD group members. You can add the ALI option to a line that already associates with the LINEPSAP or ACDPSAP option. To receive ALI service, the PSAP must have a related entry in Table E911ALI.

To add the ALI option, define the selected DN or LEN as a pilot or member of a PSAP group. How to use the SERVORD command ADO appears in the following example. Use the command to add the ALI option to a PSAP directory with a 500/2500 set configuration.

E911 Direct Interface to CCI ALI Database (end)

Adding the ALI option to a Line or ACD PSAP position in prompt mode

```
>servord
SO:
>ado
SONUMBER:  NOW 87 11 23 AM
> (CR)
DN_OR_LEN:
>HOST 0 0 0 27
OPTION:
>ALI
POSNUM:
>12
OPTION:
>$
COMMAND AS ENTERED :
ADO NOW 87 11 23 AM HOST 00 0 00 27 ( ALI 12 ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>y
```

Adding the ALI option to a Line or ACD PSAP position in no-prompt mode

```
>ado $ HOST 0 0 0 27 ALI 12 $ (CR)
```

E911 Incoming Wireless Calls

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00012

Release applicability

The NA009 and later versions

The NA009 introduced E911 Incoming Wireless Calls.

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Prerequisites

The E911 Incoming Wireless Calls does not have requirements.

Description

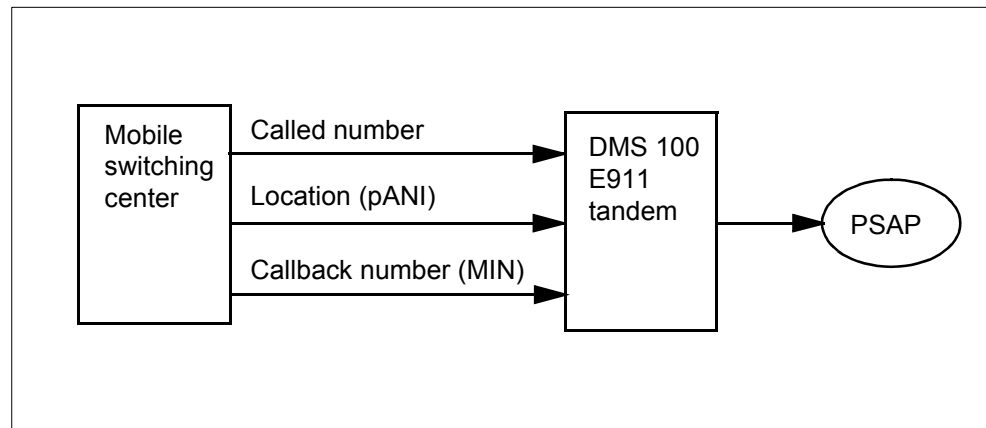
This feature allows incoming wireless E911 calls route to the appropriate public safety answering point (PSAP). This route depends on the location of the caller. A location number called the pseudo automatic number identification (pANI) or mobile identification number (MIN) determines the location of the call. Selective routing of wireless calls requires that the mobile

E911 Incoming Wireless Calls (continued)

switching center (MSC) passes the following information to the digital multiplex system (DMS). Refer to the following figure.

- called number (CDN)
 - The CDN must be 911, 11, or 1 to route according to the pANI.
- location information, pANI
 - The location information is 10 digits in the following format: NPA + NXX + XXXX. The 3-digit numbering plan area (NPA) must be in table SNPANAME.
- callback number
 - The callback number is the MIN assigned to the mobile service subscriber.

Wireless call information sent from the MSC to the DMS switch



Operation

This feature requires the MSC to send a location identifier in the generic digits parameter (GDP) of the initial address message (IAM). The location identifier represents the location of the caller. The location of the caller can be a specified cell site or sector. This feature checks the IAM of an incoming call on an ISDN user part (ISUP) IT to determine if the E911 GDP is present. If the E911 GDP is present, the DMS switch extracts the location identifier from the GDP. The DMS switch stores the location identifier as the pANI for the call.

The DMS E911 tandem switch accesses the selective routing database (SRDB). The DMS E911 uses the pANI to determine the emergency services number (ESN) of the pANI of the caller. The switch uses the ESN to route the call to the correct PSAP.

E911 Incoming Wireless Calls (continued)

Wireless calls use default routes when the following conditions occur:

- The GDP or pANI is present in the IAM.
- An entry for the pANI does not appear in table E911SRDB.
- The digits are not correct.

Translations table flow

The following list describes the E911 Incoming Wireless Calls translations tables:

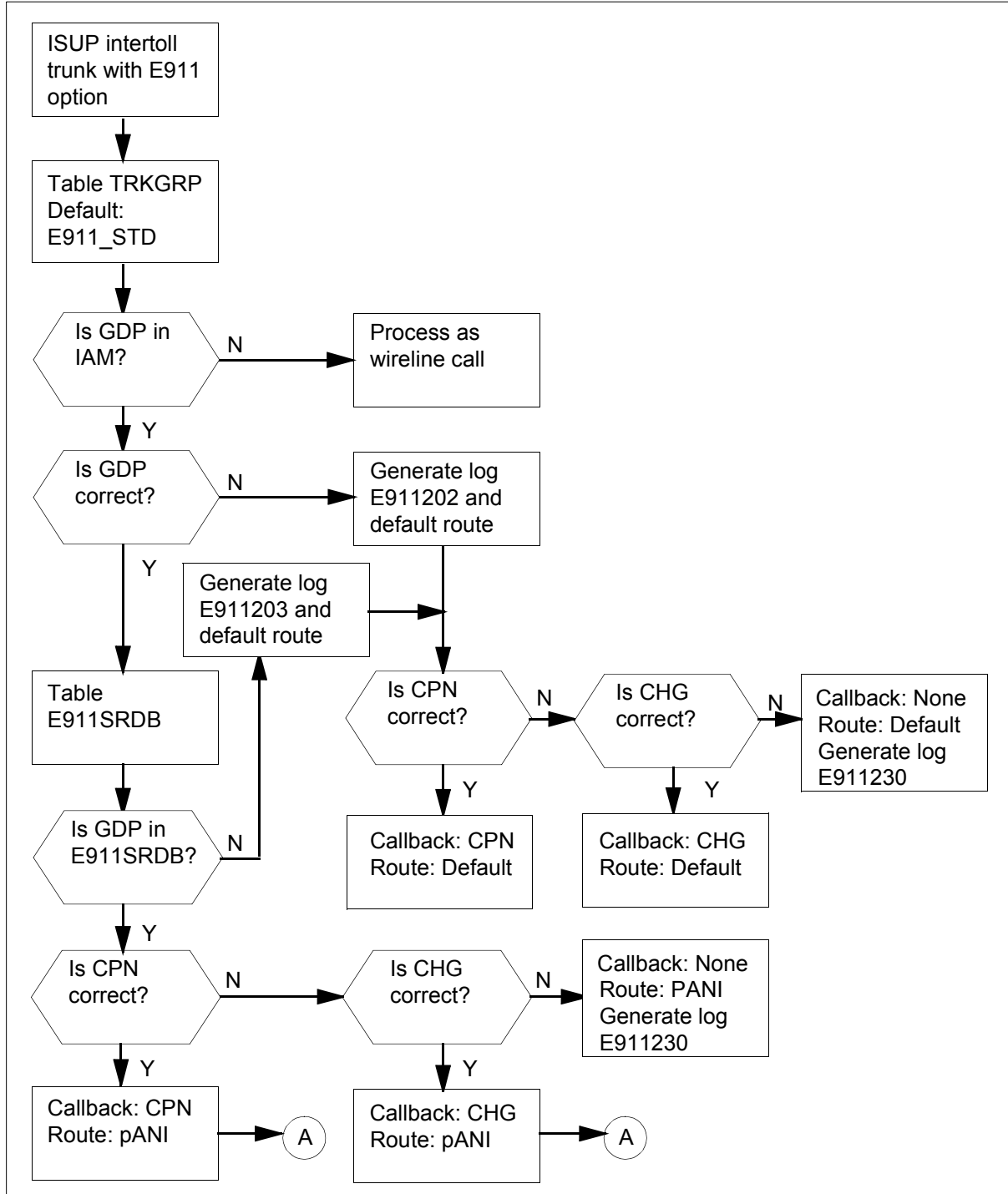
- Table E911SRDB
- Table E911ESN
- Table TRKGRP
- Table E911PSAP

The E911 Incoming Wireless Calls translation process appears in the following flowchart:

Note: In these flowcharts, the calling party number (CPN) can be 911, 11, or 1. If the CPN is not 911, 11, or 1, the call attempts to route based on the digits in the CPN parameter. For E911SIG = WRLS_CLD, the CPN is used as the pANI. In this case, all calls originate with the dialed digits of 911.

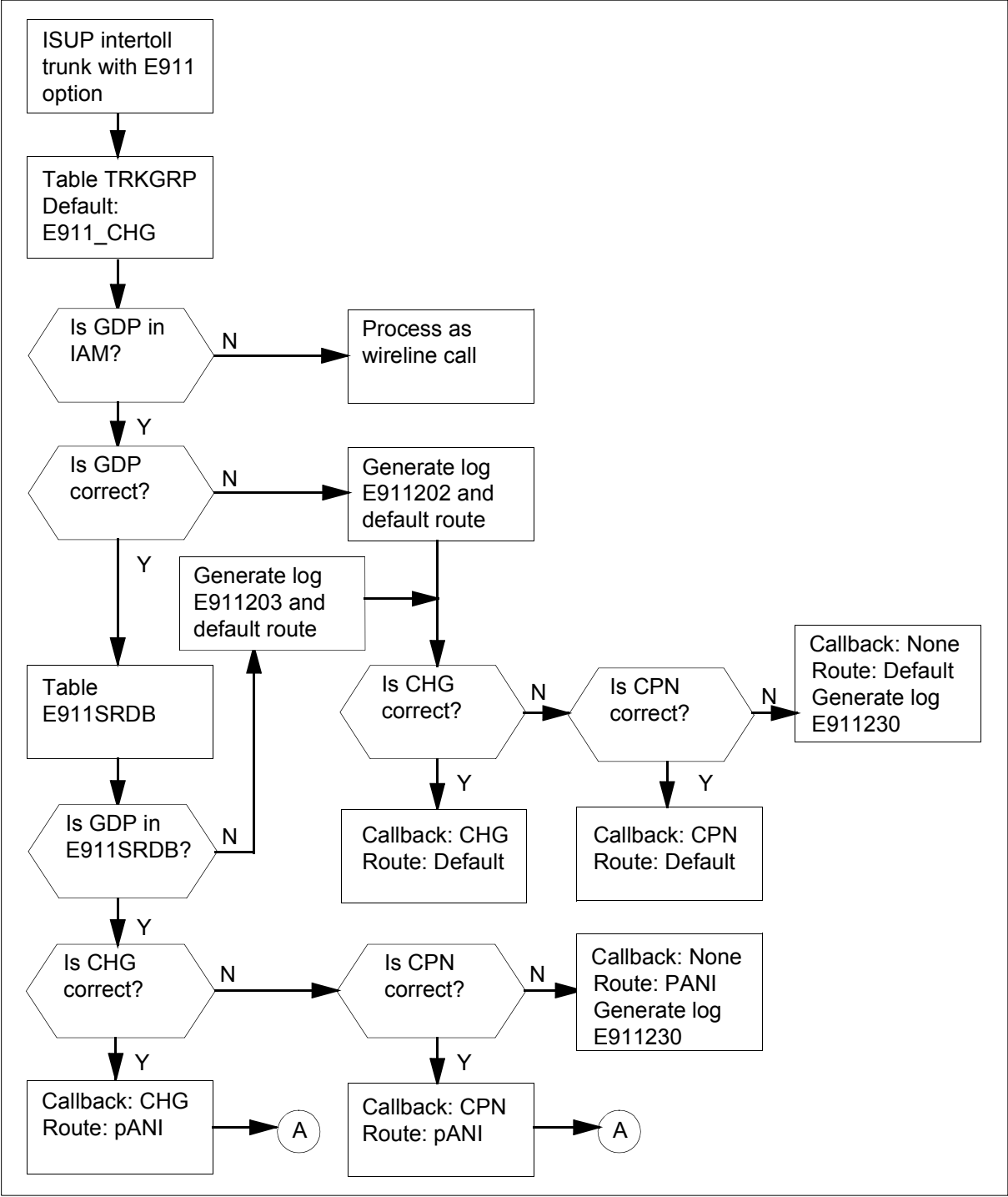
E911 Incoming Wireless Calls (continued)

Table flow for E911 Incoming Wireless Calls E911SIG = E911_STD



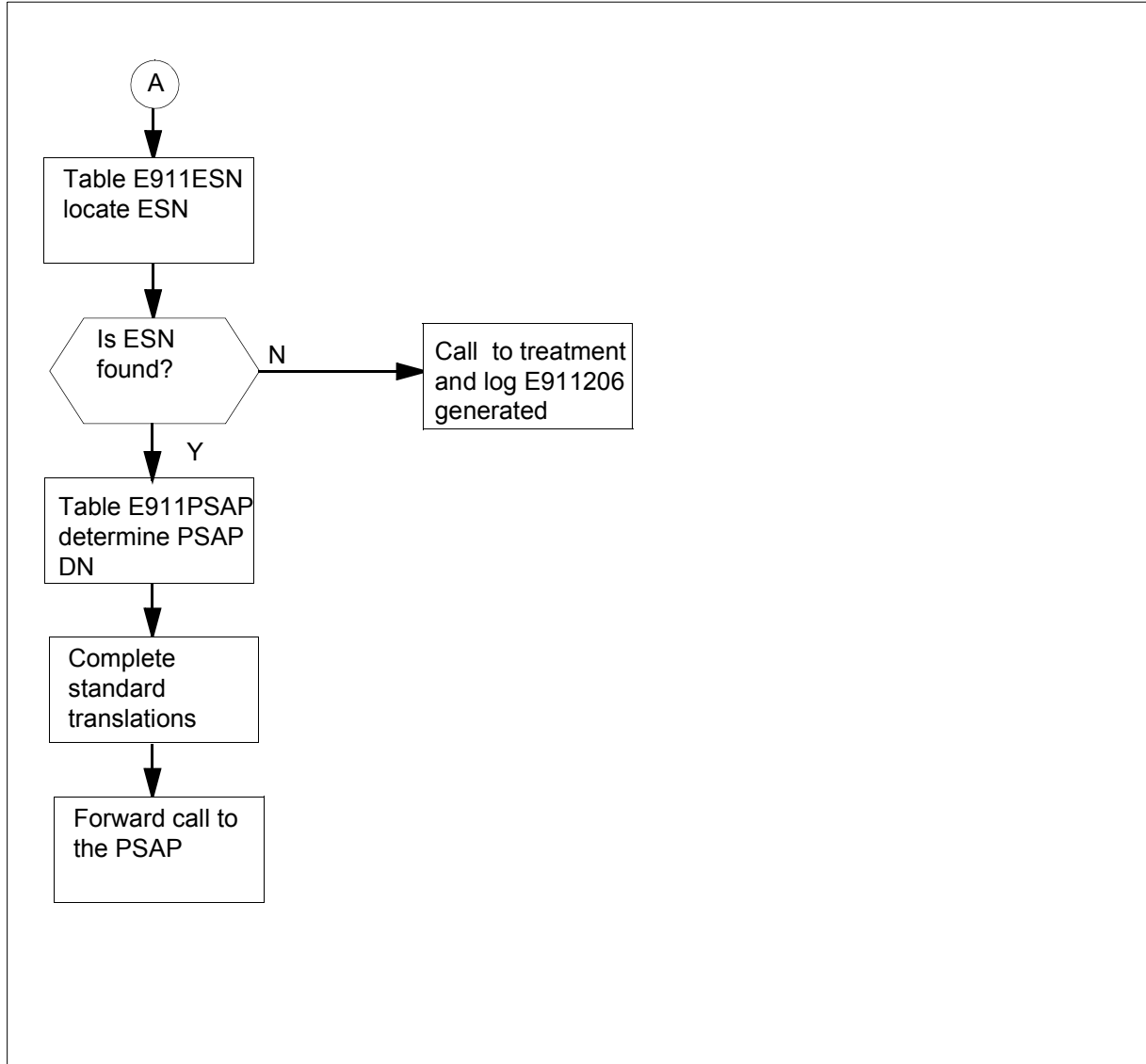
E911 Incoming Wireless Calls (continued)

Table flow for E911 Incoming Wireless Calls E911SIG = E911_CHG



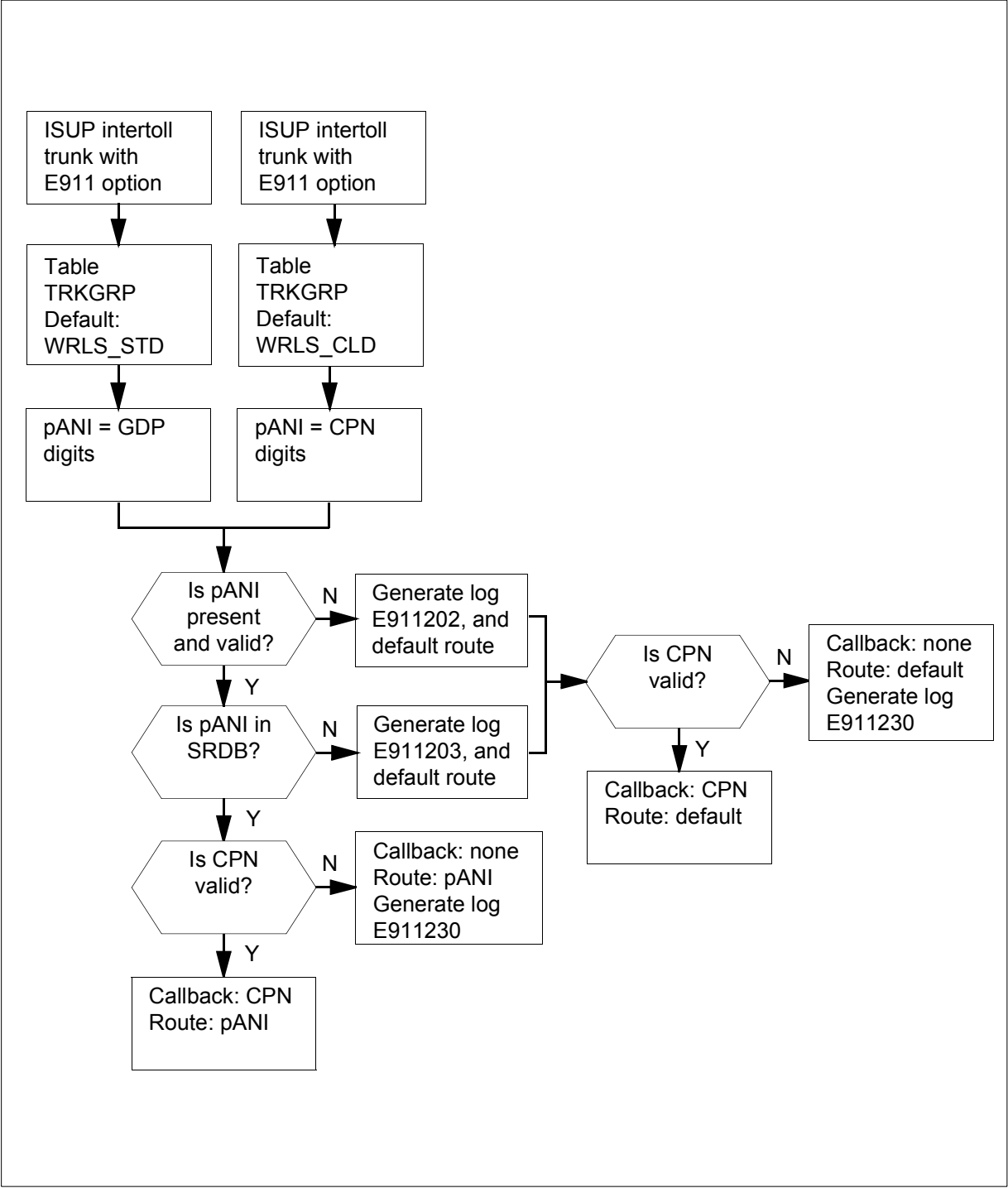
E911 Incoming Wireless Calls (continued)

Table flow for E911 Incoming Wireless Calls (continued)



E911 Incoming Wireless Calls (continued)

Table flow for E911 Incoming Wireless Calls E911SIG = WRLS_STD or WRLS_CLD



E911 Incoming Wireless Calls (continued)

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

Datafill example for E911 Incoming Wireless Calls

Datafill table	Example data
E911SRDB	613 621 2 016 115
E911ESN	115 N POLICE ACDPSAPH1 ACPSAPH2 ACDPSAPMDC LINEPSAPH1 AMBULANCE FIRE
TRKGRP	E911ICS7 IT 0 NCRT IC MIDL 613 AT1 NSCR 613 000 N N (E911 0789 113 E911_CHG) \$
E911PSAP	POLICE 6212115

Limits

The following limits apply to E911 Incoming Wireless Calls:

- The ISUP signaling is the only type of signaling that this functionality supports.
- This functionality does not support OWRIGHOLD and RINGBACK with wireless calls over ISUP trunks.
- This functionality does not support selective routing of wireless E911 calls over multifrequency (MF) trunks.
- This functionality does not support tandem-to-tandem interworking wireless calls like ISUP to MF.

Interactions

The following paragraphs describe the interactions between E911 Incoming Wireless Calls and other functionalities.

This feature interacts with the call flow of the E911 wireline.

Activation/deactivation by the end user

The E911 Incoming Wireless Calls does not require activation or deactivation by the end user.

Billing

The E911 Incoming Wireless Calls does not affect billing.

Station Message Detail Recording

The E911 Incoming Wireless Calls does not affect Station Message Detail Recording (SMDR).

E911 Incoming Wireless Calls (continued)

Data entered in office parameters

The E911 Incoming Wireless Calls does not affect office parameters.

Datafill sequence

The tables that require datafill to implement E911 Incoming Wireless Calls appear in the following table. The tables appear in the correct entry order.

Datafill tables required for E911 Incoming Wireless Calls

Table	Purpose of table
E911PSAP	The Enhanced 911 public safety answering point table associates a PSAP name with a local directory number (DN) or ESN route.
E911ESN	The Enhanced 911 ESN table associates an ESN with a primary PSAP.
TRKGRP	The Trunk Group table contains data that the customer defines, that associates with each trunk group that is in the switching unit.
E911SRDB	The Enhanced 911 SRDB table allows the E911 system to route 911 calls to the PSAP that serves the ESN of the subscriber.

Data entered in table E911PSAP

The datafill for E911 Incoming Wireless Calls for table E911PSAP appears in the following table. The fields that apply to E911 Incoming Wireless Calls appear. Refer to the data schema section of this document for a description of the other fields.

Data display entered in table E911PSAP

Field	Subfield or refinement	Entry	Explanation and action
PSAPNAME		alphanumeric 1 to 16 characters	Indicates public safety answering point. Enter the name of the PSAP that offers services.
PSAPDN		18 digits	Indicates public safety answering point directory number. Enter the DN of a line PSAP, line appearance on a digital trunk (LDT) PSAP, or emergency directory number route (EDNR). The default is \$.

E911 Incoming Wireless Calls (continued)**Data display entered in table E911PSAP**

Field	Subfield or refinement	Entry	Explanation and action
			Indicates the configuration of a central office can provide E911 service to more than one NPA. If this condition is present, you must enter the PSAPs in the 7-digit format for the home NPA and in the 10-digit format for the foreign NPA. Each entry must have a different PSAP name.
EDNR		Y	Indicates emergency directory number route Enter Y with the use of an EDNR. If the datafill of table E911PSAP enters through table HUNTGRP, the system sets this field to N. If the field is N, you cannot change or delete the tuples.

Datafill example

Sample datafill for table E911 Incoming Wireless Calls appears in the following example:

MAP example of table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
CARYPOLICE	4691235	N
NRESCUE	19195585219	Y

Data entered in table E911ESN

The datafill for E911 Incoming Wireless Calls for table E911ESN appears in the following table. The fields that apply directly to E911 Incoming Wireless

E911 Incoming Wireless Calls (continued)

Calls appears. Refer to the data schema section of this document for a description of the other fields.

Data entered in table E911ESN

Field	Subfield or refinement	Entry	Explanation and action
ESN		0 to 15999	Indicates emergency service number. Enter a number a maximum of five digits that represent an emergency service zone (ESZ).
FLASH		Y or N 00000	Indicates Flash. Enter Y to alert the PSAP attendant that the calling party that uses this ESN requires caution. Or, the call is incoming on a message or FX trunk. If these conditions are not present, enter N.
PRIMPSAP		alphanumeric 1 to 16 characters	Indicates primary public safety answering point. Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available. NONE is not a correct entry.
PSAP1		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point. Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available.
PSAP2		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point Enter a PSAP name already in table E911PSAP that intends to indicate the type of service available.
Note: Enter all secondary PSAPs that provide a specified service, as the same field, for example, fire as PSAP1. If a specified emergency service zone does not offer a specified emergency service, enter that field as NONE.			

Field	Subfield or refinement	Entry	Explanation and action
PSAP3		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available.
PSAP4		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available.
PSAP5		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available.
PSAP6		alphanumeric 1 to 16 characters	Indicates secondary public safety answering point Enter a PSAP name already in table E911PSAP, that intends to indicate the type of service available.
Note: Enter all secondary PSAPs that provide a specified service, as the same field, for example, fire as PSAP1. If a specified emergency service zone does not offer a specified emergency service, enter that field as NONE.			

Sample datafill for table E911 Incoming Wireless Calls appears in the following example:

ESN	FLASH	PRIMPSAP							
123	N	CARYPOLICE	CARYFIRE	CARYAMBULANCE	NONE	NONE	NONE	NONE	

E911 Incoming Wireless Calls (continued)**Data entered in table TRKGRP**

The datafill for E911 Incoming Wireless Calls for table TRKGRP appears in the following table. The fields that apply to E911 Incoming Wireless Calls appear. Refer to the data schema section of this document for a description of the other fields.

Data entered in table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO		Refer to subfields	Indicates group information
	OPTION	E911	Indicates option This option includes refinements ESCO, ESN, and E911SIG. To indicate the default ESCO for this trunk, enter ESCO. Enter ESN to indicate the default of this trunk. Enter E911SIG to indicate the type of signaling for this trunk. This option is correct only for North America.
	ESCO	0000 to 9999	Indicates emergency Service Central Office If the entry in subfield OPTION is E911, enter the default ESCO number that represents the originating end office of the E911 trunk. This option is correct only for North America.

E911 Incoming Wireless Calls (continued)

Data entered in table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
	ESN	0 to 15999	Indicates emergency Service Number. If the entry in subfield OPTION is E911, enter the following. Enter the default ESN of the emergency service zone that the switch uses to obtain the DN of the primary PSAP. The default route of this call is to this DN. This option is correct only for North America.
	E911SIG	E911_STD, E911_CHG,W RLS_STD, WRLS_CLD	Enhanced 911 Signaling This entry determines whether the DMS switch uses the calling party number or the charge number to obtain the callback or routing number or both. If you enter E911_STD, the first attempt uses the calling party number. The second attempt uses the charge number. If you enter E911_CHG, the first attempt uses the charge number. The second attempt uses the calling party number. If you enter WRLS_STD, the first attempt uses the calling party number. There is no second attempt. Note 1: The WRLS_STD entry applies only to incoming trunks that handle only wireless emergency calls. Note 2: The WRLS_CLD entry applies only to incoming trunks that handle only wireless emergency calls directly from a mobile switching center. The mobile switching center sends the pANI and callback number in a non-standard format. Note 3: The E911SIG option is valid only for North America. If you enter WRLS_CLD, the first attempt uses the calling party number. There is no second attempt.

E911 Incoming Wireless Calls (continued)

For the WRLS_CLD signaling type, the following conditions apply:

- The call is wireless.
- The original dialed digits are 911.
- The CPN parameter contains the pANI.
- The CPN parameter contains the callback number.
- WRLS_CLD does not support tandem-to-tandem transfers.

Example of data in table TRKGRP

Sample datafill for table TRKGRP appears in the following example:

MAP example for table TRKGRP

GRPKEY

GRPINFO

```
-----
E911ICS7 IT ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N
(E911 0789 113 E911_CHG) $
```

Data entered in table E911SRDB

The datafill for E911 Incoming Wireless Calls for table E911SRDB appears in the following table. The fields that apply directly to E911 Incoming Wireless Calls appears. See the data schema section of this document for a description of the other fields.

Data entered in table E911SRDB

Field	Subfield or refinement	Entry	Explanation and action
E911DN		Refer to subfields	Indicates E911 directory number. This field describes a range of DNs in four important parts: NPA, NXX, THGP, and XXX.
	NPA	000 to 999	Indicates numbering plan area. Represents the DNs in a specified NPA.
	NXX	200 to 999	Indicates office code. Represents the NXXs.

E911 Incoming Wireless Calls (continued)

Data entered in table E911SRDB

Field	Subfield or refinement	Entry	Explanation and action
ESN	THGP	0 to 9	Indicates thousand group. Represents a range of DNs.
	XXX	000 to 999	Indicates digit group. Represents a single DN.
		000 to 15999	Indicates emergency service number. This field is the ESN for the DN or group of DNs that the E911DN field represents. This number describes the set of PSAPs that serve the calling party. The route of the 911 call routes to the primary PSAP in this ESN.

Datafill example

Sample datafill for table E911 Incoming Wireless Calls appears in the following example:

MAP example for table E911SRDB

E911DN ESN					
919	991	7	000	3	
919	991	7	123	3	
919	266	N	NNN	26	
613	621	1	NNN	56	
613	621	5	NNN	34	
919	NNN	N	NNN	4	
507	NNN	N	NNN	200	
612	770	N	NNN	231	
612	543	2	NNN	112	
612	770	3	495	111	

Tools for verifying translations

The output from TRAVER when TRAVER checks E911 Incoming Wireless Calls appears in the following examples. The tables that associate with an incoming wireless call appear in the example. The CDN in this TRAVER example is the pANI. The pANI must have 10 digits.

E911 Incoming Wireless Calls (end)

TRAVER output example for E911 Incoming Wireless Calls

```
>traver tr e911ics7 911 b cdn 6136212016
TABLE TRKGRP
E911ICS7 IT ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N (E911 0789
113 E911_STD) $
TABLE E91SRDB
613 621 2016 115
TABLE E911ESN
115 N POLICE ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1 AMBULANCE FIRE
TABLE E911PSAP
POLICE 6212115 N
TABLE OFCVAR
.
.
.
+++TRAVER: SUCCESSFUL CALL TRACE +++
```

SERVORD

The E911 Incoming Wireless Calls does not use SERVORD.

E911 Incoming Wireless Calls (MF)

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00012

Release applicability

E911 Incoming Wireless Calls (MF) was introduced in NA010.

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Prerequisites

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

This feature allows the DMS-100 Enhanced 911 (E911) tandem to accept emergency wireless calls through multifrequency (MF) facilities. This feature supports Feature Group D-like (FGD) signaling.

This feature allows the public safety answering point (PSAP) to receive wireless calls with associated location information. The switch uses this location number to determine an emergency services number (ESN) for the call. The ESN determines the routing of the call.

The location information arrives in the following format:

- pseudo automatic number identifier (pANI) that
 - corresponds to the location number for the call
 - can be a 7-digit number or a 10-digit number

Note: If the pANI is a 7-digit number, the serving numbering plan area (SNPA) of the facility will generate a 10-digit number. Then the selective routing database (SRDB) looks up the pANI to get an ESN. This 10-digit number will appear as the pANI in all appropriate logs and

E911 Incoming Wireless Calls (MF) (continued)

displays. A valid pANI can also be a 10-digit number if the numbering plan area (NPA) is an SNPA of the tandem office.

- automatic number identifier (ANI) that
 - corresponds to the callback number
 - can be a 10-digit DN and two information digits (II)
 - identifies the mobile directory number (MDN) of the caller
 - identifies the mobile station Integrated Services Digital Network number (MSISDN) of the caller for callback

Operation

Provision this feature through an option in the existing E911 MF trunk group data. The extended signaling format option is called EXTSIG.

Note: See the “Limitations and restrictions” section of this document for clarification of provisioning requirements.

E911 Incoming Wireless Calls (MF) (continued)

For traditional E911 wireline signaling, set the EXTSIG field to N. For wireless MF signaling, set the EXTSIG option to Y. When the EXTSIG option is Y, the trunk expects the ANI in either of the formats in the following table.

Signaling information field contents

Call type	First stage address field	Second stage identification and address fields
E911 direct call with ANI	KP + (II + ANI) + ST1P	None
E911 direct call with location and ANI	KP + (II + ANI) + ST + KP + 7/10 pANI + ST (See note 1 and note 3.)	None
Note 1: The 7/10 in this table is encoded with the base station, cell site, or sector identification. This number must be able to route and pass through the networks. Note 2: The ANI in this table is encoded with the mobile directory number or mobile station ISDN number of the calling party instead of the charge number for the calling party. This number identifies the calling party. You can use this number as a callback number for the calling party. Note 3: Most calls arrive with pANI. The system accepts any stop mark (ST, STP, ST2P, and so on) at the end of a pANI stream. The system attempts to process these digits. Note 4: This type of signaling excludes called numbers. A trunk group that uses this type of signaling cannot perform a tandem to tandem transfer. The tandem to tandem transfer and routing is supported only for wireless calls that use Integrated Services Digital Network User Part (ISUP) facilities.		

E911 Incoming Wireless Calls (MF) (continued)

The following table shows examples of calls that arrive over trunk groups that use the EXTSIG MF signaling format.

Call scenarios that use MF signaling

Is ANI valid?	Is pANI valid?	How does the call route?	Is the call marked as wireless?	Do logs and displays show ANI failure?	Do logs and displays show pANI failure?
Yes	Yes	The pANI determines the call route. The SRDB determines the ESN. The call routes to the primary PSAP of ESN. (See note.)	Yes	No	No
Yes	No	The call default routes based on the ESN of the facility.	Yes	No	Yes
No	Yes	The call routes based on the pANI.	Yes	Yes	No
No	No	The call default routes based on the ESN of the facility.	Yes	Yes	Yes
Note: If valid pANI does not correspond to an ESN in the SRDB, the call will default route based on the ESN of the facility. The pANI will appear in all applicable logs and displays.					

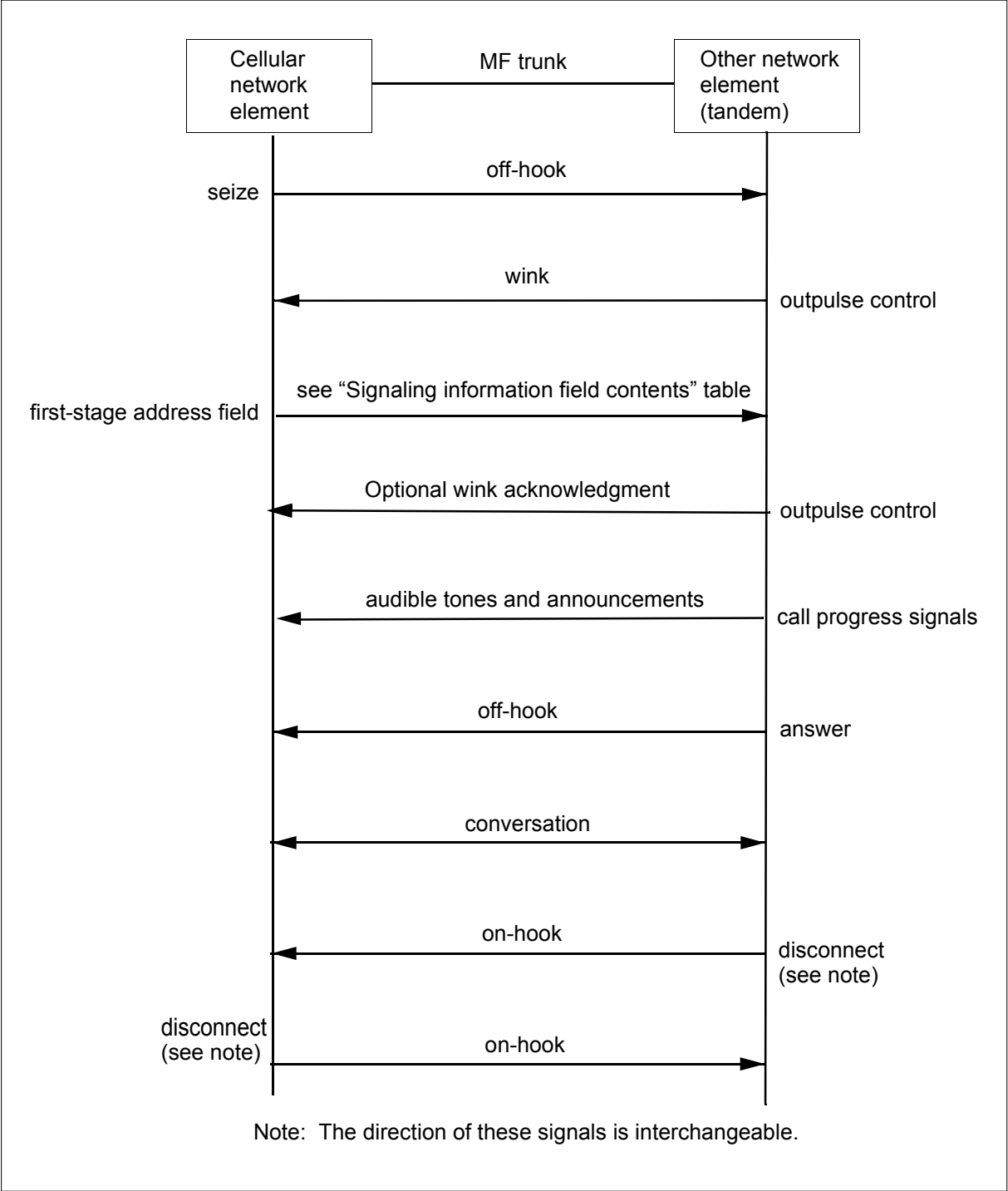
The E911 subsystem generates log E911202 under the following conditions:

- when the ANI is invalid or missing on a wireline E911 call
- when the pANI is invalid or missing on a wireless E911 call

The following figure shows the interface signaling scenario.

E911 Incoming Wireless Calls (MF) (continued)

Interface signaling scenario: cellular network organization

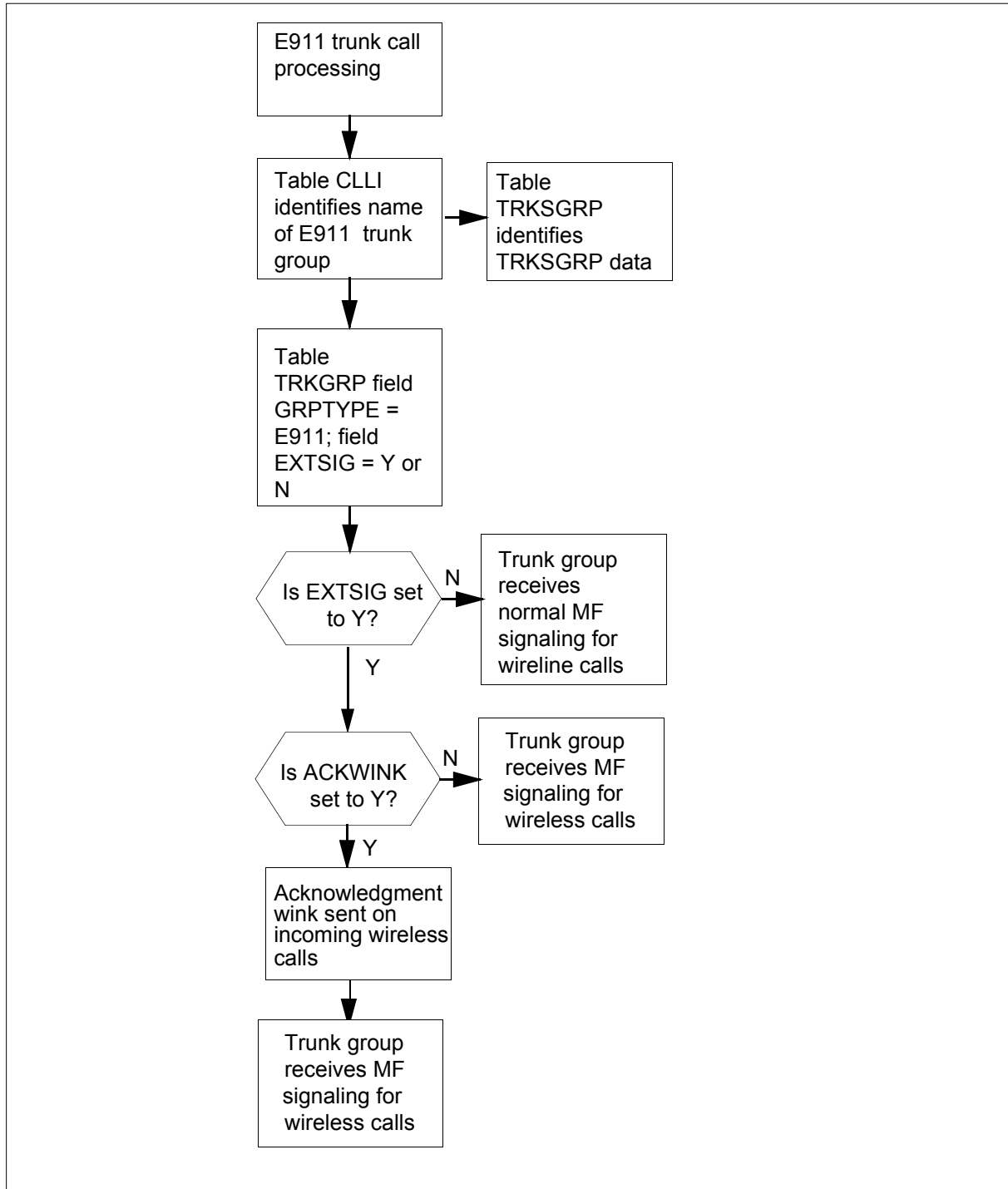


E911 Incoming Wireless Calls (MF) (continued)

Translations table flow

The E911 Incoming Wireless Calls (MF) translations tables are described in table TRKGRP.

The E911 Incoming Wireless Calls (MF) translation process is shown in the flowchart that follows.

E911 Incoming Wireless Calls (MF) (continued)**Table flow for E911 Incoming Wireless Calls (MF)**

E911 Incoming Wireless Calls (MF) (continued)

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

Datafill example for E911 Incoming Wireless Calls (MF)

Datafill table	Example data
TRKGRP	E911WRLS E911 20 EL0 NCRT 613 123 Y BELL 2 10 10 REV 0849 321 Y \$

Limitations and restrictions

The following limitations and restrictions apply to E911 Incoming Wireless Calls (MF):

- Location information is not retained for wireless calls transferred by the tandem through analog facilities. Only the callback number will be sent.
- This feature supports the transfer of calls to outgoing ISUP facilities. The location information will be sent in the generic digits parameter (GDP).
- This feature supports MF signaling for incoming calls only.
- This feature does not support DP signaling.
- The existing signaling fields do not accurately reflect the type of signaling for wireless 911 calls over MF facilities. The EXTSIG parameter overrides the other signaling datafill in table TRKGRP and table TRKSGRP.

To change an existing E911 trunk group for pre-phase I wireless into a phase I wireless MF trunk group, the datafill requirements are as follows:

- For table TRKGRP
 - SIGFMT must be BELL
 - INFODIGS must be 2
 - ANIREQSG must be REV
- For table TRKSGRP
 - IPULSTYP must be MF
 - ISTARTG must be WK

The phase I requirements supplement the requirements of the existing E911 trunk group type. These requirements cause minimal impact when converting a trunk group or creating a new one.

Interactions

This feature interacts with all existing E911 features in the same manner as existing E911 trunks. Originator hold cannot hold a wireless caller. Originator

E911 Incoming Wireless Calls (MF) (continued)

hold will be allowed on trunks with option EXTSIG set to Y. Only the tandem side of the trunk will be held. The network side of the E911 trunk will be released. The E911 trunk will remain seized until the PSAP goes on-hook. The PSAP can perform certain actions on the abandoned call, such as call transfer. This transfer capability is useful for cases where a different PSAP will handle attempts to re-establish contact with the caller.

Activation/deactivation by the end user

E911 Incoming Wireless Calls (MF) requires no activation or deactivation by the end user.

Billing

E911 Incoming Wireless Calls (MF) does not affect billing.

Station Message Detail Recording

E911 Incoming Wireless Calls (MF) does not affect Station Message Detail Recording.

Datafilling office parameters

E911 Incoming Wireless Calls (MF) does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to implement E911 Incoming Wireless Calls (MF). The tables are listed in the order in which they are to be entered.

Datafill tables required for E911 Incoming Wireless Calls (MF)

Table	Purpose of table
TRKGRP	The Trunk Group table contains the data for each trunk group assigned in the switching unit.

Datafilling table TRKGRP type E911

The following table shows the datafill specific to E911 Incoming Wireless Calls (MF) for table TRKGRP type E911. Only those fields that apply directly

E911 Incoming Wireless Calls (MF) (continued)

to E911 Incoming Wireless Calls (MF) are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table TRKGRP type E911

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO		see subfields	Variable group data. This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, SNPA, ECPHTE, ORIGHOLD, SDATA, ANISEIZ, ANIPDIAL, ANIREQSG, ESCO, ESN, and EXTSIG. Refer to section "General field information" in table TRKGRP for information concerning an alternate structure for this field that results from the datafill of table CUSTFLDS.
	EXTSIG	Y or N	Extended signaling. Enter Y to specify that the trunk uses the extended signaling protocol. Enter N to turn off this option.
	ACKWINK	Y or N	Acknowledgment wink. Enter Y to receive an ACKWINK on incoming wireless calls over MF trunks to the E911 tandem. The E911 tandem receives the ACKWINK after receiving digits. The default setting is N. To change the ACKWINK field to Y, set the EXTSIG field to Y.

Datafill example for table TRKGRP type E911

The following example shows sample datafill for table TRKGRP type E911.

MAP display example for table TRKGRP type E911

GRPKEY	GRPINFO
E911WRLS	E911 20 ELO NCRT 613 123 Y BELL 2 10 10 REV 0849 321 Y \$
E911ICMF	E911 20 ELO NCRT 613 123 Y BELL 1 10 10 REV 0848 123 N N \$
E911ICNG	E911 0 ELO NCRT 613 123 Y AMR4 3 10 10 REV 0847 005 N \$

Translation verification tools

Translations verification (TRAVER) has been modified to handle trunks that use the EXTSIG protocol. When the system performs a TRAVER on these

E911 Incoming Wireless Calls (MF) (continued)

trunks, the system will output a message. This message will show that the called digits will be ignored because these trunks attempt selective routing.

Note: The base TRAVER system requires that an info digit precede the CDN parameter. Although pANI is sent with any info digits, a single digit (for example, "0") must be added for TRAVER to correctly trace the call or display the results.

The following example shows the output from TRAVER when it is used to verify E911 Incoming Wireless Calls (MF).

E911 Incoming Wireless Calls (MF) (continued)

```
> traver tr e911wrls 009105551212 b cdn 0613211000
EXTSIG applies to trunk group. Called digits will be ignored.
Calls always selectively route on EXTSIG trunk groups.
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT 613 0 Y BELL 1 10 10 REV 0692 111 Y Y
TABLE E911SRDB
613 621 000 113
TABLE E911ESN
113 Y LINEPSAPH1 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1 LINEPSAPMDC
POLICE
TABLE E911PSAP
LINEPSAPH1 6212113 N
TABLE HNPACONT
613 Y 755 2 (52) (1) (0) (0) 2 $
.SUBTABLE HNPACODE
.621 621 DN 613 621
Originator is supported for AIN Termination Attempt Trigger only,
therefore other AIN info is not processed.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP LNPOFFICE
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 2113 H 123 0
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
613 621 2113
(PUBLIC (SUPPRESS Y Y) (NAME LINEPSAPH1) (NONUNIQUE) $)
(PRIVATE (NAME LINEPSAPH1)$)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
123 613 6212113 DLH N Y N RCVD N N N N N Y LINESPAP Y N $ LINEPSAPH1 2 $
TABLE HUNTMEM
123 0 N L HOST 00 1 09 01 N
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.

+++TRAVER: SUCCESSFUL CALL TRACE+++

DIGIT TRANSLATION ROUTES
```

E911 Incoming Wireless Calls (MF) (end)

(continued from previous page)

1 LINE 6136212113 ST
BILL 6136211000

TREATMENT ROUTES. TREATMENT IS: GNCT

1 T120

+++TRAVER: SUCCESSFUL CALL TRACE+++

SERVORD

E911 Incoming Wireless Calls (MF) does not use SERVORD.

E911 ISUP Parameter Enhancements

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00005

Release applicability

NA013 and up

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Requirements

The E911 ISUP Parameter Enhancements feature does not have any requirements.

Description

The E911 ISUP Parameter Enhancements feature adds functionality to the E911 ISUP Trunking feature introduced in NA008. The trunking enhancements provide inter-operability between a DMS-100 switch and a 5ESS E911 tandem. Additional enhancements prepare the DMS-100 switch for future non-dedicated network E911 calls using a public signaling system number 7 (SS7) network.

The DMS-100 switch emergency services software supports dedicated E911 trunking that uses ISUP signaling protocol on InterToll (IT) trunks between:

- an end office to E911 tandem interfaces
- a mobile switching center (MSC) to E911 tandem interfaces
- an E911 tandem to E911 tandem interfaces

This feature modifies the following parameters for ISUP IT trunks used for E911 calls:

- calling party's category (CPC) parameters
- originating line information (OLI) parameters

This feature also adds the following functionality for ISUP IT trunks used for E911 calls:

- originator hold (ORIGHOLD)
- enhanced calling party hold (ECPH)
- ringback

E911 ISUP Parameter Enhancements (continued)

Operation

Modifications made to the CPC and OLI parameters allow the DMS-100 switch to interface with equipment made by other vendors. Modifications also allow ISUP trunks with E911 assigned to support the ORIGHOLD, ECPH and ringback features.

Calling party's category

A DMS-100 switch modifies the outgoing initial address message (IAM) CPC parameter of E911 calls that terminate on ISUP trunks to indicate an emergency service call when the switch serves as:

- an end office
- an E911 tandem (for tandem-to-tandem transfers using ISUP trunking where the first tandem is a DMS-100 switch)

The CPC identifies an emergency service call as 11100000. This modification does not apply to incoming ISUP trunks.

Originating line information

A DMS-100 switch that serves as an E911 tandem modifies the outgoing IAM OLI parameter of wireless E911 calls that terminate on ISUP trunks. The modification assigns the outgoing IAM a value of 00111101, which indicates cellular services (type 1).

The OLI modification only applies to the outgoing IAM of wireless emergency calls. When received on an inbound call from a wireless network to a DMS-100 E911 tandem, the OLI parameter does not change when passed into the outgoing IAM of an E911 tandem-to-E911 tandem transfer. The OLI modification does not affect wireline calls.

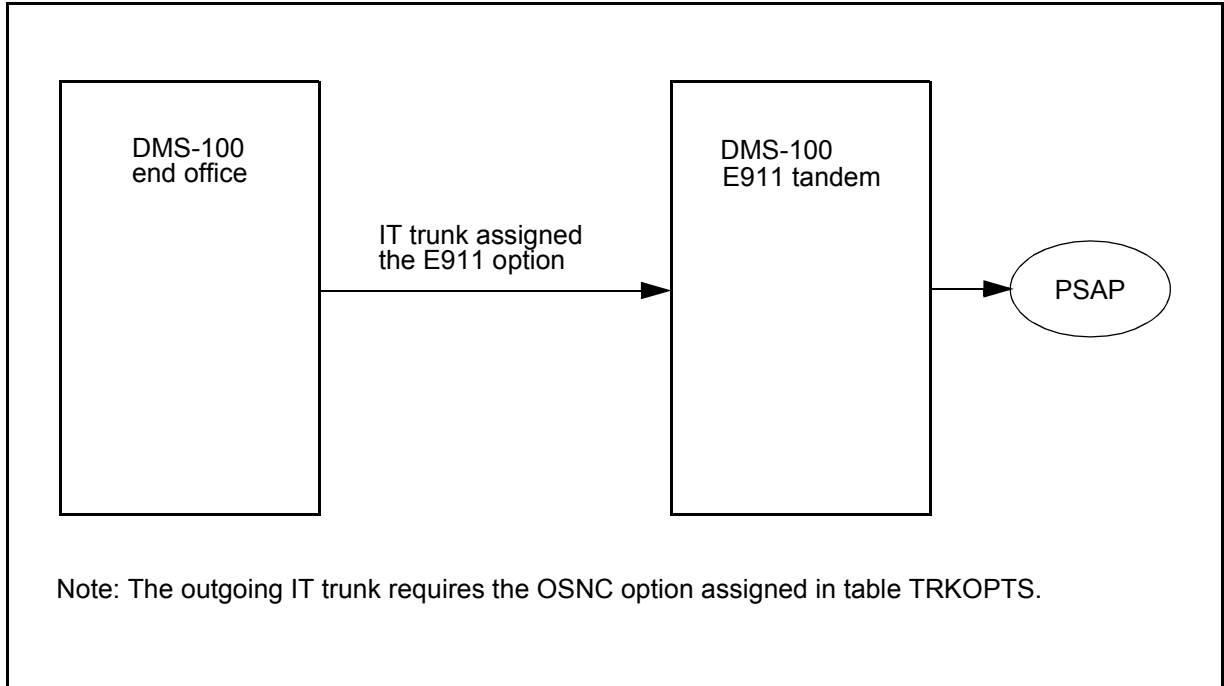
ORIGHOLD, ECPH, and ringback

If the end office (EO) is a DMS-100 switch, activation for the ORIGHOLD, ECPH, and ringback features in a DMS-100 E911 tandem requires operator services network capability (OSNC) option assignment to the EO outgoing IT ISUP trunk. If the EO is not a DMS-100 switch, activation for all three features requires EO GR-1277 outgoing IT ISUP trunk compliance.

The DMS-100 EO to E911 tandem configuration for ORIGHOLD, ECPH, and ringback appears in the following diagram.

E911 ISUP Parameter Enhancements (continued)

ORIGHOLD, ECPH, and ringback feature configuration



Originator hold

The ORIGHOLD option holds the originator of an E911 call after a public safety answering point (PSAP) answers the call. If activated, the switch maintains the network connection from the originator's telephone to the PSAP if the originator goes on hook. The connection remains complete until the PSAP releases the call, or until the end office tears down the connection. A tone indicates when an E911 call originator is on hold. The ORIGHOLD option has been available for multi-frequency (MF) trunks. The E911 ISUP Parameter Enhancements feature makes the ORIGHOLD option available for IT ISUP trunks with the E911 option assigned.

Enhanced calling party hold

The ECPH option holds the originator of an E911 call before a PSAP answers the call. The E911 ECPH maintains the connection from origination until the PSAP answers or until the ECPH timer expires. The ECPH option has been available for MF trunks. The E911 ISUP Parameter Enhancements feature makes the ECPH option available for IT ISUP trunks with the E911 option assigned.

Ringback

The ringback option rings an E911 caller who is onhook and on hold by the originator hold feature. Ringback also sends the receive offhook (ROH) tone to a caller's telephone which is offhook. The ringback option has been

E911 ISUP Parameter Enhancements (continued)

available for MF trunks. The E911 ISUP Parameter Enhancements feature makes the ringback option available for IT ISUP trunks with the E911 option assigned.

Tandem-to-tandem routing and transfers

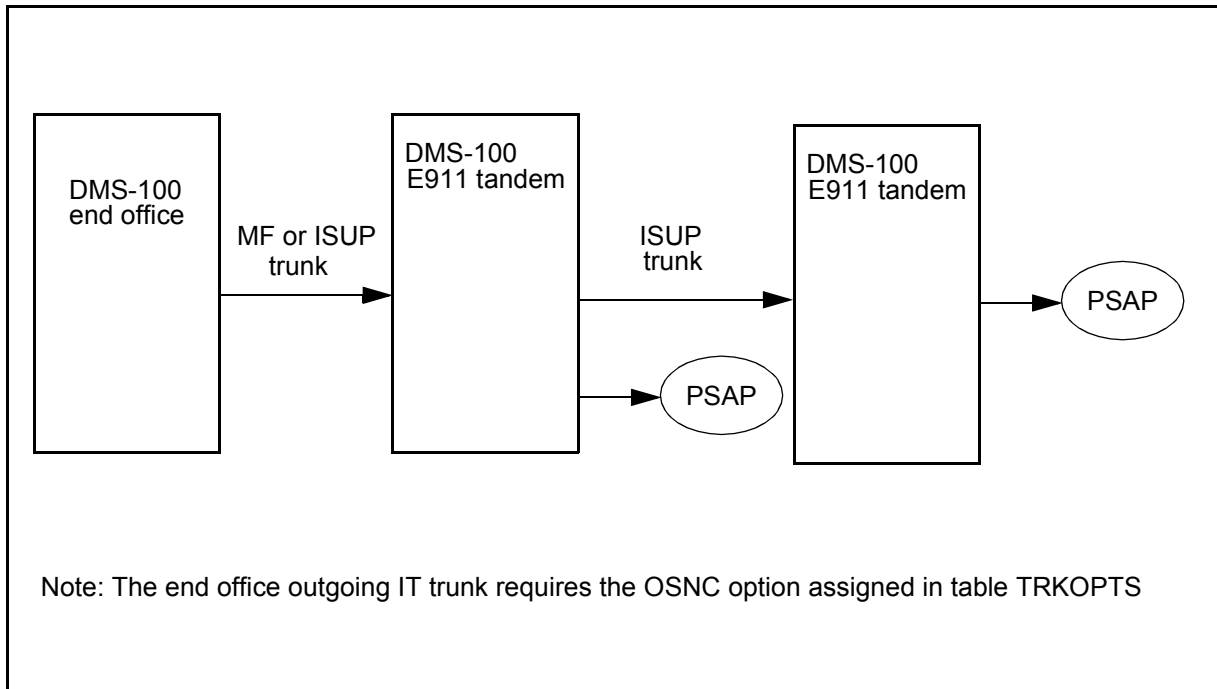
The E911 ISUP Parameter Enhancements feature supports the ORIGHOLD, ECPH, and ringback options on the following configurations:

- ISUP to ISUP tandem-to-tandem routing and transfers
- MF to ISUP tandem-to-tandem routing and transfers

In a DMS E911 tandem-to-tandem transfer, the outgoing trunk does not require the OSNC option as required for an EO. Each tandem must share consistent ORIGHOLD and ECPH configurations.

The DMS-100 E911 tandem-to-tandem configuration for the ORIGHOLD, ECPH, and ringback options appears in the diagram that follows.

ORIGHOLD, ECPH, and ringback feature tandem-to-tandem configuration



Translations table flow

The E911 ISUP Parameter Enhancements feature translations requires table TRKGRP.

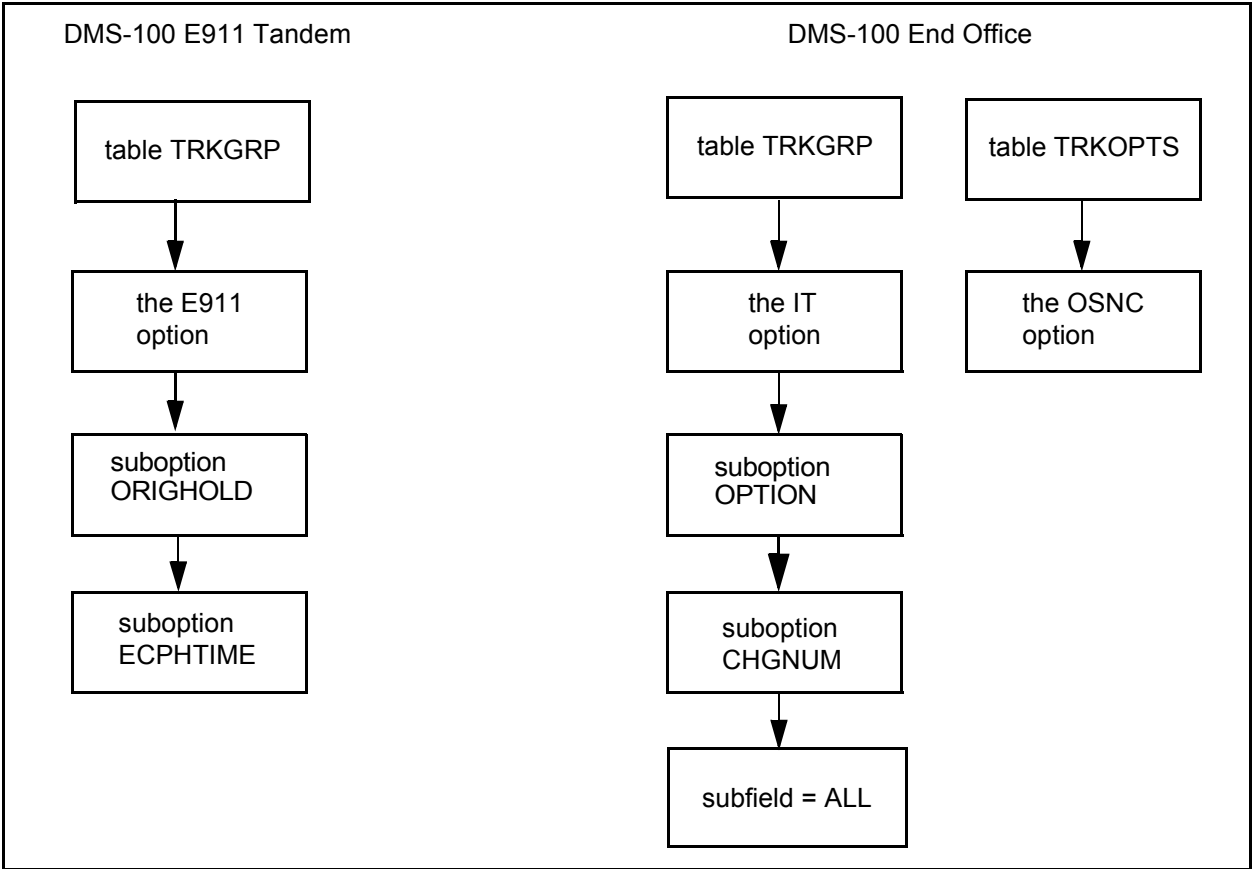
E911 ISUP Parameter Enhancements (continued)

Table TRKGRP for the E911 Parameter Enhancements feature includes the E911 option with the following associated subfields:

- ORIGHOLD - indicates if the end office at which this trunk originated supports the operator hold function.
- ECPHTIME - indicates the number of seconds ECPH is active.

The E911 Parameter Enhancements feature translation process appears in the following flowchart.

Table flow for E911 ISUP Trunking



E911 ISUP Parameter Enhancements (continued)

The table that follows lists the datafill content used in the flowchart.

Datafill example for E911 ISUP Parameter Enhancements

Datafill table	Example data
	DMS-100 E911 Tandem Datafill
TRKGRP	E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N (E911 0747 113 E911_STD Y 120) \$
	DMS-100 End Office Datafill
TRKGRP	E911OG IT 21 TLD NCTC OG TC MIDL 613 NPRT NSCR 613 000 Y N CHGNUM ALL \$
TRKOPTS	E911 OG OSNC OSNC

Limitations and restrictions

The limitations and restrictions that follow apply to the E911 ISUP Parameter Enhancements feature:

- ORIGHOLD, ECPHTIME, and ringback option activation in a DMS-100 EO requires:
 - OSNC option assignment on the outgoing IT ISUP trunk
 - EO conformity with GR-1277, operating services signaling 7 (OSS7)
- CPC and OLI modifications meet Telcordia GR-2956-CORE compliancy requirements, but do not represent complete DMS-100 switch compliancy.
- This feature does not support ISUP to MF tandem-to-tandem routing configurations.
- The OSNC timer for a DMS-100 EO normally expires within a one to four minute range. The EO releases a held call after the timer expires and generates a TRK921 log. For 911 calls, the OSNC timer never expires and the call remains connected.
- An E911232 log generates when a 911 call does not complete and the E911 software sends the call to treatment.

Interactions

The E911 ISUP Parameter Enhancements feature does not interact with other functionalities.

Activation and deactivation by the user

The E911 ISUP Parameter Enhancements feature does not require activation or deactivation by the user.

E911 ISUP Parameter Enhancements (continued)

Billing

The E911 ISUP Parameter Enhancements feature does not generate billing records or changes.

Station Message Detail Recording

The E911 ISUP Parameter Enhancements feature does not require Station Message Detail Recording.

Office parameters used by E911 ISUP Parameter Enhancements

E911 ISUP Parameter Enhancements does not generate office parameters.

Datafill sequence

The table that follows lists the tables that require datafill to put the E911 ISUP Parameter Enhancements feature into operation. You must enter data into the table in this order.

Datafill requirements for E911 ISUP Parameter Enhancements

Table	Purpose of table
TRKGRP(IT)	Intertoll (IT) Trunk Group (type IT). In a DMS-100 toll or end office trunk group, type IT interfaces with another toll or end office for the following trunks: • outgoing trunk • two-way trunk An IT trunk group carries tolls that connect traffic that includes toll access, toll completing, and toll tandem.
TRKOPTS	Table Trunk Options defines the options for a trunk group.

E911 ISUP Parameter Enhancements (continued)**Datafill related to E911 ISUP Parameter Enhancements for table TRKGRP**

The table that follows provides the datafill related to the E911 ISUP Parameter Enhancements feature for table TRKGRP. This table includes only those fields that apply directly to the E911 ISUP Parameter Enhancements feature.

Datafilling table TRKGRP

Field	Subfield	Entry	Explanation and action
GRPINFO		refer to subfields	Variable group information. This field includes the following subfields: • GRPTYP • TRAFSNO • PADGRP • NCCLS • DIRDATA • TRAFCLS • SELSEQ • CONNGNPA • PRTNM • SCRNCL • SNPA • TERMTC • TOLLCOMP • CCWKVLD • OPTIONS See the "General field information" section in table TRKGRP for information on an alternate structure for this field. The datafill of table CUSTFLDS causes the alternate structure.
	OPTIONS	refer to subfield	Options. Enter data for a maximum of three multiples of subfield OPTION and the corresponding refinements for the desired trunk option. Enter a \$ (dollar sign) to indicate the end of the vector.
	OPTION	E911	Option. This subfield contains additional subfields ORIGHOLD and ECPHTIME.

E911 ISUP Parameter Enhancements (continued)**Datafilling table TRKGRP**

Field	Subfield	Entry	Explanation and action
	ORIGHOLD	Y or N	Originator hold. Enter Y (yes) if the end office at which this trunk originated supports the operator hold function. When ORIGHOLD is active, the originator of an E911 call cannot disconnect the call. Enter N to make ORIGHOLD inactive.
	ECPH TIME	0 to 255	Enhanced call party hold. This subfield indicates the number of seconds that ECPH remains active. ECPH TIME prevents a caller from disconnecting a call before the call is answered and before the timer expires. Zero (0) inactivates ECPH.
	OPTION	CHGNUM	To specify the charge number delivery option, which sends a charge number (CN) and originating line information (OLI) parameter with the initial address message (IAM), enter option CHGNUM. Subfield CHGNO_TRAFTYPE has the values PBX or ALL. The default is PBX.
		CHGNO_TRAFTYPE	Select ALL to provide operator services signaling 7 (OSS7) option operator services network capability (OSNC) assigned through table TRKOPTS.

Datafill example for table TRKGRP

The figure that follows shows sample datafill for table TRKGRP.

MAP example for table TRKGRP

GRPKEY	GRPINFO
<pre> E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N (E911 0747 113 E911_STD Y 120) \$ </pre>	

E911 ISUP Parameter Enhancements (end)

Datafill related to E911 ISUP Parameter Enhancements for table TRKOPTS

The table that follows provides the datafill related to the E911 ISUP Parameter Enhancements feature for table TRKOPTS. This table includes only the field that applies directly to the E911 ISUP Parameter Enhancements feature.

Datafilling table TRKOPTS

Field	Subfield	Entry	Explanation and action
OPTINFO	OPTION	OSNC	Enter OSNC to provide OSS7 operator services network capability (OSNC):

Datafill example for table TRKOPTS

The figure that follows shows sample datafill for table TRKOPTS.

MAP example for table TRKOPTS

OPTKEY		OPTINFO
CAS1	OSNC	OSNC

Translation verification tools

The E911 ISUP Parameter Enhancements feature does not use translation verification tools.

SERVORD

The E911 ISUP Parameter Enhancements feature does not use the Service Order System (SERVORD).

E911 ISUP Trunking

Ordering codes

Operating group ordering code: ENS00005

Operating ordering code: does not apply

Release applicability

NA008 and later versions

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Requirements

The E911 ISUP Trunking has no requirements.

Description

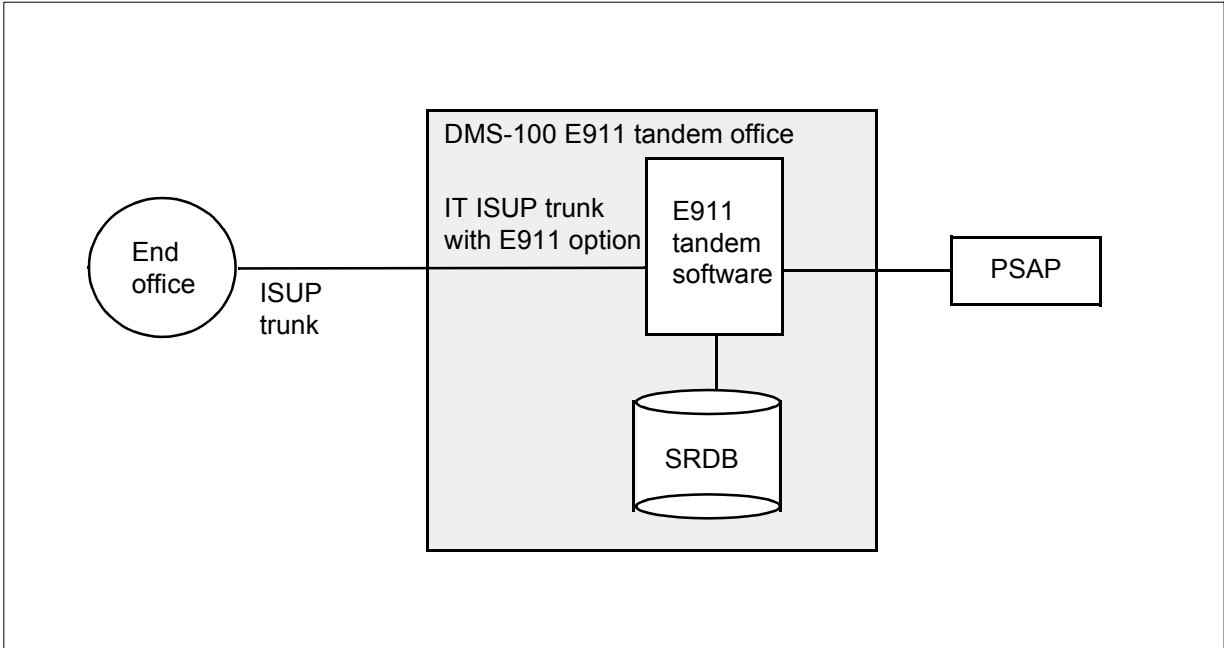
This feature routes Enhanced 911 (E911) emergency service calls directly over integrated services digital network (ISDN) user part (ISUP) trunks. An intertoll (IT) ISUP trunk E911 option in table TRKGRP allows incoming trunks to process E911 calls. The incoming trunks use the normal E911 selective routing database (SRDB) to select the correct route to the public safety answering point (PSAP).

E911 call originations

When subscribers dial 911, the translations in the end office (EO) indicate a route that uses an outgoing or two-way ISUP trunk. If the EO is a DMS-100 switch, this trunk is an IT trunk. The call routes to an incoming or two-way ISUP IT trunk with the E911 option at the E911 tandem office. The following figure describes an E911 call origination.

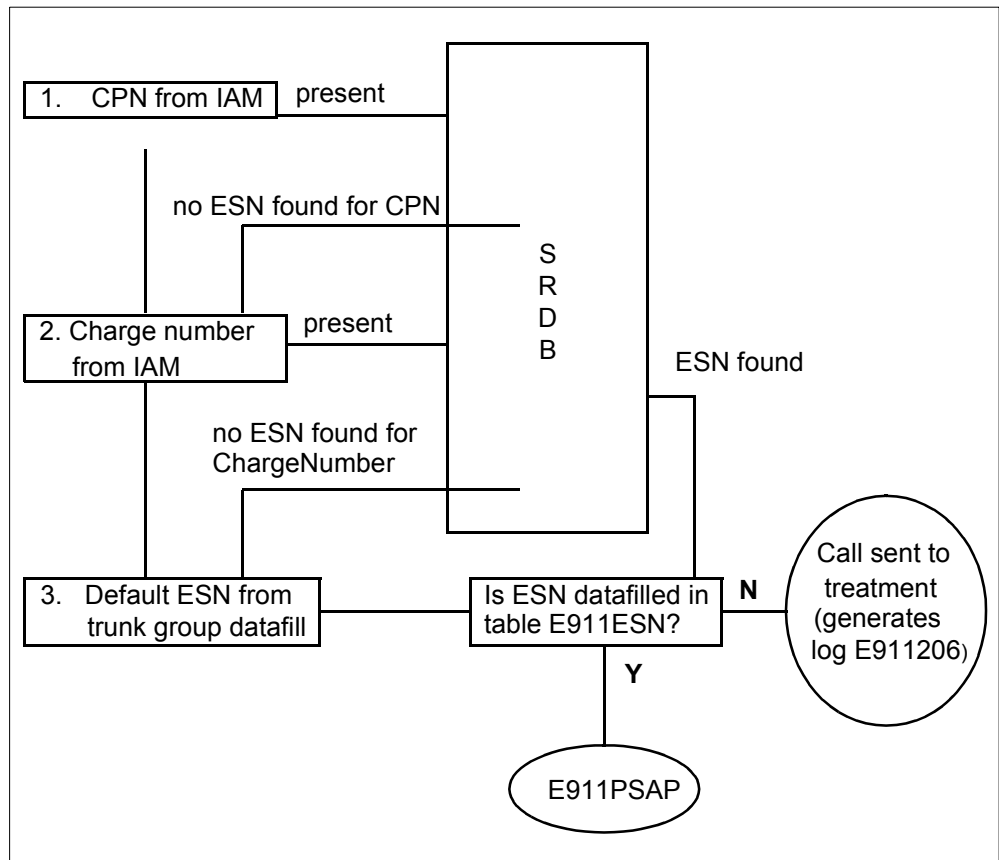
E911 ISUP Trunking (continued)

E911 call originations



The tandem side of the trunk requires the E911 option. When a call arrives on an ISUP IT trunk with the E911 option, trunk processing software checks the ISUP initial address message (IAM) for the caller's directory number (DN). The calling party number (CPN) parameter of the IAM message contains the DN. E911 software determines if an entry exists in table E911SRDB for the DN. The E911SRDB entry indicates the correct emergency services number (ESN) for that DN.

If an entry does not exist in table E911SRDB, the DN in the charge number parameter of the IAM message substitutes for the DN in the CPN. If no entry exists in table E911SRDB for either DN, the ESN becomes the default ESN in table TRKGRP. The following figure describes this process.

E911 ISUP Trunking (continued)**SRDB lookup order for all calls over an IT trunk with the E911 option**

Calls without a correct CPN or charge number DN generate an E911202 log that indicates ANI Trouble. Calls with a correct CPN or charge number, but no entry in table E911SRDB generate an E911203 log that indicates Calling Party Has No ESN. If an ESN does not have an entry in table E911ESN, the call routes to vacant code treatment and the following E911206 log generates: Call Routed to Treatment, ESN Not Found in Table E911ESN.

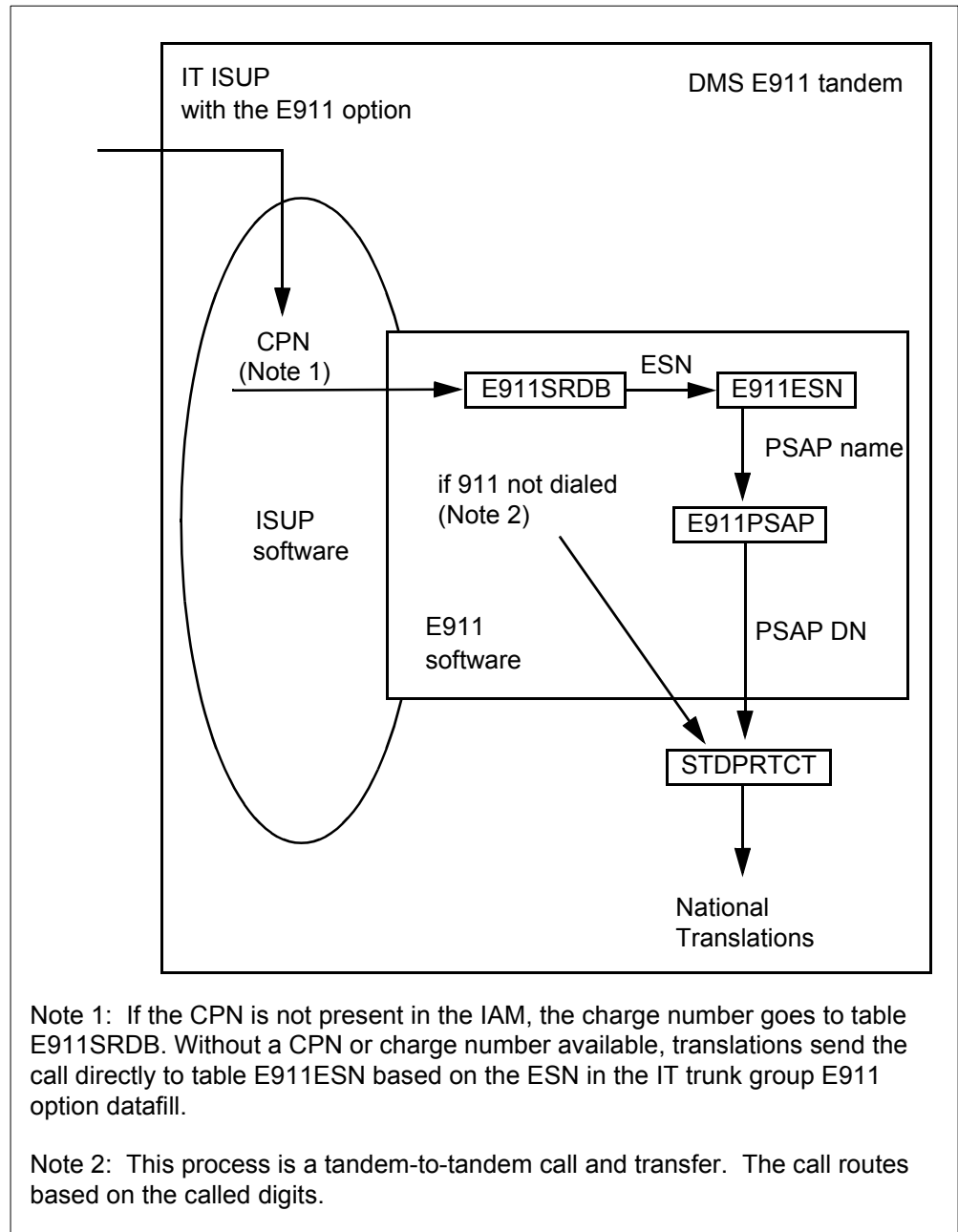
After ESN validation, trunk processing software determines if the called digits on the incoming trunk are 911, 11 or 1. If these digits are correct, the DN of the PSAP connected with the ESN replaces the called digits. Table E911PSAP stores the DN of the PSAP. If the called digits are not 911, 11 or 1; E911 software stores the ESN of the caller for future use. The called digits determine the call's route. The following figure describes this process.

Note 1: Calls incoming on E911 MF trunks do not use a pretranslator. Fill IT trunk data for a pretranslator through field PRTNM in table TRKGRP.

E911 ISUP Trunking (continued)

Note 2: Incoming E911 calls on an IT ISUP trunk with the E911 option enter table STDPRT with the DN of the PSAP obtained from table E911PSAP after the SRDB lookup.

E911 ISUP translations

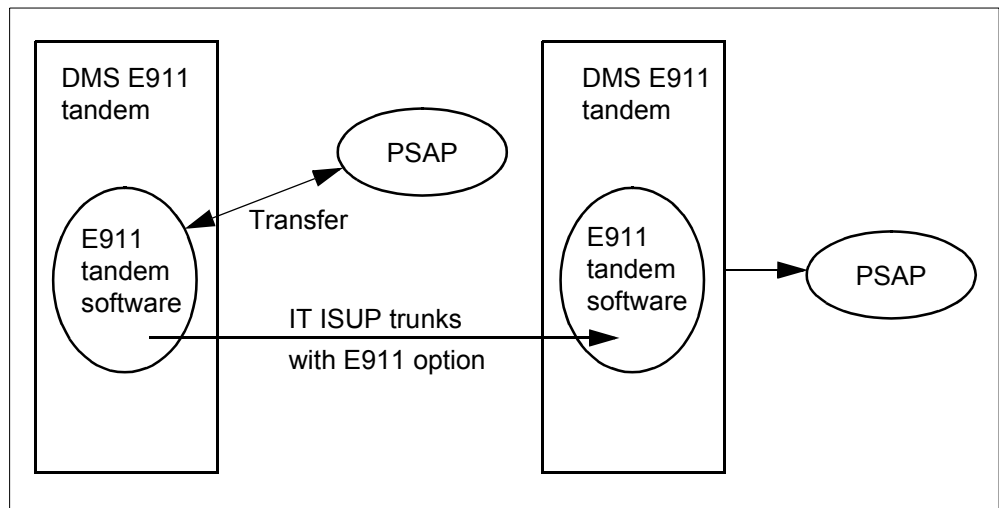


E911 ISUP Trunking (continued)

E911 tandem-to-tandem routing and transfers

Tandem-to-tandem transfer occurs when a PSAP initiates a transfer to another PSAP that resides on another E911 tandem office. Tandem-to-tandem routing occurs when the ESN of the originator indicates an emergency directory number route (EDNR) to a PSAP. The PSAP resides on another E911 tandem office. The following figure describes this process.

Tandem-to-tandem routing and transfers



Translations in the originating tandem use an outgoing or two-way ISUP trunk to indicate a route. For a DMS-100 tandem, this trunk is an IT trunk and the E911 option is not necessary or recommended. The call routes to an incoming or two-way ISUP IT trunk with the E911 option at the terminating E911 tandem office. The trunk in the terminating tandem office requires the E911 option.

When a call arrives on an ISUP IT trunk with the E911 option, the trunk processing software checks for the dialed digits 911. If the software finds these digits, processing is the same as for E911 call originations. If the called digits are not 911, the E911 option processing checks for a CPN. Normally, called digits are not 911 for tandem-to-tandem calls. If a CPN is not present, the E911 option processing checks for the charge number. If the CPN or charge number is not present a log generates that uses the emergency service control (ESCO) number and service numbering plan area (SNPA) for the IT trunk. The log does not affect the called digits. The call enters normal translations.

E911 ISUP Trunking (continued)

Operation

The E911 option applies to table TRKGRP for any ISUP IT trunk with the North American (CNA) software. The E911 option has the following subfields:

- ESCO
- ESN
- E911SIG

The Translations Data Flow section describes these subfields in greater detail.

End office and outgoing trunk datafill of the E911 option

The E911 option on IT trunks applies only to offices that are E911 tandems. All incoming calls on an IT trunk with the E911 option perform an SRDB lookup to determine the ESN of the caller. An office that is not an E911 tandem does not have correct ESNs and routes these calls to treatment.

Datafill of the E911 option does not affect outgoing calls.

Datafill of the E911 option on non-dedicated trunks

Do not enter the E911 option on IT trunks in an E911 tandem office if the trunk is not dedicated to E911 traffic. This restriction is for the following reasons:

- All incoming calls on this trunk perform an SRDB lookup to determine the ESN of the caller. This step is not necessary on calls that are not E911. This step increases the process time for these calls.
- Additional logs generate for calls that do not have an entry for the calling DN in table E911SRDB. Examples of these logs include E911201, Abnormal Called Digits; and E911203, Calling Party Has No ESN. Additional logs generate when the called digits are not 911, 11, or 1.
- A call that does not have a correct ESN for the calling DN routes to treatment.

Datafill of the E911 option does not affect outgoing calls.

Translations table flow

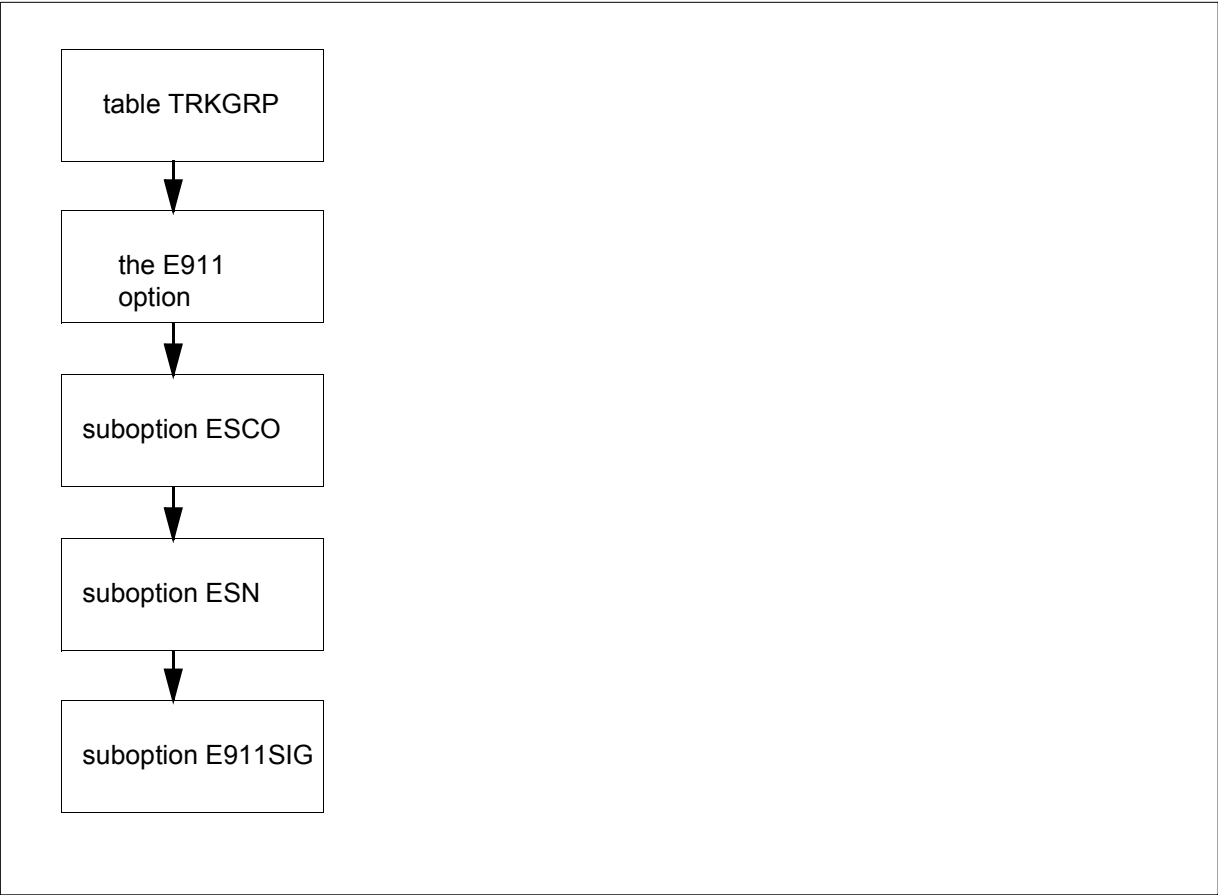
The E911 ISUP Trunking translations appear for table TRKGRP.

E911 ISUP Trunking (continued)

- Table TRKGRP includes the E911 option with the following associated subfields:
- ESCO - Indicates the default emergency service central office number for this trunk. Subfield ESCO is a four-digit number (0000 to 9999) that represents the end office where the E911 trunk originated.
 - ESN - Indicates the default emergency service number for this trunk. The ESN is a one to five digit number, in the range 0 to 15999, associated with the emergency service zone. The ESN determines the DN of the primary PSAP where the call routes by default.
 - E911SIG - Indicates the type of signaling this trunk uses. The E911_STD entry represents standard signaling.

The E911 ISUP Trunking translation process appears in the following flowchart.

Table flow for E911 ISUP Trunking



E911 ISUP Trunking (continued)

The following table lists the datafill content in the flowchart.

Datafill example for E911 ISUP Trunking

Datafill table	Example data
TRKGRP	E911ICS7 IT 0 ELO NCRT IC NIL MIDL 0613 AT1 NSCR 613 000 N N (E911 789 113 E911_STD) N 0 \$

Limitations

The following limitations apply to E911 ISUP Trunking:

- As with E911 MF trunks, IT ISUP trunks with the E911 option must handle only emergency traffic. Nortel Networks also recommends dedicated SS7 links.
- Tables CLLI, TRKSGRP, and TRKMEM can require datafill entries before activation of E911 ISUP Trunking.
- In NA013, this feature supports interactions with all other E911 features. Before NA013, E911 calls through ISUP IT trunks did not support originator hold (ORIGHOLD), enhanced party hold (ECPH), and ringback features.
- The IT trunk options CELL and E911 are not compatible.
- The E911 option requires C7UP as the SGRPVAR field in table TRKSGRP for the trunk. This limitation applies to all subgroups.
- Set the E911_CHECK_DEFAULT_ESN office parameter in table OFCVAR to N (no) to accept ESN entries not entered in table E911ESN. An accepted ESN entry not entered in table E911ESN generates a warning message WARNING: ESN NOT PRESENT IN TABLE E911ESN and an E911 205 information log report. The parameter set to Y (yes) produces the error message ERROR: ESN MUST BE IN TABLE E911ESN. and causes rejection of the ESN entry.

Interactions

E911 ISUP Trunking supports interactions with other E911 features.

Activation/deactivation by the end user

E911 ISUP Trunking does not require activation or deactivation by the end user.

Billing

E911 ISUP Trunking does not affect billing.

E911 ISUP Trunking (continued)

Station Message Detail Recording

E911 ISUP Trunking does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 ISUP Trunking does not affect office parameters.

Datafill sequence

The table that follows provides the datafill related to E911 ISUP Trunking.

Datafill table required for E911 ISUP Trunking

Table	Purpose of table
TRKGRP(IT)	Intertoll (IT) Trunk Group (Type IT). In a DMS-100 toll or end office trunk group, type IT interfaces with another toll or end office for the following trunks: • incoming trunk • outgoing trunk • two-way trunk An IT trunk group carries tolls that connect traffic that includes toll access, toll completing and toll tandem.

Datafilling table TRKGRP

The datafill for E911 ISUP Trunking for table TRKGRP appears in the following table. The fields that apply directly to E911 ISUP Trunking appear

E911 ISUP Trunking (continued)

in this table. Refer to the data schema reference manual for a description of the other fields.

Datafilling table TRKGRP

Field	Subfield	Entry	Explanation and action
GRPINFO		refer to subfields	Variable group information. This field includes the following subfields: • GRPTYP • TRAFSNO • PADGRP • NCCLS • DIRDATA • TRAFCLS • SELSEQ • CONNGNPA • PRTNM • SCRNCL • SNPA • TERMTC • TOLLCOMP • CCWKVLD • OPTIONS See the "General field information" section in table TRKGRP for information on an alternate structure for this field. The datafill of table CUSTFLDS causes the alternate structure.
	OPTIONS	refer to subfield	Options. Enter data for a maximum of three multiples of subfield OPTION and the corresponding refinements for the desired trunk option. Enter a \$ (dollar sign) to indicate the end of the vector.

E911 ISUP Trunking (continued)**Datafilling table TRKGRP**

Field	Subfield	Entry	Explanation and action
	OPTION	E911	Option. This subfield contains refinements ESCO, ESN, and E911SIG. To specify the default ESCO for this trunk, enter ESCO. To enter the default ESN for this trunk, enter ESN. To enter the type of signaling in use by this trunk, enter E911SIG. The E911SIG option is valid only for North America.
	ESCO	0000 to 9999	Emergency Service Central Office. If the entry in subfield OPTION is E911, enter the default ESCO number. This number represents the end office where the E911 trunk originates. This option is correct for North America.
	ESN	0 to 15999	Emergency Service Number. Subfield OPTION entry E911 requires the default ESN for the emergency service zone of the primary PSAP DN where the call is default routed. This option is valid only for North America.

E911 ISUP Trunking (continued)

Datafilling table TRKGRP

Field	Subfield	Entry	Explanation and action
	E911SIG	E911_STD, E911_CHG,W RLS_STD, WRLS_CLD	Enhanced 911 Signaling. This entry determines whether the DMS switch uses the calling party number or the charge number to obtain the callback or routing number or both. The E911SIG option is valid only for North America. The first attempt to enter E911_STD uses the calling party number. The second attempt uses the charge number. The first attempt to enter E911_STD uses the calling party number. The second attempt uses the charge number. The first attempt to enter E911_CHG uses the charge number. The second attempt uses the calling party number. The first attempt to enter WRLS_STD uses the calling party number. There is no second attempt. The WRLS_STD entry applies to incoming trunks that handle only wireless emergency calls. The first attempt to enter WRLS_CLD uses the calling party number. There is no second attempt. The WRLS_CLD entry applies to incoming trunks that handle only wireless emergency calls directly from a mobile switching center. The mobile switching center sends the pseudo automatic number identifier (pANI) and callback number in a non-standard format.

Datafill example for table TRKGRP

Sample datafill for table TRKGRP appears in the following example.

E911 ISUP Trunking (continued)

MAP example for table TRKGRP

GRPKEY

RPINFO

AL7ITICS7
IT 0 ELO NCRT IC NIL MIDL 909 AT1 NSCR 501 000 N N E911 123 52 E911_STD \$
>cha
GRPTYP: IT
TRAFSNO: 0
PADGRP: ELO
NCCLS: NCRT
DIRDATA: IC
TRAFCLS: NIL
SELSEQ: MIDL
CONNGNPA: 909
PRTNM: AT1
SCRNCL: NSCR
SNPA: 501
TERMTC: 000
TOLLCOMP: N
CCWKVLD: N
OPTION:
>e911
ESCO:
>0123
ESN:
>52
E911SIG:
>e911_std
OPTION:
>\$

MAP example for table TRKGRP

GRPKEY

GRPINFO

E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N (E911 0789 113 E911SIG_STD) \$

Tools for verifying translations

The E911 ISUP IT trunks support Translation Verification (TRAVER).

Incoming 911 call TRAVER example

The following TRAVER output example verifies an incoming call on an ISUP IT trunk with the E911 option. The called number is 911. The calling number is 6136212016. The call enters E911 translations. The call replaces the called digits with the DN of the PSAP. This DN is 6212115. The call proceeds to pretranslations.

E911 ISUP Trunking (continued)

The calling DN must be ten digits. These ten digits are a three-digit numbering plan area (NPA) + seven-digit DN.

TRAVER output example for E911 ISUP Trunking (sheet 1 of 2)

```
>traver tr e911ics7 911 b cdn 6136212016
TABLE TRKGRP
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N
  (E911 0789 113 E911_STD) $
TABLE E911SRDB
613 621 2 016 115
TABLE E911ESN
115 N POLICE ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1 AMBULANCE FIRE
TABLE E911PSAP
POLICE 6212115 N
TABLE OFCVAR
AIN_OFFICE_TRIGGRP LNPOFFICE
TABLE STDPRTCT
AT1 ( 1) (65021) 2
  . 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 755 2 ( 51) ( 1) ( 0) ( 0) 2
  . SUBTABLE HNPACODE
  . 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
LNPOFFICE INFOANAL
  . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
  . LNP ( DG LNPDIG) (ESCEA ) (ESCOP ) (ESCDN ) (ESCCN DD)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
```

— continued —

E911 ISUP Trunking (continued)**TRAVER output example for E911 ISUP Trunking (sheet 2 of 2)**

```

TABLE DNINV
613 621 2115 H 120 0
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
613 621 2115
      (PUBLIC ( SUPPRESS Y Y) (NAME POLICE) (NONUNIQUE ) $)
      (PRIVATE ( NAME POLICE) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
120 613 6212115 DLH N Y N RCVD N Y 6212116 Y MDC N 6212113 Y 20 N N N Y LDTPSAP Y Y 1 POLICE
0 0 0 2 $
TABLE HUNTMEM
120 0 N L PSAP 00 0 00 00 N
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136212115                ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Incoming tandem-to-tandem transfer example

The following TRAVER output example verifies an incoming call on an ISUP IT trunk with the E911 option. The called number is 6212113. The calling number is 6136212115. The calling number must be ten digits. This example is a normal tandem-to-tandem call. The called number is not 911, 11 or 1. In this example, the current called number determines the route for the call.

E911 ISUP Trunking (continued)

TRAVER output example for tandem-to-tandem E911 ISUP Trunking (sheet 1 of 2)

```
>traver tr e911ics7 6212113 b cdn 6136212115
TABLE TRKGRP
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N
  (E911 0789 113 E911SIG_STD) $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP LNPOFFICE
TABLE STDPRTCT
AT1 ( 1) (65021) 2
  . 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 755 2 ( 51) ( 1) ( 0) ( 0) 2
  . SUBTABLE HNPACODE
  . 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
TABLE TRIGGRP
LNPOFFICE INFOANAL
  . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
  . LNP ( DG LNPDIG) (ESCEA ) (ESCP ) (ESCDN ) (ESCCN DD)$ NIL
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 621 $
```

— continued —

E911 ISUP Trunking (end)**TRAVER output example for tandem-to-tandem E911 ISUP Trunking (sheet 2 of 2)**

```

TABLE DNINV
613 621 2113 H 123 0
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
613 621 2113
(PUBLIC ( SUPPRESS Y Y) (NAME LINEPSAPH1) (NONUNIQUE ) $)
(PRIVATE ( NAME LINEPSAPH1) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
123 613 6212113 DLH N Y N RCVD N N N N Y LINEPSAP Y LINEPSAPH1 2 $
TABLE HUNTMEM
123 0 N L HOST 00 1 09 01 N
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 LINE                6136212113          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Message protocols

E911 ISUP Trunking uses the current ISUP messaging protocol and interfaces. This feature is not based on a new standard. E911 ISUP Trunking does not alter any current standards.

SERVORD

The E911 ISUP Trunking does not use SERVORD.

E911 NPD per PSAP

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00013

Release applicability

The E911 NPD per PSAP was introduced in NA009.

Requirements

The E911 NPD per PSAP does not have requirements.

Description

The E911 NPD allows the entry of data in a separate set of numbering plan digit (NPD) to serving numbering plan area (SNPA) mappings. This functionality is available for each public safety answering point (PSAP). Table E911 NPD normally provisions these mappings office-wide. If PSAP mappings are available, these mappings determine the NPD when calls terminate on a PSAP. The PSAP mappings must be current. Office-wide mappings determine the NPD if PSAP mappings are not available. The system uses table E911 NPD if the PSAP does not have mappings.

Operation

The prompt for this feature is NPD_MAPS. The input for NPD_MAPS is an <NPD SNPA> vector. Examples of input for this vector are 0 613 and 2 919. The system prompts the user for a maximum of four mappings. The user must assign SNPAs to any of the first set of NPDs from 0 to 3. The user can enter the NPDs in any order. Incorrect NPD or SNPA entries cause errors. The user must not enter an NPD more than one time for a PSAP. The user must not map an SNPA to more than one NPD for each PSAP. The user can terminate the mapping additions entry at any time before the user enters the fourth mapping. To terminate the additions, enter a nil vector (\$). A PSAP does not require the definition of all four NPD mappings. If the user enters a nil vector for the first NPD_MAPS prompt, then the system does not define any PSAP-based mappings. The PSAP defaults to table E911 NPD for NPDs when the system does not assign any mappings.

The LDT PSAP uses the NPD + 7-digit format when specified. This format requires NPDs. For Line and ACD PSAPs, mapping occurs if the PSAP has the Automatic Location Identification (ALI) option with the AT&T ALI protocol.

E911 NPD per PSAP (continued)

The user must provision the PSAP-based NPD mappings through service order (SERVORD) or table control. The type of provisioning depends on the PSAP type.

The user must assign PSAP mappings after the completion of an overnight process (ONP) upgrade.

The calculation of NPDs is generic to all PSAP types. The use of NPDs depends on the PSAP type. The ANI stream that the system uses to calculate the NPD depends on the NPD.

The following conditions determine the NPD calculation:

- the PSAP type
- the ESN of the caller
- the SNPA of the ANI stream of the caller

The PSAP uses the office-wide table E911NPD if PSAP-based mappings are not available. The user must determine NPD use if the SNPA does not match one of the defined mappings. The NPD use allows the user to decide what action to take.

When the PSAP determines the base NPD, the ESN of the caller completes the calculation. The user must use the NPD if the ESN has FLASH set to N. The user must adjust the NPD to the equivalent, higher NPD if the ESN has FLASH set to Y. When FLASH is Y, the user must add 4 to the base NPD to determine the correct NPD of the caller.

ANI spills for LDT PSAPs

Only LDT PSAPs that use the NPD + 7-digit ANI spill format use the PSAP by PSAP NPD for ANI spills.

The provisions that the PSAP has when an LDT PSAP uses the NPD + 7-digit format appear in the following list:

- ANISPILL = Y
- enhanced display (ENHDISP) = N
- number of information digits (NUMIDIGS) = 1

The PSAP uses the callback ANI for NPD calculation if more than one ANI stream is present for the caller. All other LDT ANI spill formats use 10-digit ANI. These LDT ANI spill formats do not require NPDs.

E911 NPD per PSAP (continued)

The ANI spilled is the ANI failure format if the PSAP cannot calculate an NPD for the ANI of the caller. This format uses the SNPA of the trunk or VFG to determine the NPD. Combine this NPD with the three-digit emergency services central office (ESCO) of the trunk or VFG.

The ANI has the following format if the NPD calculation for the trunk or VFG is available:

NPD + 9110 + ESCO

The system uses the default of 0 if the NPD calculation for the trunk or VFG is not available. The ANI format follows:

0 + 9110 + ESCO

ALI bids for Line and ACD PSAPs

Line and ACD PSAPs use 10-digit format for ANI spills. The DMS-100 performs the request to the ALI database for these PSAPs if the PSAPs have the ALI option. The user must assign the ALI option to a PSAP through table E911ALI. The user must add the ALI line option in SERVORD to assign the ALI option to a PSAP.

The ALI protocols use the NPD + seven-digit format. If the caller has more than one ANI stream, the ALI bid dynamically calculates the NPD. The SNPA of the routing or location (pANI) of the caller determines the NPD.

The ALI uses the ANI failure format if the PSAP cannot calculate an NPD for the ANI of the caller. This format uses the SNPA of the trunk or VFG to determine the NPD. The user must combine this NPD with the three-digit emergency services central office (ESCO) of the trunk or VFG.

The ANI has the following format if the NPD calculation for the trunk or VFG is available:

NPD + 9110 + ESCO

The system uses the default of 0 if the NPD calculation for the trunk or VFG is not available. The ANI has the following format:

0 + 9110 + ESCO

E911 NPD per PSAP (continued)

Translations table flow

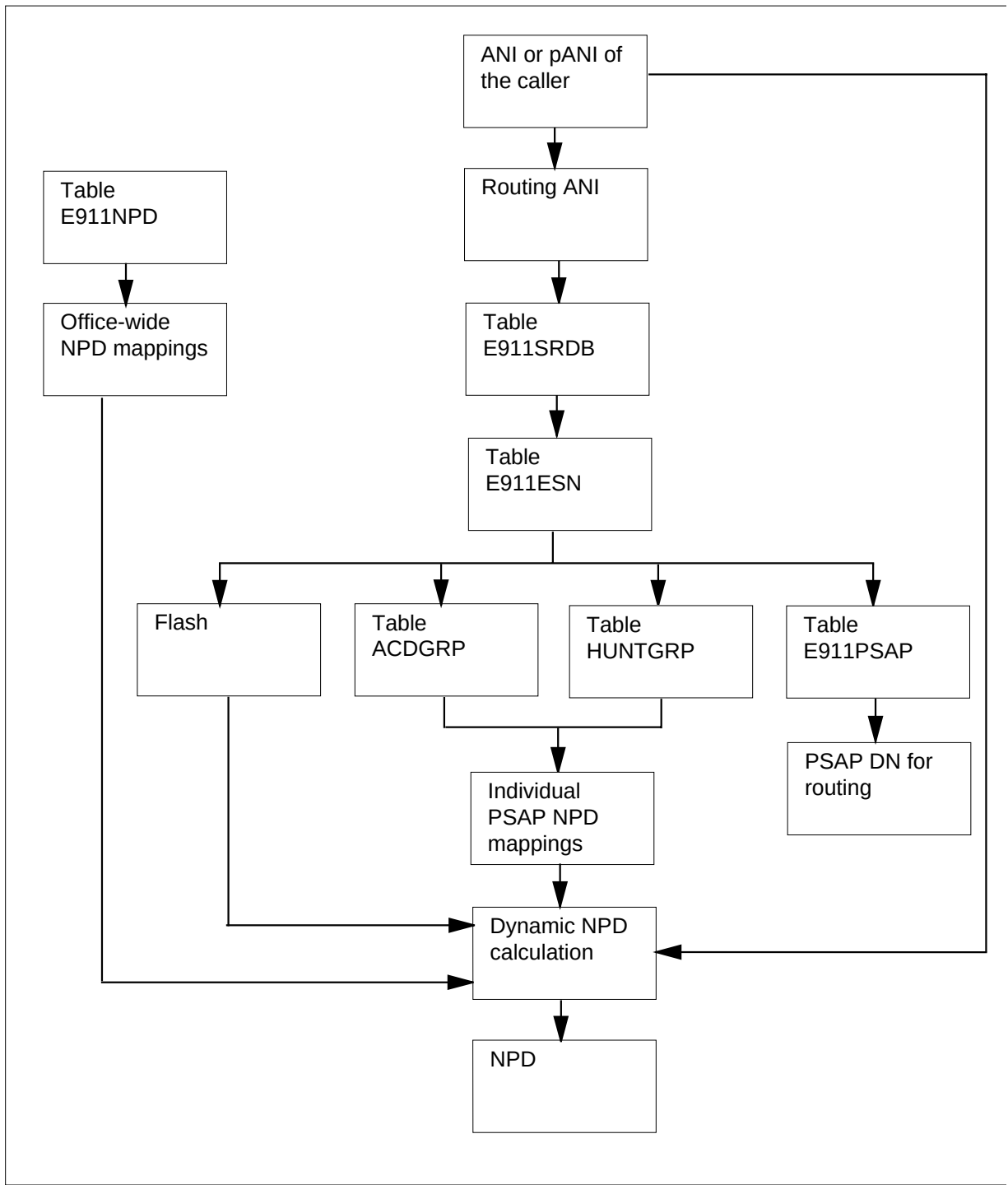
The E911 NPD per PSAP translations tables appear in the following list:

- Table ACDGRP
- Table HUNTGRP

The E911 NPD per PSAP translation process appears in the following flowchart.

E911 NPD per PSAP (continued)

Table flow for E911 NPD per PSAP



E911 NPD per PSAP (continued)

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

Datafill example for E911 NPD per PSAP

Datafill table	Example data
ACDGRP	ACDPSAPH1 E911 15 OFRT911 OFRT911 120 N 5 120 N N NONE Y N (ACDDISP 0) (TMDELOFL 2 ALLPRIO) (OVFLINQ P0FIRST 20 Y 511) (NONIMCUT) (ACDXFER 5 N) (ACDPSAP Y Y (613) (2 905) \$) (NRONSDN) (QTOMSB) \$
HUNTGRP	120 613 6212115 DLH N Y N RCVD N Y 6212116 Y MDC N 6212113 Y 20 N N N Y LDTPSAP Y Y N 1 (1 613) (3 919) \$ POLICE 0 0 0 2

Limits

The following limits apply to E911 NPD per PSAP :

- Automatic location identifier (ALI) for emergency directory number route (ENDR) PSAPs does not support mappings for PSAP by PSAP base. Emergency directory number route PSAPs use the office-wide NPD mappings in table E911NPD.
- The user must use caution to add or delete BYPASS_NPD_CHECKS in table E911OFC. The system does not maintain use counts for tuples in table E911NPD after the data checks are disabled. The addition of BYPASS_NPD_CHECKS to the table disables data checks. The user can delete any tuple from table E911NPD even if a trunk or virtual facility group (VFG) uses the SNPA. The user can delete any tuple from table E911NPD even if table E911SRDB uses the SNPA. The user must delete BYPASS_NPD_CHECKS to restore these counts and restore the protection to table E911NPD. The user must perform an ONP to the current load or later one. The PSAP provides warning messages during any change operation for this tuple.

Interactions

The interactions between E911 NPD per PSAP appear in the following list.

- The DMS system does not produce the E911220 log in the originating half of the call. The system does not produce this log only for VFG calls. The system currently produces this log during PSAP termination. This log can occur for any type of call if the NPD calculations are not available.
- The DMS system does not always produce the E911229 log. Normally, the system produces this log when the Emergency Services Service Control

E911 NPD per PSAP (continued)

Point (ESSCP) returns a new calling party ID that is incorrect. This new calling party ID replaces the ANI of the caller.

- The user must not use the current NPD + 7-digit SRDB update format when PSAP NPD mappings are in use. The user must use the 10-digit format. The 8-digit format is available. The 8-digit format always uses the office-wide NPD mappings in table E911NPD. The 8-digit format for NPA to NPD mapping is not clear. The BYPASS_NPD_CHECKS tuple in table E911OFC allows the user to disable the NPA to NPD checks in the SRDBUPD command.

Activation/deactivation by the end user

The E911 NPD per PSAP does not require activation or deactivation by the end user.

Billing

The E911 NPD per PSAP does not affect billing.

Station Message Detail Recording

The E911 NPD per PSAP does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 NPD per PSAP does not affect office parameters.

Datafill sequence

The tables that require datafill to implement E911 NPD per PSAP appear in the following table. The user must enter the tables in the correct entry order.

Datafill requirements for E911 NPD per PSAP

Table	Purpose of table
ACDGRP	The Automatic Call Distribution Group table associates Automatic Call Distribution (ACD) features with specified customer groups.
HUNTGRP	The Hunt Group table contains the data for each hunt group assigned in the switching unit.

E911 NPD per PSAP (continued)**Datafilling table ACDGRP**

The data for E911 NPD per PSAP for table ACDGRP appears in the following table. Only the fields that apply directly to E911 NPD per PSAP appear in the table. See the data schema section of this document for a description of the other fields.

Datafilling table ACDGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		refer to subfield	Options. This field contains subfield OPTION.
	OPTION	ACDPSAP	Enter ACDPSAP (ACD public safety answering point) and data refinement ANONCALL. This option is not compatible with option CDN.
		Y or N	Anonymous call. Enter Y to indicate that calls can terminate at the public safety answering point (PSAP). If the condition does not apply, enter N.
	ENHDISP	Y or N	Enhanced display. Enter Y to turn on the wireless protocol two-line display for PSAPs. If the condition does not apply, enter N.
	NPD_MAPS	Vector of <NPD, SNPA>	Note: For LDT PSAPs: If the ANISPILL option is Y, the user receives the prompt for the ENHDISP option. If the ENHDISP option is Y, the system turns off the NUMIDIGS option. Numbering plan digit mapping. Enter a maximum of four mappings for each ACD PSAP. Terminate the entry any time before you enter the fourth pair. To terminate the entry, enter a nil vector (\$). If the user enters the nil vector for the first pair, the ACD PSAP does not have individual mappings. The ACD PSAP must use an NPD from table E911NPD. If pairs are not present, the system turns this option off. Note: Do not enter an NPD more than one time for a PSAP. Do not map an SNPA to more than one NPD for each PSAP.

E911 NPD per PSAP (continued)**Datafilling table ACDGRP (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Explanation and action
	NPD	0, 1, 2, 3	Numbering plan digit. Enter the NPDs in any order.
	SNPA	SERVING_ NUMBERING _PLAN_ AREA	Serving numbering plan area. Assign the SNPAs to any of the first set of NPDs from 0 to 3. Note: The NPD or SNPA entries that are not correct cause errors. Do not map an SNPA to more than one NPD for each PSAP. A PSAP must have all four NPD mappings defined.

Datafill example for table ACDGRP

Sample datafill for table ACDGRP for an ACD PSAP appears in the following example.

```

ACDNAME  CUSTGRP  ACDRNGTH  THROUTE  NSROUTE
PRIOPRO  DBG     MAXCQSI  MAXWAIT  ACDMIS  MSQS
DISTRING OBSWTONE FRCNGTSV  OPTIONS

ACDPSAPH1  E911      15          OFRT 911  OFRT 911
120        N        5          120        N        N
NONE       Y              N  (ACDDISP 0)
(TMDELOFL 2 ALLPRIO )  (OVFLINQ P0FIRST 20 Y 511)
(NONIMCUT )  (ACDXFER 5 N)  (ACDPSAP Y Y (1 613)
(2 905) $)  (NRONSDN)  (QTOMSB)  $

```

Datafilling table HUNTGRP

The data for E911 NPD per PSAP for table HUNTGRP appears in the following table. Only the fields that apply directly to E911 NPD per PSAP

E911 NPD per PSAP (continued)

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

Datafilling table HUNTGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
GRPDATA		refer to subfield	Group data. This field contains subfield GRPTYPE and refinements.
	PSAPTYPE	LDTPSAP or LINEPSAP	Public safety answering point type. Enter the option added to the hunt group.
	ANONCALL	Y or N	Anonymous call. Enter Y if calls can terminate to the PSAP and not through E911 translations. This entry indicates that the user can dial the seven-digit PSAP DN to reach the PSAP. If this option does not apply, enter N to indicate that the user must dial 911 to reach the the PSAP.
	ANISPILL	Y or N	Automatic number identification spill. Enter Y if the PSAP receives automatic number identification (ANI) from the E911 tandem. If this condition does not apply, enter N.
	ENHDISP	Y or N	Enhanced display. Enter Y to enable the wireless protocol two-line display for PSAPs. If this condition does not apply, enter N. Note: If the ANISPILL option is Y, the user receives the prompt for the ENHDISP option. If the ENHDISP option is Y, the system disables the NUMIDIGS option.
	NUMIDIGS	1 or 3	Number of ANI information digits. Enter the number of ANI information digits the PSAP expects with ANI. The number of ANI information digits can be 1 or 3. Note: The system does not prompt for NUMIDIGS if ENHDISP is set to Y.

E911 NPD per PSAP (continued)

Datafilling table HUNTGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	NPD_MAPS	Vector of <NPD, SNPA>	Numbering plan digit mapping. Enter a maximum of four mappings for each ACD PSAP. Terminate the entry any time before you enter the fourth pair. To terminate the entry, enter a nil vector (\$). If you enter the nil vector for the first pair, the ACD PSAP does not have individual mappings. The ACD PSAP must use an NPD from table E911NPD. If pairs are not available, the system disables this option. Note 1: Do not enter an NPD more than one time for a PSAP. Do not map an SNPA to more than one NPD for each PSAP. Note 2: If NUMDIGS is not 1, the system does not prompt for NPD_MAPS.
	NPD	0, 1, 2, 3	Numbering plan digit. Enter the NPDs in any order.
	SNPA	SERVING_NUMBERING_PLAN_AREA	Serving numbering plan area. Assign the SNPAs to any of the first set of NPDs from 0 to 3. Note: Incorrect NPD or SNPA entries cause errors. Do not map an SNPA to more than one NPD for each PSAP. A PSAP must have all four NPD mappings defined.
	PSAPNAME	alphanumeric (a maximum of 16 characters)	Public safety answering point name. Enter the name of the PSAP.

E911 NPD per PSAP (continued)

Datafilling table HUNTGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	MNALMPCT	0 to 100	Minor alarm percentage. Enter the percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_MINOR alarm. The LDT PSAP hunt group members that must be busy cannot be in any of the following states: • CPB • IDL • INB Note: If this alarm percentage is zero, a minor alarm does not occur for the PSAP.
	MJALMPCT	0 to 100	Major alarm percentage. Enter the percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_MAJOR alarm. The LDT PSAP hunt group members that must be busy cannot be in any of the following states: • CPB • IDL • INB Note: If this alarm percentage is zero, the major alarm does not occur for the PSAP.
	CRALMPCT	0 to 100	Critical alarm percentage. Enter the percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_CRITICAL alarm. The LDT PSAP hunt group members that must be busy cannot be in any of the following states: • CPB • IDL • INB Note: If this alarm percentage is zero, the critical alarm does not occur for the PSAP.

E911 NPD per PSAP (continued)**Datafill examples for table HUNTGRP**

Sample datafill for table HUNTGRP for an LDT PSAP appears in the following example.

HTGRP	SNPA	DN	GRPTYP	GRPDATA
120	613	6212115	DLH	N Y N RCVD N Y
6212116	Y	MDC	N	6212113 Y 20 N N N
Y	LDTSPAP	Y Y	N	1 (1 613) (3 919) \$
POLICE	0	0	0	2 \$

Sample datafill for table HUNTGRP for a Line PSAP appears in the following example.

HTGRP	SNPA	DN	GRPTYP	GRPDATA
123	613	6212113	DLH	N Y N RCVD N N N
N	N Y	LINEPSAP	Y	N (1 919) (2 905)
(0 613)	\$	LINEPSAPH1	2	\$

Tool for verifying translations

The E911 NPD per PSAP does not use translation verification tools.

SERVORD

The following SERVORD information applies to E911 NPD per PSAP.

SERVORD limits

The E911 NPD per PSAP does not have SERVORD limits.

E911 NPD per PSAP (continued)**SERVORD prompts for the LINEPSAP option**

The SERVORD prompts that apply to E911 NPD per PSAP with the LINEPSAP option appear in the following table.

SERVORD prompts for E911 NPD per PSAP with LINEPSAP option

Prompt	Correct input	Explanation
SONUMBER	Refer to SONUMBER in the SERVORD Reference Manual for information on correct inputs.	The number of the service order the user must enter.
DN_OR_LEN	Refer to DN and LEN_OR_LTID in the SERVORD Reference Manual for information on correct inputs.	Enter the DN or LEN of the line. For an MDN line or multiline hunt (MLH)/distributed line hunt (DLH) members, the following conditions apply. If the user specifies a DN, the system prompts the user for the LEN. If the user enters the LEN, the system does not prompt the user for the DN.
OPTION	Refer to the SERVORD Reference Manual for a list of correct inputs.	Service options the user establishes, modifies, or deletes. The user can specify a maximum of 20 options in each ADD, ADO, EST, or NEW command.
ANONCALL	Y or N	Indicates the allowance of a direct call to PSAP DN.
PSAPNAME	A maximum of 16 characters	Public safety answering point name.
ENHDISP	Y or N	Indicates the wireless protocol two-line display for PSAPs.
NPD_MAPS	Vector of <NPD, SNPA>	Option associated with the addition of PSAP fields to the ACDPSAP option.

SERVORD examples for E911 NPD per PSAP with LINEPSAP option

The LINEPSAP option with NPD mapping appears in the following example.

E911 NPD per PSAP (continued)

Example of the LINEPSAP option in the prompt mode with NPD mapping

```
>ADO
SONUMBER:      NOW   97 12 17 PM
>
DN_OR_LEN:
> 01 0 12 19
OPTION:
> LINEPSAP
ANONCALL:
> Y
ENHDISP:
> N
NPD_MAPS:
> 0 704
NPD_MAPS:
> 3 613
NPD_MAPS:
> 2 919
NPD_MAPS:
> 1 910
PSAPNAME:
> LINEPSAP1
OPTION:
$
```

The LINEPSAP option with no NPD mappings appears in the following example.

E911 NPD per PSAP (continued)**Example of the LINEPSAP option in the prompt mode with no NPD mappings**

```

>ADO
SONUMBER:      NOW    97 12 17 PM
>
DN_OR_LEN:
> 01 0 12 19
OPTION:
> LINEPSAP
ANONCALL:
> Y
ENHDISP:
> N
NPD_MAPS:
> $
PSAPNAME:
> LINEPSAP1
OPTION:
> $

```

The LINEPSAP option in the no-prompt mode appears in the following example.

Example of the LINEPSAP option in the no-prompt mode

```
>ADO $ PSAP 0 0 0 0 linepsap Y Y $ linepsap1 $
```

SERVORD prompts for the LDTPSAP option

The SERVORD prompts that apply to E911 NPD per PSAP with the LDTPSAP option appear in the following table.

SERVORD prompts for E911 NPD per PSAP with LDTPSAP option (Sheet 1 of 4)

Prompt	Correct input	Explanation
SONUMBER	Refer to SONUMBER in the SERVORD Reference Manual for information on correct inputs.	The number of the service order the user must enter.
GROUPTYPE	BNN, CPU, DLH, DNH, MLH, MPH PRH, UA	The type of hunt group the user must establish, modify, or delete.
PILOT_DN	vector of a maximum of 15 digits	The DN of a DNH/PRH group pilot or the DN associated with a MLH/DLH group.

E911 NPD per PSAP (continued)**SERVORD prompts for E911 NPD per PSAP with LDTPSAP option (Sheet 2 of 4)**

Prompt	Correct input	Explanation
LCC	Refer to the Line class codes table in the SERVORD Reference Manual for a list of correct LCCs.	The DN of a directory number hunt (DNH)/preferential hunt (PRH) group pilot or the DN associated with a DLH/MLH group.
GROUP	a maximum of eight alphanumeric characters that start with an alphabetic character	Used with the IBN line class code (LCC). Common Language Location Identifier (CLLI) of an IBN customer group.
SUBGRP	0 to 7	Subgroup of a customer group to which a station or DN belongs.
NCOS	0 to 511	Network class of service for IBN lines, trunks, or attendant consoles. Defines a set of capabilities or restrictions that allows or denies calls.
RINGING	Y or N	Indicates the allowance to ring.
LATANAME	alphanumeric	The calling local access and transport area (LATA) name associated with the originator of the call.
LTG	0 to 9998	Line treatment group member. This prompt calculates the line attribute index when the DN and LCC cannot detect an appropriate index. The system prompts for the LTG with LCC. If office parameters are on, the prompt appears. If office parameters are off, the prompt does not appear.
PILOT_LEN	refer to LEN	The LEN of a hunt group pilot.
MEM_LEN	refer to LEN	The LEN of a DLH or MLH group member. You can enter a maximum of 20 LENs in this prompt. For a business set hunt group member, the user must specify the key.

E911 NPD per PSAP (continued)**SERVORD prompts for E911 NPD per PSAP with LDTPSAP option (Sheet 3 of 4)**

Prompt	Correct input	Explanation
OPTION	LDTPSAP	Service options the user establishes, modifies, or deletes. The user can specify a maximum of 20 options in each ADD, ADO, EST, or NEW command.
ANONCALL	Y or N	Indicates the allowance of a direct call to PSAP DN.
ANISPILL	Y or N	Indicates the allowance of a direct call to PSAP DN.
ENHDISP	Y or N	Indicates the wireless protocol two-line display for PSAPs.
NUMIDIGS	1 or 3	Number of information digits the LDTPSAP with ANI expects.
NPD_MAPS	Vector of <NPD, SNPA>	Option associated with the addition of PSAP fields to the ACDPSAP option.
SNPA	3 digits	Serving numbering plan area code for the station.
PSAPNAME	alphanumeric (a maximum of 16 characters)	Public safety answering point name.
MNALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_MINOR alarm. The LDT PSAP hunt group members cannot be in any of the following states: • CPB • IDL • INB If this alarm percentage is zero, the alarm does not occur for the PSAP.

E911 NPD per PSAP (continued)**SERVORD prompts for E911 NPD per PSAP with LDTPSAP option (Sheet 4 of 4)**

Prompt	Correct input	Explanation
MJALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_MAJOR alarm. The LDT PSAP hunt group members that must be busy cannot be in any of the following states: • CPB • IDL • INB If this alarm percentage is zero, the alarm does not occur for the PSAP.
CRALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy to raise the E911_LDTBSY_CRITICAL alarm. The LDT PSAP hunt group members that must be busy cannot be in any of the following conditions: • CPB • IDL • INB If this alarm percentage is zero, the alarm cannot occur for the PSAP.
GROUPSIZE	0 to 1024	Hunt group size. The expected maximum size of the hunt group. If a switching unit has feature Hunt Group Size Expansion for a DNH, DNH, or MLH group, the range is 0 to 1024. For switching units that do not have this feature, the range is 0 to 256. For a BNN hunt group, the range is from 0 to 210.

SERVORD examples for E911 NPD per PSAP with LDTPSAP option

The LDTPSAP option in the prompt mode with NPD mapping appears in the following example.

E911 NPD per PSAP (continued)

Example of the LDTPSAP option in the prompt mode with NPD mapping

```
>ADO
SONUMBER:      NOW    97 12 24 AM
>
DN_OR_LEN
BRCU 00 0 07 12
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL
> Y
ENHDISP:
> N
NUMIDIGS:
> 1
NPD_MAPS:
> 1 613
NPD_MAPS:
> 2 919
NPD_MAPS:
> 0 910
NPD_MAPS:
> 3 704
PSAPNAME:
> POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
OPTION:
> $
```

The LDTPSAP option in the prompt mode with no NPD mapping appears in the following example.

E911 NPD per PSAP (end)

Example of the LDTPSAP option in the prompt mode with no NPD mapping

```
>ADO
SONUMBER:      NOW    97 12 24 AM
>
DN_OR_LEN
BRCU 00 0 07 12
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL
> Y
ENHDISP:
> N
NUMIDIGS:
> 1
NPD_MAPS:
> $
PSAPNAME:
> POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
OPTION:
> $
```

An example of the LDTPSAP option in the no-prompt mode appears in the following figure.

Example of the LDTPSAP option in the no-prompt mode

```
> ADO $ PSAP 0 0 0 0 LDTPSAP Y Y Y POLICE 0 0 0 $
```

E911 PRI PSAP Delivery

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00015

Release applicability

E911 PRI PSAP Delivery was introduced in NA011.

Prerequisites

E911 PRI PSAP Delivery has no prerequisites.

This document includes all the data table information for this functionality. Complete use of this functionality can require software or hardware not described in this document.

Description

This feature introduces the fourth type of public safety answering point (PSAP). This new PSAP type is the primary rate interface (PRI) PSAP.

The four types of PSAPs are as follows:

- Line appearance on a digital trunk (LDT)
- Line
- Automatic Call Distribution (ACD)
- PRI

This feature is the second of a series of features. This series of features will provide a fully functional Integrated Services Digital Network (ISDN) PRI PSAP.

This feature allows E911 calls to terminate to a PRI trunk group. The PRI trunk group delivers 911 calls to the customer premises equipment (CPE) on the user side.

The first and second of the series of features provide the following functionalities:

- E911 software accepts PRI trunk group as a valid PSAP type.
- PRI trunk groups are marked as E911 PSAP.
- PRI PSAP appears in table E911PSAP when mapping the logical terminal identifier (LTID) with the primary rate access (PRA) trunk group.

E911 PRI PSAP Delivery (continued)

- Table E911ESN uses PRI PSAP as primary and secondary PSAPs.
- Smooth call processing occurs for the E911 feature.
- The E911 subsystem generates log E911212.
- The E911 subsystem generates remote call event records (RCER).
- The PRI PSAP is compatible with national ISDN PRI (NTNI PRI).
- The PRI PSAP is compatible with Northern Telecom North America PRI (NTNA PRI).
- The PRI PSAP can do a forced disconnect.
- Datafill of PRI PSAP in table E911ALI is not blocked.
- The PRI PSAP can receive ANI FAIL digits.
- The PRI PSAP can receive the following types of calls:
 - anonymous calls for NTNA and NTNI PRI
 - direct calls for NTNA and NTNI PRI
 - selective call routing
 - default call routing
 - wireline
 - wireless
 - call transfer
 - selective call transfer
- E911 calls can terminate to a PRI PSAP through the following types of trunk groups:
 - virtual facility groups (VFG)
 - Integrated Services Digital Network User Part (ISUP)
 - emergency service (ES)
 - operator (OP)

Note: These calls can include MF to PRI trunk interworking.

Operation

The ISDN PRI trunking technology enables multiple locations to form a network.

E911 PRI PSAP Delivery (continued)

Refer to the following table for basic PRI structure.

Basic PRI structure

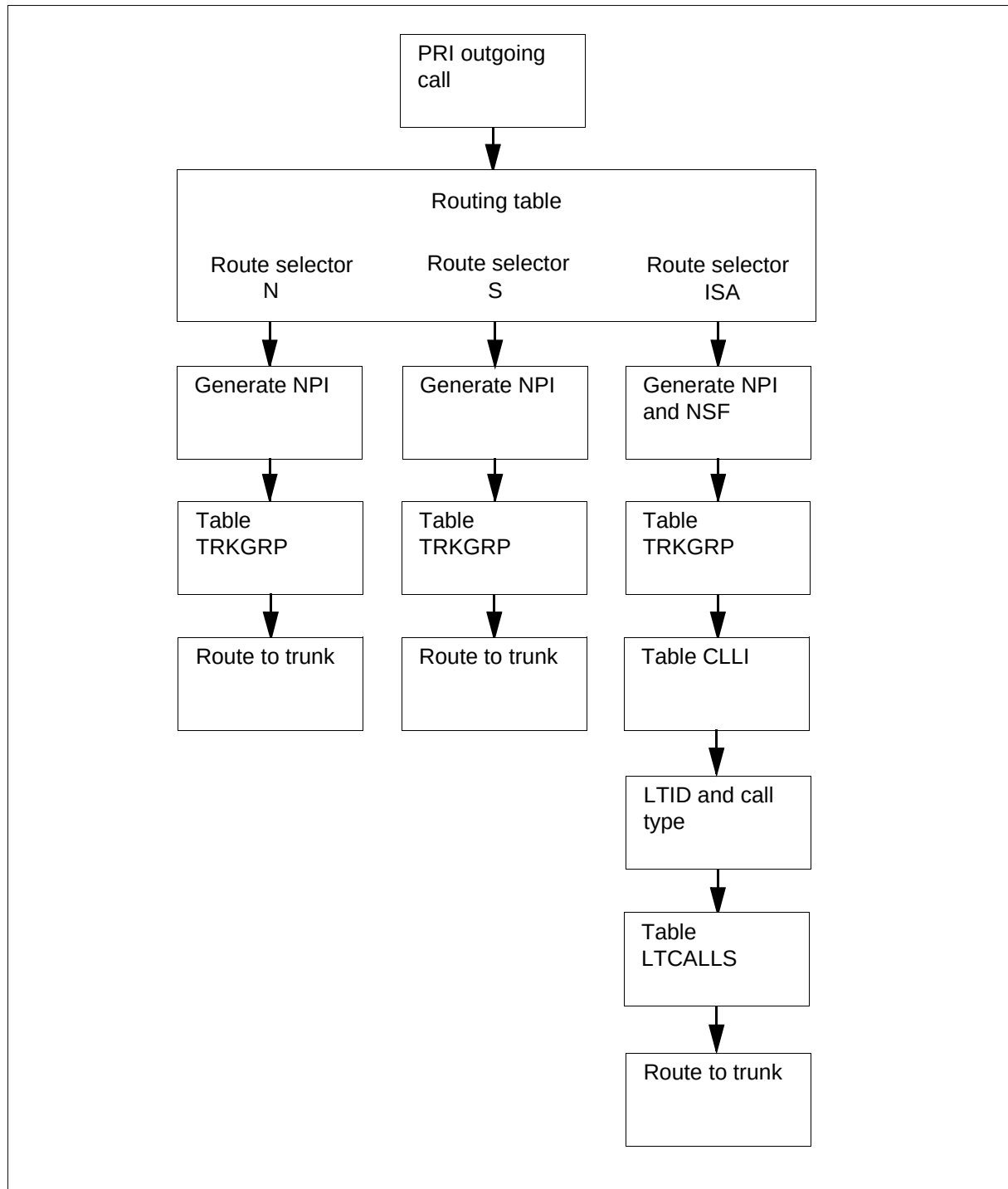
Type of channel	Number of channels	Number of kbits/s	Type of information the channel carries
B-channel	23	64	user information, such as voice calls or circuit switched data
D-channel	1	64	control or signaling information
Note: The total transmission rate is 1544 kbits/s. This transmission rate is equivalent to a DS-1.			

The terms PRI origination and termination define the perspective of the switch. The switch can be a public branch exchange (PBX), a DMS-100 switch, or some other PRI node.

The PRI origination messages apply to calls that come in to the switch. The PRI termination messages apply to calls that go out from the switch.

Note: The DMS-100 switch can be either the network side or the user side of the NTNA PRI. The NTNI PRI allows the DMS switch to be the network side only.

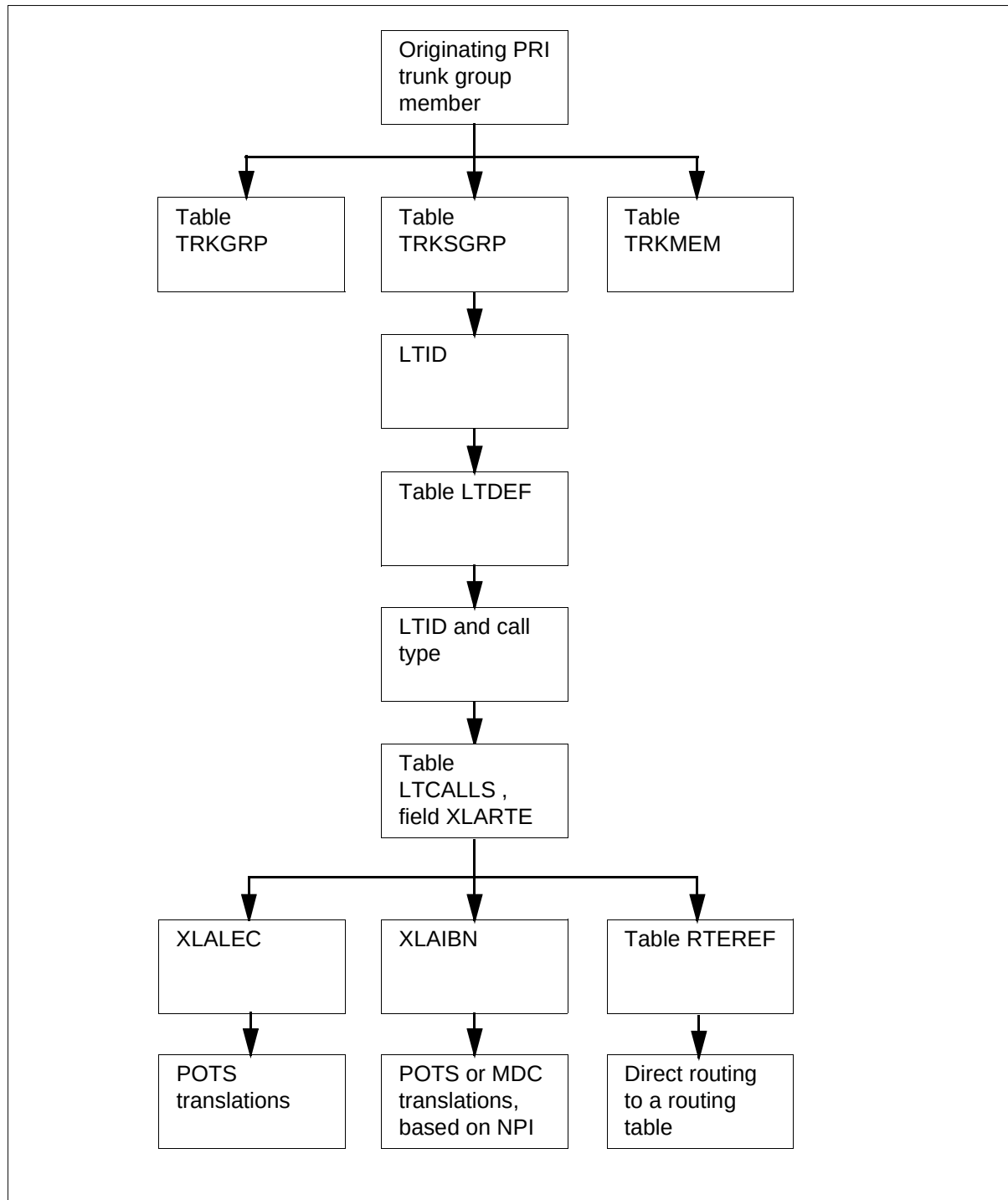
The following figure shows PRI call termination.

E911 PRI PSAP Delivery (continued)**PRI call termination**

The following figure shows PRI call origination.

E911 PRI PSAP Delivery (continued)

PRI call origination



E911 PRI PSAP Delivery (continued)

Call processing

After the PRI PSAP is present in table E911PSAP, the PRI PSAP can become the primary or secondary PSAP of an ESN. The E911 translations will terminate the call to the CLLI of the PRI trunk group. This trunk group is in table LTMAP.

You must manually route the call to the trunk group with the PRIPSAP option. Use table DNROUTE or table HNPACONT to route the call to the trunk group.

Call clearing

Either the network or the user can initiate call clearing with PRI by sending a DISCONNECT message.

The user can initiate call clearing as follows:

- The user sends a DISCONNECT message to the network.
- The B channel becomes disconnected.
- The network sends a RELEASE message to the user.
- The user receives the RELEASE message.
- The user sends the network a RELEASE COMPLETE message.
- The network receives the RELEASE COMPLETE message.
- Both user and network enter a null state.
- The E911 subsystem generates an E911212 log upon call clearing.

Call throttling

Call throttling is a method of controlling the number of calls that originate or terminate on an ISDN PRI trunk. The E911 calls terminate to a PRI PSAP through an E911 VFGs or E911 trunks. For non-E911 calls terminating on the same PRI PSAP, set the translations to use a SIZE VFG of type IBN or POTS. The PSAP can avoid B-channel contention during times of disaster, when the PRI PSAP receives a high number of 911 and non-911 calls. Use alternate routes in table OFRT in case no B-channels are free. The call can attempt another route to the PBX even if not over the same PRI PSAP.

Calling station number

The setting of the calling number delivery subscription parameter for the PRI determines the delivery of the calling party number (CPN) to the PRI PSAP. When a wireline call terminates to PRI PSAP, the SETUP message with the CPN becomes populated with the DN of the PSAP. Set calling number delivery (CND) to YES to allow delivery of the calling number (CGN). Set redirecting number delivery to YES to allow delivery of the redirecting

E911 PRI PSAP Delivery (continued)

number. The number privacy override by number delivery is applicable to all E911 calls to a PRI PSAP.

Anonymous calls

If the DIRECT option is set to Y and ANONCALL = Y, the CGN digits will not be modified to 0009110000.

All CGN delivery restrictions, options, and privacy indicators of the call apply.

For example: The CGN is not delivered to the CPE under the following conditions:

- PRI PSAP has option CGN Delivery set to NEVER
- PRI PSAP has option DIRECT set to Y, and the caller has the SUPPRESS option
- PRI PSAP has option ANONCALL set to Y

When option DIRECT is set to Y, it invokes existing PRI CGN delivery and screening functions.

When option DIRECT is set to N and option ANONCALL is set to Y, the CGN will be delivered to the CPE in the traditional anonymous call format (0009110000).

Note: If option ANONCALL is set to N, the caller will receive treatment (VACANT code). The anonymous call will not be presented to the PRI PSAP.

The table that follows explains the delivery of CGN with options ANONCALL and DIRECT.

ANONCALL	DIRECT	CGN
Y	N	0009110000
Y	Y	10-digit ANI, based on the privacy indicator
N	N/A	Treatment. Anonymous calls to the PRI PSAP are not supported.

Delivery of CGN to PRI PSAP

For PRI PSAPs, the calling party number information element is populated with the calling station number of the calling party.

E911 PRI PSAP Delivery (continued)

For NTNA and NTNI, the CGNDELV service option has the three choices that follow:

- ALWAYS - the CGN is delivered, regardless of the privacy indicator of the incoming call
- NEVER - the CGN is not delivered, regardless of the privacy indicator of the incoming call
- SCREENED - the CGN is delivered based on the screening results

Note: The CGN is always delivered for emergency calls. To override the privacy indicator for emergency calls when delivering the call to a PRI PSAP, ignore the CGNDELV option set in table LTDATA.

The privacy indicator cannot be received with the call unless the call is routed over PRI trunks or ISUP trunks. Emergency calls always terminate to the PRI PSAP over E911 VFG, E911 incoming MF, or E911 ISUP trunks. The E911 incoming MF trunks do not support a privacy indicator. The E911 VFGs do not support a privacy indicator. The ISUP to PRI interworking uses the privacy indicators passed from the ISUP trunks to the PRI trunks. For emergency calls routed over the E911 MF trunks, the progress indicator will be set to the NOT END TO END ISDN. For emergency calls routed over E911 VFGs, the progress indicator will be set to ORIGINATING ADDR IS NOT ISDN.

Delivery of CDN

The called number (CDN) delivery for PRI terminations is handled through the subscription parameter CDNDELV. For NTNI PRI, this parameter is set to ALWAYS. For NTNA PRI, this parameter can be set to NEVER or ALWAYS. To ensure delivery of the CDN, which is the DN of the PRI PSAP, NTNA customers must set this parameter to ALWAYS.

Transfer to PRI PSAP

The following types of PSAPs can transfer an emergency call to a PRI PSAP:

- ACD
- Line
- LDT

Note: An EDNR can also transfer an emergency call to a PRI PSAP.

The transfer can be done by using the following features:

- Three-way calling with public announcement (3WCPUb)
- Call transfer (CXR)

E911 PRI PSAP Delivery (continued)

- Three-way calling features
- Selective call transfer feature of E911

If the CGN is available at the controller, the PRI PSAP will receive the CGN.

E911 incoming MF trunk to PRI trunk

If a call routes over incoming E911 MF trunks, the call can terminate to a PRI PSAP.

ANI fail ANI

As for other PSAPs, the ANI fail ANI will be presented to the PRI PSAP in case of failures. The ANI fail ANI format is NPA9110ESCO. The NPA is the NPA of the E911 facility (E911 trunk or VFG).

Selective and default call routing to a PRI PSAP

Selective and default call routing to a PRI PSAP is available for the following:

- E911 VFGs
- E911 ISUP trunks
- E911 MF trunks

Forced disconnect from the PRI PSAP

Forced disconnect from the PRI PSAP is available for the following:

- E911 VFGs
- E911 ISUP trunks
- E911 MF trunks

Translations table flow

The E911 PRI PSAP Delivery translations tables are as follows:

- LTDATA
- TRKGRP
- LTMAP
- E911PSAP
- E911ESN

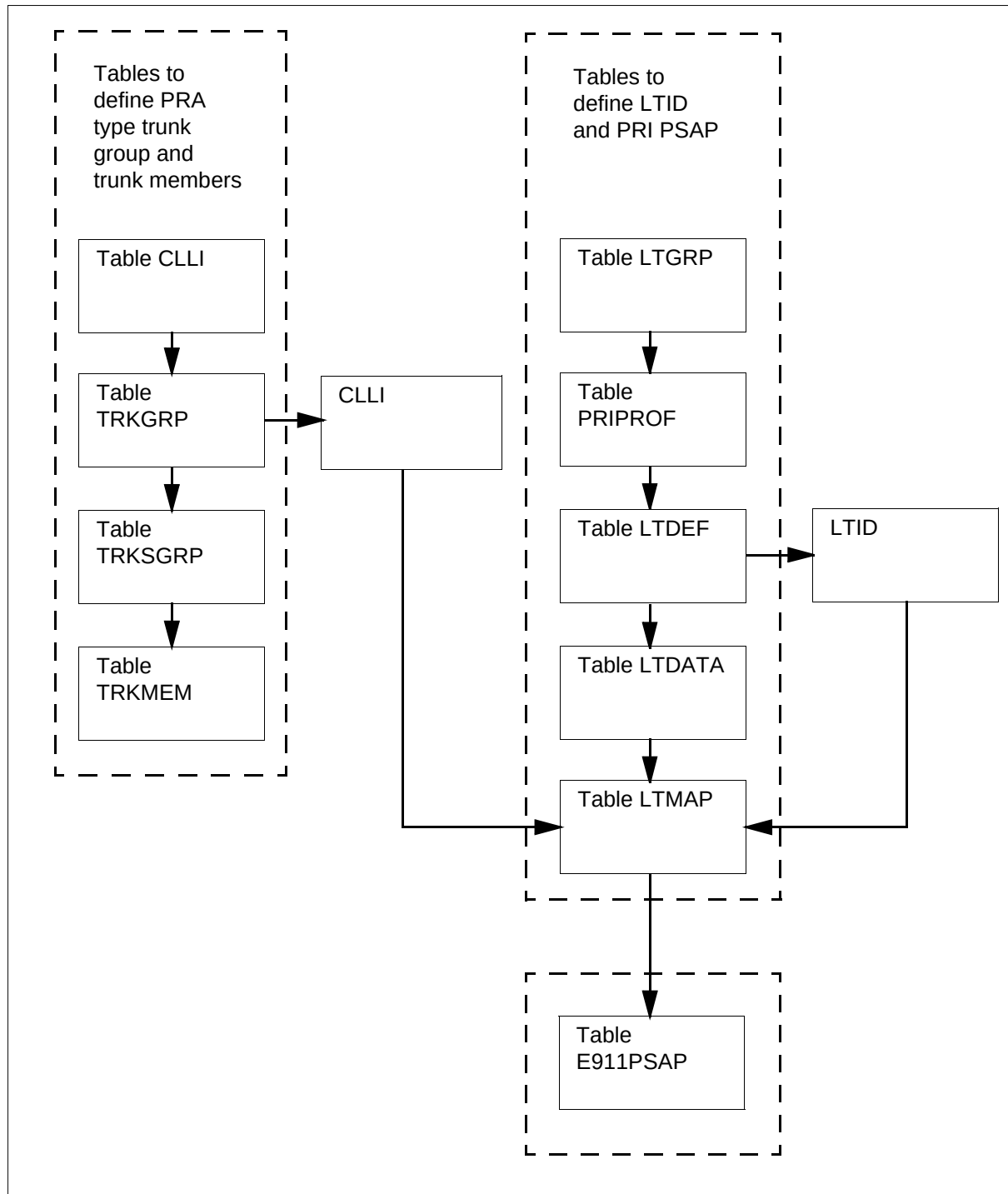
The following flowchart shows the E911 PRI PSAP Delivery translation process. This flowchart gives high level information on PRI PSAP datafill order. This information does not replace the PRI datafill order.

E911 PRI PSAP Delivery (continued)

For complete PRI translations and datafill order, refer to the ISDN volume of this document.

E911 PRI PSAP Delivery (continued)

Table flow for E911 PRI PSAP Delivery



E911 PRI PSAP Delivery (continued)

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

Datafill example for E911 PRI PSAP Delivery

Datafill table	Example data
LTDATA	ISDN 1 SERV SERV N N ALWAYS ALWAYS (PRI PSAP Y 613 6211234) \$
TRKGRP	WITS1NIDT0 PRA 0 PRAC NCRT ASEQ N \$ \$
LTMAP	ISDN 1 CLLI WITS1NIDT0 (TEI 0) \$
E911PSAP	NONE \$ N ACDPSAPMDC 6212112 N WITS1NIDT0 6211212 N TANDM2 7772005 Y
E911ESN	110 Y WITS1NIDT0 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC NONE NONE POLICE

Limitations and restrictions

The limitations and restrictions that follow apply to E911 PRI PSAP Delivery:

- This feature does not support delivery of ANI under the following conditions:
 - calls forwarded to a PRI PSAP
 - calls transferred from a PRI PSAP

Note: The central processing equipment (CPE) can perform the call transfer features without the E911 functions.

- This feature does not support delivery of pANI to the PRI PSAP for wireless calls.

Note: When the PRI PSAP receives a wireless 911 call, the 10-digit callback number will be delivered to the PRI PSAP.

- This feature does not support verification for the PSAPDN when creating the PRI PSAP.
- Do not use the command interpreter (CI) command RENAMECLLI for PRI trunks that are used as a PRI PSAP.

Note: The NTNA and NTNI features of PRI will work without modifications to their original functionalities. This feature does not support special E911 functions (such as E911 logs, delivery of ANI, and so on) from the PRI features started by the PRI PSAP.

E911 PRI PSAP Delivery (continued)

Interactions

This section describes the interactions between E911 PRI PSAP Delivery and other functionalities.

The PRI PSAP does not support the following functionalities:

- ORIGHOLD
- RINGBACK
- Selective Call Transfer
- Two B Channel Transfer
- Call Transfer
- Speed Dialing
- Enhanced Called Party Hold
- PRI Multi-B-Channel Conferencing

Note: You can enter PRI PSAP data in table E911ALI. This feature introduces no new development to support ALI in the PRI PSAP.

The PRI PSAP will support the following functionalities in a later release:

- Two B Channel Transfer
- Call Transfer
- Selective Call Transfer
- Speed Dialing
- Enhanced Called Party Hold

Activation/deactivation by the end user

E911 PRI PSAP Delivery requires no activation or deactivation by the end user.

Billing

E911 PRI PSAP Delivery does not affect billing.

Station Message Detail Recording

E911 PRI PSAP Delivery does not affect Station Message Detail Recording.

Datafilling office parameters

E911 PRI PSAP Delivery does not affect office parameters.

E911 PRI PSAP Delivery (continued)**Datafill sequence**

The PRI PSAP uses the existing PRI tables, datafill procedures, and datafill order. There is no restriction to define the LTID before defining the PRA type trunk. The datafill for tables TRKGRP and TRKSGRP can be assigned for the PRA type trunks, before or after the LTID is defined. Define the PRI trunk groups at any time, independent of the LTDEF and LTDATA tables.

Note: This document uses the terms primary rate access (PRA) and PRI interchangeably. The trunk group to define a PRI trunk group is PRA. This document refers to the PRA trunk type in terms of table control.

To create a PRI PSAP

Follow these steps to create a PRI PSAP:

- 1 Create the LTID in table LTDEF.
- 2 Create the CLLI of a trunk group in table CLLI. This CLLI will be used in tables TRKGRP, TRKSGRP, TRKMEM, and LTMAP.
Note: The CLLI of the trunk group is the name of the PSAP.
- 3 Create a PRA type trunk group in tables TRKGRP and TRKSGRP. Add members in table TRKMEM.
- 4 Assign the PRIPSA service type in table LTDATA to the LTID created in step 1.
- 5 Map the trunk group with the LTID in table LTMAP.

Note: The order of steps 4 and 5 can change. The PRI PSAP is created only after both steps 4 and 5 are completed. There are no restrictions to the PRI PSAP DN assigned in table LTDATA with the SERV option PRIPSA.

The following table lists the tables that require datafill to implement E911 PRI PSAP Delivery. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for E911 PRI PSAP Delivery

Table	Purpose of table
LTDATA	Table Logical Terminal Data stores data associated with the LTID.
TRKGRP	Table Trunk Group contains data associated with each trunk group in the switching unit.
LTMAP	Table Logical Terminal Mapping maps logical terminals to a line equipment number (LEN) and the terminal equipment interface.

E911 PRI PSAP Delivery (continued)

Datafill tables required for E911 PRI PSAP Delivery

Table	Purpose of table
E911PSAP	Table Enhanced 911 Public Safety Answering Point associates a PSAP name with a local directory number (DN) or an emergency directory number route (EDNR).
E911ESN	Table Enhanced 911 Emergency Service Number associates an ESN with a flash control field, a PSAP name, and up to six secondary PSAP names.

Datafilling table LTDATA

The following table shows the datafill specific to E911 PRI PSAP Delivery for table LTDATA. Only those fields that apply directly to E911 PRI PSAP Delivery are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDKEY		see subfields	Logical terminal datakey This field consists of subfields LTGRP, LTNUM, and DATATYPE.
	DATATYPE	CLI, DN, SERV, or RN	Logical terminal data type Enter the logical terminal data type as follows: • Enter CLI to identify a calling line identifier (CLI) subscription parameter. • Enter DN for directory number. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface. • Enter RN for redirected number. Note: Data type CLI may not be available with all PCLs. CLI is a UK (United Kingdom) parameter. Any entries outside the range indicated for this field are invalid.

E911 PRI PSAP Delivery (continued)

Datafilling table LTDATA

Field	Subfield or refinement	Entry	Explanation and action
LTDRSLT		see subfield	Logical terminal results This field consists of subfield DATATYPE.
	DATATYPE	CLI, DN, SERV, or RN	Logical terminal data type Enter the logical terminal data type as follows: • Enter CLI to identify a calling line identifier (CLI) subscription parameter. Enter the datafill for subfield OPTION. • Enter DN for directory number. Enter the datafill for subfields DFLTCGN and OPTIONS. • Enter SERV for service-related data associated with a logical terminal identifier (LTID) or PRA interface. Enter the datafill for subfields AUDTRMT, CGNREQD, CGNDELV, CDNDELV, and OPTION. • Enter RN for redirected number. Enter the datafill for subfield OPTION. Any entries outside the range indicated for this field are invalid. Note: Data type CLI may not be available with all PCLs. CLI is a UK (United Kingdom) parameter.

E911 PRI PSAP Delivery (continued)**DATATYPE = SERV**

If the entry in field DATATYPE is SERV, datafill subfields AUDTRMT, CGNREQD, CGNDELV, CDNDELV, and OPTION.

LTDATA field descriptions for datafill if DATATYPE = SERV

Field	Subfield or refinement	Entry	Explanation and action
	AUDTRMT	Y or N	Audible treatment This field determines whether in-band tones and announcements are provided instead of disconnect with cause when treatments are applied to calls from this LTID. The option applies to these treatments: VACT, UNDN, BLDN, PODN, CONF, MHLN, ATBS, TESS, TRBL and DNTR. Enter Y (yes) to enable in-band treatment procedures for originating PRI calls with bearer capability (BC) of speech or 3.1-kHz audio. Note: To make two bearer capabilities compatible with TBCT, enter bearer capabilities in table BCCOMPAT before you datafill table LTTDATA. Enter N (no) to disable in-band treatment procedures and handle call clearing as it was originally handled.
	CGNREQD	Y or N	Calling party number required Enter Y to indicate the CGN must be provided by the calling user equipment. Otherwise, enter N. Note: Set the LTID of a PRI public safety answering point (PSAP) to CGNREQD = Y to ensure the delivery of the CGN.
	CGNDELV	ALWAYS, NEVER, or SCREENED	Calling party number delivery This field indicates when the CGN is delivered to the called interface.

E911 PRI PSAP Delivery (continued)

LTDATA field descriptions for datafill if DATATYPE = SERV

Field	Subfield or refinement	Entry	Explanation and action
			ALWAYS indicates the actual CGN with the PI is sent. NEVER indicates the CGN with the PI is not sent. SCREENED indicates if the PI is private, the CGN is not sent (it is replaced by asterisks). The default value for this field is SCREENED. Note: Set the LTID of a PRI PSAP to CGNDELV = ALWAYS to ensure the delivery of the CGN.
	CDNDELV	ALWAYS or NEVER	Called party number delivery This field determines whether the called party number is delivered to the called interface. ALWAYS indicates the called party number is always delivered to the called interface. NEVER indicates the called party number is never delivered to the called interface.

E911 PRI PSAP Delivery (continued)**LTDATA field descriptions for datafill if DATATYPE = SERV**

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	AIN_IPI_STR, AOC, BNS, CCBS, CGNCALC, CHG, CUG, DAS, DDI, ECMA226_CHNL_MAP, INSNAC, LSPAO, LPSO, MCID, NET_CALLFAIL_ON, NET_DIALTONE_ON, NET_NORMDISC_ON, NET_RINGBACK_ON, NO_BCH_SERV, PCOS, PRIPSAP, RNDELV, RNID, TBCT, TBO, TCAP_CNAM, or UUS1	Option This field contains options for PRI services. Assign one or more options. Note: This document describes option PRIPSAP only. For a description of the other options, refer to the data schema section of this document.
		PRIPSAP	Primary rate interface public safety answering point Enter PRIPSAP to provision the PRI PSAP. Note: LTIDs provisioned in table LTDATA with LTDATATYPE = SERV include an options vector.

OPTION = PRIPSAP

If the entry in subfield OPTION is PRIPSAP, enter the datafill for subfields ANONCALL, DIRECT, SNPA, and PSAPDN.

LTDATA field descriptions for datafill if OPTION = PRIPSAP

Field	Subfield or refinement	Entry	Explanation and action
	ANONCALL	Y or N	Enter Y if the PSAP can receive anonymous calls. Otherwise, enter N. The default is N. Note: If the ANONCALL field is set to Y, you will be prompted to enter datafill for the DIRECT field.
	DIRECT	Y or N	Enter Y to add the PRIPSAP option. The default is N.

E911 PRI PSAP Delivery (continued)**LTDATA field descriptions for datafill if OPTION = PRIPSAP**

Field	Subfield or refinement	Entry	Explanation and action
	SNPA	3 digits	Enter the 3-digit serving numbering plan area for the PSAP. The default is 0.
	PSAPDN	7 digits	Enter the 7-digit directory number of the PSAP. The default is 0.

Datafill example for table LTDATA

The following example shows sample datafill for table LTDATA.

MAP display example for table LTDATA

LTDKEY	LTDRSLT

ISDN 1 SERV	
SERV N N ALWAYS ALWAYS (PRIPSAP Y 613 6211234) \$	

Datafilling table TRKGRP

Define the PRA trunk group before or after table LTDATA. When you create the trunk group, field LTID will be empty until table LTMAP does the mapping.

Datafill example for table TRKGRP

The following example shows a PRA trunk group tuple from table TRKGRP before the mapping.

MAP display example for table TRKGRP (before mapping)

TABLE: TRKGRP	
GRPKEY	GRPINFO

WITS1NIDT0	
PRA 0 PRAC NCRT ASEQ N \$ \$	

Note: For an example of a PRA trunk group tuple from table TRKGRP after the mapping, refer to table LTMAP.

E911 PRI PSAP Delivery (continued)

Datafilling table LTMAP

The following table shows the datafill specific to E911 PRI PSAP Delivery for table TRKGRP. Only those fields that apply directly to E911 PRI PSAP Delivery are shown. For a description of the other fields, refer to the data schema section of this document.

Map the PRA trunk group type and LTID by adding a tuple in table LTMAP. After you add the tuple in table LTMAP, the LTID is written in table TRKGRP.

Datafill example for table LTMAP

The following example shows a tuple in table LTMAP that maps a PRA trunk group with an LTID.

MAP display example for table LTMAP

```
TABLE: LTMAP
>pos isdn 2 cli
```

LTKEY	MAPPING	OPTION
ISDN 1 CLLI	WITS1NIDT0	(TEI 0) \$

Note: The IBNT2 trunk type can also carry the PRI traffic. You can use table LTMAP to map the PRA type trunks and the IBNT2 type trunks. The PRIPSAP option resides in table LTDATA. Table LTMAP maps the PRIPSAP option with the trunk group. This document uses PRA trunk types as examples.

After the mapping is complete, table TRKGRP will update automatically with the LTID. The following example shows a PRA trunk group tuple from table TRKGRP after the mapping.

MAP display example for table TRKGRP (after mapping)

```
TABLE: TRKGRP
GRPKEY
```

GRPINFO
WITS1NIDT0
PRA 0 PRAC NCRT ASEQ N (ISDN 1) \$ \$

E911 PRI PSAP Delivery (continued)**Datafilling table E911PSAP**

After the CLLI maps with the LTID, you can add the SERV options to table LTDATA. After you add SERV option PRIPSAP to the mapped LTID, table E911PSAP will include PRI PSAP.

The following information applies to the SERV option for PRIPSAP:

- You cannot delete the SERV option for PRIPSAP if other tables use the PSAP name.
- Table E911PSAP verifies the PSAP name to ensure that another PSAP is not already using the PRI PSAP name. The name of the PSAP matches the CLLI of the trunk group. This match ensures the trunk group uses the PSAP name only once.
- You cannot manually delete PRI PSAP from table E911PSAP
- You cannot manually add PRI PSAP to table E911PSAP.
- The DN of the PRI PSAP is seven digits. The DN of Line, LDT, and ACD PSAPs is also seven digits. There will be no checks on the DN other than the 7-digit limit.

Datafill example for table E911PSAP

The following example shows sample datafill for table E911PSAP.

MAP display example for table E911PSAP

```
TABLE: E911PSAP
>list all
TOP
PSAPNAME          PSAPDN          EDNR
-----
      NONE          $              N
ACDPSAPMDC        6212112         N
WITS1NIDT0        6211212         N    <-PRI PSAP has the trunk group's CLLI
TANDM2            7772005         Y
```

Datafilling table E911ESN

The following datafill example shows the datafill specific to E911 PRI PSAP Delivery for table E911ESN. Only those fields that apply directly to E911 PRI PSAP Delivery are shown. For a description of the other fields, refer to the data schema section of this document.

E911 PRI PSAP Delivery (continued)

Datafill example for table E911ESN

The following example shows a tuple in table E911ESN. The PRI PSAP is the primary PSAP of this ESN.

MAP display example for table E911ESN

```
TABLE: E911ESN
>list
TOP
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
110 Y WITS1NIDT0 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC NONE NONE POLICE
```

Translation verification tools

The following TRAVER example shows a call terminating to a PRI trunk group. The access code is 750.

The ISA route selector is used where:

TRUNK CLLI = WITS1NIDT0

Dialed digits = 756211001

NPI = E164

Call type = PUB (default)

E911 PRI PSAP Delivery (continued)**TRAVER output example for call terminating to PRI trunk group**

```

> traver 1 6211000 7506211001 b
TABLE IBNLINES
HOST 00 0 01 16 DT STN RES 6211000 0 613 (CNDB) (CNAB) $
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P622 NLCA TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
Y
THE_FAR_SIDE 00 ( HOT )$
LACBILL OFF - BILLING DONE ON BASIS OF CALLTYPE
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 NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
THE_FAR_SIDE 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
THE_FAR_SIDE PXDK MERXLA FTCOMM 0 KDK
TABLE DIGCOL
KDK 7 COL S 1
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA; XLANAME MERXLA
MERXLA 750 ROUTE N Y 3 Y 3 25 NDGT Y T IBNRTE 1020 $
TABLE DIGCOL
NDGT specified: digits collected individually
AIN Info Collected TDP: no subscribed trigger.
Table FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.
TABLE IBNRTE
1020 ISA N N N WITS1NIDT0 PUB NONE N N )
. TABLE TRKGRP
. WITS1NIDT0 PRA 0 PRAC NCRT ASEQ N (ISDN 99) $ $
. TABLE LTCALLS
. ISDN 99 PUB XLALEC 1 $

```

E911 PRI PSAP Delivery (continued)

TRAVER output example for call terminating to PRI trunk group (continued)

(continued from previous page)

EXIT TABLE IBNRTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

> DIGIT TRANSLATION ROUTES

1 WITS1NIDT0

N CDN E164 L 6211001 NIL_NSF BC

3.1_KHZ_AUD

The following TRAVER example shows a call originating from a PRI trunk group.

The ISA route selector is used where:

TRUNK CLLI = WITS1NIDT0

Dialed digits = 6211001

NPI = E164 (default)

Call type = PUB (default)

E911 PRI PSAP Delivery (continued)**TRAYER output example for call originating from PRI trunk group**

```

> traver tr wits1nidt0 6211001
TABLE TRKGRP
WITS1NIDT0 PRA 0 PRAC NCRT ASEQ N (ISDN 99) $ $
TABLE LTCALLS
ISDN 99 PUB XLALEC 1 $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE LINEATTR
1 1FR NONE NT NSCR 0 613 NPRT NLCA NONE 0 NIL NILSFC NILLATA 0 NIL NIL
00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE HNPACONT
613 Y 900 1 ( 47) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 1001 L HOST 00 0 01 18
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPAC results are used.

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```

DIGIT TRANSLATIONS ROUTES

E911 PRI PSAP Delivery (continued)**TRAVER output example for 911 call routed to PRI PSAP through E911 VFG**

```

> traver 1 6211000 9911 b rtevfg all
TABLE IBNLINES
HOST 00 0 01 16 0 DT STN RES 6211000 0 613 (CNDB) (CNAB) $
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P622 NLCA TSPS 10 NIL NILSFC LATA1 0 NIL NIL 00
Y
THE_FAR_SIDE
0 0 ( HOT )$
LCABILL OFF - BILLING DONE ON BASIS OF CALL TYPE
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 NIL
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
THE_FAR_SIDE 0 0 0 KDK0 ( OHQ 0 TONE_OHQ) ( CBQ 0 3 N 2)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
THE_FAR_SIDE PXDK MERXLA FTCOMM 0 KDK
TABLE DIGCOL
KDK 9 POTS Y
TABLE IBNXLA: XLANAME PXDK
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME MERXLA
MERXLA 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 PKDK L613 NONE 0 NIL NILSFC LATA1 0 NIL NIL 00
N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
PKDK ( 1) (65021) 3
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.

```

E911 PRI PSAP Delivery (continued)

TRAVER output example for 911 call routed to PRI PSAP through E911 VFG (continued)

(continued from previous page)

```
. 911 911 T DD 0 IBNRTE 911 3 3 NONE
AIN Info Collected TDP: no subscribed trigger.
AIN Info Analyzed TDP: no subscribed trigger.
. . TABLE IBNRTE
. . 911 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
TUPLE NOT FOUND
LNP00100 SOC Option is IDLE.
```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

```
1 VFG: 911VFG          911          ST
```

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

+++ TRAVER: SUCCESSFUL CALL TRACE +++

--->

---> Resolving VFG: 911VFG Route with calling digits 911

--->

```
TABLE VIRTGRPS
911VFG SIZE 10 E911 110 613 613 0 N N N Y $
CALL DEFAULT ROUTED
TABLE E911ESN
110 Y WITS1NIDT0 NONE NONE NONE NONE NONE NONE
TABLE E911PSAP
WITS1NIDT0 7777777 N
TABLE HNPACONT
613 Y 911 1 ( 54) ( 1) ( 84) ( 0) 3 $
. SUBTABLE HNPACODE
. 777 777 LRTE 911
AIN Info Collected TDP: no subscribed trigger.
```

E911 PRI PSAP Delivery (end)**TRAVER output example for 911 call routed to PRI PSAP through E911 VFG
(continued)**

(continued from previous page)

```

TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.
. SUBTABLE RTEREF
. 911 T OFRT 911
. . TABLE OFRT
. . 911 N D WITS1NIDT0 0 N
. . EXIT TABLE OFRT
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is not resident.
LNP Info: HNPACONT results are used.

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

```

1WITS1NIDT0          N CDN PVT L 7777777 NIL_NSF BC 3.1_KHZ_AUD

```

```

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

SERVORD

E911 PRI PSAP Delivery does not use SERVORD.

History**SN06 (DMS)**

Applicability of AUDTRMT option specified for CR Q00757372. History section added.

E911 Selective Routing through AIN 0.1

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00011

Release applicability

NA008 and later versions

Requirements

E911 Selective Routing through AIN 0.1 has the following requirements:

- Large SRDB Functionality, ENS00004
- ACDPSAP Functionality, ENS00002
- Default Routing, ENS00010

Description

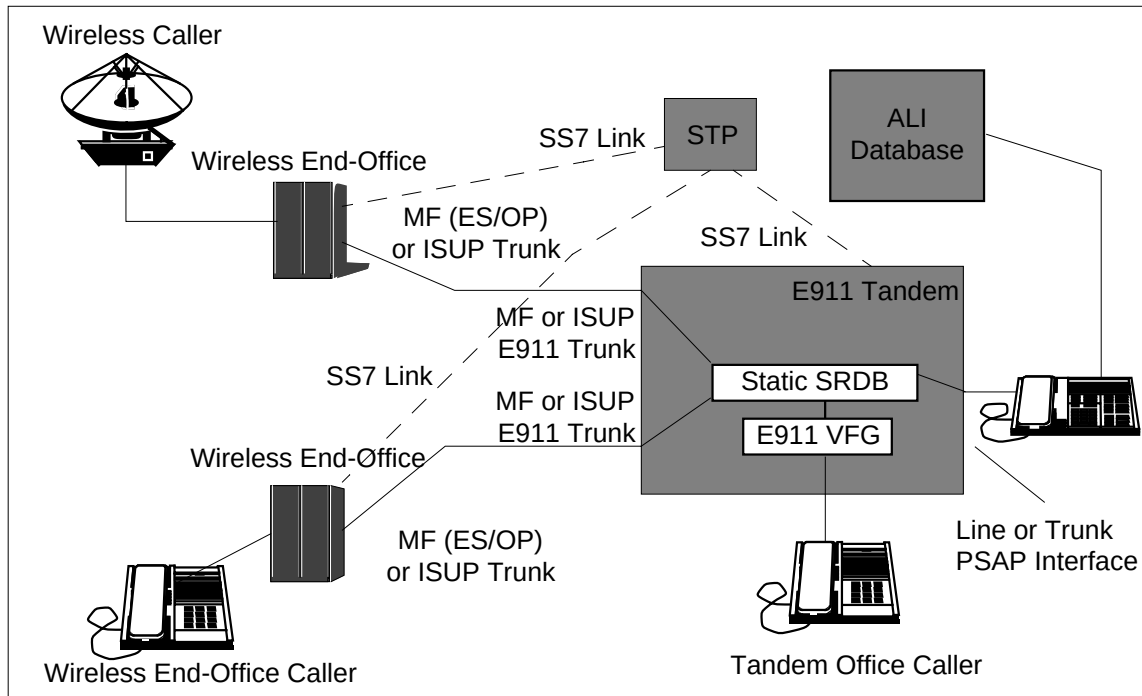
This feature provides the ability to use an emergency services (ES) service control point (SCP) (ESSCP) external database. This database is a specialized form of the advanced intelligent network (AIN) SCP. This database routes Enhanced 911 Emergency Service (E911) callers with use of the AIN 0.1 call model trigger and response mechanism.

This ability includes the following four functionalities:

- Basic E911 Routing
- Data propagation
- E911 log and remote call event record (RCER) data
- Failure recovery related logs

Basic E911 routing

The following figure shows a network summary of basic E911 routing.

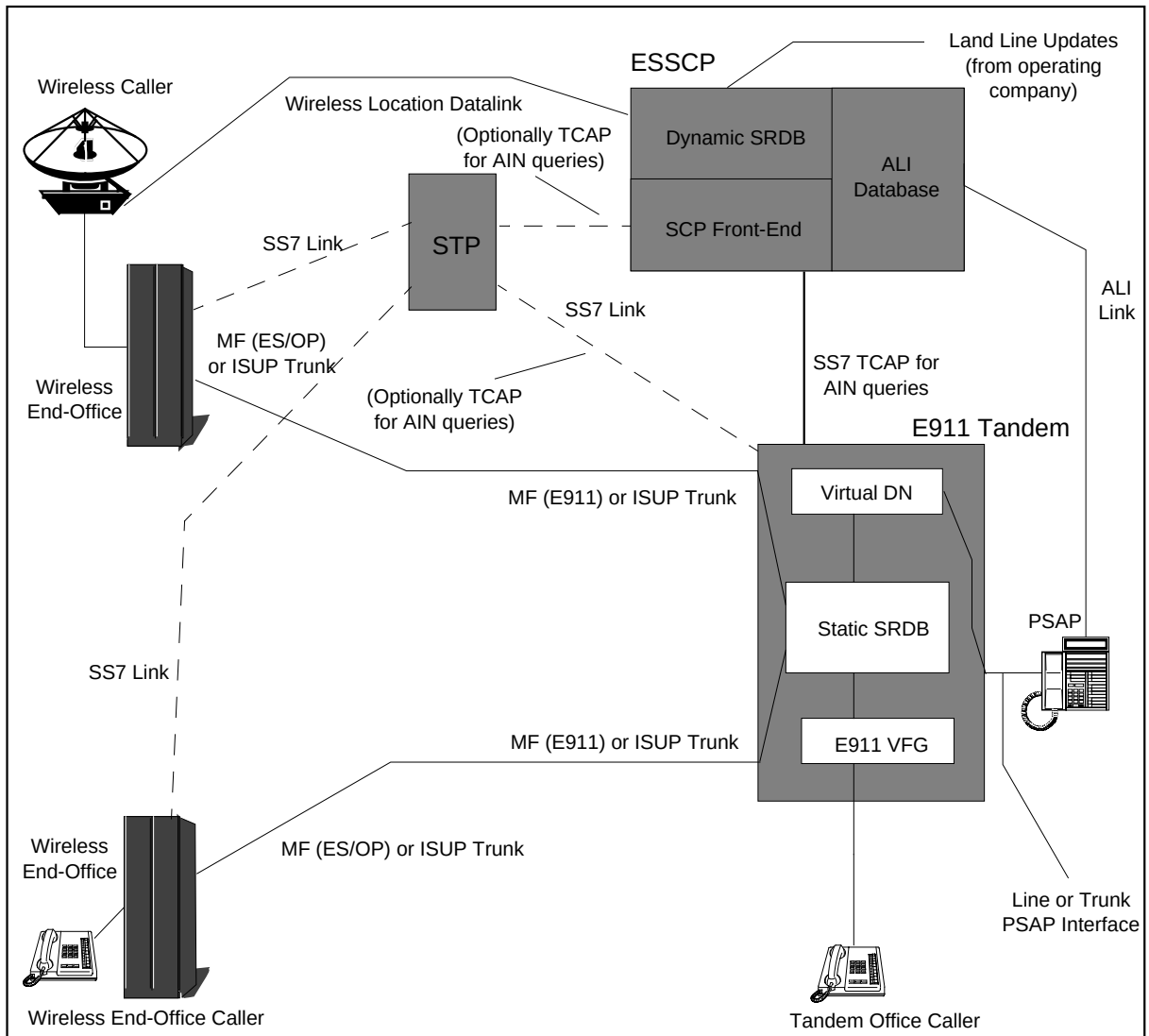
E911 Selective Routing through AIN 0.1 (continued)**Basic E911 routing network summary**

E911 calls that originate from an end office (EO) route to an incoming E911 trunk [multifrequency (MF) or ISDN user part (ISUP)] at the tandem office. E911 calls that originate from a local line at the tandem office route through an E911 virtual facility group (VFG). Routes are based on the caller's location. An automatic number identification (ANI) provides the location for wireline calls. A pseudo ANI (pANI) provides the location for wireless calls. The selective routing database (SRDB), datafilled in table E911SRDB, translates the ANI or pANI into an emergency services number (ESN). The ESN, datafilled in table E911ESN, indicates the public safety answering point (PSAP) for call termination. Each ESN relates to the geographic emergency service zone (ESZ) of where the call originated. Table E911PSAP maps the PSAP to the directory number (DN) of the PSAP.

The following figure shows a network summary of E911 routing through AIN.

E911 Selective Routing through AIN 0.1 (continued)

E911 routing through AIN network summary



E911 uses a virtual PSAP (VPSAP) to route calls through AIN. The VPSAP call routing process requires the following:

1. An AIN virtual directory number (VDN) must be datafilled in table DNROUTE.
2. The VDN must be assigned to an AIN trigger group, with the termination attempt (TermAtt) trigger, through table DNFEAT.
3. The VDN must be datafilled as an emergency directory number route (EDNR) in table E911PSAP which creates the VPSAP.

E911 Selective Routing through AIN 0.1 (continued)

4. The VPSAP name must be datafilled as the primary PSAP through table E911ESN. Secondary PSAPs cannot be assigned to a VPSAP.
5. Table E911SRDB assigns calls routed through AIN to the new ESN.

Calls that terminate on the VPSAP remain suspended while the AIN software sends a TermAtt query to the ESSCP for routing instructions. The ESSCP returns a ForwardCall (FC) response that contains the correct PSAP primary DN in the CalledPartyID parameter. The call routes to the specified DN and the PSAP receives and displays the original caller's ANI. The PSAP also bases any later transfers on the original ESN.

The following figure contains a sample datafill for an AIN VDN and an E911 VPSAP.

E911 Selective Routing through AIN 0.1 (continued)

Example AIN VDN and E911 VPSAP datafill

TABLE DNROUTE (Creation of VDN)						
AREACODE	OFCCODE	STNCODE	DNRESULT			

613	621	0660	FEAT AIN NONIBN 0 \$			

TABLE TRIGGRP (Creation of TERMATT Trigger Group)						
KEY			TRIGDATA			

TRIGGRP_TERMATT TERMATT						
(TERMATT \$ SIMINFO) \$						

TABLE DNFEAT (Assignment of Trigger to VDN)						
AREACODE	OFCCODE	STNCODE	OPTLIST			

613	621	0660	(AINDN TRIGGRP_TERMATT)\$			

TABLE E911PSAP (Creation of actual VPSAP)						
PSAPNAME		PSAPDN	EDNR			

VPSAP		6136210660	Y			

TABLE E911ESN (Creation of new ESN for routing)						
ESN	FLASH	PRIMPSAP	PSAP1	PSAP2	PSAP3	PSAP4
	PSAP5	PSAP6				

215	N	VPSAP	NONE	NONE	NONE	NONE
	NONE	NONE				

TABLE E911SRDB (Assignment of callers to new ESN)						
E911DN		ESN				

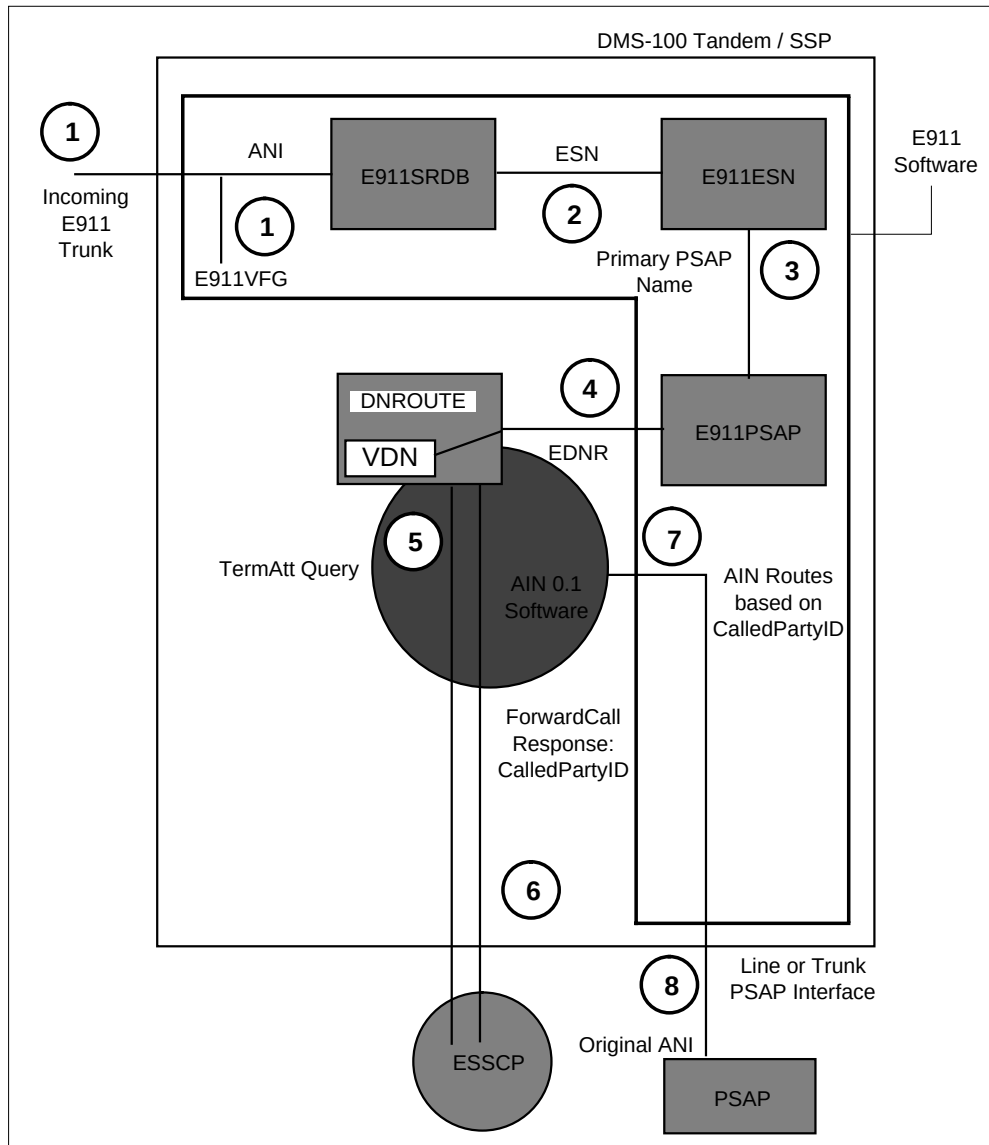
613	621	N NNN	215			

Note: The datafill in these examples is not new or changed. The datafill is a new application of current feature provisioning. Refer to the *North American DMS-100 Translations Guide, AIN Service Switching Point (SSP) Provisioning Cookbook*. Refer to the *AIN Response Translations Guide* for E911 and AIN datafill guidelines.

The following figure shows the call flow for basic E911 routing through AIN.

E911 Selective Routing through AIN 0.1 (continued)

E911 routing through AIN call flow



The following steps describe the basic E911 through AIN call flow as described in the preceding figure:

1. The call flow starts with an incoming call to the E911 tandem either through a trunk or a local line into a VFG.
2. The SRDB translates the ANI (or pANI) into an ESN.
3. The ESN identifies the correct PSAP in table E911PSAP.

E911 Selective Routing through AIN 0.1 (continued)

4. Table E911PSAP associates the PSAP to an EDNR which represents a VDN.
5. The call triggers an AIN TermAtt query to the ESSCP from the VDN datafilled in table DNROUTE.
6. The ESSCP returns an FC response that contains the CalledPartyID.
7. The AIN software uses the CalledPartyID to route the call to the correct PSAP.
8. The PSAP receives and displays the original caller's ANI.

If the triggering tandem does not have the correct PSAP for the caller, the ESSCP can use tandem-to-tandem routing. This form of routing requires that the remote tandem supports DMS-100 standard tandem-to-tandem transfers. The call routes to the outgoing operator (OP) or ISUP trunk with the use of a PrimaryTrunkGroupID parameter or CalledPartyID. The CalledPartyID parameter translates over the required trunk. Tandem-to-tandem routing requires an OutpulseNumber parameter with the DN of the remote PSAP.

Note: AIN PrimaryTrunkGroupID parameters index into Office and Integrated Business Network (IBN) route tables. The selected route refers to the outgoing trunk group.

Data propagation

Data propagation allows the ESSCP to replace the following two data elements associated with E911 calls:

- the pANI
- the ESN

Most wireless calls contain the pANI, which only provides a cell location. A PSAP must return a call caused by a lost connection. For this reason, the PSAP needs to receive a call-back number for wireless callers. If the ESSCP returns a new CallingPartyID parameter in the FC response, the E911 software uses that parameter to replace the pANI. This action allows the PSAP to receive the CallingPartyID in place of the pANI. The callback number appears on the PSAP display in the area where the pANI normally appears.

New ESNs must be generated for PSAPs that use selective transfer when AIN routed calls use the same ESN. The E911 software uses the DN in the

E911 Selective Routing through AIN 0.1 (continued)

ChargeNumber parameter of the ESSCP's FC response to query the SRDB. The ESSCP determines the new ESN in two possible ways:

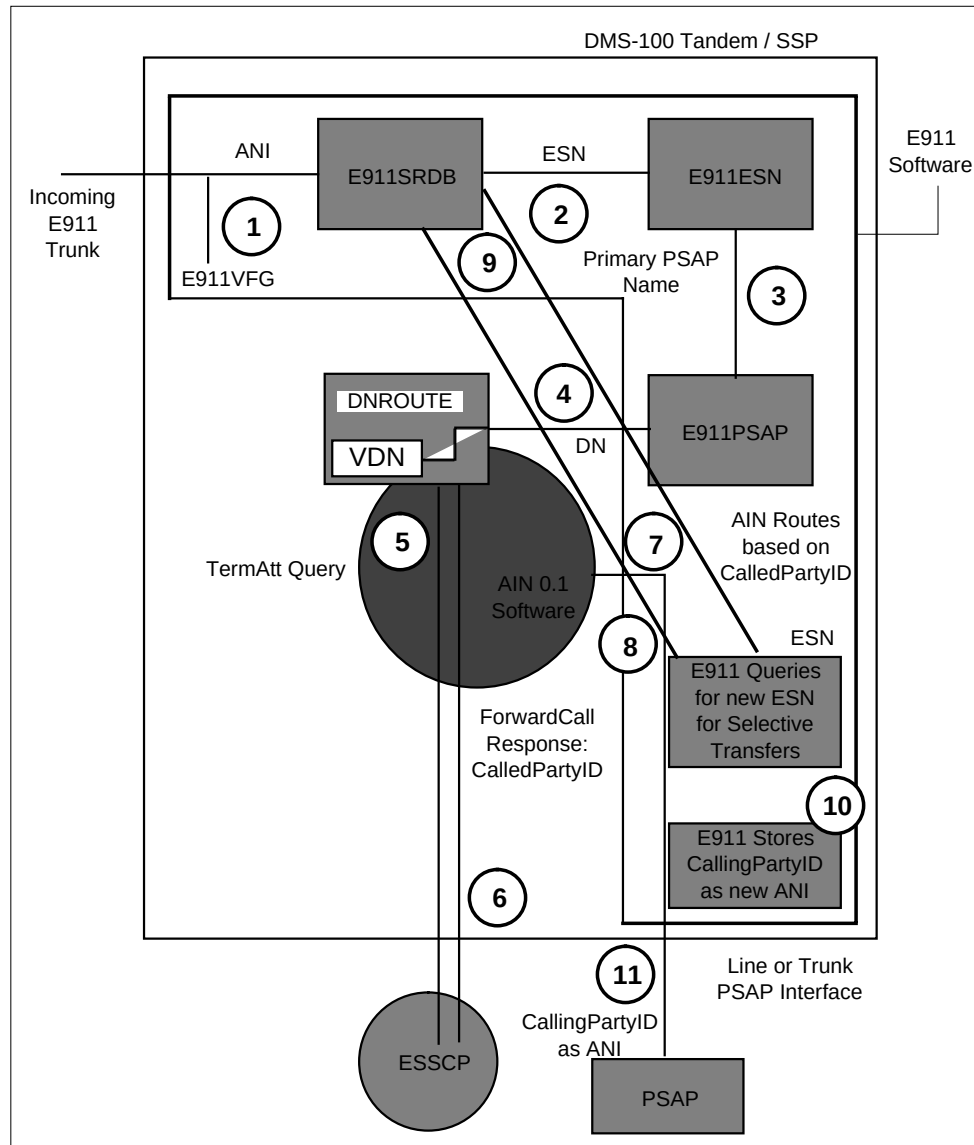
- Return a dummy DN, pre-entered in the E911 tandem SRDB, that maps to the geographic location.
- Return the DN of a nearby wireline that appears in the switch-based SRDB.

If the SRDB query produces a valid ESN, the E911 software replaces the original ESN of the caller with the ESN of the ChargeNumber.

The following figure shows the E911 routing through AIN call flow with data propagation.

E911 Selective Routing through AIN 0.1 (continued)

E911 routing through AIN call flow with data propagation



The following steps describe the E911 routing through AIN call flow with data propagation as described in the preceding figure:

1. The call flow starts with an incoming call to the E911 tandem either through a trunk a local line into a VFG.
2. The SRDB translates the ANI (or pANI) into an ESN.
3. The ESN identifies the correct PSAP in table E911PSAP.

E911 Selective Routing through AIN 0.1 (continued)

4. Table E911PSAP associates the PSAP to an EDNR which represents a VDN.
5. The call triggers an AIN TermAtt query to the ESSCP from the VDN datafilled in table DNROUTE.
6. The ESSCP returns an FC response that contains the CalledPartyID and the ChargeNumber.
7. The AIN software routes the call based on the CallingPartyID.
8. For selective transfers, the E911 software uses the ChargeNumber DN to query the SRDB for a new ESN.
9. The SRDB returns a valid ESN in response to the ChargeNumber query.
10. The E911 software stores the CalledPartyID as the new pANI.
11. The PSAP receives and displays the CalledPartyID in place of the original caller's ANI.

Data propagation related logs

An E911229 (AIN Routing Trouble) log can generate in four different formats during the data propagation process:

- Invalid CallingPartyID Found

Indicates that the FC response contains one of the following:

- a CallingPartyID that does not have exactly 10 digits
- an NPA that is not a serving numbering plan area (SNPA)

The E911229 log subheader is "Invalid CallingPartyID Found". The data for this log is the value returned in the CallingPartyID parameter.

Invalid ChargeNumber Found

Indicates that the FC response contains one of the following:

- a ChargeNumber that does not have exactly 10 digits
- an NPA that is not a serving numbering plan area (SNPA)

The E911229 log subheader is "Invalid ChargeNumber Found". The data for this log is the value returned in the ChargeNumber parameter.

Unable to Retrieve ESN for ChargeNumber

Indicates that a 10-digit ChargeNumber in the FC response does not produce an ESN during an SRDB query. The E911229 log subheader is "Unable to

E911 Selective Routing through AIN 0.1 (continued)

Retrieve ESN for ChargeNumber". The data for this log is the value returned in the ChargeNumber parameter.

Invalid ESN Retrieved for ChargeNumber

Indicates that a 10-digit ChargeNumber in the FC response produced an incorrect ESN during an SRDB query. The E911229 log subheader is "Invalid ESN Retrieved for ChargeNumber". The data for this log is the value returned in the ChargeNumber parameter and the retrieved ESN.

Note: Base AIN processing rejects some parameters before they reach E911 software. This rejection occurs when a data mismatch is present. For example, a CallingPartyID parameter can return with a NumberingPlan attribute of integrated services digital network (ISDN). Base AIN processing rejects this ISDN attribute because it does not have 10 digits. The mismatch never reaches E911 software and an E911229 log never generates.

E911 log and remote call event record (RCER) data

All logs and RCERs reflect the data that AIN provides. The data includes the new ANI and ESN of the caller, if available and normally present, in the log or remote call event record (RCER).

ESN default routing

To prevent ESSCP failures that result in lost calls, failure recovery provisions are in place to reroute these calls. AIN software provides a basic default routing ability that can reroute calls where errors occur. Examples of these errors are T1 timer expiration, incorrect message, or incorrect response. AIN basic default routing sends calls to announcements or specified DNs.

E911 Selective Routing through AIN 0.1 introduces another AIN default routing variation based on the ESN. Like other AIN default routing selections, ESN default routing requires datafill on the basis of an Infoname in table TRIGINFO.

ESN default routing uses the DFLTRT entry in the OPTION field of table TRIGINFO and the E911ESN entry for the SELECTOR option. Entry E911ESN produces a prompt to identify a 1 to 5 digit default ESN used to route an E911 call.

Note: The specified DFLTRT ESN must be entered first in table E911ESN. Table E911ESN associates an ESN with a flash control field, a primary PSAP name, and a maximum six secondary PSAP names. Secondary PSAPs perform call transfers made by the primary PSAP attendant.

E911 Selective Routing through AIN 0.1 (continued)

A maximum of three ESNs can be involved to route a specified call:

- the original ESN derived from the caller's ANI
- the incoming facility (E911 trunk/VFG) default ESN
- the AIN default routing ESN

ESN default routing becomes active when the ESSCP fails to return a valid FC. ESN default routing does not use the ESN normally used for selective transfers because determining that ESN requires the ChargeNumber in the FC.

ESN default routing first determines if a call was E911 routed. Examples of E911 routed situations include an ANI failure or a missing SRDB entry. If the call was E911 routed, then the AIN default routing ESN becomes the new ESN. If the new ESN matches the caller's original ESN, the call goes to error treatment.

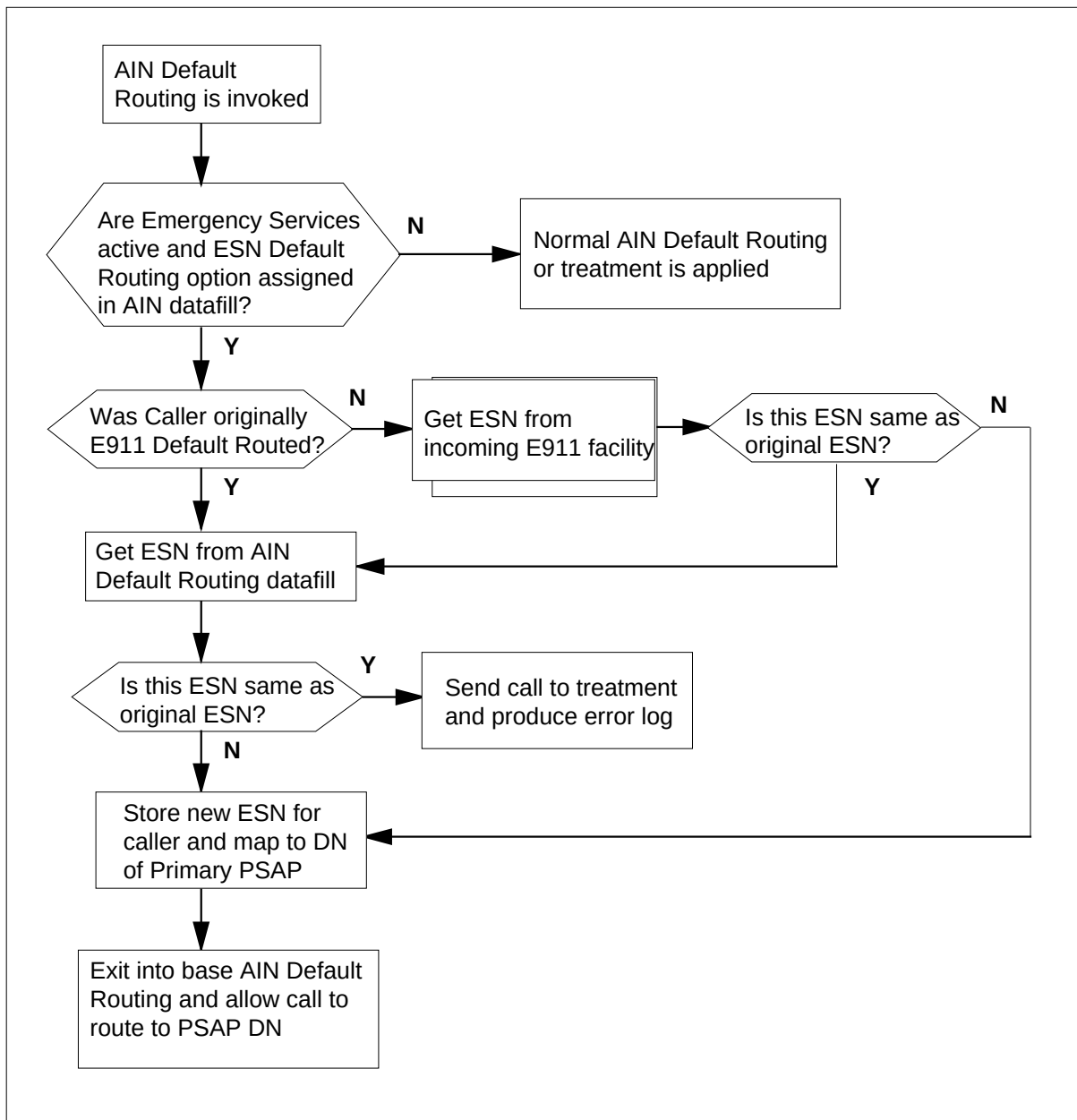
If the call was not E911 routed, the incoming facility ESN becomes the new ESN. If the incoming facility ESN matches the caller's original ESN, the AIN default routing ESN becomes the new ESN. Finally, if the AIN default routing ESN matches the caller's original ESN, the call goes to error treatment.

The new ESN determines the DN of the primary PSAP. Standard AIN default routing routes the call to this DN and ESN default routing is complete.

The ESN default routing process carefully checks the current ESN against the original ESN at each step. A call that reroutes to the primary PSAP of the original ESN results in another failed query. This failed query can invoke AIN default routing. The sequence of failed query, default routing, failed query could continue until the AIN maximum serial trigger count is exceeded. The ESN prompt in table TRIGINFO adds a third (tertiary) default ESN in datafill that identifies a valid PSAP and prevents this failure cycle. It is important that *the primary PSAP of the AIN Default Routing ESN must never be a virtual PSAP (VPSAP).*

Note: Because of the method used by AIN Default Routing to translate the PSAP DN, the primary PSAP selected for default routing must map to a defined DN. The primary PSAP must map to a 7-digit or 10-digit DN in table E911PSAP. This rule always applies to PSAPs created through SERVORD; however, use caution if the primary PSAP is an EDNR.

The following flowchart summarizes the ESN default routing process.

E911 Selective Routing through AIN 0.1 (continued)**ESN default routing decision flowchart**

E911 Selective Routing through AIN 0.1 (continued)

Failure recovery related logs

Log E911229 can generate with two different headings during the failure recovery process:

- Call Being Default Routed

Indicates a successful E911 ESN default routing occurred. An E911229 log generates with the subheader "Call Being Default Routed". The data for this call contains two lines. The first line contains the ANI of the caller and the ESN that routes the call. The last line contains the original ESN, the ESN of the facility used to route the call, and the ESN entered in the AIN table TRIGINFO.

- Call Cannot Be Default Routed

Indicates an E911 ESN default routing attempt failed for one of two reasons:

- An E911 ESN default routing attempt failed because a valid ESN is not available to route the call.

An E911229 log generates with the subheader "Call Cannot Be Default Routed". The first line states "No valid ESN, Call Sent To Treatment" and contains the ANI of the caller. The second line contains the original ESN, the ESN of the facility used to route the caller, and the ESN entered in table TRIGINFO.

- An E911 ESN default routing attempt failed because the ESN picked for default routing does not have a correct primary PSAP (does not map to a 7-digit or 10-digit DN).

An E911229 log generates with the subheader "Call Cannot Be Default Routed." The first line states "No Valid PSAP, Call Sent To Treatment." The second line contains the ANI of the caller. The third line contains the ESN that was used for default routing and invalid PSAP DN. The call receives vacant code treatment (VACT).

Translations table flow

The E911 Selective Routing through AIN 0.1 translations tables appear in the following list:

- Enter the tables that follow according to current E911 and AIN functionality. Refer to the *North American DMS-100 Translations Guide*,

E911 Selective Routing through AIN 0.1 (continued)

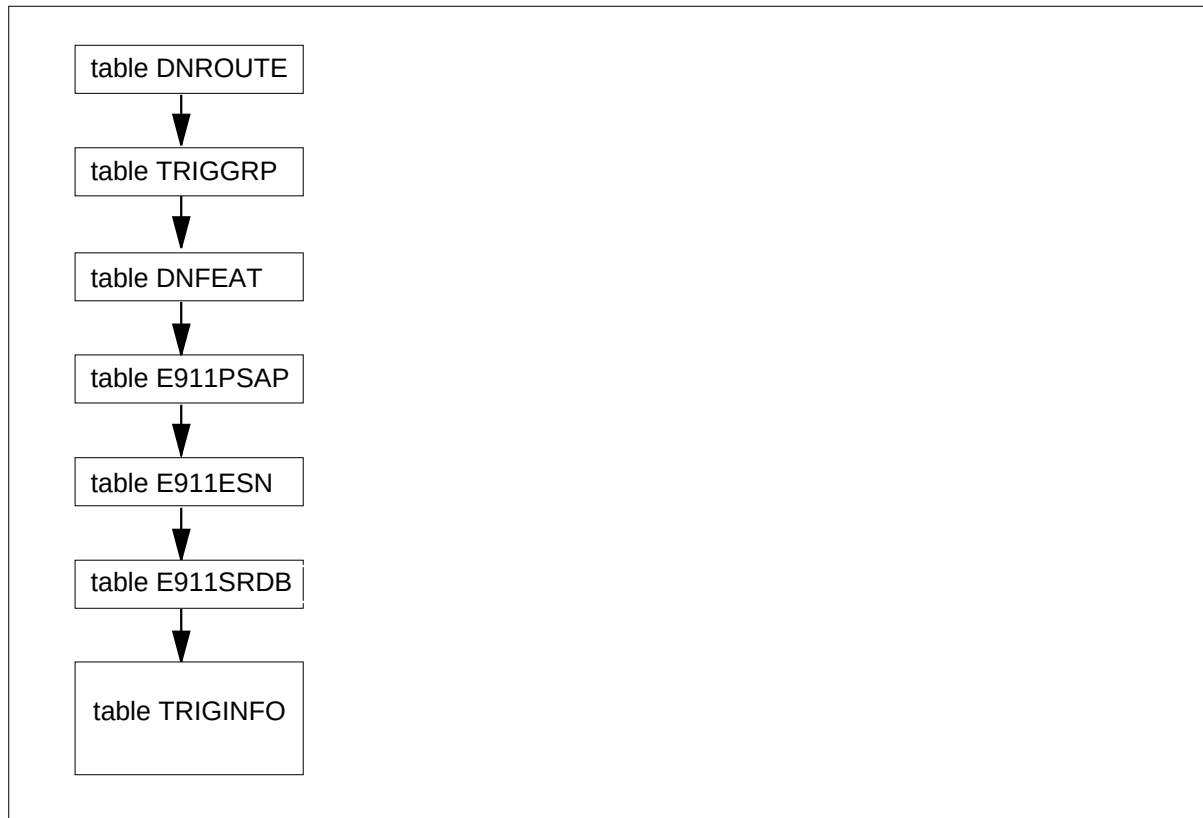
AIN Service Switching Point (SSP) Provisioning Cookbook, and *AIN Response Translations Guide* for E911 and AIN datafill guidelines.

- table DNROUTE
- table DNFEAT
- table TRIGGRP
- table E911PSAP
- table E911ESN
- table E911SRDB

- table TRIGINFO

Option DEFLTRT prompts for a default routing selector. This feature adds the default routing selector: E911ESN. The E911ESN selector determines the failure recovery. The selector allows a third default ESN to be assigned to E911 calls that trigger an AIN query to the ESSCP

The E911 Selective Routing through AIN 0.1 translation process appears in the following flowchart.

E911 Selective Routing through AIN 0.1 (continued)**Table flow for E911 Selective Routing through AIN 0.1**

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

Datafill example for E911 Selective Routing through AIN 0.1

Datafill table	Example data
TRIGINFO	INFO EVENT TCAP R01 SS7 GTT DFLTD FLTRT E911ESN 110

Limitations and restrictions

The limitations and restrictions that follow apply to E911 Selective Routing through AIN 0.1:

- The ESNs entered as an AIN default routing ESN must have a primary PSAP that physically exists on the tandem switch. The use of an ESN with a primary PSAP that refers to a VPSAP can reduce the Failure Recovery ability of this feature.
- The signaling system 7 (SS7) transaction capabilities application part (TCAP) links that query the ESSCP from the E911 tandem must be

E911 Selective Routing through AIN 0.1 (continued)

dedicated links. These dedicated links must be separate from the links that carry other ISUP, AIN or miscellaneous TCAP messaging. To reduce the interaction with other non-emergency services traffic, these links must connect from the E911 tandem to the ESSCP and not connect through a signaling transfer point (STP).

- The ESSCP DN parameters (CallingPartyID, CalledPartyID, and ChargeNumber) must be 10 digits in length.
- Automatic call distribution (ACD) and line PSAPs that use meridian business sets (MBS) could display an invalid CalledPartyID. The MBS always displays the AIN CalledPartyID, even in conditions when the E911 software determines the DN as invalid. This condition occurs when AIN returns a valid length DN and the NPA is not an SNPA or a valid area code.

Interactions

The interactions between E911 Selective Routing through AIN 0.1 and other functionalities appear in the following paragraph.

This feature combines AIN and E911 features. Selective routing through AIN fully supports the following E911 features:

- Originator Hold
- Selective Transfer
- Ring Back
- Three-Way Calling with Public Announcement (3WCPU)

Activation/deactivation by the end user

The E911 Selective Routing through AIN 0.1 does not require activation or deactivation by the end user.

Billing

The E911 Selective Routing through AIN 0.1 does not affect billing.

Station Message Detail Recording

The E911 Selective Routing through AIN 0.1 does not affect Station Message Detail Recording.

Datafilling office parameters

The E911 Selective Routing through AIN 0.1 does not affect office parameters.

E911 Selective Routing through AIN 0.1 (continued)

Datafill sequence

The tables that require datafill to implement E911 Selective Routing through AIN 0.1 and E911 ESN default routing appear in the following table.

Datafill tables required for E911 Selective Routing through AIN 0.1

Table	Purpose of table
DNROUTE	(refer to note below)
TRIGGRP	(refer to note below)
DNFEAT	(refer to note below)
E911PSAP	(refer to note below)
E911ESN	(refer to note below)
E911SRDB	(refer to note below)
TRIGINFO	Trigger Information. This table contains information about trigger types, trigger assignments and trigger criteria. This information determines when SSPs must query SCPs to continue processing a call.
Note: The E911 and AIN feature provisioning for these tables is not new or changed. Refer to the <i>North American DMS-100 Translations Guide, AIN Service Switching Point (SSP) Provisioning Cookbook</i> . Refer to the <i>AIN Response Translations Guide</i> for E911 and AIN datafill guidelines.	

Datafilling table TRIGINFO

The datafill for E911 Selective Routing through AIN 0.1 for table TRIGINFO appears in the following table. Only fields that apply to E911 Selective Routing through AIN 0.1 appear. See the Customer Data Schema Reference Manual for a description of the other fields.

Datafilling table TRIGINFO (Sheet 1 of 2)

Field	Subfield	Entry	Explanation and action
OPTIONS		see subfield	Options. This field contains subfield OPTION.
	OPTION	DFLTRT	Option. Enter DFLTRT for default routing.
Note: The SELECTOR field prompt appears in response to the DFLTRT subfield from field OPTION. A SELECTOR entry of E911ESN produces the ESN subfield. A software validation makes sure that the ESN input is also in table E911ESN.			

E911 Selective Routing through AIN 0.1 (end)

Datafilling table TRIGINFO (Sheet 2 of 2)

Field	Subfield	Entry	Explanation and action
	SELECTOR	E911ESN	Selector. Enter E911ESN for ESN default routing.
	ESN	0 to 15999	Emergency service number. Enter the tertiary default ESN used to route the call.
Note: The SELECTOR field prompt appears in response to the DFLTRT subfield from field OPTION. A SELECTOR entry of E911ESN produces the ESN subfield. A software validation makes sure that the ESN input is also in table E911ESN.			

Datafill example for table TRIGINFO

Sample datafill for table TRIGINFO appears in the following example.

MAP example for table TRIGINFO

TABLE TRIGINFO

KEY	ACTION	OPTIONS
INFO EVENT TCAP R01 SS7 GTT DFLT	(DFLTRT E911ESN 110)\$	

Error messages for table TRIGINFO

The following error message applies to table TRIGINFO.

Error messages for table TRIGINFO

Error message	Explanation and action
Invalid ESN specified. ESN must be present in table E911ESN.	The specified DFLTRT ESN is not correctly entered in table E911ESN. Datafill table E911ESN.

Tools for verifying translations

The E911 Selective Routing through AIN 0.1 feature does not use translation verification tools.

SERVORD

The E911 Selective Routing through AIN 0.1 feature does not use the Service Order System (SERVORD).

E911-Tandem

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00001

Release applicability

BCS29 and later versions

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Requirements

The E911-Tandem has the following requirements:

- the meridian digital centrex (MDC) Minimum, MDC00001
- the MDC Standard, MDC00003

Description

The E911-Tandem provides Enhanced 911 Emergency Service (E911) functionality. The E911-Tandem includes the following feature:

- line-ended public safety answering point (LINE PSAP) and line appearance on a digital trunk PSAP (LDT PSAP) functions
- automatic number identification (ANI) display for electronic business sets
- ANI with numbering plan digit
- ANI regeneration
- call transfer on trunk
- PSAP testing
- fixed, manual, and selective transfer
- forwarding of calling party ANI digits on fixed, manual, and selective transfer
- alternate and default routing
- default routing by trunk group
- emergency directory number (DN) route
- night service
- forced disconnect
- one- or four-digit information digit

E911-Tandem (continued)

- enhanced called party hold
- originator hold
- switchhook status tone
- PSAP signaling on E911 trunks
- caller ringback from PSAP
- three-way calling (3WC) chaining for PSAPs that you can add to a conference that is present.

Operation

The E911 call is a 911 call the system receives from an end office. The E911-Tandem routes the E911 call to the primary PSAP. You can route the E911 call from the end office to the tandem. The call routes on an E911-type trunk or a non-E911-type trunk. An example of a non-E911-type trunk is a message or foreign exchange trunk. Route the E911 call in one of the following ways:

- E911 trunks - A normal E911 call comes in on a dedicated E911 trunk with called digits and ANI information. For a direct seizure, a call comes in on a dedicated E911 trunk with ANI information but without called digits.
- Non-E911 trunks - An E911 call comes in on a message or foreign exchange trunk that supports E911 calls.

Note 1: The system provides support for the originating E911 calls that use message and foreign exchange trunks. Do not use these trunks to support E911 calls. The system supports the Common Channel Inter-office Signaling 6 (CCIS 6) and Common Channel Signaling 7 (CCS7) type message trunks. The system supports private branch exchange and Integrated Business Network (IBN) foreign exchange trunks. Use the dedicated E911 trunks for all E911 traffic.

Note 2: The virtual facility group (VFG) Support for E911 Localized or Incoming ISDN user part (ISUP)/ANI Call, allows the operating company to install a VFG. When the VFG supports the E911, the operating company installs a VFG as a pseudo-E911 trunk. The E911 is a Localized or Incoming ISUP/ANI Call (Loc and/or Inc ISUP/ANI Call). This installation allows the use of the ISUP or SuperCAMA (SC) trunks. This installation does not allow the use of E911 trunks. See the VFG Support for E911 Loc and/or Inc ISUP/ANI Call in the E911 translations section of this document.

LDT PSAPs

An LDT PSAP connects an E911-Tandem through an LDT node. This type of PSAP has an analog trunk connection at the customer premises. You can enter the PSAP as IBN lines on an LDT node at the E911-Tandem. The Subscriber

E911-Tandem (continued)

Carrier-100 Urban (SMU) supports the LDT node. This LDT node provides the conversion from trunk signaling at the PSAP to line signaling at the E911-Tandem. A channel bank converts a digital trunk on the LDT side to an analog trunk on the PSAP side.

**WARNING****Loss of service**

The LDT PSAP equipment must connect to the switch that uses the SMU peripheral. The use of the ES type trunk groups to connect this equipment is not supported. This use can result in loss of service.

**CAUTION**

Whenever a busy command is issued on an SMU having LDT PSAP, the following messages will appear:

This SMU has xxxLDT provisioned (possible PSAP service).

This action will take this PM and all of its subtending nodes out of service. Do you wish to continue? Y or N.

Note 1: Each SMU supports a maximum of 20 LDTs. Each LDT supports a maximum of 24 PSAPs.

Note 2: Assign the SMUs that serve LDT PSAPs to E911 service.

To create an LDT PSAP, perform one of the following steps:

- Create one of the following on an LDT node:
 - a distributed line hunt (DLH) group of IBN lines
 - a multiline hunt (MLH) group of IBN lines
- Add the LDTPSAP option to the pilot directory number (DN) of the hunt group.

A service order system (SERVORD) command assigns the LDT PSAP option to the hunt group. The system places an entry in table HUNTGRP and table E911PSAP.

You must configure the LDT PSAP as a DLH group, not a MLH group. When a DLH is in use, calls can be transferred to the PSAP. The DLH allows a

E911-Tandem (continued)

transfer to occur when a problem with the pilot DN of the group is present. With a DLH group, call attempts distribute across the group. If a call cannot be transferred to a group member, another group member is chosen on the next call transfer attempt. With an MLH group, a HUNT starts with the pilot member for each transfer. When a problem with the pilot occurs, the call transfer attempts to terminate to the pilot each time. The availability of group members is not important; these attempts end in failure.



CAUTION

Loss of service

You must configure the LDT PSAP as a DLH group to make sure that call attempts distribute across the group.

The LDT PSAP users cannot start calls. The system performs an accuracy check when an LDT PSAP user goes off-hook. This accuracy check consists of the following steps:

- The first part of the check is a 10 s busy tone.
- The system takes the line to the permanent lockout state. The lines cannot receive calls when in the lockout state.
- When the user returns on-hook, the system returns the line to an idle state. In the idle state, the line can accept calls. The occurrence of the 10 s busy tone does not affect this process.

If the attendant does not receive the busy tone, the connection from the PSAP to the tandem is not in service (INSV).

Note: The PSAP must provide a speech connection on the start of the path from the PSAP to the tandem. This connection allows the accuracy check to function correctly.

LINE PSAPs

A LINE PSAP connects an E911-Tandem through a line. A LINE PSAP includes a hunt group of MDC lines. A LINE PSAP differs from an LDT PSAP in the following ways:

- An LDT node does not have lines entered.
- A LINE PSAP does not involve line-to-trunk signaling conversion.
- A LINE PSAP can receive ANI information if the system configures the ANI information with a Meridian business set (MBS).

E911-Tandem (continued)

To create a LINE PSAP, establish an MLH group or DLH group of IBN or MBS lines. Add the LINEPSAP option to the hunt group.

You must configure the LINE PSAP as a DLH, not an MLH group. The use of a DLH group makes sure that calls can be transferred to the PSAP. This transfer can occur when a problem with the pilot DN of the group is present. The DLH group allows the system to send call attempts across the group. When transfer of a call to a group member fails, the next call transfer occurs on a different group member. With an MLH group, a HUNT starts with the pilot DN each time a call transfer occurs. When a problem with the pilot occurs, the next call transfer attempts to terminate to the pilot DN. Each of these attempts fail as other group members are available.

A SERVORD command assigns the LINEPSAP option to an MLH or DLH group. The system assigns an entry to table HUNTGRP and table E911PSAP.

Signaling on E911 trunks

Three types of signaling protocol are present on E911 trunks:

- standard E911 signaling protocol on dial pulse (DP) and multifrequency (MF) trunks
- direct seize signaling protocol on direct seize trunks
- PSAP E911 signaling protocol.

Standard E911 signaling protocol

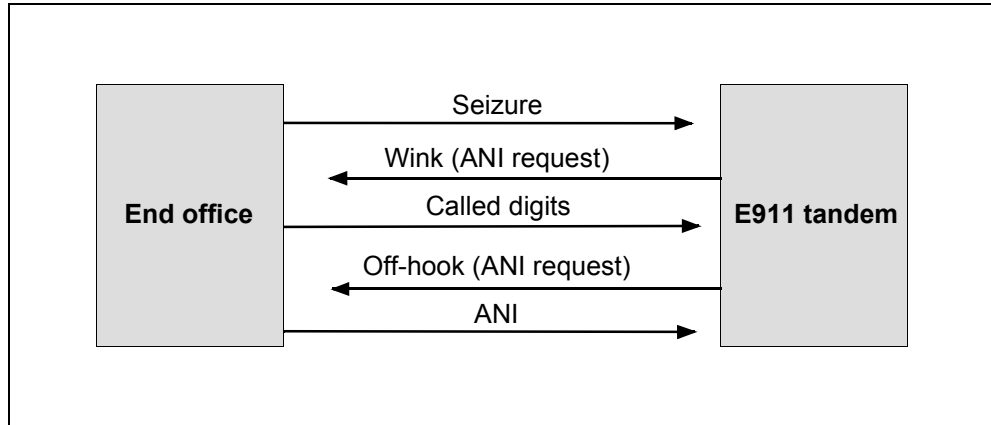
When the E911-Tandem with DP or MF trunks detects a seizure, the E911-Tandem returns a wink signal. The wink signal instructs the end office to send called digits. When the system receives the digits, the system compares the digits against signaling formats like 911, 11 or 1. If a mismatch occurs, the system generates a log.

When the receiver is attached, the tandem sends an ANI request signal, a steady off-hook tone to the end office. The tandem waits for the end office to send the ANI digits.

The standard E911 signaling protocol appears in the following figure:

E911-Tandem (continued)

Standard E911 signaling protocol



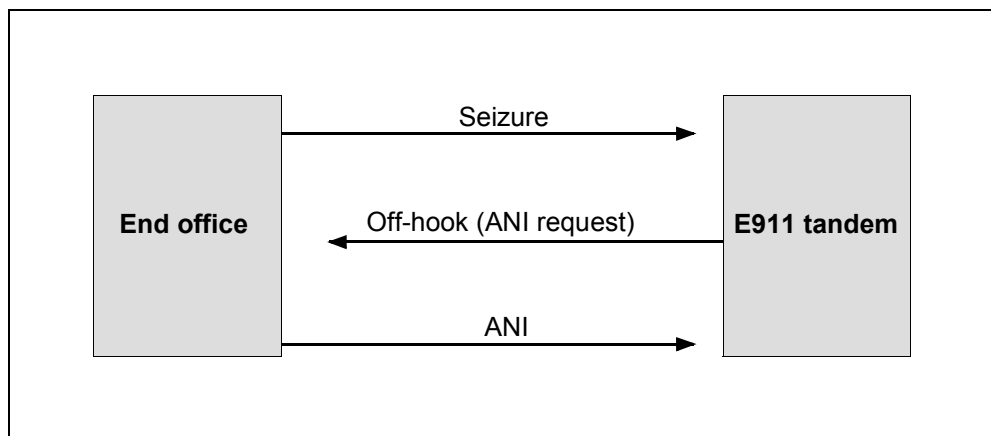
Direct seize signaling protocol

If the direct seize signaling is present on trunks, the called digits are not forwarded. When the tandem locates a seizure, the tandem attaches a receiver to the end office. The E911-Tandem requests that the end office forward the ANI request signal or the steady off-hook tone.

If a receiver is not available, the system generates a log. The system generates the steady off-hook tone to satisfy signaling requirements. The system routes the call like the system routes an ANI failure.

The direct seize signaling protocol appears in the following figure:

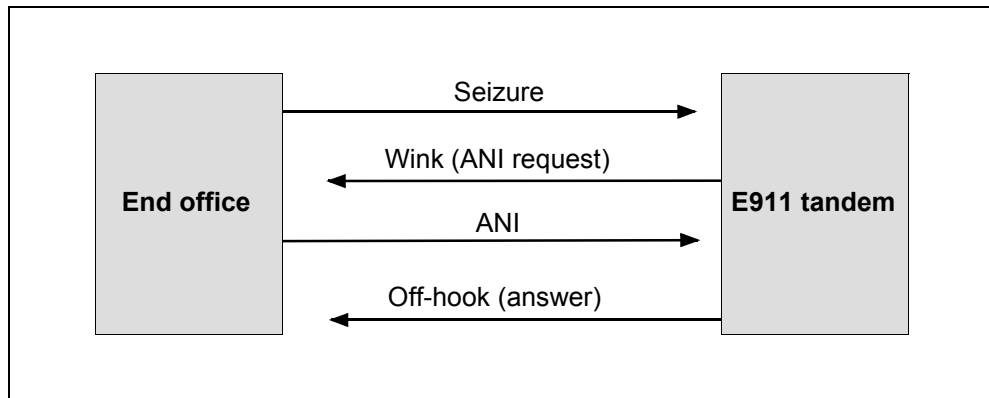
Direct seize signaling protocol



E911-Tandem (continued)**PSAP E911 signaling protocol**

An E911-Tandem locates PSAP signaling incoming on an E911 trunk. The E911-Tandem returns a wink signal, that instructs the end office to send the ANI request signal. The E911-Tandem receives the ANI request signal. The E911-Tandem sends an off-hook tone back to the end office as an answer.

The PSAP trunk signaling protocol appear in the following figure:

PSAP trunk signaling protocol**Translations table flow**

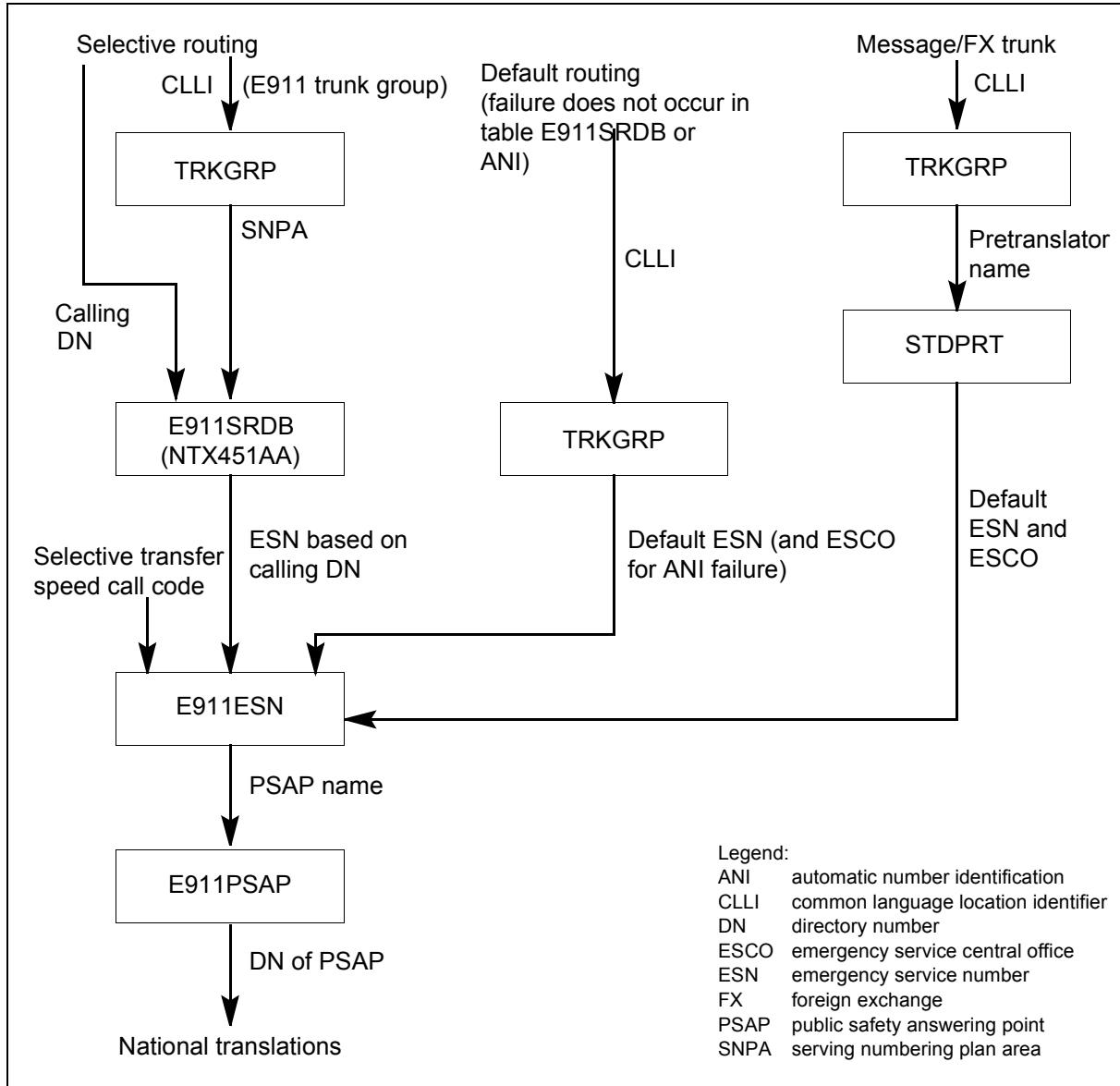
The types of routing that normally associate with E911 calling translations appear in the following list:

- selective routing
- default routing
- the E911 pretranslator routing
- selective call transfer
- tandem-to-tandem routing to an emergency DN route
- VFG routing

The order in which the system accesses tables, while the E911-Tandem call routing translation is in process appears in the following figure. Examples of how to enter data in the tables that associate with E911 translations, appear in the following figures.

E911-Tandem (continued)

Data flow for emergency call routing with the E911-Tandem



Selective routing

Example tables used for selective routing, appear in the following figure. With selective routing, a calling party dials 911. Selective routing, routes the call from the end office to the tandem on a trunk assigned in table TRKGRP. The SNPA that the trunk common language location identifier (CLLI) in table TRKGRP associates with, is used to index table E911SRDB. The DN from the ANI spill is used to index table E911SRDB. The use of the SNPA and the DN allows you to receive the ESN. The ESN indexes table E911ESN to

E911-Tandem (continued)

receive the primary PSAP name. This PSAP name indexes in table E911PSAP to receive the DN of that PSAP.

The system allows selective routing when complete installation of the NTX451AA, the E911 Database occurs. Table E911SRDB supplies an ESN based on the location of the caller, to increase emergency service delivery. After table E911SRDB supplies an ESN, translations are the same as for default and message routing.

The datafill for selective routing in tables TRKGRP, E911SRDB, E911ESN, and E911PSAP appears in the following MAP examples:

MAP example for table TRKGRP

GRPKEY	GRPINFO
S3E911LOOPI	E911 0 NPDGP NCRT 903 Y BELL 1 5 5 REV 323 210

MAP example for table E911SRDB

E911DN	ESN
919 821 N NNN	210
919 822 N NNN	211
919 744 N NNN	212

MAP example for table E911ESN

0	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
ESN	FLASH	PRIMPSAP	PSAP1	PSAP2	PSAP3	PSAP4	PSAP5	PSAP6	
5	N	LINEPSAP_1	NONE	LDTPSAP_1	LDTPSAP_2	NETPOLICE	NETFIRE		NONE
6	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
7	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
8	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
9	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
34	N	LDTPSAP_1	NONE	NONE	NONE	NONE	NONE	NONE	NONE
45	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
210	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
211	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
12345	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

E911-Tandem (continued)

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

Default routing

Default routing appears in the following figures. Default routing occurs when the system obtains the ESN from table TRKGRP and not table E911SRDB. Default routing can occur under the following conditions:

- The optional selective routing database is not present. This condition occurs when the operating company does not have E911 Database in the tandem software.
- The selective routing database is present, but the key based on ANI digits is not found. Table E911SRDB associates with the ESN for the selective routing database. This condition can occur because of an error in datafill.
- The ANI failure occurs because the ANI digits are not correctly forwarded. In this occurrence, the system obtains the emergency service central office (ESCO) number from table TRKGRP. The system uses the ESCO as an ANI substitute to forwarded to the PSAP.

The ESN is the only attribute for default routing that differs from selective routing. The ESN is in subfield ESN in table TRKGRP.

Datafill for default routing in table TRKGRP, E911ESN, and E911PSAP appears in the following MAP examples:

MAP example for table TRKGRP

GRPKEY	GRPINFO
S3E911LOOPI	E911 0 NPDGP NCRT 903 Y BELL 1 5 5 REV 323 210

E911-Tandem (continued)**MAP example for table E911ESN**

```

0 N NETPOLICE NONE NONE NONE NONE NONE NONE
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
5 N LINEPSAP_1 NONE LDTPSAP_1 LDTPSAP_2 NETPOLICE NETFIRE
NONE
6 N NETPOLICE NONE NONE NONE NONE NONE NONE
7 N NETPOLICE NONE NONE NONE NONE NONE NONE
8 N NETPOLICE NONE NONE NONE NONE NONE NONE
9 N NETPOLICE NONE NONE NONE NONE NONE NONE
34 N LDTPSAP_1 NONE NONE NONE NONE NONE NONE
45 N NETPOLICE NONE NONE NONE NONE NONE NONE
210 N NETPOLICE NONE NONE NONE NONE NONE NONE
211 N NETPOLICE NONE NONE NONE NONE NONE NONE
12345 N NETPOLICE NONE NONE NONE NONE NONE NONE

```

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

E911 pretranslator routing

Datafill for pretranslator routing in tables TRKGRP, STDPRTCT.STDPRT, E911ESN, and E911PSAP appears in the following MAP example. Message trunks and foreign exchange trunks allow E911 pretranslator routing. Tables TRKGRP and TRKSGRP require the standard datafill to define the trunks and trunk signaling characteristics. For the trunk group type, subfield PRTNM must contain a value that indexes table STDPRTCT. This value allows the system to route E911 calls.

The fields of subtable STDPRT appear in the MAP example for table STDPRTCT STDPRT. Obtain the ESN and ESCO numbers from this table. The ESN indexes table E911ESN. Translations continues the same as with dedicated trunks. The system requires the ESCO because these trunks do not spill ANI digits. The ESCO provides service in the replacement ANI that the system forwards to the PSAP.

E911-Tandem (continued)

The system does not use ANI digits for the calling party. The system must obtain a replacement ANI and ESN through table STDPRTCT.STDPRT. The pretranslation selector E911 handles E911 calls over these trunks.

MAP example for table TRKGRP

```
GRPKEY      GRPINFO
-----
S3E911LOOPI E911 0 NPDGP NCRT 903 Y BELL 1 5 5 REV 323 210
```

MAP example for table STDPRTCT.STDPRT

Table STDPRTCT		→	STDPRT		
FROMDIGS	TODIGS		PRERTSEL	ESN	ESCO
911	911		E911	210	0521

MAP example for table E911ESN

```
0 N NETPOLICE NONE NONE NONE NONE NONE NONE
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
5 N LINEPSAP_1 NONE LDTPSAP_1 LDTPSAP_2 NETPOLICE NETFIRE
NONE
6 N NETPOLICE NONE NONE NONE NONE NONE NONE
7 N NETPOLICE NONE NONE NONE NONE NONE NONE
8 N NETPOLICE NONE NONE NONE NONE NONE NONE
9 N NETPOLICE NONE NONE NONE NONE NONE NONE
34 N LDTPSAP_1 NONE NONE NONE NONE NONE NONE
45 N NETPOLICE NONE NONE NONE NONE NONE NONE
210 N NETPOLICE NONE NONE NONE NONE NONE NONE
211 N NETPOLICE NONE NONE NONE NONE NONE NONE
12345 N NETPOLICE NONE NONE NONE NONE NONE NONE
```

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

E911-Tandem (continued)**Selective call transfer**

Selective call transfer appears in the following MAP examples. Selective call transfer begins when the PSAP operator uses the speed calling code format *10 to *16. The operator uses the speed calling code to designate which secondary PSAP from table E911ESN to use.

The secondary PSAP name selects the DN of the secondary PSAP in table E911PSAP. The subscriber DN selects the ESN tuple if the E911 Database is present. When the E911 Database is not present, the DN selects the ESN of the incoming trunk group. Selective call transfers that route non-access tandem to carrier (ATC) trunks deliver the ANI of the originating party. Transfers that route to these trunks deliver the primary PSAPs ANI.

Datafill for tables E911ESN, and E911PSAP appears in the following MAP examples:

MAP example for table E911ESN

```

0 N NETPOLICE NONE NONE NONE NONE NONE NONE
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
0 N NETPOLICE NONE NONE NONE NONE NONE NONE
1 N NETPOLICE NONE NONE NONE NONE NONE NONE
2 N NETPOLICE NONE NONE NONE NONE NONE NONE
3 N NETPOLICE NONE NONE NONE NONE NONE NONE
4 N LDTPSAP_1 NONE NONE NONE NONE NONE NONE
5 N LINEPSAP_1 NONE LDTPSAP_1 LDTPSAP_2 NETPOLICE NETFIRE
NONE
6 N NETPOLICE NONE NONE NONE NONE NONE NONE
7 N NETPOLICE NONE NONE NONE NONE NONE NONE
8 N NETPOLICE NONE NONE NONE NONE NONE NONE
9 N NETPOLICE NONE NONE NONE NONE NONE NONE

```

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

E911-Tandem (continued)

Tandem-to-tandem emergency DN route use**Selective routing, tandem-to-tandem**

You can use an emergency DN route for selective routing of an E911 call to a primary PSAP. The E911-Tandem does not provide service to the primary PSAP. You can configure translations at tandem A in one of the following two ways. The use of these methods depends on the selective routing capabilities at tandem B:

- Forward digits 911 to tandem B. This method occurs if tandem B translates the 911 call again to determine the primary PSAP for routing. This method is standard if tandem B has a selective routing database.
- Forward the seven-digit DN of the PSAP, and not 911, to tandem B. This method allows tandem B to route the call to the PSAP and not attempt to perform selective routing.

To make sure that the call routed to tandem B is an E911 call, the following connections must be present. To determine the type of call the system must:

- provide dedicated E911 transmission by a trunk line between the two tandems
- install translations at tandem B so that the call routes through an E911 VFG.

Datafill for selective tandem-to-tandem routing in tables E911PSAP, and E911ESN appears in the following MAP examples:

MAP example for table E911ESN

```
0 N NETPOLICE NONE NONE NONE NONE NONE NONE
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
0 N NETPOLICE NONE NONE NONE NONE NONE NONE
1 N NETPOLICE NONE NONE NONE NONE NONE NONE
2 N NETPOLICE NONE NONE NONE NONE NONE NONE
3 N NETPOLICE NONE NONE NONE NONE NONE NONE
4 N LDTPSAP_1 NONE NONE NONE NONE NONE NONE
5 N LINEPSAP_1 NONE LDTPSAP_1 LDTPSAP_2 NETPOLICE NETFIRE
NONE
6 N NETPOLICE NONE NONE NONE NONE NONE NONE
7 N NETPOLICE NONE NONE NONE NONE NONE NONE
8 N NETPOLICE NONE NONE NONE NONE NONE NONE
9 N NETPOLICE NONE NONE NONE NONE NONE NONE
```

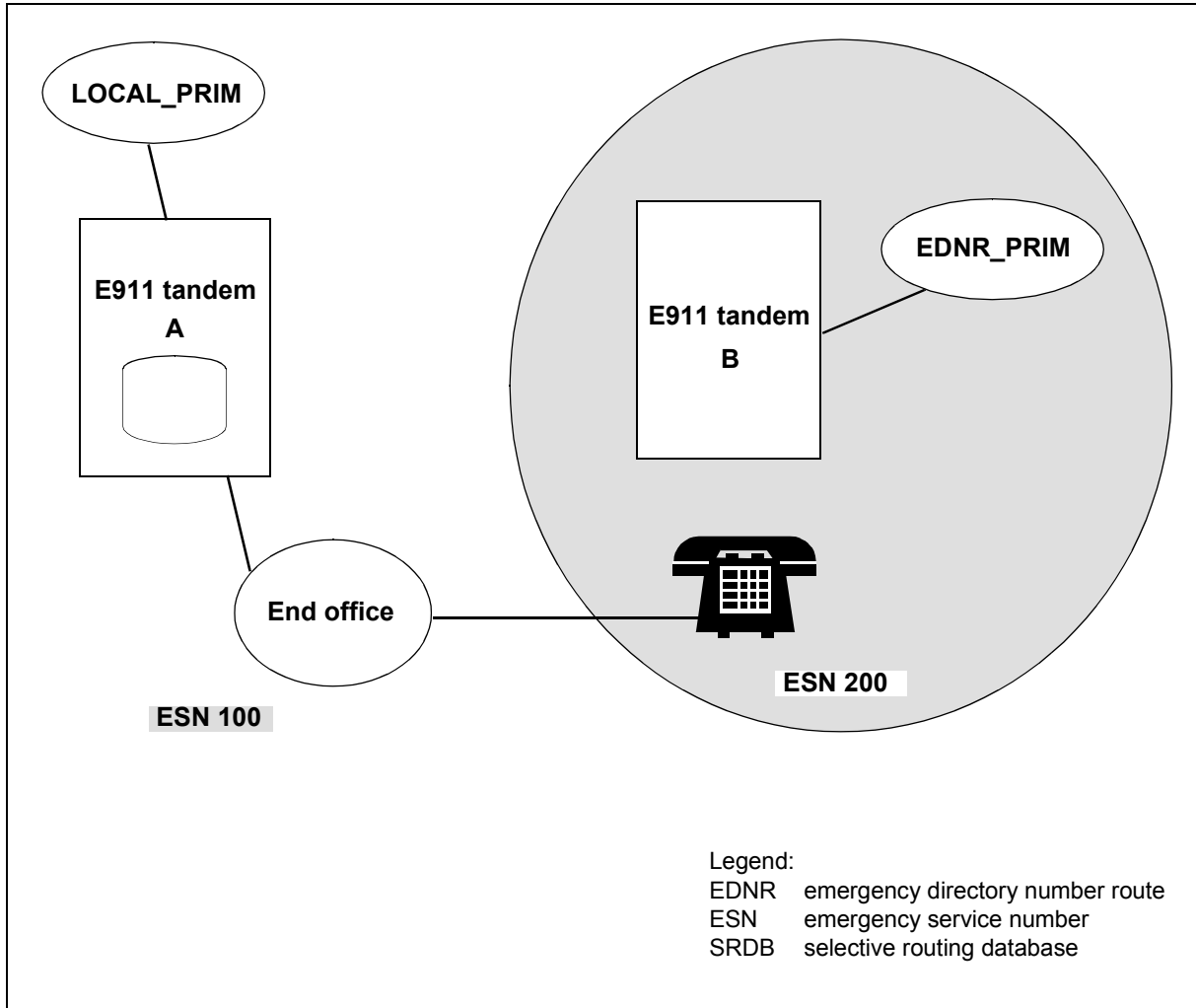

E911-Tandem (continued)**MAP example for table E911PSAP**

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

An example of selective and tandem-to-tandem routing appears in the following figure. The application of a selective routing environment appears in this figure:

E911-Tandem (continued)

Tandem-to-tandem routing applications



Emergency directory number routes

The use of emergency directory number routes (EDNR) is for call transfers or routes to emergency agencies. These transfers or routes are not E911 lines or LDTPSAPs, or are not served directly by the E911-Tandem switch. The EDNR functionality allows tandem-to-tandem routing or selective transfers from an E911 PSAP to a non-PSAP agency.

To select a route or transfer an E911 call to an EDNR, table E911PSAP must contain the agency name and dialed number. You must enter the agency name

E911-Tandem (continued)

in table E911ESN. The EDNR is available for use as a primary or a secondary PSAP.

**CAUTION****Loss of service**

If E911 calls route out of the E911-Tandem trunk types that do not have support, loss of service can occur.

The system supports the following trunk types for routing E911 calls to outgoing trunks: OP (local TSPS pulsing-recommended), A5 (North Electric AMR5), OC (local ANI to toll CAMA), IT (no ANI, toll connecting), TO (no ANI, outgoing end office), and T2 (no ANI, two-way end office).

Note: The system supports ISUP signaling on the above trunk types. The system supports a TO trunk that uses C7UP signaling and not STD.

Call transfer, tandem-to-tandem

The E911-Tandem hosts the primary PSAP of a caller. This E911-Tandem does not serve a secondary PSAP. The system allows the use of an EDNR for the transfer of an E911 call to this secondary PSAP. Table E911ESN lists the EDNR PSAP name from table E911PSAP as a secondary PSAP. This allows the PSAP attendant to use selective transfer capabilities.

The DN that you enter against the emergency DN route in table E911PSAP allows the system to route the call. The call routes to a trunk outgoing to the second tandem. The system delivers the seven-digit DN of the secondary PSAP to the second tandem. This delivery allows the call to complete to that PSAP.

An arrangement in which a second E911-Tandem services two secondary PSAPs appears in the following figure. Datafill for tables E911PSAP and E911ESN appears in the following MAP examples. These examples describe how the datafill can appear on tandem A of the two-tandem arrangement.

Datafill for tandem-to-tandem routes in tables E911PSAP and E911ESN appears in the following MAP example:

E911-Tandem (continued)**MAP example for table E911PSAP**

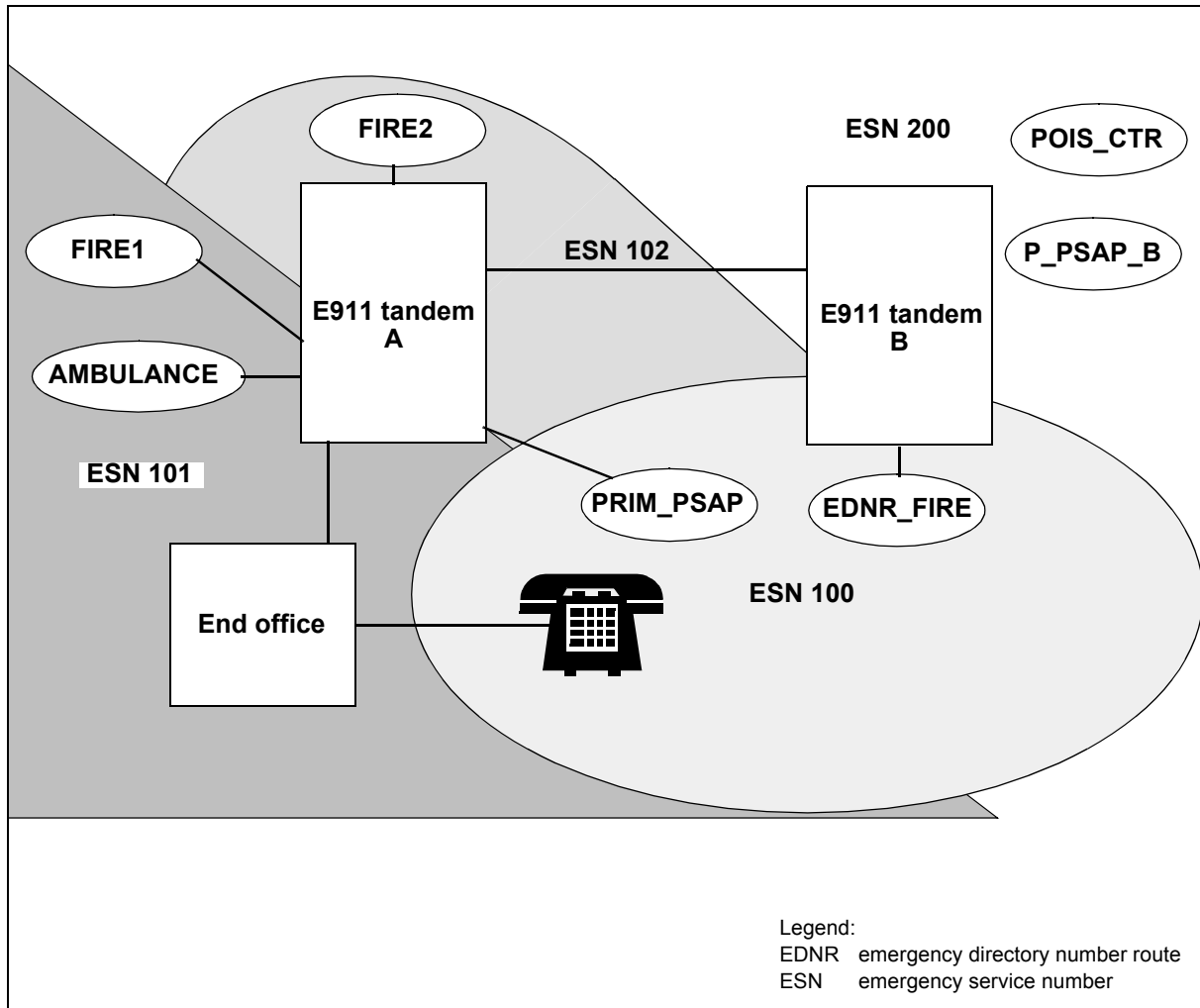
PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

MAP example for table E911ESN

```

0 N NETPOLICE NONE NONE NONE NONE NONE NONE
ESN FLASH PRIMPSAP PSAP1 PSAP2 PSAP3 PSAP4 PSAP5 PSAP6
-----
5 N LINEPSAP_1 NONE LDTPSAP_1 LDTPSAP_2 NETPOLICE NETFIRE
NONE
6 N NETPOLICE NONE NONE NONE NONE NONE NONE
7 N NETPOLICE NONE NONE NONE NONE NONE NONE
8 N NETPOLICE NONE NONE NONE NONE NONE NONE
9 N NETPOLICE NONE NONE NONE NONE NONE NONE
34 N LDTPSAP_1 NONE NONE NONE NONE NONE NONE
45 N NETPOLICE NONE NONE NONE NONE NONE NONE
210 N NETPOLICE NONE NONE NONE NONE NONE NONE
211 N NETPOLICE NONE NONE NONE NONE NONE NONE
12345 N NETPOLICE NONE NONE NONE NONE NONE NONE

```

E911-Tandem (continued)**Tandem-to-tandem transfer applications**

The following conditions apply for the system to read the call as an E911 call at the second tandem:

- the call must terminate to the second tandem from an E911 trunk
- the translations must allow access to an E911 VFG at the second tandem.

A call is present at the second tandem. The tandem performs E911 functions and translations. This performance depends on the digits received as the called number.

- If the called number is 911, 11, or 1, the tandem associates an ESN with the caller through the selective routing database. The tandem can perform this association through one of the default methods, like trunk group

E911-Tandem (continued)

datafill. When the caller obtains the ESN, the tandem associates a primary PSAP with that ESN. The tandem routes the call to that PSAP.

- The called number can be other than 911, 11, or 1. The tandem continues to associate an ESN with the caller, as described in the example above. The tandem does not attempt to route the call to a primary PSAP. The tandem routes the call based on the digits received.

In both occurrences, the tandem associates an ESN with the call. The answering PSAP attendant can perform selective transfer. The ESN and PSAP datafill of the current tandem affect transfers that follow. The datafill of the current tandem can be different from the datafill of the first tandem. The multi-tandem arrangement does not have, known intelligence. The multi-tandem cannot allow a second tandem to view the call in the same way as the first tandem.

Limits

The following limits, apply to E911-Tandem:

- The system allows calls transfers but not originations on the LDTPSAP.
- The system must assign a DS-1 link to LDT nodes. Other devices cannot share the DS-1 link.
- The system only supports dual-tone multifrequency digit collection for LDT lines.
- An addition of the LDTPSAP option occurs only to a hunt group line with a line class code of IBN. An addition of the LINEPSAP option can occur to a hunt group with line class codes of:
 - IBN
 - PSET
 - M5xxx lines

In this occurrence, xxx is the model number of an M5000 series set.

- Do not route the E911 calls to an ATC trunk while overflow conditions or selective transfer are present. The ANI spill is the PSAP pilot DN if ATC trunks, are in use.

Interactions

The following paragraphs describe the interactions between E911-Tandem and other functionalities.

- Call hold—The LDT PSAP hunt group members cannot place 911 callers on hold. The LDT PSAP hunt group members receive a negative acknowledgement (NACK) treatment (T120) in a call hold attempt. Do

E911-Tandem (continued)

not assign option CHD to field customer group name in table Customer Group Station (CUSTSTN) for the LDT PSAP hunt group.

- Call park—The LDT PSAP hunt group members cannot place 911 callers on hold. The LDT PSAP hunt group members receive a negative acknowledgement (NACK) treatment (T120) in a call hold attempt. Do not assign option CP to field customer group name in table CUSTSTN for the LDT PSAP hunt group.
- Speed calling—The E911 PSAP reserves speed calling codes 10 through 16 for selective transfers. The system ignores tuples entered in table IBNSC for speed calling codes 10 through 16 while a selective call transfer occurs. The system ignores these tuples if the selective transfer code corresponds to a correct secondary PSAP.
- Subscriber Carrier Module-100 Urban (SMU)—LDT nodes and Remote Carrier Urban (RCU) nodes can occupy the same SMU. This activity is not recommended because real-time impact on RCU operations results from activation of LDT software.

Activation/deactivation by the end user

The subscriber dials 911 to activate an emergency call to a PSAP operator. To deactivate the call, the subscriber goes on-hook. This deactivation is not necessary if the interoffice trunk group has the originator hold capability. The end office of the caller must support originator hold. In this occurrence, the tandem and the end office maintain the call path. The PSAP operator controls the disconnect. If the PSAP operator goes on-hook first, the tandem forces a disconnect. With Enhanced Called Party Hold (ECPH), origination maintains the call path until the PSAP answers. Origination also maintains the call path until the ECPH time-out period lapses, if the caller goes on-hook or not.

Billing

The E911-Tandem does not affect billing.

Station Message Detail Recording

The E911-Tandem does not affect Station Message Detail Recording (SMDR).

E911-Tandem (continued)

Datafilling office parameters

The office parameters used by E911-Tandem appear in the following table. Refer to *Office Parameters Reference Manual* for more information about office parameters.

Office parameters used by E911-Tandem

Table name	Parameter name	Explanation and action
OFCENG	E911_AUD_RING_FROM_PSAP	Indicates if set to Y, audible ringing starts at the LDT PSAP. If set to N, audible ringing starts in the E911-Tandem.
OFCVAR	E911_CHECK_DEFAULT_ESN	Describes if you can enter an E911 trunk group in table TRKGRP. In this occurrence, the trunk group has an ESN not entered in table E911ESN. If N, you can add an ESN not entered in table E911ESN to table TRKGRP. The system gives a warning message and generates log report E911205. If Y, you cannot add an ESN not entered in table E911ESN to table TRKGRP. The following error message appears in the table: ESN MUST BE IN TABLE E911ESN The E911 VFGs use this parameter the same way. The system enters VFGs in table VIRTGRPS, and generates log report E911219.

E911-Tandem (continued)**Office parameters used by E911-Tandem**

Table name	Parameter name	Explanation and action
OFCENG	E911_LDT_PSAP_SW_STATUS	Indicates the caller goes on-hook and originator hold is active. This parameter determines signal display to the LDT PSAP, as a low tone or an on-hook signal. This tuple applies to LDT PSAPs connected to the E911-Tandem. An assignment of ONHK_TO_LDT_PSAP occurs. The LDT PSAP receives an on-hook signal forwarded to the tandem from the end office. This signal can disable the PSAP ringback ability. The signal cannot perform the disable if the switchhook signaling is set to AC. The signaling is set to AC for the outgoing emergency service trunk group at the end office. When assignment occurs of the TONE_TO_LDT_PSAP, a tone replaces the on-hook signal normally sent to the LDT PSAP. This tone notifies the operator when the caller hangs up. This tone allows the operator to activate ringback. The caller goes on-hook and originator hold is active. This parameter determines signal arrangement to the LDT PSAP, as a low tone or an on-hook signal.
OFCENG	E911_LOCAL_ACCESS_ROH_TONE_TIME	Indicates this parameter indicates the time that Receiver-Off-Hook (ROH) tone can last during a local access 911 call. In this call, the PSAP agent starts ROH. A local access 911 call is a line to E911 VFG to PSAP.

E911-Tandem (continued)**Office parameters used by E911-Tandem**

Table name	Parameter name	Explanation and action
OFCSTD	E911_NPD_TO_NPA_CONV_IN_EFFECT	Indicates controls the change of the office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N. While the table controls this change, the table converts from a 1-digit numbering plan digit (NPD) to a minimum of four NPAs. The following steps appear in the correct performance order to change from 1-digit NPD to a minimum of four numbering plan area (NPAs): Change one information digit LDT PSAPs to three information digits in table HUNTGRP. Change the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to Y. Change the office parameter E911_PSAPS_USING_ONE_INFO_DIGIT to N. Delete NPD tuples from table E911NPD. Change the office parameter E911_PSAPS_USING_ONE_INFO_DIGIT to N. Change the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to N. Note: When you change this parameter from N to Y, a series of actions starts that involve the change of an office parameter. This parameter changes from E911_PSAPS_USING_1_INFO_DIGIT to N. To change the office parameter E911_PSAPS_USING_1_INFO_DIGIT from N to Y requires a 911 outage.

E911-Tandem (continued)**Office parameters used by E911-Tandem**

Table name	Parameter name	Explanation and action
OFCENG	E911_NUMBER_OF_FDBS	Indicates this table describes the number of E911 feature data blocks available for allocation in the office. The use of an E911 feature data block begins when a 911 call terminates to a PSAP. The use of an E911 feature data block begins when a 911 call terminates to an Automatic Call Distribution (ACD) queue. Non-911 calls can terminate to an ACD queue. Each party in the call requires a feature data block. When the party that uses a block idles, this releases the block. The following E911 functions do not work for a call that cannot get a feature data block: • originator hold • switchhook status tone • the E911212 log • disconnect timing • remote call event records • ALI • ANI • ringback when ringback on hold works, but ringback does not • selective transfer. If a call cannot get a feature data block, the system generates an E911224 log. The value of this parameter must be less than or equal to the value of the NO_OF_CRITICAL_FTR_DATA_BLKs parameter.

E911-Tandem (continued)**Office parameters used by E911-Tandem**

Table name	Parameter name	Explanation and action
OFCVAR	E911_PSAP_DISCONNECT_TIME	Indicates the system activates this timer when: - the calling party disconnects before the LDT PSAP. - the calling party disconnects before the LINE PSAP. This LINE PSAP is not equipped with an MBS or with an MBS. The LINE PSAP has the originator hold activated. - an idle LDT PSAP goes off-hook. - an idle line or ACD PSAP with denied origination and without an MBS goes off-hook. The E911-Tandem receives a call disconnect signal. The E911-Tandem sends an on-hook signal to the PSAP. The E911-Tandem starts a disconnect timer to receive an on-hook signal from the PSAP. If the timer expires, the system generates an E911204 log. The system raises an optional alarm.
OFCVAR	E911_PSAP_OFFHK_ALARM_TIME	Indicates the amount of time that the alarm E911_PSAP_OFFHK is active without manual clearing when the E911_PSAP_DISCONNECT_TIME timer expires. The system activates this timer when PSAP remains off-hook and does not have a voice path with any other agent. The value of this office parameter is 0 to 600 s. If 0 is entered, the alarm is not activated.
OFCSTD	E911_PSAP_REC_PRE_WK_TIME	Indicates the E911-Tandem office seizes a trunk to the LDT PSAP. The E911-Tandem office waits 4 to 20 s to receive an ANI wink signal. Refer to BELLCORE technical reference TR-TSY-000350.

E911-Tandem (continued)**Office parameters used by E911-Tandem**

Table name	Parameter name	Explanation and action
OFCSTD	E911_PSAPS_USING_1_INFO_DIGIT	Describes the type of ANI format recognized by the E911-Tandem. If Y, the system connects one or more PSAPs to the E911-Tandem through use of single-digit ANI information format. The system limits the E911-Tandem to calls from a maximum of four numbering plan areas. The information digit format of the PSAPs that remain do not affect this limit. If N, all PSAPs use three-digit ANI information format and the number of allowed numbering plan areas increases to 16. In this occurrence, table E911NPD must be empty. <i>Note:</i> You can change this office parameter from Y to N if the following conditions are met: • You deletes all E911 trunks from table TRKGRP. • You deletes all E911 VFGs from table VIRTGRPS. You can change the office parameter from N to Y when the user deletes the office parameter.
OFCENG	NO_OF_CRITICAL_FTR_DATA_BLKs	Describes the number of feature data blocks reserved for important features like E911. Always allocate the E911 feature a minimum of one feature data block. The value of this parameter must be equal to or greater than the value of the E911_NUMBER_OF_FDBS parameter.

Office parameter activation method

The following are office parameter activation methods that apply to E911-Tandem:

- E911_AUD_RING_FROM_PSAP—IMMEDIATE
- E911_CHECK_DEFAULT_ESN—IMMEDIATE
- E911_LDT_PSAP_SW_STATUS—IMMEDIATE
- E911_NUMBER_OF_FDBS—IMMEDIATE
- E911_PSAP_DISCONNECT_TIME—IMMEDIATE
- E911_NPD_TO_NPA_CONV_IN_EFFECT—IMMEDIATE
- E911_PSAP_OFFHK_ALARM_TIME—IMMEDIATE
- E911_PSAP_REC_PRE_WK_TIME—BSY; RTS the LDT nodes
- E911_PSAPS_USING_1_INFO_DIGIT—IMMEDIATE
- NO_OF_CRITICAL_FTR_DATA_BLKs—COLD RESTART

E911-Tandem (continued)

- the system rejects the command
- checks occur to make sure that NPA is present as an SNPA in the first 16 entries of table HNPACONT
- checks occur to make sure that table E911NPD has an equal NPD for the entered NPA
- the present installation applies
- the NPD defaults to 0

**Relationship between E911_PSAPS_USING_1_INFO_DIGIT and
E911_NPD_TO_NPA_CONV_IN_EFFFECT**

N P A	N P D	E911_PSAPS_USING_1_INFO_ DIGIT	E911_NPD_TO_NPA_CONV_ IN_EFFECT	ACTION
Y	Y			item 1
Y	N	Y	N	item 3
Y	N	N	Y	item 2
Y	N	N	N	item 2
Y	N	Y	Y	item 2
N	Y	Y	N	item 4
N	Y	N	Y	item 1
N	Y	N	N	item 1
N	Y	Y	Y	item 1
N	N	Y	N	item 5
N	N	N	Y	item 1
N	N	N	N	item 1
N	N	Y	Y	item 1

E911-Tandem (continued)

Office parameter limits

The following office parameter limits apply to E911-Tandem:

- When entries are present in table E911NPD, you cannot change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N. Delete all entries from table E911NPD before you change the value of this parameter.
- To change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N, meet the following conditions:
 - delete all E911 trunks from table TRKGRP
 - delete all E911 VFGs from table VIRTGRPS.
- When entries are present in table HUNTGRP, you cannot change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N. These entries in table HUNTGRP include ANISPILL set to Y and NUMIDIGS set to 1. Change NUMIDIGS to 3 before you change this parameter.
- When entries are not present in table HUNTGRP, you can change office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to Y. These entries in table HUNTGRP include ANISPILL set to Y and NUMDIGS set to 1.
- When the office parameter E911_PSAPS_USING_1_INFO_DIGIT is N you can change office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to N.

Office parameter warning and error messages

Office parameters that provide a warning and error messages that apply to E911-Tandem appear in the following list:

- When you change office parameter E911_PSAP_REC_PRE_WK_TIME, the system generates a warning message.
 - WARNING: A BSY and RTS of the LDT node(s) affected is required to activate changes to the value of this parameter.
- You can change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N and no entries are present in table E911NPD. In this occurrence, the system generates an error message. You must first delete an E911 trunk that has an equivalent SNPA in table E911NPD.
 - Response: All entries from table E911NPD must be deleted prior to changing the value of this parameter.
- You can change office parameter E911_PSAPS_USING_1_INFO_DIGIT from Y to N. Entries are present in table HUNTGRP with ANISPILL set

E911-Tandem (continued)

to Y and NUMIDIGS set to 1. In this occurrence, the system generates an error message.

— Response: NUMIDIGS of hunt group must be changed to 3 before changing this parameter.

- When you change office parameter NO_OF_CRITICAL_FTR_DATA_BLKs, the system generates a warning message.
 - WARNING: A COLD RESTART MUST BE PERFORMED TO ACTIVATE CHANGES TO THE VALUE OF THIS PARAMETER.
- When you change the parameter E911_NUMBER_OF_FDBS to a value greater than the office parameter NO_OF_CRITICAL_FTR_DATA_BLKs. The system generates an error message.
 - ERROR: E911_NUMBER_OF_FDBS has NOT been changed. The office parameter

E911-Tandem (continued)

NO_OF_CRITICAL_FTR_DATA_BLKs must be increased before this parameter can be changed.

- The system generates an error message when the following conditions occur:
 - The NPA is not entered in table E911NPD.
 - The user sets the office parameter E911_PSAPS_USING_1_INFO_DIGIT to Y.
 - The user sets the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to N.
 - ERROR: NPA <VALUE OF NPA> is not datafilled in E911NPD as SNPA
- When the entered NPA is not three digits, the system generates an error message.
 - ERROR: NPA must be three digits.
- When the entered NPA is not in Table HNPACONT, the system generates an error message.
 - ERROR: NPA DOES NOT EXIST IN TABLE HNPACONT.
- When you enter NPA and NPD together in the same command, the system generates an error message.
 - ERROR:NPA and NPD cannot be entered together.
- The system generates an error message when the following conditions occur:
 - The NPA is not entered.
 - You set office parameter E911_PSAPS_USING_1_INFO_DIGIT to N or Y.
 - You set office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to Y.
 - ERROR: NPA must be entered
- The system generates an error message when the following conditions occur:
 - The NPA is not entered in table E911NPD.
 - You set office parameter E911_PSAPS_USING_1_INFO_DIGIT to Y.
 - You set office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to N.
 - ERROR: NPA is not datafilled in E911NPD as SNPA

E911-Tandem (continued)

- You can change the parameter value from Y to N. When you set the office parameter E911_PSAPS_USING_1_INFO_DIGIT to Y. In this occurrence, the system displays an error message.
 - ERROR: Office parameter E911_PSAPS_USING_1_INFO_DIGIT must be N prior to changing the value of this parm to N
- When you change the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT from N to Y, the system generates a warning message.
 - WARNING: IF YOU SET THIS PARAMETER TO Y, YOU WILL START A SERIES OF ACTIONS WHICH WILL INCLUDE SETTING THE OFFICE PARAMETER E911_PSAPS_USING_1_INFO_DIGIT TO N. REVERSING THIS PROCEDURE IS DIFFICULT AND WILL CAUSE AN E911 OUTAGE. BE VERY SURE YOU WANT TO CHANGE THIS PARAMETER BEFORE CONTINUING.
- You can change the value of this parameter from N to Y. Entries are present in table HUNTGRP with ANISPILL set to Y and NUMDIGS set to 1. when these entries are present the system generates an error message.
 - ERROR: Numdigs of hunt group <hunt group number> must be changed to 3 before changing this parm.

Office parameter verification

Office parameter verification methods that apply to E911-Tandem appear in the following list:

- the E911_AUD_RING_FROM_PSAP
 - You can remove the audible ringing card from the PSAP equipment and set the parameter to Y. When you set the parameter to Y a loss of ringing occurs.
- the E911_LDT_PSAP_SW_STATUS
 - You can set the office parameter to TONE_TO_LDT_PSAP. The TONE_TO_LDT_PSAP is an E911 call from an end office with Basic 911 Emergency Service (B911) software and a data collection (DC) switchhook signaling. The system sends a tone to the LDT PSAP operator when the caller hangs up. The PSAP operator can activate ringback to the caller.
 - When you set the parameter to ONHK_TO_LDT_PSAP, the caller prevents activation of ringback from the operator through disconnection. The only option available to the operator is to hang up.

E911-Tandem (continued)

- the E911_NUMBER_OF_FDBS
 - Check for an E911223 log report after the cold restart to check this parameter. If the system does not generate an E911223 log, allocation of the requested number of E911 feature data blocks is complete.
 - The E911-Tandem cannot allocate the requested number of feature data blocks. The E911 generates an E911223 log while the cold restart occurs. The E911223 log indicates the number of E911 feature data blocks requested and the number allocated.
- the E911_LOCAL_ACCESS_ROH_TONE_TIME
 - To check this parameter, make an E911 local access call and have the PSAP apply ROH to the line of the caller. The period of the ROH tone in seconds, multiplied by 100 equals the value of this parameter.

- the E911_PSAPS_USING_1_INFO_DIGIT

To change this parameter from Y to N, perform the following steps:

- Delete all E911 from table TRKGRP.
- Delete all E911 VFGs from table VIRTGRPS.
- the E911_NPD_TO_NPA_CONV_IN_EFFECT

When you change from a 1-digit NPD to a minimum of four NPAs, perform the following steps. These steps appear in the correct order:

- Change one information digit LDT PSAPS to three information digits in table HUNTGRP.
- Change the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to Y.
- Delete NPD tuples from table E911NPD.
- Change the office parameter E911_PSAPS_USING_1_INFO_DIGIT to N.
- Change the office parameter E911_NPD_TO_NPA_CONV_IN_EFFECT to N.
- the E911_PSAP_DISCONNECT_TIME
 - An LDT PSAP is off-hook. The LDT PSAP does not have a talk path to any other party. In this occurrence, the system generates an E911204

E911-Tandem (continued)

log at the end of a timer interval. The value of this parameter indicates the end of a timer interval.

- the E911_PSAP_OFFHK_ALARM_TIME
 - The system can take a PSAP off-hook. If the PSAP is off-hook, the system allows the number of seconds that the E911_PSAP_DISCONNECT_TIME parameter defines to pass. The system generates the alarm E911_PSAP_OFFHK. The alarm remains active for the number of seconds the E911_PSAP_OFFHK_ALARM_TIME defines.
- the E911_PSAP_REC_PRE_WK_TIME
 - The E911-Tandem does not receive a wink from the PSAP in the specified time. The SMU sends call processing a ringing trouble message with a not wink parameter. The E911-Tandem generates a LINE113 ringing trouble log with trouble code NO_WINK_FROM_PSAP.
- the NO_OF_CRITICAL_FTR_DATA_BLKs
 - If the switch cannot allocate the requested number of important feature data blocks, the system produces a software error (SWERR).
 - The set number of important feature data blocks is a number less than the number of E911_NUMBER_OF_FDBS. When this number occurs, the system generates an E911223 log. This log indicates the number E911 feature data blocks requested and the number of important feature data blocks allocated.
 - The system does not produce a SWERR or E911223 log after the cold restart. After the cold restart an allocation of the requested number of important feature data blocks is complete.

Datafill sequence

The tables that require datafill to connect E911-Tandem appear in the following table. The tables appear in the correct entry order.

The following table provides the forms to use and the correct Northern Telecom Publication (NTP) to reference. Information about the function of the

E911-Tandem (continued)

tables and E911 datafill requirements follow this list. This information appears in the same order as this list.

Datafill tables required for E911 - Tandem

Table	Purpose of table
the LTCINV (Note 1)	Line Trunk Controller Inventory.
the LTCPSINV (Note 1)	Line Controller, peripheral side (P-Side) Link Inventory.
the RCUINV (Note 1)	Remote Carrier Urban Inventory. This table contains an inventory of the RCU nodes attached to a DMS-100 switch. This table also contains information on each RCU. This RCU information includes data about the Subscriber Carrier Module-100 Urban links. The RCUs attach to these links.
the SITE (Note 1)	Site.
the LDTINV (Note 1)	Line Appearance on a Digital Trunk Inventory.
the LNINV	Line Circuit Inventory. This table lists the data for each line card slot.
the HUNTGRP (Note 2)	Hunt Group. This table contains the data for each of the hunt groups assigned in the DMS-100. This table also includes the LDTPSAP and LINEPSAP options.
the HUNTMEM (Note 2)	Hunt Group Member. This table defines the LINE and LDTPSAP hunt group members.
the E911PSAP	Enhanced 911 Public Safety Answering Point. This table contains the names and DNs of PSAPs and emergency DN routes.
the KSETFEAT (Note 2)	Business Set and Data-Unit Feature.
the E911ALI (Note 3)	Enhanced 911 Direct Access to AT&T ALI Controller.
the E911ESN	Enhanced 911 Emergency Service Number.
Note 1: Only enter this table for LDTPSAPs. Note 2: Enter this table through SERVORD. A datafill procedure or example is not provided. Refer to SERVORD for an example of the use of SERVORD to enter this table. Note 3: Enter table E911ALI if one of the following features is present: the E911 Direct Interface to CCI ALI Database, or E911 Direct Access to Data Mgt. System ALI Database. Note 4: Only enter table E911RCER for LINE and ACD PSAPs. Note 5: Enter table E911SRDB if feature E911 Database, is present. Note 6: Use table STDPRTCT.STDPRT for E911 pretranslator routing only.	

E911-Tandem (continued)**Datafill tables required for E911 - Tandem**

Table	Purpose of table
the E911NPD	Enhanced 911 Numbering Plan Digit.
the E911RCER (Note 4)	Enhanced 911 Remote Call Event Record.
the E911SRDB (Note 5)	Enhanced 911 Selective Routing Database.
the TRKGRP.E911	Enhanced 911 (E911) Trunk Group (Type #911).
the TRKSGRP	Trunk Subgroup.
the STDPRTCT.STDPRT (Note 6)	Standard Pretranslator Subtable.
the CUSTSTN	Customer Group Station Option.
the IBNSC	IBN Speed Calling List.
Note 1: Only enter this table for LDTPSAPs. Note 2: Enter this table through SERVORD. A datafill procedure or example is not provided. Refer to SERVORD for an example of the use of SERVORD to enter this table. Note 3: Enter table E911ALI if one of the following features is present: the E911 Direct Interface to CCI ALI Database, or E911 Direct Access to Data Mgt. System ALI Database. Note 4: Only enter table E911RCER for LINE and ACD PSAPs. Note 5: Enter table E911SRDB if feature E911 Database, is present. Note 6: Use table STDPRTCT.STDPRT for E911 pretranslator routing only.	

How to enter data into tables LTCINV, LTCPSINV, RCUINV, and SITE

These tables require the normal datafill associated with an SMU for LDTPSAP operations. Enter these tables before any other tables.

Table RCUINV contains an inventory of the RCU nodes that attach to a DMS-100 switch. Table RCUINV contains information on each RCU. This RCU information includes data about the SMU links. An RCU attaches to these links. You can change the table control error message for table RCUINV for E911. The table for an E911 LDT does not require datafill.

You can enter the SMU. You can enter table RCUINV. The information in table RCUINV associates with datafill in tables LTCINV and LTCPSINV. This information includes field CSLINKTAB. Field CSLINKTAB contains information about the SMU P-side ports to which each RCU connects.

E911-Tandem (continued)

A check is already present, to make sure the DS-1s that connect to one RCU are not entered for another node. The earlier assumption was that the other node was an RCU. The error message that results from this check is now different. This error message indicates that the other node can be an LDT or another RCU.

Refer to the data design section of this document for additional information on these tables.

Error messages for table RCUINV

The following error message applies to table RCUINV. This error message appears on the MAP terminal:

Error messages for table RCUINV

Error message	Explanation and action
Old response: Another RCU is using SMU port ##.	You can enter a DS-1 in use by another node.
New response: Another RCU is using SMU port ##.	

Datafilling table LDTINV

To support LDTPSAP operations, enter table LDTINV and assign the E911-Tandem. To assign the E911-Tandem, enter the values that appear in the following table in the specified fields. An asterisk (*) indicates the specified E911 fields. You cannot enter table LDTINV until the following occurs:

- Table SITE already contains the <site> for field LDTNO.
- Tables LTCINV and LTCPSINV already contain the SMU to which the field attaches.

You must enter table LDTINV before you enter the line equipment number (LEN) of an LDT node in table LNINV.

E911-Tandem (continued)

Datafill E911-Tandem for table LDTINV appears in the following table. The fields that apply to E911-Tandem appear in this table. Refer to the data design section of this document for a description of the other fields.

Datafilling table LDTINV

Field	Subfield or refinement	Entry	Explanation and action
the LDTNO		refer to subfields	Indicates line module key. This field consists of subfields SITE, FRAME, and UNIT.
	the SITE	alphanumeric 4 characters	Indicates location of the LDT. The entry must be an element in table SITE. A correct entry must be alphanumeric.
	the FRAME	0 to 99	Indicates logical frame number of the LDT. The system uses this number to separate LDTs of the same site. The correct entries are 0 to 99.
	the UNIT	0	Indicates that the system provides this subfield to be the same as the LEN format. The correct entry is 0.

E911-Tandem (continued)

Datafilling table LDTINV

Field	Subfield or refinement	Entry	Explanation and action
the ADNUM		0 to 4095	Indicates administration number. Enter the administrative number associated with the peripheral module (PM). The value of field ADNUM must be different across all PM inventory tables. These inventory tables are: • DLMINV • IPEINV • LCMINV • LMINV • LTCINV • RCCINV • RCSINV • VSRINV. Note: You cannot change field ADNUM under some conditions. For example, if the Engineering and Administrative Data Acquisition System (EADAS) includes operational measurements (OM) counts for that PM. Or, a DC section includes OM counts for that PM. Both the EADAS and DC associate with the LMD of the OM or universal tone receiver (UTR).
the CSPMNO*		see subfields	Indicates central side (C-side) peripheral node number. Name of the SMU that the LDT attaches to, on the C-side. This field consists of subfields PMTYPE and PMNO.
	the PMTYPE	SMU	Indicates peripheral module. Enter the name of the SMU that the LDT attaches to, on the C-side.
	the PMNO	0 to 127	Indicates peripheral module number. Enter the PM node number of the SMU. The correct entries are 0 to 127.
the PSLINK		0 to 19	Indicates P-side link. Enter the P-side port number of the SMU to which the LDT attaches. The correct entries are 0 to 19.

E911-Tandem (continued)

Datafill example for table LDTINV

A check is present, to make sure that the DS-1s that connect to one RCU are not entered for another node. The earlier assumption was that the other node was also a RCU. The error message that results from this check is now different. The check now indicates that the other node can be an LDT or another RCU.

Datafill for table LDTINV appears in the following MAP example:

MAP example for table LDTINV

```
LDTNO ADNUM CSPMNO PSLINK
-----
PSAP 00 0 81 SMU 0 16
```

LDTINV limits

Table LDTINV has the following limits:

- The only peripheral an LDT can attach to is a SMU.
- A maximum of 20 LDTs can attach to one SMU.
- You cannot share the DS-1 with any other node.
- Before you assign a DS-1 to an LDT, you must place the DS-1 carrier offline through the use of the maintenance system.
- To change the data associated with an LDT, you must first delete the complete tuple.
- To delete the complete tuple, you must first place an LDT offline through the use of the maintenance system.
- You cannot delete an LDT if the LDT continues to have assigned lines in table LNINV.

Error messages for table LDTINV

The following error messages apply to table LDTINV.

Error messages for table LDTINV

Error message	Explanation and action
Failed to assign office module number	Indicates that the system cannot store the data in table LCD_NODE_DATA.
LDT can be added to SMU ONLY	Indicates you can attach an LDT to some peripheral other than an SMU.

E911-Tandem (continued)**Error messages for table LDTINV**

Error message	Explanation and action
Only 20 LDTs allowed per SMU. Already nn on SMU XX (where nn represents the number of LDTs already assigned to a particular SMU.)	Indicates you can attach a minimum of 20 LDTs to one SMU.
Either another LDT or an RCU is using port #	Indicates you can share a DS-1 with another node.
DS-1 carrier must be OFFLine to add to LDT.	Indicates you can assign a non-OFFLINE DS-1 to LDT.
To change LDT data, tuple must be deleted.	Indicates you can change data for an LDT.
LDT must be OFFLine to be deleted.	Indicates you can delete an LDT that is not OFFLine
Lines still attached to LDT.	Indicates you can delete an LDT with lines assigned in table LNIN.

Datafilling table LNINV

Table LNINV lists the data for each line card slot. Three card codes that indicate a line as an LDT line are added to this table. One of these card codes defines the ANI protocol between the E911-Tandem and an LDTPSAP. Field ANISPILL in the LDTPSAP option data defines the ANI protocol between the E911-Tandem and an LDTPSAP. Field ANISPILL must be equal to the correct card code for the LDT lines assigned to an LDTPSAP.

These new card codes and the descriptions of the card codes, are as follows:

- the PSAPWA—The PSAP sends a wink and expects ANI. The ANISPILL must be set to Y.
- the PSAPNN—The PSAP does not send a wink and does not expect ANI. The ANISPILL must be set to N.
- the PSAPWN—The PSAP sends a wink but does not expect ANI. The ANISPILL must be set to N.

You must enter table LDTINV before you enter the LEN of an LDT node in table LNINV. The SITE, FRAME, and UNIT fields must match the entries in table LDTINV. Enter table LNINV to define the LEN for the LDT and LINE PSAP. Enter the values listed below in the specified fields. An * indicates the specified E911 fields.

E911-Tandem (continued)

Datafill for E911-Tandem for table LNINV appears in the following table. The fields that apply to E911-Tandem appear in this table. Refer to the data design section of this document for a description of the other fields.

Datafilling table LNINV

Field	Subfield or refinement	Entry	Explanation and action
the LEN			Indicates line equipment number. The LEN assigned to the LDT line.
	the FRAME	0-99	Indicates logical number 0 through 99, separates any LDT with the same SITE.
	the UNIT	0	Indicates for LDT, the only correct entry is 0. The system supplies the field to stay the same as the LEN format.
	the DRAWER	0	Indicates for LDT, the only correct entry is 0 because an LDT has only one drawer.
	the CIRCUIT	0-23	Indicates this subfield represents the channel 0 through 23 on the DS-1 in use.
the CARDCODE		the PSAPNN, PSAPWN, PSAPWA	Indicates card code. Used to inform that the LEN belongs to a PSAP. Three values: • PSAPNN • PSAPWN • PSAPWA.
the PADGRP		alphanumeric	Indicates pad group. Enter the name of the pad group assigned to the line circuit in table PADDDATA. For digital line modules (DLM) and NT8X47BAs, you can only assign NPDGP (no pad group). Field PADGRP contains the name of the pad group in table PADDDATA. This pad group lists the value of the pad circuits that can be switched in the line involved in a call. When the circuit connects to an agent with a different pad group, you can indicate different values for the pad circuits. The name can be one of the predefined names from table PADDDAT. Or, the name can be a name the operating company identifies and assigns in table PADDDATA.

E911-Tandem (continued)**Datafilling table LNINV**

Field	Subfield or refinement	Entry	Explanation and action
Note: Only the LEN and CARDCODE fields are used. The fields that remain are present only to match the format of other entries in table LNINV. The fields that remains, can have any value in the legal range that you requires. The following values are suggested for the remaining fields:			
	<i>Field name</i>	<i>Suggested value</i>	
	PADGR	stdIn	
	STATUS	<status>	
	GND	N	
	BNV	NL	
	MNO	N	

Datafill example for table LNINV

Datafill for table LNINV appears in the following MAP examples:

MAP example for table LNINV

LEN	CARDCODE	PADGRP	STATUS	GND	BNV	MNO	CARDINFO
PSAP 00 0 00 00	PSAPWA	NPDGP	WORKING	N	NL	N	NIL

Error messages for table LNINV

The following error message applies to table LNINV:

Error messages for table LNINV

Error message	Explanation and action
INVALID CARDCODE SPECIFIED	Indicates how to enter a CARDCODE that is not correct for the LDT node.

Datafilling table E911PSAP

Table E911 public safety answering point (E911PSAP) contains the names and directory numbers (DN) of public safety answering points (PSAP) and emergency DN routes. Emergency DN routes are for selective routing and

E911-Tandem (continued)

selective call transfers to emergency agencies. This table is for emergency agencies that are not E911PSAPs or that the E911 central office switch does not serve.

With ACD, LINE, and LDTPSAP hunt groups configured, the system enters table E911PSAP through service orders (SERVORD). Use the table editor commands to enter the emergency DN route in the table.

Table E911PSAP contains the default tuple NONE \$. The tuple \$ indicates that a DN does not associate with PSAP. This tuple is always present. This tuple is for use in table E911ESN when a secondary PSAP is not present.

Note: You can use the table editor to add, delete or change emergency DN route tuples in table E911PSAP. Other changes cannot occur in table E911PSAP through the table editor.

The key to table E911PSAP is the name of a PSAP. One of the two data fields that associate with the key field is the 18-digit DN of that PSAP. The second data field specifies if the DN associates with an emergency DN route. An entry is present in table E911PSAP for each PSAP that the E911 office services.

Table HUNTGRP enters table E911PSAP when you add option LDTPSAP or option LINEPSAP to a hunt group. Table HUNTGRP must enter E911PSAP before the use of the PSAP names in table E911ESN can occur. Table E911PSAP uses service orders to define LINE and LDTPSAP names and DNs.

E911-Tandem (continued)

Datafill for E911-Tandem for table E911PSAP appears in the following table. The fields that apply to E911-Tandem appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table E911PSAP

Field	Subfield or refinement	Entry	Explanation and action
PSAPNAME		1 to 16 character string	Name of the public safety answering point that offers emergency service. Correct entries are a 1 to 16-character string.
PSAPDN		maximum 18 digits	Directory number of the above PSAP. Correct entries are a maximum 18 digits. You can configure a central office to provide E911 service to more than one numbering plan area (NPA). If this event occurs you must enter the PSAPs as follows: • in the 7-digit format for the home NPA • in 10-digit format for the foreign NPA Each entry must contain a different PSAP_Key.
EDNR		Y or N	Specifies if the table entry is for an emergency DN route. Correct entries are Y and N. If table entry occurs through table HUNTGRP, through SERVORD, the system sets the field to N.

Datafill example for table E911PSAP

Datafill for table E911PSAP appears in the following MAP examples.

MAP example for table E911PSAP

PSAPNAME	PSAPDN	EDNR
NONE	\$	N
NETPOLICE	4691235	N
LDTPSAP_1	4671010	N
LDTPSAP_2	8321901	N
LINEPSAP_3	8462300	N
NETFIRE	5521900	Y

E911-Tandem (continued)

E911PSAP limits

The E911PSAP limits are as follows:

- You cannot directly delete or change table E911PSAP entries that are not emergency DN routes. This operation must occur through SERVORD commands.
- The maximum size of this table is 7000 tuples.
- You cannot remove a tuple from table E911PSAP until removal of tuples that reference that tuple in tables E911ESN and E911ALI occurs.

Error messages for table E911PSAP

The following error messages apply to table E911PSAP.

Error messages for table E911PSAP

Error message	Explanation and action
An EDNR DN cannot be less than seven digits	A PSAP entry in the table contains less than seven digits for the PSAP DN.
Only PSAP entries with EDNR = Y can be added/changed/deleted from table E911PSAP.	You changed or deleted an entry in table E911PSAP. The entry is not an emergency DN route.

Datafilling table E911ALI

Installation of a feature in E911 Direct Interface to CCI ALI Database, or Direct Access to Data Management. System ALI Database can be in the tandem. If this event occurs, table entry for E911ALI occurs in the E911 data entry process. See the data schema section of this document for datafill information.

Datafilling table E911ESN

The key to table E911ESN is an emergency service number (ESN). The rest of the tuple produced is field FLASH and names of maximum seven PSAPs. An ESN is a three-digit number that corresponds to an emergency service zone. An entry is present in table E911ESN for each emergency service zone that the E911 office services.

Enter data into table E911ESN with keys from table E911PSAP in the PSAP field of table E911ESN.

E911-Tandem (continued)

If the office parameter E911_CHECK_DEFAULT_ESN=N, you can add an ESN not entered in table E911ESN to table TRKGRP. The following warning message appears:

**CAUTION****ESN not present in table E911ESN**THIS ESN MUST BE ENTERED IN TABLE E911ESN
FOR 911 CALLS TO COMPLETE.

The system generates the following log report E911205:

INFO ESN USED FOR E911 TRKGRP NOT DATAFILLED IN E911ESN
ESN = NNN

E911-Tandem (continued)

Datafill for E911-Tandem for table E911ESN appears in the following table. The fields that apply to E911-Tandem appear in the table. See the data schema section of this document for a description of other fields

Datafilling table E911ESN

Field	Subfield or refinement	Entry	Explanation and action
ESN		numeric 0 to 15 999	The ESN. Five-digit number that represents an emergency service zone. Correct entries are 0 to 15 999. You can add an ESN not entered in table E911ESN to table TRKGRP. The following warning message appears: ESN MUST BE IN TABLE E911ESN The system generates log report E911205 as follows. WARNING ESN not present in table E911ESNTHIS ESN MUST BE DATAFILLED IN TABLE E911ESN FOR 911 CALLS TO COMPLETE. E911 virtual facility groups (VFG) use this parameter the same way, except entry of the VFGs occurs through table VIRTGRPS. The system generates log report E911219.

E911-Tandem (continued)**Datafilling table E911ESN**

Field	Subfield or refinement	Entry	Explanation and action
FLASH		Y or N	Flash. A flash alerts the LDTPSAP attendant of the following conditions: - the calling party that uses this ESN requires attention - the call is incoming on a message or foreign exchange trunk An entry of Y for a LINEPSAP does not have meaning.
PRIMPSAP, PSAP1, PSAP2, PSAP3, PSAP4, PSAP5, PSAP6			Primary and secondary PSAPs. Values of these fields are names of PSAPs entered in table E911PSAP. These values indicate the type of service provided, for example, RALEIGHFIRE. Entry of secondary PSAPs that provide a specified service must occur as the same field. An example of this entry is, fire as PSAP1. The PSAP operator dials selective transfer codes *11 through *16. These codes correspond to PSAP1 through PSAP6. Selective transfer code *10 dialed from any secondary PSAP results in a call transfer to the primary PSAP. Selective transfer code *10 dialed from the primary PSAP results in a call transfer to one of the following: - another available member - the overflow routing of the primary PSAP Note: The PSAP1 through PSAP6 are placeholders for any PSAP.

Datafill example for table E911ESN

Datafill for table E911ESN appears in the following MAP example.

E911-Tandem (continued)

MAP example for table E911ESN

ESN	FLASH	PRIMPSAP	PSAP1	PSAP2	PSAP3	PSAP4	PSAP5	PSAP6
5	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
6	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
7	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
8	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
9	N	LDTPSAP_1	NONE	NONE	NONE	NONE	NONE	NONE
34	N	LINEPSAP_1	NONE	LDTPSAP_1	LDTPSAP_2	NETPOLICE		
		NETFIRE	NONE					
43	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
210	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
211	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE
12345	N	NETPOLICE	NONE	NONE	NONE	NONE	NONE	NONE

E911ESN limits

Deletion of an entry in table E911ESN cannot occur if tables TRKGRP, E911SRDB, and VIRTGRPS reference the ESN. Deletion of an entry in table E911ESN cannot occur if subtable STDPRT of table STDPRTCT references the ESN.

Datafilling table E911SRDB

The feature package E911 Database can be in the tandem. Data entry for table E911 selective routing database (E911SRDB) occurs at this stage in the E911 data entry process. Refer to the correct section of the translations guide for data entry information.

Datafilling table E911NPD

The key to table E911 numbering plan digit (E911NPD) is the numbering plan digit in the range 0 to 3. The result contains one field. This field is the serving numbering plan area (SNPA) associated with that numbering plan digit.

Enter data for table E911NPD. This action must occur before the use of the numbering plan area in the E911 trunk group data in table TRKGRP can occur. The numbering plan area used must be present in table HNPACONT.

If office parameter E911_PSAPS_USING_1_INFO_DIGIT is N, table E911NPD is not used.

E911-Tandem (continued)

Datafill for E911-Tandem for table E911NPD appears in the following table. Fields that apply to an E911-Tandem appear in this table. See the data schema section of this document for a description of other fields.

Datafilling table E911NPD

Field	Subfield or refinement	Entry	Explanation and action
NPD		Numeric. (0 to 3)	Numbering plan digit. Table key. Enter a single digit. Correct entries are 0 to 3.
SNPA		Numeric (5 digits)	Serving numbering plan area. Numbering plan area of the E911 trunk group. The system sends this area from the end office to the E911 office assigned to that numbering plan digit. The value for this field is the SERVING_NPA from table HNPACONT.

Datafill example for table E911NPD

Datafill for table E911NPD appears in the following MAP example.

MAP example for table E911NPD

NPD	SNPA
0	518
1	906
2	305
3	903

E911-Tandem (continued)

Error messages for table E911NPD

The following error messages apply to table E911NPD.

Error messages for table E911NPD

Error message	Explanation and action
THERE ARE EITHER E911 TRUNKS IN TABLE TRKGRP OR E911 VFGs IN TABLE VIRTGRPS, OR BOTH, USING THIS SNPA WHICH MUST BE DELETED FIRST	An attempt to delete an SNPA that the E911 VFG or an E911 trunk uses occurs. Check table TRKGRP and table VIRTGRPS to find the E911 trunks or VFGs that use the specified SNPA. Delete these trunks or VFGs before you make changes to table E911NPD.
THERE ARE EITHER E911 TRUNKS IN TABLE TRKGRP OR E911 VFGs IN TABLE VIRTGRPS, OR BOTH, USING THE OLD SNPA WHICH MUST BE DELETED FIRST	An attempt to change an SNPA in table E911NPD occurs. This action removes the old SNPA. Check table TRKGRP and table VIRTGRPS to find the E911 trunks or VFGs that use the specified SNPA. Delete these trunks or VFGs before you make changes to table E911NPD.

Datafilling table TRKGRP

Data entry for the dedicated 911 trunks incoming to the E911 office occurs through the E911 selector, table TRKGRP. The E911 trunk group data contains several fields to support functions. For example, the E911 trunk group data supports the following features:

- operator hold
- enhanced called party hold
- direct seizure
- BELL or AMR format ANI

Default routing of a 911 call requires that you associate the ESN data field with the E911 trunk group type. The ESN in the E911 trunk group data corresponds to an ESN in table E911ESN. The system can default route a 911 call. The ESN in the E911 trunk group data is not present in table E911ESN. If both of these events occur the call cannot complete. The system sends the call to vacant code treatment.

If E911_PSAPS_USING_1_INFO_DIGIT is Y, enter data in table E911NPD before the numbering plan area in the trunk group data.

E911-Tandem (continued)

The user can enter an ESN in the E911 trunk group data and not in table E911ESN. The office parameter E911_CHECK_DEFAULT_ESN can be N. If these events occur, the system produces a warning message and an E911205 log. The user does not always enter trunk group default ESN in table E911ESN. If this event occurs, calls on this trunk group cannot route. The system sends the calls to vacant code treatment.

An ESN entered in the E911 trunk group data is not always present in table E911ESN. Office parameter E911_CHECK_DEFAULT_ESN can be Y. If these events occur, the system generates a message. The data entry for the tuple cannot occur. You must enter table E911ESN, and as a result table HUNTGRP and table E911PSAP, before table TRKGRP. This action changes the normal data entry sequence.

The common language location identifier (CLLI) entered in the key field of table TRKGRP must be present in table CLLI. Trunk group information is necessary in table TRKSGRP and table TRKMEM. See the data schema section of this document for additional information.

Enter data in table TRKGRP as follows to assign E911-Tandem. Enter the values that the table fields list. The table does not contain subfields TRAFSNO, PADGRP, and NCCLS. The E911 does not modify the content of the subfields. See the data schema section of this document for details about these fields.

Datafilling table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPKEY			Group key. The name of the trunk group.
	CLLI	alphanumeric (1 to 16 characters)	Common language location identifier. Enter the alphanumeric code assigned to the trunk group in table CLLI.

E911-Tandem (continued)**Datafilling table TRKGRP**

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO		refer to subfields	Variable group data. This field contains the following subfields: • GRPTYP • SNPA • ECPHTIME • ORIGHOLD • SIGFMT • INFODIGS • NCATDIGS • ANISEIZ • ANIPDIAL • ANIREQSG • ESCO • ESN
	GRPTYP	E911	Group type. Enter E911.
	SNPA	numeric (5 digits)	Serving numbering plan area. This subfield serves the numbering plan area of the E911 trunk group. The E911 trunk group has a numbering plan digit entered in table E911NPD. If office parameter E911_PSAPS_USING_1_INFO_DIG is N, a check does not occur for a numbering plan digit in table E911NPD.
	ECPHTIME	numeric (0 to 255)	Enhanced Called Party Hold (ECPH) Time. A non-zero entry activates ECPHTIME and determines the time that the ECPH remains active. The default entry is 0 (zero). Nortel enters default 0 (zero). The operating company cannot change the value.

E911-Tandem (continued)

Datafilling table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
	ORIGHOLD	Y or N	Originator hold. The value of this field is Y if the end office that this trunk originated from supports the operator hold function. If the end office does not support the operator hold function, the value is N. Some PSAPs disconnect when the system receives an on-hook indication from an emergency caller. For these PSAPs the value must be N. CAUTION: This function cannot operate correctly if office parameter E911_LDT_PSAP_SW_STATUS is: ONHK_TO_LDT_PSAP.
	SIGFMT	AMR4,AMR5, or BELL	Signaling format. Enter the format of the ANI incoming on the trunk. If the format type is AMR4, enter AMR4 and enter data in refinement NCATDIGS. If the format type is AMR5, enter AMR5 and enter data in refinement NCATDIGS. If the format type is BELL, enter BELL and enter data in refinement INFODIGS.
	NCATDIGS	numeric (2 or 3)	Number of category digits. This subfield is present if you enter SIGFMT as AMR4 or AMR5. The value of this subfield indicates the number of expected category digits—two or three. The value of this subfield indicates the number of expected ANI digits. This condition applies if the incoming ANI format is type AMR4 or AMR5.
	INFODIGS	numeric (1 or 2)	Information digits. This subfield is present if you enter SIGFMT as BELL. The value of this subfield indicates the number of expected: - information digits (one or two) - ANI digits if the incoming ANI format is of type BELL.

E911-Tandem (continued)**Datafilling table TRKGRP**

Field	Subfield or refinement	Entry	Explanation and action
	ANISEIZ	numeric (2 to 30)	ANI seizure timing. The value of this subfield indicates the time the trunk waits to receive the first ANI digit or signal. This action occurs after an ANI request signal. The time is in seconds. Correct entries are 2 to 30.
	ANIPDIAL	numeric (2 to 30)	ANI partial dial timing. This subfield indicates the time that this trunk waits to receive each ANI digit or signal after the first digit. The time is in seconds. Correct entries are 2 to 30.
	ANIREQSG	REV, WK	ANI request signal. This subfield defines the ANI request. Enter REV for reverse or WK for wink.
	ESCO	numeric(0000 to 9999)	Emergency service central office. Enter the four-digit number that represents the end office where the E911 trunk originates. Correct entries are 0000 to 9999.
	ESN	numeric (0 to 15 999)	Emergency service number. Enter the five-digit number associated with the emergency service zone. The emergency service zone obtains the DN of the primary PSAP to which this call is to default route. Correct entries are 0 to 15 999. Office parameter E911_CHECK_DEFAULT_ESN can be N. If this event occurs you can assign an ESN that is not present in table E911ESN. If this office parameter is Y, enter the ESN already assigned in table E911ESN. See "Datafilling office parameters" for more information.

Datafill example for table TRKGRP

Datafill for table TRKGRP appears in the following MAP example.

MAP example for table TRKGRP

```

GRPKEY      GRPINFO
-----
S3E911LOOPI E911 0 NPDGP NCRT 903 123 Y BELL 1 5 5 REV 0323
223

```

E911-Tandem (continued)**Datafill for tables TRKGRP and TRKSGRP for E911 signaling protocol**

To define the signaling protocol used between an end office and an E911 tandem, enter data in the following fields:

- field ANIREQSG of table TRKGRP
- field IPULSTYP of table TRKSGRP

Enter data in the fields according to the following table.

Datafill for tables TRKGRP and TRKSGRP for E911 signaling protocols

Field ANIREQSG values	Field IPULSTYP values		
	MF	DP	NP
<i>REV</i>	MF E911 trunk signaling	DP E911 trunk signaling	Direct seize signaling
<i>WK</i>	not supported	not supported	PSAP signaling

See "Datafilling table TRKSGRP" for additional information on how to enter data in table TRKSGRP

TRKGRP warning messages

The system generates standard table control error messages and the following warning messages:

**DANGER**

The system generates the following warning message if the following events occur. Enter ESN for an E911 trunk group. An E911 trunk group is not entered in table E911ESN. Office parameter E911_CHECK_DEFAULT_ESN is N. ESN NOT PRESENT IN TABLE E911ESN. ENTER THIS ESN IN TABLE E911ESN FOR 911 CALLS TO COMPLETE.

E911-Tandem (continued)

Addition of a tuple to the table does not occur if the system generates the following warning.

**DANGER**

The system generates the following error message when the following events occur. An attempt to enter an ESN for an E911 trunk group occurs. The ESN is not present in table E911ESN. Office parameter E911_CHECK_DEFAULT_ESN is Y. ESN MUST BE IN TABLE E911ESN.

Datafilling table TRKSGRP

Table TRKSGRP defines additional parameters for DMS-100/200 trunk subgroups.

This section describes the datafill requirements for table TRKSGRP to support ringback to E911 callers. See the data schema section of this document for information on other E911 and standard trunk group datafill requirements.

See “Datafill for tables TRKGRP and TRKSGRP for E911 signaling protocol” for additional information. The additional information includes the defining protocol used between an end office and an E911 tandem.

Datafill for E911-Tandem for table TRKSGRP appears in the following table. The fields that apply to E911-Tandem appear in this table. See the data schema section of this document for a description of other fields.

Datafilling table TRKSGRP

Field	Subfield or refinement	Entry	Explanation and action
SGRPVAR			Variable group data. This field contains subfields. The subfields that apply to E911-Tandem appear in this field.
	IPULSTYP	MF, DP, NP	Incoming pulse type. This subfield defines the type of pulsing from an incoming or two-way trunk group. Enter MF for multi-frequency, DP for dial pulse, or NP for no pulse.

E911-Tandem (continued)**Datafill example for table TRKSGRP**

See the data schema section of this document for examples of table TRKSGRP entries for E911 and OP trunk groups in an end office.

Datafilling table STDPRTCT.STDPRT

Subtable STDPRT requires an E911 pretranslation selector and a pretranslation result tuple. Subtable STDPRT requires these features to support 911 calls on message and foreign exchange trunks. Foreign exchange trunks are not E911 trunks. Subtable STDPRT is in table STDPRTCT. This requirement results in the definition of ESN and emergency service central office (ESCO) in the pretranslation. Field ESN routes a 911 call to a PSAP that corresponds. Field ESCO is for use in the substitute ANI format that the E911 tandem forwards to the PSAP. Substitute ANI format is the ANI format that the system sends the PSAP to for message and foreign trunks. This action occurs because these types of trunks do not spill ANI.

The substitute ANI format for a PSAP that uses one information digit is:

- ID-911-0TTT: Where TTT is the ESCO and where ID is the digit 0 or 4.
- 4-911-0TTT: The system sends substitute ANI format to the PSAP. The ESCO obtained from table STDPRT associated with a specified trunk can have option FLASH set to Y in table E911ESN. When this action occurs, the ID digit 4 allows the ANI display at the PSAP to flash.
- 0-911-0TTT: The system sends this substitute ANI format to the PSAP if option FLASH is N, in the ESCO in table E911ESN.

The substitute ANI format for a PSAP that uses three information digits is NPA-911-0TTT. TTT is the ESCO and NPA is the SNPA of the incoming message or foreign exchange trunk group.

The pretranslation selector E911 is for use with pretranslators of message and foreign exchange trunks and not lines, coin or noncoin.

To assign E911-Tandem enter data in table STDPRCT.STDPRT. To perform this action, enter the listed values in the table fields in the following table. Table E911ESN must contain the value entered in field ESN of the pretranslator tuple.

Datafill for E911-Tandem for table STDPRTCT.STDPRT appears in the following table. The fields that apply to E911-Tandem appear in this table.

E911-Tandem (continued)

See the data schema section of this document for a description of the other fields.

Datafilling table STDPRTCT.STDPRT

Field	Subfield or refinement	Entry	Explanation and action
PRERTSEL		E911	Pretranslator selector. This field is a selector for the data of the pretranslator. This field can have E911 assigned.
	ESN	numeric (0 to 15 999)	Emergency service number. A five-digit number that represents an emergency service zone. Translations use this subfield to obtain the DN of the terminating PSAP. This action occurs for calls incoming on message and foreign exchange trunks. The pretranslator must contain data in the trunk group data. An ESN can range from 0 to 15 999. Enter an ESN in table E911ESN for an ESN to be a correct entry in table STDPRT.
	ESCO	numeric (0000 to 9999)	Emergency service central office. The four-digit ESCO number that represents the end office. This end office is the end office where the message or foreign exchange trunk group originates.

Datafill example for table STDPRTCT.STDPRT

Sample datafill for table STDPRTCT.STDPRT. appears in the following example.

MAP example for table STDPRTCT.STDPRT

FROMDIGS	TODIGS	PRETRTE
911	911	E911 123 0443

Datafilling table CUSTSTN

The E911-Tandem contains trunks like operator trunks that require specialized supervision. PSAP operators use these trunks during call transfers. Each customer group to which these PSAPs belong must have option call transfer supervision (CXFERSUP) assigned in table CUSTSTN. This option prevents

E911-Tandem (continued)

problems that can occur when the system maintains two-party calls. Problems can occur when the PSAP operator disconnects from the conference call.

To accommodate call transfers from the PSAP position, enter data in table CUSTSTN. To perform this action, enter the values that the following table lists with table control.

Note: When the system updates a tuple in table CUSTSTN, the customer group to which the tuple belongs must be defined in table CUSTHEAD.

Datafill for E911-Tandem for table CUSTSTN appears in the following table. The fields that apply to E911-Tandem appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table CUSTSTN

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		1 to 16 characters	Customer group name. Enter the 1-character to 16-character customer group name of the customer group assigned the CXFERSUP option. Definition of the customer group name occurs in table CUSTHEAD. Tables that define customer groups are in feature package NTX100AA, Integrated Business Network - Basic (IBN).
OPTNAME		CXFERSUP	Option name. Enter the call transfer enhanced option CXFERSUP.
OPTION		OPTION, CXTKIBN, CXTKPOTS, CXFERTON	Option. Field contains subfields OPTION, CXTKIBN, CXTKPOTS, and CXFERTON.
	OPTION	CXFERSUP	Option. Enter the option CXFERSUP.
	CXTKIBN	IBNTKSEL, ALLTRKS	Call transfer IBN trunks. This subfield contains subfields IBNTKSEL and ALLTRKS.
	IBNTKSEL	ALLIBN	IBN trunk selector. Enter ALLIBN.
	ALLTRKS	CONF	All trunks. Enter CONF to indicate that only conference calls can occur on the Integrated Business Network trunks for this customer group.
	CXTKPOTS	POTSKSEL, ALLTRKS	Call transfer POTS trunks. This subfield contains subfields POTSTKSEL and ALLTRKS.

E911-Tandem (continued)**Datafilling table CUSTSTN**

Field	Subfield or refinement	Entry	Explanation and action
	POTSTKSEL	ALLPOTS	POTS trunk selector. Enter ALLPOTS.
	ALLTRKS	ALLOW	All trunks. Enter ALLOW to indicate that call transfers can occur on plain old telephone service (POTS) trunks for this customer group.
	CXFERTON	N	Call transfer tone. Enter N to indicate that the system does not return call transfer warning tones to the PSAP operator that attempts the transfer.

Datafill example for table CUSTSTN

Sample datafill for table CUSTSTN appears in the following example.

MAP example for table CUSTSTN

```

CUSTNAME  OPTNAME
                                OPTION
-----
E911    CXFERSUP CXFERSUP ALLIBN ALLOW ALLPOTS ALLOW N

```

Datafilling table IBNSC

The Integrated Business Network speed calling (IBNSC) table records fixed or manual speed calling codes from Meridian Digital Centex (MDC) lines. The table normally updates when the PSAP operator updates a speed call list. The LDTPSAP operators cannot program these lists. Data entry must occur through table control. Entries in the range 11 to 16 do not have use during selective call transfer. The speed calling codes are for use in table E911ESN. See the data schema section of this document for more information about table IBNSC.

Tools for verifying translations

Output from translation verification (TRAVR) when TRAVR verifies E911-Tandem appears in the following example.

E911-Tandem (continued)**TRAVER output example for E911-Tandem selective routing**

```

traver tr e911trk '911' b n st2p 82295028 st
TABLE TRKGRP
E911DP E911 20 ELO NCRT 919 N BELL 1 10 10 N 0443 123
TABLE E911SRDB
919 822 5 028 211
TABLE E911ESN
211 N RALPOLICE RALFIRE RALFIRE2 NONE NONE NONE RALAMBLNCE

TABLE E911PSAP
RALPOLICE 8321901
TABLE HNPACONT
919 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 832 832 DN 919 832
TABLE TOFCNAME
919 832 1 Y C
TABLE DNINV
919 832 1901 H 65 0

TABLE DNATTRS
919 832 1901
(PUBLIC (NONUNIQUE) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
65 919 8321901 MLH N N N RCVD N N N N N Y LDTPSAP Y Y 1
RALPOLICE 5
TABLE HUNTMEM
65 0 N L HOST 00 0 01 01 N N
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE 9198321901
BILL 8225028
TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

E911-Tandem (continued)

TRAVER output example for E911-Tandem default routing

```
traver tr e911trk '911' b
TABLE TRKGRP
E911MF E911 20 ELO NCRT 919 N BELL
1 10 10 N 0521 210
CALL DEFAULT ROUTED
TABLE E911ESN
210 N CARYPOLICE CARYFIRE NONE NONE
NONE NONE CARYAMBULANCE
TABLE E911PSAP
CARYPOLICE 4691235
TABLE HNPACONT
919 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 469 469 DN 919 469
TABLE TOFCNAME
919 469 1 Y C
TABLE DNINV
919 469 1235 H 15 0
TABLE DNATTRS
919 469 1235
(PUBLIC (NONUNIQUE) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
15 919 4691235 MLH N N N RCVD N N N
N N Y LDTPSAP Y Y 1
CARYPOLICE 5
TABLE HUNTMEM
15 0 N L HOST 00 0 00 01 N N
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE 9194691235
TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

E911-Tandem (continued)**TRAVER output example for E911-Tandem for E911 pretranslator routing**

```

>traver tr boonefx '911' b

TABLE TRKGRP
BOONEFX PX 10 ELO NCRT 2W NIL MIDL N P552 PBX1 704 LCL NONE
TSPS L704 N 32 NIL
    5514121 DIALTN Y MCI Y LATA1
TABLE STDPRTCT
P552 ( 1) ( 0)
. SUBTABLE STDPRT
. 911 911 E911 212 789
TABLE E911ESN
212 Y BOONPOLICE NONE NONE NONE NONE NONE BOONAMBLNCE
TABLE E911PSAP
BOONPOLICE 5521900
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE  N
TABLE HNPACONT
704 128 2 ( 34) ( 1) ( 0)
. SUBTABLE HNPACODE
. 552 552 DN 704 552
TABLE TOFCNAME
704 552 1 Y C
TABLE DNINV
704 552 1900 L HOST 00 0 00 01
TABLE DNATTRS
704 552 1900
    (PUBLIC (NONUNIQUE ) j)j
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
65 704 5521900 MLH N N N RCVD N N N N N Y LINEPSAP Y
RALPOLICE 5
TABLE HUNTMEM
65 0 N L HOST 00 0 01 01 N N
TABLE LCASCRCN
704 L704 ( 27) OPTL N
. SUBTABLE LCASCR
. 552 553
TABLE PFXTREAT
OPTL NP Y NP UNDT
TABLE CLSVSCRC

```

E911-Tandem (continued)

TRAVER output example for E911-Tandem for E911 pretranslator routing

```
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 LINE                7045521900
TREATMENT ROUTES.    TREATMENT IS: GNCT
1 T120
+++ TRAVER: SUCCESSFUL CALL TRACE +++TUPLE NOT FOUND
```

E911-Tandem (continued)**TRAVER output example for E911-Tandem PSAP-to-PSAP routing for transfer**

```

>traver 1 6216000 6216023 B
TABLE IBNLINES
PSAP 00 0 00 00 DT STN IBN 6216000 COMKODAK 0 0 613 $
TABLE DNATTRS
613 621 6000
(PUBLIC (NONUNIQUE ) $)$
TABLE DNGRPS
TUPLE NOT FOUND

TABLE NCOS
E911 0 0 0 UNREST z
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA,
VACTRMT, AND DIGCOL
E911 NXLA POTSLXLA NXLA 0 NDGT
TABLE DIGCOL
NDGT specified: digits collected individually.
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 POTSLXLA
TUPLE NOT FOUND
Default from table XLANAME:
POTSLXLA (NET N N 0 N POTS N Y DOD N O NONE) $
TABLE DIGCOL
POTS specified: POTS digit collection

TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 TSPS N 10 NIL NILSFC
LATA1 0 NIL NIL 00 N
TABLE STDPRTCT
P621 ( 1) ( 0)
. SUBTABLE STDPRT
621 632 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE N
TABLE HNPACONT
613 128 1 ( 49) ( 1) ( 84)
. SUBTABLE HNPACODE
. 621 621 DN 613 621

```

E911-Tandem (continued)

TRAVER output example for E911-Tandem routing for transfer

```
TABLE TOFCNAME
613 621 6 Y C
TABLE DNINV
613 621 6023 H 115 0

ABLE DNATTRS
613 621 6023
(PUBLIC (NONUNIQUE ) $)$
TABLE DNGRPS
TUPLE NOT FOUND
TABLE HUNTGRP
115 613 6216023 MLH N N N RCVD N N N N N Y LDTPSAP Y Y 1
DURPOLICE 10

TABLE HUNTMEM
115 0 N L PSAP 00 0 00 23 N N
TABLE LCASCRN
613 L613 ( 13) MNDT N
. SUBTABLE LCASCR
. 621 622
TABLE PFXTREAT
MNDT NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT
UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++
1 LINE 6136216023

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

Note: You can activate E911 PSAP-to-PSAP routing for transfer. For this event to occur, the value set for translations must not require a special access number to gain network access. An example of a special access number is 9. The E911 PSAP must be able to dial a seven-digit DN directly. This condition is necessary because storage of E911 PSAP DNs occurs as seven-digit DNs in table E911PSAP. An example of a correct IBN translations scheme between PSAPs appears in the preceding sample TRAVER output.

E911-Tandem (continued)**TRAVER output example for E911-Tandem tandem-to-tandem routing**

```

traver tr e911icmf '911' b n st2p 82295028 st
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT 613 Y BELL 1 10 10 N 0692 111
TABLE E911SRDB
  613 621 5 001 200
TABLE E911ESN
200 YEDNR_PRIM NONE NONE NONE NONE NONE NONE
TABLE E911PSAP
EDNR_PRIM 7772000 Y
TABLE HNPACONT
613 911 2 (37) (1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 8777 777 HRTE 911
. SUBTABLE RTEREF
. 911 N S E911 OGOP 0 $ Y
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 E911OGOP 7772000 ST2P
BILL 06215001 ST

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

```

SERVORD

Complete the datafill for the required tables HUNTGRP, HUNTMEM, KSETFEAT and E911PSAP with SERVORD.

Table HUNTGRP contains the data for each hunt group assigned in the DMS-100. Table HUNTGRP includes options LDTPSAP and LINEPSAP.

Table HUNTMEM defines the LINE and LDTPSAP hunt group members.

Table KSETFEAT adds the three-way calling with public announcement (3WCPUB) option so that you can configure the MBS as E911 LINEPSAPs. Assign call transfer (CXR) to a feature key on the meridian business set

E911-Tandem (continued)

(MBS). Assign option 3WCPUB to the primary DN key on the set. Press the CXR key to initiate a call and activate option 3WCPUB.

Table E911PSAP contains the names and DNs of PSAPs and emergency DN routes. Emergency DN routes are for selective routing and selective call transfers to emergency agencies. Emergency DN routes are for emergency agencies that are not E911 PSAPs or that the E911 central office switch does not serve.

The establish a hunt group (EST) service order command sets up a LINE or LDTPSAP hunt group. The SERVORD options LDTPSAP and LINEPSAP determine the type of group created. Other service order options used in an E911 environment are as follows:

- CXR, 3WCPUB: call transfer, three-way calling with public announcement
- SCL, SCU: speed calling long, speed calling user
- DOR: denied origination

Option LDTPSAP identifies a PSAP that links to the E911 tandem office through an line appearance on a digital trunk (LDT). To configure LDTPSAP, create a DLH group or MLH group of IBN lines on an LDT node. Add the option to the pilot DN. You can use the following commands with option LDTPSAP:

- EST
- add a line to an existing hunt group (ADD)
- change feature information (CHF)
- add option (ADO)
- delete option (DEO)
- change line equipment number (CLN)



CAUTION

Loss of service

Configure LDTPSAP as a DLH group to make sure that call attempts distribute across the group.

E911-Tandem (continued)

Option LINEPSAP identifies a PSAP that links to the E911 tandem office through lines. To configure a LINEPSAP, create one of the following types of IBN hunt groups:

- DLH
- DNH
- MLH

ADD option LINEPSAP to the pilot DN. Use the following commands with option LINEPSAP:

- EST
- ADD
- ADO
- DEO
- CHF
- CLN

The following configurations occur through SERVORD:

- MBS and 500/2500 single-line sets as a LINEPSAP
- the function of the MBS keys for use during E911 calls

**CAUTION****Loss of service**

Configure the LINEPSAP as a DLH group to make sure that call attempts distribute across the group.

Data entered with options LINEPSAP or LDTPSAP fills tables HUNTGRP, IBNLINES, HUNTMEM, and E911PSAP.

E911-Tandem (continued)

SERVORD limits for LDTPSAPs

The following SERVORD limits apply to LDTPSAPs:

- Option LDTPSAP is not compatible with the following options:
 - Automatic Call Back (ACB)
 - Anonymous Caller Rejection (ACRJ)
 - Automatic Recall (AR)
 - Automatic Recall Dialable Number Delivery (ARDDN)
 - Automatic Time and Charges (ATC)
 - AVT
 - Bridged Night Number (BNN)
 - Calling Log (CALLOG)
 - common control switching agent (CCSA)
 - CDC
 - dc fused panel (DCF)
 - Call Forwarding Fixed (CFF)
 - Call forwarding Intragrouped (CFI)
 - CFK
 - CFS
 - Call forwarding universal (CFU)
 - CHD
 - Calling Line Flash (CLF)
 - CNAB
 - CNAMD
 - Calling Number Delivery (CND)
 - Calling Number Delivery Blocking (CNDB)
 - Station-Controlled Conference (CNF)
 - Cutoff on Disconnect (COD)
 - COT
 - CPU
 - Carrier Toll Denied (CTD)
 - CTW

E911-Tandem (continued)

- CWD
- call waiting origination (CWO)
- Call Waiting Ringback (CWR)
- call waiting (CWT)
- DCBI
- DCBX
- Dialable Number Delivery (DDN)
- DIN
- DND
- Directory Number Hunt (DNH)
- Distinctive Ringing/Call Waiting (DRCW)
- DTM
- EBO
- EBX
- EXLD
- EMW
- FIG
- Fire Reporting System, Origination (FRO)
- Fire Reporting System (FRS)
- Group Intercom (GIC)
- GND
- HLP
- line-ended public safety answering point (LINEPSAP)
- Last Number Redial (LNR)
- Intra-LATA PIC (LPIC)
- MBSCAMP
- MDN
- MEMPISP
- MLAMP
- MREL
- MRF

E911-Tandem (continued)

- MSB
- MSBI
- Message Waiting (MWT)
- name display (NAME)
- NHT
- No Line Insulation Testing (NLT)
- overflow register (OFR)
- OFS
- Primary Inter-LATA Carrier (PIC)
- PREMTBL
- Preferential Hunt (PRH)
- call park (PRK)
- PRL
- Residential Call Hold (RCHD)
- SCD
- Selective Call Forwarding (SCF)
- Series Completion (SCMP)
- Selective Call Rejection (SCRJ)
- SEC
- Single Line Variety Package (SLVP)
- Station Message Detail Recording (SMDR)
- SSAC
- Suppress Number/Name Display (SUPPRESS)
- Toll Essential Service (TES)
- 3WC
- uniform call distribution (UCDSD)
- To create a hunt group and configure a pilot with option LDTPSAP with the EST command, perform the following actions:
 - Make sure that table LDTINV contains an LDT node entry.
 - Make sure that table LNINV contains the pilot and member line equipment numbers for the hunt group. The SITE, FRAME, and UNIT values entered must correspond to the LDT node entry in LDTINV.

E911-Tandem (continued)

- Make sure that an unassigned DN is available for use as the pilot DN.
- Configure the pilot DN and group members in an MLH group.
- Define the line class code for an LDTPSAP as IBN.
- You can configure only the pilot with option LDTPSAP. The ADD command links other member lines to the pilot.
- Specify the following options with SERVORD for lines to have call transfer abilities:
 - three-way call with public announcement
 - call transfer (CXFER in table CUSTSTN)
- For selective call transfer, specify the following SERVORDs:
 - 3WCPUB
 - CXR if selection of CXFER does not occur in table CUSTSTN for the customer group to which the line belongs
 - speed calling long (SCL) or speed calling user (SCU)

SCL is assigned to the pilot. SCU is assigned to other group members.
- You can add member lines to the PSAP hunt group. When you perform this action make sure that the card codes of the lines in table LNINV match the pilot codes. The card codes in table LNINV are PSAPWA, PSAPNN, or PSAPWN. Card code PSAPWA supports ANI spill from the switch. Card codes PSAPNN and PSAPWN do not support ANI spill from the switch. This condition applies even when PSAPWN expects an ANI request from the PSAP station. The Subscriber Carrier Module-100 Urban ignores the request from the PSAP station.
- Use the DEO command to remove the LDTPSAP option before you delete the pilot of the hunt group. Use the OUT SERVORD command to delete the pilot of the hunt group. Before you can execute the DEO command, you must remove the PSAPNAME entry in the table E911ESN tuple that corresponds. Remove this entry with table control. See the section "Datafilling table E911ESN" for information on table E911ESN.
- You can change options associated with option LDTPSAP with the CHF service order command.
- You can use the CLN command to change a line equipment number in the LDTPSAP hunt group. When you perform this action make sure the card codes for the new and old line equipment numbers are the same. These codes are in table LNINV.
- LDTPSAP lines must be Digitone (DGT). The system adds option DGT automatically when option LDTPSAP associates with a line.

E911-Tandem (continued)

- You can remove option DGT from a line associated with option LDTPSAP only.
- To implement night service activate IBN features Random Make Busy (RMB) and Stop Hunt (SHU). Assign these options to the pilot of the DNH group or MLH group (PSAP) with SERVORD commands. A scan point circuit, an external key controls, associates with each option. Option SHU is not compatible with DLH groups. To make night service available, assign option RMB to each member of the group.
- If the following events occur, the system sends calls to an alternate route or DN:

- a hunt group does not have idle lines
- options Line Overflow to a Route (LOR)
- Line Overflow to a Directory Number (LOD) is assigned

This condition depends on the applied option. The E911 tandem changes the ANI that goes to the answering party from the pilot PSAP ANI to the calling party ANI. The calling party is not billed if the second leg of the call is long distance.

- The PSAP can have a power failure. If this event occurs the system handles the call like night service. Configure the scan point to activate when a failure occurs for this condition to apply.
- The Call Forward Group Don't Answer (CFGD) option can be active for a PSAP. If this event occurs the E911 tandem waits a specified period before the tandem forwards a not answered call. You can set the time range between 12 and 325 s. If option CFGD is not active, the E911 tandem does not time calls.

E911-Tandem (continued)

Option CFGD for a PSAP has the following fields:

- INTERNAL {Y, N}
 - If you enter INTERNAL as Y, the call forwards to an idle member of the hunt group.
 - If you enter INTERNAL as N, the system prompts for an external DN (CFGDN) to which the call can forward. A CFGDN can be the DN of a line, IBN or POTS or a hunt group.
- SPECTIME {Y, N}
 - If you enter SPECTIME as Y, the system prompts for a TIMEOUT value in the range 12 through 325 s. Call processing allows the PSAP TIMEOUT seconds to answer before call processing forwards the call.
 - If you enter SPECTIME as N, call processing uses a CFDATO value in table CUSTSTN before call processing forwards the call. The default value is 30 s.
- Option CFGD is not activated for an add-on party because of 3WC and CXR limits.

SERVORD prompts for LDTPSAPs

The SERVORD prompts used to assign E911-Tandem option LDTPSAP to a hunt group appear in the following table.

SERVORD prompts for E911 Tandem LDTPSAP

Prompt	Valid input	Explanation
OPTION	LDTPSAP	Configures a line appearance on a digital trunk as an LDTPSAP.
ANONCALL	Y or N	The Y allows calls to the PSAP by dialing the PSAP DN directly. The system uses standard translations to process the call. N limits dialing access to the PSAP to the number 911. The call system processes the call with E911 translations.
ANISPILL	Y or N	The Y allows ANI spill of one or three digits to the PSAP. N indicates that ANI spills cannot occur.
NUMIDIGS	1 or 3	The number of identification digits in the ANI spill. If the ANISPILL value is N, this prompt does not appear. If the office parameter E911_PSAPS_USING_1_INFO_DIGIT is N, the value must be 3.
PSAPNAME	maximum 16 characters	The name of the PSAP.

E911-Tandem (continued)

SERVORD example for E911-Tandem LDTPSAPs

How to create and assign options to the E911-Tandem LDTPSAP appears in the following SERVORD examples.

Configuring a multiline hunt (MLH) group and LDTPSAP pilot in prompt mode

```
>SERVORD
  SO:
>EST
  SONUMBER:  NOW 87 11 23 AM
  GROUPTYPE:
>DLH
  PILOT_DN:
>6211235
  LCC:
>IBN          The only line class code allowed for an LDTPSAP
  GROUP:
>E911         Define MDC groups in table CUSTENG
  SUBGRP:
>0
  NCOS:
>
  SNPA:
>919
  LATANAME:
>L456
  LTG:
>0

  PILOT_LEN:
>PSAP 0 0 0 0 Table LNINV LEN identifier for the pilot
  MEM_LEN:
>$
  OPTION:
>LDTPSAP
  ANONCALL:
>Y
  ANISPILL:
>y          If Y, field CARDCODE in table LNINV must be PSAPWA
           for pilot LEN. If N, field CARDCODE in table LNINV
           must be PSAPNN or PSAPWN.

  NUMIDIGS:
>1          The prompt appears if ANISPILL value is y. E911
           tandem offices spills 1 or 3 ANI digits. The value
           must be 3 if the office parameter E911_PSAPS_USING_
           1_INFO_DIGIT is set to N.
```


E911-Tandem (continued)**Configuring an MLH group and LDTPSAP pilot in prompt mode**

```

PSAPNAME:
>DURHAMPD
OPTION:
>3WCPUB      For E911 call transfer, a PSAP must have the
               options 3WCPUB, CXR, and DGT. The system assigns
               DGT when a line has option LDTPSAP assigned.

LOOPCON:
>N           Used with E911 call transfer, n links two
               parties to a three-way call.

OPTION:
>CSR
CXFERFERTYP:
>CTALL       This value allows all types of call transfers and
               is best for E911.

CXRRCL:
> N
METHOD:
> STD
OPTION:
>SCL         If E911 selective call transfer is necessary,
               speed calling long is the correct option. The PSAP agent
               selects specific speed calling codes

LISTYPE:
>L30
OPTION:
>CFGD        If you do not add this option, timing does not occur
               for this PSAP. The E911 tandem waits for the
               PSAP to answer or until ringing times out.

INTERNAL:
>N           Indicates that an idle member of the hunt group
               cannot receive the forwarded call.

CFGDN:
>6211235     External DN that can receive the forwarded call.
SPECTIME:
>Y           Indicates a timeout value in seconds is entered.
TIMEOUT:
>25          The timeout value in seconds
CFGTYPE:
>N
OPTION:
>$           Terminates OPTION: prompts

```

E911-Tandem (continued)

Configuring an MLH group and LDTPSAP pilot in prompt mode

```
GROUPSIZE:  
>2  
COMMAND AS ENTERED:  
EST NOW 87 11 23 AM DLH 6211235 IBN E911 0 0 919 L456 0  
PSAP 0 0 0 0 $ ( LDTPSAP Y Y 1 DURHAMPD )  
  ( 3WCPUB N ) ( CSR CTALL N ) ( STD ) ( SCL L30 )  
  ( CFGD N 6211235 Y 25 N ) $ 2  
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT  
>Y
```

Configuring an MLH group and LDTPSAP pilot in no-prompt mode

```
>EST $ DLH 6211235 IBN E911 0 0 919 L456 0 PSAP  
0 0 0 0 $ LDTPSAP Y Y 1 DURHAMPD 3WCPUB N CSR  
CTALL N STD SCL L30 CFGD N 6211235 Y 25 N $ 2
```

E911-Tandem (continued)**Adding member lines to an LDTPSAP hunt group in prompt mode**

```

>SERVORD
SO:
>ADD
SONUMBER:  NOW 87 11 23 AM
GROUPTYPE:
>DLH                      One of two hunt groups allowed for an LDTPSAP
LINK_LEN:
>PSAP 0 0 0 0             Table LNINV LEN identifier for the group pilot
MEM_LEN:
>PSAP 0 0 0 1             Table LNINV LEN identifier for group member
MEM_LEN:
>$
OPTION:
>3WCPUB                   E911 call transfer uses options 3WCPUB, CXR, and DGT.
                          If the group has DGT assigned the pilot DN receives
                          option LDTPSAP as an assignment.

LOOPCON:
>N                         Used with E911 call transfer, n links two parties
                          to a three-way call.

OPTION:
>CSR
CXFERTYP:

>CTALL                   This value allows all types of call transfers.
CXRRCL:
>N
METHOD:
> STD
OPTION:
>SCU                     If E911 selective call transfer must be in use,
                          Speed Calling User must minimize
                          administration of SCL lists.

CONTLEN:
>PSAP 0 0 0 0             The table LNINV LEN identifier for the pilot
SCU_TDN:
>Y
OPTION:
>$                         Terminates OPTION: prompts

```

E911-Tandem (continued)

Adding member lines to an LDTPSAP hunt group in prompt mode

```
GROUPSIZE:
>2
COMMAND AS ENTERED:
ADD NOW 87 11 23 AM DLH PSAP 0 0 0 0
( PSAP 0 0 0 1 ) $ ( 3WCPUB N )
( CSR CTALL N ) ( STD ) ( SCU PSAP 0 0 0 0 Y ) $ 2
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

Adding member lines to an LDTPSAP hunt group in no-prompt mode

```
>ADD $ DLH PSAP 0 0 0 0 PSAP 0 0 0 1 $
3WCPUB N CSR CTALL N STD SCU PSAP 0 0 0 0 Y $ 2
```

SERVORD limits for LINEPSAPs

The following limits apply to the option LINEPSAP in a service order command:

- Before you create a LINEPSAP hunt group, enter table LNINV with tuples that correspond to the hunt group lines.
- Option LINEPSAP is not compatible with the following options:
 - Automatic Line (AUL)
 - BNN
 - DIN
 - DND
 - FIG
 - HLD
 - LDTPSAP
 - NOH
 - RCHD
 - Series Completion (SCMP)
 - SLVP

Note: Option SHU is not compatible with DLH groups. A line in a DLH group can perform alternate routing if the line is busy or a power outage occurs. The line can perform alternate routing if all group members have option RMB. The line routes the call to another member

E911-Tandem (continued)

of the group if there is no answer. You can configure all types of alternate routing for DNH and MLH groups.

- To create a hunt group and configure a pilot DN with option LINEPSAP with the EST command, perform the following steps:
 - Make sure that a not assigned DN is available for use as the pilot DN.
 - Configure the pilot DN as part of an MLH, DLH, or DNH group.
 - Define the line class code for the pilot DN as IBN, PSET, or M5xxx set.
- You can configure the pilot with option LINEPSAP. The ADD command links other member lines to the pilot.
- To have selective or fixed call transfer abilities with a LINEPSAP, specify the following options with a service order command:
 - 3WCPUB
 - CXR applied to the line or CXFER applied to the customer that contains the line
 - SCL or SCU

A LINEPSAP must have option DGT signaling unless the LINEPSAP are MBSs equipped with this ability. Assign options 3WC or CXR to an available MBS key that initiates transfers. Hook-flash performs this function on 2500 sets.

- You cannot use the LDT line equipment number that table LNINV lists in LINEPSAP SERVORD commands.
- Use the DEO command to remove the LINEPSAP option before you delete the pilot of the hunt group. Use the OUT SERVORD command to delete the pilot of the hunt group. Before you can execute the DEO command, remove the PSAPNAME entry in the table E911ESN tuples that correspond. Use table control to perform this action. If you do not remove the PSAPNAME entry from table E911ESN the following error message appears.

LDTSPAP/LINEPSAP option data not updated.

PSAP name in use by other tables.

Use TABREF E911PSAP to determine other reference.

- You can change other options associated with option LINEPSAP with the CHF SERVORD command.
- You can use the CLN command to change a line equipment number in the LINEPSAP hunt group. When you perform this action make sure the card codes for the new and old LEN are the same. Table LNINV contains these card codes.

E911-Tandem (continued)

- To implement night service, activate IBN features RMB and SHU. You can assign both options to the pilot of the DNH group or MLH group (PSAP) with SERVORD commands. A scan point circuit that an external key controls associates with each option. Option SHU is not compatible with DLH groups. To make night service available, assign option RMB to each member of the group.
- If the following events occur, the system sends calls to an alternate route or DN:
 - a hunt group does not have idle lines
 - options LOR
 - LOD is assigned

This condition depends on the applied option. The E911 tandem changes the ANI that goes to the answering party from the pilot PSAP ANI to the calling party ANI. The calling party is not billed if the second leg of the call is long distance.

- If the LINEPSAP can have a power failure. If this event occurs, the system handles the call like night service. Configure the scan point to activate when a failure occurs for this condition to apply.
- Option CFGD can be active for a LINEPSAP. If this event occurs the E911 tandem waits a specified period before it forwards the not answered call. You can set the time range between 12 and 325 s. If option CFGD is not active, the E911 tandem does not time calls.

Option CFGD for a LINEPSAP has the following fields:

- INTERNAL {Y, N}
 - If you enter INTERNAL as Y, the call forwards to an idle member of the hunt group.
 - If you enter INTERNAL as N, the system prompts for an external DN (CFGDN) to which the call can forward. A CFGDN can be the DN of a line, IBN or POTS or a hunt group.
- SPECTIME {Y, N}
 - If you enter SPECTIME as Y, the system prompts for a TIMEOUT value in the range of 12 to 325 s. Call processing allows the PSAP TIMEOUT seconds to answer before call processing forwards the call.
 - If you enter SPECTIME as N, call processing uses a CFDATO value in table CUSTSTN before call processing forwards the call. The default value is 30 s.

E911-Tandem (continued)

SERVORD prompts for LINEPSAPS

The SERVORD prompts that you use to assign the E911-Tandem LINEPSAP to a hunt group appear in the following table.

SERVORD prompts for E911-Tandem LINEPSAP

Prompt	Valid input	Explanation
OPTION	LINEPSAP	Configures a line-ended PSAP (LINEPSAP).
ANONCALL	Y or N	The Y allows calls to the PSAP by dialing the PSAP DN directly. The system uses standard translations to process the call. The N limits dialing access to the PSAP to the number 911. The system processes with E911 translations.
PSAPNAME	Maximum 16 characters	Name of the PSAP.

SERVORD example for E911-Tandem LINEPSAPs

How to create and assign options to the E911-Tandem LINEPSAP appears in the following service order example.

E911-Tandem (continued)

Configuring an Integrated Business LINEPSAP MLH group in prompt mode

```
>SERVORD
SO:
>EST
SONUMBER:  NOW 87 11 23 AM
GROUPTYPE:
>DLH                One of three hunt groups allowed for a LINEPSAP
PILOT_DN:
>6211235
LCC:
>IBN
GROUP:
>E911                Define MDC groups in table CUSTENG
SUBGRP:
>0
NCOS:
>0
SNPA:

>919
LATANAME:
>L456
LTG:
>0
PILOT_LEN:
>HOST 0 0 0 1        Table LNINV line equipment number identifier for
                       the pilot
MEM_LEN:
>$
OPTION:
>LINEPSAP
ANONCALL:
>Y
PSAPNAME:
>DURHAMPD
OPTION:
>DGT                An IBN LINEPSAP must have options
                       DGT, 3WCPUB, and CXR.
OPTION:
>3WCPUB
```


E911-Tandem (continued)**Configuring an Integrated Business LINEPSAP multiling hunt group in prompt mode**

```

LOOPCON:
>N                Used with E911 call transfer, n links two parties
                   to a three-way call

OPTION:
>CSR
CXFERTYP:
>CTALL            This value allows all types of call transfers and
                   is best for E911.

CXRRCL:
>N
METHOD:
> STD
OPTION:
>SCL              If E911 selective call transfer is necessary,
                   speed calling long is the correct option. The
                   PSAP agent programs the speed calling codes.

LISTYPE:
>L30
OPTION:
>$                Terminates OPTION: prompts

GROUPSIZE
>2
COMMAND AS ENTERED:
EST NOW 87 11 23 AM DLH 6211235 IBN E911 0 0 919 L456 0
HOST 0 0 0 1 $ ( LINEPSAP Y DURHAMPD ) ( DGT )
( 3WCPUB N ) ( CSR CTALL N ) (STD) ( SCL L30) $ 2
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y

```

Configuring an Integrated Business LINEPSAP multiling hunt group in no-prompt mode

```

>EST $ DLH 6211235 IBN E911 0 0 919 L456 0 HOST
0 0 0 1 $ LINEPSAP Y DURHAMPD DGT 3WCPUB N CSR CTALL N
STD SCL L30 $ 2

```

E911-Tandem (continued)

Adding member lines to an IBN LINEPSAP hunt group in prompt mode

>SERVORD

SO:

>ADD

SONUMBER: Now 87 11 23 AM

GROUPTYPE:

>DLH One of three hunt groups allowed for a LINEPSAP.

LINK_LEN:

>HOST 0 0 0 1 The pilot LEN defined in table LNINV.

MEM_LEN

>HOST 0 0 1 1 Table LNINV LEN group member identifier

MEM_LEN:

>\$

OPTION:

>DGT For E911 call transfer, a PSAP must have options DGT, 2WCPUB AND CXR.

OPTION:

>3WCPUB

LOOPCON:

>N The n links two parties to a three-way call.

OPTION:

>CSR

CXFERTYP:

>CTALL This value allows all types of call transfers and is best for E911.

CXRRCL:

>N

METHOD:

> STD

OPTION:

>SCU If E911 selective call transfer is necessary, speed calling user is the suggested option.

CONTLEN:

>HOST 0 0 0 1 Table LNINV LEN identifier for the pilot

SCU_TDN:

>Y

OPTION:

>\$ Terminates OPTION: prompts

E911-Tandem (continued)

Adding member lines to an IBN LINEPSAP hunt group in prompt mode

```
GROUPSIZE:  
>2  
COMMAND AS ENTERED:  
ADD NOW 87 11 23 AM DLH HOST 0 0 0 1  
(HOST 0 0 1 1 ) $ (DGT) (3WCPUB N)  
(CSR CTALL N) (STD) (SCU HOST 0 0 0 1 Y) $ 2  
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT  
>Y
```

Adding member lines to an IBN LINEPSAP hunt group in no-prompt mode

```
>ADD $ DLH HOST 0 0 0 1 HOST 0 0 1 1 $ DGT 3WCPUB  
N CXR CTALL N STD SCU HOST 0 0 0 1 Y $ 2
```

E911-Tandem (continued)

Configuring a hunt group and MBS LINEPSAP pilot in prompt mode

>SERVORD

SO:

>EST

SONUMBER: NOW 87 11 23 AM

GROUPTYPE:

>DLH One of three hunt groups allowed for a LINEPSAP.
the other hunt groups are MLH and DNH.

PILOT_DN:

>6211235

LCC:

>PSET The MBS line class code includes PSET and M5xxx where
xxx is the specified business set model number.

GROUP:

>E911

SUBGRP:

>0

NCOS:

>0

SNPA:

>919

LATANAME:

>L456

KEY:

>1 Identifies the key associated with the pilot DN

RINGING:

>Y The MBSs only-Y specifies ringing to accompany display
flash.

LTG:

>0

PILOT_LEN:

>HOST 0 0 0 1 Table LNINV LEN identifier for the pilot

MEM_LEN:

>\$

OPTION:

>LINEPSAP

ANONCALL:

>Y

E911-Tandem (continued)

Configuring a hunt group and MBS LINEPSAP pilot in prompt mode

```
PSAPNAME:
>DURHAMPD
OPTION:
>$ Terminates OPTION: prompts
GROUPSIZE:
>2
COMMAND AS ENTERED:
EST NOW 87 11 23 AM DLH 6211235 PSET E911 0 0 919 L456
1 Y 0 HOST 0 0 0 1 $ ( LINEPSAP Y DURHAMPD ) $ 2
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>Y
```

Configuring a hunt group and MBS LINEPSAP pilot in no-prompt mode

```
>EST DLH 6211235 PSET E911 0 0 919 L456 1 Y 0 HOST 0 0 0 1
0 0 0 1 $ LINEPSAP Y DURHAMPD $ 2
```

E911-Tandem (continued)

Defining option keys for an MBS LINEPSAP in prompt mode

>SERVORD

SO:

>ADD

SONUMBER: NOW 87 11 23 AM

DN_OR_LEN:

>0 0 0 1

OPTKEY: Assigns key for three-way calling

>1

OPTION:

>3WCPUB

LOOPCON:

>N

Used with E911 call transfer, n links two parties to a three-way call. If you enter a 3WCPUB as option MBS and LOOPCON is Y, the following error message occurs:

An EBS is not an attendant console. LOOPCON must be set to N.

OPTKEY: Assigns key for call transfer

>4

OPTION:

>CSR

CXFERTYP:

>CTALL

This value allows all types of call transfers and is best for E911.

CXRRCL:

>N

METHOD:

> STD

OPTKEY:

>1

OPTION:

>SCL

If E911 selective call transfer is necessary, speed calling long is the correct option.

LISTYPE:

>L30

OPTKEY:

>\$

COMMAND AS ENTERED:

ADO NOW 87 11 23 AM 0 0 0 1 (1 3WCPUB N) (4 CSR CTALL N)
(STD) (1 SCL L30) \$

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT

>Y

E911-Tandem (end)

SERVORD example for E911-Tandem in no-prompt mode

>ADD \$ 0 0 0 1 1 3WCPUB N 4 CSR CTALL N STD 1 SCL L30 \$

E911 Tandem-Tandem Enhancements

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00018

Release applicability

CNA15 and up.

CNA15 introduced the E911 Tandem-Tandem Enhancements.

Requirements

E911 Tandem-Tandem Enhancements has no functional group requirements.

Description

Basic 911 (B911) and Enhanced 911 (E911) are both emergency service products provided by the DMS switching group. The E911 Tandem-Tandem Enhancements allow existing E911 functionality to be used in a unique network configuration containing “Dual Super E911 tandems.” A sample of such a network configuration uses a single Network Automatic Call Distribution (ACD) group spanning two E911 tandems, creating dual Super E911 tandems. The two Super E911 tandems are connected to six existing E911 tandems and to each other with ISUP trunking.

The E911 Tandem-Tandem Enhancements extend existing E911 functionality to the network configuration of Dual Super E911 Tandems by implementing new E911 functionality. This functionality allows PSAP transfers to route back to the E911 tandem that performed Selective Routing, selecting the correct alternate PSAP to use when transferring the call. See the DMS-100 Family Translations Guide, NTP 297-8001-350 for more information about using the E911 Tandem-Tandem enhancements.

Operation

The new E911 mechanisms implemented by this activity can be classified as either Fixed and Manual Transfers or Selective Routing / Selective Transfers.

Fixed and manual transfers

Fixed transfer is used when either selective routing is not available or when the calling party is reporting an emergency that exists beyond his Emergency Service Zone. Fixed Transfer is activated by pressing a single key on the PSAP set. A typical example is a speed call.

E911 Tandem-Tandem Enhancements (continued)

Manual transfer allows the PSAP attendant to manually dial the DN or speed calling code of the secondary PSAP or location. The codes assigned for selective or fixed transfers can also be used as the speed calling codes.

The primary PSAP is retrieved from the SRDB. If the PSAP is in the format 911XXXX, the corresponding selector datafilled in STDPRTCT for translation must not be E911RTE.

The following new functionalities are introduced by E911 Tandem-Tandem Enhancements for fixed and manual transfers. New functionalities for selective transfer and selective routing are in the following section.

Tandem Prefix Value - TDMPRFX

The E911 Tandem-Tandem Enhancements introduce a new field, Tandem Prefix Value (TDMPRFX), in the E911 option of Table TRKGRP. TDMPRFX indicates the E911 tandem in the network that performed Selective Routing.

The value for TDMPRFX can range from 0 to 15 with a default of 0. This value is used in PSAP transfers to route the call back to the originating E911 tandem so that the correct alternate PSAP can be selected. The TDMPRFX is transported between E911 tandems in the network through a new Generic Digits Parameter (GDP) in the ISUP IAM. The delivery of the TDMPRFX value in the new GDP performs as follows:

- If a non-zero TDMPRFX is datafilled against an ISUP IT trunk with the E911 option, then a GDP is built containing the TDMPRFX and sent on outgoing E911 calls.
- If the TDMPRFX datafilled against an ISUP IT trunk has the default value of 0, and if no TDMPRFX is received from a GDP, then outgoing E911 calls do not build the GDP containing the TDMPRFX.
- If a GDP containing the TDMPRFX is received at an E911 tandem, the value is stored. If the TDMPRFX value in table TRKGRP is not zero, the stored TDMPRFX is used instead of any datafilled TDMPRFX values. If the TDMPRFX value in table TRKGRP is zero, the TDMPRFX from the GDP is not used for additional processing.
- If the TDMPRFX datafilled against an ISUP IT trunk has the default value of 0 and no GDP is received, the TDMPRFX is ignored.
- During an ONP, if a non-zero TDMPRFX is not datafilled, a default value of 0 is transferred.

Datafill the TDMPRFX field in the Super E911 tandems for incoming ISUP IT trunks with the E911 option. The TDMPRFX field in other E911 tandems must not be datafilled, allowing the default of zero to remain.

E911 Tandem-Tandem Enhancements (continued)

E911 Route Selector (E911RTE)

The E911 Tandem-Tandem Enhancements create a new selector, E911RTE, in table STDPRTCT.STDPRT. This selector directs PSAP transfers to the new E911 Tandem Routing table (E911TDRT). In the example below showing the Super E911 tandem network, the directory number associated with PSAPs is in the format of 911XXXX. However, any unique format can be used.

Transfers routed with E911RTE are based on the E911 tandem that performed the Selective Routing (using the TDMPRFX value) and the digits dialed by the primary PSAP to route the call to another PSAP. The type of call field takes the same values as the T selector: DD, OA, NP or NL.

E911 Tandem Routing Table (E911TDRT)

The new table E911TDRT is datafilled to map PSAP transfers to the office route associated with the E911 tandem that originally performed Selective Routing. This new table uses the DN associated with the PSAP transfer, referred to as the E911 Tandem Routing DN (E911TRDN), and the TDMPRFX value for the PSAP transfer. This information is used to map the PSAP transfer to the appropriate office route. An example configuration of table E911TDRT is shown below:

Sample configuration of Table E911TRDT

E911TRDN	TDMPRFX	ROUTE
9111234	1	OFRT 1
9111234	2	OFRT 2
9111234	3	OFRT 3
9111234	4	OFRT 4
9111234	5	OFRT 5

This configuration allows PSAP transfers that result in an E911 tandem routing directory number of 911-1234 to be transferred to a specific office route based on the TDMPRFX value, which indicate the E911 tandem that performed Selective Routing. If a PSAP transfer enters this table and does not find a match, it is routed to a RORDR TREATMENT.

Existing functionality in table OFRT allows deletion and prefixing of digits so that the appropriate directory number can be selected.

Selective routing/selective transfers

In selective routing, the ESN for the calling DN is retrieved from Table E911SRDB. The call is selectively routed if the ESN is found in the E911SRDB table. If an ESN is not found in this table, the ESN is retrieved from the trunk group data of the incoming trunk and the call is default routed.

E911 Tandem-Tandem Enhancements (continued)

Selective transfer, like selective routing, selects the terminating agent based on the calling party's ESN. Selective transfer is activated by pressing a key on the PSAP set associated with the emergency type.

Selective transfer codes are two-digit codes. The first digit is 1, and the second digit ranges from 1 to 6. This second digit refers to the secondary PSAP in Table E911ESN.

The following new functionalities are introduced by E911 Tandem-Tandem Enhancements for selective routing and selective transfers.

Unique ESN values

This activity extends the present functionality to have access to an Emergency Service Number (ESN) which is unique within the customer's network.

The TDMPRFX value (retrieved from datafill or received from the GDP) is used in conjunction with the ESN value returned from the SRDB to calculate a unique ESN. The unique ESN is generated by multiplying the TDMPRFX value by 1000, and then adding the SRDB ESN. If the ESN datafilled in Table E911SRDB is greater than or equal to 4 digits, the TDMPRFX is ignored. The new "calculated" unique ESN is either 4 or 5 digits (the length determined by the ESN being greater than or equal to 4 digits). The default TDMPRFX value is zero, so the ESN remains unchanged if the TDMPRFX is not datafilled.

In selective routing, if the ESN entry is not available in Table E911SRDB, the ESN is retrieved from the trunk group data of the incoming ISUP IT trunk. The the unique ESN is calculated, and then the call is default routed based on the calculated ESN.

Examples are included below:

ESN used in selective transfer (Sheet 1 of 2)

Tandem	TDMPRFX	SRDB ESN	ESN in E911ESN table
T1	1	7	1007
T1	1	20	1020
T2	2	113	2113
T3	3	200	3200
T4	4	11	4011
T5	5	112	5112

E911 Tandem-Tandem Enhancements (continued)

ESN used in selective transfer (Sheet 2 of 2)

Tandem	TDMPRFX	SRDB ESN	ESN in E911ESN table
T6	6	22	6022
ST1	10	7	10007
ST2	15	162	15162

New Generic Digits Parameter—Generic Digits E911 Tandem Prefix

The E911 Tandem-Tandem Enhancements introduce a new Generic Digits Parameter (GDP), Generic Digits E911Tandem Prefix. The GDP transfers the TDMPRFX between E911 Tandems within the same network. See the MAP example below for a sample layout of the new GDP. See “Tandem Prefix Value—TDMPRFX” in this document for more information.

This feature does not impact E911 wireless calls which sends the GDP type Generic Digits Wireless Emergency.

GDP format in initial address message (IAM)

```

OUTGOING 16:41:45.743  NODE TYPE= LTC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 1  NODE= 4317
NN= 001C  TN= 0070  MSGTAG= 00  ROUTE= 10DD  ERROR= 00  LENGTH= 2E
AGENT= CKT          E9110GS7      1
0F 01 00 22 00 E0 03 0A 10 01 00 01 02 02 00 01 00 06 81 10 26 21 11 03 0A 07
03 13 16 63 12 10 08 C1 02 1E 51 00
      CCS7 MESSAGE TYPE:
      DATA BYTES:          00 22 00 E0 03 0A 10 01 00 01
                           02 02 00 01 00 06 81 10 26 21
                           11 03 0A 07 03 13 16 63 12 10
                           08 C1 02 1E 51 00
      NATURE OF CONNECTION: ISUP_NO_SATELLITE,  NO_ISUP_CONT_CHK
                           ISUP_NO_HALF_ECHO_SUP
.....
.....
OPTIONAL PART:  CALLING PARTY :
                  EVEN_ODD_IND:          EVEN_NUM_NIBBLES
                  NATURE_OF_ADD:          UNIQUE_NATIONAL_SIG_NUMBER
                  ADDR_PRES_RESTRICTED_IND : PRESENTATION_ALLOWED
                  NUMBERING_PLAN :        ISDN_TELEPHONY_NUM_PLAN
                  SCREENING_IND :          NETWORK_PROVIDED
                  ADDRESS_INFORMATION = 6136210180
GENERIC DIGITS (#C1) :
GENERIC DIGITS MSG TYPE :   GENERIC DIGITS E911TANDEM PREFIX
ENCODING SCHEME :          BCD EVEN
GENERIC DIGITS :           15

```

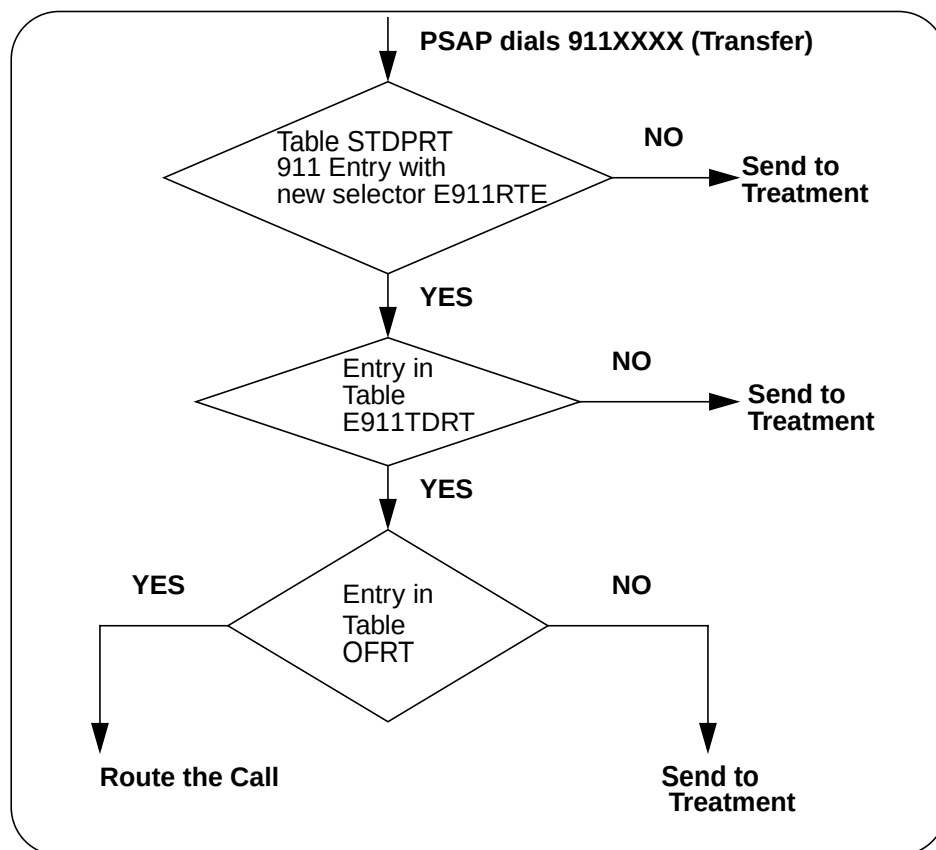
E911 Tandem-Tandem Enhancements (continued)**Translations table flow**

The list that follows includes the E911 Tandem-Tandem Enhancements translations tables:

- Table STDPRT
- Table E911TDRT
- Table OFRT

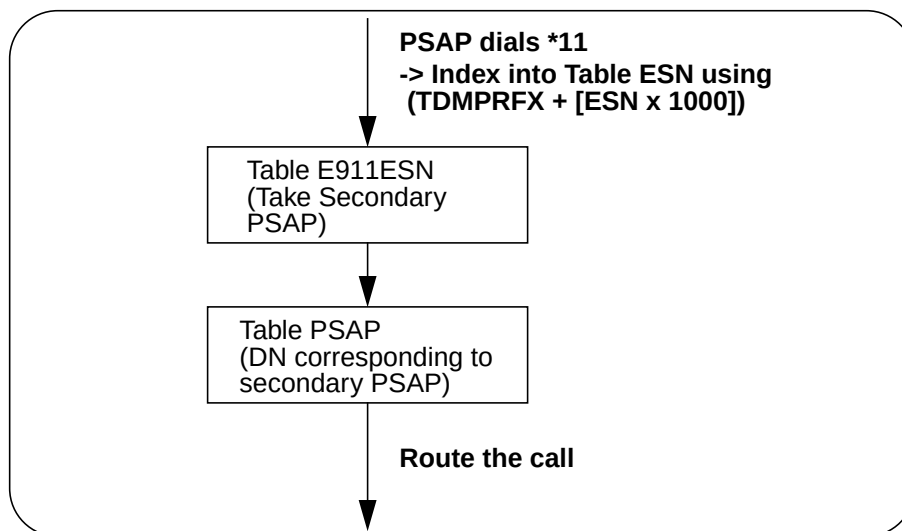
The flowcharts that follow provide the E911 Tandem-Tandem Enhancements translations process.

Table flow for fixed/manual transfers from PSAP for E911 Tandem-Tandem Enhancements



E911 Tandem-Tandem Enhancements (continued)

Table flow for selective transfers from PSAP for E911 Tandem-Tandem Enhancements



Limitations and restrictions

The limitations and restrictions that follow apply to E911 Tandem-Tandem Enhancements.

- The E911 option and TDMPRFX apply only to ISUP IT trunks, limiting this functionality to E911 calls using ISUP IT trunks for selective routing and transfer.
- PRI PSAP is not supported for E911 Tandem-Tandem Enhancements.

Interactions

E911 Tandem-Tandem Enhancements does not change any existing E911 feature interactions.

Activation and deactivation by the user

E911 Tandem-Tandem Enhancements does not require activation or deactivation by the user.

Billing

E911 Tandem-Tandem Enhancements does not generate billing records or changes.

Station Message Detail Recording

E911 Tandem-Tandem Enhancements does not require Station Message Detail Recording.

E911 Tandem-Tandem Enhancements (continued)

Office parameters used by E911 Tandem-Tandem Enhancements

E911 Tandem-Tandem Enhancements does not introduce new office parameters.

Datafill sequence

The following table lists the tables requiring datafill to put E911 Tandem-Tandem Enhancements into operation.

Datafill requirements for E911 Tandem-Tandem Enhancements

Table	Purpose of table
TRKGRP	The Trunk Group table contains operating company-defined data associated with each trunk group that exists in the switching unit. The E911 option for ISUP IT trunks in this table is affected by the E911 Tandem-Tandem Enhancements.
STDPRT	The Standard Pretranslator Subtable. Subtable STDPRTCT.STDPRT is the first table indexed by the received leading digits, provided that table LINEATTR or table TRKGRP specifies a pretranslator name (field PRTNM) other than NPRT (no pretranslator).
E911TDRT	The E911 Tandem Routing Table contains mappings between PSAP transfers, the E911 tandem which performed the initial selective routing, and an associated office route.

E911 Tandem-Tandem Enhancements (continued)

Datafill related to E911 Tandem-Tandem Enhancements for table TRKGRP

The table that follows provides the datafill related to E911 Tandem-Tandem Enhancements for table TRKGRP. This table includes only those fields that apply directly to E911 Tandem-Tandem Enhancements.

Datafill related to table TRKGRP

Field	Subfield	Entry	Explanation and action
TDMPRFX	NA	0 TO 15	Tandem Prefix Value. Sub-option TDMPRFX under option E911 for ISUP IT trunks indicates the E911 tandem that performed initial selective routing. PSAP transfers must route the call back to this tandem to select the correct alternate PSAP. The TDMPRFX is transported between E911 tandems in the network through a new Generic Digits Parameter (GDP) in the ISUP IAM. The default value is 0.
Note: The E911 option and TDMPRFX only apply to ISUP IT trunks.			

Datafill example for table TRKGRP

The figure that follows shows sample datafill for table TRKGRP with the TDMPRFX subfield under the E911 option.

E911 Tandem-Tandem Enhancements (continued)**MAP example for table TRKGRP**

```

CI:
>TABLE TRKGRP
TABLE: TRKGRP
>POS E911ICS7
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N
(E911 747 113 E911_STD N 0) $
>CHA
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>Y
GRPTYP: IT
.....
.....
OPTION: E911
>
ESCO: 747
>
ESN: 113
>
E911SIG: E911_STD
>
ORIGHOLD: N
>
ECPHTIME: 0
>
OFBSR: N
>
TDMPRFX: 15
OPTION:
>$
TUPLE TO BE CHANGED:
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 613 AT1 NSCR 613 000 N N
(E911 747 113 E911_STD N 0 15) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

```

Error messages for table TRKGRP

The error messages that follow apply to table TRKGRP. Only error messages specific to the TDMPRFX option are mentioned here.

Error messages for table TRKGRP

Error message	Explanation and action
*** ERROR ***	The sub-option TDMPRFX was datafilled with a value other than one in the range 0 to 15. Datafill with the correct values.

E911 Tandem-Tandem Enhancements (continued)

Datafill related to E911 Tandem-Tandem Enhancements for table STDPRTCT.STDPRT

A new selector called E911RTE is introduced in sub-table STDPRT.

Datafill related to table STDPRTCT.STDPRT

Field	Subfield or refinement	Entry	Explanation and action
E911RTE	NA	NA	E911 Route Selector. The selector points to the new table E911TDRT. The type of call field takes the same values as a T selector: DD, OA, NP or NL. Datafilling E911RTE will route E911 transferred calls based on the TDMPRFX and the called number in Table E911TDRT.

Datafill example for table STDPRT

The figure that follows shows sample datafill for table STDPRT with the E911RTE selector.

E911 Tandem-Tandem Enhancements (continued)

MAP example for table STDPRT

```

>Table STDPRTCT
> POS P621
> SUB 2
> ADD
> FROMDIGS:
>911
TODIGS:
>911
PRERTSEL:
TYPE OF PRERTSEL IS PRET_ROUTE_SELECTOR
TYPE IS PRET_ROUTE_SELECTOR {S,T,D,N,L,P,V,R,X,F,Z,EA,NSC,FGB,ET,E911,
                                FGDCL, SFMT, SSP,E911RTE}

PRERTSEL:
>E911RTE
TYPCALL:
>0A
NOPREDIG:
>0
MINDIGSR:
>3
MAXDIGSR:
>7
TAB:
TYPE OF TAB IS TAB_NAME
TYPE IS TAB_NAME {E911TDRT}
TAB:
>E911TDRT
POS: NONE
>
TUPLE TO BE ADDED:
          911 911 E911RTE 0A 0  3 7 E911TDRT NONE
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE ADDED

```

Datafill related to E911 Tandem-Tandem Enhancements for table E911TDRT

The new table E911TDRT has three fields: E911 Transfer Directory Number (E911TRDN), Tandem Prefix Value (TDMPRFX) and ROUTE. Calls are routed based on the datafill in the E911TDRT table using the dialed number in

E911 Tandem-Tandem Enhancements (continued)

911RTNUMBER and the tandem prefix value (TDMPRFX) from the TRKGRP table.

Datafill related to table E911TDRT

Field	Subfield	Entry	Explanation and action
E911TRDN	NA	Up to 18 characters (N,1,2,3,4,5,6,7,8,9,0,B,C,D,E,F)	E911 Tandem Routing Directory Number. This is the directory number associated with the PSAP transfer.
TDMPRFX	NA	Range from 0 to 15	Tandem prefix value from the TRKGRP table for IT ISUP trunk types under option E911, subfield TDMPRFX. If datafilled in TRKGRP, a new Generic Digits Parameter (GDP) is built in the IAM for E911 calls and transported to the E911TDRT table. The default is 0
ROUTE	NA	Combination of tabid multiple with integers from 0 to 1023	The final route is an external_route_id type like EXTRTEID for the T selector in the STDRTCT.STDPRT table. This route is selected from the tabid and the number indicated, such as OFRT 0 or OFRT 1023. For each route, the corresponding table is datafilled accordingly.
Note: TDMPRFX only applies to ISUP IT trunks.			

Datafill example for table E911TDRT

The figure that follows shows sample datafill for table E911TDRT.

MAP example for table E911TDRT

```
>TABLE E911TDRT
> ADD
9111234 1 OFRT 12
TUPLE TO BE ADDED:
9111234 1 OFRT 12
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
> Y
TUPLE ADDED
```

E911 Tandem-Tandem Enhancements (continued)

Error messages for table E911TDRT

The error messages that follow apply to table E911TDRT.

Error messages for table E911TDRT

Error message	Explanation and action
*** ERROR ***	E911TRDN, TDMPRFX or ROUTE have been datafilled outside the specified range for each field. Datafill with the correct values.

Translation verification tools

E911 Tandem-Tandem Enhancements

Table TRKGRP

Translation verification tool (TRAVER) is not impacted by the introduction of the new sub-option TDMPRFX.

Table STDPRTCT

For the subtable STDPRT in the STDPRTCT table, translation verification varies depending on the type of transfer.

Fixed or manual transfers

A E911 manual transfer occurs when the alternate PSAP number is dialed manually or mapped to a QCK key. Traver is not supported for a manual transfer call with translations using the new selector E911RTE. The following message is displayed:

TRAVER NOT SUPPORTED FOR E911RTE SELECTOR

For transfers using the asterisk (*) code, such as speed calling, traver is presently not supported.

Selective Routing / Default ESN

Traver is supported for selective/default ESN routing using the TDMPRFX value. The traver tool output will be directed to a new tuple datafilled in Table E911ESN.

Selective Transfer

No modification to the traver tool is necessary because selective transfer involves dialling with an asterisk (*) code, which is presently not supported by traver.

E911 Tandem-Tandem Enhancements (end)

Table E911TDRT

For table E911TDRT, translation verification varies depending on the type of transfer. The information above for Table STDPRCT also applies to table E911TDRT.

Generic Digits E911 Tandem Prefix

The traver tool is enhanced for selective and default ESN routing. TDMPREFX is used before mapping with the unique ESN value into Table E911ESN.

No modifications were made to traver for selective transfers because such transfers use the asterisk (*) code, which is not supported by traver.

SERVORD

E911 Tandem-Tandem Enhancements does not use the Service Order System (SERVORD).

E911 Translations Robustness

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00015

Release applicability

E911 Translations Robustness was introduced in NA011.

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Prerequisites

E911 Translations Robustness has no prerequisites.

Description

This feature provides the following capabilities:

- busy-out percentage
- pretranslator name for E911 trunks

The busy-out percentage limits the percentage of members of a hunt group on a line appearance on a digital trunk (LDT) public safety answering point (PSAP) that are in a busy state due to two consecutive wink failures.

The user can specify the use of the pretranslator name. Some suggested uses for the pretranslator name for E911 trunks are to:

- restrict calls to a PSAP when the called digits are not 911
- restrict remote office test line (ROTL) T105 calls that route over E911 multifrequency (MF) trunks

Note: The pretranslator name can have uses other than the ones listed here.

Operation

The following sections explain the operation of busy-out percentage and pretranslator name.

Busy-out percentage

The E911 tandem automatically busies a member of a hunt group on an LDT PSAP if that member fails to complete two consecutive call attempts because

E911 Translations Robustness (continued)

of wink failures. The tandem puts that hunt group member into the manual busy (MB) line state.

Note: This feature allows the user to set the busy-out percentage from 0 to 100 percent. Without this feature, the busy-out percentage is 100 percent.

The percentage of members of a hunt group on an LDT PSAP that are in a busy state does not include the following line states:

- call processing busy (CPB)
- idle (IDL)
- installation busy (INB)

The percentage of members of a hunt group on an LDT PSAP that are in a busy state includes the following line states:

- system busy (SYSB)
- manual busy (MB)
- line module busy (LMB)
- permanent lock out (PLO)

Note: This percentage also includes others that are not CPB, IDL, or INB.

Use the following formula to determine the percentage of busy members in a hunt group.

$$\frac{(\text{number of hunt group members busy})}{(\text{number of hunt group members} - \text{number of members in INB state})} \times 100 = \text{percentage of hunt group members that are busy}$$

Note: Do not count members that are in the INB state in the total number of members of the hunt group.

Pretranslator name

With this feature, the user can use the pretranslator name to restrict tandem-to-tandem calls with digits other than 911 on incoming E911 multifrequency (MF) trunks. Without this feature, tandem-to-tandem calls are unrestricted.

E911 Translations Robustness (continued)

With this feature, the user can use the pretranslator name to restrict ROTL T105 calls. Without this feature, ROTL T105 calls are unrestricted.

Note: These two restrictions are only suggested uses for the pretranslator name. The pretranslator name can also be used for other purposes, like other features.

Translations table flow

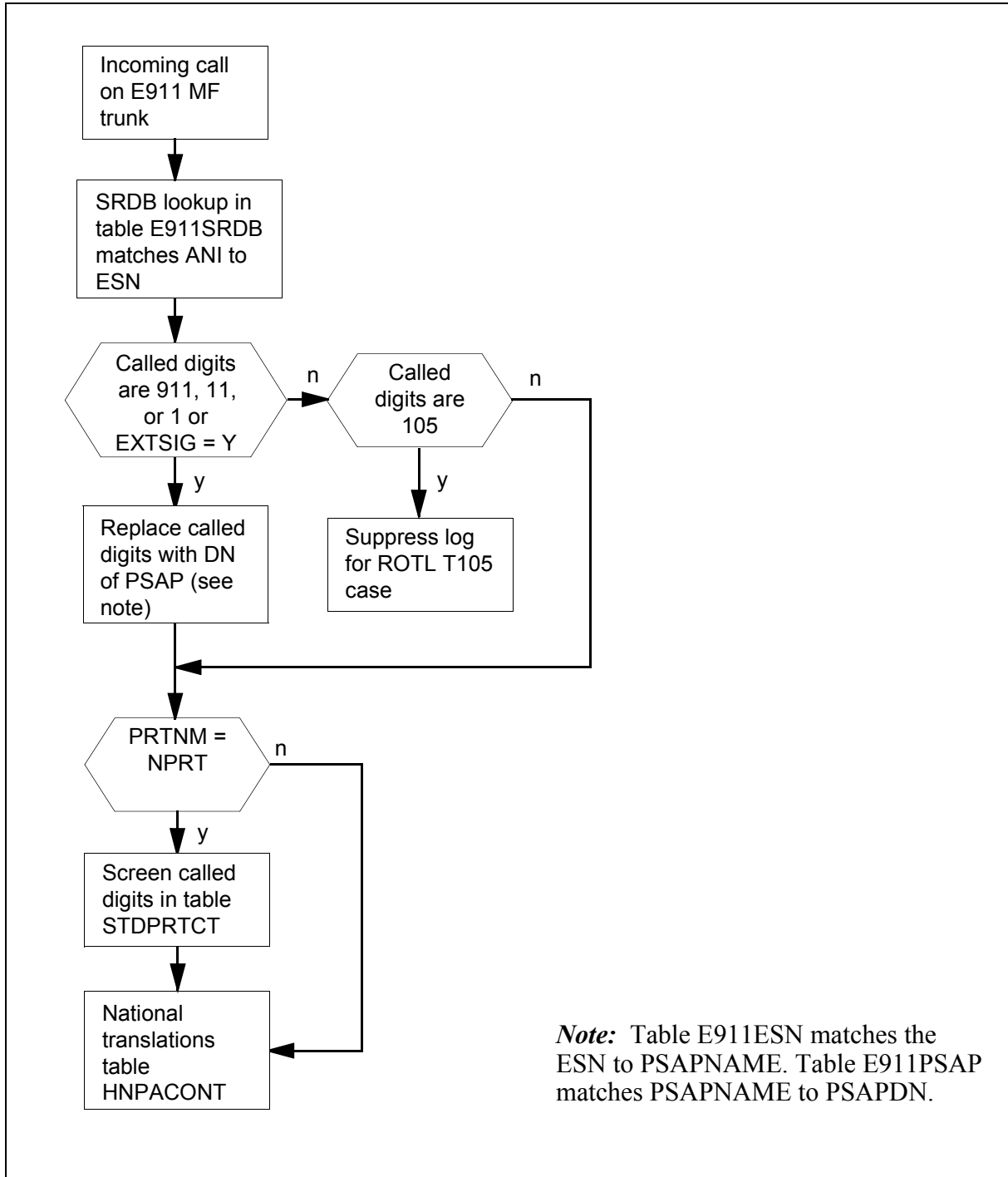
The E911 Translations Robustness translations tables are described in the following list:

- Table TRKGRP
- Table HUNTGRP

The E911 Translations Robustness translation process is shown in the flowchart.

E911 Translations Robustness (continued)

Table flow for E911 Translations Robustness (busy-out percentage)



E911 Translations Robustness (continued)

The following table lists the datafill used in the flowchart.

Datafill example for E911 Translations Robustness

Datafill table	Example data
TRKGRP	E911ICMF E911 20 EL0 NCRT P621 0613 0 Y BELL 1 10 10 REV 0692 111 N
HUNTGRP	120 613 6212115 DLH N Y N RCVD N Y 6212116 Y MDC N 6212113 Y 20 N N N Y LDTPSAP Y Y N 1 \$ POLICE 10 50 75 50 2 \$

Limitations and restrictions

The E911 subsystem usually generates logs E911201 and E911202 for ROTL T105 calls. With this feature, the E911 subsystem does not generate logs E911201 and E911202 for ROTL T105 calls.

Interactions

E911 Translations Robustness interacts with the following:

- translations
- table control
- SERVORD
- feature AF6226 - E911 Alternate Routing and Alarm Enhancements

Note: If BSYOTPCT is set to 100 percent, this feature functions like feature AF6226.

Activation/deactivation by the end user

E911 Translations Robustness requires no activation or deactivation by the end user.

Billing

E911 Translations Robustness does not affect billing.

Station Message Detail Recording

E911 Translations Robustness does not affect Station Message Detail Recording.

Datafilling office parameters

E911 Translations Robustness does not affect office parameters.

E911 Translations Robustness (continued)

Datafill sequence

The following table lists the tables that require datafill to implement E911 Translations Robustness. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for E911 Translations Robustness

Table	Purpose of table
TRKGRP	Table TRKGRP contains data for each trunk group assigned in the switching unit.
HUNTGRP	Table HUNTGRP contains data for each hunt group assigned in the switching unit.

Datafilling table TRKGRP type E911

The following table shows the datafill specific to E911 Translations Robustness for table TRKGRP type E911. Only those fields that apply directly to E911 Translations Robustness are shown. For a description of the other fields, refer to the Customer Data Schema Reference Manual.

This feature adds the field PRTNM (pretranslator name) to E911 MF trunks. The value for this field determines if screening occurs through the standard pretranslator. This value also determines the destination of the calls.

E911 Translations Robustness (continued)

To enter the pretranslator name datafill, do the following:

1. Access table STDPRTCT. Make sure the value for PRTNM exists in table STDPRTCT.

Note: This value must exist in table STDPRTCT before defining it in table TRKGRP.

2. Access table TRKGRP type E911, option GRPINFO, field PRTNM.
3. Define the value for field PRTNM.

Datafilling table TRKGRP type E911

Field	Subfield	Entry	Explanation and action
GRPINFO		See subfields	Variable group data. This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, PRTNM, SNPA, ECPHTIME, ORIGHOLD, SDATA, SIGFMT, NCATDIGS, INFODIGS, ANISEIZ, ANIPDIAL, ANIREQSG, ESCO, ESN, and EXTSIG. Refer to section "General field information" in table TRKGRP for information concerning an alternate structure for this field that results from the datafill of table CUSTFLDS.
	PRTNM	Vector up to eight characters	Pretranslator name. To activate this option, enter the value in table STDPRTCT. Then enter the data for field PRTNM in table TRKGRP for the E911 MF trunk with that value. The default datafill for an E911 MF trunk is NPRT (nil pretranslator).

Datafill example for table TRKGRP type E911

The following example shows sample datafill for table TRKGRP type E911.

MAP display example for table TRKGRP type E911

GRPKEY	GRPINFO
E911WRLS	E911 20 ELO NCRT P621 0613 123 Y BELL 2 10 10 REV 0849 321 Y \$
E911ICMF	E911 20 ELO NCRT P621 0613 0 Y BELL 1 10 10 REV 0692 111 N
E911ICNG	E911 0 ELO NCRT P621 0613 123 Y AMR4 3 10 10 REV 0847 005 N \$

E911 Translations Robustness (continued)

Datafilling table HUNTGRP

The following table shows the datafill specific to E911 Translations Robustness for table HUNTGRP. Only those fields that apply directly to E911 Translations Robustness are shown. For a description of the other fields, refer to the Customer Data Schema Reference Manual.

This feature adds field BSYOTPCT (busy-out percentage) to the LDTPSAP option.

To enter the busy-out percentage datafill, do the following:

1. Use SERVORD to access table HUNTGRP, option LDTPSAP, field BSYOTPCT.
2. Define the value for field BSYOTPCT.

Note: To activate the busy-out limitation percentage, set field BSYOTPCT to a value less than 100. If BSYOTPCT is 0, no hunt group members can busy out automatically after two wink-failures. If BSYOTPCT is 100, then all member lines can busy out automatically.

Datafilling table HUNTGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPDATA		See subfield	Group data. This field consists of subfield GRPTYPE and refinements.
	PSAPTYPE	LDTPSAP	Public safety answering point type. Enter the option that is added to the hunt group. The options include: ANONCALL, ANISPILL, ENHDISP, NUMIDIGS, NPD_MAPS, NPD, SNPA, PSAPNAME, MNALMPCT, MJALMPCT, CRALMPCT, and BSYOTPCT.
	BSYOTPCT	0 to 100	Busy out percentage. Enter the percentage of hunt group members in an LDT PSAP that can busy out automatically after two consecutive wink failures. Note: Set this percentage for each PSAP on an individual basis.

Datafill example for table HUNTGRP

The following example shows sample datafill for table HUNTGRP.

E911 Translations Robustness (continued)

HTGRP	SNPA	DN	GRPTYP	GRPDATA						
120	613	6212115	DLH	N	Y	N	RCVD	N	Y	
6212116	Y	MDC	N	6212113	Y	20	N	N	N	
Y	LDTFSAP	Y	Y	N	1	\$	POLICE	10	50	75
50	2	\$								

Translation verification tools

The following examples show the output from TRAVER to verify E911 Translations Robustness for pretranslator name.

The four examples show the following:

- PRTNM = NPRT (nil pretranslator); dialed digits = 911
- PRTNM = NPRT; dialed digits = 7 digits
- PRTNM = TDM (non-nil pretranslator); dialed digits = 911
- PRTNM = TDM; dialed digits = 7 digits

E911 Translations Robustness (continued)

TRAVER output example for E911 Translations Robustness with nil pretranslator and digits 911

```
> traver tr e91licmf 911 b
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT NPRT 0613 0 Y BELL 1 10 10 REV 0692 111 N
CALL DEFAULT ROUTED
TABLE E911ESN
111 Y ACDPSAPH2 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1
LINEPSAPMDC POLICE
TABLE E911PSAP
ACDPSAPH2 6212111 N
TABLE HNPACONT
613 Y 977 2 (56) (1) (0) (0) 2 $
.SUBTABLE HNPACODE
. 621 621 DN 613 621
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 2111 FEAT ACD ACDPSAPH2 PRIM 0 0
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
613 621 2111
(PUBLIC (SUPPRESS Y Y) (NAME ACDPSAPH2) $)
(PRIVATE (NAME ACDPSAPH2) $) $ $
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Term Attempt TDP: no subscribed trigger.

+++TRAVER: SUCCESSFUL CALL TRACE+++

DIGIT TRANSLATION ROUTES

1 FEATURE          6136212111          ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120

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


E911 Translations Robustness (continued)**TRAVER output example for E911 Translations Robustness with nil pretranslator and seven digits**

```

> traver tr e911icmf 6212111 b
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT NPRT 0613 0 Y BELL 1 10 10 REV 0692 111 N
TABLE HNPACONT
613 Y 977 2 (56) (1) (0) (0) 2 $
.SUBTABLE HNPACODE
.621 621 DN 613 621
TABLE TOFCNAME
613 621 $
TABLE DNINV
613 621 2111 FEAT ACD ACDPSAPH2 PRIM 0 0
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
613 621 2111
(PUBLIC (SUPPRESS Y Y) (NAME ACDPSAPH2) $)
(PRIVATE (NAME ACDPSAPH2) $) $ $
TABLE DNGRPS
TUPLE NOT FOUND
LNP Info: Called DN is resident.
LNP Info: Called DN has native NPANXX.
LNP Info: HNPA results are used.
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
AIN Term Attempt TDP: no subscribed trigger.

+++TRAVER: SUCCESSFUL CALL TRACE+++

DIGIT TRANSLATION ROUTES

1 FEATURE          6136212111          ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120

+++TRAVER: SUCCESSFUL CALL TRACE+++

```

E911 Translations Robustness (continued)

TRAVER output example for E911 Translations Robustness with non-nil pretranslator and digits 911

```
> traver tr e91licmf 911 b
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT TDM 0613 0 Y BELL 1 10 10 REV 0692 111 N
CALL DEFAULT ROUTED
TABLE E911ESN
111 Y ACDPSAPH2 ACDPSAPH1 ACDPSAPH2 ACDPSAPMDC LINEPSAPH1
LINEPSAPMDC POLICE
TABLE E911PSAP
ACDPSAPH2 6212111 N
TABLE STDPRTCT
TDM (1) (65021) 2
.SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
.68 D VACT
.SUBTABLE AMAPRT
.KEY NOT FOUND
.DEFAULT VALUE IS: NONE OVRNONE N
TABLE TMTCTL
OFFTREAT (110)
.SUBTABLE TREAT
.VACT Y S T120

+++TRAVER: SUCCESSFUL CALL TRACE+++

TREATMENT ROUTES. TREATMENT IS: VACT
1 T120

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

E911 Translations Robustness (continued)

TRAVER output example for E911 Translations Robustness with non-nil pretranslator and seven digits

```
> traver tr e91licmf 7771234 b
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
TABLE TRKGRP
E911ICMF E911 20 ELO NCRT TDM 0613 0 Y BELL 1 10 10 REV 0692 111 N
TABLE STDPRTCT
TDM (1) (65021) 2
.SUBTABLE STDPRT
.78 D VACT
.SUBTABLE AMAPRT
.KEY NOT FOUND
.DEFAULT VALUE IS: NONE OVRNONE N
TABLE TMTCNTL
OFFTREAT (110)
.SUBTABLE TREAT
.VACT Y S T120

+++TRAVER: SUCCESSFUL CALL TRACE+++

TREATMENT ROUTES. TREATMENT IS: VACT
1 T120

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

SERVORD

The following SERVORD information applies to E911 Translations Robustness.

To make a hunt group an E911 LDT PSAP, add option LDTSPAP to the pilot line equipment number (LEN) of the hunt group in table HUNTGRP. When you add the LDTPSAP option to a line, you will be prompted to enter values for several fields. This feature adds field BSYOTPCT to the LDTPSAP option.

Field BSYOTPCT corresponds to the automatic busy-out limitation. The automatic busy-out limitation is a percentage (0 through 100%). When an

E911 Translations Robustness (continued)

LDT PSAP hunt group member receives two consecutive wink failures, that member is busied out.

Note 1: If you busy out a member and cause the total percentage of members busy to exceed the busy-out limitation, the new member cannot automatically busy out.

Note 2: Patch TPB33 hardcodes the busy-out limitation to 50 percent. If the patch is active on an old software load, the default is 50 percent. If the patch is not active on an old software load, the default is 100 percent.

Note 3: Patch TPB16 is a patch the user must activate. The default value for field PRTNM is no pretranslator (NPRT). Regardless of the status (active or inactive) of this patch, the user must set the value of field PRTNM. Regardless of the status of this patch, an overnight process (ONP) sets the default to NPRT.

SERVORD limitations and restrictions

E911 Translations Robustness has no SERVORD limitations and restrictions.

SERVORD prompts for the LDTPSAP option

The following SERVORD prompts apply to E911 Translations Robustness with the LDTPSAP option.

SERVORD prompts for E911 Translations Robustness with LDTPSAP option

Prompt	Valid input	Explanation
SONUMBER	Refer to SONUMBER in the <i>SERVORD Reference Manual</i> for information on valid inputs.	Unique number of the service order to be entered
GROUPTYPE	BNN, CPU, DLH, DNH, MLH, MPH PRH, UA	Type of hunt group to be established, modified, or deleted BNN = bridged night number CPU = call pickup group DLH = distributed line hunt DNH = directory number hunt MLH = multi-line hunt MPH = multi-position hunt PRH = preferential hunt UA = universal access

E911 Translations Robustness (continued)**SERVORD prompts for E911 Translations Robustness with LDTPSAP option**

Prompt	Valid input	Explanation
PILOT_DN	Up to 15 digits	The DN of a DNH/PRH group pilot or the DN associated with a DLH/MLH group
DN	Up to 15 digits	Directory number
LCC	Refer to the "Line class codes" table in the <i>SERVORD Reference Manual</i> for a list of valid LCCs.	Line class code of the service the user establishes, modifies, or deletes
GROUP	Up to eight alphanumeric characters. The first character must be an alphabet.	Used with the IBN line class code (LCC); Common Language Location Identifier (CLLI) of an IBN customer group
SUBGRP	0 to 7	Subgroup of a customer group to which a station or DN belongs
NCOS	0 to 511	Network class of service for IBN lines, trunks, or attendant consoles. This value defines a set of capabilities or restrictions that allows or denies calls.
RINGING	Y or N	Indicates that ringing is allowed
LATANAME	Alphanumeric	The calling local access and transport area (LATA) name associated with the originator of the call.
LTG	0 to 9998	Line treatment group member. Used to calculate the line attribute index when the DN and LCC are insufficient to find an appropriate index. LTG is prompted for in conjunction with LCC. If office parameters are ON, prompt appears. If office parameters are OFF, prompt does not appear.
PILOT_LEN	See LEN_OR_LTID in DMS-100 SERVORD Reference Manual.	The line equipment number of a hunt group pilot.
MEM_LEN	See LEN_OR_LTID in DMS-100 SERVORD Reference Manual.	LEN of DLH or MLH group member; list up to 20. With business set hunt group member, key must also be specified.

E911 Translations Robustness (continued)**SERVORD prompts for E911 Translations Robustness with LDTPSAP option**

Prompt	Valid input	Explanation
OPTION	LDTPSAP	Option(s) associated with a service to be established, modified, or deleted. A maximum of 20 options can be specified in any single ADD, ADO, EST, or NEW command.
ANONCALL	Y or N	Indicates a direct call to PSAP DN is allowed
ANISPILL	Y or N	Indicates if ANI spill is expected for LDTPSAP or LINEPSAP
ENHDISP	Y or N	Indicates the PSAP is ready to receive the enhanced MF signaling
NUMIDIGS	1 or 3	Number of information digits expected by LDTPSAP with ANI
NPD_MAPS	Vector of <NPD, SNPA>	Option associated with adding PSAP fields to the ACDPSAP option
SNPA	3 digits	Serving numbering plan area code for the station
PSAPNAME	Up to 16 alphanumeric characters	Public safety answering point name
MNALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MINOR alarm to be raised. If this alarm percentage is set to zero, the alarm will not be raised on behalf of the PSAP.
MJALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MAJOR alarm to be raised. If this alarm percentage is set to zero, the alarm will not be raised on behalf of the PSAP.
CRALMPCT	0 to100	Percentage of LDT PSAP hunt group members that must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_CRITICAL alarm to be raised. If this alarm percentage is set to zero, the alarm will not be raised on behalf of the PSAP.

E911 Translations Robustness (continued)**SERVORD prompts for E911 Translations Robustness with LDTPSAP option**

Prompt	Valid input	Explanation
BSYOTPCT	0 through 100	Percentage of hunt group members allowed to busy out automatically due to two consecutive wink failures. If the busy-out percentage is set to 100 percent, all member lines can be automatically busied out.
NATLXLA	Y or N	When entry to this field is 'Y', call translations to the LDTPSAP are based on ten digits (with NPA). PSAPDN field in table E911PSAP is datafilled with ten digits. When this entry is 'N', call translations are based on seven digits (without NPA). The PSAPDN field is datafilled with seven digits.
GROUFSIZE	0 through 1024	Hunt group size. Expected maximum size of the hunt group. If a switching unit has feature Hunt Group Size Expansion for a DNH, DLH, or MLH group, the range is 0 through 1024. For switching units without this feature, the range is 0 through 256. For a BNN hunt group, the range is 0 through 210.

SERVORD example for adding E911 Translations Robustness

The following example shows how to add the LDTPSAP option to a hunt group pilot. The busy-out limitation percentage value is set to 75 percent.

E911 Translations Robustness (end)

SERVORD example for E911 Translations Robustness in prompt mode

```
SERVORD:
> ADO
SONUMBER:    NOW 99 10 13 AM
>
DN_OR_LEN:
> PSAP 0 0 0 0
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
ENHDISP:
> N
NUMIDIGS:
> 1
NPD_MAPS:
> $
PSAPNAME:
> POLICE
MNALMPCT:
> 10
MJALMPCT:
> 50
CRALMPCT:
> 75
BSYOTPCT:
> 75
NATLXLA:
> N
OPTION:
> $
```

SERVORD example for E911 Translations Robustness in no-prompt mode

```
> ADO $ PSAP 0 0 0 0 LDTPSAP Y Y N 1 $ POLICE 10 50 75 75 N $
```


E911 Wireless ALI Interface

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00016

Release applicability

NA012 and up.

Requirements

E911 Wireless ALI Interface requires the following:

- Enhanced 911 Base, ENS00005
- E911 Wireless, Phase I, ENS00012
- Multi-Protocol Controller (MPC) card that provides asynchronous capability, NT1X89
- Asynchronous cables, NT1X096

Description

This feature makes it possible to deliver a twenty-digit wireless 911 call to an eight-digit public safety answering point (PSAP) through an ASCII-based out-of-band link. Without this feature, when the DMS-100 E911 Access Tandem receives a 911 call, it sends an eight- or ten-digit pseudo-ANI (pANI) to the PSAP. The pANI contains a seven-digit DN plus either a single-digit information digit or a three-digit numbering plan area (NPA). For line or ACD PSAPs that do not have connections to display terminals, existing protocols allow the E911 tandem to send an eight- or ten-digit pANI as a query to the automatic location identifier (ALI) database. These protocols do not support line appearance on a digital trunk (LDT) PSAP equipment, which have their own built-in ALI query mechanisms.

The E911 Wireless Interface feature allows the DMS-100 E911 Access Tandem to send an eight- or ten-digit CallID to a PSAP over a CAMA trunk. The DMS-100 E911 Access Tandem also sends the pANI, mobile directory number (MDN), and CallID to the ALI controller over a data link. A PSAP uses the CallID to query the ALI database. The ALI data base matches the CallID and sends the matching pANI and MDN to the PSAP. The pANI and MDN identify the caller and the cell sector where the call originated.

E911 Wireless ALI Interface (continued)

Operation

This feature introduces two new ALI database protocols to interface between a DMS-100 E911 tandem and an ALI database:

- WLS911
- ENH911AS

WLS911

WLS911 is a protocol used for wireless E911 calls terminating to a PSAP. This protocol delivers information to the external ALI database over American Standard Code for Information Interchange (ASCII) data links. Those data links terminate from the DMS-100 MPC card to external ALI equipment. WLS911 allows the ALI system to match the CallID received over the MPC data link to the CallID in the PSAP ALI query. The DMS-100 E911 Tandem sends the CallID to the PSAP over the CAMA trunk. The Translations table flow section, in this document, describes the WLS911 protocol message formats.

The WLS911 Enhancements (A59028729) feature, introduced in NA016, displays the ten-digit MDN in place of the generic CallID. The MDN is used as the ANI display at the PSAP and also in place of the CallID in the WLS911 data stream. When the wireless caller's NPA cannot be determined, the generic CallID is used and the functionality reverts to its previous state.

The WLS911 protocol requires that the wireless ANI type (WANITYPE) is equal to GENERATED or CALLBACK for an LDTPSAP with either of the following:

- enhanced display (ENHDISP=Y) and single stream ANI (SNGLSANI=Y)
- ENHDISP=N and NUMIDIGS= 1 or 3

The E911 AIN Wireless Enhancements (A59006358) feature provides a more detailed description.

CallID

The CallID sent from the DMS-100 E911 Tandem to an LDTPSAP varies in length based on the number of ANI information digits (NUMIDIGS) assigned through option LDTPSAP.

If NUMIDIGS = 1, the CallID is an ANI spill in an eight-digit NYSSSP format as follows:

- N = numbering plan digit (1-info digit template)
- YY = E911_WLS911_CALLID_DIGS parm from table OFCVAR

E911 Wireless ALI Interface (continued)

- SSS = three-digit PSAP number from table E911ALI
- PP = two-digit position number from the ALI option assigned through the Service Order System (SERVORD)

If NUMIDIGS = 3, the CALLID is an ANI spill in a ten-digit NYYSSSP format as follows:

- N = serving numbering plan area (3-info digit template)
- YY = E911_WLS911_CALLID_DIGS parm from table OFCVAR
- SSS = three-digit PSAP number from table E911ALI
- PP = two-digit position number from the ALI option assigned through SERVORD

ENH911AS

The ENH911AS protocol supports wireless calls to line and automatic call distribution (ACD) PSAPs. This protocol provides the same function as OPN911AS. The ENH911AS protocol includes four messages:

- Wireless (W)
- Connect (Q)
- Disconnect (E)
- Heartbeat (H)

ENH911AS is different from OPN911AS by making available the option for a wireless (W) message. The W message option replaces the ANI (A) message in protocol OPN911AS. With OPN911AS, the A message contains only the pANI (location) number. The ENH911AS W message contains both the pANI and MDN (callback) of the wireless caller. The pANI always goes before the MDN. The complete W message contains twenty digits.

Translations table flow

The list that follows includes the E911 Wireless ALI Interface translations tables:

- table MPC
- table MPCLINK
- table MPCFASTA
- table MPCLSET
- table E911ALI

E911 Wireless ALI Interface (continued)

The WLS911 protocol information sent from the DMS-100 E911 Tandem to the ALI equipment contains the following format:

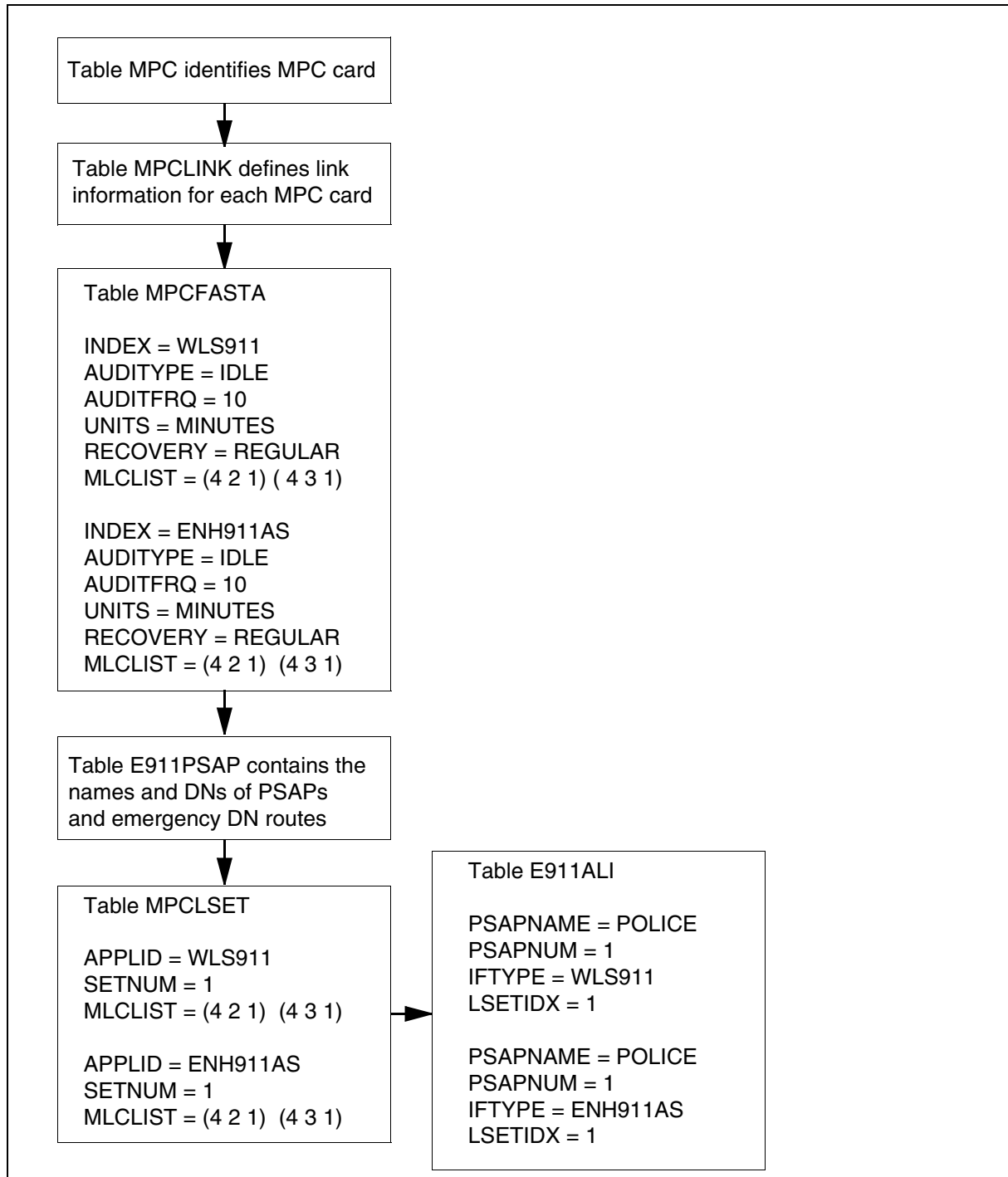
- message type (ANI)
- ten-digit MDN
- ten-digit pANI
- PSAP number
- trunk number
- ten-digit CallID or MDN
- check sum character
- carriage return

The DMS-100 E911 tandem sends the WLS911 protocol information message when it determines PSAP termination. The PSAP number identifies the PSAP planned to receive the ALI record from the ALI database. Table E911ALI contains the PSAP number. The ALI system uses the trunk number to identify the call's line termination. Use SERVORD to assign the trunk number when the PSAP has the ALI option assigned.

Each line in the PSAP huntgroup that has the ALI option also has a trunk number and PSAP number assigned. The DMS-100 E911 tandem sends the ALI query when the ALI database receives the protocol information. The ALI returns an acknowledgement identified by the MDN or CallID.

The WLS911 protocol has a heartbeat message sent to determine the data communication link's condition. The DMS-100 E911 tandem sends the message either during inactive periods or on a constant time interval. Table MPCFASTA defines the heartbeat message transmission rate.

The flowchart that follows provides the E911 Wireless ALI Interface translations process.

E911 Wireless ALI Interface (continued)**Table flow with example values for E911 Wireless ALI Interface**

E911 Wireless ALI Interface (continued)

The table that follows lists the datafill content used in the flowchart.

Datafill example for E911 Wireless ALI Interface

Datafill table	Example data
MPCFASTA	WLS911 IDLE 10 MINUTES REGULAR (4 2 1) (4 3 1) ENH911AS IDLE 10 MINUTES REGULAR (5 2 1) (5 3 1)
MPCLSET	WLS911 1 (4 2 1) (4 3 1) ENH911AS 1 (5 2 1) (5 3 1)
E911ALI	POLICE 99 WLS911 1 FIRE 88 ENH911AS 1
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.	

Limitations and restrictions

The limitations and restrictions that follow apply to E911 Wireless ALI Interface:

- NA012 restricts the WLS911 protocol to LDTPSAPs.
- If the WLS911 ALI system links are out of service, leave the ANI spill to the PSAP as a normal spill.
- An ENH911AS fall-back mechanism for providing information to the PSAP is not available.
- ALI message generation requires that an PSAP has the WLS911 protocol.

Interactions

E911 Wireless ALI Interface does not interact with other functionalities.

Activation and deactivation by the user

E911 Wireless ALI Interface does not require activation or deactivation by the end user.

Billing

E911 Wireless ALI Interface does not generate billing records or changes.

Station Message Detail Recording

E911 Wireless ALI Interface does not require Station Message Detail Recording.

E911 Wireless ALI Interface (continued)

Office parameters used by E911 Wireless ALI Interface

E911 Wireless ALI Interface does not generate office parameters.

Datafill sequence

The table that follows lists the tables that require datafill to put E911 Wireless ALI Interface into operation. You must enter data into the tables in this order.

Datafill requirements for E911 Wireless ALI Interface

Table	Purpose of table
MPC	The Multiprotocol Controller table contains the values required to support the MPC card in the DMS-100 switch. This table identifies the MPC card to the DMC central control (CC).
MPCLINK	The Multiprotocol Controller Link table describes the link and protocol information for cards entered in table MPC. The fields identify the MPC data links to the CC.
MPCFASTA	The Multiprotocol Controller Fast Applications table identifies applications that use the MPC fast utility. The fast utility is an input/output interface through the MPC. The WLS911 protocol does not require an Audit limited to 2 minutes.
MPCLSET	The Multiprotocol Controller LINKSET table allows the logical links of an MPC fast application to group in linksets for selected link transfers. This table describes the link connection as a collection of application name and MPC number, link number, and channel number (MLC).
E911PSAP	The Enhanced 911 Public Safety Answering Point table connects a public safety answering point (PSAP) name with a local directory number (DN) or an emergency directory number route (EDNR).
E911ALI	The Enhanced 911 Direct Access to Automatic Line Controller table contains one entry for each PSAP in the E911 tandem switch that requires the ALI interface. The key to this table is the PSAP name as defined in table E911PSAP.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.	

E911 Wireless ALI Interface (continued)

Datafill related to E911 Wireless ALI Interface for table MPC

The table that follows provides the datafill related to E911 Wireless ALI Interface for table MPC. This table includes only those fields that apply directly to E911 Wireless ALI Interface.

Datafill related to table MPC

Field	Subfield	Entry	Explanation and action
EQ		1X89BA or higher	Equipment code. This feature requires the enhanced MPC card.
DLDFILE		8 alphanumeric characters	Download file. This field must indicate the asynchronous protocol file for the latest available multiprotocol controller load. The file format is MPCA (Telecom software release/load designation). An example of a file is MPCA02BX.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

Datafill example for table MPC

The figure that follows shows sample datafill for table MPC.

MAP example for table MPC

MPCNO	MPCIOC	IOCCCT	EQ	DLDFILE
4	0	24	1X89BA	MPCA02BX

Datafill related to E911 Wireless ALI Interface for table MPCLINK

The table that follows provides the datafill related to E911 Wireless ALI Interface for table MPCLINK. This table includes only those fields that apply directly to E911 Wireless ALI Interface.

Datafill related to table MPCLINK

Field	Subfield	Entry	Explanation and action
PRTCLDAT		1X89BA	Protocol data area. This field contains subfields PROTOCOL and LINKNABL.
	PROTOCOL	ASYNCH	Link protocol data. This feature requires an asynchronous protocol.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

E911 Wireless ALI Interface (continued)

Datafill related to table MPCLINK

Field	Subfield	Entry	Explanation and action
	LINKNABL	55	Link enable. This feature requires a time-out, in minutes of 55.
	PARM	APLDEFN	Parameter protocol. Protocol ENH911AS requires an application definition (APLDEFN). Protocol WLS911 does not require an APLDEFN.
	ADEFN	C911	Application definition. Protocol ENH911AS requires C911 (feature AF275) to indicate E911 Direct Access to an ALI controller. Protocol WLS911 does not require C911.
	PARM	L1IDLY	Protocol ENH911AS requires a level 1 input delay (L1IDLY) of 0 (zero).
	T0	0	Protocol ENH911AS requires a T0 value (for L1IDLY) of 0 (zero).
	PARM	IMODE	Protocol ENH911AS requires an input mode (IMODE) to indicate the operation mode for the input link. Subfield MD defines this information.
	MD	CHR	Protocol ENH911AS requires character mode for the input link operation.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

Datafill example for table MPCLINK

The figure that follows shows sample table MPCLINK datafill for the WLS911 protocol.

MAP example for table MPCLINK

LINKKEY			PRTCLDAT		

4	2	N			
ASYNCR	55				

The figure that follows shows sample table MPCLINK datafill for the ENH911AS protocol.

E911 Wireless ALI Interface (continued)

MAP example for table MPCLINK

LINKKEY				PRTCLDAT			

4	2	N					
ASYN	55	(APLDEFN C911)	(L1IDLY 0)	(IMODE CHR)	\$	\$	

Datafill related to E911 Wireless ALI Interface for table MPCFASTA

The table that follows provides the datafill related to E911 Wireless ALI Interface for table MPCFASTA. This table includes only those fields that apply directly to E911 Wireless ALI Interface.

Datafill related to table MPCFASTA

Field	Subfield	Entry	Explanation and action
INDEX		see subfield	Application index contains a subfield application identifier for MPC circuits. The E911 Wireless ALI Interface feature contain two possible values.
	WLS911		This protocol allows a ten-digit pANI and 10-digit MDN sent from the E911 tandem to the ALI.
	ENH911AS		This protocol allows a ten-digit pANI delivered to the ALI in a wireless ANI message.
AUDITYPE		IDLE	Audit type running on the MPC link channel (MLC) is idle.
RECOVERY		REGULAR	This feature requires a regular recovery process.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

Datafill example for table MPCFASTA

The figure that follows shows sample datafill for table MPCFASTA.

E911 Wireless ALI Interface (continued)**MAP example for table MPFASTA**

INDEX	AUDITYPE	AUDITFRQ	UNITS	RECOVERY	MLCLIST
WLS911	IDLE	10	MINUTES	REGULAR	(4 2 1) (4 3 1)\$
ENH911AS	IDLE	2	MINUTES	REGULAR	(5 2 1) (5 3 1)\$

Datafill related to E911 Wireless ALI Interface for table MPCLSET

The table that follows provides the datafill related to E911 Wireless ALI Interface for table MPCLSET. This table includes only those fields that apply directly to E911 Wireless ALI Interface.

Datafill related to table MPCLSET

Field	Subfield	Entry	Explanation and action
LSETKEY		see subfield	Linkset key containing subfields APPLID and SETNUM.
	APPLID	WLS911 ENH911AS	Key MPC fast application identifiers for LINKSET are the two protocols for the E911 Wireless ALI Interface feature.
	SETNUM	0-15	Variable linkset number individually entered for each protocol.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

Datafill example for table MPCLSET

The figure that follows shows sample datafill for table MPCLSET.

MAP example for table MPFASTA

LSETKEY					
WLS911	99				(4 2 1) (4 3 1)\$
ENH911AS	2				(5 2 1) (5 3 1)\$

E911 Wireless ALI Interface (continued)

Datafill related to E911 Wireless ALI Interface for table E911ALI

The table that follows provides the datafill related to E911 Wireless ALI Interface for table E911ALI. This table includes only those fields that apply directly to E911 Wireless ALI Interface.

Datafill related to table E911ALI

Field	Subfield	Entry	Explanation and action
PSAPNAME			The public safety answering point name key field must be the same name entered in table E911PASP.
PSAPNUM		0 through 999	This field identifies the number of the PSAP that receives ALI service. A one-to-one relationship is present between the PSAP number and the PSAP name. Service orders separately identify PSAP stations. The value must match the value that represents the PSAP in the ALI database management system. Valid entries to allocate trunk numbers to separate calls are 0 (zero) through 999.
IFTYPE		WLS911 ENH911AS	Interface type defines the interface between the MPC and the ALI data base system.
LSETIDX		0 through 15	Link set index is the number of the MPC linkset, as defined in table MPCLSET, that is used to connect to the ALI.
Note: Perform a separate table datafill for the WLS911 protocol and for the ENH911AS protocol.			

Datafill example for table E911ALI

The figure that follows shows sample datafill for table E911ALI.

MAP example for table E911ALI

PSAPNAME	PSAPNUM	IFTYPE	LSETIDX
POLICE	99	WLS911	1
FIRE	88	ENH911AS	1

Translation verification tools

E911 Wireless ALI Interface does not use translation verification tools.

E911 Wireless ALI Interface (continued)

SERVORD

E911 Wireless ALI Interface introduces the Service Order System (SERVORD) ALI option assigned to a PSAP.

SERVORD limitations and restrictions

In order for ALI messages to be sent a PSAP requires both of the following:

- ALI option SERVORD assignment
- WLS911 protocol interface type assignment in table E911ALI

When filling a service order, the WLS911 protocol requires that the wireless ANI type (WANITYPE) equals GENERATED or CALLBACK for an LDTPSAP that has either of the following:

- enhanced display (ENHDISP=Y) and single stream ANI (SNGLSANI=Y)
- ENHDISP=N and NUMIDIGS= 1 or 3

The E911 AIN Wireless Enhancements (A59006358) feature provides a more detailed description.

SERVORD prompts

The table that follows shows SERVORD prompts used to assign the ALI option to a PSAP.

SERVORD prompts to assign the ALI option to a PSAP

Prompt	Correct input	Explanation
OPTION	ALI	This action assigns the ALI option to a PSAP through EST and ADO.

SERVORD example to assign the ALI option to a PSAP

The example that follows shows how to assign the ALI interface option to a PSAP with SERVORD ADO command in prompt mode.

E911 Wireless ALI Interface (end)

SERVORD example to assign ALI to a PSAP in prompt mode

```
>SERVORD  
  
> ADO  
SONUMBER:          NOW      98   12   7   AM  
>  
DN_OR_LEN:  
> PSAP 01 0 0 3      (PSAP NAME = FIRE)  
OPTION:  
> ALI  
POSNUM:  
> 2  
OPTION:  
> $
```

The example that follows shows how to assign the ALI interface option to a PSAP with SERVORD ADO command in no-prompt mode.

SERVORD example to assign ALI to a PSAP in no-prompt mode

```
> ADO $ PSAP 01 0 0 3 ALI 2 $
```

Release history

SN07 (DMS)

Changes were made to text for CALLID and introduction of office parameter E911_WLS911_CALLID_DIGS under CR Q00856825.

NA016

The WLS911 Enhancements feature (59028729) will display the ten-digit MDN in place of the generic CallID.

NA012

E911 Wireless ALI Interface was introduced.

E911 Wireless Calls to PSAPs

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00012

Release applicability

E911 Wireless Calls to PSAPs was introduced in NA009.

Prerequisites

E911 Wireless Calls to PSAPs has no prerequisites.

Description

This feature provides the wireless protocol two-line enhanced display (ENHDISP) on the Meridian business set (MBS) for a public safety answering point (PSAP). The first line of the display shows the number of the caller. The second line of the display shows the pseudo automatic number identifier (pANI). The pANI is the wireless location identification of the caller. The location of the caller appears as a 10-digit number. This 10-digit number is the directory number (DN) of the location nearest the cell tower that transmits the 911 call. The PSAP uses this number for routing the E911 wireless call.

Operation

The following paragraphs describe how this feature affects Automatic Call Distribution (ACD), Line, and line appearance on a digital trunk (LDT) PSAPs.

E911 wireless calls to ACD PSAPs

The ACD PSAPs wireless calls contain full wireless information in the protocol. The ACD PSAPs have a new parameter to distinguish between the two-line display and the existing display for wireless calls. Table ACDGRP requires changes to table control procedures.

E911 Wireless Calls to PSAPs (continued)

The following table shows the MBS displays for ACD PSAPs.

Displays for ACD PSAPs

Call type	ACD PSAP with MBS display	ACD PSAP with option ENHDISP	What shows on the MBS two-line display?
Wireline	Y	Y	First line: ANI (see note 1), second line: PSAP name (see note 2)
	Y	N	First line: ANI (see note 1), second line: PSAP name (see note 2)
	N	Y	No display
	N	N	No display
Wireless	Y	Y	First line: ANI (see note 1), second line: pANI (see note 3)
	Y	N	First line: ANI, second line: PSAP name (see note 2)
	N	Y	No display
	N	N	No display

Note 1: The ANI is a 10-digit number. The first line display shows the caller's name and DN. The name is the SNPA of the caller. The DN is the caller's seven-digit DN. To display name and DN information on the first line, provision table CUSTSTN with either NAMEDISP or REASDISP options. If table CUSTSTN does not have these options, the first line displays the seven-digit ANI without SNPA. If table REASON does not have REASON specified in table CUSTSTN, the display shows the default reason.

Note 2: To display the name option, datafill table DNATTRS with the PUBLIC NAME or PRIVATE NAME option. The correct name associated with the NAME option shows on the second line of the display. The DN displayed on the second line is the ACD group's number. This number shows only if you set the ACDDISP option in table ACDGRP with DISPDIGS > 0. Provision the ACD PSAP option with ACDDISP = 7 (at least) in table ACDGRP to display the last seven digits of the ACD group's DN. If the ACDGRP subscribes to the SUPPRESS option in table DNATTRS, set N for NAME.

Note 3: The pANI is a 10-digit number. This number displays independently of the ACD options. The pANI displays as 10 digits if either option NAMEDISP or REASDISP exists in table CUSTSTN.

E911 wireless calls to Line PSAPs

Line PSAPs receive wireless calls with full wireless information present in the protocol. Line PSAPs have a new parameter to distinguish between the two-line display and the existing display for wireless calls. Table HUNTGRP requires changes to table control procedures.

E911 Wireless Calls to PSAPs (continued)

The following table shows the displays for Line PSAPs.

Displays for Line PSAPs

Call type	Line PSAP with MBS display	Line PSAP with option ENHDISP	What shows on the MBS two-line display?
Wireline	Y	Y	First line: ANI (see note), second line: blank
	Y	N	First line: ANI (see note), second line: blank
	N	Y	No display
	N	N	No display
Wireless	Y	Y	First line: ANI, second line: pANI (see note)
	Y	N	First line: ANI (see note), second line: blank
	N	Y	No display
	N	N	No display
Note: The ANI is a 10-digit number. The first line display shows the caller's name and DN. The name is the SNPA of the caller. The DN is the caller's seven-digit DN. To display name and DN information on the first line and the pANI on the second line, provision table CUSTSTN with either NAMEDISP or REASDISP options. If table CUSTSTN does not have these options, the first line displays the seven-digit ANI without SNPA. If table REASON does not have REASON specified in table CUSTSTN, the display shows the default reason. The pANI displays as 10 digits if either the NAMEDISP or REASDISP options exists in table CUSTSTN.			

E911 wireless calls to LDT PSAPs

The LDT PSAPs receive wireless calls with full wireless information present in the protocol.

An LDT PSAP connects to the E911 tandem by a trunk. Call setup requires trunk signaling between the DMS and the PSAP for sending ANI information and for display at the PSAP. Current standards require the DMS switch to send an eight-digit ANI to the PSAP. These eight digits consist of an information digit and seven DN digits. The DMS switch can also send a 10-digit ANI to a PSAP that can handle this format. The 10-digit format consists of three numbering plan area (NPA) digits and seven DN digits.

The first ANI format presented in the following table occurs when the LDT PSAP has the parameter value of "1" provisioned in the number of information digits (NUMIDIGS) option. Calculate the I digit in this format based on the NPD from table E911NPD for SNPA and the FLASH option in table

E911 Wireless Calls to PSAPs (continued)

E911ESN. If the FLASH option is set to "Y," the I digit is NPD+4. If the FLASH option is set to "N," the I digit is the NPD. (The NPD is a number between 0 and 3.)

When the NUMIDIGS parameter equals 3, the system does not use table E911NPD and the FLASH option. Instead, the NPA replaces the I digit, allowing a 10-digit format.

Some PSAPs can accept two 10-digit signals (Enhanced MF Signaling protocol), such as:

KP II NPA NXX YYYY ST KP NPA NXX YYY ST

The first NPA NXX YYYY is the number of the caller. The second NPA NXX YYYY is the pANI. The II represents the encoded information. This information indicates if the calling line display device (ANI display) remains steady or flashes. This information also indicates if the call is a test call.

To transmit a single 10-digit ANI (Enhanced MF Signaling protocol), the E911 tandem sends the ANI information to the PSAP in the form KP II NPA NXX YYYY STP.

An option for LDT PSAPs indicates that the LDT PSAP is ready for the Enhanced MF Signaling protocol. This option on the LDT PSAP allows the signaling protocol to send two 10-digit numbers, or one 10-digit number to the PSAP.

If the ANISPILL option is set to Y, the system prompts the user for option ENHDISP. If the ENHDISP option is set to Y, the system does not prompt the user for the NUMIDIGS option.

For anonymous calls to LDT PSAPs using Enhanced MF Signaling, the II digit is 40. The ANI carries the following information:

KP 4 0 000 911 0000 STP

For ANI fail cases, the ANI carries the following information:

KP II NPA 911 0ESCO STP

The NPA belongs to the facility. The II digits will be derived from the ESN of the facility. The system determines the II digits from the ESN of the facility.

E911 Wireless Calls to PSAPs (continued)

The following table shows ANI formats.

ANI formats

ANI format	Information presented
KP I NXX YYYY ST	8-digit ANI or 1 info digit
KP NPA NXX YYYY ST	10-digit ANI or 3 info digits
KP II NPA NXX YYYY ST KP NPA NXX YYY ST	20-digit Enhanced MF Signaling protocol
KP II NPA NXX YYYY STP	10-digit Enhanced MF Signaling protocol
KP, ST, STP = special MF digits I = info digit II = enhanced MF info digit (see the following table) NPA = 3-digit numbering plan area NXX YYYY = 7-digit DN	

Use II digits as shown in the following table.

II digits

II digits	Meaning
40	Steady ANI display
44	Flashing ANI display
48	Test call

E911 Wireless Calls to PSAPs (continued)

The following table shows the displays for LDT PSAPs.

Displays for LDT PSAPs

Call type	LDT PSAP has option ENHDISP	LDT PSAP has option NUMDIGS	Information presented
Wireline	Y	N/A	KP II NPA NXX yyyy STP (see note 1)
	N	1	KP I NXX YYYY ST
	N	3	KP NPA NXX YYYY ST
Wireless	Y	N/A	KP II NPA NXX YYYY ST KP NPA NXX YYYY ST (see note 2)
	N	1	KP I NXX YYYY ST (see note 3)
	N	3	KP NPA NXX YYYY ST (see note 3)
Note 1: ANI Note 2: The first 10 digits represent the caller's number (callback number or ANI). The second 10 digits represent the pANI. Note 3: pANI			

MBS pANI display

The pANI shows on the second line of the MBS for wireless calls. The pANI information overwrites the REASON text on the displays. The pANI display appears as follows:

```
613 6212167
613 6213056 WIRELESS
```

Remote call event records

Remote call event records (RCER) have the same format as log E911212. The RCER has a long and brief format. The long format prints the header. The brief format does not print the header. The RCER does not display the pANI if the call is not a wireless call.

E911 Wireless Calls to PSAPs (continued)

Automatic line identification

Automatic line identification (ALI) protocols are unchanged for wireless calls. The ANI information in the ALI messages will be replaced with the pANI.

The info digits field in the ALI message comes from table E911NPD and is based on the SNPA of the ANI. A wireless call will be routed based on the pANI and not the ANI. This feature introduces a choice of up to four SNPA and NPD pairs for each PSAP. This feature supplements table E911NPD for E911 calls. If the PSAP has the SNPA and NPD pairs assigned and if the NPA of the pANI is within the assigned SNPAs of the PSAP, the corresponding info digit will be sent in the ALI message. If the PSAP is not assigned to any SNPA or NPD pair, use table E911NPD to calculate the info digit.

For NPD mapping information, see feature AF7233, "E911 NPD per PSAP."

Translations table flow

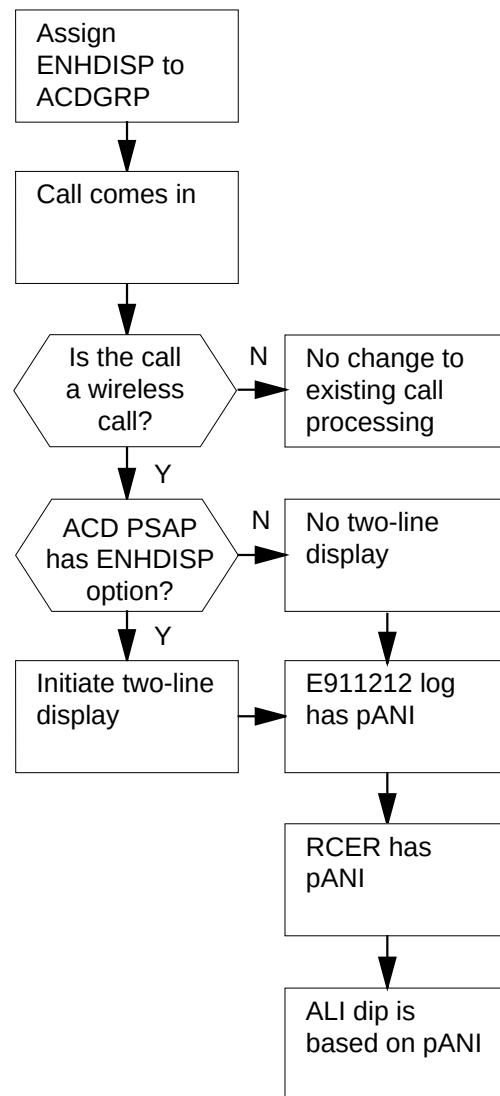
The E911 Wireless Calls to PSAPs translations tables are described in the following list:

- Table ACDGRP
- Table HUNTGRP

The E911 Wireless Calls to PSAPs translation process is shown in the flowchart that follows.

E911 Wireless Calls to PSAPs (continued)

Table flow for E911 Wireless Calls to PSAPs



E911 Wireless Calls to PSAPs (continued)

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

Datafill example for E911 Wireless Calls to PSAPs

Datafill table	Example data
ACDGRP	ACDPSAPH1 E911 15 OFRT 911 OFRT 911 120 N 5 120 N N NONE Y N (ACDDISP 0) (TMDELOFL 2 ALLPRIO) (OVFLINQ P0FIRST 20 Y 511) (NONIMCUT) (ACDXFER 5 N) (ACDPSAP Y Y \$) (NRONSDN) (QTOMSB) \$
HUNTGRP	120 613 6212115 DLH N Y N RCVD N Y 6212116 Y MDC N 6212113 Y 20 N N N Y LDTPSAP Y Y Y POLICE 0 0 0 2 \$

Limitations and restrictions

The following limitations and restrictions apply to E911 Wireless Calls to PSAPs:

- The two-line display applies to Nortel MBSs.
- The ENHDISP option turns off the use of the NUMIDIGS for LDT PSAPs if set to Y.

Interactions

The following paragraph describes the interactions between E911 Wireless Calls to PSAPs and other functionalities.

This feature interacts with features AF7231 and AF7233. Feature AF7231 stores the pANI information in the related data structures. Feature AF7233 provides the interfaces to calculate the NPD.

Activation/deactivation by the end user

E911 Wireless Calls to PSAPs requires no activation or deactivation by the end user. To get the pANI display, set the ENHDISP option to Y.

Billing

E911 Wireless Calls to PSAPs does not affect billing.

Station Message Detail Recording

E911 Wireless Calls to PSAPs does not affect Station Message Detail Recording.

Datafilling office parameters

E911 Wireless Calls to PSAPs does not affect office parameters.

E911 Wireless Calls to PSAPs (continued)

Datafill sequence

The following table lists the tables that require datafill to implement E911 Wireless Calls to PSAPs. The tables are listed in the order in which they are to be datafilled.

Datafill tables required for E911 Wireless Calls to PSAPs

Table	Purpose of table
ACDGRP	The Automatic Call Distribution Group table associates Automatic Call Distribution (ACD) features with specific customer groups.
HUNTGRP	The Hunt Group table contains the data for each hunt group assigned in the switching unit.

Datafilling table ACDGRP

The following table shows the datafill specific to E911 Wireless Calls to PSAPs for table ACDGRP. Only those fields that apply directly to E911 Wireless Calls to PSAPs are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table ACDGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTIONS		see subfield	Options. This field consists of subfield OPTION.
	OPTION	ACDPSAP	Enter ACDPSAP (ACD public safety answering point) and datafill refinement ANONCALL. This option is not compatible with option CDN.
		Y or N	Anonymous call. Enter Y to indicate that calls are allowed to terminate at the public safety answering point (PSAP). Otherwise, enter N.
	ENHDISP	Y or N	Enhanced display. Enter Y to turn on the wireless protocol two-line display for PSAPs. Otherwise, enter N. Note: For LDT PSAPs: If the ANISPILL option is set to Y, the user receives the prompt for the ENHDISP option. If the ENHDISP option is set to Y, the NUMDIGS option is turned off.

E911 Wireless Calls to PSAPs (continued)

Datafilling table ACDGRP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	NPD_MAPS	Vector of <NPD, SNPA>	Numbering plan digit mapping. Enter up to four mappings for each ACD PSAP. Terminate the entry any time before entering the fourth pair by entering a nil vector (""). If the user enters the nil vector for the first pair, the ACD PSAP has no individual mappings. In this case, the ACD PSAP uses table E911NPD when an NPD is needed. If no pairs are present, this option is off. Note: Do not enter an NPD more than once for a PSAP. Do not map an SNPA to more than one NPD for each PSAP.
	NPD	0, 1, 2, 3	Numbering plan digit. Enter the NPDs in any order.
	SNPA	SERVING_NUMBERING_PLAN_AREA	Serving numbering plan area. Assign the SNPAs to any of the first set of NPDs (0 through 3). Note: Invalid NPD or SNPA entries cause errors. Do not map an SNPA to more than one NPD for each PSAP. A PSAP does have to have all four NPD mappings defined.

Datafill example for table ACDGRP

The following example shows sample datafill for table ACDGRP for an ACD PSAP.

MAP display example for table ACDGRP

```

ACDNAME    CUSTGRP  ACDRNGTH  THROUTE  NSROUTE
PRIOPRO    DBG      MAXCQSIZ  MAXWAIT  ACDMIS   MSQS
DISTRING   OBSWTONE  FRCNGTSV  OPTIONS

ACDPSAPH1  E911    15    OFRT 911  OFRT 911  120    N
5  120    N    N    NONE    Y    N    (ACDDISP 0)
(TMDELOFL 2 ALLPRIO )  (OVFLINQ P0FIRST 20 Y 511)
(NONIMCUT )  (ACDXFER 5 N)  (ACDPSAP Y Y $)
(NRONSDN)  (QTOMSB)  $

```

E911 Wireless Calls to PSAPs (continued)

Datafilling table HUNTGRP

The following table shows the datafill specific to E911 Wireless Calls to PSAPs for table HUNTGRP. Only those fields that apply directly to E911 Wireless Calls to PSAPs are shown. For a description of the other fields, refer to the data schema section of this document.

Datafilling table HUNTGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Explanation and action
GRPDATA		see subfield	Group data. This field consists of subfield GRPTYPE and refinements.
	PSAPTYPE	LDTPSAP or LINEPSAP	Public safety answering point type. Enter the option that is added to the hunt group.
	ANONCALL	Y or N	Anonymous call. Enter Y if the PSAP allows calls to terminate to it, other than through E911 translations. Calls are allowed to the PSAP by dialing the seven-digit PSAP DN. Otherwise, enter N to indicate that the PSAP can be reached only by dialing 911.
	ANISPILL	Y or N	Automatic number identification spill. Enter Y if the PSAP receives automatic number identification (ANI) from the E911 tandem. Otherwise, enter N.
	ENHDISP	Y or N	Enhanced display. Enter Y to turn on the wireless protocol two-line display for PSAPs. Otherwise, enter N.
	NUMIDIGS	1 or 3	Number of ANI information digits. Enter the number of ANI information digits (1 or 3) the PSAP expects with ANI. Note: If the ANISPILL option is set to Y, the user receives the prompt for the ENHDISP option. If the ENHDISP option is set to Y, the NUMIDIGS option is disabled. Note: The system does not prompt for NUMIDIGS if ENHDISP is set to Y.

E911 Wireless Calls to PSAPs (continued)

Datafilling table HUNTGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	NPD_MAPS	Vector of <NPD, SNPA>	Numbering plan digit mapping. Enter up to four mappings for each ACD PSAP. Terminate the entry any time before entering the fourth pair by entering a nil vector (""). If the user enters the nil vector for the first pair, the ACD PSAP has no individual mappings. In this case, the ACD PSAP uses table E911NPD when an NPD is needed. If no pairs are present, this option is off. Note 1: Do not enter an NPD more than once for a PSAP. Do not map an SNPA to more than one NPD for each PSAP. Note 2: If NUMIDIGS is not set to 1, the system does not prompt for NPD_MAP.
	NPD	0, 1, 2, 3	Numbering plan digit. Enter the NPDs in any order.
	SNPA	SERVING_NUMBERING_PLAN_AREA	Serving numbering plan area. Assign the SNPAs to any of the first set of NPDs (0 through 3). Note: Invalid NPD or SNPA entries cause errors. Do not map an SNPA to more than one NPD for each PSAP. A PSAP does have to have all four NPD mappings defined.
	PSAPNAME	alphanumeric (up to 16 characters)	Public safety answering point name. Enter the name of the PSAP.
	MNALMPCT	0 to 100	Minor alarm percentage. Enter the percentage of LDT PSAP hunt group members required to be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MINOR alarm to be raised. Note: If this alarm percentage is set to zero, the minor alarm will never be raised on behalf of the PSAP.

E911 Wireless Calls to PSAPs (continued)

Datafilling table HUNTGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Explanation and action
	MJALMPCT	0 to100	Major alarm percentage. Enter the percentage of LDT PSAP hunt group members which must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MAJOR alarm to be raised. Note: If this alarm percentage is set to zero, the major alarm will never be raised on behalf of the PSAP.
	CRALMPCT	0 to100	Critical alarm percentage. Enter the percentage of LDT PSAP hunt group members required to be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_CRITICAL alarm to be raised. Note: If this alarm percentage is set to zero, the critical alarm will never be raised on behalf of the PSAP.

Datafill example for table HUNTGRP

The following example shows sample datafill for table HUNTGRP for an LDT PSAP.

HTGRP	SNPA	DN	GRPTYP	GRPDATA
120	613	6212115	DLH	N Y N RCVD N Y
6212116	Y	MDC	N	6212113 Y 20 N N N
Y	LDTSPAP	Y Y	Y	POLICE 0 0 0 2 \$

Translation verification tools

E911 Wireless Calls to PSAPs does not use translation verification tools.

SERVORD

The following SERVORD information applies to E911 Wireless Calls to PSAPs.

SERVORD limitations and restrictions

E911 Wireless Calls to PSAPs has no SERVORD limitations and restrictions.

E911 Wireless Calls to PSAPs (continued)**SERVORD prompts for LINEPSAP options**

The following SERVORD prompts apply to E911 Wireless Calls to PSAPs with LINEPSAP options.

SERVORD prompts for E911 Wireless Calls to PSAPs with LINEPSAP options

Prompt	Valid input	Explanation
SONUMBER	Refer to SONUMBER in the SERVORD Reference Manual for information on valid inputs.	The unique number of the service order to be entered.
DN_OR_LEN	Refer to DN and LEN_OR_LTID in the SERVORD Reference Manual for information on valid inputs.	Enter the line's DN or LEN. In the case of an MDN line or MLH/DLH hunt members, if a DN is specified then the user is prompted for the LEN. If the LEN is entered, then the user is not prompted for the DN.
OPTION	Refer to the SERVORD Reference Manual for a list of valid inputs.	Option(s) associated with a service to be established, modified, or deleted. A maximum of 20 options can be specified in any single ADD, ADO, EST, or NEW command.
ANONCALL	Y or N	Indicates that direct call to PSAP DN is allowed.
PSAPNAME	Up to 16 characters	Public safety answering point name.
ENHDISP	Y or N	Indicates the wireless protocol two-line display for PSAPs.
NPD_MAPS	Vector of <NPD, SNPA>	Option associated with adding PSAP fields to the ACDPSAP option.

SERVORD example for E911 Wireless Calls to PSAPs with LINEPSAP option

The following is an example of the LINEPSAP option with ENHDISP for E911 Wireless Calls to PSAPs.

E911 Wireless Calls to PSAPs (continued)

Example of the LINEPSAP option in the prompt mode with ENHDISP

```

>ADO
SONUMBER:      NOW    97 12 17 PM
>
DN_OR_LEN:
> 7265100
OPTION:
> LINEPSAP
ANONCALL:
> Y
ENHDISP:
> Y
PSAPNAME:
> LINEPSAP1
OPTION:
> $

```

SERVORD prompts for LDTPSAP options

The following SERVORD prompts apply to E911 NPD per PSAP with LDTPSAP options.

SERVORD prompts for E911 Wireless Calls to PSAPs (Sheet 1 of 4)

Prompt	Valid input	Explanation
SONUMBER	Refer to SONUMBER in the SERVORD Reference Manual for information on valid inputs.	The unique number of the service order to be entered
GROUPTYPE	BNN, CPU, DLH, DNH, MLH, MPH, PRH, UA	The type of hunt group to be established, modified, or deleted
PILOT_DN	vector of up to 15 digits	The DN of a DNH/PRH group pilot or the DN associated with a DLH/MLH group
DN	Alphanumeric up to 15 characters	The directory number.
LCC	Refer to the "Line class codes" table in the SERVORD Reference Manual for a list of valid LCCs.	The DN of a DNH/PRH group pilot or the DN associated with a DLH/MLH group
GROUP	up to eight alphanumeric characters, beginning with an alphabetic character	Used with the IBN line class code (LCC); Common Language Location Identifier (CLLI) of an IBN customer group

E911 Wireless Calls to PSAPs (continued)**SERVORD prompts for E911 Wireless Calls to PSAPs (Sheet 2 of 4)**

Prompt	Valid input	Explanation
SUBGRP	0 through 7	Subgroup of a customer group to which a station or DN belongs
NCOS	0 through 511	Network class of service for IBN lines, trunks, or attendant consoles; defines a set of capabilities or restrictions that allows or denies calls.
LATANAME	alphanumeric	The calling local access and transport area (LATA) name associated with the originator of the call
LTG	0 to 9998	Line treatment group member; it is used to calculate the line attribute index when the DN and LCC are insufficient to find an appropriate index. LTG is prompted for in conjunction with LCC. If office parameters are on, prompt appears. If office parameters are off, prompt does not appear.
PILOT_LEN	see LEN	The LEN of a hunt group pilot
MEM_LEN	see LEN	LEN of DLH or MLH group member; list up to 20. In case of business set hunt group member, key must also be specified.
OPTION	LDTPSAP	Option(s) associated with a service to be established, modified, or deleted. A maximum of 20 options can be specified in any single ADD, ADO, EST, or NEW command.
ANONCALL	Y or N	Indicates that direct call to PSAP DN is allowed
ANISPILL	Y or N	Indicates that direct call to PSAP DN is allowed
ENHDISP	Y or N	Indicates the PSAP is ready to receive the Enhanced MF Signaling

E911 Wireless Calls to PSAPs (continued)**SERVORD prompts for E911 Wireless Calls to PSAPs (Sheet 3 of 4)**

Prompt	Valid input	Explanation
NUMIDIGS	1 or 3	Number of information digits expected by LDTPSAP with ANI
NPD_MAPS	Vector of <NPD, SNPA>	Option associated with adding PSAP fields to the ACDPSAP option
NPD	0, 1, 2, 3	Numbering plan digit. Enter the NPDs in any order
SNPA	3 digits	Serving numbering plan area code for the station
PSAPNAME	alphanumeric (up to 16 characters)	Public safety answering point name
MNALMPCT	0 to100	Percentage of LDT PSAP hunt group members which must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MINOR alarm to be raised. If this alarm percentage is set to zero, the alarm will never be raised on behalf of the PSAP.
MJALMPCT	0 to100	Percentage of LDT PSAP hunt group members which must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_MAJOR alarm to be raised. If this alarm percentage is set to zero, the alarm will never be raised on behalf of the PSAP.

E911 Wireless Calls to PSAPs (continued)**SERVORD prompts for E911 Wireless Calls to PSAPs (Sheet 4 of 4)**

Prompt	Valid input	Explanation
CRALMPCT	0 to100	Percentage of LDT PSAP hunt group members which must be busy (in a state other than CPB, IDL, or INB) for the E911_LDTBSY_CRITICAL alarm to be raised. If this alarm percentage is set to zero, the alarm will never be raised on behalf of the PSAP.
GROUPSIZE	0 through 1024	Hunt group size; the expected maximum size of the hunt group. If a switching unit has feature Hunt Group Size Expansion for a DNH, DLH, or MLH group, the range is 0 through 1024. For switching units without this feature, the range is 0 through 256. For a BNN hunt group, the range is from 0 through 210.

SERVORD example for E911 Wireless Calls to PSAPs with LDTPSAP option

The following figure is an example of the LDTPSAP option in the prompt mode with ENHDISP.

E911 Wireless Calls to PSAPs (end)

Example of the LDTPSAP option in the prompt mode with ENHDISP

```
>ADO
SONUMBER:      NOW   97 12 17 PM
>
DN_OR_LEN:
> 7265100
OPTION:
> LDTPSAP
ANONCALL:
> Y
ANISPILL:
> Y
ENHDISP:
> Y
NUMIDIGS:
> 1
NPD_MAP:
> $
PSAPNAME:
>POLICE
MNALMPCT:
> 0
MJALMPCT:
> 0
CRALMPCT:
> 0
OPTION:
> $
```

Large Capacity SRDB

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00004

Note: Beginning with NA004, functionality ordering code ENS00004 (ENS Large SRDB) replaces functionality ordering code ENS00003 (ENS Standard SRDB).

Release applicability

DMSCCM04 and later versions

Requirements

To operate, Large Capacity SRDB requires one of the following:

- ENS LDT PSAP, ENS00001
- ENS ACD PSAP, ENS00002

Description

The Large Capacity SRDB feature package performs the following:

- removes the 800000 tuple limit in table E911SRDB on a DMS SuperNode switch
- allows E911 customers to manage the E911 SRDB Memory Management feature (NTXQ18AA) through the E911SRDB

An internal change of the data structures associated with table E911SRDB (Enhanced 911 Selective Routing Database) expands the SuperNode switch.

This package does not introduce any customer visible changes except the change in the maximum number of tuples in table E911SRDB. This package introduces the customer visible change in the amount of memory a specified number of tuples requires. All current update and query mechanisms for the Selective Routing Database (SRDB) are compatible.

Note: The E911SRDB limit for an NT-40 is 300 000 tuples.

Background

Table E911SRDB directs the 10-digit directory number (DN) of callers to a geographic area with an Emergency Service Number (ESN). The ESN routes or transfers calls to the correct Public Safety Answering Point (PSAP) for the caller.

Large Capacity SRDB (continued)

Because the E911 tandem office can map DN's from four Numbering Plan Digits (NPD), table E911SRDB can become very large.

Table E911SRDB now has a limit of 800 000 entries for the DMS SuperNode switch.

Operation

SRDB limits

With Large Capacity SRDB, the internal data structure limits for the SRDB are a maximum of 32 million entries. Other limits for the SRDB are the same. These limits are the following:

- four NPDs, if office parameter E911_PSAPS_USING_1_INFO_DIGIT is Y (yes)
- 1 600 ESNs
- 800 office exchanges
- 10-thousand groups (THOUGRP) for each office exchange
- 1 000 3-digit numbers for each THOUGRP

These limits allow 8 000 000 correct DN's for each NPD. With the limit of four NPDs, calculate the new 32 million entry limit as follows:

$$4 \times 8\,000\,000 = 32\,000\,000$$

The amount of memory determines each E911 tandem office limit. Refer to Data store requirements for information on memory use.

Table E911SRDB tuples

In table E911SRDB, enter the ESN that match the geographic area of the numbers in the 10-digit numbers. You can enter Ns in parts of the 10-digit numbers to indicate a range of numbers directed to a common ESN. This action allows a single tuple in the table to serve many DN's.

Datafill example for table E911SRDB

Some tuples for table E911SRDB appear in the following example:

Large Capacity SRDB (continued)**MAP example for table E911SRDB**

E911	ESN
507 NNN N NNN	200
612 770 N NNN	231
612 543 2 NNN	112
612 770 3 495	111

The following table explains how the system routes DN's in the earlier tuples.

SNPA	Office code	THOUGRP	3-digit	ESN	Explanation
507	NNN	N	NNN	200	All DN's in SNPA 507 map to ESN 200
612	770	N	NNN	231	All DN's in SNPA 612 and office code 770 map to ESN 231.
612	543	2	NNN	112	All DN's in SNPA 612, office code 543, and THOUGRP 2000 map to ESN 112.
612	770	3	495	111	Only DN 612 770 3495 maps to ESN 111.

Data store requirements

Large Capacity SRDB can use large amounts of data store on the E911 tandem office. Explanations for the methods for store allocations appear below.

NPD

The space for four NPD's is allocated at 78 words. If all tuples in table E911SRDB specify the NPD, the SRDB (32 million DN's) requires 78 words of data store. An example of tuples that only specify the NPD is 612 NNN N NNN.

Office exchange

Office exchanges (NXX) are divided in two sections. One section contains NXX's between 200 to 599. The second section contains the NXX's between 600 to 999. When you enter an NXX between 200 to 599 for an NPD, the store for the range is 1 150 words. The 1 150 words indicate data store. Other NXX's between 200 to 599 for the same NPD do not require additional data store. The NXX's between 600 to 999 with the same NPD are allocated 1 150 words.

Large Capacity SRDB (continued)

For example, in the following MAP example, 1 150 words of data store are required. Only 1 150 words of data store are required because the NXXs in the tuples are between 200 to 599. The tuples have the same NPD.

E911	ESN
612 254 N NNN	231
612 353 N NNN	112

In the following MAP example, that tuple requires 1 150 more words of data store. The tuple requires more data store because the second tuple is not between 200 to 599.

E911	ESN
612 298 N NNN	231
612 781 N NNN	112

Thousand group

Enter the THOUGRP for each NXX. The system allocates 29 words of data store for the first THOUGRP you enter for each NXX. Additional entries in the same NPD-NXX do not require more database store. Entries in different NPD-NXXs require additional memory.

For example, in the following MAP example, the second tuple does not require additional data store. The second tuple does not require additional data store because both NPD-NXXs for the THOUGRPs are the same.

E911	ESN
612 298 3 NNN	231
612 298 6 NNN	112

In the following MAP example, the second tuple requires an additional 26 words of data store. The second tuple requires an additional 26 words of data store because the NPD-NXXs for the THOUGRPs are different.

Large Capacity SRDB (continued)

E911	ESN
612 298 3 NNN	231
612 365 3 NNN	112

3-digit groups

Enter the 3-digit groups that complete the 10-digit DN (XXX) on a separate THOUGRP condition. For the first XXX you enter for each THOUGRP, the system allocates 879 words of memory store. Additional entries for the same NPD-NXX-THOUGRP do not require additional data store. Entries in different NPD-NXX-THOUGRPs require additional data store.

For example, the second tuple does not require additional data store because both NPD-NXX-THOUGRPs are the same.

E911	ESN
612 298 6 325	231
612 298 6 397	112

In the following MAP example, the second tuple requires additional data store because the THOUGRPs are different.

E911	ESN
612 298 3 325	231
612 298 6 397	112

Worst case calculation

The maximum data store requirements for the SRDB for four SNPAs is calculated as follows:

Large Capacity SRDB (continued)

SNPA	=	78	=	78
NXX	=	4 x 2 x 1150	=	9 207
THOUGRP	=	4 x 2 x 400 x 29	=	92 807
XXX	=	4 x 2 x 400 x 10 x 879	=	<u>28 128 000</u>
Total: 32 000 000 tuples needs				28 230 078 words

Log reports

All logs that apply to the NTX451AA, NTXQ18AA, and NTXN60AA apply to Large Capacity SRDB feature package.

Commands

The Large Capacity SRDB feature package affects command interpreter (CI) command QSRDB. Command QSRDB provides information on the amount of store table E911SRDB uses and the number of tuples the table uses. The parameters and variables for command QSRDB are as follows:

QSRDB command parameters and variables

QSRDB	<i>MEM</i>		
	<i>THRESH</i>		
	<i>SET</i>	<i>PERCENT</i>	<i>percent_val</i>
		<i>STORE</i>	<i>store_val</i>
		<i>NLIMIT</i>	<i>nlimit_val</i>
		<i>COUNT</i>	<i>count_val</i>

Each of the command QSRDB parameters and variables appear in the following table.

QSRDB command parameters and variables descriptions (Sheet 1 of 2)

Parameters and variables	Description
<i>MEM</i>	The <i>MEM</i> displays information about the memory use of table E911SRDB. Memory use data includes the number of tuples in the table and the amount of store used by the table. Memory use data includes the amount of free store in the switch.

Large Capacity SRDB (continued)**QSRDB command parameters and variables descriptions (Sheet 2 of 2)**

Parameters and variables	Description
<i>THRESH</i>	The <i>THRESH</i> displays the current threshold values that generate the E911225 and E911226 log reports. The <i>THRESH</i> displays the current threshold values that activate the SRDB_MEMORY minor alarm.
<i>SET</i>	The <i>SET</i> allows you to change the threshold values for the E911225 and E911226 log reports and associated alarm. The <i>SET</i> is used with the parameters PERCENT, STORE, NLIMIT, or COUNT and the associated variables. Note: When you enter 0 for PERCENT, STORE, NLIMIT, and COUNT, the parameter turns off.
<i>NLIMIT</i>	The <i>NLIMIT</i> is used with the <i>SET</i> parameter to change the threshold for the number of tuples in table E911SRDB. The <i>NLIMIT</i> requires the variable <i>nlimit_val</i> .
<i>nlimit_val</i>	The <i>nlimit_val</i> is the threshold number of tuples in table E911SRDB. If the number of tuples reaches this number, an E911226 log report and SRDB_MEMORY minor alarm generates. Enter a number from 0 to 32 000 000 (tuples).
<i>COUNT</i>	<i>COUNT</i> is used with the <i>SET</i> parameter. <i>COUNT</i> changes the threshold for the number of tuples you add or change in table E911SRDB. The <i>COUNT</i> requires the variable <i>count_val</i>.
<i>count_val</i>	The <i>count_val</i> is the threshold number of tuples that you can add or change in table E911SRDB during an update. If the number of tuples you add or change reaches this value, the system generates an E911225 information log report. Enter a number from 0 to 32 000 000 (tuples).

Large Capacity SRDB (continued)

Examples of command QSRDB with task, response and explanation appear in the following table.

Note: When you enter 0 for PERCENT, STORE, NLIMIT, and COUNT, the parameter turns off.

Examples of the command QSRDB (Sheet 1 of 2)

Example	Task, response, and explanation
<i>QSRDB SET COUNT 120000000</i> <i>where</i> The SET is the parameter that changes the threshold values. The COUNT is the parameter that changes the threshold for the number of tuples you add or change in table E911SRDB. The new threshold value of tuples in table E911SRDB is 120 000 000.	<i>Task:</i> Set the threshold values for table E911SRDB and memory use. <i>Response:</i> THRESHOLD VALUES WILL BE: SRDB %: 85 STORE MINIMUM: 5 NEAR LIMIT: 120000000 LOG COUNT: 120000000 Please confirm ("YES" or "NO"): >yes SRDB THRESHOLD VALUES HAVE BEEN UPDATED <i>Explanation:</i> The threshold count for table E911SRDB is set to 85. The threshold store is 5 areas. The threshold tuple limit is 120 000 000. The threshold for tuple additions or changes is 120 000 000.
<i>QSRDB SET NLIMIT 120000000</i> <i>where</i> The SET is the parameter that changes the threshold values. The NLIMIT is the parameter that changes the threshold number of tuples. The new threshold number of tuples in table E911SRDB is 120 000 000.	<i>Task:</i> Set the threshold values for table E911SRDB and memory use.

Large Capacity SRDB (continued)

Examples of the command QSRDB (Sheet 2 of 2)

Example	Task, response, and explanation
	<i>Response:</i> THRESHOLD VALUES WILL BE: SRDB %: 85 STORE MINIMUM: 5 NEAR LIMIT: 120000000 LOG COUNT: 120000000 Please confirm ("YES" or "NO"): >yes SRDB THRESHOLD VALUES HAVE BEEN UPDATED <i>Explanation:</i> The threshold count for table E911SRDB is set to 85. The threshold store is 5 areas. The threshold tuple limit is 120 000 000. The threshold for tuple additions or changes is 120 000 000.

Translations table flow

The Large Capacity SRDB does not affect translations.

Limits

The following limits apply to Large Capacity SRDB:

- The current limit of SNPAs is 16
- The limit is four NPDs.
- The feature package does not apply to a DMS-100 NT-40

Interactions

The Large Capacity SRDB feature package interacts with the following feature packages:

- E911 ACD PSAP Integration
- VFG Support for E911
- E911 Memory Management
- Dial Up into ALI Database for SRDB Update
- E911 Tandem

Activation/deactivation by the end user

If the SRDB Memory Administration feature package is in the switch, Large Capacity SRDB is active.

Large Capacity SRDB (end)

Billing

Large Capacity SRDB does not affect billing.

Station Message Detail Recording

Large Capacity SRDB does not affect Station Message Detail Recording.

Datafilling office parameters

Large Capacity SRDB does not affect office parameters.

Datafill sequence

The Large Capacity SRDB feature package does not affect datafill. Only the maximum number of tuples in table E911SRDB are affected.

Tools for verifying translations

Large Capacity SRDB does not use tools for verifying translations.

SERVORD

Large Capacity SRDB does not use SERVORD.

LDTPSAP Test Enhancements

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: does not apply

Release applicability

DMSCCM04 and later versions

Requirements

This document contains datafill information for this functionality. Complete implementation of this functionality can require software or hardware.

Description

The LDTPSAP Test Enhancements feature enhances the testing ability of subscriber carrier module-100 urban (SMU)/line appearance. The enhancement occurs when the SMU connects to public safety answering point (PSAP) equipment. This feature provides operating companies with a troubleshooting test tool and with enhanced ability during installation of the LDTPSAP.

Operation

The LDTPSAP Test Enhancements feature provides a 1004-Hz simple tone (loss) test, a noise test, and a gain/slope test. The system implements the tests from the LTPMAN level of the MAP display. The 1004-Hz loss test complies with Bellcore LSSGR section 9. The test design initiates a call to the PSAP with Bellcore TR-TSY-00350 signaling for automatic number identification (ANI) delivery. The test design provides the ability to send, receive, and measure a 1004-Hz tone.

ATTENTION

Before you disconnect the PSAP equipment, the PSAP line must be in a manual busy (ManB) state. At the end of the test suite, you must reconnect the PSAP equipment and remove the TIMS before you return the PSAP line to service.

LDTPSAP Test Enhancements (continued)



CAUTION

Whenever a busy command is issued on an SMU having LDT PSAP, the following messages will appear:

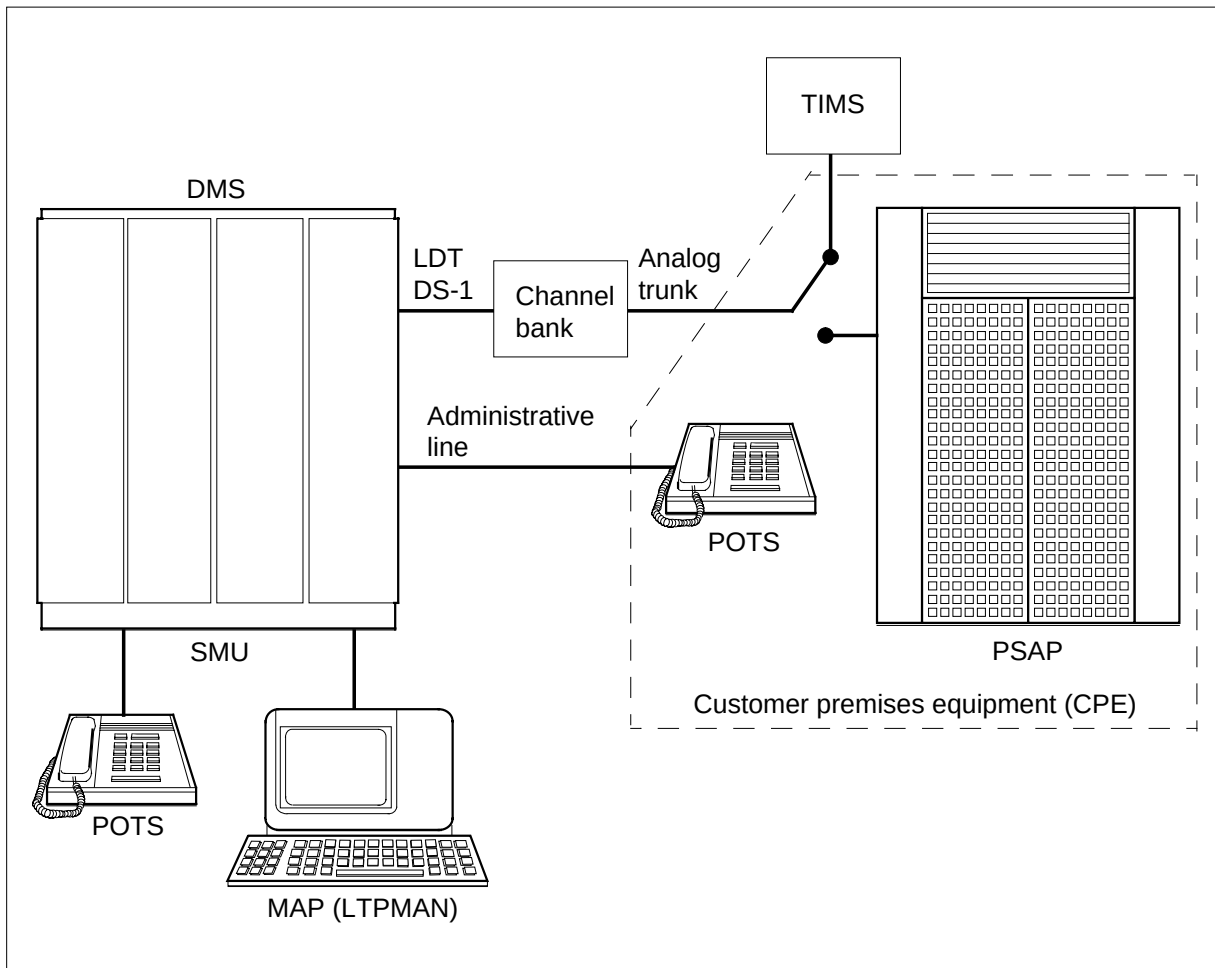
This SMU has xxxLDT provisioned (possible PSAP service).

This action will take this PM and all subtending nodes out of service. Do you wish to continue? Y or N.

The configuration for testing appears in the following figure. End-to-end transmission testing between a DMS-100 switch E911 tandem office and the customer premises PSAP equipment location is available. A Test Impairment Measurement Set (TIMS) replaces the customer premises PSAP equipment during the test. The TIMS receives and measures signals from the DMS-100 switch and sends signals that the switch measures.

LDTPSAP Test Enhancements (continued)

System configuration for LDTPSAP testing



This feature allows testing at the manual level for LDTPSAP lines when the DMS-100 switch functions as an E911 tandem. Each test has a command. The system executes the commands from the Lines (LNS), LTP, LTPMAN level of the MAP terminal. The transmission test unit (TTU) is in the maintenance trunk module (MTM) at the DMS-100 switch. The TTU makes measurements and sends signals to the TIMS.

Commands `LOSS` and `NOISE` implement tests from the LTPMAN level of the MAP terminal. The gain/slope test uses `GAINSLOPE`, a hidden command. Prompts direct each test step. The prompts appear on the MAP terminal.

The results appear on the MAP terminal with an indication of a test pass or fail. The measurements that appear are the measurements that the TTU takes in the switch, the incoming path. In the outgoing path, the results are read on the

LDTPSAP Test Enhancements (continued)

TIMS. An operating-company technician communicates the results verbally to the DMS-100 switch side.

Loss test

The 1004-Hz simple tone (loss) test procedure appears in the following description. Two connections to the PSAP end from the DMS-100 switch are required. The first connection is a simple telephone connection the maintenance personnel use for communication. The second connection is a connection to the TIMS through the line that is tested.

- 1 Busy the PSAP line, connect the TIMS, and disconnect the PSAP equipment.
- 2 Configure the TIMS to measure levels (1004-Hz tone).
- 3 Initiate the loss test from the LTPMAN MAP level. The tests begins with the outgoing test. Read the tone level at the TIMS and communicate the level to the MAP operator at the central office (CO). To calculate the outgoing loss, subtract the TIMS reading from the 0 dBm level of the tone the DMS-100 switch sends.
- 4 Configure the TIMS to transmit a 1004-Hz tone.
- 5 Continue the loss test from the LTPMAN MAP level (incoming test). Receive and measure the 1004-Hz tone from the TIMS.

The command syntax for the loss test appears in the following description. Note that the selection of option 4 (Loss) from the LTPMAN MAP level can execute the loss test.

>MAPCI;MTC;LNS;LTP;POST ldt-psap;LTPMAN;LOSS

where

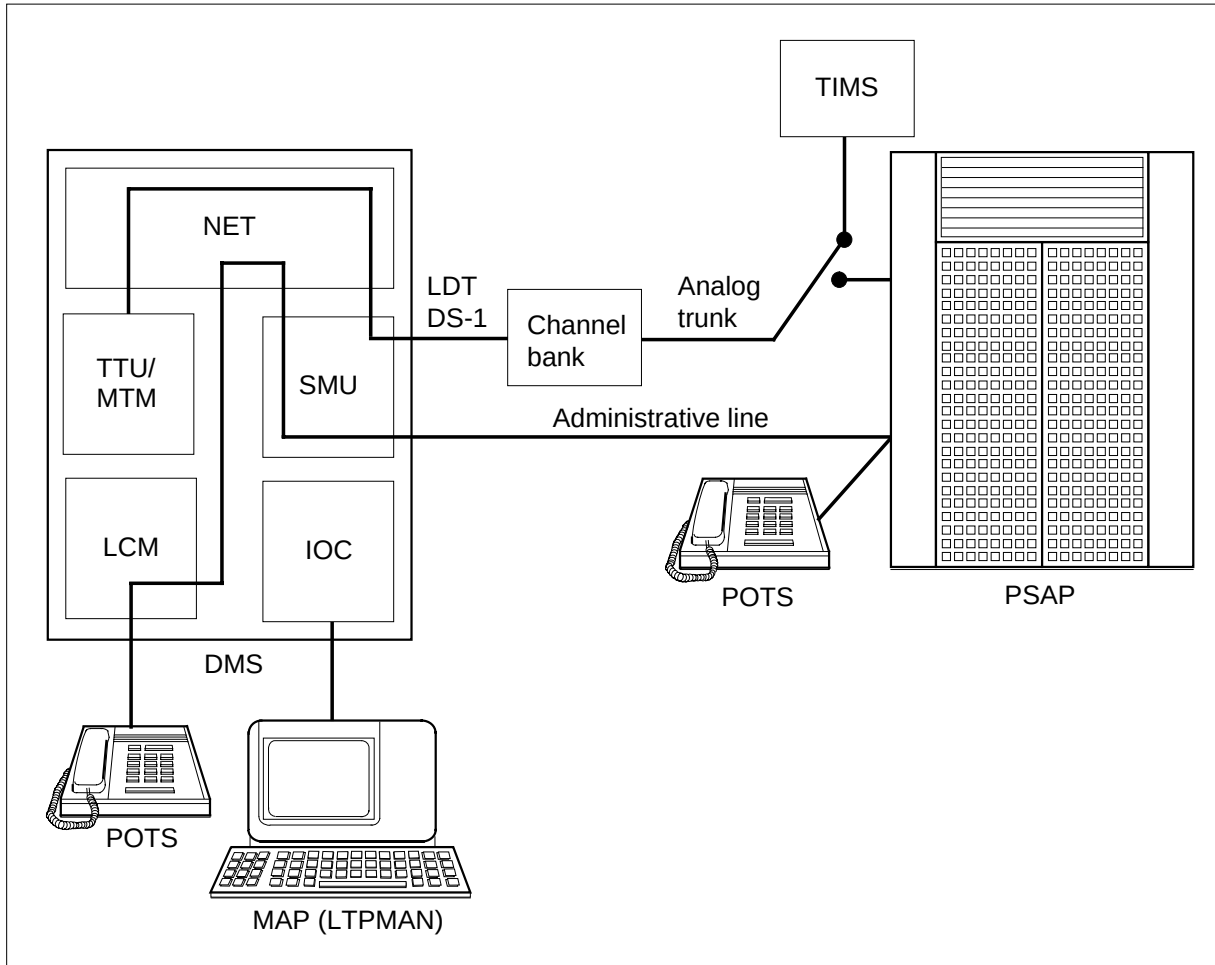
ldt-psap

is the directory number (DN) or line equipment number (LEN) of the

PSAP line, preceded by the appropriate command option (d or l)

After execution of the loss test, the following message appears on the MAP terminal:

LOSS MEASURED: xx dB

LDTPSAP Test Enhancements (continued)**DMS-100 switch to PSAP connections****Noise test**

The noise test includes the C-weighted noise test and the C-notch noise test. Each test has two parts. These parts are the *outgoing test* and the *incoming test*. Prompts that appear on the MAP terminal direct the two parts of the test.

In the outgoing part of the noise test, the TIMS must measure C-weighted/C-notch noise. The TIMS must provide quiet termination in the incoming C-weighted noise test. The TIMS must generate a 1004-Hz loading tone in the incoming C-notch noise test.

The command syntax for the noise test appears in the following description. Note that selection of option 5 (Noise) from the LTPMAN MAP level can execute the noise test.

MAPCI;MTC;LNS;LTP;POST ldt-psap;LTPMAN;NOISE

LDTPSAP Test Enhancements (continued)

where

ldt-psap

is the DN or LEN of the PSAP line, preceded by the appropriate

command option (d or l)

Execution of the noise test follows completion of the incoming part of the test. After execution of the noise test, the following messages appear on the MAP terminal:

C-WEIGHTED NOISE: xx dBrnc

C-NOTCH NOISE: xx dBrnc

Gain/slope test

The gain/slope test measures loss at three frequencies: 404 Hz, 1004 Hz, and 2804 Hz. The test has two parts. These parts are *outgoing* and *incoming*. Each part includes a set of three measurements that use these frequencies. To calculate the outgoing loss, subtract the TIMS reading from the -16 dBm level of the tone that the DMS-100 switch sends.

The command syntax for the gain/slope test appears in the following description.

MAPCI;MTC;LNS;LTP;POST ldt-psap;LTPMAN;GAINSLOPE

where

ldt-psap

is the DN or LEN of the PSAP line, preceded by the appropriate

command option (d or l)

Execution of the gain/slope test follows completion of the incoming part of the test. After execution of the gain/slope test, the following messages appear on the MAP terminal:

LDTPSAP Test Enhancements (continued)

GAINSLOPE - 404 Hz: xx dB
 GAINSLOPE - 1004 Hz: xx dB
 GAINSLOPE - 2804 Hz: xx dB

Translations table flow

The LDTPSAP Test Enhancements does not affect translations table flow.

Limits

The following limits apply to LDTPSAP Test Enhancements:

- The customer premises require a TIMS that can perform the following actions:
 - measurement of tone levels at 404 Hz, 1004 Hz, and 2804 Hz
 - provision of tones of 404 Hz, 1004 Hz, and 2804 Hz at -16 dBm0 and at 0 dBm0
 - provision of quiet termination
 - measurement of C-message and C-message notch noise

The TIMS must comply with CCITT, LSSGR, or ANSI requirements for these measurements.

Note that this enhanced test feature assumes that the TIMS at the PSAP end does not support responder or TL105 functions.

An operating-company technician must be at the PSAP side to operate the TIMS and report the TMS readings to the CO side. Readings that appear as far-to-near test results at the CO side appear on the MAP terminal.

- The LTP checks the type of line against the command to determine if the system supports the test for the line type. For the LDT line type the following commands are permitted: LTPMAN, NOISE, LOSS, and GAINSLOPE. The GAINSLOPE is a hidden command at the LTPMAN MAP level.
- The PSAP line must be in a manual busy (ManB) state before the execution of the loss test. The following error message appears on the MAP terminal if the line is not in a ManB state:

Error: Line must be MAN BSY (MB) for this test
- The following error message appears if a TTU resource is not available at the time of the test:

Unable to get TTU
- At the end of the test group, reconnect the PSAP equipment and remove the TIMS. Remove the TIMS before you return the PSAP line to service.

LDTPSAP Test Enhancements (end)

Interactions

The LDTPSAP Test Enhancements does not have functionality interactions.

Activation/deactivation by the end user

The LDTPSAP Test Enhancements does not require activation or deactivation by the end user.

Billing

The LDTPSAP Test Enhancements does not affect billing.

Station Message Detail Recording

The LDTPSAP Test Enhancements does not affect Station Message Detail Recording.

Datafilling office parameters

The LDTPSAP Test Enhancements does not affect office parameters.

Datafill sequence

The LDTPSAP Test Enhancements does not affect datafill sequence.

Tools for verifying translations

The LDTPSAP Test Enhancements does not use tools for verifying translations.

SERVORD

The LDTPSAP Test Enhancements does not use SERVORD.

OFBSR Interface

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00017

Release applicability

NA015 and up

NA015 introduced OFBSR interface.

Requirements

OFBSR interface has no functional group requirements.

Description

The geographic area covered by an Enhanced 911 Emergency Service (E911) office is divided into emergency service zones (ESZ). Each ESZ is associated with an emergency service number (ESN). Each ESN is associated with a group of public safety answering points (PSAP). Emergency service is provided to all subscribers in an ESZ by the same group of PSAPs, defined by identical ESNs.

Since 911 calls must be routed from the end office to the E911 tandem on dedicated E911 trunks, all the E911 trunks also have an associated ESN (except for calls routed on non-dedicated message and foreign exchange trunks)

There are two types of routing for E911 calls: selective routing and alternate routing. Selective routing routes a 911 call to a PSAP depending on the ESN associated with the subscriber's directory number (DN). The ESN assigned to the incoming trunk group is the default ESN. Emergency calls coming in the E911 tandem on message or foreign exchange (FX) trunks are routed based on the default ESN entered in the pretranslator for that trunk group. If the E911 tandem cannot terminate a 911 call to a PSAP, alternate routing allows the tandem to route the call to another DN or ROUTE.

After a 911 call routes to the primary PSAP, the PSAP can be transferred to another agency that provides service for the specific type of emergency that the subscriber is experiencing. This method is selective call transfer and is also based on the subscriber's ESN.

The OFBSR interface feature operates from a DMS-100 functioning as an E911 tandem to an external selective-routing database (SRDB) server. An SRDB server supports up to 1,024 ESN tuples for each subscriber in the area.

OFBSR Interface (continued)

Each ESN tuple contains a primary PSAP DN and up to six selective call transfer DNs for specialized PSAPs.

The OFBSR also supports the Dual OFBSR interface, which allows one switch to work with two external databases for selective routing. If communication fails between the DMS-100 and the primary OFBSR, the secondary OFBSR will be used for selective routing.

Operation

When an E911 call is processed within the DMS-100 E911 environment, the selective routing function activates. At this point, a check determines if the OFBSR interface will be used for the call's translation. This check searches for one of two options:

- an option on the incoming E911 facility (trunk or virtual facility group) to select OFBSR
- an office-wide option (Table E911OFC) that selects OFBSR for all E911 calls in the office

If either of these options is selected, an X.25 query is issued to the OFBSR interface and a timer set for 750 milliseconds begins counting. If the timer expires with no response to the query, a second query launches and the timer resets for another 750 milliseconds. If there is no response to the second query, the call is either default routed based on the ESN of the E911 trunk, or routed based on the ESN retrieved from Table E911SRDB.

Translations table flow

The OFBSR interface does not affect translations table flow.

Limitations and restrictions

The OFBSR interface has no limits or restrictions.

Interactions

The OFBSR interface does not interact with other functionalities.

Activation and deactivation by the user

The OFBSR interface does not require activation or deactivation by the user.

Billing

The OFBSR interface does not generate billing record changes.

Station Message Detail Recording

The OFBSR interface does not require Station Message Detail Recording.

OFBSR Interface (continued)**Office parameters used by OFBSR interface**

The OFBSR interface does not generate office parameters.

Datafill sequence

The table that follows lists tables requiring datafill to put the OFBSR interface into operation. You must enter data into the tables in this order.

Datafill requirements for OFBSR interface

Table	Purpose of table
MPC	Multiprotocol Controller (MPC) identifies the MPC card hardware in the DMS computing module (CM) and requires one entry or tuple for each MPC.
MPCLINK	MPC Link contains the link and protocol information for cards datafilled in Table MPC.
MPCFASTA	MPC Fast Application contains tuples for applications that use the MPC Fast Utility, a streamlined I/O interface through the MPC. Two application IDs (E911SR01 and E911SR02) have been added to this table.
E911OFC	E911 Office contains Yes/No options specific to E911. Options USE_OFBSR_INTERFACE and USE_ONBOARD_SRDB have been added to this table.
TRKGRP	E911 table for Trunk Group Data contains definitions of logical trunk data. Type definition OFBSR has been added to this table.
VIRTGRPS	E911 table for Virtual Facility Group (VFG) contains definitions of Virtual Facility Group data (VFG). Parameter OFBSR has been added to this table.

Datafill related to OFBSR interface for Table MPCFASTA

The table that follows provides the datafill related to the OFBSR interface for Table MPCFASTA. This table includes only those fields that apply directly to

OFBSR Interface (continued)

the OFBSR interface. See the *Customer Data Schema Reference Manual* (297-8001-351) for more information on datafilling Table MPCFASTA.

Datafill related to Table MPCFASTA

Field	Subfield	Entry	Explanation and action
INDEX		E911SR01 or E911SR02	Name of application using the MPC Fast Utility. Enter E911SR01 for the primary Off-Board Selective Routing Interface or E911SR02 for the secondary Off-Board Selective Routing Interface.
AUDITYPE		ACTIVE or IDLE	Audit type. Enter the type that runs on the MPC link channel (MLC). Enter ACTIVE for a continuous audit or IDLE to run audits when there is no traffic. The default value is IDLE.
AUDITFRQ		0	Audit frequency. Enter the frequency as 0 because this feature does not support the link audit. A 0 indicates no internal link audits are performed on the links.
UNITS		MINUTES or SECONDS	Units of time. Enter either MINUTES or SECONDS.
RECOVERY		REGULAR	Recovery. Does not apply to OFBSR; leave the default of REGULAR.
MLCLIST			MLC List. OFBSR requires two MLCs per application.

Datafill example for Table MPCFASTA

The figure that follows shows sample datafill for Table MPCFASTA.

MAP example for Table MPCFASTA

INDEX	AUDITTYPE	AUDITFRQ	UNITS	RECOVERY	MLCLIST
E911SR01	IDLE	0	MINUTES	REGULAR	(4 2 1) (4 3 1)\$
E911SR02	IDLE	0	MINUTES	REGULAR	(6 2 1) (6 3 1)\$

OFBSR Interface (continued)

Datafill related to OFBSR interface for Table E911OFC

The table that follows provides the datafill related to the OFBSR interface for Table E911OFC. This table includes only those fields that apply directly to the OFBSR interface. See the *Customer Data Schema Reference Manual* (297-8001-351) for more information on datafilling Table E911OFC.

Datafill related to Table E911OFC

Field	Subfield	Entry	Explanation and action
	E911OPTN	USE_OFBSR_ INTERFACE	Use OFBSR interface. This option indicates that the OFBSR is used on the office-wide basis.
	E911OPTN	USE_ ONBOARD_ SRDB	Use On-Board Database (E911SRDB). If the query to OFBSR fails, this option indicates that the E911SRDB will be used for routing.

Datafill example for Table E911OFC

The figure that follows shows sample datafill for Table E911OFC.

OFBSR Interface (continued)

MAP example for Table E911OFC

```
TABLE: E911OFC
>add
E911OPTN:
>use_ofbsr_interface
*** This will affect the routing of E911 calls ***
USE_OFBSR_DATABASE will cause E911 calls to route
via the Off_Board SRDB. Unavailability of the OFBSR
will cause the E911 calls to default route.
Setting USE_ONBOARD_SRDB will allow the E911 calls
to route via E911SRDB table in the event when no
response is received from OFBSR.
TUPLE TO BE ADDED:
    USE_OFBSR_INTERFACE
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

>add
E911OPTN:
>use_onboard_srdb
USE_ONBOARD_SRDB should be set if E911SRDB table is
datafilled and USE_OFBSR_DATABASE is set
Setting USE_ONBOARD_SRDB will allow the E911 calls
to route via E911SRDB table in the event when no
response is received from OFBSR.
TUPLE TO BE ADDED:
    USE_ONBOARD_SRDB
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

>pos use_ofbsr_interface
    USE_OFBSR_INTERFACE
>del
Removing USE_OFBSR_INTERFACE means that all E911
calls routed will be routed via E911SRDB table.
USE_ONBOARD_SRDB should be removed if set.
TUPLE TO BE DELETED
    USE_OFBSR_INTERFACE

>pos use_onboard_srdb
    USE_ONBOARD_SRDB
>del
If USE_OFBSR_INTERFACE is set removal of USE_ONBOARD_SRDB
will cause E911 calls routed to be default routed based on
the facility's ESN index.
TUPLE TO BE DELETED
    USE_ONBOARD_SRDB
```

Datafill related to OFBSR interface for Table TRKGRP

The table that follows provides the datafill related to the OFBSR interface for Table TRKGRP. This table includes only those fields that apply directly to the

OFBSR Interface (continued)

OFBSR interface. See the *Customer Data Schema Reference Manual* (297-8001-351) for more information on datafilling Table TRKGRP.

Datafill related to Table TRKGRP

Field	Subfield	Entry	Explanation and action
E911 Option	OFBSR	Y/N	Trunk group. Enter Y (Yes) if the facility uses the Off-Board Selective Database or N (No) if not. The default is N.

Datafill example for Table TRKGRP

The figure that follows shows sample datafill for Table TRKGRP.

MAP example for Table TRKGRP for an ISUP trunk

```
TABLE: TRKGRP
>pos e911ics7
E911ICS7
IT 0 ELO NCRT IC NIL MIDL 613 613 AT1 NSCR 613 000 N N
(E911 747 113 E911_STD Y N 0) $
      OFBSR _____
```

MAP example for Table TRKGRP for an MF trunk

```

TABLE: TRKGRP
>pos e911icmf
E911ICMF
E911 20 ELO NCRT NPRT 613 613 Y 0 Y BELL 1 10 10 REV
692 111 N N
OFBSR

```

Datafill related to OFBSR interface for Table VIRTGRPS

The table that follows provides the datafill related to the OFBSR interface for Table VIRTGRPS. This table includes only those fields that apply directly to

OFBSR Interface (continued)

the OFBSR interface. See the *Customer Data Schema Reference Manual* (297-8001-351) for more information on datafilling Table VIRTGRPS.

Datafill related to table VIRTGRPS

Field	Subfield	Entry	Explanation and action
E911 Option	OFBSR	Y/N	Virtual Facility Group (VFG) Data definitions. Enhances the type definitions for E911 VFG by adding an additional parameter. Enter Y (Yes) if the facility uses the Off-Board Selective Database, or N (No) if not. The default is N.

Datafill example for Table VIRTGRPS

The figure that follows shows sample datafill for Table VIRTGRPS.

MAP example for Table VIRTGRPS for an VFG trunk

TABLE: VIRTGRPS

>pos 911 vfg

911 VFG	SIZE	10	E911	110	621	613	Y	0	N	N	Y	Y\$

OFBSR _____



Translation verification tools

Setting the OFBSR field in Table VIRTGRPS and TRKGRP to Y affects the translations of the 911 call. The Off-Board Selective Routing database will be queried for the ESN index instead of Table E911SRDB.

The TRAVER tool will be modified to include a message that the facility is using the external database for routing a call.

The figure that follows shows sample TRAVER output for the OFBSR interface.

OFBSR Interface (continued)**TRAVER output example for the OFBSR interface**

```

>traver tr e911ics7 911 b cdn 9095551234
TABLE TRKGRP
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 AT1 NSCR 613 000 N N
(E911 747 113 E911_STD N 0 Y) $
NOTE: THIS FACILITY ROUTS VIA OFBSR
EXECUTE QESN COMMAND TO RETRIEVE CORRECT ESN_INDEX.
TABLE E911SRDB
TUPLE NOT FOUND
CALL DEFAULT ROUTED
TABLE E911ESN
TUPLE NOT FOUND
ESN IN TABLE TRKGRP IS NOT DATAFILLED IN TABLE E911ESN
TABLE TMTCNTL
ITTRKGRP ( 10)
. SUBTABLE TREAT
KEY NOT FOUND
DEFAULT OFFTREAT IS USED
TABLE TMTCNTL
OFFTREAT ( 110)
. SUBTABLE TREAT
. VACT Y S T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

TREATMENT ROUTES. TREATMENT IS: VACT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

The Query E911 SRDB for ESN command (QESN) is used to display the ESN index associated with the given telephone number (TN). This command uses the numbering plan area (NPA) and TN and retrieves the ESN from Table E911SRDB. Parameter (OFBSR) has been added to QESN allowing queries to the OFBSR.

The figure that follows shows sample QESN output for the OFBSR interface.

OFBSR Interface (end)

QESN output example for the OFBSR interface

```
>qesn
Next par is: <NPA> {0 TO 999}
Enter: <NPA> <TN> <OFBSR>
>613
Next par is: <TN> {2000000 TO 9999999}
Enter: <TN> <OFBSR>
>6215001
Next par is: <OFBSR> {Y,N}
>Y
  613 6215001          ESN 200
>
```

SERVORD

The OFBSR interface does not use the Service Order System (SERVORD).

Remote Call Event Record

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00002

Release applicability

BCS34 and later versions

Requirements

To operate, Remote Call Event Record has the following requirements:

- MDC Minimum, MDC00001
- MDC Standard, MDC0003
- Meridian Business Set Minimum, MDC00007
- Meridian ACD Base, ACD00001

Description

The E911 Remote Call Event Record (RCER) feature provides the ability to generate remote call event records. The DMS-100 switch generates these records over an asynchronous multiprotocol controller (MPC) link to an external device. The remote call event record has a format like an E911212 log and contains the same information as an E911212 log. For wireless calls the RCER format displays a plus sign (+) after the first line. The plus sign indicates a second line of data follows that contains pseudo automatic number identification (PANI) data. Each public safety answering point (PSAP) can have an associated linkset over which the system transmits the call event records for that PSAP.

The information in the E911 remote call event record includes several events. These events are the answer, transfer, and disconnect times of an E911 call, the PSAP name, and the calling party number. The switch provides the information to an external device in a short format or long format. The switch generates remote call event records for line PSAP calls and Automatic Call Distribution (ACD) calls.

Operation

The RCER feature allows the DMS-100 switch to transmit remote call event records. The switch transmits these records in a format like the format of the E911212 log report. These records contain the same information as the E911212 log report. The switch transmits the records over an asynchronous American Standard Code for Information Interchange (ASCII) MPC link to an external device.

Remote Call Event Record (continued)

Log reports

The system generates E911212 logs for ACD and line PSAPs. The logs contain a standard log header line, an E911212 header line, and data lines. An E911212 log appears in the following example. The DN to which the PSAP transfers the call appears in field XFR DN. The XFR DN can be a dialed DN or a programmed DN that a subscriber activates with speed calling (SC) or quick conference (QCK) key.

In the following figures, note that this information is printed in two lines. The lines are the first three lines of the example on line 1 and the last two lines on line 2.

Sample E911212 log

```
E911212 JAN10 15:10:25 0101 INFO E911 CALL EVENT RECORD
ANI          PSAPNAME          POSID      LOGIN        OFFER        ANSW
9196211235   MADISONPOLICE          0362      1967         15:10:00     15:10:02

XFR          DISC          XFR DN      XFR PSAPNAME    XFR ANSW
15:10:17     15:10:25          9196211901    MADISONFIRE     15:10:19
```

If a call fails to get a feature data block, the system generates the E911212 log after an E911224 log. This log indicates a feature data block failure. An example of the E911212 log after a feature data block failure appears in the following figure.

Sample E911212 log for a feature data block failure

```
E911212 JAN10 15:10:25 0101 INFO E911 CALL EVENT RECORD
ANI          PSAPNAME          POSID      LOGIN        OFFER        ANSW
9196211235   MADISONPOLICE          0362      1967         15:10:00     FDB FAIL

XFR          DISC          XFR DN      XFR PSAPNAME    XFR ANSW
FDB FAIL     FDB FAIL     FDB FAIL     FDB FAIL        FDB FAIL
```

Remote call event records

The following section describes the remote call event record format, information and causes.

Record format

The E911 remote call event records do not associate with the log system. These records look the same and contain the same information. Two formats

Remote Call Event Record (continued)

are available. The two formats are long and short. The long format prints three lines for each call. These three lines are a header line, a data line, and a blank line. Each of these lines is 122 characters wide. The short format prints one line for each call and contains the E911 call data.

The DN to which the PSAP transfers the call appears in field XFR DN. The XFR DN can be a dialed DN or a programmed DN that the subscriber activates with the speed calling (SC) or quick conference (QCK) key.

An example of the long and brief formats appears in the following figures. These examples are wrapped in the figure because of the width limit of the pages of this document.

Long format for remote call event records

DATE	ANI	PSAPNAME	POSID	LOGIN	OFFER	ANSW
90/03/26	9196211235	MADISONPOLICE	1234	1967	15:10:00	15:10:00
XFR	DISC	XFR DN	XFR	PSAPNAME	XFR	ANSW
15:10:17	15:10:25	9199211901	MADISONFIRE		15:10:19	

Short format for remote call event records

```
90/03/26 9196211235 MADISONPOLICE 1234 1967 15:10:00 15:10:00
15:10:17 15:10:25 9199211901 MADISONFIRE 15:10:19
```

Record information

Each remote call event record contains the following information:

DATE

The date of the call.

ANI

The numbering plan area code and the directory number of the calling party.

PSAPNAME

The name of the PSAP as entered in table E911PSAP.

POSIDA

four-digit number that identifies the ACD position. The POSID is the IDNUM for the position entered in table KSETLINE. For line PSAPs,

Remote Call Event Record (continued)

a position identifier is not available. The words NO ID appear in the POSID field.

LOGINA

four-digit log-in identifier for the ACD agent. For line PSAPs, a log-in identifier is not available. The words NO ID appear in the LOGIN field.

OFFER.

The time the system offers the call to the PSAP. For an ACD PSAP, this time represents when the system offers the call to the ACD agent. This time also represents when the system queues the call if agents are not available. For a line PSAP, the time represents the time the system offers the call to the agent

ANSW

The time the called agent answers the call. If the system disconnects the caller before the called party answers, the words NO ANSW appear.

XFR

Time an agent transfers the call. If the agent does not transfer the call, NO XFR appears.

DISC

The time the system disconnects the agent or calling party from a two-way call. For a call transfer, this time indicates the time the agent disconnects from the call after the agent transfers the call.

XFER

DNIf the XFR PSAPNAME field has a correct PSAPNAME other than NON PSAP AGENCY, the XFR DN is the numbering plan area code. The XFR DN is also the directory number of the agent position to which the agent transfers the call. If the XFR PSAPNAME field contains NON PSAP AGENCY, the XFR DN contains the digits that the agent that transfers the call dials. This field is blank if a transfer does not occur.

XFR PSAPNAME

The name of the PSAP to which the agent transfers the call. If the agent does not transfer the call to an E911 PSAP agency, NON PSAP AGENCY appears in this field. An E911 PSAP must be entered in table E911PSAP on the E911 tandem. This field is blank if a transfer does not occur.

XFR ANSW

The time when the add-on party of a transferred call answers the call. This field is blank if a transfer does not occur.

Remote Call Event Record (continued)

Record-generating events

The switch generates a remote call event record when one of the following events occurs:

- If the controlling PSAP drops out of the call, the switch generates a remote call event record for the primary PSAP. The controlling PSAP is the PSAP that initiates the call transfer. The PSAP can drop out of the call. When this event occurs, the PSAP must leave the calling party and the secondary PSAP in a two-way call.
- If the secondary PSAP drops out of the call, the calling party and the primary PSAP return to a two-way call. The primary PSAP agent can flash off the PSAP. When this event occurs, the calling party and the primary PSAP return to a two-way call. The switch generates a remote call event record for the secondary PSAP.
- If the calling party disconnects, the switch generates two remote call event records. The switch generates one record for the primary PSAP agent who transfers the call. The switch generates another record for the secondary PSAP agent who answers the call transfer.

If a call fails to get a feature data block, the switch generates a remote call event record. This record indicates a feature data block failure. An example of a remote call event record appears in the following figure. The switch generates this record after a feature data block failure.

Remote call event record for a feature data block failure

DATE	ANI	PSAPNAME	POSID	LOGIN	OFFER	ANSW
90/03/26	9196211235	MADISONPOLICE	1234	1967	15:10:00	FDB FAIL
XFR	DISC	XFR DN	XFR PSAPNAME	XFR ANSW		
FDB FAIL	FDB FAIL	FDB FAIL	FDB FAIL	FDB FAIL		

E911 Enhanced Called Party Hold feature

The E911 Enhanced Called Party Hold (ECPH) feature maintains the connection of an E911 call. The E911 ECPH maintains the connection from origination until the PSAP answers or until the ECPH timer delay lapses. This timeout period makes sure that the system processes an emergency call if the caller hangs up before the call completes. The system must process an emergency call even if the caller does not hang up. For the ECPH feature, the remote call event record includes asterisks (*). These asterisks indicate that the system abandons the call and ECPH allows the PSAP to answer the call.

Remote Call Event Record (continued)

Northern Telecom sets the ECPH time at default 0 (zero). The operating company cannot change the value. An example of an ECPH event appears in the following figure.

Remote call event record for an enhanced called party hold event

DATE	ANI	PSAPNAME	POSID	LOGIN	OFFER	ANSW
90/03/26	9196211235	MADISONPOLICE	1234	1967	*15:10:00	*15:10:00
XFR	DISC	XFR DN	XFR	PSAPNAME	XFR	ANSW
*15:10:17	15:10:25	9199211901		MADISONFIRE		15:10:19

Multiprotocol controller links and link failure

An MPC linkset, over which the switch transmits the remote call event records, associates with a PSAP. An MPC linkset is one or more multiprotocol controller links. Several PSAPs can use the same linkset. The calls associated with one PSAP cannot go to more than one linkset. A maximum of 96 links can associate with an E911 tandem. One linkset can contain a maximum of 16 of the 96 links.

The switch sends the remote call event records over the first available link associated with that PSAP. Table MPCFASTA contains fixed priorities. When a link is down, the system raises a minor alarm and tries the next link. If the links in the linkset do not respond, the system raises a major alarm. A major alarm indicates that every available link in a linkset for a specified PSAP is down.

While each link for a PSAP is down, the system generates an E911218 log. This log contains the lost remote call event record information for each call to that PSAP. Remote call event records, that are in transit or that the system queues on the MPC card, are lost. The system does not generate an E911218. Calls that follow do not generate an E911218 log before restoration of the links.

The standard E911212 log can act as a backup for calls if the system transmits or does not transmit the calls.

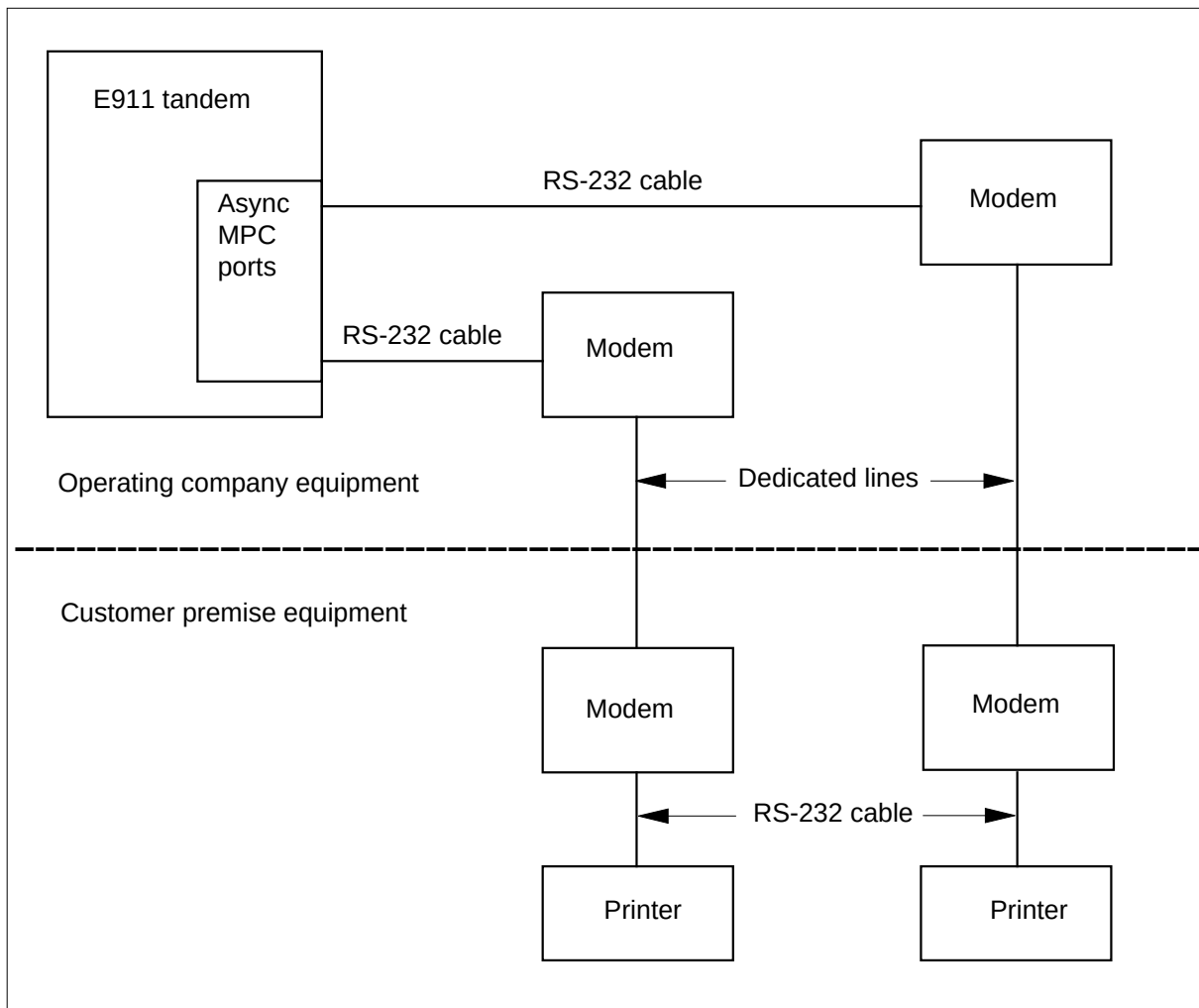
Typical application

Normally, the MPC card connects to a modem that communicates across a dedicated line with another modem. The far-end modem connects to an external device. For redundancy, the system can use more than one link. A printer can also connect directly to the MPC card if the printer is in 50 ft of the MPC card.

Remote Call Event Record (continued)

The switch can also send remote call event records to a database application and a printer. An example of a normal E911 remote call event record layout appears in the following figure.

Remote call event record layout



Hardware requirements

Multiprotocol controller requirements

The E911 Remote Call Event Record feature requires one or more MPC links that have asynchronous ASCII ability. These links require one or more MPC cards (NT1X89AA) or enhanced MPC cards (NT1X89BA/BB). Links associated with this feature are not available for other purposes.

Remote Call Event Record (continued)

Minimum printer requirements

The printer must be able to print 122 characters in width. The printer must be able to print the remote call event records. The printer must print at a speed that the arrival speed and length of the remote call event records determine. Printer speed calculations appear in the following sections. Note that printer speed is measured in characters for each second.

Brief mode:

$$122 * \text{rate}$$

where

122 is characters per remote call event record, and
rate is the number of remote call event records per second.

Long mode:

$$238 * \text{rate}$$

where

238 is characters per remote call event record, and
rate is the number of remote call event records per second.

The system regards data that the MPC receives over the link as noise. The MPC increases these data as a bad input record.

Minimum modem requirements

The Remote Call Event Record feature requires two modems that can communicate. The modem speed must be greater than the speed calculated in the previous section.

Ideal printer/modem setup

The best setup requires a printer, modem, and cable. The printer/modem has more than one link entered in the linkset associated with a PSAP. If a printer runs out of paper, the remote call event records switch to an alternate link. If the system takes the printer off-line, the remote call event records switch to an alternate link.

The specified printer, modem, and cable must allow the modem to map a printer off-line status to a drop-in carrier. The system considers this type of drop-in carrier as a link failure, which causes the system to try alternate links. If the system does not drop carrier, the DMS-100 switch cannot determine that the printer is not available. The link remains up. The DMS switch continues to transmit remote call event records that, in other conditions, can be lost.

Remote Call Event Record (continued)

Printer

When the printer is off-line or out of paper, the printer must drop the data terminal ready (DTR) signal. The printer drops this signal and not the signal from RS-232, pin 11.

If one link is entered in the linkset associated with a PSAP, you can use a printer buffer. The printer buffer must be large enough that you can change the printer paper before the buffer fills. You do not need to take the link off-line to change paper.

Modem

The modem must be able to evaluate the off-line signal from the printer. The modem must also be able to drop the carrier when the signal is low. Some modems use the DTR signal while other modems use the ready-to-send (RTS) signal.

The modem can drop the carrier when the RTS signal is low. The modem can also drop the carrier when DTR signal is low. When the RTS signal is low, a cable must map the printer DTR signal to the modem RTS signal.

Cable

A standard data communication equipment to data terminal equipment (DCE-to-DTE) cable that maps DTR signal to DTR signal must be used. If the system uses other signals, the cable must map the printer off-line signal to the modem takedown-carrier signal.

Minimum printer/modem setup

If the best requirements from the previous description cannot be met, use the following procedure to take the printer off-line.

The best method to take the printer off-line allows the MPC to consider the link as down. The least possible records are lost and the system selects an alternate link. If the installed printer/modem combination does not map a signal, turn the modem off first. The printer/modem must map a signal for an off-line printer to a loss of carrier at the modem. The loss of modem signal informs the MPC that the link is down and the system selects an alternate link. Take the printer off-line.

To bring the printer back on-line, perform the reverse of the steps from the previous description. Make sure that the machine is ready to print, bring the machine on-line, and turn on the modem. The remote call event records begin to print on the original link.

Remote Call Event Record (continued)

Some printers that are off-line send an XOFF signal, which causes transmission to stop. The system holds information that the system must transmit, in buffers in the central controller and the MPC. The system holds the information until the buffers are full or the flow-control time-out expires. If the flow-control time-out expires, the data that the system queues on the MPC card are lost. If another link is available for that PSAP, the remote call event records that the system queues in the MPC are not lost. A temporary printer off-line state does not cause a loss of data. If you turn the printer off, a loss of data occurs.

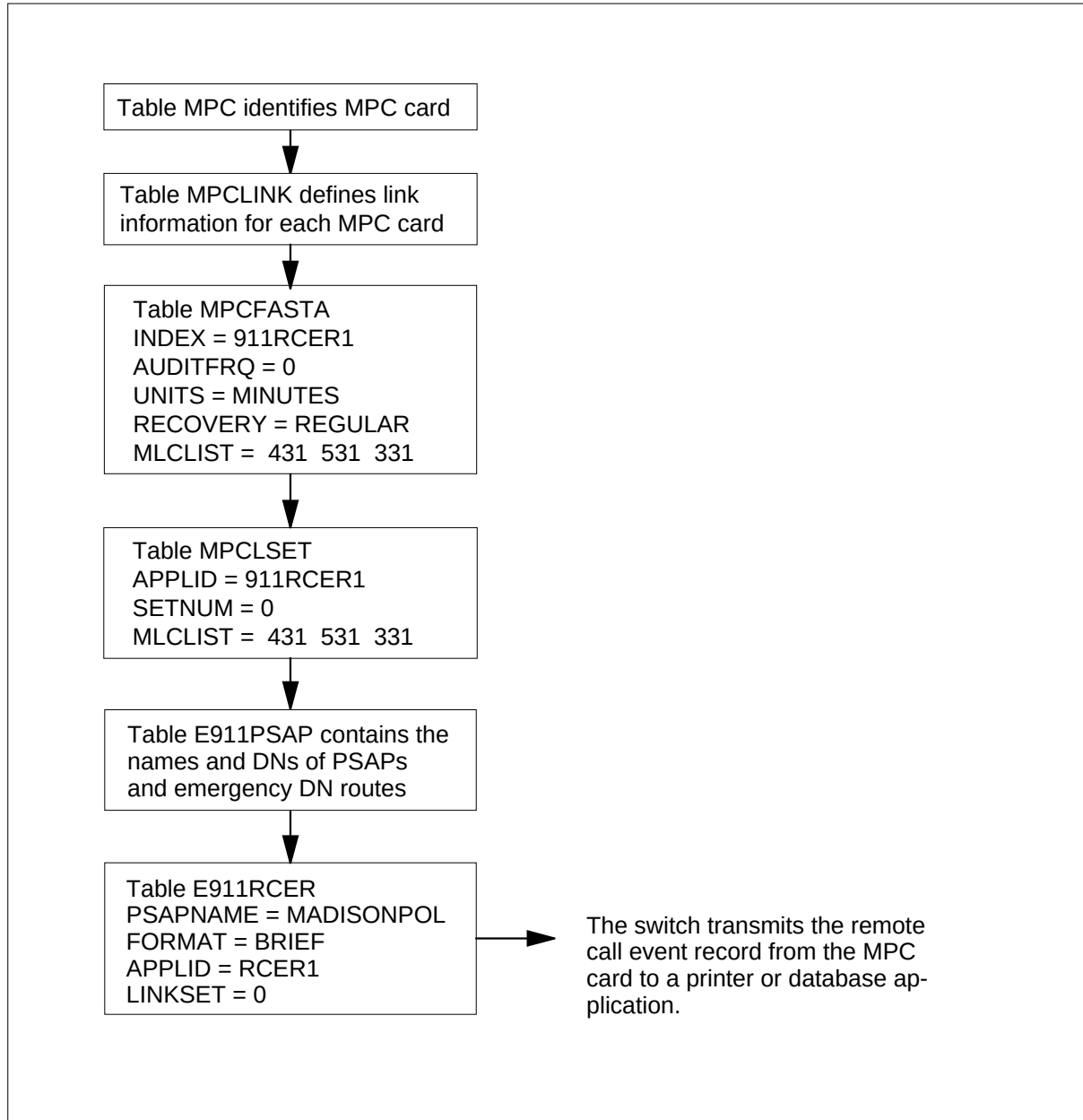
Translations table flow

Descriptions of the Remote Call Event Record translations tables appear in the following list:

- Table MPC identifies the MPC card hardware to the DMS central control. The DMS-100 switch collects information for the remote call event record. The system processes to the MPC card that table MPC identifies.
- Table MPCLINK defines the link and protocol information for each MPC card entered in table MPC.
- Data is entered in table MPCFASTA to identify applications that use the MPC fast utility.
- Data is entered in table MPCLSET to allow the system to group logical links of the MPC fast application. The system groups logical links in linksets for selective link transfers.
- Table E911PSAP contains the names and DNs of PSAPs and emergency DN routes.
- Data is entered in table E911RCER to identify a PSAP with an MPC linkset, entered in table MPCLSET. The switch transmits the remote call event records over this PSAP.

The E911 Remote Call Event Record feature does not change tables MPC, MPCLINK, and E911PSA.

The Remote Call Event Record translation process appears in the following flowchart.

Remote Call Event Record (continued)**Table flow for Remote Call Event Record**

Remote Call Event Record (continued)

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

Datafill example for Remote Call Event Record

Datafill table	Example data
MPCFASTA	911RCER1 0 MINUTES REGULAR (431 331 531)
MPCLSET	911RCER1 0 (431 331 531)
E911RCER	MADISONPOL BRIEF RCER1 0

Limits

The following limits apply to Remote Call Event Record:

- The system does not support emergency directory number routes (EDNR). Every transfer to an EDNR appears in the remote call event record of the PSAP that initiates the transfer. After the transfer is complete, the switch does not generate a remote call event record for the EDNR.

The following limits apply when a link goes down:

- If a link goes down, a loss of data that the system queues on the MPC card occurs. The system does not generate an E911218 log. The system attempts to send data that the system queues in the central control by way of a redundant link. If redundant link is not available, that data are lost, and the system does not generate an E911218 log. Calls that follow a link failure generate an E911218 log.
- If a printer connects across a modem link but the best requirements from the Description section are not met, data are lost. Data are lost until the you return the printer to service or turn the modem off. The redundant datafill does not determine if the data are or are not lost. The system does not generate an E911218 log because the MPC cannot determine that the link is down.

The following maximum limits apply to Remote Call Event Record feature package:

- A limit of 96 remote call event record links is present for each E911 tandem.
- The number of links for each linkset has a limit of 16 (15 redundant links).
- The maximum number of acceptable PSAPs, currently 7000, limit the number of PSAPs that have remote call event records.

Interactions

Remote Call Event Record does not have functionality interactions.

Remote Call Event Record (continued)

Activation/deactivation by the end user

Remote Call Event Record does not require activation or deactivation by the end user.

Billing

Remote Call Event Record does not affect billing.

Station Message Detail Recording

Remote Call Event Record does not affect Station Message Detail Recording.

Datafilling office parameters

Remote Call Event Record does not affect office parameters.

Datafill sequence

The tables that require datafill to implement Remote Call Event Record appear in the following table. The tables appear in the correct entry order.

The E911 Remote Call Event Record feature does not change tables MPC, MPCLINK, and E911PSAP. For additional information on how E911 software uses these tables, refer to the following two feature descriptions. The feature descriptions are E911—Tandem and E911 Direct Access to Data Management System ALI Database. These descriptions appear in the translations section of this document.

Datafill requirements for Remote Call Event Record (Sheet 1 of 2)

Table	Purpose of table
MPC	Multiprotocol controller. This table identifies the MPC card hardware to the DMS central control.
MPCLINK	Multiprotocol controller link. This table defines the link and protocol information for each MPC card entered in table MPC.
MPCFASTA	Multiprotocol controller fast applications. This table identifies applications that use the MPC fast utility.
MPCLSET	Multiprotocol controller linkset. This table allows the system to group logical links of MPC the fast applications in linksets for selective link transfers.
Note: The switch enters the default values for the E911 alarms in table SFWALARM.	

Remote Call Event Record (continued)

Datafill requirements for Remote Call Event Record (Sheet 2 of 2)

Table	Purpose of table
E911PSAP	Enhanced 911 public safety answering point. This table contains the names and DNs of PSAPs and emergency DN routes.
E911RCER	Enhanced 911 remote call event record. This table identifies a PSAP with a MPC linkset, entered in table MPCLSET, over which the switch transmits the remote call event records.
Note: The switch enters the default values for the E911 alarms in table SFWALARM.	

Datafilling table MPCFASTA

Table MPCFASTA indicates the linksets over which the switch transmits the remote call event records. Each linkset has an application identifier (APPLID) for identification purposes.

The APPLIDs are entered in table MPCFASTA. The order in which the links appear in the list determines the order in which the system tries the links. The system tries the links if the specified link is in the linkset for a specified PSAP. Enter correct MPC numbers in table MPC. Enter correct MPC links in table MPCLINK before you enter data in this table.

Datafill for Remote Call Event Record for table MPCFASTA appears in the following table. The fields that apply to Remote Call Event Record appear in this table.

Datafilling table MPCFASTA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
INDEX		911RCER1 911RCER2 911RCER3 911RCER4 911RCER5 or 911RCER6	Application name. Represents the application identification available for MPC circuits. The entry in this field must match the APPLID entered in table E911RCE.
AUDITFRQ		0 to 255	<i>Audit frequency</i> Enter 0. The E911 Remote Call Event Record feature does not support audits.
UNITS		MINUTES or SECONDS	<i>Audit frequency units</i> Enter MINUTES or SECONDS (that E911RCER does not support).

Remote Call Event Record (continued)**Datafilling table MPCFASTA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description
RECOVERY		ENHANCED or REGULAR	<i>Audit frequency recovery</i> Enter REGULAR (that E911RCER does not support).
MLCLIST			<i>MLC list</i> This field must contain every (a maximum of 16) link that a LINKSET in table MPCLSET uses for this INDEX (APPLID). Each link must be entered in MPCLINK with APLDEFN = NONE and PRTCLDAT = ASYNC. The list order in MLCLIST indicates the priority in which the system tries the links. The MLCLI contains the following three subfields. A \$ terminates the record.
	M	0 to 255	Enter an integer from 0 to 255.
	L	0 to 3	Enter an integer from 0 to 3.
	C	1 to 255	Enter an integer from 1 to 255.

Datafill example for table MPCFASTA

Sample datafill for table MPCFASTA appears in the following example.

In the example, the maximum number of links are entered in 911RCER1. The order in which the links appear in the list is the priority with which the system tries the links.

MAP example for table MPCFASTA

INDEX	AUDITFRQ	UNITS	RECOVERY	MLCLIST
911RCER1	0	MINUTES	REGULAR	(4 3 1) (3 3 1) (5 3 1) (6 3 1) (7 2 1) (8 3 1) (9 3 1) (10 2 1) (11 2 1) (12 2 1) (13 2 1) (14 3 1) (1 3 1) (2 2 1) (3 2 1) (4 2 1) \$
911RCER2	0	MINUTES	REGULAR	(5 2 1) (7 3 1) \$

Remote Call Event Record (continued)

Error messages for table MPCFASTA

The following error messages apply to table MPCFASTA.

Error messages for table MPCFASTA

Error message	Description
You must delete the 911RCER1 references from Table E911RCER prior to deleting here.	When you delete a tuple from table MPCFASTA for the 911RCER1 application, each tuple in table E911RCER with APPLID = 911RCER1 was deleted before.
Audit not supported. AUDITFRQ should be 0.	Every tuple in MPCFASTA for the 911RCER(1 to 6) application must be entered as AUDITFRQ = 0 because the system does not support audits.
Link on MPC n must be APLDEFN = NONE.	The link entered in MPCFASTA must be with APLDEFN = NONE in table MPCLINK for correct RCER operation.
Link on MPC n must be PRTCLDAT = ASYNC in Table MPCLINK.	The link entered in MPCFASTA must be with the ASYNC protocol when you enter data in table MPCLINK. This data must be entered together because the system supports asynchronous communication.

Datafilling table MPCLSET

The datafill for Remote Call Event Record for table MPCLSET appears in the following table. The fields that apply to Remote Call Event Record appear in the table. See the data schema section of this document for a description of the other fields.

Remote Call Event Record (continued)

Each tuple in table MPCLSET corresponds to a set of links to which the switch sends remote call event records. An entry lists the links the system must try. Several PSAPs can refer to one entry in this table.

Datafilling table MPCLSET

Field	Subfield or refinement	Entry	Description
LSETKEY		refer to subfields	Linkset key. This field contains subfields APPLID and SETNUM.
	APPLID	911RCER1 911RCER2 911RCER3 911RCER4 911RCER5 911RCER6	Application identification. Enter the name that corresponds to the APPLID entered in table E911RCER.
	SETNUM	0 to 15	Set number. Enter an integer from 0 to 15.
MLCLIST		refer to subfields	MPC and link control vector list. Enter every MLC entered in table MPCFASTA with INDEX = 911RCER(1 to 6). Enter the MLC in the same sequence as in table MPCFASTA that determines the order of tries. The MPCLIST contains the following three subfields. A \$ terminates the record.
	M	0 to 255	Enter an integer from 0 to 255.
	L	0 to 3	Enter an integer from 0 to 3.
	C	1 to 255	Enter an integer from 1 to 255.

Datafill example for table MPCLSET

Sample datafill for table MPCLSET appears in the following example.

MAP example for table MPCLSET

LSETKEY	MLCLIST
911RCER1 0	(6 3 1) (7 2 1) \$
911RCER2 1	(4 3 1) (3 3 1) (7 2 1) \$
911RCER3 1	(5 2 1) (7 3 1) \$

Remote Call Event Record (continued)

Datafilling table E911RCER

Datafill for Remote Call Event Record for table E911RCER appears in the following example. The fields that apply directly to Remote Call Event Record appear in this table. See the data schema section of this document for a description of the other fields

Table E911RCER associates a PSAP with a MPC linkset (as entered in table MPCLSET) over which the switch transmits the RCER. The number of entries in table E911RCER is the number of different PSAPs that require remote call event records. If a PSAP is not entered here, the switch does not transmit remote call event records for that PSAP. This table also specifies the format of the log entry.

Datafilling table E911RCER

Field	Subfield or refinement	Entry	Description
PSAPNAME		alphanumeric	Public safety answering point name. Enter the same PSAPNAME that is in table E911PSAP (cannot be an LDT PSAP).
FORMAT		BRIEF or LONG	Format. Specifies the short or the long format. The short format is one line of data. The long format is three lines with header, data, and blank line. Enter BRIEF or LONG.
APPLID		911RCER1 911RCER2 911RCER3 911RCER4 911RCER5 911RCER6	Application identifier. Indicates the set to which the linkset applies. Enter the appropriate linkset identification.
LINKSET		0 through 15	Linkset. Corresponds to the number of the multiprotocol controller link set over which the switch transmits the remote call event records. Table MPCLSET defines the multiprotocol controller link set. Enter 0 through 15.

Datafill example for table E911RCER

Sample datafill for table E911RCER appears in the following example.

Remote Call Event Record (end)

MAP example for table E911RCER

PSAPNAME	FORMAT	APPLID	LINKSET
MADISONPOL	BRIEF	911RCER1	0
MADISONFIR	BRIEF	911RCER2	0
SHWDHILAMB	LONG	911RCER3	0
SHWDHILPOL	BRIEF	911RCER4	1

Error messages for table E911RCER

The following error messages apply to table E911RCER.

Error messages for table E911RCER

Error message	Description
MPC Link Set Number not in Table MPCLSET.	The LSETIDX that the user attempts to enter must already be in table MPCLSET. This table must belong to the 911RCER (1 to 6) application.
Remote Call Event Records not compatible with LDT PSAPs.	When you add a tuple to table E911RCER, you cannot enter LDT PSAP in the PSAPNAME field.

Tools for verifying translations

The Remote Call Event Record does not use tools for verifying translations.

SERVORD

The Remote Call Event Record does not use SERVORD.

Ringback to E911 Callers

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: does not apply

Release applicability

BCS34 and later versions

Requirements

To operate, Ringback to E911 Callers has the following requirements:

- MDC Minimum, MDC00001
- MDC Standard, MDC00003

Description

The Ringback to E911 Callers feature provides ringback and receiver off-hook (ROH) abilities. With ringback, PSAP operators can ring back an E911 caller that goes on-hook. With ROH, PSAP operators can transmit an ROH tone to the line of a caller that is off-hook. This caller cannot communicate with the PSAP operator. The ROH tone can attract a person at the location of the caller. This person can give the PSAP operator the necessary information.

A Line, Automatic Call Distribution (ACD), or Line Appearance on a Digital Trunk (LDT) PSAP operator can use an access code to activate ringback/ROH. If the ringback/ROH attempt activates ringing or the ROH tone, the PSAP operator hears ringing on the line.

Ringback/ROH is also available for local and tandem-to-tandem E911 calls that the system routes through an E911 virtual facility group (VFG).

Originator Hold feature

Originator hold does not allow the originator of an E911 call to disconnect the call. Originator hold gives the PSAP operator an audible switchhook status tone if the originator goes on-hook. Feature packages NTX447AA, E911 - Tandem, and NTXF61AA, DMS Integrated E911 PSAP Functionality, provide originator hold for non-VFG calls. Feature package NTXP58AA, VFG Support for E911 (Loc and/or Inc ISUP/ANI Call), provides originator hold for VFG calls.

Enhanced Called Party Hold feature

The E911 Enhanced Called Party Hold (ECPH) feature maintains the connection of an E911 call from origination. The E911 ECPH maintains the connection until the PSAP answers or until the ECPH timeout period lapses.

Ringback to E911 Callers (continued)

The ECPH makes sure that the system processes an emergency call. The system processes the call if the caller hangs up or does not hang up before the call completes.

The ECPH is normally provided for virtual facility groups. The ECPH is provided when a line on the E911 tandem originates a 911 call. The system routes the call to a PSAP through an E911 VFG. When the system uses a DMS-100 as the end office, ECPH is available on emergency service (ES) and operator (OP) trunk group types.

Datafill in tables TRKGRP and VIRTGRPS implement the Enhanced Called Party Hold feature. The ECPHTIME subfield in table VIRTGRPS establishes the number of seconds (0 to 255) that ECPH is active. This timeout value allows the connection to drop if the called party does not answer in a specified amount of time. The timeout period allows the caller to dial again if the system does not route a call or fails to detect an error.

Northern Telecom hard-codes a default 0 (zero) entry in field ECPHTIME in table VIRTGRPS. The operating company cannot change a value.

Configuration for VFG

The configurations that the system supports for VFG calls appear in the following figure.

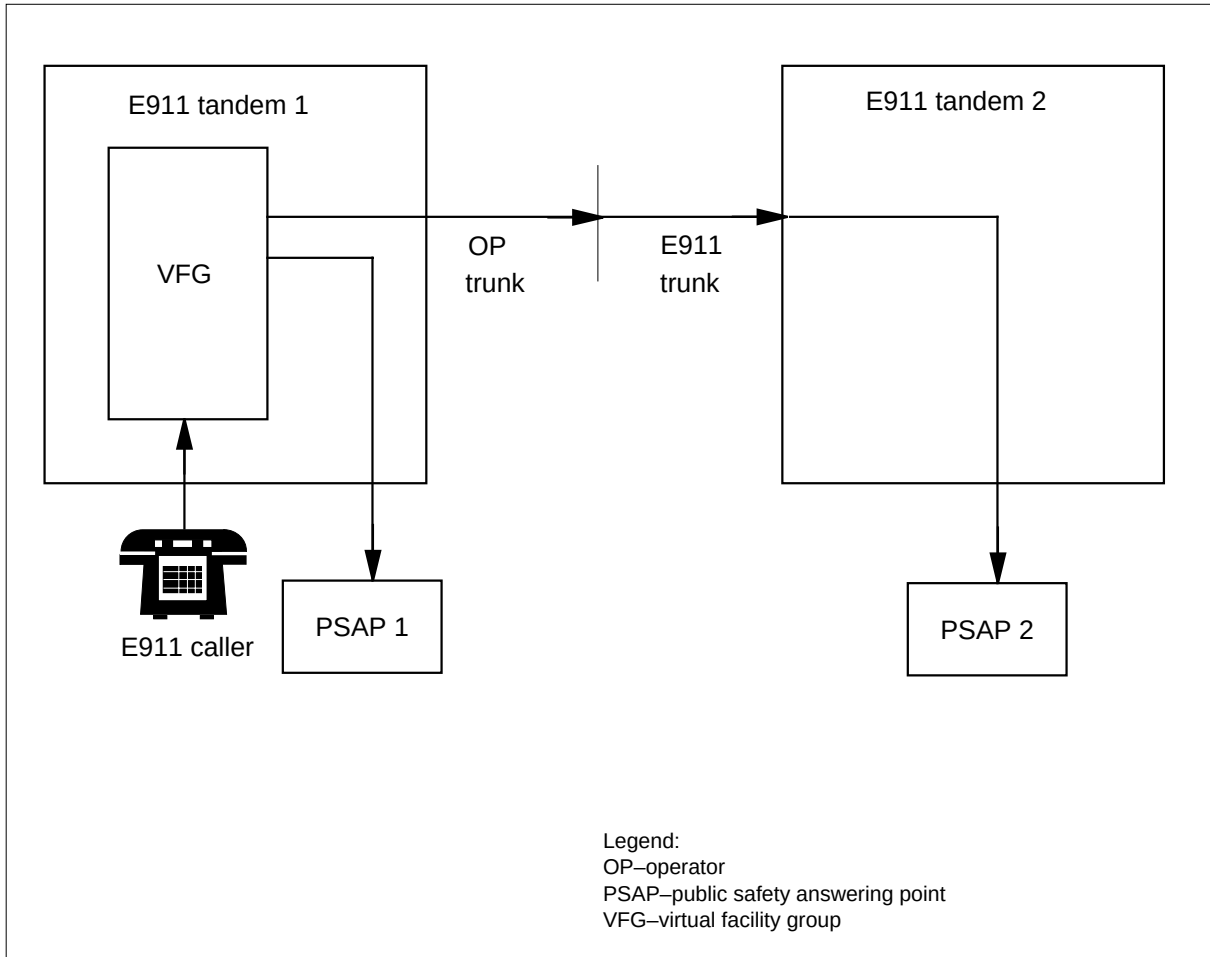
- Local access - The line of the caller connects directly to E911 tandem 1. The system routes E911 calls through a VFG and terminates the calls to PSAP 1, on the same tandem.
- Tandem-to-tandem access - The line of the caller connects directly to E911 tandem 1. The system routes the call through a VFG to an operator trunk, and to an E911 trunk. The call arrives at E911 tandem 2 and terminates to PSAP 2, on the second tandem.

Note: This feature does not support ringback for calls that the system routes to the following parts:

- the virtual facility group from SuperCAMA (SC)
- Integrated Services Digital Network User Part (ISUP) trunks

Ringback to E911 Callers (continued)

Supported configurations for ringback through a virtual facility group



Datafill considerations for tandem-to-tandem access

For tandem-to-tandem calls that route through a VFG to an OP trunk, the system must consider the trunk signaling requirements. The system routes the calls on one tandem to an E911 trunk on a second tandem. The two types of signaling that support ringback and receiver-off-hook on operator trunks are inband (IB) and extended inband (EI). The datafill in table TRKSGRP in subfields CCONT (coin control) and RRGBCK (ringback) define the signaling for each trunk subgroup.

For each outgoing/incoming set of trunks from one tandem to the other tandem, the CCONT and RRGBCK values must match. For example, if the outgoing OP trunk from E911 Tandem 1 has CCONT set to IB, RRGBACK

Ringback to E911 Callers (continued)

must also be IB. The incoming E911 trunk to E911 tandem 2 must have CCONT and RNGBACK set to IB.

Note: This feature does not support ringback for OP trunks that use multiwink signaling.

Translations table flow

This section describes the translations data flow for ringback/ROH activation. This section contains the summary of the tables. The method the system uses to access the tables during translations appears in the following figure.

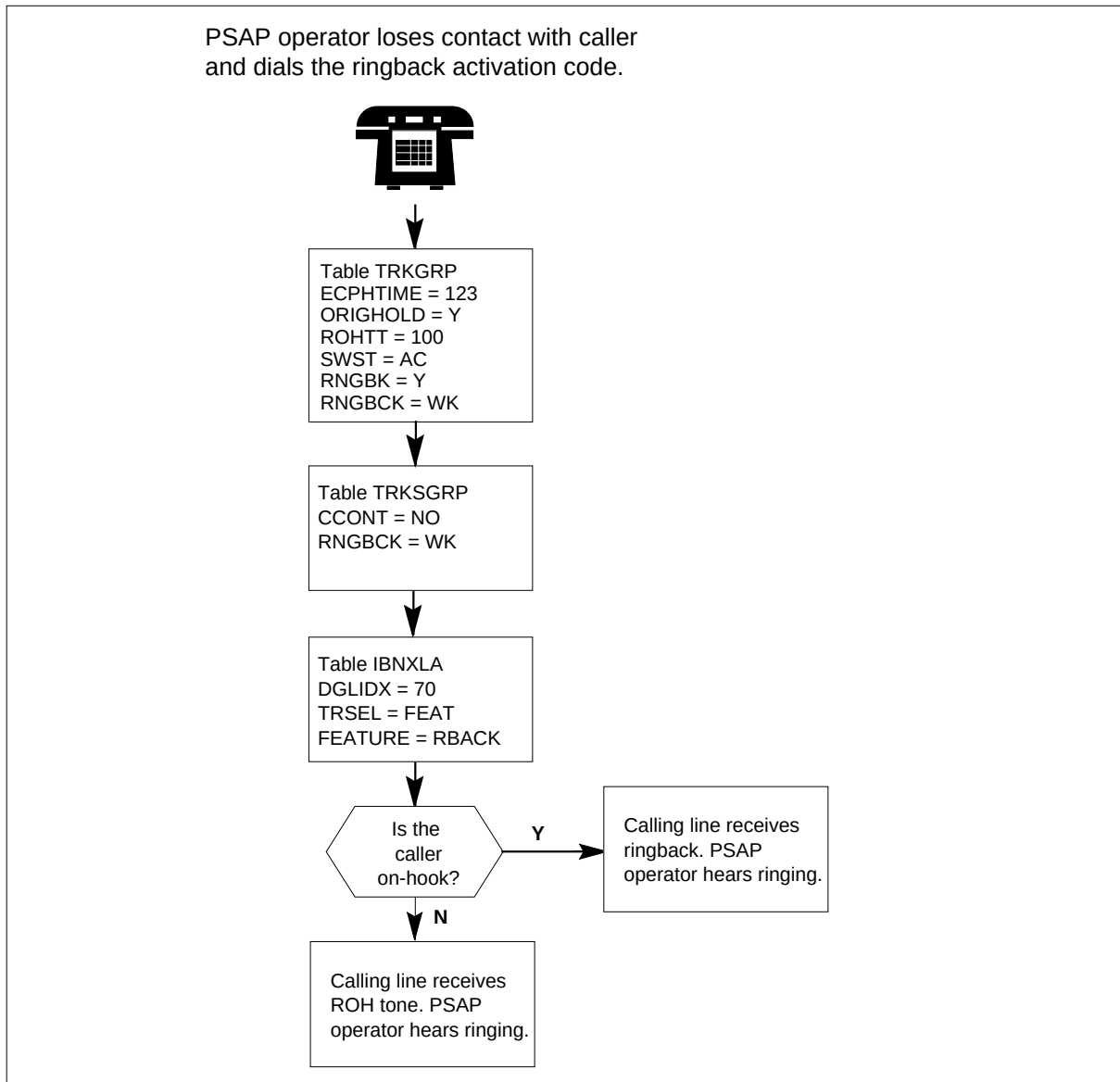
Table IBNXLA defines the ringback/ROH activation code. The system uses the translator name and the code that the PSAP operator dials to access this table. The translations selector (subfield TRSEL) is FEAT, and the feature (subfield FEATURE) is RBACK. The switch applies the ringback or ROH tone to the line of the caller. The state of the caller (on-hook or off-hook) determines which tone the switch applies. In this example, Table IBNXLA defines 70 as the ringback/ROH

Note: The system must enable originator hold capability to allow ringback/ROH to function. The datafill in table VIRTGRPS and Table TRKGRP turns on originator hold.

The Ringback to E911 Callers translation process appears in the following flowchart.

Ringback to E911 Callers (continued)

Table flow for Ringback to E911 Callers



Ringback to E911 Callers (continued)

The datafill content in the flowchart appears in the following table. The Enhanced Called Party Hold time is 123 s. The Ringback/ROH activation code is 70.

Datafill example for Ringback to E911 Callers

Datafill table	Example data
TRKGRP	E911 20 ELO NCRT 613 0 Y 100 AC Y WK
TRKSGRP	E911 20 ELO NCRT NO WK
IBNXLA	FXPSAP 70 FEAT N N N RBACK

Limits

The following four factors determine the availability of ringback with the Ringback to E911 Callers feature:

- availability of originator hold software in the connecting end office
- compatibility of switchhook signaling between the end office and the E911 tandem
- originator hold option that the table defines for the E911 trunk group (or E911VFG data) at the E911 tandem
- value of office parameter E911_LDT_PSAP_SW_STATUS

The following tables define these groups of variables. The table contains the following abbreviations:

- AC (alternating current)
- DC (direct current)
- ES (emergency service)
- NA (not applicable)
- OP (operator)

Ringback to E911 Callers (continued)

- RB (ringback)
- ROH (receiver off-hook)

Ringback availability for LDT PSAP

End office trunk type	Switch hook signal	Subscriber hook state	Originator hold	Setting of office parameter, E911_LDT_PSA P_SW_STATUS	Ringback capability
ES	AC	X	X	X	RB, ROH
ES	DC	Off-hook	X	X	ROH
ES	DC	Off-hook	Y	Tone	RB
ES	DC	Off-hook	Y	On-hook	NA
ES	DC	Off-hook	N	X	NA
OP	NA	Off-hook	X	X	ROH
OP	NA	On-hook	Y	Tone	RB
OP	NA	On-hook	Y	On-hook	NA
OP	NA	On-hook	N	X	NA

Ringback availability for Line and ACD PSAPs

End office trunk type	Switch hook signal	Subscriber hook state	Originator hold	Ringback capability
ES	AC	X	X	RB, ROH
ES	DC	Off-hook	X	ROH
ES	DC	On-hook	Y	RB
ES	DC	On-hook	N	NA
OP	NA	Off-hook	X	ROH
OP	NA	On-hook	Y	RB
OP	NA	On-hook	N	NA

Ringback to E911 Callers (continued)

The following limits apply to Ringback to E911 Callers:

- If the PSAP agent is on a three-party conference call, the agent must flash to disconnect the add-on party. The PSAP agent must flash with the access code to initiate ringback/ROH to the emergency caller.
- A ringback/ROH attempt fails if a PSAP operator activates a ringback/ROH from:
 - a customer group that does not have a PSAP
 - a station that is not a PSAP in a mixed customer group
- The ringback/ROH access code that the PSAP operator uses must not conflict with speed calling codes or selective transfer codes (10-16). Recommended values are between 70 and 99.
- For the system to support ringback/ROH for calls that route through an E911 tandem-to-E911 tandem configuration, the two tandems must be DMS-100 Family switches. The outgoing trunk must be OP/E911 and the incoming trunk must be an E911 trunk group type. The system does not support ringback/ROH for multiwink signaling on tandem-to-tandem calls.

The following additional limits apply to ringback/ROH for VFG access:

- The system does not support ringback/ROH requests for calls from SuperCAMA (SC) or Integrated Service Digital Network User Park (ISUP) trunks. The system only supports calls from a line to a VFG.
- Small feature data blocks are not always available in memory when the PSAP operator attempts to activate ringback/ROH. When this event occurs, the system does not activate these functions. The system produces a 3 s negative acknowledgement (NACK) treatment.
- A subscriber can call an attendant console and the attendant can dial 911. When this event occurs, the subscriber cannot use ringback/ROH when the attendant console takes part in the call.

Interactions

The Ringback to E911 Callers feature does not have functionality interactions.

Activation/deactivation by the end user

The PSAP operator with a 2500 set activates E911 ringback with a hook- flash and the ringback access code. With a Meridian business set (MBS), the Line or ACD PSAP operator can press the Call Transfer key, and enter the access code. An operator can also press a Quick Conference key programmed to dial the access code. The operator can activate the ringback feature only if the

Ringback to E911 Callers (continued)

operator takes part in a two-party call. Feature package NTXN50AA, MDC Single Button Transfer provides the Quick Conference key.

Deactivation of ringback/ROH occurs with the following method:

- Ringback - When the PSAP operator activates ringback, ringing continues until the caller goes off-hook again. Ringing can also continue until the PSAP operator goes on-hook. This action disconnects the call. If the PSAP operator enters a conference, ringback continues until one of the parties in the conference exits.
- ROH - A timeout period controls ROH. When the timeout expires, the ROH tone stops. For VFG local access calls, office parameter E911_LOCAL_ACCESS_ROH_TONE_TIME in Table OFCENG defines the length of the timeout. For tandem-to-tandem calls over an OP trunk, the timeout is 5 s. For these calls, the value of this parameter does not determine the length of the timeout.

Billing

The Ringback to E911 Callers feature does not affect billing.

Station Message Detail Recording

The Ringback to E911 Callers feature does not affect Station Message Detail Recording.

Ringback to E911 Callers (continued)

Datafilling office parameters

The office parameters that the Ringback to E911 Callers feature uses appear in the following table. Refer to *Office Parameters Reference Manual* for additional information about office parameters

Office parameters by Ringback to E911 Callers

Table name	Parameter name	Description
OFCENG	E911_LOCAL_ACCESS-_ROH_TONE_TIME	This parameter controls the ROH timeout period for local access and tandem-to-tandem calls that use a VFG. Enter 1 to 1000 to indicate the number of hundredths of a second for the ROH timeout. The default is 500 (5 s). This parameter activates immediately. Do not perform a restart.
OFCENG	E911_LDT_PSAP_SW-_STATUS	When the caller goes on-hook and originator hold is active, this parameter determines how the switch presents the signal to the LDT PSAP. The switch presents the signal as a low tone or an on-hook signal. This tuple applies to LDT PSAPs that connect to the E911 tandem. If ONHK_TO_LDT_PSAP is assigned, the LDT PSAP receives an on-hook signal that the switch forwards to the tandem from the end office. This signal disables the PSAP ringback ability. This condition does not apply if the switchhook signaling is set to AC for the outgoing emergency service trunk group at the end office. If TONE_TO_LDT_PSAP is assigned, a tone replaces the on-hook signal that the switch normally sends to the LDT PSAP. This tone notifies the operator the caller hangs up and enables the operator to activate ringback. Refer to the tables in "Limits" for the impact of this parameter on the availability of ringback.

Ringback to E911 Callers (continued)

Datafill sequence

The tables that require datafill to implement Ringback to E911 Callers appear in the following table. The tables appear in the correct entry order.

Datafill requirements for Ringback to E911 Callers

Table	Purpose of table
TRKGRP	Trunk Group. This table defines parameters for DMS-100/200 trunks.
TRKSGRP	Trunk Subgroup. This table defines additional parameters for DMS-100/200 trunk subgroups.
IBNXLA	IBN Translation. This table is modified to support ringback.
Note 1: Datafill in trunk group tables and Table IBNXLA are separate.	
Note 2: This feature does not affect the normal datafill sequence for trunk groups at the E911 tandem and the end office.	

Datafilling table TRKGRP

Table TRKGRP defines parameters for DMS-100/200 trunks. Specified E911 abilities are entered for dedicated E911 trunk groups and other trunk groups that carry E911 calls.

This section describes the datafill requirements for Table TRKGRP to support ringback to E911 callers. See the data schema section of this document for information about other E911 and generic trunk group datafill requirements.

Datafill for Ringback to E911 Callers for table TRKGRP appear in the following table. Fields that apply to Ringback to E911 Callers appear in this

Ringback to E911 Callers (continued)

table. See the data schema section of this document for a description of the other fields.

Datafilling table TRKGRP (Sheet 1 of 3)

Field	Subfield or refinement	Entry	Description
GRPINFO		refer to subfields	<i>Variable Group Data</i> This field contains subfields ECPHTIME, ORIGHOLD, ROHTT, SWST, RRGBK, and RRGBCK.
	ECPHTIME	numeric(0 to 255)	<i>Enhanced Called Party Hold (ECPH) Time</i> A non-zero entry activates ECPHTIME and determines the amount of time ECPH remains active. The default entry is 0 (zero). Northern Telecom enters default 0 (zero). The operating company cannot change this value.
	ORIGHOLD	Y or N	<i>Originator Hold</i> This field specifies if the end office where this trunk group originates supports operator hold. This field is in the E911 trunk group tuple in table TRKGRP at the E911 tandem. Refer to the table in Limits that shows the how this field affects the availability of ringback. Enter Y or N.
	ROHTT	1 to 1000 (in 10-ms intervals)	<i>Receiver off-hook tone time</i> The outgoing trunk from the end office to the E911 tandem can be an emergency service trunk. When this event occurs, this field defines the time interval for receiver-off-hook treatment to an emergency caller. The originating trunk can be an equivalent in a non-DMS system. Correct entries are from 1 to 1000, in 10-ms intervals. Emergency service trunk groups are configured at DMS-100 end offices that have Basic 911 (B911) software. Outgoing operator trunks configured to handle E911 calls at the end office provide fixed receiver-off-hook treatments of 5 s. These trunks do not require specified datafill.

Ringback to E911 Callers (continued)

Datafilling table TRKGRP (Sheet 2 of 3)

Field	Subfield or refinement	Entry	Description
	SWST		<i>Switch status</i> If the outgoing trunk group from the end office is an emergency service group, you can set the switch- hook signal field to AC or DC. The outgoing trunk group can be an equivalent in a system that is not a DMS system. Entry DC is the preferred value when the outgoing ES trunk is used for Enhanced 911 (E911) purposes and is destined for an E911 tandem. However, if the outgoing ES trunk is used for Basic 911 (B911) purposes and is not destined for an E911 tandem, the datafill must be set according to the required behavior. See the tables in "Limits" for how this field affects the availability of ringback.
	RNGBK	Y or N	<i>Ringback</i> The outgoing trunk group from the end office can be configured as an emergency service trunk group. When this event occurs, enter data in this field at the end office. Enter the data to support ringback to E911 callers. The outgoing trunk group can be an equivalent in a non-DMS system. Correct entries are Y and N.

Ringback to E911 Callers (continued)

Datafilling table TRKGRP (Sheet 3 of 3)

Field	Subfield or refinement	Entry	Description
	RNGBCK	EI, IB, LN, MW, SX, WK or NO	<i>Ringback</i> This subfield defines the ringback signaling type. For the system to receive ringback or receiver-off-hook indications at the end office through an emergency service or equivalent trunk, enter WK (wink). Enter WK in this field for the E911 trunk group at the E911 tandem and the emergency service trunk group at the end office. Set the associated COIN CONTROL (CCONT) subfield to NO. If the end office does not have emergency service trunks and Basic 911 (B911) software, a wink signal cannot initiate ringback. The correct entry in the E911 trunk subgroup table at the tandem and at the end office is MW (multiwink), IB (inband), or EI (expanded inband). The entries in the end office datafill and tandem datafill must match. If you select MW, the end office receives five winks to indicate a ringback request. The system can support receiver-off-hook indications at the end office if the system uses MW, IB, or EI. The associated CCONT value must match the RNGBCK value. The system does not support ringback for multiwink signaling on tandem-to-tandem calls. Note: Where simplex ringback is specified, the product engineering code must be 2X85AA or 2X86AA. The system uses SX with the 2X85AA and 2X86AA card codes. These codes are a three-wire analog format and are not correct with digital trunks. Where entry in subfield CCONT is LN, entry in subfield RNGBCK cannot be IB. Enter data in subfields CCONT and RNGBCK as the same signaling type to allow ringback to function. Where the datafill for subfield CCONT is TR, 3W or NO, the datafill for field does not have limits.

Ringback to E911 Callers (continued)

Datafill example for table TRKGRP

Sample datafill for table TRKGRP appear in the following example.

MAP example for table TRKGRP

GRPKEY	GRPINFO
E911 20 ELO NCRT 613 0 Y 100 AC Y WK	

Datafilling table TRKSGRP

Table TRKSGRP defines additional parameters for DMS-100/200 trunk subgroups.

Datafill for Ringback to E911 Callers for table TRKSGRP appear in the following table. Fields that apply to Ringback to E911 Callers appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table TRKSGRP (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
SGRPVAR		refer to subfields	<i>Variable group data</i> This field contains several subfields. This table describes the subfields that relate to this feature.
Note: The system does not support ringback for MW signaling on tandem-to-tandem calls.			

Ringback to E911 Callers (continued)

Datafilling table TRKSGRP (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Description
	CCONT	EI, IB, MW, or NO	<i>Coin control</i> This field specifies the type of coin control that the trunk subgroup requires. The value of this subfield must match subfield RNGBCK if the caller ringback/ROH. Enter EI (expanded inband), IB (inband), or MW (multiwink).
	RNGBCK	WK, EI, IB, MW	<i>Ringback</i> This field defines the ringback signaling type. For the system to receive ringback/ROH indications at the end office through an E911 (or equivalent trunk), enter WK (wink). Enter WK in this field for the E911 trunk group at the E911 tandem and the E911 trunk group at the end office. Set the associated COIN CONTROL (CCONT) field to NO. If the end office does not have emergency service trunks and Basic 911 (B911) software, a wink signal cannot initiate ringback. The correct entry in the E911 trunk subgroup table at the tandem and at the end office is MW (multiwink), IB (inband), or EI (expanded inband). The entries in the end office datafill and tandem datafill must match. If the system selects MW, the end office receives five winks to indicate a ringback/ROH request. The system can support ROH indications at the end office if the system uses MW, IB, or EI. The associated CCONT value must match the RNGBCK value.
Note: The system does not support ringback for MW signaling on tandem-to-tandem calls.			

Datafill example for table TRKSGRP

Sample datafill for table TRKSGRP appears in the following example.

MAP example for table TRKSGRP

GRPKEY	SGRPVAR
E911 20 ELO NCRT NO WK	

Ringback to E911 Callers (continued)

Datafilling table IBNXLA

To enter the access code for the PSAP operator to use to activate ringback, update four Meridian Digital Centrex tables. Update the tables with ringback data CUSTHEAD, DIGCOL, XLANAME, and IBNXLA.

This section describes table IBNXLA. This table is modified to support ringback. The three other tables contain current values. Refer to the data schema section of this document for complete datafill information on the four tables.

Datafill for Ringback to E911 Callers for table IBNXLA appear in the following example. Fields that apply to Ringback to E911 Callers appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table IBNXLA (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Description
XLANAME			<i>Translator name</i> Enter the translator name that must associate with ringback. The translator name can be one to eight characters in length. Enter the value, that this field contains, as a key field in Table XLANAME. Enter this name in Table CUSTHEAD as a FETXLA option that associates with a correct customer name.
DGLIDX		70 to 99	<i>Digilator index</i> Enter the digilator index, the digit string that the table defines for the ringback access code. Recommended values are from 70 to 99. The system uses lower values for speed calling codes and selective call transfers. Entries in Table DIGCOL define the digit collection algorithm that the system uses to process these digits. The value of the first digit collected must not be the same as a first NXX or an extension digit. The system can use the first NXX or an extension digit in a call transfer from a PSAP.
RESULT		refer to subfields	<i>Result</i> The result field contains five subfields. Ringback affects TRSEL and FEATURE.

Ringback to E911 Callers (continued)**Datafilling table IBNXLA (Sheet 2 of 2)**

Field	Subfield or refinement	Entry	Description
	TRSEL	FEAT	<i>Translation selector</i> Enter FEAT, the translator selector.
	FEATURE	RBACK	<i>Feature</i> Enter RBACK.

Datafill example for table IBNXLA

Sample datafill for table IBNXLA appear in the following example.

MAP example for table IBNXLA

XLANAME	DGLIDX	RESULT				
FXPSAP	70	FEAT	N	N	N	RBACK

Tools for verifying translations

The output from translations verification (TRAVER), appears in the following example. The system uses this output to verify the Ringback to E911 Callers feature. In this example, the PSAP operator dials 70. Table IBNXLA specifies that 70 corresponds to RBACK (ringback/ROH).

Ringback to E911 Callers (end)

TRAVER example for Ringback to E911 Callers

```
traver l 7320030 'b70' b
TABLE IBNLINES
PSAP 00 0 00 13 0 DT STN IBN 7320030
TABLE DNATTRS
305 732 0030
(PUBLIC (NONUNIQUE ) $) $ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE NCOS
CREGE911 0 0 60 E911 NC $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
POTS specified: POTS digit collection
NCOS FEAT XLA name is NIL. Go to next XLA name
TABLE IBNXLA: XLANAME E911FXLA
E911FXLA 70 FEAT N N N RBACK

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Feature RBACK not supported by TRAVER

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

SERVORD

The Ringback to E911 Callers feature does not use SERVORD.

SRDB Memory Administration

Ordering codes

Functional group ordering code: ENS00005

Functionality ordering code: ENS00004

Note: Beginning with NA004, functionality order code ENS00004 (ENS Large SRDB) replaces functionality ordering code ENS00003 (ENS Standard SRDB).

Release applicability

BCS34 and later versions

Requirements

To operate, SRDB Memory Administration requires one of the following:

- ENS LDT PSAP, ENS00001
- ENS ACD PSAP, ENS00002

Description

The SRDB Memory Administration feature package allows the operating company to determine the amount of data store that table E911SRDB uses. The SRDB Memory Administration allows the operating company to determine the number of tuples in table E911SRDB. The SRDB Memory Administration allows the operating company to determine the amount of data store that is not used available in the DMS switch.

This package generates log reports and alarms to indicate that threshold values in table E911SRDB and in data store are passed. Commands allow the operating company to change and display these threshold values.

Background

Table E911SRDB contains the E911 selective routing database (SRDB). This table assigns directory numbers (DN) and ranges of directory numbers to the correct emergency service number (ESN). This table contains 300 000 tuples on an NT40 switch and 800 000 tuples on a DMS SuperNode switch. This table has the potential to use a large amount of data store.

The operating company must engineer the switch so that enough data store for table E911SRDB and other applications is present. The operating company must perform this procedure because of the very important nature of E911. The SRDB Memory Administration feature package allows the operating company to know when the table approaches maximum size. This feature also

SRDB Memory Administration (continued)

allows the operating company to know when the available data store becomes low.

Operation

This feature package generates log reports and activates alarms when very important levels occur in table E911SRDB or in data store availability. The following table shows the conditions associated with the SRDB Memory Administration package and the corresponding system responses.

Conditions and responses for the SRDB Memory Administration feature package

Condition	System response
The data store that table E911SRDB uses exceeds a user-defined percentage of the total store in the switch. The default percentage is 80%.	The feature package generates an E911226 warning log with the reason <i>High Store Percentage</i> . The feature package activates a minor alarm E911_SRDB_MEMORY at the EXT level of the MAP. The update to table E911SRDB terminates.
The available data store in the switch drops below a user-defined threshold value. The default threshold value is five vast areas.	The feature package generates an E911226 warning log with the reason <i>Low Available Store</i> . The feature package activates E911_SRDB_MEMORY at the EXT level of the MAP. The update to table E911SRDB terminates.
The number of tuples in table E911SRDB exceeds a user-defined threshold value. The default threshold is 95% of the total allowable tuples.	The feature package generates an E911226 warning log every five minutes with the reason <i>Nearing Maximum</i> . The feature package activates a minor alarm E911_SRDB_MEMORY at the EXT level of the MAP.
The maximum number of tuples allowed in table E911SRDB is present. The maximum number is 300 000 tuples for an NT40 switch and 800 000 for a SuperNode switch.	The feature package generates an E911226 warning log with the reason <i>Maximum Reached</i> . The update to table E911SRDB terminates.
A number of tuples in table E911SRDB are added or changed during the current update. This number includes additions that do not create a new tuple. For example, the addition of a directory number that is present as part of a range of directory numbers. The default threshold is 1000 tuples.	The feature package generates E911225 information log.

Note: The operating company can change the default thresholds for the log reports and alarms through the QSRDB command. See the “Commands” section for additional information.

SRDB Memory Administration (continued)

Log reports

The SRDB Memory Administration feature package introduces E911225 and E911226 log reports. The E911225 is for information only. The E911226 is a warning. These reports contain the following information:

- SRDB COUNT is the number of tuples in table E911SRDB
- SRDB STORE is the number of kilobytes of store that table E911SRDB uses
- FREE STORE is the number of vast areas of store available in the switch

In addition, the E911226 warning log report contains one of the following warning reasons:

- *nearing maximum* indicates that the number of tuples in table E911SRDB approaches the maximum.
- *low available store* indicates that the number of vast areas of data store available in the switch is below a specified value.
- *high store percentage* indicates that the amount of data store that table E911SRDB is a specified percentage of the total data store in the switch.
- *maximum reached* indicates that the maximum number of acceptable tuples in table E911SRDB is present.

Refer to *Log Report Manual* for a complete description of E911 log reports. An example of the E911225 log report appears in the following figure. An example of the E911226 log report appears in the following figure.

E911225 log report

```
E911225 JAN10 15:10:25 0101 SRDB MEMORY INFORMATION
SRDB COUNT 250000, SRDB STORE 4032 KBytes, FREE STORE 32 AREAS
```

E911226 log report

```
E911226 JAN10 15:10:25 0101 INFO SRDB MEMORY WARNING!!!
REASON=Low Available Store
SRDB COUNT 760000, SRDB STORE 12256 KBytes, FREE STORE 4 VAareas
```

Commands

The SRDB Memory Administration feature package introduces the command interpreter (CI) command QSRDB (query selective routing database). Use this command to determine the amount of store that table E911SRDB uses and the

SRDB Memory Administration (continued)

number of tuples in the table. Use this command to change the default threshold values for the log reports and alarms.



CAUTION

QSRDB command

Use the SET option of the QSRDB command with caution. This option changes the threshold values that determine when the feature package generates a log report and alarm. If these values are not set correctly, the operating company is not alerted to low store availability for table E911SRDB.

The QSRDB command parameters and variables appear in the following table.

QSRDB command - parameters and variables

QSRDB	<i>MEM</i>		
	<i>THRESH</i>		
	<i>SET</i>	<i>PERCENT</i>	<i>percent_val</i>
		<i>STORE</i>	<i>store_val</i>
		<i>NLIMIT</i>	<i>nlimit_val</i>
		<i>COUNT</i>	<i>count_val</i>

Descriptions of the command QSRDB parameters and variables appear in the following table.

Descriptions of command QSRDB parameters and variables (Sheet 1 of 3)

Parameters and variables	Description
<i>MEM</i>	The <i>MEM</i> displays information about the memory use of table E911SRDB. Information includes the number of tuples in the table and the amount of store the table uses. Information includes the amount of free store in the switch.
<i>THRESH</i>	The <i>THRESH</i> displays the current threshold values that cause the feature package to generate E911225 and E911226 log reports. The <i>THRESH</i> displays the current threshold values that activate the SRDB_MEMORY minor alarm.

SRDB Memory Administration (continued)

Descriptions of command QSRDB parameters and variables (Sheet 2 of 3)

Parameters and variables	Description
<i>SET</i>	The <i>SET</i> allows the user to change the threshold values for the E911225 and E911226 log reports and associated alarm. Use <i>SET</i> with the parameter <i>PERCENT</i> , <i>STORE</i> , <i>NLIMIT</i> , or <i>COUNT</i> and the associated variable.
<i>PERCENT</i>	Use <i>PERCENT</i> with the <i>SET</i> parameter to change the threshold percentage of data store that table E911SRDB can occupy in the switch. <i>PERCENT</i> requires the variable <i>percent_val</i> .
<i>percent_val</i>	<i>Percent_val</i> is the threshold percentage of data store in the switch that table E911SRDB can occupy before a warning occurs. If the percentage of store that table E911SRDB uses reaches this amount, the feature package generates an E911226 log report and SRDB_MEMORY minor alarm. The SRDB update terminates. The 0 turns the <i>PERCENT</i> off. When percent is 0, the feature package does not generate E911226 log report and the minor alarm. The SRDB update is not terminated. Enter a value from 0 to 100 (percent).
<i>STORE</i>	Use <i>STORE</i> with the <i>SET</i> parameter to change the threshold for the data store that is not used in the switch. The <i>STORE</i> requires the variable <i>store_val</i> .
<i>store_val</i>	The <i>Store_val</i> is the threshold amount of data store that is not used in the switch. If the data store that is not used drops below this value, the feature package generates an E911226 log report and SRDB_MEMORY minor alarm. The SRDB update terminates. When <i>STORE</i> is 0, the feature package does not generate an E911226 log and the minor alarm. The SRDB update is not terminated. Enter a value from 0 to 100 (vast areas).
<i>NLIMIT</i>	Use <i>NLIMIT</i> with the <i>SET</i> parameter to change the threshold for the number of tuples in table E911SRDB. <i>NLIMIT</i> requires the variable <i>nlimit_val</i> .

SRDB Memory Administration (continued)

Descriptions of command QSRDB parameters and variables (Sheet 3 of 3)

Parameters and variables	Description
<i>.nlimit_val</i>	<i>Nlimit_val</i> is the threshold number of tuples in table E911SRDB. If the number of tuples reaches this number, the feature package generates an E911226 log report. The feature package generates a SRDB_MEMORY minor alarm. Enter a number from 0 to 800000 (tuples). 0 Turns the <i>NLIMIT</i> off. If you set <i>NLIMIT</i> to 0, the feature package does not generate an E911 log report and the minor alarm.
<i>COUNT</i>	Use <i>COUNT</i> with the <i>SET</i> parameter to change the threshold for the number of tuples added to or changed in table E911SRDB. <i>COUNT</i> requires the variable <i>count_val</i> .
<i>count_val</i>	<i>Count_val</i> is the threshold number of tuples to add or change in table E911SRDB during an update. If the number of tuples added or changed reaches this value, the feature package generates an E911225 information log report. Enter a number from 0 to 800000 (tuples). 0 turns the COUNT off. When <i>count_val</i> is 0, the feature package does not generate an E911log.

SRDB Memory Administration (continued)

Examples of CI command QSRDB with task, response, and explanation appear in the following table.

Examples of the command QSRDB (Sheet 1 of 2)

Example	Task, response, and explanation
<i>QSRDB MEM</i>	<i>Task</i> : Display information about table E911SRDB and memory use. <i>Response:</i> SRDB Count: 250000 SRDB Store: 4032 KBytes Free Store: 32 VAreas <i>Explanation:</i> The switch has 250 000 tuples in table E911SRDB, 4032 kB of store that table E911SRDB uses, and 32 vast areas of store.
<i>QSRDB THRESH</i>	<i>Task</i> : Display the current threshold values for table E911SRDB and memory use. <i>Response:</i> SRDB %: 80 Store Minimum: 5 Near Limit: 760000 Log Count: 5000 <i>Explanation:</i> The threshold percent for table E911SRDB is currently 80. The threshold store is 5 vast areas. The threshold tuple limit is 760 000. The threshold for tuple adds or changes is 5000.

SRDB Memory Administration (continued)

Examples of the command QSRDB (Sheet 2 of 2)

Example	Task, response, and explanation
<i>QSRDB SET PERCENT 85</i> <i>where</i> SET is the parameter that changes the threshold values. PERCENT is the parameter that changes the threshold percentage of data store that table E911SRDB can occupy in the switch. 85 is the new threshold percentage value.	<i>Task</i> : Set the threshold values for table E911SRDB and memory use. <i>Response:</i> THRESHOLD VALUES WILL BE : SRDB %: 85 STORE MINIMUM: 5 NEAR LIMIT: 725 000 LOG COUNT: 5000 Please confirm ("YES" or "NO"): >yes SRDB THRESHOLD VALUES HAVE BEEN UPDATED <i>Explanation:</i> Set the threshold percent for table E911SRDB to 85. The threshold store is 5 vast areas. The threshold tuple limit is 725 000. The threshold for tuple adds or changes is 5000.

Translations table flow

The SRDB Memory Administration does not affect translations.

Limits

The SRDB Memory Administration feature package provides information concerning store use and limits for table E911SRDB. The feature package does not provide a way to optimize the memory use of this table.

Interactions

The SRDB Memory Administration feature package does not introduce interactions with other features. The end user sets the SRDB Memory Administration thresholds with the QSRDB command.

SRDB Memory Administration (end)

Activation/deactivation by the end user

If the SRDB Memory Administration feature package is in the switch, SRDB Memory Administration is active.

Billing

The SRDB Memory Administration does not affect billing.

Station Message Detail Recording

The SRDB Memory Administration does not affect Station Message Detail Recording.

Datafilling office parameters

The SRDB Memory Administration feature package does not affect office parameters.

Datafill sequence

The SRDB Memory Administration feature package does not affect datafill.

Tools for verifying translations

The SRDB Memory Administration feature package does not use tools for verifying translations.

SERVORD

The SRDB Memory Administration feature package does not use SERVORD.

VFG Support for E911 (Loc and/or the Isup/ANI Call)

Ordering codes

Functional group order code: ENS00005

Functionality order code: ENS00001 or ENS00002

Release applicability

NA009 and later versions

For SN06 (DMS), feature A89007692 (E911 ESCO Expansion) provides the capability to specify a 4-digit ESCO identifier.

Requirements

The VFG Support for E911 (Loc and/or the Isup/ANI Call) has the following requirements to operate:

- Meridian Digital Centrex (MDC) Minimum—MDC00001
- Meridian Digital Centrex (MDC) Standard—MDC00003
- Meridian Business Set (MBS) Minimum—MDC00007
- Meridian ACD Base—ACD0001

Use of the ISUP trunks with the E911 virtual facility group requires the following packages and package requirements:

- BAS Generic, BAS00003
- Base ISUP, ISP70001

Use of the SC trunks with the E911 virtual facility group requires the following packages and package requirements:

- BAS Generic, BAS00003
- Equal Access Alternate Switching Point, EQA00007

Description

The VFG Support for E911 (Loc and/or the Isup/ANI Call) feature provides the following capability. The feature selects the route and transfers end office calls carried to the E911 tandem on non-E911 trunks. The feature allows PSAP termination of calls on ISUP or SC trunks. The system translates incoming calls to an E911 virtual facility group. The subscriber directory number determines how the feature selects the route for the calls to a primary PSAP.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

The feature translates incoming 911 traffic. This traffic is from an Integrated Services Digital Network User Part (ISUP) or SuperCAMA (SC) trunk to an E911 virtual facility group. The feature translates incoming 911 traffic from a line on the E911 tandem to an E911 virtual facility group. The E911 virtual facility group uses E911 translations. The E911 translations determine the directory number of the primary public safety answering point (PSAP) to which the system routes the call. This feature uses the calling party directory number and serving numbering plan area from the incoming trunk or line. With the primary PSAP directory number, the system translates the call through national translations again, and routes the call again.

The VFG Support for Local and/or Incoming Calls to E911 feature provides local access to E911. This access to E911 is for subscriber lines on the E911 tandem. The feature does not use loop-around trunks.

This feature can limit the number of calls that occur at the same time through the virtual facility group. The customer defines the number of calls that occur at the same time.

The feature provides the originator hold capability for local and tandem-to-tandem E911 calls that route through an E911 virtual facility group. Originator hold does not allow the originator of an E911 call to disconnect the call. Originator hold sends the PSAP operator an audible tone when the originator goes on-hook.

Operation

The following section describes the operation of VFG Support for E911 (Loc and/or Inc ISUP/ANI Call).

Virtual facility group support

The VFG Support for E911 (Loc and/or the Isup/ANI Call) feature offers a different method for the selective routing and transfer of 911 calls in the E911 tandem. The E911 is Loc and/or Inc ISUP/ANI Call. Without the feature, the E911 software provides selective routing and transfer functionality when calls first route through an E911 trunk. The E911 virtual facility group serves as a pseudo-E911 trunk to accomplish this functionality.

A virtual facility group can simulate, in software, a loop-around trunk without the use of trunk resources. For example, the feature can route calls to a customer-defined virtual facility group through translations. The type of virtual facility group determines how the feature can retranslate and route calls to facilities on the DMS switch. The feature can limit the number of incoming calls to a virtual facility group. The restriction provides the throttling mechanism of loop-around trunks.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

A virtual facility group provides the additional functionality to combine traffic from incoming trunks. A virtual facility group can translate a specified type of call to one common virtual facility group. For more information about virtual facility groups, refer to the data schema section of the *Translations Guide*.

Incoming 911 traffic from an ISUP or SC trunk translates to an E911 virtual facility group. Incoming traffic from a line on the E911 tandem translates to an E911 virtual facility group. The E911 virtual facility group uses E911 translations to determine the directory number of the primary PSAP. The system routes the call to this number. The E911 virtual facility group uses the calling party directory number and serving numbering plan area from the incoming trunk or line for this procedure. With the primary PSAP directory number, the feature retranslates the call through national translations. The feature routes the call again.

Originator hold

Originator hold does not allow the originator of an E911 call to disconnect from the call. Originator hold sends the PSAP operator an audible tone when the originator goes on-hook. Data in table VIRTGRPS turns the originator hold for virtual facility groups on and off. The E911 Local Access feature adds the ORIGHOLD field to table VIRTGRPS. This condition turns E911 virtual facility group originator hold on or off.

The following describes the steps that occur when the caller goes on-hook during an E911 call. When this event occurs, data entry turns originator hold on and off.

- Originator hold set to Y. When the caller goes on-hook, the E911 tandem receives a disconnect signal. The E911 tandem generates a low tone that alerts the PSAP operator the caller is on-hook. While the caller remains on-hook, the operator hears the tone. When the caller goes off-hook, the system establishes the call again. When the PSAP operator goes on-hook first, the system can disconnect the call.
- Originator hold set to N. When the originator hold for the virtual facility group is off and the caller goes on-hook, the system disconnects the call.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

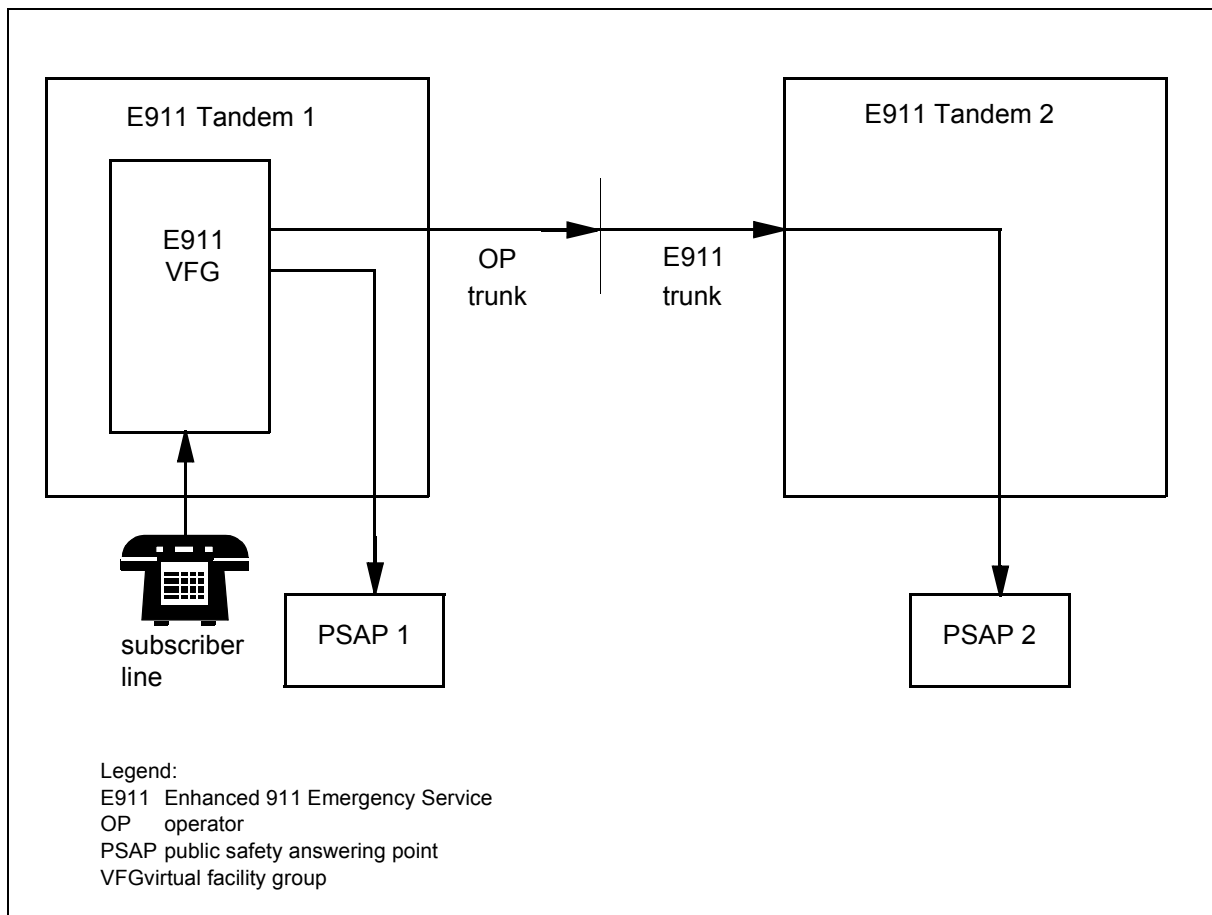
Configuration

Originator hold support for the following configurations appears in the following figure:

- Local access. The line of the caller connects to the E911 tandem. The call routes through a virtual facility group and terminates to a PSAP on the same tandem.
- Tandem-to-tandem access. The line of the caller connects to the first E911 tandem. The call routes through a virtual facility group and routes to an operator trunk. The call arrives on the second tandem over an E911 trunk and terminates to a PSAP on the second tandem.

Note: This feature does not support originator hold for calls that route to the virtual facility group from SC or ISUP trunks.

Supported configurations for originator hold through a virtual facility group (outgoing)



VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Enhanced Called Party Hold feature

The E911 Enhanced Called Party Hold (ECPH) feature maintains the connection of an E911 call from origination. The feature maintains this connection until the PSAP answers or until the ECPH timeout period lapses. The ECPH makes sure that the system processes an emergency call when the caller hangs up before the call completes.

The ECPH is available for virtual facility groups. The ECPH is available when a line on the E911 tandem originates a 911 call. The 911 call routes directly to a PSAP through an E911 VFG. The DMS-100 can operate as the end office. When this event occurs, the ECPH is available on emergency service (ES) and operator (OP) trunk group types.

Datafill in table VIRTGRPS provides Enhanced Called Party Hold. The ECPHTIME subfield in table VIRTGRPS establishes the number of seconds (0 to 255) ECPH is active. This timeout value allows the connection to drop when the called party does not answer in the specified amount of time. The timeout period allows the caller to redial when a call routes in a way that is not correct. The timeout period allows the caller to redial when an error that is not detected occurs.

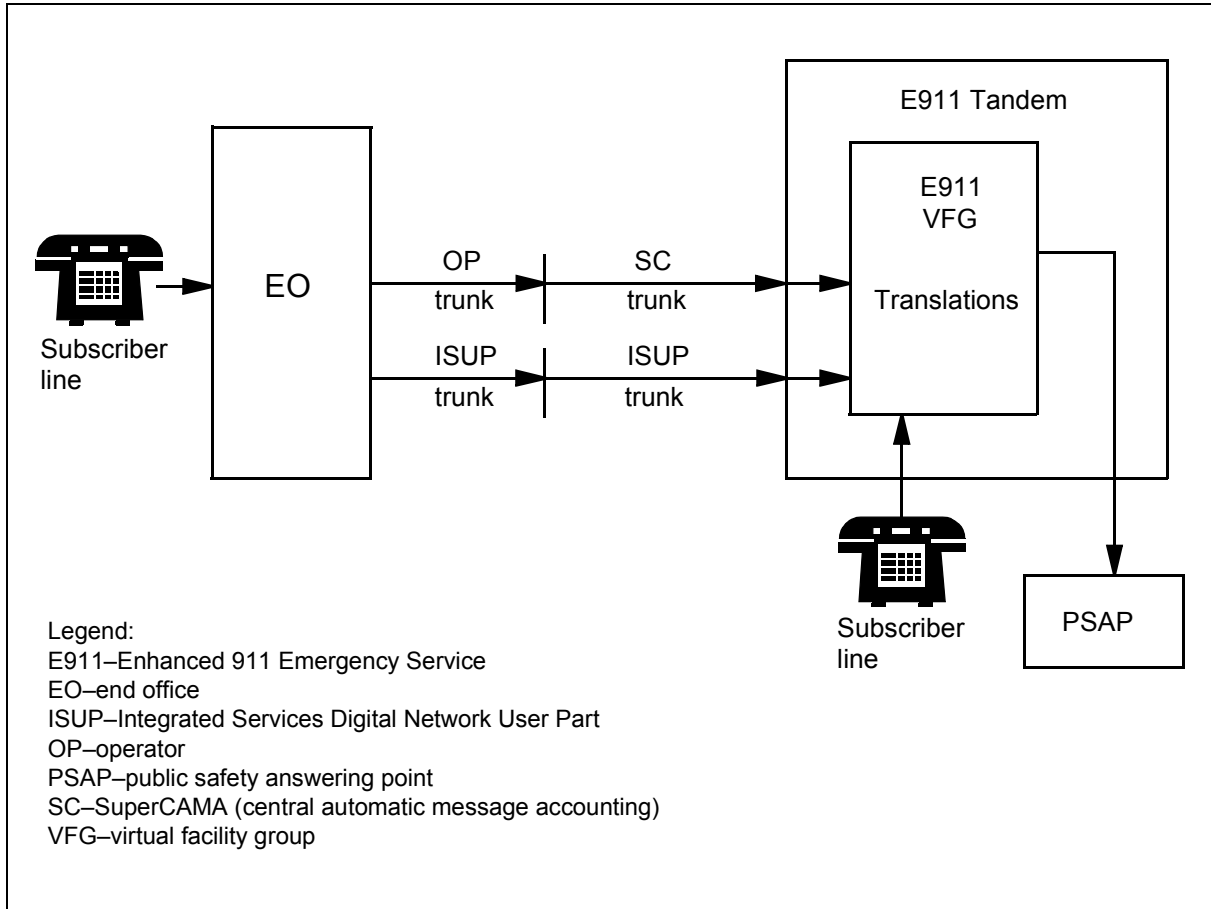
Nortel hard-codes a default 0 (zero) entry in field ECPHTIME in table VIRTGRPS. The operating company cannot change the value.

E911 virtual facility group routing

The possible routes for a 911 call from a subscriber line to a PSAP appears in the following figure. An E911 virtual facility group rates the 911 call. The subscriber line connects to an end office and routes to the E911 tandem through different types of trunks. The subscriber line can hang directly off the E911 tandem.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

E911 virtual facility group routing (incoming)



E911 virtual facility group examples

With the use of an E911 virtual facility group, incoming 911 calls can trunks use other than E911 trunks. The potential uses of an E911 virtual facility group appear in the following example. The feature provides selective routing, automatic number identification display, and selective transfer to the PSAP.

- Dedicated ISUP trunks used for 911 traffic. Calls from an end office to an E911 tandem can travel over ISUP trunks dedicated to 911 traffic. The feature package can translate incoming calls on an ISUP trunk to an E911 virtual facility group. The feature can select the route to a primary PSAP. The directory number of the calling party determines the route. End office and E911 tandem 911 traffic can be engineered. The number of available dedicated ISUP trunk circuits determines the engineering of the traffic.
- Local access to E911. The feature package can translate E911 tandem subscriber calls (911) to an E911 virtual facility group. The feature selects

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

the routes of the calls to a primary PSAP. This feature does not require loop-around E911 trunks. This feature allows the throttling of E911 traffic. The customer-defined size of the E911 virtual facility group determines throttling.

- Non-dedicated trunks that overflow 911 traffic. Use the ISUP and SC trunks as overflow trunks. Dedicated E911 trunks can handle a specified level of 911 traffic. When the E911 trunks overload, are cut, or go out of service, 911 traffic can overflow to non-dedicated trunks. The feature can select the route of the call through an E911 virtual facility group to the primary PSAP associated with the calling party.
- Use non-dedicated trunks for 911 and other traffic. The ISUP or SC trunks, in a non-dedicated method can handle a combination of 911 calls and other traffic. The feature can translate incoming calls on these trunks to an E911 virtual facility group. The feature selects the route to a primary PSAP. The size of the virtual facility group controls the throttling of the number of 911 calls. These trunks are non-dedicated. This feature cannot guarantee the grade of 911 service. Potential problems can occur with the availability of trunk circuits for 911 calls because of excessive traffic that is not 911.

Translations table flow

Virtual facility group support

The translations data flow for the VFG Support for E911 (Loc and/or the Isup/ANI Call) feature appears in this section. This section contains a summary of the tables. This section contains a flowchart that shows how the feature accesses the tables during translations.

Table TRKGRP. This feature accesses table TRKGRP when the 911 call is incoming from a trunk. This feature accesses table TRKGRP with the common language location identifier name of the trunk group. Table TRKGRP provides information about the trunk group that includes the pretranslator name.

Table LINEATTR. This feature accesses table LINEATTR when the 911 call is incoming from a line. This feature accesses table LINEATTR with the line attribute number of the line. Table LINEATTR provides information about the line that includes the pretranslator name.

Subtable STDPRT (table STDPRTCT). This feature accesses subtable STDPRT (table STDPRTCT). This feature accesses table STDPRTCT with the pretranslator name from table TRKGRP or table LINEATTR and the dialed digits 911. Subtable STDPRT specifies a route index into table IBNRTE.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Table IBNRTE. This feature uses the route index from subtable STDPRT to access table IBNRTE. The route index provides the virtual facility group selector that routes the call to an E911 virtual facility group.

Table VIRTGRPS. This feature accesses table VIRTGRPS with the virtual facility group name from table IBNRTE. Use Table VIRTGRPS to enter data in E911 virtual facility groups. The addition of E911 occurs to the range of the virtual facility group incoming type (INCTYPE) field. The E911 incoming type has six subfields to store information for calls incoming to the virtual facility group.

- Table VIRTGRPS must contain a default emergency service number. The system uses the default emergency number when the optional table E911SRDB does not contain an emergency service number. The system uses the default number when automated number identification fails.
- Table VIRTGRPS must contain an emergency service central office code to outpulse to the PSAP. This outpulse occurs when an automatic number identification fails.
- Table VIRTGRPS must contain a serving numbering plan area that defines the subscribers that the virtual facility group serves. The outpulse of the serving numbering plan area to the PSAP occurs when an automatic number identification failure.
- The ECPHTIME field indicates the number of seconds Enhanced Called Party Hold is active. Nortel hard-codes a default 0 (zero). The operating company cannot change the value.
- The ORIGHOLD field determines when local calls that route through the virtual facility group have the originator hold capability.
- Set the RESTRICT field to Y only. The field indicates that callers cannot initiate features during a 911 call.

Table E911SRDB. This feature accesses table E911SRDB with the calling party directory number. Table E911SRDB provides an emergency service number. The caller location determines how this table provides an emergency service number.

Table E911ESN. This feature accesses table E911ESN with the emergency service number from table E911SRDB. When the emergency service number is not present in table E911SRDB, this feature uses the emergency service number from table VIRTGRPS. Table E911ESN provides the names of a maximum of seven PSAPs for each emergency service number.

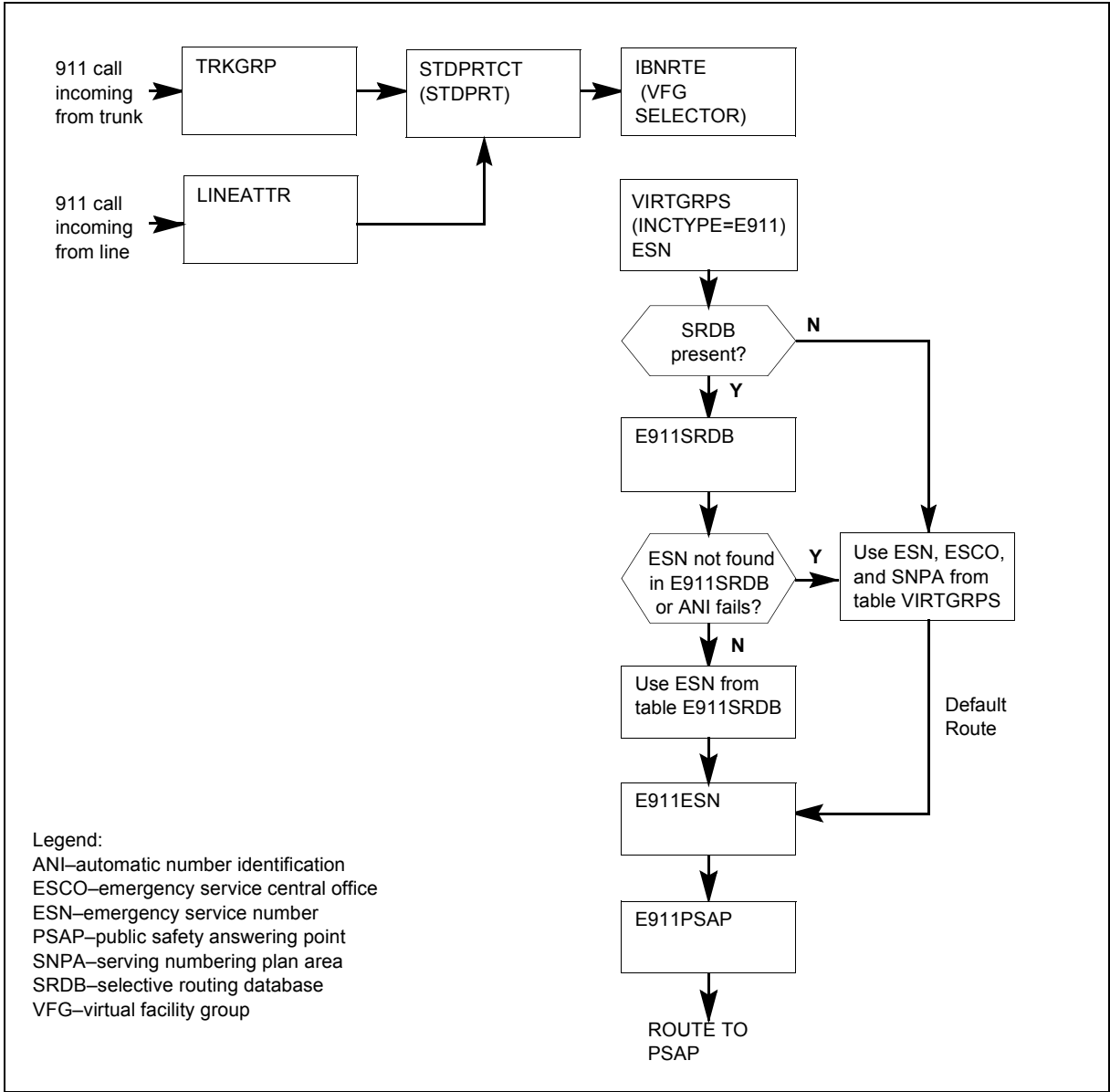
Table E911PSAP. This feature accesses table E911PSAP with the PSAP name from table E911ESN. Table E911PSAP provides the names and directory

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

numbers of the selected PSAPs. Table E911PSAP provides emergency directory number routes for selective routing and selective call transfer.

The VFG Support for E911 (Loc and/or the Isup/ANI Call) translation process appears in the following flowchart.

Table flow for VFG Support for E911 (Loc and/or the Isup/ANI Call)



VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

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

Datafill example for VFG Support for E911 (Loc and/or the Isup/ANI Call)

Item	Example data
Incoming trunk	ISUP2WITEA
Calling number	613 621 5001
Called number	911
PSAP number	621-2005

Datafill example for VFG Support for E911 (Loc and/or the Isup/ANI Call)

Datafill table	Example data
TRKGRP	ISUP2WITEA IT 0 EL0 NCRT 2W NIL MIDL 519 PEA NSCR 919 000 N N \$
STDPRTCT	PEA (1) (0)
STDPRT	911 911 T DD 0 IBNRTE 3 3 3 NONE
IBNRTE	3 VFG N N N 911VFG 0
VIRTGRPS	911VFG SIZE 2 E911 114 0621 613 0 N Y
E911SRDB	613 621 5 NNN 111
E911ESN	111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
E911PSAP	ACDPSAP1 6212005 N

In this example, the common language location identifier name ISUP2WITEA provides access to table TRKGRP. This tuple provides the preliminary translator name PEA.

The preliminary translator name PEA and the digits 911 provides access to table STDPRTCT, subtable STDPRT. This tuple routes the call to table IBNRTE, route number 3.

Table IBNRTE, route number 3, routes the call to the virtual facility group named 911VFG.

The virtual facility group name 911VFG provides access to table VIRTGRPS. This virtual facility group is an E911 virtual facility group. The default emergency service number is 114. The emergency service central office is

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

621. The serving numbering plan area is 613. The ECPH timeout value is 123 seconds.

The calling number 613 621 5001 provides access to table E911SRDB. The definition of the emergency service number for the call is 111.

The emergency service number 111 provides access to table E911ESN. The definition of the PSAP name for the call is ACDPSAP1.

The PSAP name ACDPSAP1 provides access to table E911PSAP. The definition of the PSAP number for the call is 6212005. The call routes to this number.

Enhanced Called Party Hold

The E911 Enhanced Called Party Hold (ECPH) feature maintains the connection of an E911 call. The ECPH maintains the connection from origination until the PSAP answers or the ECPH timeout period ends. The ECPH makes sure an emergency call processes when the caller hangs up before the call completes.

The ECPH is available for virtual facility groups when a line on the E911 tandem originates a 911 call. The line originates the call that routes to a PSAP through an E911 VFG. When a DMS-100 operates as the end office, ECPH is available on emergency service (ES) and operator (OP) trunk group types.

Datafill in tables TRKGRP and VIRTGRPS provides the Enhanced Called Party Hold feature. The ECPHTIME subfield in table VIRTGRPS establishes the number of seconds (0 to 255) ECPH is active. This timeout value allows the connection to drop when the called party does not answer in the specified amount of time. The timeout period allows the caller to redial when a call that routes in a way that is not correct. The timeout period allows the caller to redial when an error that is not detected occurs.

Nortel hard-codes a default 0 (zero) entry in field ECPHTIME in tables VIRTGRPS and TRKGRP. The operating company cannot change the value.

Originator hold

The translations data flow for the originator hold feature with a virtual facility group appears in this section. This section contains a summary of the tables that shows how the feature accesses the tables during translations.

Table VIRTGRPS. Table VIRTGRPS contains data for each virtual facility group. The virtual facility group name provides access to this table. When an E911 caller goes on-hook, the value of the ORIGHOLD field at the time the call routes determines the originator hold. The value of the ORIGHOLD field

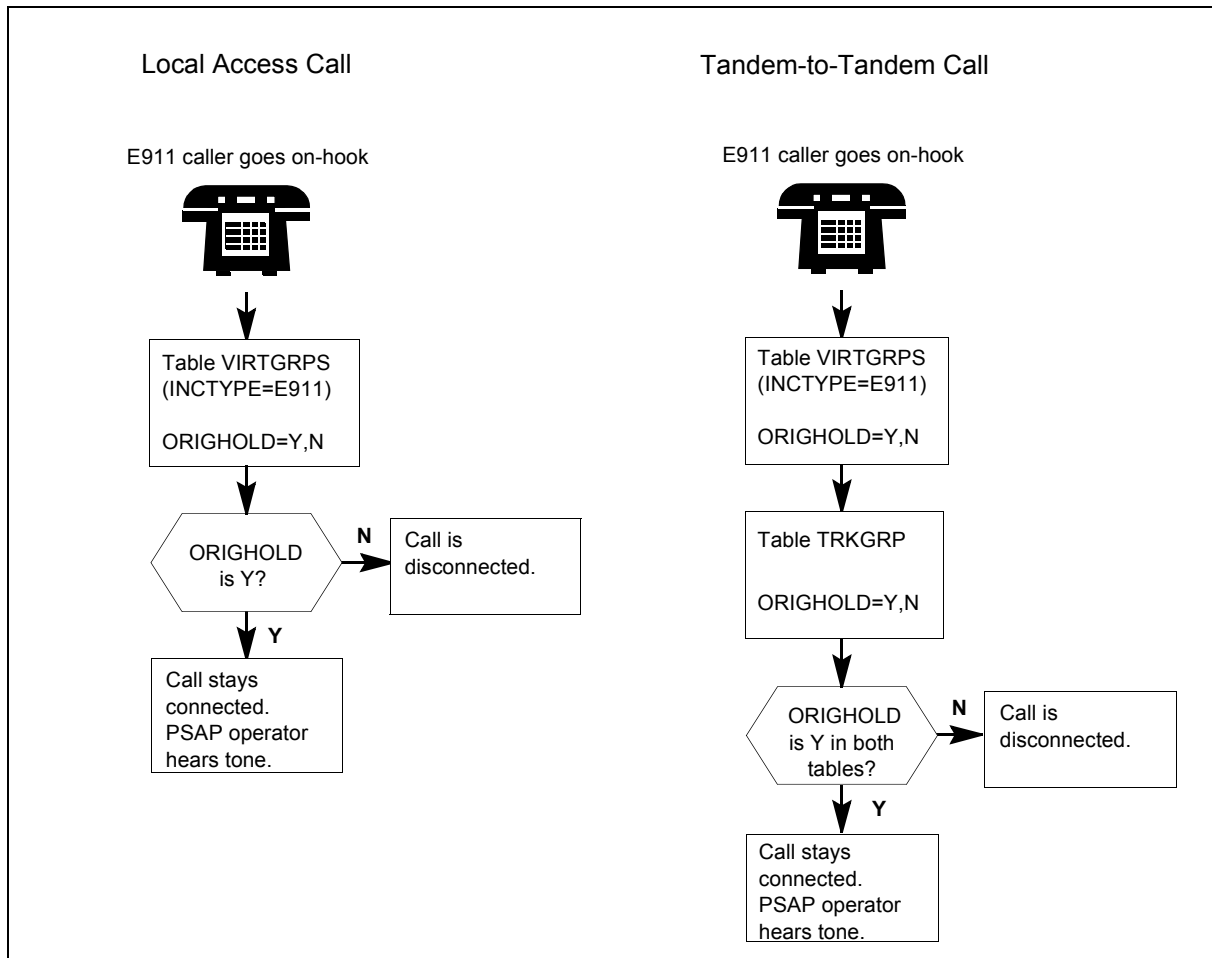
VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

determines when the originator hold is on or off. When the value of ORIGHOLD is Y, the call connection remains and the PSAP operator hears a tone. When the value of the ORIGHOLD is N, the call disconnects.

Table TRKGRP. This feature accesses table TRKGRP for tandem-to-tandem calls. The calls enter the second tandem from an E911 trunk group. The E911 trunk group must have the ORIGHOLD field value of Y for originator hold to be active.

The translations flow for originator hold through a virtual facility group appears in the following figure. The figure contains the local access case and the tandem-to-tandem case. Example datafill for the tables in the flowchart appears in the table that follows the figure. In this table, originator hold turns on in Tables VIRTGRPS and TRKGRP.

Translations table flow for originator hold with an E911 virtual facility group



VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

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

Translations data flow information for VFG Support for E911 (Loc and/or the Isup/ANI Call) example.

Item	Example data
VFG name	911VFG
E911 trunk name	E911TRK
Orighold	Y (turned on)

Translations data flow information for VFG Support for E911 (Loc and/or the Isup/ANI Call) example.

Datafill table	Example data
VIRTGRPS	911VFG SIZE 2 E911 114 0621 613 0 Y Y \$
TRKGRP	E911TRK E911 ELO NCRT 613 0 Y BELL 1 10 10 N 824 123

SPB or station ANI on calls through E911 VFG

This section describes the translations data flow for the SPB or station ANI with a virtual facility group (VFG). This section contains a summary of the tables. How the tables are accessed during translation appears in the flowchart that this section contains.

Table LINEATTR. This feature accesses table LINEATTR with the line attribute number of the line. Table LINEATTR provides information about the line that includes the pretranslator name.

Table IBNRTE. This feature accesses table IBNRTE with the route index from subtable STDPRT. Table IBNRTE provides the VFG selector that routes the call to an E911 VFG.

Subtable STDPRT (table STDPRTCT). This feature accesses subtable STDPRT (table STDPRTCT) with the pretranslator name from table LINEATTR and the dialed digits 911. Subtable STDPRT specifies a route index to table IBNRTE.

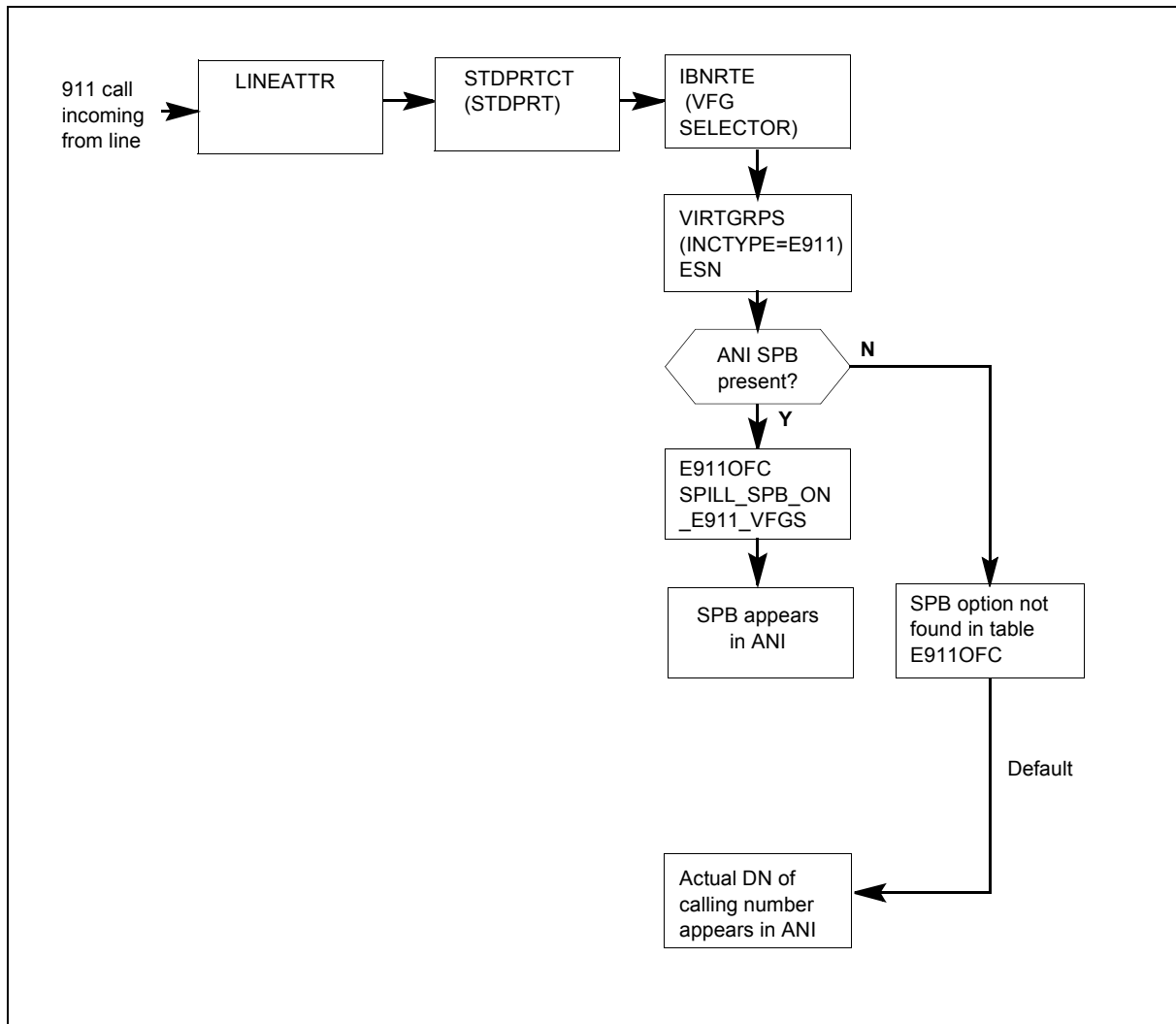
Table VIRTGRPS. Table VIRTGRPS contains data for each VFG. Use the VFG name to access this table.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Table E911OFC. The SPILL_SPB_ON_E911_VFGS setting in table E911OFC field E911OPTN provides the SPB in the ANI for E911 calls through a VFG. The DN of the station that places the call appears in the ANI when field E911OPTN does not have the option set.

The translations flow for SPB or station ANI through an E911 VFG appears in the following figure.

Translations table flow for SPB or station ANI through E911 VFG



VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

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

Translations data flow for SPB or station ANI through VFG

Item	Example data
VFG name	911VFG
E911OFC	<i>SPILL_SPB_ON_E911_VFGS</i>

Translations data flow for SPB or station ANI through VFG

Datafill table	Example data
STDPRTCT	PEA (1) (0)
STDPRT	911 911 T DD 0 IBNRTE 3 3 3 NONE
IBNRTE	3 VFG N N N 911VFG 0
VIRTGRPS	911VFG SIZE 2 E911 114 0621 613 0 Y Y \$
E911OFC	<i>SPILL_SPB_ON_E911_VFGS</i>

Limits

The following limits apply to VFG Support for E911 (Loc and/or the Isup/ANI Call):

Attendant console to E911 PSAP restrictions

When an E911 call is involved with an attendant console that waits for a transfer, the system suppresses some console functionality. Before the PSAP flashes, the attendant retains normal functionality. After the PSAP flashes and before the system bridges the call, the system ignores the AC key hits. After the system bridges the call, the AC key can perform the following procedure. The AC key can release from the call when the value of ORIGHOLD is N. The AC key places the call on hold, or releases the call from hold.

The feature can route a 911 call from AC to an ISUP trunk to an E911 virtual facility group to a PSA. When this event occurs, the system does not send the calling party address information over the ISUP trunk. The call is an automatic number identification failure.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Datafilling E911 virtual facility groups in table IBNRTE

Enter data in E911 virtual facility groups in table IBNRTE like other virtual facility groups. This feature does not support setting fields OHQ, CBQ, or EXP to yes. Set these fields to no.

The following limits apply to this feature:

- The E911 virtual facility group supports incoming calls from ISUP and SC trunks. The E911 facility group supports calls from lines local to the E911 tandem.
- The DMS-100 switch supports a maximum of 8092 virtual facility groups.
- The system allows a maximum of 2047 members for each virtual facility group.

Incoming translations for calls from a line or from an ISUP or SC trunk to a virtual facility group

The following limits apply to this feature:

- For E911 calls incoming on ISUP trunks, pretranslations sets the TYPCALL to NP or DD. This event occurs when calls route to an E911 virtual facility group from table IBNRTE.
- For E911 calls incoming on SC trunks, pretranslations *must* set the TYPCALL to DD. This event occurs when calls route to an E911 virtual facility group from table IBNRTE.
- For E911 calls from a line to a virtual facility group, incoming pretranslations sets the TYPCALL as operator assisted (OA). The OA value allows the system to spill the automatic number identification to the PSAP for every type of originating line agents.

ISUP trunks supported by the E911 virtual facility group

The types of ISUP trunks incoming to the E911 tandem that the E911 virtual facility group feature supports are T1, T2, and IT.

SC trunks and the E911 virtual facility group

The following limits apply to this feature:

- The incoming E911 calls on SC trunks do not generate billing records. This feature does not affect other non-E911 traffic on these types of trunks.
- Automatic number identification failure or incoming operator number identification E911 calls on SC trunks route to an E911 PSAP. The calls do not route to an operator position.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Calls routing through more than one virtual facility group

A call can route through a plain old telephone service (POTS) before the calls route to the E911 virtual facility group. A call can through an Integrated Business Network (IBN) virtual facility group before the calls route to the E911 virtual facility group. The automatic number identification received is the billing number of the virtual facility group. The automatic number identification received is not the number of the line from which the 911 call originates.

E911 pretranslator selector versus E911 virtual facility group

To enter data in a pretranslator selector for a foreign exchange or message trunk, perform the following procedure. Use the T-selector to route to the E911 virtual facility group. Do not use the E911 selector that is normally in use for the trunks. Field PRERTSEL in subtable STDPRT of table STDPRTCT is the pretranslator selector. You can route 911 calls from a foreign exchange trunk to a VFG. When this event occurs, the E911 VFG can identify the billing number of the calling party.

Interactions between multifrequency and ISUP trunks

The system considers some calls that from a multifrequency trunk as ANI failures. The system handles these calls as ANI failures when the calls route to an ISUP trunk to an E911 virtual facility group. Standard multifrequency signaling trunks that terminate to ISUP trunks do not forward the calling party address information.

Tandem-to-tandem routing over SC trunks

A 911 call can route from an SC trunk to an E911 virtual facility group to a second E911 tandem. When this event occurs, the outgoing trunk of the first tandem must contain the number of information digits. These digits support the SC trunk. For example, an SC trunk that terminates to an E911 virtual facility group can use BELL OSS signaling. When this event occurs, an operator trunk outgoing from the first tandem must contain data to support two information digits.

Customer Data Change users and E911 virtual facility groups

Customer Data Change users are non-operating company users with access to change data that the operating company specifies. An update of table DATAOWNER allows access to these users.

Tables VFGDATA and VFGENG allow Customer Data Change users to change virtual facility groups in table VIRTGRPS. The Customer Data Change users have different levels of access to the same store that table VIRTGRP lists. The Customer Data Change users do not have direct access to the table.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

For example, table VFGENG contains information on the size of a virtual facility group. To release access to size information, the operating company can limit access to a Customer Data Change to VFGENG. The operating company limits the access to size information with data fill in table DATAOWNR. Table VFGDATA gives access to incoming and outgoing ends of a virtual facility group that table VIRTGRPS lists.

Note: The VFG Support for E911 feature package allows Customer Data Change users to access E911 as in the previous description. The E911 is Loc and/or Inc ISUP/ANI Call. Operating companies must not allow access to E911 virtual facility groups to prevent changes to E911 virtual facility group data.

Originator hold

This feature does not support originator hold for calls that route to the virtual facility group from SC or ISUP trunks. This feature supports line calls to a virtual facility group.

Originator hold applies to the party that dials 911. For example, party 1 calls party 2. Party 2 dials 911 and bridges a three-way call between party 1, party 2, and the PSAP. Originator hold applies to party 2. Party 1 can disconnect at any time.

Interactions

The following paragraphs describe the interactions between VFG Support for E911 (Loc and/or the Isup/ANI Call) and other functionalities.

Attendant console

When an E911 call is involved with an attendant console transfer, the system suppresses some console functionality. Before the PSAP flashes, the attendant retains normal functionality. After the PSAP flashes and before the system bridges the call, the system ignores the AC key hits. After the system bridges the call, the AC key can release from the call when the ORIGHOLD value is N. The AC can place the call on hold, or release the call from hold.

Selective routing

The E911 translations provide selective routing through an E911 virtual facility group. The selective routing occurs in the same way as with E911 trunks. The E911 virtual facility group supports selective routing.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Default routing

Default routing for an E911 virtual facility group function is like the E911 trunk method. Each E911 virtual facility group entry requires the following:

- a default serving numbering plan area
- an emergency service number
- an emergency service central office

In the event an emergency service number is not present for the subscriber directory number, use the default emergency service number. The E911 virtual facility group supports the default routing.

Alternate routing

This feature does not affect alternate routing.

PSAP terminations

The E911 virtual facility group can select the route and transfer 911 calls to all PSAP types. The types include Line, Line Appearance on a Digital Trunk (LDT) and Automatic Call Distribution (ACD) PSAPs.

Automatic number identification display

This feature does not affect automatic number identification display to PSAP attendants.

Selective transfer

The E911 virtual facility groups and E911 trunks use the emergency service number associated with the calling party. The E911 virtual facility groups and E911 trunks use this number to select and transfer a call. The E911 virtual facility group supports the select transfer of 911 calls.

Emergency directory number route

The E911 virtual facility group supports select routing and transfer to an emergency directory number route.

Originator hold

The E911 virtual facility group configurations can support the originator hold function. The following limits apply:

- ACD feature—When an ACD agent dials 911 to transfer a call to a PSAP with the originator hold on, the following occurs. The agent cannot use features specified to ACD, like Observe Agent and Auto Not Ready.
- Flash features—When a caller dials 911 and connects to a PSAP, the caller cannot use features that require a flash. The system ignores caller flashes. For example, the caller cannot flash for call waiting, three-way calling or

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

call transfer. The caller can be involved in a three-way call with another subscriber. A PSAP does not bridge the three-way call. When this event occurs, the caller can use the three-way call key. The caller uses this key to bridge between the other subscriber and the PSAP. When the bridge of the three-way call occurs, the caller cannot flash.

Ringback

This feature supports specified E911 virtual facility group configurations supported for the optional ringback capability.

Activation/deactivation by the end user

Refer to the Operation section of this document for details on originator hold activation and deactivation.

When the E911 virtual facility group translates a call, the system activates the E911 VFG Support feature. The system deactivates this feature when the call is complete.

Billing

The VFG Support for E911 (Loc and/or the Isup/ANI Call) does not affect billing.

Station Message Detail Recording

The VFG Support for E911 (Loc and/or the Isup/ANI Call) does not affect Station Message Detail Recording.

Datafilling office parameters

The VFG Support for E911 (Loc and/or the Isup/ANI Call) does not affect office parameters.

Datafill sequence

VFG Support for Local and/or Incoming ISUP Calls to E911

The tables that require datafill for VFG Support for E911 (Loc and/or the Isup/ANI Call) appear in the following tables. The tables appear in the correct entry order.

When the office parameter E911_PSAPS_USING_1_INFO_DIGIT value in table OFCSTD is Y, the following occurs. You must enter data in table E911NPD before you can enter data in an E911 virtual facility group in table VIRTGRPS.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Enter data in table E911ESN before you enter data in an E911 virtual facility in table VIRTGRPS. The system allows first data entry in VIRTGRPS. When the emergency service number is not present, calls cannot complete later.

Note: When you set the office parameter E911_CHECK_DEFAULT_ESN in table OFCVAR to Y, you must enter data in table E911ESN. Enter data in table E911ESN before you can enter an E911 virtual facility group entry in table VIRTGRPS.

Datafill requirements for VFG Support for E911 (Loc and/or the Isup/ANI Call)

Table	Purpose of table
VIRTGRPS	Create a VFG entry in subfield INCTYPE.

Datafilling table VIRTGRPS

Datafill for VFG Support for E911 (Loc and/or the Isup/ANI Call) for table VIRTGRPS appears in the following table. The fields that apply to VFG Support for E911 (Loc and/or the Isup/ANI Call) appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
DATA		see subfields	Virtual facility group data. This field contains subfields MEMBERS and INCTYPE.
	INCTYPE	alphanumeric	Incoming type. Can be a string of 1 through 6 alphanumeric characters. To define an E911 virtual facility group, enter E911.
	ESN	numeric (0 to 15 999)	Emergency service number. A one to five-digit number associated with an emergency service zone. Use of this number can obtain the directory number of the default PSAP. The system routes an incoming call to this virtual facility group. Enter the emergency service number that table E911ESN contains. The ESN can be a value from 0 to 15 999.
	ESCO	numeric (0000 to 9999)	Emergency service central office. The four-digit number that represents the end office where this trunk originated. The number appears at the PSAP in the event you cannot obtain the calling party serving numbering plan area and directory number. Valid entries are 0000 to 9999.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)**Datafilling table VIRTGRPS**

Field	Subfield or refinement	Entry		Explanation and action
	SNPA	numeric digits)	(3	Serving numbering plan area. For the area that the E911 virtual facility group serves. Use this three-digit numbering plan area when an automatic number identification failure causes a serving numbering plan area to outpulse to the PSAP.
	ECPH TIME	numeric to 255)	(0	Enhanced called party hold time (ECPH TIME). The number of seconds ECPH remain active. Nortel hard-codes default 0 (zero). The operating company cannot change the value.
	ORIG HOLD	Y or N		Originator hold. This field determines when calls that route through the virtual facility group have the originator hold capability. When this call arrives over a trunk, the trunk datafill must support originator hold. Local calls to the tandem do not require action.
	RESTRICT	Y		Restrict. Indicates that the caller cannot activate features while the involved in an E911 call through the virtual facility group. These features can be call waiting or call transfer. Enter Y because the table editor does not accept any other value.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example. In the example, the feature selects a route for a 911 call to a primary PSAP through a E911 virtual facility group. Enter ESN 114, ESCO 0621, SNPA 613, ECPH 0, and Originator Hold selected in table VIRTGRPS.

MAP example for table VIRTGRPS

KEY				DATA				OPTIONS		
911VFG	SIZE	15	E911	114	0621	613	0	Y	Y	\$

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Error messages for table VIRTGRPS

The following error messages apply to table VIRTGRPS.

Error messages for table VIRTGRPS

Error message	Explanation and action
NPA NOT PRESENT IN TABLE E911NPD	When E911_PSAPS_USING_1_INFO_DIGIT is set to true, a serving numbering plan area entry is not in table E911NPD. When an attempt to add the serving numbering plan area to an E911 trunk in table TRKGRP or to an E911 virtual facility group in table VIRTGRPS occurs, this error message appears. Add the SNPA to table E911NPD before you enter data in TRKGRP or VIRTGRPS.
NO OPTIONS ARE SUPPORTED FOR USE WITH E911 VFGs. THEY CANNOT BE ADDED	When an attempt to add options to an E911 virtual facility group in table VIRTGRPS occurs, this error message appears. Enter a \$ in the OPTIONS field.
ERROR: E911 RESTRICT bool must always be Y. This may change in a later BCS.	The system generates this error message when you enter an N in Field RESTRICT. Enter Y in the RESTRICT field.

Originator hold

The tables that require datafill to implement VFG Support for E911 (Loc and/or the Isup/ANI Call) appear in the following table. The tables appear in the correct entry order.

Datafill requirements for VFG Support for E911 (Loc and/or the Isup/ANI Call) originator hold

Table	Purpose of table
VIRTGRPS	Virtual Facility Groups. This table defines the data for each virtual facility group and serves to turn on originator hold for an E911 virtual facility group.
TRKGRP (E911)	Trunk Group. Enter data in this table in the second tandem if you use the tandem-to-tandem configuration. This table serves to turn on originator hold for an E911 trunk group, for the tandem-to-tandem configuration.

Datafilling table VIRTGRPS

Table VIRTGRPS defines the data for each virtual facility group. The E911 Local Access feature introduces field ORIGHOLD to table VIRTGRPS for E911 virtual facility groups. Enter data in this field to turn on originator hold. The originator hold must be on for ringback.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Datafill for VFG Support for E911 (Loc and/or the Isup/ANI Call) for table VIRTGRPS appear in the following table. The fields that apply to VFG Support for E911 (Loc and/or the Isup/ANI Call) appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table VIRTGRPS

Field	Subfield or refinement	Entry	Explanation and action
	ORIGHOLD	Y or N	Originator hold. To turn on originator hold for the virtual facility group, enter Y. To turn off originator hold, enter N.

Datafill example for table VIRTGRPS

Sample datafill for table VIRTGRPS appears in the following example.

MAP example for table VIRTGRPS

KEY				DATA			OPTIONS		
911VFG	SIZE	15	E911	111	0621	919	Y	Y	\$

Datafilling table TRKGRP

Enter data in table TRKGRP, for E911 trunks, in the second tandem when you use the tandem-to-tandem configuration. The caller line connects to the first E911 tandem. The call routes through a virtual facility group to an operator trunk. The call arrives on the second tandem over an E911 trunk and terminates to a PSAP on the second tandem.

Enter the E911 trunk group that terminates on the second tandem with the ORIGHOLD field set to Y. This procedure supports originator hold, ringback and receiver-off-hook. Ringback to E911 Callers (NTXN59AA) describes ringback and receiver-off-hook.

Datafill for VFG Support for E911 (Loc and/or the Isup/ANI Call) for table TRKGRP appears in the following table. The fields that apply to VFG Support

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

for E911 (Loc and/or the Isup/ANI Call) appear in this table. See the data schema section of this document for a description of the other fields.

Datafilling table TRKGRP

Field	Subfield or refinement	Entry	Explanation and action
GRPINFO		See subfield.	This field has subfield ORIGHOLD.
	ORIGHOLD	Y or N	Originator hold. Enter Y to turn on originator hold for the E911 trunk group. Enter N to turn off originator hold.

Datafill example for table TRKGRP

Sample datafill for table TRKGRP appears in the following example.

MAP example for table TRKGRP

GRPKEY	GRPINFO
E911TRK	
E911 20 ELO NCRT 613 0 Y BELL 1 10 10 N 824 123	

Tools for verifying translations

An E911VFG works as a translation device for trunk-to-PSAP or line-to-PSAP calls. You can use standard pretranslations to translate 911 calls to an E911 virtual facility group. The following translation verification (TRAVER) examples illustrate how a 911 call routes to a primary PSAP through an E911 virtual facility group. The examples use emergency service number 114, emergency service central office 0621 and serving numbering plan area 613. The examples use these examples as the E911 VFG entered in table VIRTGRPS.

Several TRAVER examples of E911 calls appear below. Note that the example text appears first. The examples appear in the text order.

Call over ISUP trunk to E911

The example that illustrates TRAVER for the VFG Support for E911 feature is of an incoming 911 call. The incoming 911 call is from an ISUP trunk to an E911 virtual facility group.

Note: Incoming pretranslations marks calls as no prefix or direct dialing, like the example for 911 calls incoming on an ISUP trunk.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

Call from E911 virtual facility group to a PSAP

The progress of the previous TRAVER example from the E911 virtual facility group to the PSAP appears in this example.

Call over ISUP trunk to virtual facility group with RTEVFG option

This one-step example of an ISUP to a virtual facility group uses the RTEVFG option to combine the previous two examples.

Call over SC trunk

In this example, the incoming pretranslations must mark the call as direct dialing. The trunk that comes from the end office marks the call as OA. Billing does not occur in the end office. A billing record is not present for an E911 call incoming on an SC trunk. This feature does not affect billable calls.

Call over SC trunk with no automatic number identification

This example treats the call as an automatic number identification failure. For E911 calls with operator number identification and automatic number identification failure, calls route to a PSAP and not a position. This feature does not affect billable automatic number identification failure or operator number identification calls incoming on this SC trunk.

Call from foreign exchange trunk to E911 virtual facility group

In this example, the pretranslator selector for the foreign exchange trunk pretranslator is T. Refer to Feature limits for more information.

Call from line on E911 tandem to E911 virtual facility group

The output from TRAVER for an E911 call to an E911 virtual facility group appears in this example. The E911 call is from a line on the E911 tandem

Call from E911 virtual facility group to PSAP

The continuation of the previous TRAVER example from the E911 virtual facility group to which the call routes appears in the following example. Use this format to give the subscriber number (ANI ID DIGIT + 7 DIGIT DN).

Call from line on E911 tandem to PSAP with the RTEVFG option

The RTEVFG option combines the line and the E911 virtual facility group TRAVERs of the previous two examples.

Line to E911 virtual facility group with automatic number identification failure

The call routes without the subscriber number in this example. The system sends ESN 114, ESCO 0621 and SNPA 613 from the virtual facility group data to the PSAP. You can use the RTEVFG option in this event.

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

The output from TRAVER that verifies VFG Support for E911 (Loc and/or the Isup/ANI Call) appears in the following examples.

TRAVER example of a 911 call over an ISUP trunk to an E911 virtual facility group

```
>TRAVER TR ISUP2WIT '911' B
WARNING:  CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
TABLE TRKGRP
ISUP2WIT      IT 0 ELO NCRT 2W NIL MIDL 519 PEA NSCR 919 000 N N $
TABLE STDPRTCT PEA ( 1) ( 0)
. SUBTABLE STDPRT
. 911 911 T DD 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. . 3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT 1 T120

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


VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call from an E911 virtual facility group to a PSAP

```
>TRAVER V 911VFG '911' B N ST 06215001 ST
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y $
NPA IN VFG DATA USED AS CALLING PARTY NPA.
TABLE E911SRDB
613 0621 5 001 111
TABLE E911ESN
111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP1 6212005 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 0621 0621 DN 613 0621
TABLE TOFCNAME
613 621
TABLE DNINV
613 0621 2005 FEAT ACD ACDPSAP1 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE                6136212005          ST
  BILL                   6215001

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call over an ISUP trunk to a virtual facility group with the RTEVFG option

```
>TRAVER TR ISUP2WIT '911' B RTEVFG ALL N ST 06215002 ST
WARNING:  CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
TABLE TRKGRP
ISUP2WIT      IT 0 ELO NCRT 2W NIL MIDL 519 PEA NSCR 919 000 N N $
TABLE STDPRTCT
PEA ( 1) ( 0)
. SUBTABLE STDPRT
. 911 911 T DD 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. . 3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
--->
---> Resolving VFG: 911VFG Route with calling digits 911
--->
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y $
NPA IN VFG DATA USED AS CALLING PARTY NPA.
TABLE E911SRDB
613 0621 5 001 111
TABLE E911ESN
111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP1 6212005 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call over an ISUP trunk to a virtual facility group with the RTEVFG option

```
. SUBTABLE HNPACODE
. 621 0621 DN 613 621
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 2005 FEAT ACD ACDPSAP1 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE                6136212005          ST
  BILL                   6215001

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)**TRAVER example for a 911 call over an SC trunk**

```

>TRAVER TR OTWAON52CG02  '911' B RTEVFG ALL N ST2P 06215001 ST
TABLE TRKGRP
OTWAON52CG02 SC 44 NPDGP NCRT NIL N 519 TCA3 DD ONHOOK ONHOOK 30 5
      5 IC LIDL 0 BELL SUPER CAMA NONE REV Y N $
TABLE STDPRTCT
TCA3 ( 1) ( 0)
. SUBTABLE STDPRT
WARNING:  CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
. 911 911 T DD 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. .   3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N
TABLE BILLCODE
OTWAON52CG02 0621 NLCA NSCR 613621 CAM0

+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

1 VFG: 911VFG           911           ST
  BILL           6136215002

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
--->
---> Resolving VFG: 911VFG Route with calling digits 911
--->
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y $
NPA IN VFG DATA USED AS CALLING PARTY NPA.
TABLE E911SRDB
613 0621 5 001 111
TABLE E911ESN
111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP1 6212005 N

```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example for a 911 call over an SC trunk

```
TABLE HNPACONT
613 911 2 ( 38) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 621 621 DN 613 621
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 2005 FEAT ACD ACDPSAP1 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE                6136212005          ST
  BILL                    6215001

1 TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example for a 911 call over an SC trunk with no automatic number identification

```

>TRAVER TR OTWAON52CG02 '911' B RTEVFG ALL
TABLE TRKGRP
OTWAON52CG02 SC 44 NPDGP NCRT NIL N 519 TCA3 DD ONHOOK ONHOOK 30 5
      5 IC LIDL 0 BELL SUPER CAMA NONE REV Y N $
TABLE STDPRTCT
TCA3 ( 1) ( 0)
. SUBTABLE STDPRT
WARNING:  CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
. 911 911 T DD 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. .      3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
--->
---> Resolving VFG: 911VFG Route with calling digits 911
--->
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y $
CALL DEFAULT ROUTED
TABLE E911ESN
114 Y ACDPSAP2 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP2 6212000 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 621 621 DN 613 621

```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example for a 911 call over an SC trunk with no automatic number identification

```
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 6000 FEAT ACD ACDPSAP2 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE                6136216000          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example for a 911 call from a foreign exchange trunk to an E911 virtual facility group

```

>TRAVER TR CARYFX '911' B RTEVFG ALL N ST2P 06136215001 ST
TABLE TRKGRP
CARYFX PX 10 ELO NCRT 2W NIL MIDL N P621 PBX1 613 LCL NONE TSPS L613
  N N 32 NIL
      7224121 DIALTN N Y MCI Y LATA1 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) ( 0)
  . SUBTABLE STDPRT
WARNING:  CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING.  CALL TYPE
DEFAULT IS NP.  PLEASE REFER TO DOCUMENTATION.
  . 911 911 T OA 0 IBNRTE 7 3 3 NONE
  . . TABLE IBNRTE
  . .   7 VFG N N N 911VFG 0
  . . EXIT TABLE IBNRTE
  . 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
N11 CALLS DO NOT USE PIC TO ROUTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911          ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
--->
---> Resolving VFG: 911VFG Route with calling digits 911
--->
TABLE VIRTGRPS
911VFG SIZE 1 E911 111 0621 613 N Y $
TABLE E911SRDB
613 0621 5 001 200

```


VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example for a 911 call from a foreign exchange trunk to an E911 virtual facility group (continued)

```
TABLE E911ESN
200 Y TANDM2 NONE NONE NONE NONE NONE
TABLE E911PSAP
TANDM2 7772005 Y
TABLE HNPACONT
613 911 2 ( 37) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 777 777 HRTE 911
. SUBTABLE RTEREF
. 911 N D E911 OGOP 3 0621 N
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 E911OGOP                6212005          ST2P
  BILL                    06136215001  ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of 911 call from a line on an E911 tandem to an E911 virtual facility group

```

>TRAVER L 6215001 '911' B
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 N TSPS 10 NIL NILSFC LATA1 0
  NIL NIL 00 Y RESGRP 0 2
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
613 621 5001
  (PUBLIC (NAME TOM_WATSON) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE STDPRTCT
P621 ( 1) ( 0)
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 911 911 T OA 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. . 3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
OVERLAP CARRIER SELECTION (OCS) APPLIES
N11 CALLS DO NOT USE PIC TO ROUTE
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911      ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call from an E911 virtual facility group to a PSAP

```
>TRAVER V 911VFG '911' B N ST 06215001 ST
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y $
NPA IN VFG DATA USED AS CALLING PARTY NPA.
TABLE E911SRDB
613 621 5 001 111
TABLE E911ESN
111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP1 6212005 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 621 621 DN 613 621
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 2005 FEAT ACD ACDPSAP1 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE          6136212005      ST
  BILL            6136215001

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call from a line on an E911 tandem to a PSAP using the RTEVFG option

```
>TRAVER L 6215001 '911' B RTEVFG ALL N ST 062165001 ST
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSFC LATA1 0
  NIL NIL 00 Y RESGRP 0 2
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
613 621 5001
  (PUBLIC (NAME TOM_WATSON) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE STDPRTCT
P621 ( 1) ( 0)
  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
  . 911 911 T OA 0 IBNRTE 3 3 3 NONE
  . . TABLE IBNRTE
  . . 3 VFG N N N 911VFG 0
  . . EXIT TABLE IBNRTE
  . SUBTABLE AMAPRT
  . KEY NOT FOUND
  . DEFAULT VALUE IS: NONE OVRNONE N
OVERLAP CARRIER SELECTION (OCS) APPLIES
N11 CALLS DO NOT USE PIC TO ROUTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911      ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++
--->
---> Resolving VFG: 911VFG Route with calling digits 911
--->
TABLE VIRTGRPS
```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a 911 call from a line on an E911 tandem to a PSAP using the RTEVFG option (continued)

```
NPA IN VFG DATA USED AS CALLING PARTY NPA.
TABLE E911SRDB
613 621 5 001 111
TABLE E911ESN
111 Y ACDPSAP1 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP1 6212005 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 621 621 DN 613 621
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 2005 FEAT ACD ACDPSAP1 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE          6136212005      ST
  BILL            6136215001

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

VFG Support for E911 (Loc and/or the Isup/ANI Call) (continued)

TRAVER example of a line to an E911 virtual facility group with ANI failure

```

>TRAVER L 6215001 '911' B RTEVFG ALL
TABLE LINEATTR
0 1FR NONE NT FR01 0 613 P621 L613 N TSPS 10 NIL NILSFC LATA1 0
  NIL NIL 00 Y RESGRP 0 2
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
613 621 5001
  (PUBLIC (NAME TOM_WATSON) $)$ $
TABLE DNGRPS
TUPLE NOT FOUND
TABLE STDPRTCT
P621 ( 1) ( 0)
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 911 911 T OA 0 IBNRTE 3 3 3 NONE
. . TABLE IBNRTE
. . 3 VFG N N N 911VFG 0
. . EXIT TABLE IBNRTE
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
OVERLAP CARRIER SELECTION (OCS) APPLIES
N11 CALLS DO NOT USE PIC TO ROUTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 VFG: 911VFG          911      ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

VFG Support for E911 (Loc and/or the Isup/ANI Call) (end)

TRAVER example of a line to an E911 virtual facility group with ANI failure (continued)

```
--->
---> Resolving VFG: 911VFG Route
with calling digits 911
--->
TABLE VIRTGRPS
911VFG SIZE 5 E911 114 0621 613 N Y
$
CALL DEFAULT ROUTED
TABLE E911ESN
114 Y ACDPSAP2 FIRE AMBUL NONE NONE NONE NONE
TABLE E911PSAP
ACDPSAP2 6216000 N
TABLE HNPACONT
613 911 2 ( 36) ( 1) ( 0) ( 0)
. SUBTABLE HNPACODE
. 621 621 DN 613 621
TABLE TOFCNAME
613 621
TABLE DNINV
613 621 6000 FEAT ACD ACDPSAP2 PRIM 0 0
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FEATURE          6136216000      ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120

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

SERVORD

The VFG Support for E911 (Loc and/or the Isup/ANI Call) does not use SERVORD.

3 Datafilling GETS0001

The following chapter describes the GETS0001 functionality.

GETS HPC

Ordering codes

Functional group ordering code: GETS0001

Functionality ordering code: N/A

Note: The use of High Probability Connection (HPC) Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communication System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

Release applicability

NA008 and up

GETS HPC was introduced in NA008.

Prerequisites

To operate, GETS HPC has the following prerequisites:

- BASE0001 Base Layer
- TEL00001 Telecom Layer
- BAS00003 BAS Generic
- ISP70001 Base ISUP

Description

Government Emergency Telecommunication Service (GETS) is a service provided by the Office of the Manager, National Communications System (OMNCS) to meet national security and emergency preparedness (NS/EP) requirements for the use of public telephone networks by Federal, state and local government and other authorized users. Developed in response to White House tasking, GETS provides emergency access and specialized processing in local and long distance telephone networks.

The authorized user dials a GETS access number and is connected to the Personal Identification Number (PIN) authorization system in the IEC

GETS HPC (continued)

network. The user then hears an announcement and is prompted for a PIN validation number. Following validation the user is prompted for the destination number.

The HPC feature allows authorized users to originate a GETS call with a High Probability of Completion (HPC) in the network, and significantly improves the completion of emergency calls under severe network congestion and damaged conditions. HPC is to be employed during periods of national emergencies, such as natural disasters (hurricanes, earthquakes, etc.) or hostile actions (such as the terrorist bombing of Oklahoma City), which generate these conditions.

The HPC feature provides users with enhanced routing and priority treatment in the public switch voice network. The implementation of HPC for the GETS software in the NA008 software release consists of the following functionalities:

- Set High Probability of Completion (Set-HPC)
- Pass High Probability of Completion (Pass-HPC)
- High Probability of Completion Trunk Queuing (HPC-TQ)
- Traffic measurements

The NA009 software release consists of the following functionalities:

- Network Management Control Exemptions
- Ability to set SS7 IAM message priority for HPC calls and non-HPC calls
- Glare Handling Interaction for Queued HPC calls
- Continuity Test (COT) Failure Interaction for HPC calls
- HPC-TQ Scanning for Idle Trunk Member
- HPC Call Recognition for calls originating from Attendant Consoles
- TRAVER Recognition of HPC
- EADAS Accumulation and Transmission of GETS HPC OM data

Operation

Government Emergency Telecommunications Service High Probability of Completion (GETS HPC) is activated through the software optionality control (SOC) utility. Once GETS HPC is activated, calls are screened against directory number patterns datafilled in table HPCPATTN. A call matching the HPC pattern will be marked as an HPC, and will be offered to queued trunk groups, with trunk option HPCTQ in table TRKOPTS, before any other call.

GETS HPC (continued)

The HPCTQ feature in table TRKOPTS queues an HPC call against a busy trunk group in a route list until a member of that trunk group becomes idle, or advances the call to the next treatment if a specified maximum queueing time has elapsed. As soon as a trunk group member becomes idle, it is offered to the queued call before any other calls are processed.

A GETS HPC calls, upon seizing an ISUP trunk will pass the HPC identity to subsequent offices, by the setting of the calling party's category (CPC) parameter of the SS7 call origination message IAM to National Security/Emergency Preparedness (NS/EP). The HPC identity is passed from office to office via the ISUP message.

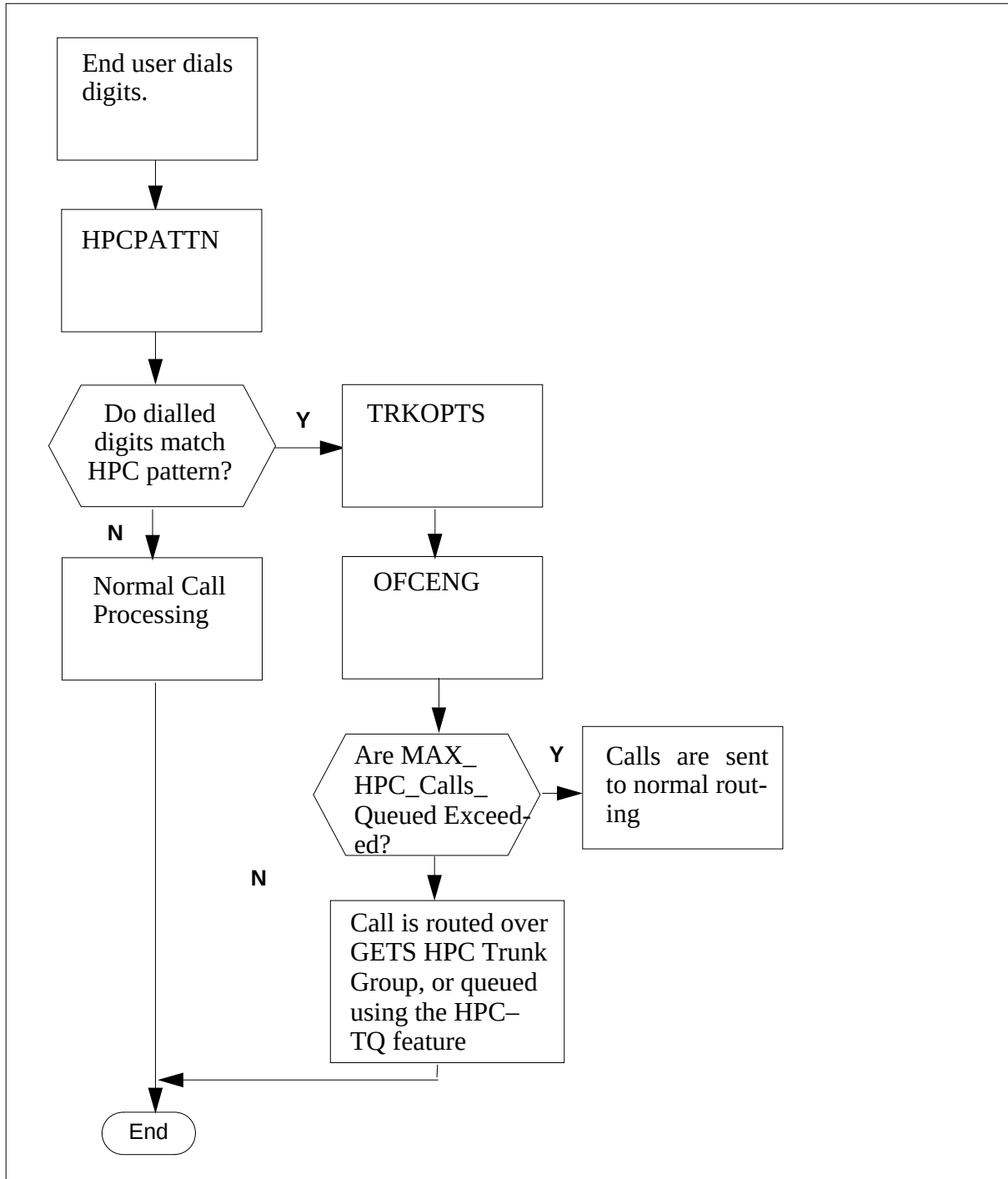
If the HPC call has exceeded the MAX_HPC_CALLS_QUEUED parameter in table OFCENG, the HPC call will be held on queue, but no new calls will be accepted.

Translations table flow

The GETS HPC translations tables are described in the following list:

- Table HPCPATTN
- Table TRKOPTS
- Table OFCENG

The GETS HPC translation process is shown in the flowchart that follows.

GETS HPC (continued)**Table flow for GETS HPC**

GETS HPC (continued)

Limitations and restrictions

The following limitations and restrictions apply to GETS HPC:

- An HPC call respects restrictions non-HPC features have placed on a subscriber's line, unless otherwise specified in this document. For example, an agent will be prevented from dialing long distance to an HPC access number if the subscriber's line is restricted from placing long distance calls.
- A called party number returned by the SCP as part of E800, or AIN Primer (AIN 0.0) feature processing are not subject to HPC Call Recognition processing. (No comparison is made against the DN returned from the SCP.) (An E800 number dialed by the user, or an AIN 0.1 response from the SCP is subject to HPC Call Recognition processing.)
- The HPC Call Recognition process requires that all the dialed digits be present before comparing the digits to the HPC database patterns. As a consequence, overlap outpulsing is not permitted for HPC calls.
- The Set-HPC feature is limited to the trunk agents supported by Forward HPC Identity.
- The HPC call recognition process supports call re-translation from VFG, only if the original calling agent is supported by the HPC Call Recognition.
- The Pass-HPC feature is limited to the trunk agents supported by HPC Call Recognition Based on SS7 IAM, and trunk agents supported by Forward HPC Identity.
- DMS switches use only the CPC parameter of the incoming SS7 IAM message to determine whether the call is an HPC call. The message priority of the incoming SS7 IAM message is not used in the HPC call recognition process.
- If the GETS SOC state is IDLE and the CPC parameter of the incoming SS7 IAM message is NS/EP, the call is not marked as an HPC call for GETS processing. However, the received CPC parameter value is forwarded to the next office if the call is routed via an SS7 trunk supported by Forward HPC Identity.
- Once the call is routed out of the processing office, the call is no longer eligible for HPC-TQ processing in that office, unless another feature causes the call to route again. That is, if the route busy indication is received from another office via SS7 signaling, then it is the responsibility of other features to cause the call to route again.
- If a glare condition occurs after an idle trunk is offered to the queued HPC call, the glare handling procedure applies. Assignment of HPCTQ option on a two way trunk group may increase the occurrence of a glare condition

GETS HPC (continued)

particularly when HPCTQ is assigned to both ends of the two way trunk group.

- If a continuity test failure occurs after an idle trunk is offered to the queued HPC call, then the normal continuity test failure handling procedure applies as the HPC-TQ processing is completed after the idle trunk is offered to the queued HPC call.
- Idle trunks, which are made available as a result of maintenance action are not offered to queued HPC calls. An example of this is trunk transitions from 'lock-out' state to 'idle' state, either through manual intervention or automatic process.
- Queued calls are cleared (taken down) during all restarts and SWACTs.
- The MEM selector is incompatible with HPC-TQ. HPC-TQ is not invoked when the MEM selector is active. MEM selector limits the range of trunk group members offered to a call.
- The CND route selector with RND condition may cause a route element with HPC-TQ to be skipped.
- The NOT route selector will cause a route element with HPC-TQ to be skipped.
- If an announcement is datafilled for an instance of an ATC trunk group, a warning is issued indicating a potential billing problem created by providing the announcement to the caller. The warning message is "The announcement will not be played when the incoming agent is an IT trunk group during Call Processing Time".
- During call processing time, if an announcement is to be provided to an equal access call incoming on an IT trunk group, the HPC-TQ feature does not provide the announcement to the caller. The HPC-TQ feature processes the instance of HPC-TQ as if no announcement were datafilled.
- In the event of announcement failure, the HPC-TQ feature provides appropriate signaling but the announcement is not heard.
- A datafilled announcement is played to the caller, even if the call has been identified as a data call.
- An HPC-TQ call will be cleared when protocol or feature timers (such as 3WCPUB) have expired, prior to the queuing time of HPC-TQ.
- A GET HPC call encountering an AIN Primer trigger, which returns an Analyze Route response containing multiple routes or trunk groups, will not attempt the remaining routes or trunk groups after HPC-TQ trunk queuing occurs.
- HPC-TQ interactions with DCR and NWM controls are not supported.

GETS HPC (continued)

Interactions

The following paragraphs describe the interactions between GETS HPC and other functionalities.

Advanced Intelligent Network (AIN)

The AIN functionality enables end office call processing to use centralized service logic programs located at Service Control Points (SCP), which determine how AIN calls proceed for further call processing. Queries and responses are exchanged between the DMS SuperNode end office equipped with AIN functionality and the SCP using SS7.

GETS HPC interacts with AIN in the following ways:

- HPC Call identity is retained before, during, and after AIN feature processing.
- If the SCP response instructs the office to perform digit analysis on the SCP supplied called party number and this call is not marked as an HPC call, then the HPC call recognition processing is performed on the new called party number.
- If AIN Default Routing is activated and provisioned with a directory number and this call is not marked as an HPC call, then the HPC call recognition processing is performed on the called party number supplied by AIN Default Routing.
- Call forwarding via an AIN Forward Call SCP response retains the HPC identity.

Automatic Line (AUL)

The AUL feature connects to a predetermined location when an off-hook condition is reported from a line with the AUL feature. The calling station does not receive dial tone. The automatic connection is made to a stored number consisting of 1 to 11 digits.

Calls made using the AUL feature are subject to HPC call recognition processing.

Call Conferencing/Call Transfer

The Call Conferencing and Call Transfer feature packages allow an end user to add an additional party to an existing connect for a three-way conference, or to transfer a call, using Call Transfer (CXR) or Three-Way Call (3WC).

If a new call is initiated by the originating or the terminating subscriber from an HPC call in conversation phase as part of call conferencing or call transfer,

GETS HPC (continued)

the new call does not inherit the HPC call identity. HPC Call recognition processing is performed on the second leg.

The Call Forward feature package allows the subscriber to forward an incoming call from one base station to another. There are over fourteen “flavours” of call forward. Some examples are:

- Call Forward Universal ((CFU) for IBN), and Call Forward All Calls (CFW) for POTS and RES) - forwards all incoming calls from the subscriber's base station to the forwarded base station.
- Call Forward Busy ((CFB) for IBN), and Call Forward Busy Line ((CFBL) for POTS and RES) - provides the ability to forward an incoming call from the subscriber's base station to another station when the subscriber line is busy.
- Call Forward Don't Answer ((CFD) for IBN), Call Forward Don't Answer ((CFDA) for POTS and RES); also Call Forward Group Don't Answer ((CFGDA) for POTS and RES hunt groups) and Call Forward Group Don't Answer ((CFGD) for IBN hunt groups) - provides the ability to forward an incoming call from the subscriber's base station to another station when the subscriber does not answer ringing. A time-out occurs and the call is forwarded.

An HPC call forwarded by any Call Forwarding feature retains its HPC identity.

A non-HPC call which is call forward is subject to HPC call recognition processing on the forwarded leg.

Call Forward

The Call Forward feature package allows the subscriber to forward an incoming call from one base station to another. There are over fourteen “flavours” of call forward. Some examples are:

- Call Forward Universal ((CFU) for IBN), and Call Forward All Calls (CFW) for POTS and RES) - forwards all incoming calls from the subscriber's base station to the forwarded base station.
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- Call Forward Don't Answer ((CFD) for IBN), Call Forward Don't Answer ((CFDA) for POTS and RES); also Call Forward Group Don't Answer ((CFGDA) for POTS and RES hunt groups) and Call Forward Group Don't Answer ((CFGD) for IBN hunt groups) - provides the ability to forward an

GETS HPC (continued)

incoming call from the subscriber's base station to another station when the subscriber does not answer ringing. A time-out occurs and the call is forwarded.

An HPC call forwarded by any Call Forwarding feature retains its HPC identity.

A non-HPC call which is call forward is subject to HPC call recognition processing on the forwarded leg.

Speed Call

The Speed Call feature package contains the following options:

- Speed Calling Long List (L30) (SC2): allows subscribers to program up to 30 frequently called numbers. The two-digit speed calling codes available for SC2 range from 20 to 49.
- Speed Calling Long List (L50) (SC3): allows subscribers to program up to 50 frequently called numbers. The two-digit speed calling codes available for SC3 range from 20 to 69.
- Speed Calling Short List (SC1): allows subscribers to program up to eight frequently called numbers. The one-digit speed calling codes available for SC1 range from 2 to 9.

Speed Calling features are subject to HPC call recognition processing if the call is not already marked as an HPC call.

Warmline (WML)

A line with the WML feature is associated with another directory number ([DN] [target warm line DN]). When the WML subscriber goes off-hook, a timer is started. If dialing does not begin before the timer expires, the subscriber's call is automatically set up to a target warm line DN. If dialing begins before the timer expires, the timer is canceled, and normal call processing continues.

By dialing two octothorpes (##), the subscriber can avoid the time-out period and immediately outpulse to the target warm line DN.

The target warm line DN is initially assigned by the operating company. If permitted, the subscriber can change this line.

The WML feature is subject to HPC call recognition processing.

GETS HPC (continued)**Intra-nodal Interactions**

Feature key activation and flash initiations are ignored in an office in which HPC-TQ processing is taking place.

When both features AIN Multiple Carrier Routing (MCR) and NextEventList[network_busy] and HPC-TQ are active on the same call, HPC-TQ is completed first.

GETS HPC calls forwarded by the Call Forward Don't Answer feature, to a busy trunk assigned HPC-TQ, is not queued. The normal behavior of Call Forward features is to continue to ring the original called party. GETS HPC preserves this behavior

Inter-nodal Interactions

If a GETS HPC call is queued on a trunk group (waiting for an idle trunk), and a flash is initiated from the originating subscriber (in a previous office), the flash is processed as normal (non-HPC) in that office.

Billing

GETS HPC does not affect billing.

Datafilling office parameters

GETS HPC does not affect office parameters.

Datafill sequence

The following table lists the tables that require datafill to provide GETS HPC functionality.

Datafill tables required for GETS HPC

Table	Purpose of table
HPCPATTN	Contains digit patterns for calls to be recognized as HPC calls.
TRKOPTS	Contains the HPCTQ option on a trunk group.
OFCENG	Contains office parameters MAX_HPC_CALLS_QUEUED to set the maximum number of calls that can be held simultaneously in trunk group queues in the entire switch. HPC_IAM_PRIORITY to provide the IAM message priority value on an office-wide basis for HPC calls. NORM_CALL_SS7_IAM_MSG_PRIORITY to provision the default SS7 message priority on an office-wide basis for non-HPC (or normal) calls.
OFCVAR	Contains office parameter HPC_EGRESS_QUEUING, which enables or disables HPC trunk queuing on all egress trunk groups in an office.

GETS HPC (continued)

Datafilling table HPCPATTN

The following table shows the datafill specific to GETS HPC for table HPCPATTN.

Datafilling table HPCPATTN

Field	Subfield or refinement	Entry	Explanation and action
KEY		3, 6 or 10 digits numeric pattern	Enter the digit patterns which are to be used to identify calls as HPC calls. Note: If a specific pattern (for example 416722) exists in the database and a generic pattern (for example 416) is entered, the request is disallowed. Similarly, if a generic pattern (such as 710) exists in the database and a specific pattern (for example 7107221234) is entered, the request is disallowed.

Datafill example for table HPCPATTN

The following example shows sample datafill for table HPCPATTN.

MAP display example for table HPCPATTN

KEY

7106274387

711

710626

GETS HPC (continued)**Error messages for table HPCPATTN**

In addition to the standard DMS table control error messages, the HPC-specific error message that can be displayed when attempting to datafill table HPCPATTN is provided below:

Error messages for table HPCPATTN

Error message	Explanation and action
HPC patterns must be 3, 6 or 10 digits	An attempt has been made to datafill table HPCPATTN with an incorrect HPC digit pattern.
HPC patterns table is full	An attempt has been made to datafill a 6th pattern in the table.

Datafilling table TRKOPTS

The following table shows the datafill specific to GETS HPC for table TRKOPTS.

Note 1: A warning is displayed when the HPCTQ option is assigned to an ATC trunk group and boolean ANNC is set to Yes.

Note 2: A warning will be printed when the HPCTQ option is assigned to an ATC trunk group, and boolean ANNC is set to yes.

Datafilling table TRKOPTS (Sheet 1 of 2)

Field	Subfield or refinement	Entry	Explanation and action
OPTKEY		see subfields	
	CLLI	1 through 16 alphanumeric characters	Common language location identifier. Enter the CLLI code of the trunk group on which the HPCTQ option is assigned.
	OPTION	HPCTQ or HPCNOTQ	Option name. Enter the name of the option to be assigned to the trunk group. Enter HPCTQ for HPC trunk queuing. Enter HPCNOTQ to deny HPC trunk queuing on specific egress trunk groups when the GETS HPC egress queuing feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEUING
OPTINFO		see subfields	

GETS HPC (continued)

Datafilling table TRKOPTS (Sheet 2 of 2)

Field	Subfield or refinement	Entry	Explanation and action
	OPTION	HPCTQ or HPCNOTQ	Option name. Enter HPCTQ to enable HPC trunk queuing and complete subfields TIMEOUT, MAXCALLS, PLAYANN, and ANNC. Enter HPCNOTQ to deny HPC trunk queuing on specific egress trunk groups when the GETS HPC egress queuing feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEUEING. Note: The HPCNOTQ option can only be assigned to egress trunk group types P2, PX, and PRA. When an attempt is made to assign the HPCNOTQ option on a trunk group other than P2, PX, or PRA, an error message is displayed.
	TIMEOUT	1 to 90	Time out. Enter the maximum time in seconds an HPC call will be held in the HPC queue.
	MAXCALLS	1 to 256	Maximum calls. Enter the maximum number of queued calls to be permitted on the HPCTQ trunk group.
	PLAYANN	Y or N	Play Announcement. Enter Y if an announcement is to be played during trunk queueing, otherwise enter N.
	ANNC	1 through 16 alphanumeric characters	Announcement. Enter the CLLI code of the announcement to be played, if PLAYANN is set to Y.

Datafill example for table TRKOPTS

The following example shows sample datafill for table TRKOPTS.

MAP display example for table TRKOPTS

OPTKEY		OPTINFO

ISUP_MONTREAL	HPCTQ	HPCTQ 5 100 Y ANNC1
ISUP_MONTREAL_2	HPCTQ	HPCTQ 5 100 N
PRATRKGP	HPCNOTQ	HPCNOTQ

GETS HPC (continued)**Error messages for table TRKOPTS**

In addition to the standard DMS table control error messages, the HPC-specific error messages that may be displayed when attempting to datafill table TRKOPTS are provided below:

Error messages for table TRKOPTS

Error message	Explanation and action
ERROR: The HPCTQ option can be assigned to T0, T2, IT, ATC and CELL trunk types.	An attempt has been made to assign the HPCTQ option to an unsupported trunk group. Verify correct trunk group.
ERROR: Must be 2W or OUTGOING trunk.	An attempt has been made to assign the HPCTQ option to an incoming trunk group. Assign the HPCTQ option to an outgoing, or a two-way trunk group.
HPCNOTQ option can only be assigned to P2, PX and PRA trunk types	An attempt was made to assign the HPCNOTQ option to a trunk group type other than P2, PX, or PRA.

Warning messages for table TRKOPTS

In addition to the standard DMS table control warning messages, the HPC specific error messages that may be displayed when attempting to datafill table TRKOPTS are provided below:

Warning messages for table TRKOPTS

Warning message	Explanation and action
WARNING: The announcement will not be played when the incoming agent is an IT trunk during Call Processing Time.	The warning is displayed when the HPCTQ option is assigned to an ATC trunk group. No action is required.
WARNING: The announcement will not be played. Only STND announcement type will be played.	This warning is displayed when the CLLI code provided for ANNC is a non-standard announcement. Enter the CLLI code for a standard announcement.

GETS HPC (continued)**Datafilling table OFCENG**

The following table shows the datafill specific to GETS HPC for table OFCENG.

Datafilling table OFCENG

Field	Subfield or refinement	Entry	Explanation and action
MAX_HPC_C ALLS_ QUEUED		0 to 1024	Enter the maximum number of HPCTQ calls to be held simultaneously in trunk group queues on the switch. Note: The default value of this parameter is 256.
HPC_IAM_ PRIORITY		ALWAYS_ ONE, ONE_OR_ HIGHER_ BASED_ON_I AM_RCVD	Enter the IAM message priority value on an office-wide basis for GETS HPC calls,
NORM_CALL _SS7_IAM_M SG_PRIORIT Y		ALWAYS_ ZERO, ALWAYS_ ONE, PASS_OR _ZERO, PASS_OR_ ONE	Enter the default SS7 message priority value for non-GETS HPC (normal) calls.

Datafill example for table OFCENG

The following example shows sample datafill for table OFCENG.

MAP display example for table OFCENG

PARMNAME	PARMVAL
MAX_HPC_CALLS_QUEUED	256
HPC_IAM_PRIORITY	ALWAYS_ONE
NORM_CALL_SS7_IAM_MSG_PRIORITY	ALWAYS_ZERO

GETS HPC (continued)**Error messages for table OFCENG**

Standard DMS table control error messages are employed when datafilling field MAX_HPC_CALLS_QUEUED in table OFCENG.

Datafilling table OFCVAR

The following table shows the datafill specific to GETS HPC for table OFCVAR.

Datafilling table OFCVAR

Field	Subfield or refinement	Entry	Explanation and action
HPC_EGRESS_QUEUING	Enabled	Y or N	Enter Y to enable HPC trunk queuing on egress trunks on an office-wide basis. The default value is N.
	Timeout	1 to 90	Enter the maximum time an HPC call can wait in an egress trunk queue for an available trunk.
	MaxCalls	1 to 256	Enter the maximum number of calls that can simultaneously queue in an egress trunk group queue.
	Treatment	NONE, TONE, or ANNC	Enter the treatment, tone or announcement to be provided to HPC calls queued on egress trunk groups. Enter NONE if no treatment is required.
	Annc	CLLI code	Enter the CLLI code of the announcement.

Translation verification tools

Translation verification (TRAVER), is a tool used by a craftsperson to verify the translation tables used by call processing and to ensure the validity of the datafill.

TRAVER has been updated to support HPC call processing by displaying the tuple of table HPCPATTN that is used to recognize an HPC call.

The following figure displays TRAVER output for an HPC Equal Access call that is subject to recursive translation. When the call completes the first pass of recursive translation, and the call is recognized as an HPC call, then all

GETS HPC (continued)

relevant information is displayed. If the call is not recognized as an HPC call during the second pass, a warning message is displayed to inform the user that this last result overrides the previous pass. A call may not be recognized as an HPC call during the second pass because of digit stripping.

GETS HPC (continued)**Example of TRAVER output for an HPC call**

```
>traver l 6251512 18196261513 b
TABLE LINEATTR
75 1FR NONE NT NSCR 5 613 P625 L625 TSPS 10 NIL NILSFC CLATA 0 NIL NIL 00 N $
```

[...]

% Trace deleted

```
TABLE STDPRTCT
P625 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 181 182 N DD 1 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
```

TABLE HPCPATTN

8196261513

An HPC pattern has been matched.

```
TABLE HNPACONT
613 Y 998 1 ( 157) ( 1) ( 90) ( 0) 3 $
```

[...]

% Trace deleted

```
TABLE STDPRTCT
P625 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10302 10302 EA DD 5 P EA28 BEL2 N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
```

```
. TABLE STDPRTCT
. EA28 ( 1) (65021) 0
. . SUBTABLE STDPRT
```

```
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
```

```
. . 18 18 EA DD 4 T NA BEL2 N
```

TABLE HPCATTN

TUPLE NOT FOUND

WARNING: This HPC recognition result overrides the previous one.

AIN Info Collected TDP: no subscribed trigger.

TABLE FNPA7DIG

TUPLE NOT FOUND

AIN Info Analyzed TDP: no subscribed trigger.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

GETS HPC (continued)

Example of TRAVER output for an non-HPC call (with AINRES option) GETS SOC not on

```
>traver l 6211088 6137234000 ainres r01 ar b
TABLE IBNLINES
HOST 0 0 01 04 0 DT STN RES 6211088 14 $
TABLE LINEATTR
14 INW WATO NT NSCR 0 613 P621 L613 NONE 10 NIL NILSFC NILLATA 0 NIL NIL 00 Y RESG271 0 0 $
%%Entries deleted
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.
. 6137 61385 N DD 3 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HNPACONT
613 Y 998 1 ( 161) ( 1) ( 107) ( 0) 3
. SUBTABLE HNPACODE
. 723 723 DN 613 723
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE HPCPATTN
TUPLE NOT FOUND
WARNING-The GETS SOC state is not ON.
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 723 $
TABLE DNINV
613 723 4000 D BLDN
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABEL TMTCTL
LNT ( 111)
. SUBTABLE TREAT
. BLDN Y T OFRT 50
. TABLE OFRT
. 50 S D VDN
. S D *FRAO
. S D LKOUT
. EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

GETS HPC (continued)**Example of TRAVER output for an HPC dialed call encountering an AIN trigger**

```

>traver l 6216503 6136216666 b
TABLE IBNLINES
HOST 00 0 01 09 0 DT STN RES 6216503 271 613 $
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL 00 Y RESG2 71 0 0 $
LCABILL OFF - BILLING DONE AN BSIS OF CALLTYPE
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 PODPTRIG
AIN Orig Attempt TDP: no subscribed trigger
TABLE NCOS
RESG271 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG271 NXLA RXCMN271 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RXCMN271
TUPLE NOT FOUND
Default from table XLANAME
RXCMN271
  (NET N N 0 N NDGIT N Y GEN ( LATTR 271) (EA NILC Y 0) $ $) $ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL 00 Y RESG2 71 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.
. 613621 613621 N NP 0 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N
TABLE HPCPATTN
613621666
An HPC pattern has been matched.

```

GETS HPC (continued)

Example of TRAVER output for an HPC dialed call encountering an AIN trigger (continued)

```
TABLE HNPACONT
613 Y 850 1 ( 105) ( 1) ( 107) ( 0) 2 $
. SUBTABLE HNPACODE
. 613 613 HNPAC 0
. 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
PODPTRIG INFOANAL
. PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
. . TABLE TRIGDIG
. . PODPDIG PODP 6136216666 PODP EVENT TCAP R02 TCPIP 0 $
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 +++
```

GETS HPC (continued)**Example of TRAVER output for HPC digits dialed from an AIN Response message**

```

>traver l 6216503 n cdn na 5146266046 tns na cic '0602' ainrea r02 ar b
Warning: Routing characteristics are present.
        Originator must be able to send in
        characteristics specified.
TABLE RTECHAR
. NACAR (CDN NA (TNS NA)$)$
TABLE IBNLINES
HOST 00 0 01 09 0 DT STN RES 6216503 271 613 $
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL 00 Y RESG2 71 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
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
TABLE NCOS
RESG271 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG271 NXLA RXCMN271 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE XLAMAP
. Tuple not found. Default is use original XLANAME.
TABLE IBNXLA: XLANAME RXCMN271
TUPLE NOT FOUND
Default from table XLANAME:
RXCMN271
      (NET N N 0 N NDGT N Y GEN ( LATTR 271) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL 00 Y RESG2 71 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
. NACAR P621 ( XLA NAT521)$
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.

```

GETS HPC (continued)

Example of TRAVER output for HPC digits dialed from an AIN response message (continued)

```
. 10602 10602 EA DD 5 P GEA2 GETS2 Y OFRT 602 5 20 Y
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N
. . TABLE OFRTMAP
. . . Tuple not found. Default to old index.
. . TABLE OFRT
. . . 602 CND EA INTNL SK3
. . . N D G613C7ATC4 0 N N
. . . N D G613C7IT2 15 D081 N
. . . CND ALWAYS SK 1
. . . N D G613C7IT1 15 D138 N
. . EXIT TABLE OFRT
TABLE PXLAMAP
. . Tuple not found. Default to old pretranslator name.
. TABLE STDPRTCT
. GEA2 ( 1 ) ( 0 ) 2
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 514 514 EA DD 0 T NA GETS2 Y OFRT 602 1 20 Y
. . . TABLE OFRTMAP
. . . . Tuple not found. Default to old index.
. . . TABLE OFRT
. . . . 602 CND EA INTNL SK 3
. . . . N D G613C7ATC4 0 N N
. . . . N D G613C7IT2 15 D081 N
. . . . CDN ALWAYS SK 1
. . . . N D G13C7IT1 15 D138 N
. . . . EXIT TABLE OFRT
. SUBTABLE AMAPRT
. KEY OT FOUND
. DEFAULT VALUE IS:  NONE OVRNONE N
TABLE HPCPATTN
5146266046
An HPC pattern has been matched.
TABLE HNPACONT
613 Y 850 1 ( 105 ) ( 1 ) ( 107 ) ( 0 ) 2 $
. SUBTABLE HNPACODE
. 514 514 FRTE 9
. SUBTABLE RTEMAP
. . Tuple not found. Default to old index
. SUBTABLE RTEREF
. . 9 S D OCAM
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
```

GETS HPC (continued)**Example of TRAVER output for HPC digits dialed from an AIN response message (continued)**

```

TABLE LCASCRCN
613 L6221 ( 85) MNDT N N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
EA:Local override does not apply to this call.
TABLE LATACLA
USEA1 514626 INTER INTER STD
TABLE OCCINFO
GETS2 0602 EAP Y Y Y N Y N N Y Y Y N LONG 61 FGRPD N N Y N N N N N Y N N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route OFRT 602 from Pretranslation
TABLE OFRTMAP
. Tuple not found. Default to old index.
TABLE OFRT
602 CND EA INTNL SK 3
N D G613C7ATC4 0 N N
N D G613C7IT2 D081 N
CND ALWAYS SK 1
N D G613C7IT1 15 D138 N
TABLE OFRTMAP
. Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 G613C7ATC3          5146266046      ST
2 G613C7IT2           D081            ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 T120
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```


GETS HPC (continued)

Example of TRAVER output for an EA Recursive Translation call

```
>traver l 6251512 18196261513 b
TABLE LINEATTR
75 1FR NONE NT NSCR 5 613 P625 L625 TSPS 10 NIL NILSFC CLATA 0 NIL NIL 00 N $

[...]
% Trace deleted

TABLE STDPRTCT
P625 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 181 182 N DD 1 NA
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
TABLE HPCPATTN
8196261513
An HPC pattern has been matched.
TABLE HNPACONT
613 Y 998 1 ( 157) ( 1) ( 90) ( 0) 3 $

[...]
% Trace deleted

TABLE STDPRTCT
P625 ( 1) (65021) 0
. SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. 10302 10302 EA DD 5 P EA28 BEL2 N
. SUBTABLE AMAPRT
. KEY NOT FOUND
. DEFAULT VALUE IS: NONE OVRNONE N
. TABLE STDPRTCT
. EA28 ( 1) (65021) 0
. . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO
DOCUMENTATION.
. . 18 18 EA DD 4 T NA BEL2 N
TABLE HPCATTN
TUPLE NOT FOUND
WARNING: This HPC recognition result overrides the previous one.
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.

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

GETS HPC (continued)

SERVORD

GETS HPC does not affect SERVORD.

GETS HPC (end)

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DMS-100 Family

North American DMS-100

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Emergency Services

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