

Oracle® Communications

EAGLE IDP-Related Features User's Guide



Release 47.1

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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Acronyms

The following table provides information about the acronyms and the terminology used in the document.

Table Acronyms

Acronym	Definition
AC	Area Code
CdPN	Called Party Numbers
CEP	CAMEL Application Part
CgPN	Calling Party Numbers
CSL	Common Screening List
CSP	Carrier Selection Point
EPAP	EAGLE Application Processor Provisioning
GRN	Generic Routing Number
GTA	Global Title Address
IEC	International Escape Code
LAC	Local Area Code
MSC	Mobile Switching Center
NAI	Nature of Address Indicator
NEC	National Escape Code
NPP	Numbering Plan Processor
SCP	Service Control Point

What's New in This Guide

This section introduces the documentation updates for Release 47.1 in Oracle Communications EAGLE IDP-Related Features User's Guide.

Release 47.1 -F88471-01, October 2023

There are no updates in the document for this release.

1

Introduction

This manual describes IDP-related features that provide mechanisms to process calls from prepaid subscribers to ensure correct charging and check credit status, and mechanisms for A-Party blacklist checking and routing of calls based on the Calling Party (A-Party).

1.1 Introduction

This manual describes the following features:

- Prepaid IDP Query Relay (IDP Relay) - Provides a mechanism to ensure the correct charging for calls from prepaid subscribers in a portability environment.
 - Service Portability - Allows an own-network subscriber to port to a different network technology with the same service provider.
 - S-Port Subscriber Differentiation - Can be used with the Service Portability feature to allow use of ASD digits to provide an additional Routing Number per own-network subscriber. (ASD digits, if provisioned, are used in place of GRN digits).
- IDP Relay-related features: IDPR Additional Subscriber Data (IDPR ASD) and IDPR Generic Routing Number (GRN) - Provide RTDB lookup to obtain ASD and GRN data for message formatting.
- IDP A-Party Blacklist - Provides subscriber blacklist checking on the Calling Party (A-Party or CGPN) number in the IDP CAMEL or INAP message, and routing of the call to a predetermined number when the call is flagged as blacklisted.
- IDP A-Party Routing - Provides routing of the IDP message based on the A-Party (Calling Party) in the message instead of the SCCP CdPA.
- IDP Service Key Routing - Provides routing of the IDP message based on the Service Key and EventTypeBCSM parameters in the message instead of the SCCP CdPA.
- IDP Screening for Prepaid - Provides a mechanism to decide, before routing calls to the prepaid engine, whether checking the credit status of prepaid subscribers is required.

1.2 Scope and Audience

This manual is intended for anyone responsible for installing, maintaining, and using Prepaid IDP Relay Query and IDP-related features of the Oracle Communications EAGLE. Users of this manual and the others in the EAGLE family of documents must have a working knowledge of telecommunications and network installations.

1.3 References

For more information, refer to the following documents:

- *Analyzed Information Features User's Guide*
- *Numbering Plan Processor (NPP) User's Guide*

- *Application B Card Hardware and Installation Guide*
- *EPAP Administration Guide*
- *Hardware Reference*
- *Commands User's Guide*
- *Database Administration - GTT User's Guide*
- *Database Administration - System Management User's Guide*
- *Measurements Reference*
- *Unsolicited Alarms and Information Messages Reference*

2

Prepaid IDP Query Relay Feature

The Prepaid **IDP** Query Relay feature (IDP Relay) provides a mechanism to ensure the correct charging for calls from prepaid subscribers in a portability environment.

2.1 Feature Description

This chapter describes the Prepaid IDP Query Relay (IDP Relay) feature and the following IDP Relay-related features:

- [IDP Relay Additional Subscriber Data Feature](#)
- [IDP Relay Generic Routing Number Feature](#)

IDP Relay interactions with the following features are described in this chapter; the features are described in separate chapters:

- [IDP A-Party Blacklist Feature](#)
- [IDP A-Party Routing and IDP Service Key Routing Features](#)

The Prepaid **IDP** Query Relay feature (IDP Relay) provides a mechanism to ensure the correct charging for calls from prepaid subscribers in a portability environment.

IDP Relay processes GT-routed INAP or CAP messages with ITU MTP/SCCP/TCAP parts and Opcode=IDP. It also processes Route on SSN INAP messages with GTI=0.

IDP Relay provides functions that handle complex numbering schemes and number conditioning, such as the following examples:

- The Nature of Address Indicator (NAI) could be used in a non-compliant manner (the NAI is set to International and the number format is not international).
- The Local Area Code (LAC) 2- byte field of the Local Area Identification (LAI) information element is used in one of the following ways:
 - As the Area Code in cases where the AC is needed but not provided in the CdPN
 - To determine how to format the outgoing CdPN in the IDP query
- The collect call Escape Codes 90 and 90909 might need to be stripped and re-inserted after the RN.
- The Carrier Selection Point (CSP) can be removed from the incoming number and sometimes re-inserted (as when the LAC is not equal to the AC).
- The RN for the CgPN might be needed when the call is identified as a collect call.
- Service Key selection could vary, and could require a change in the number of bytes present the Service Key.
- Unsegmented XUDT messages might be required.
- Sometimes the RN but not the SP, or the SP but not the RN, or both the RN and SP are required in the outgoing number format.

When Mobile Switching Centers (**MSCs**) in the network are configured to send IDP prepaid query messages through the EAGLE, the EAGLE intercepts the IDP query based on a set of configurable criteria, performs a number portability (RTDB) lookup on the called number, inserts the portability information (Routing Number or **HLR** Address), and forwards the IDP query to a prepaid **SCP** for processing. When a respective entry is found in the RTDB, any processing is controlled by NPP Service Actions and configuration option provisioning in the TTROPTS table. The CdPN can be modified with the portability information (Routing Number or HLR address) and the CgPN.

In standard IDP Relay processing, regardless of any actions performed on the IDP query by the IDP Relay feature, the query is always forwarded to the prepaid SCP (**PPSCP**) for processing. When the SCP receives the IDP query, all information necessary for call processing and billing is present. The IDP Relay feature alleviates the need to launch a separate number portability database query.

IDP Relay also provides the following functions:

- CONNECT, CONTINUE, or RELEASECALL responses - Provisioning can allow CONNECT, CONTINUE, or RELEASECALL responses to be sent based on the RTDB lookup results. A configuration option determines whether the CutAndPaste parameter is included in a CONNECT message that is sent from the Prepaid IDP Query Relay feature.
- Service Key-based GTA Routing (SK GTA Routing) - A provisioned Service Control Point (SCP) Global Title Address (GTA) value based on the Service Key can be used to replace the SCCP Called Party Address (CdPA) GTA in a message. This allows the IDP or IDPSMS message to be GTT routed to the provisioned SCP GTA instead of to the incoming SCCP Called Party Address (CdPA) GTA.

Number Portability Types

There are three types of Number Portability. IDP Relay supports all three types:

- Provider NP - the subscriber can move to another service provider and keep the same number
- Location NP - the subscriber can move to another location within the same service provider network and keep the same number
This manual describes Provider NP and Location NP together as "NP".
- Service NP - the subscriber can move to another service technology (**GSM** or **IS41**) within the same service provider network and keep the same number
This manual describes Service NP as "Service Portability" or "**S-Port**".

2.1.1 IDP Relay High Level Message Flow

IDP Relay processes messages in the following high-level message flow, as shown in [Figure 2-1](#) through [Figure 2-3](#):

- Service Selection
 - Component match
 - Service Selector IDPR or TTR
- Identify number type and context
 - ITU TCAP message with Op Code = IDP

- SCCP CdPA GTA matches an entry in the CSL GT list
- SK+BCSM present and matches a DS entry for the CSL SKBCSM list
- If the TTROPTS CGPACCCK configuration option indicates that an SCCP CgPA Check for a Country Code match (STPOPTS DEFCC) is to be made, the SCCP GTI must indicate that GT is present and the SCCP NAI must be International to allow the check to made.
- NPP Pre-processing
 - TCAP DN present
 - Number conditioning
- NPP Processing
 - The IDPRCDPN, IDPRCDPN2, IDPRCDPN3, or IDPRCDPN4 service is called
 - * Conditioning Actions
 - * Service Actions
 - * Formatting Actions
 - CgPN Lookup needed - IDPRCGPN service is called
 - * Conditioning Actions
 - * Service Actions
 - * Formatting Actions
- Post NPP Processing
 - Encode outgoing IDP message
- Peg measurements
- Pass message to GTT for routing; send CONNECT, CONTINUE or RELEASECALL response; or determine if IDP A-Party Routing is applicable.

Figure 2-1 Message Flow for IDP Relay - Sheet 1 of 3

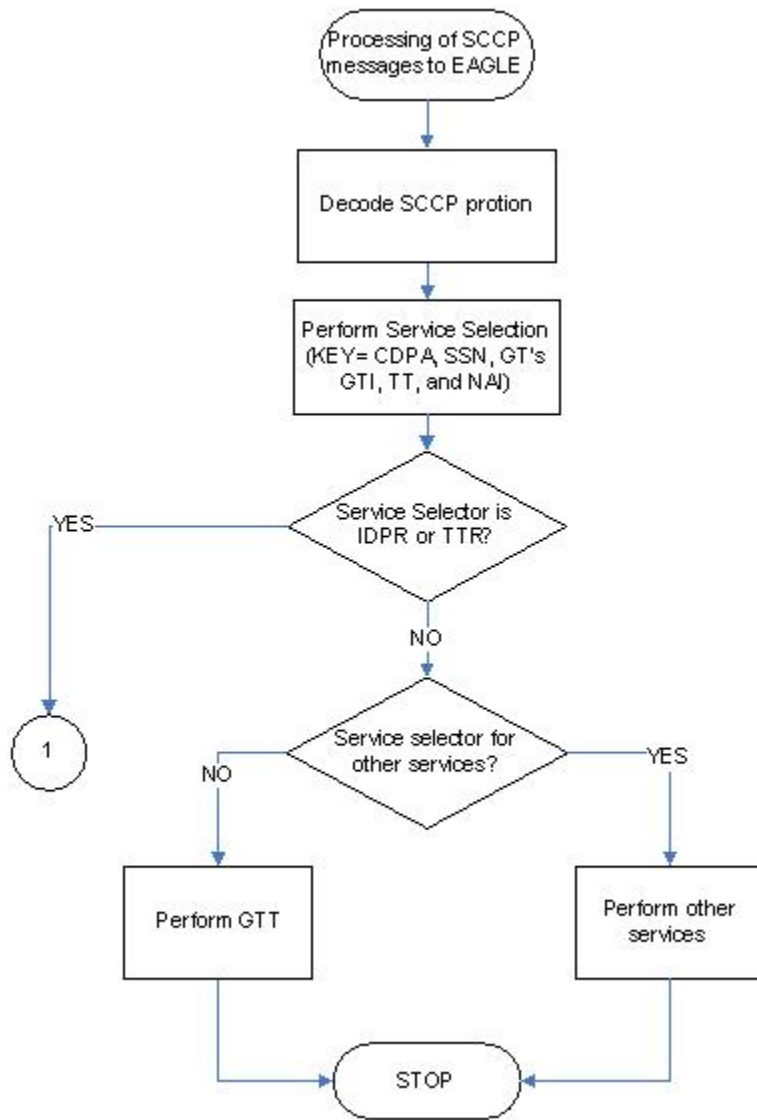


Figure 2-2 Message Flow for IDP Relay - Sheet 2 of 3

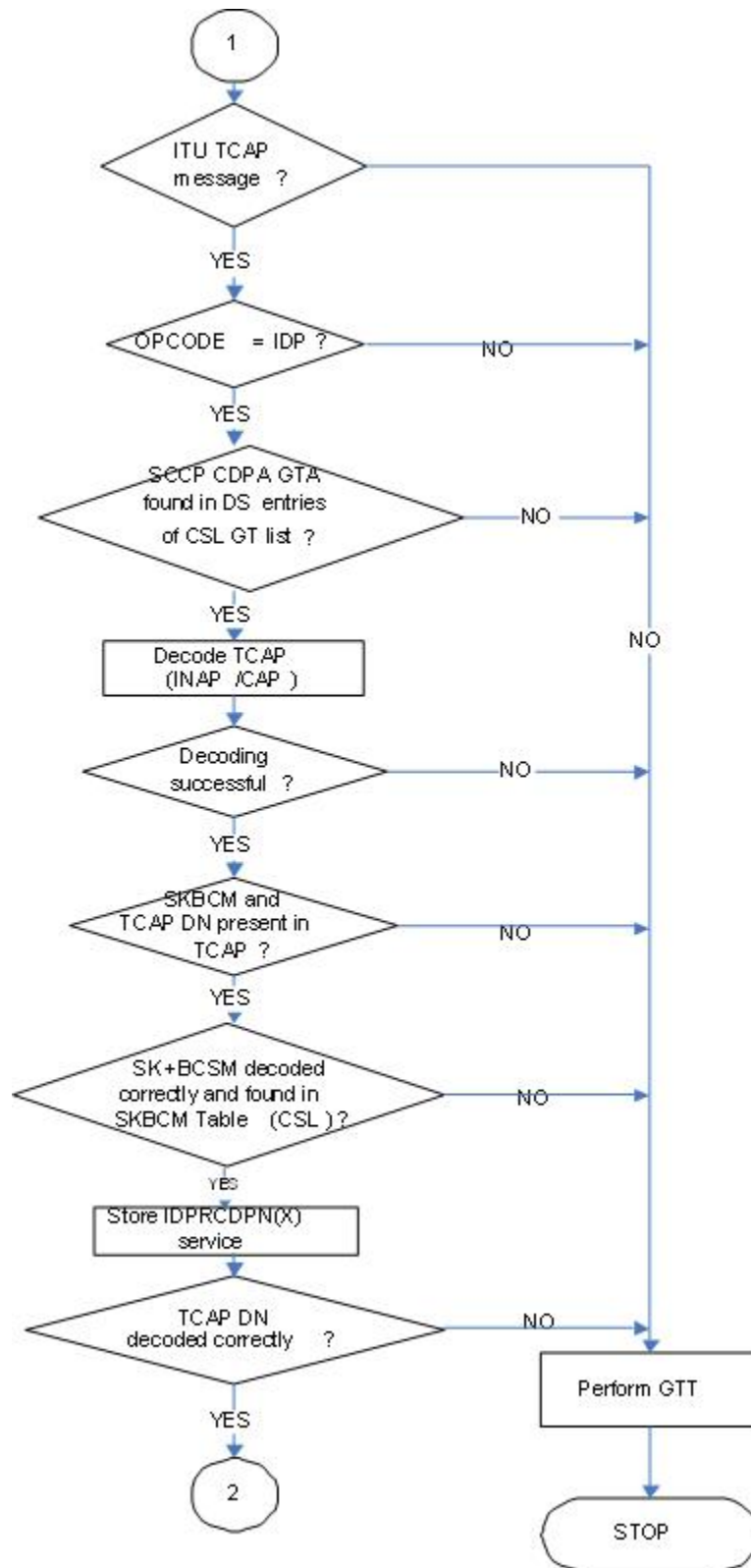
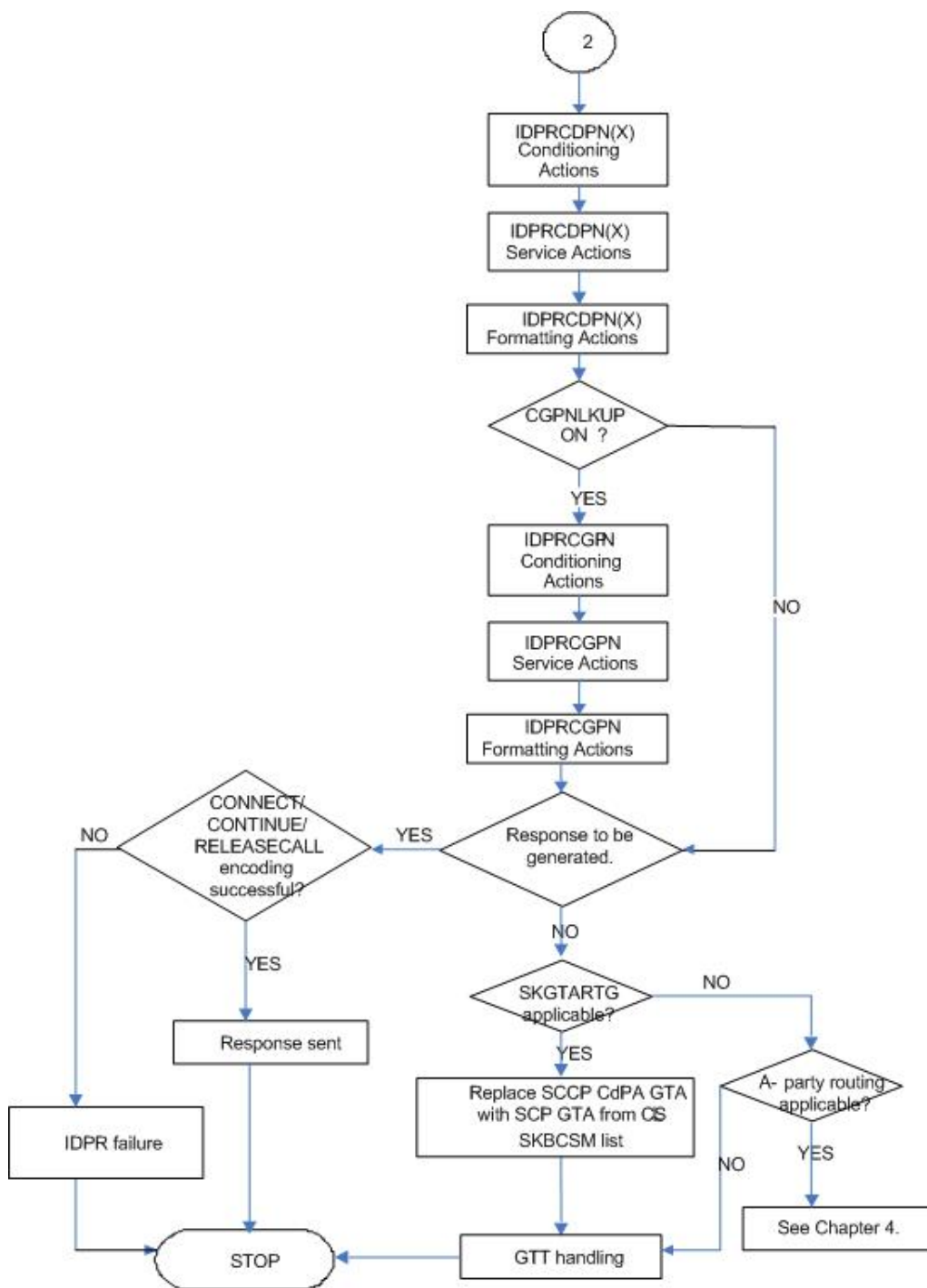


Figure 2-3 Message Flow for IDP Relay - Sheet 3 of 3



2.1.1.1 Call Flows

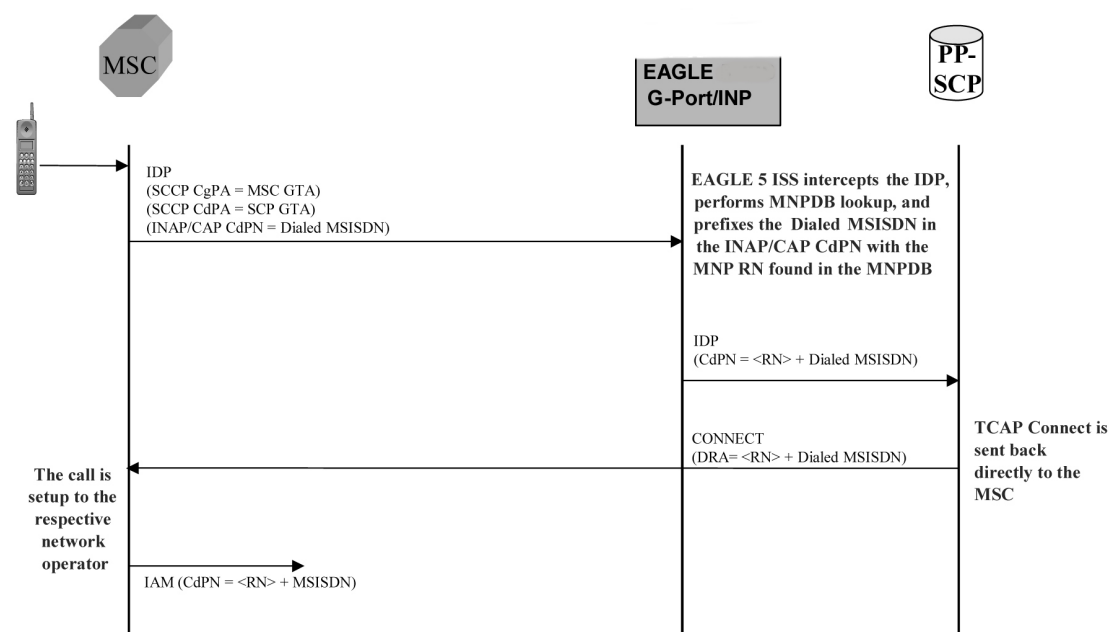
Mobile Originated Prepaid Call to a Ported Out Subscriber

This scenario encompasses the following subscriber types:

- **Own Subscriber Ported Out** - Refers to an Own Subscriber who has ported to a Foreign Network.
- **Foreign Subscriber Ported to Foreign Network** - Refers to a Foreign Subscriber who has ported to a different Foreign Network.
- **Foreign Subscriber** (optional, dependent on how the **RTDB** is provisioned) - Refers to a subscriber whose number belongs to the number range of a Foreign Network, and who has not ported to another Foreign Network.
- **Foreign Subscriber Not Known to be Ported** (optional, dependent on how the **RTDB** is provisioned) - Refers to a Foreign Subscriber whose portability status is unknown by the querying network.

When a prepaid subscriber attempts to originate a call, the **MSC/VLR** must first query a prepaid **SCP** before attempting to complete the call, in order to determine if the subscriber has enough credit to complete the call.

Figure 2-4 MO Prepaid Call to Ported Out Subscriber



When a prepaid subscriber originates a call, the **MSC/VLR** serving that subscriber formulates an **INAP** or **CAP IDP** message and routes it to the Prepaid **SCP**. This message is routed by **GTT (SCCP CdPA = PPSCP GTA)**, with the **EAGLE** serving as either the Intermediate or Final **GTT** service provider. In either case, the **EAGLE** is either an Intermediate or Final **GTT** service provider for the message in order for the **IDP Relay** service to be triggered (the message arriving at the **EAGLE** must have **MTP DPC = Eagle PC**, **SCCP CdPA RI = route-on-GT**, and **SCCP CdPA GTA = PPSCP**).

Upon receipt of the **IDP** message, the **SCCP CdPA TT**, **SSN**, **NP**, **NAI**, and **GTI** Service Selectors are examined to determine which **EAGLE** **SCCP** service is required. If the message parameters match the provisioned Service Selector combination for **IDP Relay** service in general, the **IDP Relay** service determines whether this specific **IDP** message requires processing, based on examination of the **SCCP CdPA GTA** digits (which should be the **GTA** of a **PPSCP**), the **TCAP** Operation Code, and the combination of Service Key and Event TypeBCSM in the **INAP/CAP** layer. If the **SCCP CdPA GTA** matches one of the

provisioned PPSCP addresses, the Operation Code signifies IDP, and the Service Key and EventTypeBCSM matches one of the provisioned service values for the IDP Relay service, then the message is processed by IDP Relay. Otherwise, the message continues through normal SCCP processing.

Additionally, for Route on SSN INAP messages with GTI=0, if the OPC/DPC matches a provisioned OPC/DPC, the message is processed by IDP Relay. Otherwise, the message continues through normal SCCP processing.

If the intercepted IDP message is selected for IDP Relay service, IDP Relay processing extracts the B-party number (CDPN, the number which was dialed by the prepaid subscriber) from the INAP/CAP CalledPartyNumber parameter or from the CAP CalledPartyBCDNumber parameter, and performs a lookup in the RTDB (after some number filtering and conditioning).

In this scenario, the EAGLE finds a match on the B-party **DN** in the RTDB with an association to a Routing Number (**RN**).

 **Note:**

Typically, an DN entered in the database with an association to an RN indicates that the number is either (a) an Own Number ported to another network, or (b) a Foreign Number which has been ported to another foreign network. In some cases (depending upon how the customer chooses to provision the database), this may also indicate a Foreign Number which is not known to be ported.

After finding a match on DN with an associated RN in the RTDB, the the INAP/CAP CDPN parameter is modified by prefixing the RN information to the DN. The CDPN NAI parameter will be copied from the incoming value, or changed to 'Unknown', based on the provisioned IDP Relay configuration options. The IDP Relay service may be configured to either send the same NAI as was received in the incoming CDPN, or to send the value 'Unknown' in all cases.

 **Note:**

The term CDPNNAI is used in this document to represent the value in the INAP/CAPCDPN parameter. In INAP, this parameter is known as "NAI", while in CAP, it is known as "Type of Number". CDPNNAI is used here to represent both for simplicity.

After the required modifications are performed, the modified IDP message is routed through GTT to the PPSCP indicated by the original GTA in the SCCP CdPA, which was not altered as a result of the IDP Relay operation. The PPSCP receives the modified IDP message, which contains the portability information needed to correctly charge for the call. The SCP then returns the appropriate response to the MSC/VLR, either allowing or denying the call.

In order for the IDP Relay feature to provide accurate portability information for all ported numbers, all ported numbers must be entered into the RTDB, including Own numbers ported out as well as Foreign numbers ported to foreign networks. If a foreign number ported to a foreign network is not entered in the database with a routing

number (either in the individual or range entry tables), IDP Relay will not find a match, and will not be able to prefix the routing number information to the CDPN in the IDP message with the routing number of the current subscription network. Thus, the original IDP message unmodified is sent to the SCP with CDPN = dialed DN only. However, even in this case it is possible for the SCP to differentiate calls within the own network from calls to foreign networks very easily.

Mobile Originated Prepaid Call to Imported or Own Non-Ported Subscriber

This scenario encompasses the following subscriber types:

- **Own Subscriber** - Refers to a subscriber whose number belongs to the number range of the Own Network and who has not ported to another network.
- **Foreign Subscriber Ported In** - Refers to a Foreign Subscriber who has ported into the Own Network.

When a prepaid subscriber attempts to originate a call, the MSC/VLR must first query a Prepaid SCP before attempting to complete the call, in order to determine if the subscriber has enough credit to complete the call.

When a prepaid subscriber originates a call, the MSC/MSC/VLR serving that subscriber formulates an INAP or CAP IDP message and routes it to the Prepaid SCP. This message is routed by GTT (SCCP CdPA = PPSCP GTA), with the EAGLE serving as either the Intermediate or Final GTT service provider. In either case, the EAGLE is either an Intermediate or Final GTT service provider for the message in order for the IDP Relay service to be triggered (message arriving at the EAGLE must have MTP DPC = Eagle PC, SCCP CdPA RI = route-on-GT, and SCCP CdPA GTA = PPSCP).

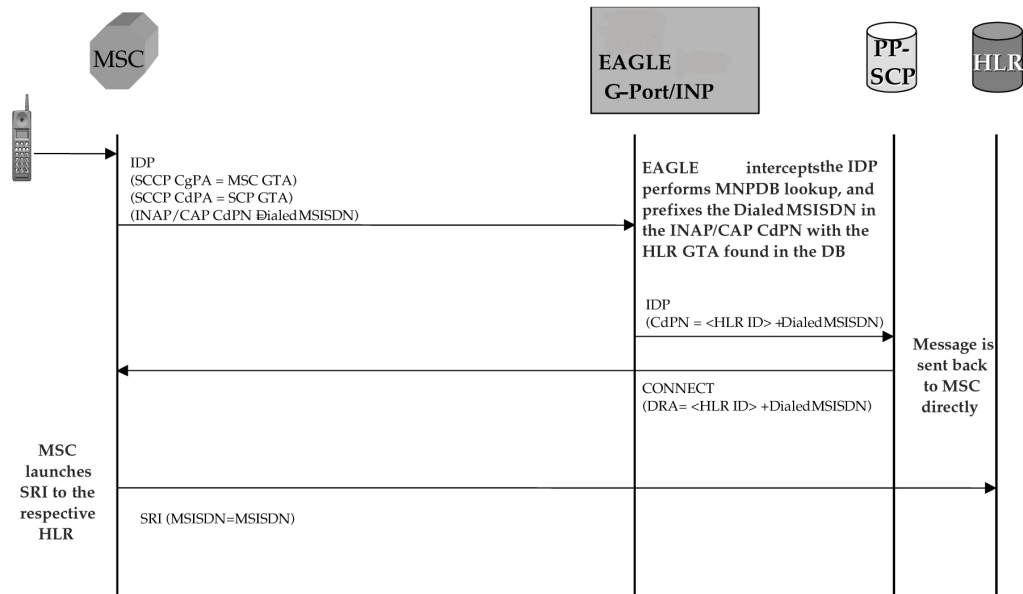
Upon receipt of the IDP message, the the SCCP CdPA **TT**, **SSN**, **NP**, **NAI**, and **GTI** Service Selectors to are examined to determine which SCCP service is required. If the message parameters match the provisioned Service Selector combination for IDP Relay service in general, the SCCP CdPA GTA digits (which should be the GTA of a PPSCP), the **TCAP** Operation Code, and the combination of Service Key and EventTypeBCSM in the INAP/CAP layer are examined to determine whether this specific IDP message requires IDP Relay processing. If the SCCP CdPA GTA matches one of the provisioned PPSCP addresses, the Operation Code signifies IDP, and the Service Key and EventTypeBCSM matches one of the provisioned service values for the IDP Relay service, then the message enters IDP Relay processing. Otherwise, the message continues through normal SCCP processing.

Additionally, for Route on SSN INAP messages with GTI=0, if the OPC/DPC matches a provisioned OPC/DPC, the message is processed by IDP Relay. Otherwise, the message continues through normal SCCP processing.

If the intercepted IDP message is selected for IDP Relay service, IDP Relay processing extracts the B-party number (CDPN - the number which was dialed by the prepaid subscriber) from the INAP/CAP CalledPartyNumber parameter or from the CAP CalledPartyBCDNumber parameter, and performs a lookup in the RTDB (after some number filtering and conditioning).

In this scenario, a match is found on the DN in the RTDB with an association to an SP entity ID (HLR GTA).

Figure 2-5 MO Prepaid Call to an Imported or Own-Non-Ported Subscriber



In this case, the PPSCP always requires an SP ID to be prefixed to the DN in the CDPN - for both Foreign Numbers Ported In as well as Own Numbers never ported. Based on this, IDP Relay requires that all such numbers be entered in the RTDB with an association to an SP ID, either as individual numbers (which is likely the case for imported numbers), or in a number range (which is likely the case of own numbers not ported). This distinction is made because in a standard MNP node, it is often standard practice not to enter Own Subscribers never ported. For SP queries, the standard GTT translation normally suffices for these subscribers, and it is not required to enter them into the RTDB. If these numbers are not entered, IDP Relay will not find a match, and would simply transfer the IDP message without modification to the PPSCP (containing DN only in CDPN).

This may not be an issue if the PPSCP correctly interprets when the PPSCP receives an IDP without any RN or SP ID, it assumes the DN is an Own Subscriber, and acts accordingly. It is also beneficial to enter all own subscribers with the respective **HLR-ID** to streamline MNP processing in networks with a high prepaid subscriber base.

Mobile Originated Prepaid Call to Foreign (Non-Ported) Subscriber

In this scenario, an IDP message is received for a number which is a foreign (non-own-network) number and which has not been ported. There are two options in this scenario, both configurable through provisioning. In one case, a number range for the foreign network is entered with a Generic Routing Number for the network. In this case, IDP Relay reacts in the same way as with a ported-out number, prefixing the CDPN with the RN taken from the number range entry. Although the number is technically not ported, the use of a range with an RN would still point to the correct network.

Alternatively, if the number is not provisioned in the RTDB at all, or is entered without an associated routing number/HLR ID, the IDP message is not modified and the message is simply be relayed to the SCP. In this scenario, the SCP returns the IDP response to the MSC without any prefix.

This method could also be used for Own Subscribers never ported (no entry in the RTDB), which would cause IDP Relay to send the unmodified IDP message to the PPSCP.

2.1.1.2 CdPN Number Format Identification

The format of the incoming number and the context surrounding the call factor into both the conditioning of the number for the RTDB search and the manner in which the message is treated as a result. The following details about the number must be known:

- Is the call terminating to a subscriber in the home country? (Calls terminating to numbers outside the home country are not subject to IDP Relay because number portability does not cross international boundaries).
- Is the calling subscriber roaming or dialing from inside the home country? (Determines if numbers dialed as national numbers are treated as in-country or out-of-country terminated).
- Was the number dialed with Escape Codes? (These must be deleted for RTDB lookup, but might be re-inserted for transmission).

The INAP/CAP CDPN parameter includes a CDPN NAI parameter which indicates the Nature of Address for the dialed digits (International, National, Subscriber, or Unknown). This parameter alone cannot always be relied upon to determine the format of the CDPN. For example,

- The CDPN can contain a National number, but the CDPN NAI may be marked "Unknown".
- A National number dialed while a subscriber is roaming must be treated differently than a National number dialed while a subscriber is in his/her home country/network. The condition of whether the calling subscriber is roaming or not cannot be determined from the CDPN NAI in the CDPN.

The following additional checks must be applied to the received IDP in order to determine how the message will be treated.

- **Escape Codes**

Subscribers are normally required to enter an International Escape Code (**IEC**) before dialing the digits of an International number. For example, in some countries, the digits 00 must be dialed before dialing an International number.

Subscribers are also normally required to enter a National Escape Code (**NEC**) to before dialing long distance National numbers. For example, many countries require a single 0 to be dialed before dialing a National number.

Escape codes must be removed before IDP Relay performs the RTDB lookup, because the numbers in the **RTDB** are always provisioned in International format. When an Escape Code is used, the CDPN NAI will be *unknown*. Therefore, the presence or absence of an **IEC** or **NEC** will indicate whether the number is International or National.

If a message is received with CDPN **NAI** = unknown, IDP Relay first checks the leading digits of the number for a match with a provisioned IEC or NEC, and treats the number accordingly. If CDPN **NAI** = unknown and no match is found on the IEC or NEC, the number is treated as National with no preceding NEC.

- **Calling Subscriber Roaming**

Roaming is another factor in the structure of the incoming IDP message. Whether or not the calling subscriber is roaming when the call is placed determines how the message is treated.

When a subscriber is roaming, all incoming IDP messages generated from calls made by that subscriber are **CAMEL** Application Part (**CAP**) rather than INAP message. When a roaming subscriber dials a National Number (number without a Country Code), the call is treated differently than when a non-roaming subscriber dials a National Number. This is because when a subscriber dials a National number while roaming Internationally, it is assumed that the subscriber is attempting to dial a number in the country where he or she is currently roaming, and not in the home country (if the subscriber wishes to dial a number in the home country, it must be dialed as an International number since the subscriber is roaming).

Because RTDB checks are not conducted across International boundaries, calls from a roaming subscriber to a National number are not subject to IDP Relay service. Calls from the same subscriber to a National number when the subscriber is not roaming are subject to IDP Relay service because these numbers are assumed to be terminating in the subscriber's home country, where portability applies. The National number digits could be identical in these two cases, although the actual destination is different.

For these reasons, the IDP Relay function might need to be able to distinguish between an IDP received for a call generated by a roaming subscriber and one generated by a non-roaming subscriber. The IDP Relay service provides the CgPA Check configuration option to select whether IDP messages generated by roaming subscribers should be subjected to IDP Relay processing, or be routed through standard GTT processing.

If the CgPA Check configuration option is ON, the roaming status of the calling subscriber is determined by comparing the Country Code in the **SCCP CGPA** parameter of the IDP message with the provisioned STPOPTS Default Country Code (DEFCC value). (The provisioned DEFCC value corresponds to the *home* network. If a subscriber is roaming, the CC of the visited MSC will not match the provisioned DEFCC value). If National roaming is allowed, the respective scenarios are treated as if the subscriber is not roaming. A roaming scenario is not detected by the CgPA Check and IDP Relay processing is performed. The CgPA Check option is ON by default. If the operator wants the IDP Relay feature to process IDP messages generated from roaming subscribers, the CgPA Check option must be turned OFF.

- **Call Placed to Country Other than Home Country**

The IDP Relay CgPA Check does not apply if a subscriber dials a number in a country other than subscriber's home country. The INAP/CAP CdPN Country Code is checked against the provisioned DEFCC value. If a match is not found, it means the subscriber has dialed a number outside his home country and IDP Relay is not required. The message falls through to GTT processing or to another SCCP service.

2.1.1.3 Service Selection

When an IDP is sent by an MSC, it is sent to the Prepaid SCP (PPSCP) through the EAGLE for GTT processing. As such, the message will contain MTP DPC = EAGLE PC and SCCP CdPA = PPSCP GTA with RI = GT. Because the MTP destination of the message is the EAGLE, the message is delivered to the EAGLE for SCCP processing.

The SCCP CdPA Translation Type (TT), Numbering Plan (NP), Nature of Address (NAI), Global Title Indicator (GTI), and Subsystem Number (SSN) parameters are examined to determine which SCCP service is being requested.

The parameters can match a Service Selector entry that indicates the IDPR service or the TTR service.

- If the service is IDPR, checking of additional IDPR service selection criteria continues for IDP Relay.
- If the service is TTR, the TCAP Type is examined.
 - If the TCAP Type is IS41, the message is passed to the Info Analyzed Relay Base (IAR Base) feature for processing. Refer to *Analyzed Information Features User's Guide* for information about IAR-related features.
 - If the TCAP Type is GSM, checking of additional TTR service selection criteria continues for IDP Relay.

This combination of parameters may or may not be enough to determine that the message should receive IDP Relay service. For example, if other IDP messages could be received that do not require IDP Relay, the Service Selectors could be identical for all IDP messages. Therefore, additional service selection criteria are required.

If the parameter combination is consistent with service selectors for the IDP Relay service, the SCCP CdPA GTA digits are compared to the provisioned Common Screening List (CSL) GT list of Prepaid SCP GTs. This list should contain all SCPs that could be the recipient of an IDP message for prepaid query.

If the SCCP CdPA GTA matches one of the provisioned PPSCP GTs, service selection continues to determine if IDP Relay is required.

- The TCAP Operation Code is examined; if it is not *IDP*, the IDP message is passed to standard GTT processing.
- The combination of INAP/CAP Service Key and EventTypeBCSM from the message is compared to provisioned DS of Service Key + Event Type entries from the CSL SKBCSM list. If the message Service Key + EventTypeBCSM matches one of the provisioned SKBCSM combinations pointing to IDP Relay service, then the message is sent for IDP Relay service.
- For Route on SSN INAP messages with GTI=0, the OPC/DPC from the message is compared to OPC/DPC entries from the CSL OPCDPC list. If the OPC/DPC matches one of the provisioned OPC/DPC entries, then the message is sent for IDP Relay service.

IDP messages not matching these criteria either fall through to standard GTT processing, or are sent to another SCCP service for which the criteria match.

2.1.1.4 Number Conditioning

Once the format of the CDPN number has been determined, conditioning (if necessary) is performed before an RTDB lookup. The RTDB stores numbers in full International format only. Numbers not received in International format must first be converted (conditioned) before performing an RTDB lookup.

[Table 2-1](#) summarizes the IDP Relay number conditioning process.

If the TTROPTS CGPACCCK configuration option indicates that an SCCP CgPA Check for a Country Code match (STPOPTS DEFCC) is to be made, the SCCP GTI must indicate that GT is present and the SCCP NAI must be International to allow the check to be made.

If the result of any number conditioning is a number longer than 32 digits, then no number modification is made and the message is forwarded to GTT.

CDPN Received in International Format

There are 2 number format determination cases which result in a number being declared in International format.

- CDPN Received in Correct International Format (CDPN NAI = “International”)

In the case that the INAP/CAP Called Party Number or Called Party BCD Number is already in International format (as determined by the CDPN NAI parameter set to “International”) with no extra prefixes or suffixes, including no Escape Codes, no conditioning is required by IDP Relay prior to RTDB lookup.
- CDPN Received with IEC Prefixed to International Digits (CDPN NAI = “Unknown”)

If the CDPN NAI = Unknown, IDP Relay first searches for an International Escape Code (IEC). If an IEC is found, the received CDPN is conditioned prior to RTDB lookup by removing the IEC, leaving only the International digits (CC+DN).

CDPN Received in National Format

There are 3 number format determination cases which result in a number being declared in National format.

- CDPN Received in Correct National Format (CDPN NAI = National)

The INAP/CAP Called Party Number (or Called Party BCD Number) is received in correct National format (as determined by CDPN NAI parameter set to “National”) with no extra prefixes or suffixes, including no Escape Codes. If the calling subscriber is not roaming, then IDP Relay conditions the CDPN by prefixing the provisioned DEFCC value to the DN prior to conducting the RTDB lookup.
- CDPN Received with NEC Prefixed to National Digits (CDPN NAI = Unknown)

If the CDPN NAI = Unknown, IDP Relay first searches for an International Escape Code (IEC), and if no match, then searches for a National Escape Code (NEC). If an NEC is found, the received CDPN must be conditioned prior to RTDB lookup by first removing the NEC, then prefixing the provisioned DEFCC value to the remaining National digits (DN), resulting in an International number for lookup.
- CDPN Received without Prefix, but CDPN NAI = “Unknown”

In this case, the CDPN is in a National format without a prefixed Escape Code, but the CDPN NAI is still marked “Unknown” rather than “National”. After searching first for an IEC, then for a NEC prefixed to the CDPN and finding neither, IDP Relay assumes that the number is in National format. If the subscriber is not roaming, then IDP Relay conditions the number prior to RTDB lookup by adding the provisioned DEFCC value to the digits received in the CDPN, which are assumed to be DN without a prefix.

Table 2-1 IDP Relay Number Conditioning

Incoming Address Format			Number Conditioning	Outgoing Address Format	
TCAP DN NAI	Perform SCCP CGPA DEFCC Check?	TCAP DN Format		NAI	Format
International	No	CC DN	None. Do RTDB lookup.	If PFX3=UNKN NAI=unknown Else NAI=International	PFX1 CC RN DN
National	if PFX4=ON	DN	Add DEFCC. Do RTDB lookup.	If PFX3=UNKN NAI=unknown Else NAI=National	PFX2 RN DN
Unknown	No	IEC CC DN	CSL Delete prefix found, (P1=International), remove it, Do RTDB Lookup	NAI =unknown	IEC CC RN DN
Unknown	if PFX4=ON	NEC DN	CSL Delete prefix found, (P1=National), remove it, Add DEFCC, Do RTDB Lookup	NAI=unknown	NEC RN DN
Unknown	if PFX4=ON	DN	No delete prefix found. Add DEFCC, Do RTDB Lookup	NAI=unknown	RN DN

Legend

CC Country Code	CSL Common Screening List	DEFCC Default Country Code
PFX Prefix Number	CGPA Calling Party Address	NAI Nature of Address Indicator
DN Directory Number	UNKN Unknown	SCCP Signaling Connection Control Part
IEC International Escape Code	NEC National Escape Code	TCAP Transaction Capabilities Application Part
RTDB Real Time Database		

2.1.2 NPP Processing for IDP Relay

When an IDP message had been identified as requiring IDP Relay processing, NPP processing of the message begins.

Refer to *Numbering Plan Processor (NPP) User's Guide* for more information about NPP components and processing.

NPP Pre-Processing

The message is decoded and verified.

NPP Processing

IDP Relay provides the IDPRCDPN, IDPRCDPN2, IDPRCDPN3, and IDPRCDPN4 (collectively referred to as IDPRCDPN(X) services), and IDPRCGPN services to NPP for processing IDP messages. The filters and Action Sets in the NPP Service Rules that are provisioned for IDP Relay services are used to determine what NPP processing is required.

- The IDPRCDPN(X) services are used to process TCAP Called Party Numbers (CdPN). More than one of these services can be provisioned for use at the same time. Each service can be configured separately to handle incoming IDP messages in different ways.
- The IDPRCDPN service is used to process TCAP Called Party Numbers (CdPN).
- The IDPRCGPN service is used to process Calling Party Numbers (CgPN).

An IDPRCDPN(X) NPP service is called first, to begin NPP processing of the CdPN.

- NPP executes the provisioned Conditioning Actions to condition the number to International format for RTDB lookup, and to extract information that can be used to format the outgoing message.
- NPP executes the provisioned Service Actions to perform an RTDB lookup on the conditioned CdPN, to obtain data and populate Formatting Action values to be used for outgoing message formatting.
- NPP executes the provisioned Formatting Actions, if allowed by the Service Actions, to format the outgoing message.

If CgPN processing is needed, the IDPRCDPN(X) service invokes the IDPRCGPN service.

- NPP executes the provisioned Conditioning Actions to condition the number to International format for RTDB lookup, and to extract information that can be used to format the outgoing message.
- NPP executes the provisioned Service Actions to perform an RTDB lookup on the conditioned CgPN, to obtain data and populate Formatting Action values to be used for outgoing message formatting.

NPP executes the provisioned Formatting Actions, if allowed by the Service Actions, to format the outgoing message.

2.1.2.1 RTDB Lookup

The called IDP Relay Service Actions search the RTDB with the conditioned INAP/CAP CdPN or CgPN digits from the IDP message. The lookup results in one of 4 outcomes:

- **Match on Digits with RN (Routing Number)**

The number belongs to a Foreign Network, and could be an Own Subscriber ported out, or a Foreign Subscriber. The IDP Relay prefixes the RN to the CdPN digits and relays to the PPSCP.

- **Match on Digits with SP (SP Address)**

The number belongs to the Own Network, and could be an Own Subscriber, or a Foreign Subscriber ported in. IDP Relay prefixes the SP address to the CdPN digits and relays to the PPSCP.

- **Match on digits, but no associated RN or SP**

A number was entered in the RTDB, but the portability status is unknown. Data might be entered in this format because it is an All Call Query solution based on **SRF**, but regulation does not allow prefixing of non-ported numbers. If IDP Relay finds such a match, the \ IDP Relay function is terminated and the message is routed through standard GTT to the PPSCP. The INAP/CAP portion of the message is not modified; only the MTP and SCCP CdPA are modified if required by standard GTT.

- **No Match on Digits**

The number is not in the RTDB. Generally, this indicates that the number has never been ported (in or out), or is an unknown number. The IDP Relay function is terminated, and the message is routed through standard GTT to the PPSCP. The INAP/CAP portion of the message is not modified, and only the MTP and SCCP CdPA are modified if required by standard GTT.

The CgPN is modified only if the entity type matches the CGNPTYPE option value. If the CGNPTTYPE does not match or the CgPN lookup fails, the CgPN is not modified and processing continues for the CdPN.

2.1.2.2 NPP Conditioning Actions

The IDP Relay services support all Conditioning Actions provided by NPP.

The IDP Relay IDPRCDPN(X) services use the ACCgPN and ACCgPNx Conditioning Actions.

The IDP Relay IDPRCDPN(X) services use the ACLAC **Conditioning Action**.

The IDP A-Party Routing adds the CCCgPN Conditioning Action to the Conditioning Actions used by IDP Relay IDPRCDPN(X) services.

ACCgPN

The ACCgPN (Area Code from **CgPN**) extracts the Area Code from the Calling Party Number (CgPN) while processing the Called Party Number (**CdPN**) services. The ACCgPN Conditioning Action skips any country code digits (matching DefCC or Multiple **CC**) and removes the number of digits specified in the SCCPOPTS ACLEN configuration option from the beginning of the CgPN. These digits are used as the Area Code (**AC**) to condition the Called Party digits for any subsequent Service Action or Formatting Action.

If the ACCgPN Conditioning Action is invoked, but the Calling Party is not present or has fewer digits than the SCCOPTS ACLEN option value after any CC digits, then no change to Area Code is made.

The ACCgPN Conditioning Action can be provisioned with the IDPRCDPN(X) NPP Services. The ACCgPN Conditioning Action is mutually exclusive with the ACCgPNx Conditioning Actions and with any other Conditioning Action used to populate the AC (Area Code) Formatting Action value for NPP.

ACCgPNx

The ACCgPN1 - ACCgPN8 (ACCgPNx) Conditioning Actions to extracts the Area Code from the Calling Party Number (**CgPN**) while processing Called Party Number (**CdPN**) services. The length of the Area Code to be extracted from the CgPN is not specified by SCCOPTS:ACLEN configuration parameter. Instead, the digit suffix "x" of the Conditioning Action parameter name specifies the length of the Area Code to be extracted. For example, the Conditioning Action ACCgPN4 will extract an Area Code of 4 digits from the CgPN. The ACCgPNx Conditioning Actions skip any Country Code digits (matching DefCC or Multiple **CC**) and remove the specified "x" number of Area Code (**AC**) digits.

If an ACCgPNx Conditioning Action is invoked, but the Calling Party is not present or has fewer digits than the specified "x" number of digits after any CC digits, then no change to Area Code is made.

The ACCgPNx Conditioning Actions can be provisioned with the IDPRCDPN(X) NPP Services. The ACCgPNx Conditioning Actions are mutually exclusive with each other, with the ACCgPN Conditioning Action, and with any other Conditioning Action used to populate the AC (Area Code) Formatting Action value for NPP.

ACLAC

The ACLAC Conditioning Action obtains the Area Code from the LAI and populates the AC Formatting Action value with the LAI Area Code. These digits will be used as the Area Code (AC) to condition the Called Party digits for any subsequent Service Action or Formatting Action.

CCCgPN

The number of digits specified in the SCCOPTS CCLLEN option are extracted from the CgPN and used to populate the value of the CC Formatting Action, if it is provisioned. The CC Formatting Action value is used in the formatting the resulting CdPN.

Table 2-2 IDP Relay Conditioning Actions

Name	Description
ACCgPN	Area Code from Calling Party The Area Code needs to be extracted from the Calling Party Number.
ACCgPN1	Area Code from Calling Party Number: one-digit Area Code extracted
ACCgPN2	Area Code from Calling Party Number: two-digit Area Code extracted
ACCgPN3	Area Code from Calling Party Number: three-digit Area Code extracted
ACCgPN4	Area Code from Calling Party Number: four-digit Area Code extracted
ACCgPN5	Area Code from Calling Party Number: five-digit Area Code extracted

Table 2-2 (Cont.) IDP Relay Conditioning Actions

Name	Description
ACCGPN6	Area Code from Calling Party Number: six-digit Area Code extracted
ACCGPN7	Area Code from Calling Party Number: seven-digit Area Code extracted
ACCGPN8	Area Code from Calling Party Number: eight-digit Area Code extracted
ACLAC	Area Code from Location Area Code (LAC) The Area Code is not included in the incoming DN and needs to be obtained from the Local Area Information (LAI).
CCCGPN	Country Code from Calling Party The Country Code needs to be extracted from the Calling Party Number.

2.1.2.3 NPP Service Actions

The NPP Service Actions listed in [Table 2-3](#) are used by the IDP Relay feature and related features. Before an NPP Rule can be provisioned with an Action Set containing a Service Action for the IDP Relay feature or a related feature, the feature must be enabled. The precedence indicates the sequence of execution if more than one Service Action is used by a service in a Service Rule.

Service Actions and Service Action Handlers for the IDP A-Party Blacklist and IDP A-Party Routing features are described in [IDP A-Party Blacklist Feature](#) and [IDP A-Party Routing and IDP Service Key Routing Features](#).

IDPRCDPN(X) refers to any of the IDPRCDPN, IDPRCDPN2, IDPRCDPN3, or IDPRCDPN4 services.

Table 2-3 Service Actions used by the IDP Relay Feature

Service Action	Description	Service	Precedence
ASDLKUP	Performs an RTDB lookup to obtain CdPN or CgPN Additional Subscriber Data (ASD) that can be used when formatting the outgoing CdPN. Can be used with the CgPNASDRqd Service Action to obtain ASD from othe CgPN lookup for CdPN formatting.	IDPRCDPNIDPRCDPN(X), IDPRCGPN	50
CCNCCHK	Used to match conditioned number to a CCNC Common Screening List entry; used only during upgrade.	IDPRCDPN IDPRCDPN(X)	100
CDPNNP	Performs RTDB lookup on conditioned CdPN; populates provisioned RN and SP Formatting Action values from successful lookup. See CDPNNP Service Action Handler .	IDPRCDPN IDPRCDPN(X)	80

Table 2-3 (Cont.) Service Actions used by the IDP Relay Feature

Service Action	Description	Service	Precedence
CgPNASDRqd	Used to Invoke the IDPRCGPN service to obtain CgPN Additional Subscriber Data for use when formatting the CdPN.	IDPRCDPN IDPRCDPN(X)	50
GRNLKUP	Use of CdPN or CgPN Generic Routing Number when formatting CdPN. Can be used with the CgPNGRNRqd Service Action to obtain GRN from othe CgPN lookup for CdPN formatting.	IDPRCDPNIDPRCDPN(X), IDPRCGPN	50
CgPNGRNRqd	Used to Invoke the IDPRCGPN service to obtain CgPN Generic Routing Number when formatting the CdPN.	IDPRCDPN IDPRCDPN(X)	50
CGPNSVCRQD	Used to invoke the IDPRCGPN service for CgPN number conditioning and RTDB lookup.	IDPRCDPN IDPRCDPN(X)	60
CGPNNP	Performs RTDB lookup on conditioned CgPN; populates provisioned RN and SP Formatting Action values from successful lookup. (Does not check for Service Portability requirement; does not use GRN data.) If the entity found is RN and PT=0, the entity is processed as an SP. See CGPNNP Service Action Handler .	IDPRCGPN	80
BLKLSTQRY	For the IDP A-Party Blacklist feature, provides query response mode handling for selected incoming IDP messages.	IDPRCGPN	90
BLKLSTRLY	For the IDP A-Party Blacklist feature, provides relay mode handling for selected incoming IDP messages.	IDPRCGPN	90
CGPNRTG	Determines whether IDP A-Party Routing, IDP Service Key Routing, or both should be attempted in post-NPP processing.	IDPRCGPN	70

Table 2-3 (Cont.) Service Actions used by the IDP Relay Feature

Service Action	Description	Service	Precedence
INPRTG	Determines: <ul style="list-style-type: none"> If a CONNECT, CONTINUE, or RELEASECALL response will be sent based on RTDB lookup on conditioned CdPN or CgPN If the IDP message should be relayed Whether the CutAndPaste parameter will or will not immediately follow the DRA in a CONNECT message 	IDPRCDPN(X), IDPRCGPN	95
SKGTARTG	The SKGTARTG Service Action replaces the SCCP CdPA GTA in the incoming IDP or IDPSMS message with the SCP GTA provisioned in the SCPGTA value for the matching entry of the CSL SKBCSM list.	IDPRCDPN(x)	50
LACCK	Match LAI LAC with populated AC; on match, delete FPFx and PFXA digits.	IDPRCDPN IDPRCDPN(X)	60
CDIAL	Corrective Dialing; can be invoked by any other Service Action to force Formatting Action execution even if the Service Action indicates that Formatting Action execution should not be performed.	IDPRCDPNIDPRCDPN(X), IDPRCGPN	10

2.1.2.3.1 CDPNNP Service Action Handler

The CDPNNP Service Action Handler performs an RTDB lookup on the conditioned CdPN. A successful lookup is one that returns an entity of the type defined by the NPTYPE configuration option.

The CDPNNP Service Action recognizes own-network IS41 and own-network GSM subscribers.

Configuration Options Used

The TTROPTS NPTYPE option is used to define the success of the RTDB lookup.

The TTROPTS SPFILL option controls the populating of the SP entity type if the DFLTRN option value or GRN data is used for NPP processing.

The TTROPTS RNSPFILL option controls the populating of the RN and SP entity types to the values of the digits from the RTDB lookup when specific conditions are met.

The TTROPTS SPORTTYPE option is used to specify the type of Service Portability processing that is applied if Service Portability is used with IDP Relay.

Action Performed

Before an RTDB lookup is performed, the conditioned TCAP DN is matched to the CSL CCNC list. If a match is not found in the CCNC list, the MSU falls through to GTT handling.

The RTDB lookup is performed on the conditioned CdPN. If a match on the NPTYPE value is found, the following actions are performed:

- If the SRFIMSI value is present in an SP or RN entity, the SRFIMSI value is used to populate the SRFIMSI Formatting Action value.
- When the Service Portability feature is ON, CDPNNP populates the RN Formatting Action with the value of the GRN entity from the RTDB entry in the following cases:
 - RTDB lookup results in a successful entity type match with the NPTYPE option value, the subscriber is an own-network IS41 subscriber, and the TTROPTS SPORTTYPE option value is IS41 or ALL
 - RTDB lookup results in a successful entity type match with the NPTYPE option value, the subscriber is an own-network GSM subscriber, and the TTROPTS SPORTTYPE option value is GSM or ALL

The RN populated with the GRN digits can be used during execution of the Formatting Actions for the outgoing message.

- The TTROPTS SPFILL option value is used to control the population of RTDB RN and SP digits are populated under the control of the TTROPTS SPFILL option value and the TTROPTS RNSPFILL option value, as shown in [Table 2-4](#).

If the IGM feature is ON or the Service Portability feature is enabled, then an entity type of RN and a portability type of 0 is considered to be SP when checking for an NPTYPE match.

The `tst-msg` output for the CDPNNP Service Action Handler indicates if a Service Portability match was encountered. See [TTR Test Tool](#).

If the returned digit string value is less than 5 digits, the IDP Relay feature generates an error message and the message falls through to GTT.

If the returned digit string value is greater than 15 digits, only the first 15 digits are used.

Terminating Action?

This is not a terminating action.

Table 2-4 RTDB Lookup Success Criteria and Results

Case	NPTYPE Value	RTDB "Effective" Entity Type	RN	SP
1	RN	RN	Use Network Entity digits.	Not set

Table 2-4 (Cont.) RTDB Lookup Success Criteria and Results

Case	NPTYPE Value	RTDB "Effective" Entity Type	RN	SP
2	RNSP, RNSPDN, ANY, ALWAYS	RN	Use Network Entity digits.	If SPFILL option is ON, and RNSPFILL option is ON, use Network Entity digits.
3	SP	SP	If match on Service Portability, use GRN digits. Otherwise, use DFLTRN value if provisioned.	If RN was not found, or SPFILL option is ON, use Network Entity digits.
4	RNSP, RNSPDN, ANY, ALWAYS	SP	If match on Service Portability, use GRN digits. If no match on Service Portability, use DFLTRN value if provisioned. If DFLTRN value is not provisioned, and RNSPFILL is ON, use Network Entity digits.	If RN was not found, or SPFILL option is ON, use Network Entity digits.

2.1.2.3.2 CGPNNP Service Action Handler

The CGPNNP Service Action Handler performs an RTDB lookup on the conditioned CgPN. A successful lookup is one that returns an entity of the type defined by the CGNPTYPE configuration option.

Configuration Options Used

The TTROPTS CGNPTYPE option is used to define the success of the RTDB lookup.

The TTROPTS SPFILL option controls the populating of the SP entity type if the DFLTRN option value is used for NPP processing.

The TTROPTS RNSPFILL option controls the populating of the RN and SP entity types to the values of the digits from the RTDB lookup when specific conditions are met.

Action Performed

Before an RTDB lookup is performed, the conditioned TCAP DN is matched to the CSL CCNC list. If a match is not found in the CCNC list, the MSU falls through to GTT handling.

The RTDB lookup performed on the conditioned CgPN. If a match on the CGNPTYPE value is found, the following actions are performed:

- If the SRFIMSI value is present in an SP or RN entity, the SRFIMSI value is used to populate the SRFIMSI Formatting Action value.
- The TTROPTS SPFILL option value is used to control the population of RTDB RN and SP digits are populated under the control of the TTROPTS SPFILL option value and the TTROPTS RNSPFILL option value, as shown in [Table 2-4](#).

 **Note:**

This table notes that the Service Portability check is performed for CdPN, but not for CgPN.

If the IGM feature is ON or the Service Portability feature is enabled, then an entity type of RN and a portability type of 0 is considered to be SP when checking for an NPTYPE match.

If the returned digit string value is less than 5 digits, the IDP Relay feature generates an error message and the message falls through to GTT.

If the returned digit string value is greater than 15 digits, only the first 15 digits are used.

Terminating Action?

This is not a terminating action.

2.1.2.3.3 INPRTG Service Action Handler

The INPRTG Service Action Handler performs an RTDB lookup on the conditioned TCAP CdPN or CgPN.

The INPRTG Service Action applies to the IDPRCDPN, IDPRCDPN2, IDPRCDPN3, IDPRCDPN4, and IDPRCGPN services.

- If the INPRTG Service Action has been executed in an IDPRCDPN(X) service, then it will not be executed again in the IDPRCGPN service.
- The IDPRCGPN NPP service is invoked only if the incoming CgPN length is equal to or greater than 5 digits for IDP messages and equal to or greater than 1 digit for IDPSMS messages.

Configuration Options Used

The TTROPTS options shown in [Table 2-5](#) are used with the result of the INPRTG RTDB lookup to determine whether a response is sent or the message is relayed.

TTROPTS options shown in [Table 2-11](#) are used in post-NPP processing to format the DRA and include or exclude the CutAndPaste parameter in CONNECT messages that result from INPRTG processing.

TTROPTS options also specify the Release Cause to be included in RELEASECALL messages that result from INPRTG processing.

Action Performed

The RTDB lookup is performed on the conditioned TCAP CdPN or CgPN.

- RTDB lookup can produce the following results:
 - RN entity associated with DN
 - SP entity associated with DN
 - Neither RN nor SP associated with DN
 - DN not found
- If the conditioned DN is less than 5 or greater than 32 digits, then RTDB lookup will not be performed and the result shall be considered as "DN Not Found".
- If the IGM feature is on or the Service Portability feature is enabled, then an entity type / portability type of RN/0 is considered to be SP.

The lookup result and TTROPTS options are used in post-NPP processing to determine whether a CONNECT, CONTINUE, or RELEASECALL response is sent, or the message is relayed (here, relay means continue with the rest of the Service Action execution),

 **Note:**

If the Calling Party is blacklisted as determined by the BLKLSTQRY or BLKLSTRLY Service Action, then a CONNECT message is sent according to the BLKLSTQRY or BLKLSTRLY Service Action processing. See [IDP A-Party Blacklist Feature](#).

Table 2-5 TTROPTS Parameters and Response Type Association for the INPRTG Service Action

Parameter	RTDB Result	Default Response Type
CDRNRSP CGRNRSP	Individual or Range database entry for CdPN or CgPN is found; RN entity is found.	CONNECT
CDSRSP CGSRSP	Individual or Range database entry for CdPN or CgPN is found; SP entity is found.	RELAY
CDNOENTITYRSP CGNOENTITYRSP	Individual or Range database entry for CdPN or CgPN is found; no entity is found.	CONTINUE
CDDNOTFNRSP CGDNOTFNRSP	No Individual or Range database entry for CdPN or CgPN is found.	RELEASE

2.1.2.3.4 SKGTARTG Service Action Handler

For Service Key-based GTA Routing (SK GTA Routing), the SKGTARTG Service Action Handler replaces the SCCP CdPA GTA in the IDP or IDPSMS message with a provisioned SCP GTA in the SKBCSM CSL list.

The SKGTARTG Service Action applies to the IDPRCDPN, IDPRCDPN2, IDPRCDPN3, and IDPRCDPN4 services.

 **Note:**

If Service Key-based GTA Routing and IDP A-Party Routing are both provisioned, Service Key-based GTA Routing takes precedence.

Configuration Options Used

The `scpgta` parameter and the `:list=skbcsm` parameter of the `ent/chg-csl` commands are used to provision SCP GTA values for the CSL SKBCSM list.

Action Performed

The SKGTARTG Service Action Handler replaces the SCCP CdPA GTA in the IDP or IDPSMS message with an SCP GTA from the SCPGTA entry for the matching SK+BCSM entry of the SKBCSM CSL list.

The IDP or IDPSMS message is GTT routed to the provisioned SCP GTA.

2.1.2.4 Interactions of Multiple Service Actions and Results

The following sections describe the interactions among various Service Actions executed for the IDPRCDPN(X) and IDPRCGPN services, and the outcome of the NPP processing.

ASD and GRN Service Actions

Service Actions that involve the processing of ASD and GRN data have the following relationships:

- The IDP ASD feature, or IDP GRN feature, or both must be enabled before the related Service Actions can be provisioned in Service Rule Sets. The features must be turned on to allow Service Action processing to occur.
- The ASDLKUP and GRNLKUP Service Actions can exist in the same Service Action set with any other existing IDP Relay CdPN Service Action. or any other CgPN Service Action.
- The CGPNASDRQD and CGPNGRNRQD Service Actions can exist in the same Service Action set with any other existing IDP Relay CdPN Service Action.
- The ASDLKUP, CGPNASDRQD, GRNLKUP, and CGPNGRNRQD Service Actions should have lower precedence than the IDP Relay NP Service Actions (CDPNNP, CGPNNP) .

BLKLSTQRY, BLKLSTRLY, INPRTG, SKGTARTG, and CGPNRTG Service Actions

[Table 2-6](#) describes the interaction of the BLKLSTQRY, BLKLSTRLY, INPRTG, SKGTARTG, and CGPNRTG Service Actions.

Table 2-6 Interactions and Outcome of NPP Processing for IDP Relay Service Actions

BLKLSTQRY or BLKLSTRLY (CgPN)	INPRTG (CdPN or CgPN)	SKGTARTG (CdPN)	CDPNRTG (CgPN)	Expected Result
CONNECT	N/A	N/A	N/A	CONNECT (as determined by IDP A-Party Blacklist feature)
RELEASE_SMS	N/A	N/A	N/A	RELEASE_SMS (as determined by IDP A-Party Blacklist feature)
CONTINUE	CONNECT	N/A	N/A	CONNECT (as determined by INPRTG (CdPN or CgPN))
	CONTINUE			CONTINUE (as determined by INPRTG (CdPN or CgPN))
	RELEASECALL			RELEASECALL (as determined by INPRTG (CdPN or CgPN))
	RELAY, or SA not provisioned			CONTINUE (as determined by IDP A-Party Blacklist feature)
	CONNECT	N/A	N/A	CONNECT (as determined by INPRTG (CdPN or CgPN))
	CONTINUE	N/A	N/A	CONTINUE (as determined by INPRTG (CdPN or CgPN))
	RELEASECALL	N/A	N/A	RELEASECALL (as determined by INPRTG (CdPN or CgPN))
RELAY, or SA not provisioned	RELAY, or SA not provisioned	SUCCESS	N/A	SK GTA Routing
		GTA, or SA not provisioned	SUCCESS	CgPN Routing
		GTA, or SA not provisioned	FAILURE (some provisioning error) or SA not provisioned	GTT

2.1.2.5 Examples of NPP Processing for IDP Relay

The examples in this section describe how a message flows through NPP based on a specific Service Action set configuration. Each example presents alternative paths based on the status of the subscriber represented by the conditioned number:

- Ported Out - The subscriber is known to be ported out of the network.
- Not Ported - The subscriber is known to be served by the network.
- Not Known - The subscriber is not known to the network.

In NPP processing, Conditioning Action execution is followed by Service Action execution. Formatting Action execution follows Service Action execution if Formatting Action is to occur based on the processing results.

The following digit strings are used in NPP processing:

- Original Digit String - The DN provided to NPP by the service from the incoming message when NPP is invoked by the service.

- Conditioned Digit String - The number created by Conditioning Action execution to contain one or more of the Country Code (CC), the Area Code (AC), the Subscriber Number (SN), the Dialed or Directory Number (DN), and the internationally formatted number that is CC + AC +DN (ZN)
- Outgoing Digit String - The number that results from Formatting Action execution.

NPP Processing Example Using the CDPNNP and ASDLKUP Service Actions

Processing for Ported Out and Not Ported subscribers is similar. The resulting Outgoing Digit String differs between the two based on whether the RN or the SP Formatting Action has a value.

The resulting Outgoing Digit String is empty for the Not Known subscriber because Formatting Action execution was not performed. The service will not modify the CdPN parameter in the outgoing message.

Table 2-7 NPP Processing of the CDPNNP and ASDLKUP Service Actions

NPP Phase		Ported Out	Not Ported	Not Known
Conditioning Action execution	(any Conditioning Actions)	The Original Digit String is broken into pieces from which the Conditioned Digit String is created.		
Service Action execution	CDPNNP	RTDB lookup result contains an RN.	RTDB lookup result contains an SP.	RTDB lookup returns no record.
	ASDLKUP	RTDB lookup finds ASD.		RTDB lookup returns no record (no ASD).
Formatting Action execution	(any Formatting Actions)	The Outgoing Digit String is constructed using the provisioned Formatting Action values.		Formatting Action execution is not performed.

NPP Processing Example Using the CDPNNP, ASDLKUP, and CDIAL Service Actions

The CDIAL Service Action can be used to cause Formatting Action execution to occur even when Service Action execution indicates that it should not be performed, as when there was not information about the subscriber in the RTDB. In the resulting Outgoing Digit String, the RN, SP, and ASD Formatting Action values will not contain RTDB information, though Formatting Action execution could still generate a useful Digit String for substitution purposes.

Table 2-8 NPP Processing of the CDPNNP, ASDLKUP, and CDIAL Service Actions

NPP Phase		Ported Out	Not Ported	Not Known
Conditioning Action execution	(any Conditioning Actions)	The Original Digit String is broken into pieces from which the Conditioned Digit String is created.		
Service Action execution	CDPNNP	RTDB lookup result contains an RN.	RTDB lookup result contains an SP.	RTDB lookup returns no record.
	ASDLKUP	RTDB lookup finds ASD.		RTDB lookup returns no record (no ASD).

Table 2-8 (Cont.) NPP Processing of the CDPNNP, ASDLKUP, and CDIAL Service Actions

NPP Phase		Ported Out	Not Ported	Not Known
	CDIAL	NPP performs Formatting Action execution even for Not Known subscribers.		
Formatting Action execution	(any Formatting Actions)	The Outgoing Digit String is constructed using the provisioned Formatting Action values.		

NPP Processing of the INPRTG and CDPNNP Service Actions

The example shown in [Table 2-9](#) assumes that the following TTROPTS configuration option values are provisioned:

- CDRNRSP = CONNECT
- CDSRSP = RELAY
- CDNOENTITYRSP = CONTINUE
- CDDNNOTFDRSP = RELEASECALL

Table 2-9 NPP Processing of the INPRTG and CDPNNP Service Actions

NPP Phase					
Conditioning Action execution	(any Conditioning Actions)	The Original Digit String is broken into pieces from which the Conditioned Digit String is created.			
Service Action execution	INPRTG	RTDB lookup result contains an RN entity. Sets the response type to CONNECT. The RN is used when the CONNECT is sent for a DN associated with an RN entity. Formatting Action execution will not be performed.	RTDB lookup contains an SP entity. Sets the response type to RELAY.	RTDB lookup returns no record. Sets the response type to RELEASECALL. Formatting Action execution will not be performed.	RTDB lookup results in DN found with no entity. Sets the response type to CONTINUE. Formatting Action execution will not be performed.
	CDPNNP	This Service Action is executed only if the INPRTG Service Action resulted in setting the response type to RELAY.			
Formatting Action execution	(any Formatting Actions)	Formatting Action execution is performed only when the response type is RELAY.			

2.1.2.6 Service Portability for IDP Relay

With the Service Portability feature, the subscriber has ported to a different network technology with the same service provider. The Service Portability use case is very similar to

number portability with the exception of what is used as the prefix for the Called Party digits. Service Portability is applicable to the CDPNNP Service Action, but not to the CGPNNP Service Action.

Service Portability is controlled by the Service Portability feature P/N 893-0343-01. The SPORTTYPE option in the TTROPTS table controls the mode of the Service Portability for IDP Relay. These options have the following values:

- NONE - Apply standard NP processing for own-network GSM and IS41 subscribers.
- GSM - Use the GSM Service Portability prefix for GSM own-network subscribers, and apply standard NP processing for own-network IS41 and OLO subscribers.
- IS41 - Use the IS41 Service Portability prefix for IS41 own-network subscribers, and apply standard NP processing for own-network GSM and OLO subscribers.
- ALL - Use the GSM Service Portability prefix for GSM own-network subscribers, use the IS41 Service Portability prefix for IS41 own-network subscribers, and apply standard NP processing for OLO subscribers.

The determination of whether or not to invoke Service Portability depends on the subscriber's Entity type and the Portability Type. The subscriber is considered as an own-network IS41 subscriber if the Entity type is RN and the Portability Type is 0 (RN/PT=0). The subscriber is considered as an own-network GSM subscriber if the Entity type is SP with any Portability Type. In the case of RN/PT=0, the RN for this subscriber is actually considered to be the SP (the IS-41 HLR address).

After the Service Portability feature is considered to be applicable, the Service Action attempts to use the subscriber GRN data in the RTDB as the Service Portability prefix. This GRN is populated in the RN Formatting Action value as the Service Portability prefix. The TTROPTS SPFILL option value and TTROPTS:RNSPFILL option value determine the content of the RN and SP, as shown in [Table 2-4](#).

2.1.2.6.1 S-Port Subscriber Differentiation

S-Port Subscriber Differentiation can be used with Service Portability to allow use of provisioned ASD digits in place of GRN digits as an alternative Routing Number for own-network subscribers. For example, the ASD can be used as the subscriber's private routing number (for message relay features) and the GRN as the subscriber's public routing number (for query/response features).

The S-Port Subscriber Differentiation controlled feature (Part Number P/N 893-0379-01) and the SCCPOPTS SUBDFRN configuration option control S-Port Subscriber Differentiation operation. The SUBDFRN option cannot be provisioned unless the S-Port Subscriber Differentiation feature is enabled and turned on.

When the Service Portability feature and option are on, the S-Port Subscriber Differentiation feature and option are on, and Service Portability is applicable, then provisioned ASD digits are used in place of GRN digits. Subscribers without ASD provisioned will follow standard Service Portability processing and will always use GRN.

2.1.2.6.2 Guidelines for S-Port and NPP Configuration Options

Feature-specific configuration options, EPAP, and EAGLE data and NPP Formatting Actions work together to produce the "routing tag" that is used to modify digits in applicable messages. A "routing tag" is the Number Portability or Service Portability digits chosen to prefix the DN. Own-network GSM and IS41 subscribers can be tagged

with the GRN (from EPAP entity data), the DFLTRN configuration option value, SP (EPAP entity digits), or no tag. OLO subscribers can be tagged with the RN (EPAP entity digits) or no tag.

Table 2-10 indicates the recommended provisioning for features that use NPP, based on how the subscriber numbers will be tagged. Service Portability provides the capability to use the GRN to tag own-network GSM and IS41 subscribers. A few potential combinations are not supported, because standard Number Portability processing does not differentiate between GSM and IS41 subscribers.

The following acronyms are used in the table header for feature-specific configuration options. The option names are not the same across all features that use NPP, but each feature does provide a similar option:

- NPTYPE - determines lookup success criterion
- SPORTTYPE - determines which own-network subscribers to tag with the GRN prefix (IS41, GSM, all, or none)
- DFLTRN – specifies feature-specific value for a default Routing Number
- SPFILL – specifies whether NPP should populate both SP and RN Formatting Action values even when DFLTRN or GRN is being used for local subscribers. In some scenarios, setting SPFILL to YES can cause double digits to be present. IS41 digits (RN/PT=0) are considered SP, because they should contain an E.164 HLR ID.

Because S-Port Subscriber Differentiation operates within the Service Portability call flow, when both are on and Service Portability is applicable, then ASD digits are used, if provisioned, in place of GRN digits. If ASD digits are not provisioned, then standard Service Portability processing is used. Wherever GRN appears in Table 2-10, provisioned ASD digits will be used if S-Port Subscriber Differentiation and Service Portability are ON.

Table 2-10 Recommended Provisioning for "Routing Tags"

Requested Tagging			Recommended Feature Configuration for NPP and S-Port Processing				
GSM (SP/any PT)	IS41 (RN/PT=0)	OLO	NPTYPE	SPORTTYP E	DFLTRN	SPFILL	NPP Formatting Action
GRN	GRN	RN	RNSP	ALL	N/A	N/A	RN+DN
DFLTRN	GRN	RN	RNSP	IS41	DFLTRN	N/A	RN+DN
SP	GRN	RN	RNSP	IS41	None	No	RN+SP+DN
None	GRN	RN	RNSP	IS41	None	N/A	RN+DN
GRN	DFLTRN	RN	RNSP	GSM	DFLTRN	N/A	RN+DN
DFLTRN	DFLTRN	RN	RNSP	None	DFLTRN	N/A	RN+DN
SP	DFLTRN	RN	Not supported: Use SP/GRN instead				
None	DFLTRN	RN	Not supported: Use None/GRN instead				
GRN	SP	RN	RNSP	GSM	None	No	RN+SP+DN
DFLTRN	SP	RN	Not supported: Use GRN/SP instead				
SP	SP	RN	RNSP	None	None	N/A	RN+SP+DN
None	SP	RN	Not supported: NP does not differentiate tags for own-network subscribers				
GRN	None	RN	RNSP	GSM	None	N/A	RN+DN
DFLTRN	None	RN	Not supported: Use GRN/None				

Table 2-10 (Cont.) Recommended Provisioning for "Routing Tags"

Requested Tagging			Recommended Feature Configuration for NPP and S-Port Processing				
GSM (SP/any PT)	IS41 (RN/PT=0)	OLO	NPTYPE	SPORTTYP E	DFLTRN	SPFILL	NPP Formatting Action
SP	None	RN	Not supported: NP does not differentiate tags for own-network subscribers				
None	None	RN	RN	N/A	N/A	N/A	RN+DN
GRN	GRN	None	SP	ALL	N/A	N/A	RN+DN
DFLTRN	GRN	None	SP	IS41	DFLTRN	N/A	RN+DN
SP	GRN	None	SP	IS41	None	No	RN+SP+DN
None	GRN	None	SP	IS41	None	N/A	RN+DN
GRN	DFLTRN	None	SP	GSM	DFLTRN	N/A	RN+DN
DFLTRN	DFLTRN	None	SP	None	DFLTRN	N/A	RN+DN
SP	DFLTRN	None	Not supported: Use SP/GRN instead				
None	DFLTRN	None	Not supported: Use None/GRN instead				
GRN	SP	None	SP	GSM	None	No	RN+SP+DN
DFLTRN	SP	None	Not supported: Use GRN/SP instead				
SP	SP	None	SP	None	None	N/A	SP+DN
None	SP	None	Not supported: NP does not differentiate tags for own-network subscribers				
GRN	None	None	SP	GSM	None	N/A	RN+DN
DFLTRN	None	None	Not supported: Use SP/GRN instead				
SP	None	None	Not supported: NP does not differentiate tags for own-network subscribers				
None	None	None	N/A	N/A	N/A	N/A	DN

2.1.2.7 NPP Formatting Actions

IDP Relay supports all Formatting Actions provided by NPP. IDP Relay does not provide any additional Formatting Actions.

2.1.3 Post-NPP Processing

IDP Relay determines the type of message that will be sent, based on features and functions used, configuration options, and NPP Service Action execution results.

IDP Relay performs and verifies the encoding of the outgoing message.

- TTROPTS options are used to format the DRA and include or exclude the CutAndPaste parameter in CONNECT messages that result from NPP INPRTG Service Action execution. See [Table 2-11](#).
- The incoming SCCP CdPA and CgPA parameters are used in CONNECT, CONITNUE and RELEASECALL responses; the incoming CgPA becomes the response CdPA and the incoming CdPA becomes the response CgPA.

- The TTROPTS CDRELCAUSE and CGRELCAUSE options specify the Release Cause in RELEASECALL response messages that result from INPRTG Service Action execution.
- Any Formatting Action values populated during Service Action and Formatting Action execution are used in the outgoing message encoding.

IDP Relay updates measurements pegs and `rept-stat-sccp` statistics.

IDP Relay sends the message as indicated by the features and configuration options.

IDP Relay sends the message as indicated by the features and configuration options.

- IDP Relay sends a CONNECT, CONTINUE, or RELEASECALL response without forwarding the message to GTT.
- IDP Relay passes the IDP or IDPSMS message to GTT handling.
- IDP Relay relays the IDP or IDPSMS message.
- IDP A-Party Blacklist generates either a Connect or a Continue message to the originator, and can relay the IDP query to the SCP.
- IDP A-Party Routing and IDP Service Key Routing route the message to a Prepaid server.

2.1.4 MPS/EPAP Platform

Oracle provides the Multi-Purpose Server (MPS) platform as a subsystem of the Oracle Communications EAGLE. The MPS provides support for EPAP-related features that perform Real Time Database (RTDB) lookups.

The MPS is composed of hardware and software components that interact to create a secure and reliable platform. For details about the MPS hardware, refer to *Application B Card Hardware and Installation Guide*. The MPS provides the means of connecting the customer provisioning application with the EAGLE and accepts the customer number portability data, while accommodating numbers of varying lengths.

The Oracle Communications EAGLE Application Processor (EPAP) is software that runs on the MPS hardware platform. EPAP collects and organizes customer provisioning data, and forwards the data to the EAGLE Service Module cards. For detailed information about EPAP, refer to *Administration Guide* for EPAP.

In this manual, Service Module card refers to an E5-SM4G, E5-SM8G-B, or SLIC card unless a specific card is required. For more information about the supported cards, refer to *Hardware Reference*.

2.2 IDP Relay Configuration Options

The TTROPTS table contains configuration option values for the IDP Relay feature, the IDP A-Party Blacklist feature, the IDP A-Party Routing and Service Key Routing features, and the Service Portability feature when it is used with IDP Relay. The TTROPTS option data is loaded to the LIM cards and to Service Module cards that contain the RTDB database. The configuration option values influence number conditioning, response message formatting and generation, and Service Portability processing.

The SCCPOPTS table contains:

- System option values that are used by IDP Relay services in NPP Conditioning Action execution

- The SUBDFRN option that is used to turn on and off the operation of the S-Port Subscriber Differentiation function in the system

TTROPTS options and the SCCPOPTS options for IDP Relay Conditioning Actions can be provisioned after the IDP Relay feature is enabled and before the feature is turned on.

The S-Port Subscriber Differentiation feature must be enabled and turned on before the SCCPOPTS SUBDFRN option can be provisioned.

Table 2-11 describes the TTROPTS options.

Table 2-12 describes the SCCPOPTS options used for IDP Relay Conditioning Action execution.

Table 2-13 describes the SCCPOPTS SUBDFRN option used for the S-Port Subscriber Differentiation feature.

Table 2-11 TTROPTS Configuration Options

Parameter	Value	Description	Notes
NPTYPE - Entity type for CdPN RTDB lookup. Specifies the CdPN entity type for which the lookup is considered a success.	SP	Service Provider	
	RN	Routing Number	
	RNSP (default)	Routing Number or Service Provider	
	ANYSMATCH	RN, SP, DN, or match with any entity	The value is also used as the RN in the outgoing CgPN.
	ALWAYS	The lookup is always considered successful.	
SNAI - CdPN Nature of Address Indicator Specifies the CdPN NAI that is used during number conditioning.	RNSPDN	RN, SP, or DN	
	INCOMING (default)	The incoming CdPN NAI is used.	If a value other than INCOMING is used, then the <code>chg-npp-serv</code> command should not change the INTL, NATL, NAI1, NAI2, NA3 or UNKN values to non-default values for the IDPRCDPN(X) services.
	INTL	A CdPN NAI of International is used.	
	NATL	A CdPN NAI of National is used.	
CGNPTYPE - CgPN entity type for RTDB lookup. Specified the CgPN entity type for which the lookup is considered a success.	UNKN	A CdPN NAI of Unknown is used.	
	SP	Service Provider	
	RN	Routing Number	
	RNSP (default)	Routing Number or Service Provider	
	ANYSMATCH	RN, SP, or no match with any entity	The value is also used as the RN in the outgoing CgPN.
CGSNAI - Calling Party Number Nature of Address Indicator	ALWAYS	The lookup is always considered successful.	
	RNSPDN	RN, SP, or DN	
	INCOMING (default)	The incoming CgPN NAI is used.	If a value other than INCOMING is used, then the <code>chg-npp-</code>

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
Specifies the CgPN NAI that is used during number conditioning.	INTL	The CgPN NAI is set to International.	<i>serv</i> command should not change the INTL, NATL, NAI1, NAI2, NA3 or UNKN values to non-default values for the IDPRCGPN service.
	NATL	The CgPN NAI is set to National.	
	UNKN	The CgPN NAI is set to Unknown.	
DLMA - Delimiter A Specifies the first delimiter that is used to format the outgoing TCAP dialed number.	1-16 hex digits NONE	No value, or changes the current value to no value.	The delimiter is not used.
DLMB - Delimiter B Specifies the second delimiter that is used to format the outgoing TCAP dialed number.	1-16 hex digits NONE	No value, or changes the current value to no value.	The delimiter is not used.
DLMC - Delimiter C Specifies the third delimiter that is used to format the outgoing TCAP dialed number.	1-16 hex digits NONE	No value, or changes the current value to no value.	The delimiter is not used.
CGPACCCK - CgPA Country Code Check Specifies whether the incoming CgPA is to be checked for presence of the country code defined in the STPOPTS DEFCC option.	ALWAYS	Always check for the DEFCC value	
	NONINTL (default)	Check for the DEFCC value if the CDPN NAI is not International.	
	OFF	The DEFCC check is not performed.	
DFLTRN - Default Routing Number Specifies the default RN that is used when a value of SP or RNSP is specified for the NPTYPE parameter, and the CdPN RTDB lookup finds entity type SP.	1-15 hex digits NONE (default)	No value, or changes the current value to no value.	A default RN is not used.
DRAFRMT - DRA Digit Format Specifies the format of the DRA digits in the outgoing message. (Used by the IDP A-Party Blacklist feature)	GRN	The format is GRN	(GRN = Generic Routing Number)
	GRNDN	The format is GRN + DN	(DN = Dialed Number)
	DNGRN	The format is DN +GRN	
	CCGRNDN	The format is CC + GRN + DN	(CC = Country Code)
	GRNCCDN	The format is GRN + CC + DN	

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
DRANAI - DRA Nature of Address Indicator Specifies the DRA NAI that is used during number conditioning. (Used by the IDP A-Party Blacklist feature)	1-127		The system default value is 3 = NATL
CgPNSKRTG - CgPN Service Key Routing Specifies whether to execute IDP Service Key Routing if IDP A-Party Routing fails.	YES NO	Execute IDP Service Key Routing if IDP A-Party Routing fail. Do not execute IDP Service Key Routing if IDP A-Party Routing fails.	Can be provisioned only when the IDP A-Party Routing feature and the IDP Service Key Routing feature are enabled.
SPORTTYPE - Service Portability Type Specifies whether Service Portability is performed for the feature.	NONE (default)	Service Portability is not performed for IDP Relay.	Can be provisioned only when the Service Portability feature is enabled.
	GSM	Apply Service Portability prefix (RTDB GRN entity ID) for own-network GSM subscribers.	
	IS41	Apply Service Portability prefix (RTDB GRN entity ID) for own-network IS41 subscribers.	
SPFILL - SP entity type population for NPP processing Specifies whether the SP entity type is populated if the value specified for the DFLTRN or GRN parameter is used for NPP processing.	OFF (default)	Do not populate the SP entity type.	In the CDPNNP and CGPNNP Service Action Handlers, do not use SP digits if DFLTRN or GRN is being used for local subscribers.
	ON	Populate the SP entity type.	In the CDPNNP and CGPNNP Service Action Handlers, do not use SP digits even if DFLTRN or GRN is being used for local subscribers.

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
RNSPFILL - Set RN and SP entities for certain conditions Specifies whether the RN and SP entities are set to the value of the RN or SP digits from the RTDB when certain conditions are met.	OFF (default)	The RN and SP are not set.	In the CDPNNP and CGPNNP Service Action Handlers: <ul style="list-style-type: none"> If the NPTYPE parameter value is RNSP, ANYMATCH, or ALWAYS, and the DFLTRN=NONE parameter is specified, then the RN entity is NOT set to the value of the SP digits from the RTDB. If the NPTYPE parameter value is RNSP, ANYMATCH, or ALWAYS, then the SP entity is NOT set to the value of the RN digits from the RTDB.
	ON	The RN and SP are set.	In the CDPNNP and CGPNNP Service Action Handlers, <ul style="list-style-type: none"> If the NPTYPE parameter value is RNSP, ANYMATCH, or ALWAYS, and the DFLTRN=NONE parameter is specified, then the RN entity is set to the value of the RN digits from the RTDB. If the NPTYPE parameter value is RNSP, ANYMATCH, or ALWAYS, then the SP entity is set to the value of the RN digits from the RTDB.
CDDRA or CGDRA Defines the format of the DRA encoded in the INPRTG Service	RN RNDN (default) GRN	DRA is encoded as RN. DRA is encoded as RN+DN. DRA is encoded as GRN.	CDDRA is used if INPRTG is executed from one of the

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
Action CONNECT Response message.	CCRNDN	DRA is encoded as CC+RN+DN.	IDPRCDPN(X) services.
	RNASD	DRA is encoded as RN+ASD.	CGDRA is used if INPRTG is executed from the IDPRCGPN service.
	ASDRN	DRA is encoded as ASD+RN.	
	RNASDDN	DRA is encoded as RN+ASD+DN.	
	ASDRNDN	DRA is encoded as ASD+RN+DN.	
	CCRNASDDN	DRA is encoded as CC+RN+ASD+DN.	
	CCASDRNDN	DRA is encoded as CC+ASD+RN+DN.	
	ASDRNCCDN	DRA is encoded as ASD+RN+CC+DN.	
	RNASDCCDN	DRA is encoded as RN+ASD+CC+DN.	
	RNGRN	DRA is encoded as RN+GRN.	
	GRNRN	DRA is encoded as GRN+RN.	
	RNGRNDN	DRA is encoded as RN+GRN+DN.	
	GRNRNDN	DRA is encoded as GRN+RN+DN.	
	CCRNGRNDN	DRA is encoded as CC+RN+GRN+DN.	
	CCGRNRNDN	DRA is encoded as CC+GRN+RN+DN.	
	GRNRNCCDN	DRA is encoded as GRN+RN+CC+DN.	
	RNGRNCCDN	DRA is encoded as RN+GRN+CC+DN.	
	GRNDN	DRA is encoded as GRN+DN.	
	CCGRNDN	DRA is encoded as CC+GRN+DN.	
	CDDRANP or CGDRANP Defines the format of the Numbering Plan parameter of the DRA in the INPRTG CONNECT Response message.	E164 (default)	ISDN Telephony Numbering Plan (Value=1)
X121		Data Numbering Plan (Value=3)	
F69		Telex Numbering Plan (Value=4)	
CDDRANAI or CGDRANAI	SUB	Subscriber Number (Value=1)	CDDRANAI is used if INPRTG is executed from one of the
	UNKNOWN	Unknown (Value=2)	

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
Defines the format of the Nature of Address Indicator parameter of the DRA in the INPRTG Service Action CONNECT Response message.	NATL (default)	National Significant Number (Value=3)	IDPRCDPN(X) services.
	INTL	International Number (Value=4)	CGDRANAI is used if INPRTG is executed from the IDPRCGPN service.
	NTWK	Network (Value=5)	
CDCNP or CGCNP Indicates whether or not the CutandPaste parameter appears immediately following the DR digits in the INPRTG CONNECT Response message.	OFF (default)	The CutandPaste parameter will not appear in the INPRTG CONNECT Response message.	CDCNP is used if INPRTG is executed from one of the IDPRCDPN(X) services.
	ON	The CutandPaste parameter will appear in the INPRTG CONNECT Response message.	CGCNP is used if INPRTG is executed from the IDPRCGPN service.
CDNRNSP or CGRNSP Defines the result (relay/response) as determined by INPRTG when RTDB lookup on conditioned digits finds a DN match with RN as an associated entity.	RELAY	Execute the rest of the provisioned Service Actions, and possibly Relay the IDP message if no other execution results in a response.	CDNRNSP is used if INPRTG is executed from one of the IDPRCDPN(X) services CGRNSP is used if INPRTG is executed from the IDPRCGPN service.
	CONNECT (default)	Send a CONNECT message.	
	CONTINUE	Send a CONTINUE message.	
	RELEASE	Send a RELEASECALL message.	
CDSPRSP or CGSPRSP Defines the result (relay/response) as determined by INPRTG when RTDB lookup on conditioned digits finds a DN match with SP as an associated entity.	RELAY (default)	Execute the rest of the provisioned Service Actions, and possibly Relay the IDP message if no other execution results in a response.	CDSPRSP is used if INPRTG is executed from one of the IDPRCDPN(X) services. CGSPRSP is used if INPRTG is executed from the IDPRCGPN service.
	CONNECT	Send a CONNECT message.	
	CONTINUE	Send a CONTINUE message.	
	RELEASE	Send a RELEASE message.	
CDNOENTITYRSP or CGNOENTITYRSP Defines the result (relay/response) as determined by INPRTG when RTDB lookup on conditioned digits does not find an entity associated with the DN.	RELAY	Execute the rest of the provisioned Service Actions, and possibly Relay the IDP message if no other execution results in a response.	CDNOENTITYRSP is used if INPRTG is executed from one of the IDPRCDPN(X) services.
	CONNECT	Send a CONNECT message	CGNOENTITYRSP is used if INPRTG is executed from the IDPRCGPN service.

Table 2-11 (Cont.) TTROPTS Configuration Options

Parameter	Value	Description	Notes
	CONTINUE (default)	Send a CONTINUE message.	
	RELEASE	Send a RELEASECALL message.	
CDDNNOTFNRSP or CGDNNOTFNRSP	RELAY	Execute the rest of the provisioned Service Actions, and possibly Relay the IDP message if no other execution results in a response.	CDDNNOTFNRSP is used if INPRTG is executed from one of the IDPRCDPN(X) services. CGDNNOTFNRSP is used if INPRTG is executed from the IDPRCGPN service.
Defines the result (relay/response) as determined by INPRTG when RTDB lookup on conditioned digits does not find a match.	CONNECT	Send a CONNECT message	
	CONTINUE	Send a CONTINUE message.	
	RELEASE (default)	Send a RELEASE message.	
CDRELCAUSE or CGRELCAUSE	1-127		CDRELCAUSE is used if INPRTG is executed from one of the IDPRCDPN(X) services CGRELCAUSE is used if INPRTG is executed from the IDPRCGPN service.
Specifies the Release Cause parameter value to be put into the RELEASECALL response message.			
MAP - Mapping Direction	NAI2TON TON2NAI	NAI mapping to TON TON mapping to NAI	See <i>Commands User's Guide</i> for IDPR TON mapping default values.
Specifies the mapping direction between the Type of Number (TON) and the Nature Of Address Indicator (NAI)			
NAI - Nature of Address Indicator	0-127		See <i>Commands User's Guide</i> for IDPR TON mapping default values.
Specifies the NAI used in mapping			
TON - Type of Number	0-7		See <i>Commands User's Guide</i> for IDPR TON mapping default values.
Specifies the Type of Number used in mapping			

The following `chg-sccpopts` command parameters are used to provision the values in the SCCPOPTS table for IDP Relay Conditioning Action execution:

Table 2-12 SCCOPTS Options for IDP Relay Conditioning Action Execution

Parameter	Value	Description	Notes
ACLEN	0-8	Length of the Area Code extracted from the CgPN.	Used in ACCGPN Conditioning Action execution for IDP Relay.
CCLLEN	0-3	Length of the Country Code extracted from the CgPN.	Used in CCCGPN Conditioning Action execution for IDP A-Party Routing.
INTLUNKNNAI	yes, no	indicates that the Unknown NAI contains International NAIs and needs processing during Country Code conditioning.	Used for Country Code conditioning in CCCGPN Conditioning Action execution for IDP A-Party Routing.

The following `chg-sccopts` command parameter is used to set the operation of the S-Port Subscriber Differentiation function to ON or OFF:

Table 2-13 SCCOPTS Option for the S-Port Subscriber Differentiation Feature

Parameter	Value	Description	Notes
SUBDFRN	on, off	Turns on and off the operation of the S-Port Subscriber Differentiation function	Feature must be enabled and on before parameter can be provisioned.

2.3 IDP Relay Additional Subscriber Data Feature

The IDP Relay Additional Subscriber Data (IDPR ASD) feature allows for the insertion of Additional Subscriber Data (ASD) from the incoming CgPN and **CdPN** digit strings into the CdPN of an outgoing IDP query message.

Typical uses for IDP Relay use of ASD are for CNL information and for triggerless equal access information.

IDPR ASD uses the ASDLKUP and CgPNASDRqd Service Actions for the IDPRCDPN serviceIDPRCDPN, IDPRCDPN2, IDPRCDPN3, and IDPRCDPN4 services in NPP processing.

- The ASDLKUP Service Action Handler uses the ASDLKUP Service Action to perform an individual or range RTDB lookup on the conditioned CdPN, to find an entry containing an ASD digit string.
- The CgPNASDRqd Service Action Handler performs an RTDB lookup for the DN in the CgPN indicated by the ASDLKUP Service Action, and populates the value for the ASD Formatting Action with the found ASD.

The ASDLKUP Service Action or CgPNASDRqd Service Action can coexist in the same Service Action group with any other Service Actions used by IDP Relay. The ASDLKUP Service Action and the CgPNASDRqd Service Action are mutually exclusive in the same Action Set.

Depending on the Formatting Action configuration for the selected NPP rule, the NPP Formatting Action execution can use the ASD in formatting the CdPN digit string in the outgoing message.

2.4 IDP Relay Generic Routing Number Feature

The IDP Relay Generic Routing Number (IDPR GRN) feature allows for the insertion of Generic Routing Number data (GRN) from the incoming CgPN and **CdPN** digit strings into the CdPN of an outgoing IDP query message.

IDPR GRN uses the GRNLKUP and CgPNGRNRqd Service Actions for the IDPRCDPN serviceIDPRCDPN, IDPRCDPN2, IDPRCDPN3, and IDPRCDPN4 services in NPP processing.

- The GRNLKUP Service Action Handler uses the GRNLKUP Service Action to perform an individual or range RTDB lookup on the conditioned CdPN, to find an entry containing a GRN digit string.
- The CgPNGRNRqd Service Action Handler performs an RTDB lookup for the DN in the CgPN indicated by the GRNLKUP Service Action, and populates the value for the GRN Formatting Action with the found GRN.

The GRNLKUP Service Action or CgPNGRNRqd Service Action can coexist in the same Service Action group with any other Service Actions used by IDP Relay. The GRNLKUP Service Action and the CgPNGRNRqd Service Action are mutually exclusive in the same Action Set.

Depending on the Formatting Action configuration for the selected NPP rule, the NPP Formatting Action execution can use the GRN in formatting the CdPN digit string in the outgoing message.

2.5 EAGLE Commands

This section describes commands that can be used for the configuration of the Prepaid IDP Query Relay (**IDP Relay**) feature and related features.

Refer to *Commands User's Guide* for complete descriptions of the commands listed in [Table 2-14](#), including parameter names, valid values, rules for using the commands correctly, and output examples.

Table 2-14 Commands used for IDP Relay and Related Features

Type	Commands
System Serial Number	ent/rtrv-serial-num
Card	ent/dlt/rtrv/alw/inh/init/rept-stat-card
Numbering Plan Processor (NPP)	ent/chg/dlt/rtrv-npp-as, ent/chg/dlt/rtrv-npp-srs, chg/rtrv-npp-serv
Feature Control	chg/rtrv-feat, enable/chg/rtrv-ctrl-feat
STP Options	chg/rtrv-stpopts
TTR Options	chg/rtrv-ttropts
SCCP Options	chg/rtrv-sccpopts
Common Screening List	ent/chg/dlt/rtrv-csl
Prepaid Short Message Service options	chg/rtrv-ppsopts

Table 2-14 (Cont.) Commands used for IDP Relay and Related Features

Type	Commands
Service Selector	chg/dlt/ent/rtrv-srvsel
Test Tool	chg/rtrv-ttr-msg, tst-msg

`ent / chg / dlt / rtrv-npp-as, ent / chg / dlt / rtrv-npp-srs, chg / rtrv-npp-serv`

The NPP commands are used to provision and display the values for components that are used in NPP processing.

`enable-ctrl-feat / chg-ctrl-feat / rtrv-ctrl-feat`

These commands are used to enable, turn on, and display the on/off status of IDP-related features and the Service Portability feature.

`chg-stpopts / rtrv-stpopts`

The STP Options commands are used to provision system options for the EAGLE. The options are used to control system-level processing. Features can check the option values to determine what processing to apply.

`chg-ttropts / rtrv-ttropts`

The TTR Options commands are used to provision the configuration options for the IDP Relay feature. The options control number portability and Service Portability processing for IDP messages and response message formatting.

`chg / rtrv-sccpopts`

The SCCP Options commands are used to provision SCCP options that are used in NPP Conditioning Action execution for the IDP Relay and DP A-Party Routing features.

The SCCP Options commands are used to provision the following options:

- SCCP options that are used in NPP Conditioning Action Execution for the IDP Relay and IDP A-Party Routing features
- The SCCPOPTS SUBDFRN option that is used to turn on and off the operation of the S-Port Subscriber Differentiation function in the system

`ent-cs1 / chg-cs1 / dlt-cs1 / rtrv-cs1`

Common Screening List (CSL) commands are used to define, change, and display screening requirements of various features. For the IDP Relay feature, the following screening lists are required:

- GT screening list - The SCCP CdPA GTA from the incoming message is compared to digit string (DS) entries in this list. If not found, the message falls to GTT handling.
- CCNC screening list - The conditioned **TCAP DN** in international format is compared to this list for a match before RTDB lookup. If not found, the message falls to GTT handling.
- SKBCSM screening list - The concatenated **SK + BCSM** from the incoming message is compared to digit string (DS) entries in this list. If not found, the message falls to GTT handling.

The SKBCSM list also contains provisioned SCP GTA values for Service Key-based GTA Routing, and indicates which IDPRCDPN(X) service is to be used for the message.

For the IDP Service Key Routing feature, SK routing can be processed only if a valid Prepaid Portability Type is found in the list.

- OPCDPC screening list - For messages with GTI=0, this screening list is used instead of the GT screening list to support the Route on SSN message for true PC and MTP-routed messages. If not found, the message falls to GTT handling.
- Delete prefix screening list - When performing number conditioning for incoming **NAI=Unknown** case, this list is checked for **IEC** or **NEC**. This is checked by searching the TCAP DN on this list.

chg-ppsopts / rtrv-ppsopts

The PPSOPTS commands are used to provision and display entries that correspond to Intelligent Network (IN) platforms. The IDP A-Party Routing feature and the IDP SK Routing feature require valid Prepaid data entries in the PPSOPTS table.

ent-srvsel / dlt-srvsel / chg-srvsel / rtrv-srvsel

The IDP Relay (IDPR) service selector commands are used to provision and display service selector information for the `idpr` service.

chg / rtrv-ttr-msg, tst-msg

The `chg/rtrv-ttr-msg` commands are used to enter and display up to 10 test messages in the TESTMSG table. The messages can be sent by the `tst-msg` command to the provisioned IDP-related features to verify call flow.

2.6 Hardware Requirements

EPAP-related features that perform an RTDB lookup require Service Module cards (E5-SM4G, E5-SM8G-B, or SLIC cards) running the SCCPHC application. The EAGLE can be equipped with up to 32 (31+1) Service Module cards.

Features that do not perform an RTDB lookup require Service Module cards only for GTT processing that might be performed for the feature. These features can coexist in systems with EPAP, but do not require an EPAP connection.

3

IDP A-Party Blacklist Feature

The IDP A-Party Blacklist feature enhances the Prepaid IDP Query Relay feature to provide a generic framework to support subscriber blacklisting capability with a query-based or relay-based method. The feature supports the blacklist check on Calling Party (A-Party or CgPN) number in the IDP CAMEL or INAP message.

3.1 Feature Description

The IDP A-Party Blacklist feature provides subscriber blacklisting capability on the Calling Party (A-Party or CgPN) number in the IDP CAMEL message. (The feature is not supported for IDPSMS messages.) The blacklisting function is achieved using either a query-based mode, or a relay-based mode in conjunction with IDP Relay feature processing.

EAGLE receives an IDP query message destined to the EAGLE PC, or a prepaid IDP message sent to the EAGLE PC for translation to a prepaid SCP. MSCs are configured with a trigger point to send an IDP message for just post-paid, or prepaid, or all subscribers in the network, depending on the use case for a particular operator.

The necessary discrimination and pre-processing are performed by the prepaid IDP Relay functions (SCCP CdPA check, CgPA check and SKBCSM Common Screening List). The Calling Party Number (from the CgPN parameter in the message) is decoded. If the subscriber number is blacklisted, the number in the EPAP RTDB has a blacklist flag and any Routing Number information that is needed to re-route the call. If a blacklist match is found, a Connect message is returned with Routing Number (if provisioned). This Routing Number could be a service center number that receives the re-routed call and provides the necessary assistance. If the subscriber is not blacklisted, the IDP message continues normal processing for IDP A-Party Blacklist Relay, or a CONTINUE response is generated for IDP A-Party Blacklist Query.

The blacklisting function is achieved using either a query-based mode or a relay-based mode. The two modes are provided by two Numbering Plan Processor (NPP) Service Actions that are executed by the Prepaid IDP Query Relay (IDP Relay) IDPRCGPN NPP service:

- IDP A-Party Blacklist Query mode is provided by the BLKLSTQRY NPP Service Action, which is used when a query/response mode is desired for both blacklist-match and blacklist-no-match cases.
- IDP A-Party Blacklist Relay mode is provided by BLKLSTRLY NPP Service Action, which is used when a query/response mode is desired only for the blacklist-match case. In the blacklist-no-match case, the message is subject to other new or existing provisioned features, their status, and the results of any other Service Action Handler execution.

3.1.1 IDP A-Party Blacklist Query

IDP A-Party Blacklist Query mode is provided by the BLKLSTQRY NPP Service Action, which is used when a query/response mode is desired for both the blacklist-match and blacklist-no-match cases.

The BLKLSTQRY Service Action is used only by the IDP Relay IDPRCGPN NPP service, and is mutually exclusive with the BLKSTRLY Service Action in the same rule.

BLKLSTQRY is an IDPRCgPN terminating Service Action for the blacklist-match case. The BLKLSTQRY Service Action performs an RTDB lookup on the conditioned A-Party number.

- In the blacklist-match case, the CgPN lookup on the RTDB results in an entry in which the blacklist flag is on and GRN data is present.

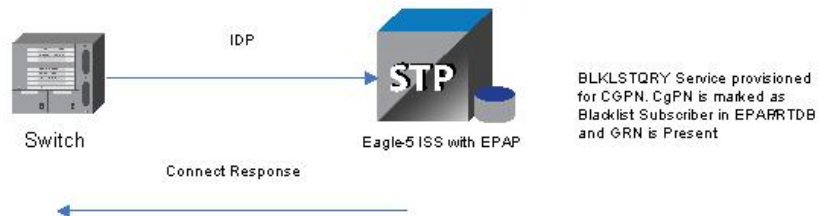
A Connect response is encoded and sent back to originator of the IDP message using the existing routing mechanism.

The DRA parameter in the response is encoded using GRN entity digits from the RTDB and the TTROPTS DRAFRMT and DRANAI option value.

The TTROPTS DRANAI option value is used to encode the DRA NAI component of the DRAFRMT option format. If the NAI is International, the format must contain the Country Code (CC), If the NAI is National or Subscriber, the format does not contain the Country Code (CC).

The DRA NP value is always encoded as “e.164”, and the DRA NAI will be encoded based on the TTROPTS DRANAI option value.

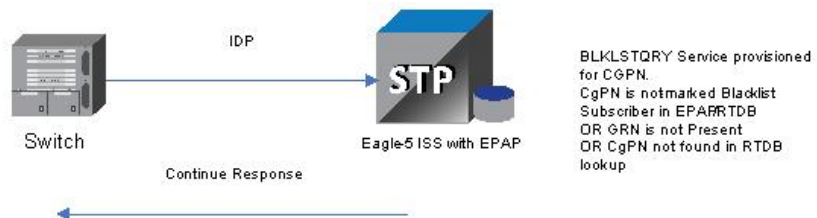
Figure 3-1 IDP A-Party Blacklist Query Response - Connect



- In the blacklist-no-match case, an RTDB entry is not found for the CgPN, or an entry is found but the blacklist flag is off or GRN data is not present.

A Continue response is encoded and sent back to the originator of the IDP message using the existing routing mechanism.

Figure 3-2 IDP A-Party Blacklist Query Response - Continue



The IDP Relay feature post-NPP processing function handles IDP A-Party Blacklist post-NPP processing. Based on the IDP Relay feature status and the possible BLKLSTQRY Service Action Handler execution results, post-processing encodes the Connect or Continue response. See [Table 2-6](#).

On completion of feature specific handling, a generic translation can be applied to map success/failure results into required measurements pegs and `rept-stat-sccp` statistics.

In the post-processing handler for IDP A-Party Blacklist Query, network conversion is not allowed while sending the response. If the resulting PC is of a different network domain, or the Connect or Continue results in any encoding or decoding failures, then the IDP A-Party Blacklist Query processing is considered to be a failure. Based on the “return-on-error” flag in the incoming IDP message, either the UDTs will be sent back to the originator or the message is discarded if the failure was due to GTT on the CgPA.

In case of any failures in message processing, feature specific post-processing will also set unique execution error codes that can be used to identify the processing applied to the IDP message.

3.1.2 IDP A-Party Blacklist Relay

IDP A-Party Blacklist Relay mode is provided by the BLKLSTRLY NPP Service Action, which is used when a query/response mode is desired only for the blacklist-match case.

The BLKLSTRLY Service Action is used only by the IDP Relay IDPRCgPN NPP service; it has the highest precedence and is mutually exclusive with the BLKLSTQRY SA in the same rule.

BLKLSTRLY is a terminating Service Action on a blacklist match.

The BLKLSTRLY Service Action performs an RTDB lookup on the conditioned A-Party number.

- In the blacklist-match case, the CgPN lookup on the RTDB results in an entry in which the blacklist flag is on and GRN data is present.

A Connect response is encoded and sent back to originator of the IDP message (see part 1 on the left side of [Figure 3-3](#)).

The DRA parameter in the associated GRN entity digits are used to encode the DRA digits according to the TTROPTS DRAFRMT option value.

The TTROPTS DRANAI option value is used to encode the DRA NAI component of the DRAFRMT option format. If the NAI is International, the format must contain the Country Code (CC), If the NAI is National or Subscriber, the format does not contain the Country Code (CC).

The DRA NP value is always encoded as “e.164”, and the DRA NAI will be encoded based on the TTROPTS DRANAI option value. All other Service Action processing is ignored.

- In the blacklist-no-match case, the message is serviced through other applicable IDP Relay Service Actions, or falls through to GTT processing if there are no subsequent applicable Service Actions. (See part 2 on the right side of [Figure 3-3](#).)

Figure 3-3 IDP A-Party Blacklist Relay



In the post-NPP processing handler for IDP A-Party Blacklist Relay, network conversion is not allowed while sending the response. If the resulting PC is of different network type or the Connect results in any encoding failures, the IDP A-Party Blacklist Relay processing is considered to be a failure. Based on the “return-on-error” flag in the incoming IDP message, either the UDTs will be sent back to the originator or the message is discarded.

3.1.3 IDP A-Party Blacklist Service Action Handlers

IDP A-Party Blacklist provides Service Action Handlers for the NPP Service Actions that are specific to the feature. IDP A-Party Blacklist and NPP perform the following functions:

- RTDB lookup
- Interpretation of results from RTDB lookups
- NPP processing of Service Actions that are used for IDP A-Party Blacklist

[Table 3-1](#) provides a summary of the Service Actions used for IDP A-Party Blacklist.

Table 3-1 Summary of IDP A-Party Blacklist Service Actions

Service Action	Description	Function	Precedence
BLKLSTQRY	Blacklist Query	Provides query response mode handling for selected incoming IDP Query messages.	90
BLKLSTRLY	Blacklist Relay	Provides relay mode handling for selected incoming IDP Query messages.	90
CgPNSvcRqd	Calling Number Lookup	Sets a flag to cause the IDPRCgPN service to be invoked for the message.	60

3.1.3.1 BLKLSTQRY Service Action Handler

The BLKLSTQRY Service Action Handler performs an RTDB lookup on the conditioned CgPN digit string and indicates whether a Connect or Continue message should be sent to the originating SSP.

The BLKLSTQRY Service Action is mutually exclusive with all other IDPRCGPN Service Actions in an Action Set.

Configuration Options Used

None.

Action Performed

If the CgPN is found in the RTDB lookup, and the subscriber is blacklisted, and GRN data is present, a Connect message will be sent.

If the CgPN is not found in the RTDB lookup, or the subscriber is not blacklisted, or GRN data is not present, a Continue message will be sent.

The NPP Formatting Action processing will be skipped. One way to force formatting is to configure the CDIAL Service Action.

Terminating Action?

This is a terminating action.

3.1.3.2 BLKLSTRLY Service Action Handler

The BLKLSTRLY Service Action Handler performs an RTDB lookup on the conditioned CgPN digit string and indicates whether a Connect message will be sent to the originator, or the IDP query will be relayed to the SCP.

The BLKLSTRLY and BLKLSTQRY Service Actions are mutually exclusive in an Action Set.

Configuration Options Used

None

Action Performed

If the CgPN is found in the RTDB lookup, the subscriber is blacklisted, and GRN data is present, a Connect message will be sent.

If the CgPN is not found in the RTDB lookup, the subscriber is not blacklisted, and GRN data is not present, the IDP query will be relayed to the SCP.

The NPP Formatting Action processing will be skipped. One way to force formatting is to configure the CDIAL Service Action.

Terminating Action?

This is a terminating action only on a blacklist match.

3.2 EAGLE Commands

[EAGLE Commands](#) describes commands that can be used for the configuration of the IDP A-Party Blacklist feature.

Refer to *Commands User's Guide* for complete descriptions of the commands, including parameter names, valid values, and output examples for the commands.

4

IDP A-Party Routing and IDP Service Key Routing Features

The IDP A-Party Routing and IDP Service Key Routing components of the IDP A-Party Routing feature enhance the Prepaid IDP Query Relay feature to provide a routing alternative to the existing default SCCP GTA routing. An IDP or IDPSMS message can be routed to an available Prepaid Server.

- IDP A-Party Routing uses the A-Party (CgPN) parameter of an IDP or IDPSMS message
- IDP Service Key Routing uses the ServiceKey and EventTypeBCSM parameters in the incoming IDP or IDPSMS message.

4.1 Feature Description

The IDP A-Party Routing feature has two components:

- IDP A-Party Routing - Part Number 893033301
- IDP Service Key Routing - Part Number 893033601

IDP A-Party Routing and IDP Service Key Routing are functions of the NPP IDPRCGPN service for IDP Relay that can be used independently and together. When used together, the IDP A-Party Routing function will be attempted first. If sufficient information is not available for routing, then execution of the IDP Service Key Routing function can be attempted as a fall-through option. The IDP Service Key Routing function is attempted as a fall-through option only if that desired behavior is configured. This allows both features to be enabled and turned on, yet only IDP A-Party Routing, only IDP SK Routing, or both can be selected.

Common Screening Lists, SCCP configuration options, and TTR configuration options control the operation of the two features. NPP processing for the features uses the IDP Relay feature IDPRCDPN1, IDPRCDPN2, IDPRCDPN3, IDPRCDPN4, and IDPRCGPN services and specific Conditioning Actions and Service Actions.

IDP A-Party Routing

IDP A-Party Routing in the EAGLE is an extension of the Prepaid IDP Query Relay (IDP Relay) feature that uses the A-Party (CgPN) parameter of an IDP or IDPSMS message to provide a routing alternative to the default SCCP GTA routing.

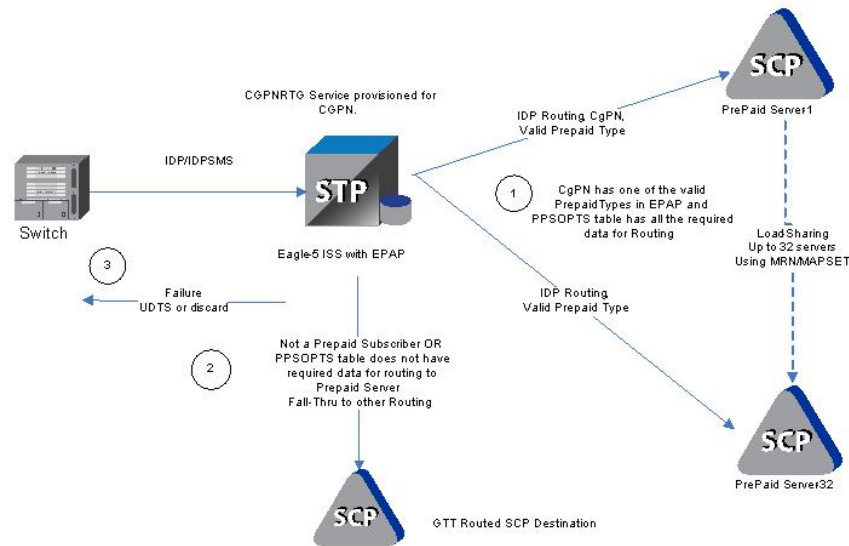
The IDP A-Party Routing function is provided by an NPP Service Action, and by routing algorithms used during post-NPP processing. The routing algorithms use Prepaid Short Message (PPSOPTS) table data and MRNSET or MAPSET table data.

If all of the required data for A-Party routing is provisioned, then IDP A-Party Routing is attempted. In the case of successful routing, an IDP or IDPSMS message can be routed to one of the available Prepaid Servers from a list of provisioned servers in the MRNSET or MAPSET loadshare table. In the case of a routing failure, either a UDTS is sent back to the originator, or the message is discarded. If all of the required data for A-Party routing is not provisioned, then routing will fall through to either IDP Service Key Routing or GTT routing.

[Figure 4-1](#) illustrates the following IDP A-Party Routing use cases:

1. Successful A-Party Routing to a prepaid server
2. Fall-through to IDP Service Key Routing or GTT routing when the A-Party is not a prepaid subscriber or A-Party Routing does not have the complete data required for routing to the prepaid server
3. Failed A-Party Routing; either a UDTS is sent back to the originator or the message is discarded

Figure 4-1 IDP A-Party Routing Message Flow



IDP Service Key Routing

IDP Service Key Routing in the EAGLE is an extension of the Prepaid IDP Query Relay (IDP Relay) feature that provides a routing alternative to the default SCCP GTA routing during post-NPP processing, either independently or as a fall-through option for IDP A-Party Routing.

IDP Service Key Routing uses the Service Key and EventType BCSM parameters in the incoming IDP or IDPSMS message, the provisioned prepaid type data in the SKBCSM Common Screening List, and data in the Prepaid Short Message (PPSOPTS), MRNSET, and MAPSET tables.

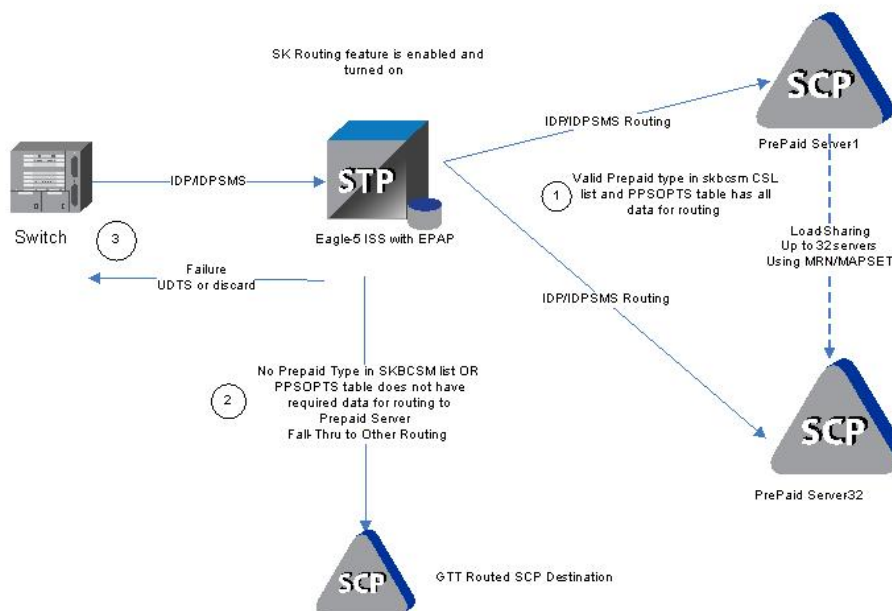
If all of the required data for Service Key routing is provisioned, then IDP Service Key Routing is attempted. In the case of successful routing, the IDP or IDPSMS message can be routed to one of the available Prepaid Servers from a list of provisioned servers in the MRNSET or MAPSET load share table. In the case of routing failure, either a UDTS is sent back to the originator, or the message is discarded. If all of the required data for Service Key routing is not provisioned, then routing will fall through to GTT routing.

Figure 4-2 illustrates the following IDP Service Key Routing use cases:

1. Successful Service Key Routing to a prepaid server
2. Fall-through to GTT routing; either the SKBCSM list or the PPSOPTS table does not have the complete data required for routing to the prepaid server

- Failed Service Key routing; either a UDTS is sent back to the originator or the message is discarded

Figure 4-2 IDP Service Key Routing Message Flow



4.1.1 IDP A-Party Routing and Service Key Routing Interaction

The two features link together when both features are turned on and the A-Party Routing CGPNRTG NPP Service Action is provisioned.

The processing always attempts A-Party Routing first. If A-Party Routing is not attempted, Service Key Routing will be attempted depending on the CGPNSKRTG configuration option value in the TTROPTS table. Service Key Routing is considered only if both features are enabled and turned on.

- If the CGPNSKRTG option is ON, Service Key Routing will be considered if A-Party Routing is not attempted. A-Party Routing will not be attempted if sufficient data required for A-Party Routing is not provisioned.
- If the CGPNSKRTG option value is OFF, Service Key Routing will be skipped and the message falls through to GTT routing if A-Party Routing is not attempted.

Whether A-Party Routing or Service Key (SK) Routing is attempted, after a message attempts to route, no other routing method (including the regular SCCP GTA/GTT routing) is attempted. If routing fails, this is treated as an IDP Relay routing failure; a UDTS is sent and the message is discarded.

Table 4-1 IDP A-Party Routing and IDP Service Key Routing Feature Interaction

A-Party Routing Turned On	CGPNRTG Service Action Provisioned		SK Routing Turned On	TTROPTS CGPN SKRTG	Routing Decision
No	N/A		No	N/A	Fall through to GTT
			Yes	N/A	SK Routing (Fail = UDTS, discard) (Insufficient Data=Fall through to GTT)
Yes	No		No	N/A	Fall through to GTT
			Yes	N/A	SK Routing (Fail = UDTS, discard) (Insufficient Data = Fall through to GTT)
Yes	Yes	Insufficient Data	No	N/A	Fall through to GTT
			Yes	Off	Fall through to GTT
				On	Fall through to SK Routing (Fail = UDTS, discard) (Insufficient Data = Fall through to GTT)
	Sufficient Data	N/A	N/A	A-Party Routing (Fail = UDTS, discard)	

4.1.2 IDP A-Party Routing Service Action Handlers

IDP A-Party Routing provides Service Action Handlers for the NPP Service Actions that are specific to IDP A-Party Routing. IDP A-Party Routing and NPP perform the following functions:

- RTDB lookup
- Interpretation of results from RTDB lookups
- NPP processing of Service Actions that are used for IDP A-Party Routing

[Table 4-2](#) provides a summary of the Service Actions used for IDP A-Party Routing.

Table 4-2 Summary of IDP A-Party Routing Service Actions

Service Action	Description	Function	Precedence
CGPNRTG	CgPN A-Party or Service Key Routing	Determines whether CgPN routing and/or SK routing should be attempted during post-NPP processing.	80

Table 4-2 (Cont.) Summary of IDP A-Party Routing Service Actions

Service Action	Description	Function	Precedence
CGPNSVCRQD	Calling Number lookup	Sets a flag to cause the IDPRCGPN service to be invoked for the message.	60

4.1.2.1 CGPNRTG Service Action Handler

The CGPNRTG Service Action Handler performs an RTDB lookup on the conditioned CgPN to find the Portability Type, and determines whether CgPN routing, or Service Key routing, or both should be attempted during post-NPP processing.

Configuration Options Used

If the IDP A-Party Routing feature and the IDP Service Key Routing feature are on, the TTROPTS CGPNSKRTG option is used to determine if Service Key Routing should be used as a fall-back option for A-Party Routing.

Action Performed

The Portability Type from the RTDB lookup is examined to identify a prepaid subscriber.

If the IDP Service Key Routing feature is on and the IDP Service Key Routing feature is not enabled, Service Key Routing will not be attempted in post-NPP processing.

If both features are on, the CGPNSKRTG configuration option is used to determine whether only A-Party Routing will be attempted, or Service Key Routing is available if A-Party Routing fails, in post-NPP processing.

Terminating Action?

This is not a terminating action.

4.1.2.2 CGPNSVCRQD Service Action Handler

The CGPNSVCRQD Service Action Handler sets a flag to cause the IDPRCgPN service to be invoked for the message.

Configuration Options Used

None.

Action Performed

A flag is set to cause the IDPRCgPN service to be invoked for the message.

Terminating Action?

This is not a terminating action.

4.2 EAGLE Commands

[EAGLE Commands](#) describes commands that can be used for the configuration and maintenance of the IDP A-Party Routing and IDP Service Key Routing features.

Refer to *Commands User's Guide* for complete descriptions of the commands, including parameter names, valid values, and output examples for the commands.

Maintenance Commands

See [Maintenance Commands](#) for a list of maintenance commands that can be used with the IDP A-Party Routing and IDP Service Key Routing features.

5

IDP Screening for Prepaid Feature

The **IDP** Screening for Prepaid feature provides a mechanism to decide, prior to routing the calls to the prepaid engine, whether checking the credit status of prepaid subscribers is required.

5.1 Feature Description

For a voice or text (short message) calls originated by prepaid subscribers, the serving MSC formulates an INAP IDP message, destined for a prepaid engine, to check subscriber credit status.

The IDP Screening for Prepaid feature provides a mechanism to intercept the IDP message and decide whether checking the credit status of prepaid subscribers is required before routing the calls to the prepaid engine.

In-network voice and text (short message) calls from prepaid subscribers, with specified "unlimited" call and texting plans, are not subjected to credit checks (routing to a prepaid engine) and are delivered by the MSC to the intended destination.

Voice Calls - Unlimited Call and Text

The EAGLE intercepts IDP messages and determines whether checking credit status is required prior to routing the calls to the prepaid engine.

Voice calls originated by prepaid subscribers with specified "unlimited" call and text plans are identified by a predefined Service Key value that differs from the one used for other originating voice calls (either originated by prepaid subscriber with specified "unlimited" text plans, or prepaid subscribers not subscribing to "unlimited" plans). The value assigned to the Service Key is set by the originating MSC when the call hits an Intelligent Network (IN) trigger.

For voice calls originated by prepaid subscribers with a specified "unlimited" call and text plan, the EAGLE examines whether the calls are in-network. In-network calls are calls from a subscriber to another subscriber, and are described by a list of prefixes. For in-network voice calls, the EAGLE returns an INAP Continue message to instruct the MSC to continue the calls (bypass the prepaid status check). For any other type of calls, the EAGLE relays the IDP message to the prepaid engine using Global Title Translation (GTT).

For voice calls that do not originate from prepaid subscribers with a specified "unlimited" call and text plan, the EAGLE relays the IDP message to its intended destination.

Text Calls - Unlimited Call and Text

Text calls (short messages) originated by prepaid subscribers with a specified "unlimited" call and text plan use the same Service Key as voice calls.

For text calls that do not originate from a "24/7 Call and Text Unlimited" or a "24/7 Text Unlimited" prepaid subscriber, the EAGLE relays the IDP message to its intended destination.

Text Calls - Unlimited and Text

Text calls originated by prepaid subscribers with a specified "unlimited" text plan will be identified by a predefined Service Key value that differs from the one used for calls originated by prepaid subscribers with a specified "unlimited" call and text plan or prepaid subscribers not subscribed to the specified "unlimited" calling plans.

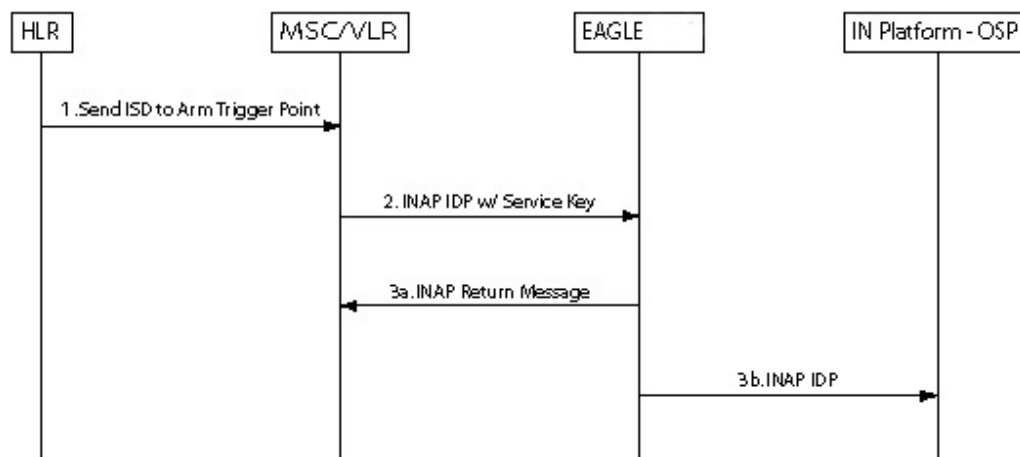
When text calls originate from prepaid subscribers with a specified "unlimited" text or "unlimited" call and text plan, the EAGLE examines whether the call is an in-network call. If it is an in-network text call, the EAGLE returns an INAP Continue message to instruct the MSC to continue the call.

For any other types of calls, the EAGLE relays the IDP message to the prepaid engine.

5.2 Call Flow

Figure 5-1 illustrates an IDP message that is subject to IDP screening for prepaid.

Figure 5-1 IDP Message Subject to IDP Screening for Prepaid



1. HLR sends the MAP Insert_Subscriber_Data message to MSC to arm trigger points.
2. MSC formulates an INAP IDP message and sends it to EAGLE with a Service Key encoded as follows:
 - ServiceKey = xx for voice and text calls originated from prepaid subscribers with "unlimited" call and text plan
 - ServiceKey = yy for text calls originated from prepaid subscribers with "unlimited" call and text plan
 - ServiceKey = zz for all other types of prepaid calls

EAGLE intercepts the INAP IDP message and determines the disposition of the call by examining the following values of the parameters encoded in the INAP IDP message:

- ServiceKey

- TeleService
 - CallingPartyNumber
 - CalledPartyBCDNumber
3. Based on the Service Key parameter values, the EAGLE performs on of the following:
- a. The EAGLE returns an INAP Continue Message to the MSC if any one of all the following 3 scenarios is identified:
 - Prepaid voice calls originated from prepaid subscribers with "unlimited" call and text that include:
 - ServiceKey = xx
 - TeleService = Telephony (value = 17)
 - Both Calling Party Number and CalledPartyBCDNumber are found in the In-Network Subscriber List
 - Prepaid text calls originated from prepaid subscribers with "unlimited" call and text that include:
 - ServiceKey = xx
 - TeleService = Short MessageMO-PP (value = 34)
 - Both Calling Party Number and CalledPartyBCDNumber are found in the In-Network Subscriber List
 - Prepaid text calls originated from prepaid subscribers with "unlimited" text that include:
 - ServiceKey = yy
 - TeleService = Short MessageMO-PP
 - Both Calling Party Number and CalledPartyBCDNumber are found in the In-Network Subscriber List
 - b. For all other scenarios, the EAGLE relays the INAP IDP message to its intended destination.

5.3 EAGLE Commands

This section describes EAGLE commands that can be used for configuration of the IDP Screening for Prepaid feature.

Refer to *Commands User's Guide* for complete descriptions of the following commands, including parameter names, valid values, and output examples for the commands.

Table 5-1 Commands used for IDP Screening for Prepaid

Type	Commands
System Serial Number	ent/rtrv-serial-num
Card	ent/dlt/rtrv/alw/inh/init/rept-stat-card
Feature Control	chg/rtrv-feat, enable/chg/rtrv-ctrl-feat
Common Screening List	chg/rtrv-csl
Service Selector	chg/dlt/ent/rtrv-srvsel

enable/chg/rtrv-ctrl-feat

These commands are used to enable, turn on, and display the on/off status of the IDP Screening for Prepaid feature.

ent/chg/dlt/rtrv-csl

Common screening list commands are used to define, change, delete, and display the screening requirements of various features. The following screening lists are required for the IDP Screening for Prepaid feature. Each screening is based on digit string.

- The In-Network Subscriber list (INSL) - used to determine whether a call is in-network.
The INSL contains up to 50 digit string entries specifying prefixes to be compared with the CalledPartyBCDNumber and the CallingPartyNumber digits of the incoming IDP message. If the leading digits of both numbers are found in the INSL, the call is considered in-network. Otherwise, it is an off-network call. The INSL is keyed off of a string of 1-15 digits.
- Service Key + TeleService (SKTS) screening list - contains up to 25 digit string entries with digit strings that represent the service key + TeleService number in OCD format. The SKTS list is keyed off of a 4 digit string.

ent/chg/dlt/rtrv-srvsel

The IDP Screening for Prepaid feature service selector (`srvsel`) commands are used to provision new selectors for the IDPS service, providing greater flexibility when provisioning the type of messages that require IDPS processing.

6

Feature Configuration

This chapter provides procedures for configuring the following features for use in the EAGLE:

- Prepaid IDP Query Relay (IDP Relay)
- IDPR ASD
- IDPR GRN
- IDP A-Party Blacklist
- IDP A-Party Routing and IDP Service Key Routing
- IDP Screening for Prepaid

Procedures are included for configuration of the Service Portability feature for use with the IDP Relay feature, and for the S-Port Subscriber Differentiation feature for use with Service Portability.

6.1 Introduction

This chapter describes prerequisites and procedures for the EAGLE configuration of the following features:

- Prepaid IDP Query Relay (IDP Relay)
- IDPR ASD
- IDPR GRN
- IDP A-Party Blacklist
- IDP A-Party Routing and IDP Service Key Routing
- IDP Screening for Prepaid

This chapter also provides procedures for configuration of the Service Portability feature for use with the IDP Relay feature and procedures for configuration of the S-Port Subscriber Differentiation feature for use with Service Portability.

Each section includes a configuration procedure that lists the steps for enabling and turning on each feature, and for the provisioning required for the features. Each step contains a link or reference to information and procedures to use to complete the step. Feature provisioning can be performed after the features are enabled and before the features are turned on.

Note:

Controlled features are optional and must be purchased from Oracle Communications before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Oracle Communications Sales or Account Representative.

Before any feature that is described in this manual can be enabled, the system prerequisites listed in [System Prerequisites](#) must be verified, and provisioned if needed.

6.1.1 System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in [Table 6-1](#) are required in the system.

Table 6-1 System Prerequisites

Prerequisite	Verification and Provisioning
<p>The system serial number must be correct and locked.</p> <p>For new installations, the system is shipped with an unlocked serial number. The serial number can be changed if necessary and must be locked after the system is on-site.</p> <p>For systems that are being upgraded, the serial number is usually already verified and locked.</p>	<p>Note: The serial number cannot be changed after it is entered and locked in the system.</p> <p>Locate the serial number for the system on a label affixed to the control shelf (1100).</p> <p>Enter the <code>rtrv-serial-num</code> command to display the serial number and its locked status.</p> <p>Verify that the displayed serial number is correct for the system.</p> <p>If no serial number is displayed, enter the <code>ent-serial-num</code> command (without the <code>lock</code> parameter) to provision the serial number that appears on the control shelf label. Enter the <code>rtrv-serial-num</code> command and verify that the serial number was entered correctly.</p> <p>Enter the <code>ent-serial-num</code> command with the <code>lock=yes</code> parameter to lock the serial number in the system.</p>
<p>A sufficient number of Service Module cards must be equipped.</p>	<p>Enter the <code>rept-stat-card:appl=vscpp</code> command to list the Service Module cards in the system.</p> <p>If more cards or cards of a different type are needed, refer to the procedures in <i>Database Administration - GTT User's Guide</i> to add or remove Service Module cards.</p>
<p>The GTT feature must be on in the system. Some features require an additional GTT-related feature such as EGTT. See the specific feature prerequisites in this section.</p>	<p>Enter the <code>rtrv-feat</code> command to display the GTT feature status.</p> <p>If the GTT feature is on, the <code>gtt=on</code> entry appears in the output.</p> <p>If the <code>gtt=off</code> entry appears in the output, use the procedures in <i>Database Administration - GTT User's Guide</i> to turn on and provision the GTT feature and any other GTT-related features and functions that will be used in the system.</p>

6.2 Prepaid IDP Query Relay Configuration

The Prepaid IDP Query Relay (IDP Relay) feature and related features are configured on the EAGLE. This section describes prerequisites and procedures for the configuration of the Prepaid IDP Query Relay (IDP Relay) feature and related features.

This section also includes procedures for configuration of the Service Portability feature for use with IDP Relay, and for provisioning an SCCP option used by NPP for IDP Relay.

[Configuration Procedure for IDP Relay and Related Features](#) lists the steps for enabling and turning on IDP Relay-related features and the Service Portability feature, and for the provisioning required for the features. Each step contains a link or reference to information and procedures to use to complete the step.

Feature provisioning can be performed after the features are enabled and before the features are turned on.



Note:

Controlled features are optional and must be purchased from Oracle Communications before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Oracle Communications Sales or Account Representative.

The Test Tool for IDP Relay can be used to verify IDP Relay provisioning. See [TTR Test Tool](#).

6.2.1 IDP Relay-Related Feature Prerequisite

Before any IDP Relay-related feature can be enabled, the following prerequisites are required in the system:

Table 6-2 IDP Relay-Related Feature Prerequisite

Prerequisite	Verification and Provisioning
The LNP feature cannot be on in the system	Enter the <code>rtrv-ctrl-feat</code> command. If the LNP feature is on, shown with a quantity greater than zero for the <code>LNP ported TNs</code> entry in the command output, features described in this manual cannot be enabled.

6.2.2 Configuration Procedure for IDP Relay and Related Features

The EAGLE configuration of the Prepaid IDP Query Relay (IDP Relay) feature, IDPR ASD, IDPR GRN, Service Portability, and S-Port Subscriber Differentiation consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

1. Verify, and provision if needed, the system prerequisites. See [System Prerequisites](#).
2. Verify, and provision if needed, the feature prerequisites. See [IDP Relay-Related Feature Prerequisite](#).
3. Provision NPP for IDP Relay. See [Provisioning NPP for IDP Relay](#).
 - Provision NPP Action Sets and Service Rule Sets.
 - Provision NAI mapping values for each service.
 - Set the NPP service status to ON for each IDP service.
4. Enable the IDP Relay feature. See [Enabling IDP Relay-Related Features](#).

5. Verify that the Default Country Code value for the STPOPTS DEFCC parameter is a value other than `none`. Refer to the `chg-stpopts` and `rtrv-stpopts` command descriptions in *Commands User's Guide* to change and display the STPOPTS DEFCC value.
6. Turn on the IDP Relay feature. See [Turning On IDP Relay-Related Features](#).
7. Provision IDP Relay TTROPTS options. See [Provisioning the TTR Options for IDP Relay](#).
8. Provision the SCCPOPTS options for IDP Relay and related features. See [Provisioning SCCP Options for IDP Relay](#).
9. Provision the required Common Screening List (CSL) entries. See [Provisioning the Common Screening List for IDP Relay](#).
10. Enable and turn on any IDP-related features that will be used with IDP Relay. See [Enabling IDP Relay-Related Features](#) and [Turning On IDP Relay-Related Features](#).
11. If the Service Portability feature will be used with IDP Relay,
 - Enable the Service Portability feature. See [Enabling the Service Portability Feature](#).
 - Turn on the Service Portability feature. See [Turning On the Service Portability Feature](#).
 - Provision the TTROPTS options for the Service Portability feature. See [Provisioning the TTR Options for IDP Relay](#).
12. If the S-Port Subscriber Differentiation feature will be used with the Service Portability feature,
 - Enable the S-Port Subscriber Differentiation feature. See [Enabling the S-Port Subscriber Differentiation Feature](#).
 - Turn on the S-Port Subscriber Differentiation feature. See [Turning On the S-Port Subscriber Differentiation Feature](#).
 - Provision the SCCPOPTS SUBDFRN option for the S-Port Subscriber Differentiation feature. See [Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option](#).
13. Provision the IDP Relay service selector. See [Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option](#).
14. Use the Test Tool to verify the IDP Relay provisioning. See [TTR Test Tool](#)
 - Provision IDP Relay test messages for use with the Test Tool.
 - Execute the `tst-msg` command for the provisioned test messages.
15. Configure measurements collection and reporting if measurements are to be collected for IDP Relay, IDP A-Party Blacklist, IDP A-Party Routing, and IDP Service Key Routing features.

Refer to the procedures in *Database Administration - System Management User's Guide* for configuring OAM-based measurements, the Measurements Platform feature, the E5-OAM Integrated Measurements feature, and the EAGLE OA&M IP Security feature in the EAGLE.

6.2.3 Provisioning NPP for IDP Relay

Refer to *Numbering Plan Processor (NPP) User's Guide* and *Commands User's Guide*, and the IDP Relay feature description in this manual for the required information and procedures to provision NPP components for IDP Relay services.

NPP provisioning is performed in the following sequence for the components that are used for the specified IDP Relay service.

1. Provision the FNAI mnemonic values required for filter matches on the NAI values for the service, using the `chg-npp-serv` command.
2. Provision the NPP Action Sets with the Conditioning Actions, Service Actions, Formatting Actions, and outgoing NAI value that are to be used by IDP Relay, using the `ent-npp-as` command.
3. Provision the Service Rule Sets (Rules that specify the filter values and Action Sets) that are to be used by IDP Relay. Enter the `ent-npp-srs` command.
4. Provision any delimiter values that are used in the outgoing digit string formatting. Enter the `chg-npp-serv` command.
5. Change the service Status to `on` to allow NPP processing for the specified service. Enter the `chg-npp-serv:svrn=<service name>:status=on` command.

6.2.4 Enabling IDP Relay-Related Features

This procedure is used to enable IDP Relay-Related features in the EAGLE.

Each feature must be enabled using its feature part number and a feature access key.

- Prepaid IDP Query Relay (IDP Relay) - Part Number 893016001
- IDPR Additional Subscriber Data (IDPR ASD) - Part Number 893025701
- IDPR Generic Routing Number (IDPR GRN) - Part Number 893025601

Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When an IDP Relay-related feature is enabled, it is permanently enabled. The IDP-related features cannot be temporarily enabled.

Provisioning of TTROPTS options and other information can be done after the feature is enabled and before the feature is turned on.

After an IDP Relay-related feature has been enabled and database provisioning is complete, the feature status must be set to `on` (the feature must be “turned on”) See [Turning On IDP Relay-Related Features](#).

 **Note:**

As of Release 46.3, the `fak` parameter is no longer required. This parameter is only used for backward compatibility.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
;
```

If the entry for the IDP Relay-related feature that you want to enable appears in the `rtrv-ctrl-feat` output with status `on`, performing this procedure is not necessary.

2. Enable the each IDP Relay-related feature, by entering the `enable-ctrl-feat` command and specify the part number and feature access key for the feature. The IDP Relay feature must be enabled before the IDPR ASD and IDPR GRN features can be enabled.

```
enable-ctrl-feat:partnum=<893xxxxx>:fak=<feature access key>
```

3. Verify that each feature is enabled. Enter the `rtrv-ctrl-feat` command.

When the feature is enabled, the entry for the enabled feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay  893016001  off     ----
IDPR ASD              893025701  off     ----
IDPR GRN              893025601  off     ----
;
```

4. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.2.5 Turning On IDP Relay-Related Features

Before an IDP Relay-related feature can be turned on, the feature must be enabled in the EAGLE.

Provisioning of TTROPTS options and other information can be done after the feature is enabled and before the feature is turned on.

After a feature has been enabled and database provisioning is complete, the feature status must be set to on (the feature must be “turned on”). MSUs will not be processed by the feature until the feature is turned on.

This procedure is used to turn on IDP Relay-related features in the EAGLE. Each feature must be turned on using its feature part number:

- Prepaid IDP Query Relay (IDP Relay) - Part Number 893016001
- IDP Additional Subscriber Data (IDP ASD)- Part Number 893025701
- IDP Generic Routing Number (IDP GRN) - Part Number 893025601

After the IDP Relay feature is enabled and turned on, it cannot be turned off again.



Note:

As of Release 46.3, the `fak` parameter is no longer required. This parameter is only used for backward compatibility.

The IDPR ASD and IDPR GRN features can be turned on and off after they are enabled.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-05-29 16:40:40 EST  EAGLE5 41.1.0
  The following features have been permanently enabled:
  Feature Name           Partnum   Status   Quantity
  HC-MIM SLK Capacity    893012707 on        64
  Prepaid IDP Query Relay 893016001 off       ----
  IDPR ASD                893025701 off       ----
  IDPR GRN                893025601 off       ----
;
```

If the entry for the feature that you want to turn on appears in the `rtrv-ctrl-feat` output with status `on`, performing this procedure is not necessary.

If the status of the feature in the output is `off`, continue with 2.

2. Turn on the feature, by entering the `chg-ctrl-feat` command.


```
chg-ctrl-feat:partnum=<893xxxxxx>:status=on
```
3. Verify that each feature is turned on. Enter the `rtrv-ctrl-feat` command.

When the feature is turned on, the feature status changes to `on` in the `rtrv-ctrl-feat` command output.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707 on         64
Prepaid IDP Query Relay 893016001 on         ----
IDPR ASD              893025701 on         ----
IDPR GRN              893025601 on         ----
;
```

4. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.2.6 Provisioning the IDPR Service Selector

The procedures in this section describe how to add, change, and remove a service selector. The information is indicated that is specific to the IDP Relay feature.

IDP Relay requires the following service selector parameters:

- GTI - Global Title Indicator. Only GTII (ITU-I) and GTIN (ITU-N) are supported.
- TT - Translation Type
- SSN - Subsystem Number
- SERV - Service name (`idpr`)

The following service selector parameters are optional for IDP Relay:

- NP - Numbering Plan
- NAI - Nature of Address Indicator

The following service selector parameters are not supported for IDP Relay:

- SNP - Service Numbering Plan
- SNAI - Service Nature Of Address Indicator

Refer to *Commands User's Guide* for complete descriptions of the commands used in these procedures, including parameter names, valid values, and output examples for the commands.

6.2.6.1 Adding an IDPR Service Selector

This procedure is used to add a service selector for the IDPR feature.

The IDP Relay feature must be enabled and turned on before an IDPR service selector can be added.

1. Verify that the IDP Relay feature is enabled and turned on, by entering the `rtrv-ctrl-feat` command.

If the IDP Relay feature is enabled and turned on, the status of the Prepaid IDP Query Relay entry is on.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
Prepaid IDP Query Relay 893016001 on        ----
;
```

- If the IDP Relay feature is enabled and turned on, continue with 2.
- If the IDP Relay feature is not enabled or turned on, go to [Enabling IDP Relay-Related Features](#) to enable and turn on the IDP Relay feature. Then continue with 2.

2. Display any existing IDPR service selectors in the database, by entering the `rtrv-srvsel:serv=idpr` command.

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0

GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV
4     1   e164   intl  3    ---  ---   idpr
4     2   e164   intl  *    ---  ---   idpr

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV
4     4   e164   natl  4    ---  ---   idpr

SRV SELECTOR table is (3 of 20992) 1 % full
;
```

3. Add new idpr service selectors, using the `ent-srvsel` command. For example, enter commands like these:

```
ent-srvsel:serv=idpr:tt=35:ssn=100:gtin=4:np=e214:nai=natl
ent-srvsel:serv=idpr:tt=57:ssn=75:gtin=2
```

4. Verify the changes by entering the `rtrv-srvsel` command with the parameters and values used in 3.

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0

GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV
4     1   e164   intl  3    ---  ---   idpr
4     2   e164   intl  *    ---  ---   idpr

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV
```

```

4      4      e164      natl  4      ---  ---  idpr
4      35     e214      natl 100    ---  ---  idpr
2      57     ---      ---  75     ---  ---  idpr

```

```

SRV_SELECTOR table is (5 of 20992) 1 % full
;

```

5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

The following messages appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```

BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk
complete.

```

6.2.6.2 Removing a Service Selector

This procedure is used to remove a service selector from the database.

The `GTI`, `GTII`, `GTIN`, `tt`, and `ssn` parameter values can be used to limit the amount of information displayed with the `rtrv-srvsel` command.

1. Display the service selectors in the database, by entering the `rtrv-srvsel` command.

```

rlghncxa03w 08-06-28 14:42:38 GMT  EAGLE 39.2.0
GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV

4      1      e214      intl  4      e164  intl  gport

4      1      e214      intl  5      e164  intl  smsmr

4      2      e214      intl  5      e164  intl  mnpsms

4      2      e164      intl          ---  ---  vflex

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV

4      4      e214      natl  75     e164  intl  gflex

4      9      e214      natl 100    e164  intl  gflex

4      35     e214      natl 100    ---  ---  idpr
2      57     e214      natl  75     ---  ---  vflex

```



```
SRV_SELECTOR table is (8 of 20992) 1 % full
```

```
;
```

- Remove the service selector from the database, using the `dlt-srvsel` command. For example, enter commands like these.

```
dlt-srvsel:serv=idpr:tt=35:ssn=100:gtin=4:np=e214:nai=natl
```

```
dlt-srvsel:serv=idpr:tt=57:ssn=75:gtin=2
```

To remove a service selector, the `GTI`, `GTII`, `GTIN`, `tt`, and `ssn` parameter values must be entered as shown in the `rtrv-srvsel` command output.

- Verify the changes by entering the `rtrv-srvsel` command with the parameters and values used in 2.

```
rtrv-srvsel:serv=idpr:tt=35:ssn=100:gtin=4:np=e214:nai=natl
```

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0
```

```
GTIN TT NP NAI SSN SNP SNAI SERV
```

```
No SRV Selector found in range
```

```
;
```

```
rtrv-srvsel:serv=idpr:tt=57:ssn=75:gtin=2
```

```
tekelecstp 08-08-28 16:35:22 EST EAGLE 39.2.0
```

```
GTII TT NP NAI NPV NAIV SSN SNP SNAI SERV
```

```
No SRV Selector found in range
```

```
;
```

- Back up the changes using the `chg-db:action=backup:dest=fixed` command.

The following messages appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
```

```
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
```

```
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
```

```
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

6.2.6.3 Changing an Existing Service Selector to Another Service Selector

This procedure is used to change an existing service selector to another service selector.

The only parameters that can be changed using this procedure are:

`:nserv` - New DSM service type, `idpr`

`:nsnp` -An IDP Relay service selector cannot contain an SNP value; if the service selector being changed contains an SNP value, this value must be changed to `none` with this parameter.

`:nsnai` - An IDP Relay service selector cannot contain an SNAI value; if the service selector being changed contains an SNAI value, this value must be changed to `none` with this parameter.

The `chg-srvsel` command requires that the `gtii/gtin/gtin24`, `tt`, `np`, `nai`, `npv`, `naiv`, `ssn`, and `serv` parameters be specified with the values shown in the `rtrv-srvsel` output for the service selector that is being changed. If any of these parameter values need to be changed for an IDP Relay service selector, use the procedure in [Removing a Service Selector](#) to remove the existing service selector. Then use the procedure in [Adding an IDPR Service Selector](#) to add the new service selector with the new parameter information.

1. Display the service selectors in the database, using the `rtrv-srvsel` command.

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0

GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV
4      1  e214    intl  4    e164  intl  gport
4      1  e214    intl  5    e164  intl  smsmr
4      2  e214    intl  5    e164  intl  mnpsms
4      2  e164    intl  *    ---   ---   idpr

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV
4      4  e214    natl  34   e164  intl  gflex
4      9  e214    natl  ---  e164  intl  gflex

SRV_SELECTOR table is (6 of 20992) 1 % full
```

;

2. Verify that the IDP Relay feature is enabled and turned on, by entering the `rtrv-ctrl-feat` command. If the feature is enabled and turned on, the status in the feature entry is `on`.

```
rlghncxa03w 09-08-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay 893016001  on      ----
```

;

- If the feature is enabled and turned on, continue with [3](#).

- If the feature is not enabled or turned on, go to the [Enabling IDP Relay-Related Features](#) procedure to enable and turn on the IDP Relay feature. Then continue with 3.
3. Change the service selector, using a `chg-srvsel` command similar to the following example.

```
chg-
srvsel:gtin=4:tt=4:np=e214:nai=natl:ssn=34:nsnp=none:nsnai=none:n
serv=idpr
```

If the `SNP`, or `SNAI` parameter values are shown as dashes in the `rtrv-srvsel` output, these parameters cannot be specified with the `chg-srvsel` command. If the `gtii/gtin/gtin24` parameter value is 2, the `np`, `nai`, `npv`, and `naiv` parameters cannot be specified with the `chg-srvsel` command.

If the `gtii/gtin/gtin24` parameter value is 4, either the `np` and `nai`, or the `npv` and `naiv` parameters must be specified with the `chg-srvsel` command. The `np` and `nai` parameters can be specified in place of the `npv` and `naiv` parameters, and the `npv` and `naiv` parameters can be specified in place of the `np` and `nai` parameters as long as parameter values be specified correspond to the values shown in the `rtrv-srvsel` output.

The `gtii/gtin/gtin24`, `tt`, `ssn`, `np`, `nai`, `npv`, or `naiv` parameters cannot be changed in this procedure. To change these parameters, use the [Removing a Service Selector](#) procedure to remove the service selector. Then use the [Adding an IDPR Service Selector](#) procedure to re-enter the service selector as an IDP Relay service selector.

4. Verify the changes by entering the `rtrv-srvsel` command with the `serv` parameter value for the new service selector and the values for the other parameter that were used in 3.

```
rtrv-srvsel:gtin=4:tt=4:np=e214:nai=natl:ssn=34:serv=idpr
```

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0
```

GTIN	TT	NP	NAI	SSN	SNP	SNAI	SERV
4	4	e214	natl	34	---	---	idpr

```
SRV SELECTOR table is (6 of 20992) 1 % full
```

```
;
```

5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

The following messages appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

6.2.7 Provisioning the TTR Options for IDP Relay

This procedure is used to provision the `TTROPTS` configuration options for the Prepaid IDP Query Relay (IDP Relay) feature:

The IDP Relay feature must be enabled before the TTROPTS options can be provisioned.

1. Verify that the IDP Relay feature is enabled, and that any required IDP Relay-related features are enabled. Enter the `rtrv-ctrl-feat` command.

If the required features have not been turned on, the status in the feature entry is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status  Quantity
HC-MIM SLK Capacity   893012707 on       64
Prepaid IDP Query Relay 893016001 off      ----
;
```

- If the required features are enabled, continue with 2.
 - If a required feature is not enabled (the entry does not appear in the output), go to [Enabling IDP Relay-Related Features](#) to enable each required feature. Then continue with 2.
2. Display the current settings of the TTR options, using the `rtrv-ttropts` command.
 3. Change the TTR options to the required settings, by entering the `chg-ttropts` command with at least one of the option parameters specified.

Refer to the `chg-ttropts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the changes, by entering the `rtrv-ttropts` command.
5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.2.8 Provisioning SCCP Options for IDP Relay

This procedure is used to provision SCCPOPTS configuration options for IDP Relay and related features. The indicated feature must be enabled before the option can be provisioned.

- The `ACLEN` SCCPOPTS option is used for the IDP Relay feature.
- The `CLEN`, and `INTLUNKNAI` SCCPOPTS options are used for the IDP A-Party Routing and IDP Service Key Routing features.

1. Display the current settings of the SCCP options, using the `rtrv-sccpopts` command.
2. Change each SCCP option to the desired setting, by entering the `chg-sccpopts` command with the option parameter specified.
3. Verify the changes, by entering the `rtrv-sccpopts` command.
4. Back up the changes, using the `chg-db:action=backup:dest=fixed` command.

These messages appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.2.9 Provisioning the Common Screening List for IDP Relay

This procedure is used to provision the Common Screening List (CSL) digit string values for IDP Relay. The screenings are performed on digit strings. The following screening lists are used for IDP Relay:

- GT screening list - This list is used to compare the SCCP CdPA GTA from the incoming message to the digit strings in this list. If not found, the message falls through to GTT handling. (The message GTI value must not be zero, and the SCCP NAI must be international.)
 - CCNC screening list - This screening list is used by the CCNCCHK NPP Service Action to compare the conditioned TCAP DN in international format to the digit strings in this list for a match before RTDB lookup. If not found, the message falls through to GTT handling.
 - SKBCSM screening list - This screening list is used to:
 - Compare the concatenated Service Key (SK) and Basic Call State Model (BCSM) values from the incoming message to the provisioned SK+BCSM digit string (DS) entries in this list. If not found, the message falls through to GTT handling.
 - Determine, from the P2 entries in the list, which IDP Relay IDPRCDPN(X) service is to be used to perform NPP processing for the message.
 - Provide the SCP GTA value that will be used to replace the SCCP CdPA GTA in the message when Service Key-based GTA Routing is performed.
1. Verify that the IDP Relay feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the IDP Relay feature has not been turned on, the status in the feature entry is `off`. (The IDP Relay feature must be turned on before it operates in the system.)

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
Prepaid IDP Query Relay 893016001 off       ----
;
```

- If the IDP Relay feature is not enabled (the entry does not appear in the output), go to the appropriate steps in the [Configuration Procedure for IDP Relay and Related Features](#) to enable the feature. Then continue with 2.
 - If the IDP Relay feature is enabled, continue with 2.
2. Display the current Common Screening List settings, using the `rtrv-csl` command.
 3. Enter the digit string values for each list,. Enter the `ent-csl` command for each DS value for each list.

Refer to [EAGLE Commands](#) in this manual and to the `ent-csl` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

```
ent-csl:feature="Prepaid IDP Query Relay":list=ccnc:ds=<1-6
hex digits>
```

```
ent-csl:feature="Prepaid IDP Query Relay":list=gt:ds=<1-15
hex digits>
```

```
ent-csl:feature="Prepaid IDP Query
Relay":list=skbcsm:ds=<1-10 hex digits>
```

4. Verify the changes, by entering the `rtrv-csl` command.
5. Enter the `chg-csl` command with the `p2` parameter value to specify which IDPRCDPN(X) service will be used for each SK+BCSM entry in the SKBCSM list..

```
chg-csl:feature="Prepaid IDP Query
Relay":list=skbcsm:ds=<1-6 hex digits>:p2=<idprcdpn,
idprcdpn2, idprcdpn3, or idprcdpn4>
```

6. Verify the changes, by entering the `rtrv-csl` command.
7. If Service Key-based GTA Routing will be used, enter the `chg-csl` command to specify the `scpgta` value that will be used for the associated SK+BCSM digit string in the SKBCSM list.

```
chg-csl:feature="Prepaid IDP Query
Relay":list=skbcsm:ds=<1-6 hex digits>:scpgta=<SCP GTA>
```

8. Verify the changes, by entering the `rtrv-csl` command.
9. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.2.10 TTR Test Tool

The Test Tool can be used to send provisioned TTR (INAP and CAP) messages to test the number conditioning and formatting for the IDPRCDPNIDPRCDPN, IDPRCDPN2, IDPRCDPN3, IDPRCDPN4, and IDPRCGPN services. The test message is used to modify the internal data structure of the service and to study the call flow behavior when the message is injected into the call path. The test message is never sent out to the network.

The Test Tool provides the following capabilities:

- Define up to 10 TTR test messages in the TSTMSG table.
- Invoke IDP Relay and NPP to process the a test message.
- Generate a report of the actions taken and the results of the test.

The Test Tool can be invoked as follows:

- After initial provisioning of IDP Relay and NPP to verify the provisioning
- During IDP Relay feature operation, to quickly debug an issue

The information shown in [Table 6-3](#) can be configured for each test message:



Note:

CdPN represents either the INAP CS1 CalledPartyNumber parameter or the GSM Camel Application Part (CAP) CalledPartyBCDNumber parameter of the TTR message.

Table 6-3 TTR Test Message Parameters

Parameter		Range	Default
Message Number	MSGN	1-10	(Must be specified)
Service Key	SK	8 hexadecimal digits	00006b00
Basic Call State Model	BCSM	2 digits	02 (Info Collected)
IDP Message Type	TCATYPE	INAP, CAP	INAP
Calling Party Address Global Title	CGPAGT	0-15	2 (GT with Tr Type)
Calling Party Address Global Title NAI	CGPAGTNAI	1-127	4 (International)
Calling Party Address Digits	CGPADGTS	1-15 hexadecimal digits	0123456789abcde
Called Party Address Global Title	CDPAGT	0-15	2 (GT with Tr Type)
Called Party Address Global Title NAI	CDPAGTNAI	0-127	4 (International) INAP
Called Party Address Digits	CDPADGTS	1-15 hexadecimal digits	0123456789abcde
Called Party Number NAI	CDPNNAI	1-127	4 (International) INAP Valid values for CAP messages are 0-7

Table 6-3 (Cont.) TTR Test Message Parameters

Parameter		Range	Default
Called Party Number Digits	CDPNDGTS	1-15 hexadecimal digits	0123456789abcde
Calling Party Number NAI	CGPNNAI	0-127	4 (International) INAP Valid values for CAP messages are 0-7
Calling Party Number Digits	CGPNDGTS	1-32 hexadecimal digits	0123456789abcde
Location Area Code Digits	LACDGTS	1-6-hexadecimal digits	abcdef
Message Active (will be sent to the network card)	ACTIVE	yes, no	no
Reset values for MSGN message to defaults	RESET	yes	no

The `chg-ttr-msg` command is used to configure the parameter values for each TTR test message. The command must specify the message number (one of up to 10 messages) for the message that is being configured.

The `rtrv-ttr-msg` command displays the configured messages in the Test Message table. Configured information for all messages or for one specified message number can be displayed.

The `tst-msg` command invokes the test. The command must specify the `prot=ttr` parameter, the message number for the test, the network card location (`loc` parameter), the `feat=ttr` parameter, and the mode for displaying the results (full, brief, debug). The most complete and accurate test result information is provided when debug mode is used.

**Note:**

The specified test message must be set to `active=yes` before the test is invoked for the message.

Refer to *Commands User's Guide* for descriptions of the commands, parameter values, and output examples.

6.2.11 Turning Off IDP Relay-Related Features

Before an IDP Relay-related feature can be turned on and off, the feature must be enabled in the EAGLE.

This procedure is used to turn off the following IDP Relay-related features in the EAGLE. Each feature must be turned off using its feature part number.

- IDP Additional Subscriber Data (IDP ASD) - Part Number 893025701
- IDP Generic Routing Number (IDP GRN) - Part Number 893025601

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-05-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity   893012707 on         64
Prepaid IDP Query Relay 893016001 on         ----
IDPR ASD              893025701 on         ----
IDPR GRN              893025601 on         ----
;
```

If the entry for the feature that you want to turn off appears in the `rtrv-ctrl-feat` output with status `off`, performing this procedure is not necessary.

If the status of the feature in the output is `on`, continue with 2.

2. Turn off the feature, by entering the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=<893xxxxxx>:status=off
```

When the feature is turned off, the feature status changes to `off` in the `rtrv-ctrl-feat` command output.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity   893012707 on         64
Prepaid IDP Query Relay 893016001 on         ----
IDPR ASD              893025701 off        ----
IDPR GRN              893025601 off        ----
;
```

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.3 IDP A-Party Blacklist Configuration

The IDP A-Party Blacklist feature is configured on the EAGLE. This section describes prerequisites and procedures for the configuration of the IDP A-Party Blacklist feature.

[IDP A-Party Blacklist Feature Configuration Procedure](#) lists the steps for enabling and turning on the IDP A-Party Blacklist feature, and for the provisioning required for the feature. Each step contains a link or reference to information and procedures to use to complete the step.

Feature provisioning can be performed after the feature is enabled and before the feature is turned on.

The Test Tool for IDP Relay can be used for IDP A-Party Blacklist. See [TTR Test Tool](#).



Note:

Controlled features are optional and must be purchased from Oracle Communications before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Oracle Communications Sales or Account Representative.

6.3.1 IDP A-Party Blacklist Feature Prerequisite

Before the IDP A-Party Blacklist feature can be enabled, the following prerequisite is required in the system:

Table 6-4 IDP A-Party Blacklist Feature Prerequisite

Prerequisite	Verification and Provisioning
The Prepaid IDP Query Relay (IDP Relay) feature must be enabled and turned on.	<p>Enter the <code>rtrv-ctrl-feat</code> command.</p> <p>Verify that the entry for the Prepaid IDP Query Relay feature appears in the output and the Status is <code>on</code>.</p> <ul style="list-style-type: none"> If the entry does not appear in the output, the Prepaid IDP Query Relay feature is not configured in the system. Go to Prepaid IDP Query Relay Configuration to configure the IDP Relay feature in the system. If the entry appears and the Status is off, go to Prepaid IDP Query Relay Configuration to verify the IDP Relay configuration and turn on the IDP Relay feature.

6.3.2 IDP A-Party Blacklist Feature Configuration Procedure

The EAGLE configuration of the IDP A-Party Blacklist feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

1. Verify, and provision if needed, the system prerequisites. See [System Prerequisites](#).
2. Verify, and provision if needed, the feature prerequisites. See [IDP A-Party Blacklist Feature Prerequisite](#).
3. Provision NPP Action Sets, Service Rule Sets, and Service data for the IDPRCGPN service and the BLKLSTQRY and BLKLSTRLY Service Actions. See [Provisioning NPP for IDP Relay](#) and *Numbering Plan Processor User's Guide*.
Set the NPP service status to `on` for the IDPRCGPN service. See [Provisioning NPP for IDP Relay](#).

4. Enable and turn on the IDP A-Party Blacklist feature. See [Enable and Turn On the IDP A-Party Blacklist Feature](#).
5. Provision the service selector for IDP Relay features (`idpr`) to support IDP A-Party Blacklist. See [Provisioning the IDPR Service Selector](#).
6. Provision TTROPTS options that apply to IDP A-Party Blacklist. See [Provisioning the TTR Options for IDP A-Party Blacklist](#), and refer to *Commands User's Guide* for descriptions and valid values for the DRAFMT and DRANAI options.
7. Provision IDP Relay test messages for use with the Test Tool. See [TTR Test Tool](#). The Test Tool for IDP Relay can be used for IDP A-Party Blacklist with the IDPRCGPN service and BLKLSTQRY or BLKLSTRLY Service Action provisioned.
8. Use the Test Tool to verify the IDP A-Party Blacklist provisioning. See [TTR Test Tool](#).

6.3.3 Enable and Turn On the IDP A-Party Blacklist Feature

This procedure is used to enable and turn on the IDP A-Party Blacklist feature in the EAGLE.

The feature must be enabled using its feature part number and a feature access key.

- IDP A-Party Blacklist - Part Number 893033201



Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the IDP A-Party Blacklist feature is enabled, it is permanently enabled. The IDP A-Party Blacklist feature cannot be temporarily enabled.

After the feature has been enabled, the feature status must be set to `on` (the feature must be “turned on”).

Provisioning of TTROPTS options and other information can be done only after the feature is enabled and turned on.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay 893016001  on      ----
;
```

If the `rtrv-ctrl-feat` output shows a LNP ported TNS quantity entry, this procedure cannot be performed for IDP A-Party Blacklist.

If the entry for the Prepaid IDP Query Relay feature does not appear in the `rtrv-ctrl-feat` output, or appears with status `off`, use the procedures in to configure the IDP Relay

feature so that it is enabled, turned on, and fully operational in the system. Then continue with 2.

If the entry for the Prepaid IDP Query Relay feature appears in the `rtrv-ctrl-feat` output with status `on`, continue with 2.

2. Enable the IDP A-Party Blacklist feature, by entering the `enable-ctrl-feat` command and specifying the part number and feature access key for the feature.

```
enable-ctrl-feat:partnum=<8930332001>:fak=<feature access key>
```

 **Note:**

The Feature Access Key is provided when the feature is purchased. If you do not have the controlled feature part number or the Feature Access Key for a feature, contact your Sales Representative or Account Representative.

When the feature is enabled, the entry for the IDP A-Party Blacklist feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 off       ----
IDP A-Party Blacklist  893033201 off       ----
;
```

3. Turn on the IDP A-Party Blacklist feature, by entering the `chg-ctrl-feat` command with the feature part number and the `status=on` parameter.

```
chg-ctrl-feat:partnum=893033201:status=on
```

When the feature is turned on, the status for the IDP A-Party Blacklist feature in the output of the `rtrv-ctrl-feat` command is `on`

4. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.3.4 Provisioning the TTR Options for IDP A-Party Blacklist

This procedure is used to provision the TTROPTS configuration options for the IDP A-Party Blacklist feature (DRAFRMT and DRANAI).

The IDP A-Party Blacklist feature must be enabled and turned on before the TTROPTS options can be provisioned.

1. Verify that the IDP A-Party Blacklist feature is enabled and turned on, by entering the `rtrv-ctrl-feat` command.

```
rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name                Partnum  Status  Quantity
HC-MIM SLK Capacity         893012707  on      64
Prepaid IDP Query Relay     893016001  on      ----
IDP A-Party Blacklist       893034301  on      ----
```

;

2. Display the current settings of the TTR options, using the `rtrv-ttropts` command.
3. Change the TTR options to the required settings, by entering the `chg-ttropts` command with at least one of the option parameters specified.

Refer to [EAGLE Commands](#) in this manual and to the `chg-ttropts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the changes, by entering the `rtrv-ttropts` command.
5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.4 IDP A-Party Routing and IDP Service Key Routing Configuration

The IDP A-Party Routing and IDP Service Key Routing features are configured on the EAGLE. This section describes prerequisites and procedures for the configuration of the features.

[IDP A-Party Routing and IDP Service Key Routing Features Configuration Procedure](#) lists the steps for enabling and turning on the IDP A-Party Routing and IDP Service Key Routing features, and for the provisioning required for each feature. Each step contains a link or reference to information and procedures to use to complete the step.

Feature provisioning can be performed after each feature is enabled and before each feature is turned on.

The Test Tool for IDP Relay can be used for IDP A-Party Routing and IDP Service Key Routing. See [TTR Test Tool](#).



Note:

Controlled features are optional and must be purchased from Oracle Communications before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Oracle Communications Sales or Account Representative.

6.4.1 IDP A-Party Routing and IDP Service Key Routing Feature Prerequisite

Before the IDP A-Party Routing or IDP Service Key Routing feature can be enabled, the following prerequisites are required in the system:

Table 6-5 IDP A-Party Routing and IDP Service Key Routing Feature Prerequisite

Prerequisite	Verification and Provisioning
The Prepaid IDP Query Relay (IDP Relay) feature must be enabled and turned on.	<p>Enter the <code>rtrv-ctrl-feat</code> command.</p> <p>Verify that the entry for the Prepaid IDP Query Relay feature appears in the output and the Status is <code>on</code>.</p> <ul style="list-style-type: none"> If the entry does not appear in the output, the Prepaid IDP Query Relay feature is not configured in the system. Go to Prepaid IDP Query Relay Configuration to configure the IDP Relay feature in the system. If the entry appears and the Status is off, go to Prepaid IDP Query Relay Configuration to verify the IDP Relay configuration and turn on the IDP Relay feature.
Prepaid Servers must be provisioned in the MRNSET or MAPSET load share table.	Refer to the procedures in <i>Database Administration - GTT User's Guide</i> for provisioning MAPSET and MRNSET entries for Prepaid Servers.

6.4.2 IDP A-Party Routing and IDP Service Key Routing Features Configuration Procedure

The EAGLE configuration of the IDP A-Party Routing feature and the IDP Service Key Routing feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

1. Verify, and provision if needed, the system prerequisites. See [System Prerequisites](#).

2. Verify, and provision if needed, the feature prerequisites. See [IDP A-Party Routing and IDP Service Key Routing Feature Prerequisite](#).
3. Provision NPP Action Sets, Service Rule Sets, and Service data . Refer to [Provisioning NPP for IDP Relay](#) and *Numbering Plan Processor User's Guide*.
Set the NPP service status to ON for each NPP service. See [Provisioning NPP for IDP Relay](#).
4. Enable and turn on one or both of the following features.
 - IDP A-Party Routing feature. See [Enable and Turn On the IDP A-Party Routing Feature](#)
 - IDP Service Key Routing. See [Enable and Turn On the IDP Service Key Routing Feature](#)
5. Provision the required Common Screening List (CSL) entries. See [Provisioning the Common Screening List for IDP Service Key Routing](#).
6. Provision the TTR, SCCP, and PPSMS configuration options required for IDP A-Party Routing. See [Provisioning the Configuration Options for IDP A-Party Routing and IDP Service Key Routing](#).
7. Provision IDP Relay test messages for use with the Test Tool. See [TTR Test Tool](#).
The Test Tool for IDP Relay can be used for IDP A-Party Routing and IDP Service Key Routing with the IDPRCGPN service and CGPNRTG Service Action provisioned.
8. Use the Test Tool to verify the IDP A-Party Routing and IDP Service Key Routing provisioning. See [TTR Test Tool](#).

6.4.3 Enable and Turn On the IDP A-Party Routing Feature

This procedure is used to enable and turn on the IDP A-Party Routing feature in the EAGLE.

The feature must be enabled using its feature part number and a feature access key.

- IDP A-Party Routing - Part Number 893033301



Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the IDP A-Party Routing feature is enabled, it is permanently enabled. The IDP A-Party Routing feature cannot be temporarily enabled.

After the feature has been enabled, the feature status must be set to `on` (the feature must be “turned on”). After the feature is turned on, it cannot be turned off.

Provisioning of TTROPTS options and other information can be done only after the feature is enabled and turned on.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 on        ----
;
```

If the entry for the IDP Relay feature does not appear in the `rtrv-ctrl-feat` output, or appears with status `off`, use the procedures in [Prepaid IDP Query Relay Configuration](#) to configure the IDP Relay feature so that it is enabled, turned on, and fully operational in the system. Then continue with [2](#).

If the entry for the Prepaid IDP Query Relay feature appears in the `rtrv-ctrl-feat` output with status `on`, continue with [2](#).

2. Enable the IDP A-Party Routing feature, by entering the `enable-ctrl-feat` command and specifying the part number and feature access key for the feature.

When the feature is enabled, the entry for the IDP A-Party Blacklist feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 on        ----
IDP A-Party Routing    893033301 off        ----
;
```

3. Turn on the IDP A-Party Routing feature, by entering the `chg-ctrl-feat` command with the feature part number and the `status=on` parameter.
4. Verify that the feature status is `on`, by entering the `rtrv-ctrl-feat` command.
5. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```


6.4.4 Enable and Turn On the IDP Service Key Routing Feature

This procedure is used to enable and turn on the IDP Service Key Routing feature in the EAGLE.

The feature must be enabled using its feature part number and a feature access key.

- IDP Service Key Routing - Part Number 893033601

Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the IDP Service Key Routing feature is enabled, it is permanently enabled. The IDP Service Key Routing feature cannot be temporarily enabled.

After the feature has been enabled, the feature status must be set to `on` (the feature must be “turned on”). After the feature has been turned on, it cannot be turned off.

Provisioning of TTROPTS options and other information can be done only after the feature is enabled and turned on.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 on        ----
;
```

If the entry for the Prepaid IDP Query Relay feature does not appear in the `rtrv-ctrl-feat` output, or appears with status `off`, use the [Configuration Procedure for IDP Relay and Related Features](#) to configure the IDP Relay feature so that it is enabled, turned on, and fully operational in the system. Then continue with [2](#).

If the entry for the Prepaid IDP Query Relay feature appears in the `rtrv-ctrl-feat` output with status `on`, continue with [2](#).

2. Enable the IDP Service Key Routing feature, by entering the `enable-ctrl-feat` command and specifying the part number and feature access key for the feature.

When the feature is enabled, the entry for the IDP Service Key Routing feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 off        ----
```

```

IDP Service Key Routing  893033601  off      ----
;

```

3. Turn on the IDP Service Key Routing feature, by entering the `chg-ctrl-feat` command with the feature part number and the `status=on` parameter.

When the feature is turned on, the status for the IDP Service Key Routing feature in the output of the `rtrv-ctrl-feat` command is `on`.

4. Verify that the feature status is `on`, by entering the `rtrv-ctrl-feat` command.
5. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```

BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.

```

6.4.5 Provisioning the Common Screening List for IDP Service Key Routing

This procedure is used to provision the Common Screening List (CSL) Prepaid Portability Type (P1) values for the IDP Service Key Routing feature. The SKBCSM screening list P1 values are used to find a valid Prepaid Portability Type during IDP Service Key Routing processing.

The IDP Relay feature must be on and the IDP Service Key Routing feature must be on before this procedure can be performed.

1. Verify that the IDP Service Key Routing feature is enabled and turned on, by entering the `rtrv-ctrl-feat` command.

If the IDP Service Key Routing feature has not been turned on, the status in the feature entry is `off`.

```

rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity   893012707  on        64
Prepaid IDP Query Relay 893016001  on        ----
IDP Service Key Routing 893022601  on        ----
;

```

- If the IDP Service Key Routing feature is not enabled and turned on, go to [Enable and Turn On the IDP Service Key Routing Feature](#) to enable and turn on the feature. Then continue with 2.
- If the IDP Service Key Routing feature is enabled and turned on, continue with 2.

2. Display the current Common Screening List settings, using the `rtrv-csl` command.
3. Enter the digit string values for each SK+BCSM entry in the list. Enter the `ent-csl` command with the `ds` parameter value for each entry.
4. Enter the Prepaid Portability Type values for the SKBCSM list, by entering the `chg-csl` command with a `p1` parameter for each required value.

Refer to the `chg-csl` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

```
chg-csl:feature="IDP Service Key Routing":list=skbcsm:p1=<Prepaid
Portability Type value>
```

5. Verify the changes, by entering the `rtrv-csl` command.
6. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.4.6 Provisioning the Configuration Options for IDP A-Party Routing and IDP Service Key Routing

This procedure is used to provision the following configuration options:

- The TTROPTS CGPNSKRTG configuration options for the IDP Service Key Routing feature.
The IDP Service Key feature must be enabled and turned on before the TTROPTS CGPNSKRTG option can be provisioned.
 - The SCCPOPTS CCLEN and INTLUNKNNAI configuration options used for number conditioning in NPP processing.
 - Prepaid Short Message (PPSOPTS) data accessed by the IDP A-Party Routing feature or the IDP Service Key feature.
1. Verify that the IDP Relay feature is enabled, and that any required IDP Relay-related features are enabled, and that the Service Portability feature is enabled if it will be used, by entering the `rtrv-ctrl-feat` command.

If the required features have not been turned on, the status in the feature entry is off.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 off       ----
Service Portability    893034301 off       ----
```

```
;
```

- If a required feature is not enabled (the entry does not appear in the output), go to [Enabling IDP Relay-Related Features](#) or [Enabling the Service Portability Feature](#) to enable each required feature. Then continue with 2.
 - If the required features are enabled, continue with 2.
2. Display the current settings of the TTR options, using the `rtrv-ttropts` command.
 3. Change the TTR CGPNSKRTG option to the required setting, by entering the `chg-ttropts` command with the option parameter specified.

Refer to [EAGLE Commands](#) in this manual and to the `chg-ttropts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.
 4. Verify the change, by entering the `rtrv-ttropts` command.
 5. Display the current settings of the SCCP options, using the `rtrv-sccpopts` command.
 6. Change the SCCP CLEN option and the INTLUNKNNAI option to the desired setting, by entering the `chg-sccpopts` command with the option parameters specified.
 7. Verify the changes, by entering the `rtrv-sccpopts` command.
 8. Display the current PPSOPTS data, by entering the `rtrv-ppsopts` command.
 9. Provision the required PPSOPTS data for the IDP A-Party Routing feature, the IDP Service Key Routing feature, or both. Enter the `chg-ppsopts` command.
 10. Verify the changes by entering the `rtrv-ppsopts` command.
 11. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk  
complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk  
complete.
```

6.5 IDP Screening for Prepaid Configuration

The IDP Screening for Prepaid feature is configured on the EAGLE. This section describes prerequisites and procedures for the configuration of the IDP Screening for Prepaid.

[IDP Screening for Prepaid Feature Configuration Procedure](#) lists the steps for enabling and turning on the IDP Screening for Prepaid feature, and for the provisioning required for the feature. Each step contains a link or reference to information and procedures to use to complete the step. Feature provisioning can be performed after the feature is enabled and before the feature is turned on.

Controlled features are optional and must be purchased from Oracle Communications before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Oracle Communications Sales or Account Representative.

6.5.1 IDP Screening for Prepaid Feature Prerequisite

Before the IDP Screening for Prepaid feature can be enabled, the following prerequisite is required in the system:

Table 6-6 IDP Relay-Related Feature Prerequisite

Prerequisite	Verification and Provisioning
The LNP feature cannot be on in the system	Enter the <code>rtrv-ctrl-feat</code> command. If the LNP feature is on, shown with a quantity greater than zero for the <code>LNP ported TNs</code> entry in the command output, features described in this manual cannot be enabled.

6.5.2 IDP Screening for Prepaid Feature Configuration Procedure

The EAGLE configuration of the IDP Screening for Prepaid feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

1. Verify, and provision if needed, the system prerequisites. See [System Prerequisites](#).
2. Verify, and provision if needed, the feature prerequisites. See [IDP Screening for Prepaid Feature Prerequisite](#).
3. Enable the IDP Screening for Prepaid feature. See [Enable the IDP Screening for Prepaid Feature](#).
4. Provision the required Common Screening List (CSL) entries. See [Provisioning the Common Screening List for IDP Screening for Prepaid](#).
5. Provision the IDPS service selector. See [Provisioning the IDPS Service Selector](#).
6. Turn on the IDP Screening for Prepaid feature. See [Turn On the IDP Screening for Prepaid Feature](#).

6.5.3 Enable the IDP Screening for Prepaid Feature

This procedure is used to enable and turn on the IDP Screening for Prepaid feature in the EAGLE.

The feature must be enabled using its feature part number and a feature access key.

- IDP Screening for Prepaid - Part Number 893015501

Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the IDP Screening for Prepaid feature is enabled, it is permanently enabled. The IDP Screening for Prepaid feature cannot be temporarily enabled.

After the feature has been enabled, the feature status must be set to `on` (the feature must be “turned on”).

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 on        ----
;
```

If the entry for the Prepaid IDP Query Relay feature does not appear in the `rtrv-ctrl-feat` output, or appears with status `off`, use the procedures in to configure the IDP Relay feature so that it is enabled, turned on, and fully operational in the system. Then continue with 2.

If the entry for the Prepaid IDP Query Relay feature appears in the `rtrv-ctrl-feat` output with status `on`, continue with 2.

2. Enable the IDP Screening for Prepaid feature, by entering the `enable-ctrl-feat` command and specifying the part number and feature access key for the feature.

 **Note:**

The Feature Access Key is provided when the feature is purchased. If you do not have the controlled feature part number or the Feature Access Key for a feature, contact your Sales Representative or Account Representative.

3. Verify the feature status, by entering the `rtrv-ctrl-feat` command.

When the feature is enabled, the entry for the IDP Screening for Prepaid feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity   893012707 on        64
Prepaid IDP Query Relay 893016001 off        ----
IDP Screening for Prepaid 893015501 off        ----
;
```

4. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.5.4 Provisioning the IDPS Service Selector

The procedures in this section describe how to add, change, and remove a service selector. The information is indicated that is specific to the IDP Screening for Prepaid feature.

Refer to *Commands User's Guide* for complete descriptions of the commands used in these procedures, including parameter names, valid values, and output examples for the commands.

6.5.4.1 Adding an IDPS Service Selector

This procedure is used to add a service selector for the IDP Screening for Prepaid feature.

The IDP Screening for Prepaid feature must be enabled before an IDPS service selector can be added.

1. Verify that the IDP Screening for Prepaid feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the IDP Screening for Prepaid feature is enabled, the status of the IDP Screening for Prepaid entry is off.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status  Quantity
HC-MIM SLK Capacity   893012707 on       64
Prepaid IDP Query Relay 893016001 on       ----
IDP Screening for Prepaid 893015501 off      ----
;
```

- If the IDP Screening for Prepaid is enabled, continue with 2.
 - If the IDP Relay feature is not enabled or turned on, go to [Enabling IDP Relay-Related Features](#) to enable and turn on the IDP Relay feature. Then continue with 2.
2. Display any existing IDPS service selectors in the database, by entering the `rtrv-srvsel:serv=idps` command.

```
rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0

GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV
4      1  e164    intl  3    ---  ---   idps
4      2  e164    intl  *    ---  ---   idps

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV
```

```

4      4      e164      natl 4      ---  ---      idps

SRV SELECTOR table is (3 of 20992) 1 % full
;

```

3. Add new idps service selectors, using the `ent-srvsel` command. For example, enter commands like these:

```

ent-srvsel:serv=idps:tt=35:ssn=100:gtin=4:np=e214:nai=natl
ent-srvsel:serv=idps:tt=57:ssn=75:gtin=2

```

4. Verify the changes by entering the `rtrv-srvsel` command with the parameters and values used in 3.

```

rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0

GTII  TT  NP      NAI  SSN  SNP  SNAI  SERV
4      1  e164    intl 3    ---  ---   idps
4      2  e164    intl *    ---  ---   idps

GTIN  TT  NP      NAI  SSN  SNP  SNAI  SERV
4      4  e164    natl 4    ---  ---   idps
4      35 e214    natl 100  ---  ---   idps
2      57  ---     ---  75   ---  ---   idps

SRV SELECTOR table is (5 of 20992) 1 % full
;

```

5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

The following messages appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```

BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk
complete.

```

6.5.5 Provisioning the Common Screening List for IDP Screening for Prepaid

This procedure is used to provision the Common Screening List (CSL) digit string values for the IDP Screening for Prepaid feature. The screenings are performed on digit strings. The following screening lists are used for the IDP Screening for Prepaid feature:

- INSL screening list - This list is used to compare the CalledPartyBCDN number and the CgPN digits from the incoming message to the prefixes in this list. If the leading digits of both numbers are found, the call is considered to be in-network. Otherwise, the call is considered to be off-network.
 - SKTS screening list - This screening list is used to compare the concatenated Service Key (SK) and TeleService (TS) number from the incoming message into the entries in OCD format in this list.
1. Verify that the IDP Screening for Prepaid feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the IDP Screening for Prepaid feature has not been turned on, the status in the feature entry is `off`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status  Quantity
HC-MIM SLK Capacity   893012707 on       64
IDP Screening for Prepaid 893015501 off      ----
;
```

- If the IDP Screening for Prepaid feature is not enabled (the entry does not appear in the output), go to [Enabling IDP Relay-Related Features](#) to enable the feature. Then continue with 2.
 - If the IDP Screening for Prepaid feature is enabled, continue with 2.
2. Display the current Common Screening List settings, using the `rtrv-csl` command.
 3. Enter one or more digit string values for each list, by entering the `chg-csl` command.

Refer to [EAGLE Commands](#) in this manual and to the `chg-csl` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

```
chg-csl:feature="IDP Screening for Prepaid":list=insl:ds=<1-15 hex digits>
chg-csl:feature="IDP Screening for Prepaid":list=skts:ds=<4 hex digits>
```

4. Verify the changes, by entering the `rtrv-csl` command.
5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.5.6 Turn On the IDP Screening for Prepaid Feature

This procedure is used to turn on the IDP Screening for Prepaid feature in the EAGLE.

After the feature has been enabled, the feature status must be set to `on` (the feature must be "turned on").

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay 893016001  on      ----
IDP Screening for Prepaid 893015501  off     ----
;
```

2. Turn on the IDP Screening for Prepaid feature, by entering the `chg-ctrl-feat` command and specifying the part number for the feature.

3. Verify that the feature status is `on`, by entering the `rtrv-ctrl-feat` command.

When the feature is turned on, the entry for the IDP Screening for Prepaid feature appears in the output of the `rtrv-ctrl-feat` command. The feature Status is `on`.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay 893016001  off     ----
IDP Screening for Prepaid 893015501  on      ----
;
```

4. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.6 Service Portability Feature Configuration Procedures

The procedures in this section are used for configuration of the Service Portability (S-Port) feature.

6.6.1 Enabling the Service Portability Feature

If Service Portability can be applied to the messages processed by a feature described in this guide, use this procedure to enable the Service Portability feature in the EAGLE.

The Service Portability feature must be enabled using the feature part number 893034301 and a feature access key.



Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the S-Port feature is enabled, it is permanently enabled. The S-Port feature cannot be temporarily enabled. After the S-Port feature is enabled and turned on, the S-Port feature can be turned off again.

Provisioning of S-Port options can be done after the feature is enabled and before the feature is turned on.

After the S-Port feature has been enabled and database provisioning is complete, the S-Port feature status must be set to on (the feature must be “turned on”) before S-Port processing will occur.

1. Display the status of the controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707  on        64
;
```

If the Service Portability entry appears in the `rtrv-ctrl-feat` output, performing this procedure is not necessary.

2. Enable the S-Port feature, by entering the `enable-ctrl-feat` command.

```
enable-ctrl-feat:partnum=893034301:fak=<feature access key>
When the feature is enabled, the Service Portability entry appears in the output of the
rtrv-ctrl-feat command.
```

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707  on        64
Service Portability  893034301  off       ----
;
```

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```

```
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.6.2 Provisioning the TTR SPORTTYPE Option for Service Portability

This procedure is used to provision the TTROPTS SPORTTYPE configuration option for using the Service Portability feature with IPD Relay:

The IDP Relay feature and the Service Portability feature must be enabled before the TTROPTS SPORTTYPE option can be provisioned.

1. Verify that the IDP Relay feature is enabled, and that any required IDP Relay-related features are enabled, and that the Service Portability feature is enabled. Enter the `rtrv-ctrl-feat` command.

If the required features have not been turned on, the status in the feature entry is off.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity  893012707  on      64
Prepaid IDP Query Relay 893016001  off     ----
Service Portability    893034301  off     ----
```

;

- If the required features are enabled, continue with 2.
 - If a required feature is not enabled (the entry does not appear in the output), go to [Enabling IDP Relay-Related Features](#) or [Enabling the Service Portability Feature](#) to enable each required feature. Then continue with 2.
2. Display the current settings of the TTR options, using the `rtrv-ttropts` command.
 3. Change the TTR SPORTTYPE option to the required setting, by entering the `chg-ttropts` command with the SPORTTYPE parameter specified.

Refer to the `chg-ttropts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the change, by entering the `rtrv-ttropts` command.
5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.6.3 Turning On the Service Portability Feature

This procedure is used to turn on the Service Portability feature in the EAGLE, using the feature part number 893034301.

Before the Service Portability (S-Port) feature can be turned on, the feature must be enabled in the EAGLE.

Provisioning of S-Port options can be done after the feature is enabled and before the feature is turned on.

After the S-Port feature has been enabled and database provisioning is complete, the Service Portability feature status must be set to on (the feature must be “turned on”). MSUs will not be processed by the Service Portability feature until the feature is turned on.

After the Service Portability feature is enabled and turned on, it can be turned off again. Service Portability processing can occur only when the Service Portability feature is on and a feature that uses S-Port is on.

1. Display the status of the controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.
 - If the entry for the Service Portability feature appears in the `rtrv-ctrl-feat` output with status `on`, performing this procedure is not necessary.
 - If the status of the Service Portability feature in the output is `off`, continue with 2.
2. Turn on the S-Port feature, by entering the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=893034301:status=on
```

When the feature is turned on, the feature status changes to `on` in the `rtrv-ctrl-feat` command output.

```
rlghncxa03w 09-08-29 16:40:40 EST  EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
ATINP                 893022101 on        ----
Service Portability  893034301 on        ----
;
```

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.6.4 Turning Off the Service Portability Feature

Before the Service Portability (S-Port) feature can be turned on and off, the feature must be enabled in the EAGLE.

This procedure is used to turn off the Service Portability feature, using its feature part number 8930343001.



Note:

MSUs will not be processed by a feature when the feature is turned off in the system.

1. Display the status of the controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
TIF Number Portability 893018901 on        ----
Service Portability   893034301 on        ----
```

;

If the entry for the Service Portability feature appears in the `rtrv-ctrl-feat` output with status `off`, performing this procedure is not necessary.

If the status of the Service Portability feature in the output is `on`, continue with 2.

2. Turn off the S-Port feature, by entering the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=<893034301>:status=off
```

When the feature is turned off, the feature status changes to `off` in the `rtrv-ctrl-feat` command output.

```
rlghncxa03w 09-05-29 16:40:40 EST EAGLE5 41.1.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
TIF Number Portability 893018901 on        ----
Service Portability   893034301 off        ----
```

;

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
```

```
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.7 S-Port Subscriber Differentiation Feature Configuration Procedures

The procedures in this section are used for configuration of the S-Port Subscriber Differentiation feature.

6.7.1 Enabling the S-Port Subscriber Differentiation Feature

If S-Port Subscriber Differentiation will be used with Service Portability for the messages processed by a feature described in this manual, use this procedure to enable the S-Port Subscriber Differentiation feature in the EAGLE.

The S-Port Subscriber Differentiation feature must be enabled using the feature part number 893037901 and a feature access key.

Note:

Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the S-Port Subscriber Differentiation feature is enabled, it is permanently enabled. The S-Port Subscriber Differentiation feature cannot be temporarily enabled.

After the S-Port Subscriber Differentiation feature has been enabled, the S-Port Subscriber Differentiation feature status must be set to `on`. See [Turning On the S-Port Subscriber Differentiation Feature](#). The S-Port Subscriber Differentiation feature cannot be turned off after the feature is turned on.

Provisioning of the S-Port Subscriber Differentiation SCCPOPTS configuration option can be done only after the feature is enabled and turned on. See [Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option](#).

Before S-Port Subscriber Differentiation processing of MSUs can occur, the Service Portability feature, the S-Port Subscriber Differentiation feature, the S-Port Subscriber Differentiation option, and a feature that uses Service Portability must be on.

1. Display the status of the controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 10-06-29 16:40:40 EST EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
HC-MIM SLK Capacity  893012707 on        64
Service Portability  893034301 off       ----
;
```

If the `S-Port Sub Dfrntiation` entry appears in the `rtrv-ctrl-feat` output, performing this procedure is not necessary.

2. Enable the S-Port Subscriber Differentiation feature, by entering the `enable-ctrl-feat` command.

```
enable-ctrl-feat:partnum=893037901:fak=<feature access key>
```

When the feature is enabled, the `S-Port Sub Dfrntiation` entry appears in the output of the `rtrv-ctrl-feat` command.

```
rlghncxa03w 10-06-29 16:40:40 EST EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity   893012707 on         64
Service Portability   893034301 off        ----
S-Port Sub Dfrntiation 893037901 off        ----
```

```
;
```

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

6.7.2 Turning On the S-Port Subscriber Differentiation Feature

This procedure is used to turn on the S-Port Subscriber Differentiation feature in the EAGLE, using the feature part number 893037901.

Before the S-Port Subscriber Differentiation feature can be turned on, the feature must be enabled in the EAGLE.

After the S-Port Subscriber Differentiation feature has been enabled, the S-Port Subscriber Differentiation feature status must be set to on (the feature must be “turned on”). After the S-Port Subscriber Differentiation feature is enabled and turned on, it cannot be turned off again.

Provisioning of the S-Port Subscriber Differentiation option can be done only after the feature is enabled and turned on. The S-Port Differentiation option can be turned on and off.

MSUs will not be processed by the S-Port Subscriber Differentiation feature until the feature and the option are turned on. S-Port Subscriber Differentiation processing can occur only when the Service Portability feature, the S-Port Subscriber Differentiation feature, the S-Port Differentiation option, and a feature that uses Service Portability are all on.

1. Display the status of the controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 10-06-29 16:40:40 EST EAGLE5 42.0.0
  The following features have been permanently enabled:
  Feature Name           Partnum   Status  Quantity
  HC-MIM SLK Capacity    893012707 on       64
  Info Analyzed Relay Base 893034201 off      ----
  Service Portability     893034301 off      ----
  S-Port Sub Dfrntiation  893037901 off      ----
;
```

If the `S-Port Sub Dfrntiation` entry appears in the `rtrv-ctrl-feat` output with Status of `on`, performing this procedure is not necessary.

If the status of the S-Port Subscriber Differentiation feature in the output is `off`, continue with 2.

2. Turn on the S-Port Subscriber Differentiation feature, by entering the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=893037901:status=on
```

When the feature is turned on, the feature status changes to `on` in the `rtrv-ctrl-feat` command output.

```
rlghncxa03w 10-08-29 16:40:40 EST EAGLE5 42.0.0
  The following features have been permanently enabled:
  Feature Name           Partnum   Status  Quantity
  HC-MIM SLK Capacity    893012707 on       64
  Info Analyzed Relay Base 893034201 off      ----
  Service Portability     893034301 off      ----
  S-Port Sub Dfrntiation  893037901 on       ----
;
```

3. Back up the database changes, by entering the following command.

```
chg-db:action=backup:dest=fixed
```

The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

6.7.3 Provisioning the S-Port Subscriber Differentiation SCCOPTS Option

This procedure is used to provision the SCCOPTS configuration option for the S-Port Subscriber Differentiation feature.

The S-Port Subscriber Differentiation feature must be enabled and turned on before SCCOPTS SUBDFRN option can be provisioned.

1. Verify that the S-Port Subscriber Differentiation feature is enabled and on, by entering the `rtrv-ctrl-feat` command.

```
rlghncxa03w 10-06-29 16:40:40 EST  EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name                Partnum    Status    Quantity
HC-MIM SLK Capacity        893012707  on        64
Info Analyzed Relay Base   893034201  off       ----
Service Portability        893034301  off       ----
S-Port Sub Dfrntiation     893037901  on        ----
```

;

- If the S-Port Sub Dfrntiation feature is enabled and turned on, continue with 2.
 - If the S-Port Sub Dfrntiation entry does not appear in the output, go to [Enabling the S-Port Subscriber Differentiation Feature and Turning On the S-Port Subscriber Differentiation Feature](#) to enable and turn on the feature. Then continue with 2.
 - If the feature is enabled but not turned on (the entry shows Status `off`), go to [Turning On the S-Port Subscriber Differentiation Feature](#) to turn on the feature. Then continue with 2.
2. Display the current settings of the SCCOPTS options, using the `rtrv-sccopts` command.
 3. Change the SCCOPTS SUBDFRN option to the required setting (`on` or `off`), by entering the `chg-sccopts` command with the `subdfrn` option parameter specified.

Refer to the `chg-sccopts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the changes, by entering the `rtrv-sccopts` command.
5. Back up the changes using the `chg-db:action=backup:dest=fixed` command.

These messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk
complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk
complete.
```

7

Measurements

This chapter describes the measurements that can be collected and generated for IDP Relay and IDP Relay-related features, and the methods that can be used for generating reports for the measurements.

7.1 Prepaid IDP Query Relay Measurements

The EAGLE Measurements system supports the collection and retrieval of measurements related to the IDP Relay feature. The IDP Relay measurements can be collected and reported with the following collection methods:

- OAM-based (UI) measurements collection
- The Measurements Platform feature enabled and the Measurements Platform collection option on
- The E5-OAM Integrated Measurements feature enabled and on and the E5-OAM Integrated Measurements collection option on

15 Minute Measurements can be used with the Measurements Platform or E5-OAM Integrated Measurements.

Refer to *Measurements Reference* for descriptions of collection methods, measurements, and measurements reports.

Refer to *Commands User's Guide* for descriptions of the commands used to enable and turn on features, turn on measurements collection options, and schedule and generate measurements reports.

Refer to the procedures in *Database Administration - System Management User's Guide* to configure the Measurements Platform feature or E5-OAM Integrated Measurements feature for use with IDP Relay.

Two measurements reports contain IDPR measurements:

- The SYSTOT-STP report is generated using the `enttype=stp` parameter. For IDP Relay, the SYSTOT-STP report displays only the four original registers.
- The SYSTOT-IDPR report is generated using the `enttype=idpr` parameter. For IDP Relay, the SYSTOT-IDPR report displays the four original registers, the registers for the NPP INPRTG Service Action CONNECT, CONTINUE, RELAY, and RELEASECALL responses, and the registers for the NPP SKGTARTG Service Action.

IDPR measurements registers are defined for the IDP Relay feature IDPR service and reported as indicated in [Table 7-1](#).

Table 7-1 IDPR Measurements Registers

Register	Description	In SYSTOT- STP Report	In SYSTOT- IDPR Report
IDPRMSERR	The total number of MSUs selected for IDPR service that could not be processed due to errors in encoding, decoding, or formatting, or to IDP A-Part Routing or IDP Service Key Routing errors	X	X
IDPRMSFAIL	Total number of MSUs that were selected for IDPR service and fell through to GTT due to the following conditions: <ul style="list-style-type: none"> No match on MSISDN in the RTDB lookup Match on MSISDN but no association to RN or SP for the CDPNNP or CGPNNP Service Actions No match for IDP A-Party Blacklist query-response criteria IDP A-Party Blacklist Relay resulted in falling through to GTT for routing IDP A-Party Routing or IDP Service Key Routing resulted in falling through to GTT routing (due to no match on MSISDN or insufficient data) 	X	X
IDPRMSRCV	Total number of MSUs received and selected for IDPR service. This register includes counts for MSUs that resulted in both successful and unsuccessful RTDB lookups.	X	X
IDPRMSSUCC	Number of MSUs selected for IDPR service for which the RTDB lookup resulted in a match on MSISDN with association to an RN or SP. This includes pegs to IDPAPTYRTD, IDPSKRTD, IDPBKLCONN, and IDPBKLCONT registers.	X	X
IDPINPRTG	Number of IDP MSUs that are processed by the NPP INPRTG Service Action from the IDPRCDPN service.		X
IDPINPRTG2	Number of IDP MSUs that are processed by the NPP INPRTG Service Action from the IDPRCDPN2 service.		X
IDPINPRTG3	Number of IDP MSUs that are processed by the NPP INPRTG Service Action from the IDPRCDPN3 service.		X
IDPINPRTG4	Number of IDP MSUs that are processed by the NPP INPRTG Service Action from the IDPRCDPN4 service.		X
IDPSKGTARTG	Number of IDP messages processed by the SKGTARTG Service Action from the IDPRCDPN service.		X
IDPSKGTARTG2	Number of IDP messages processed by the SKGTARTG Service Action from the IDPRCDPN2 service.		X
IDPSKGTARTG3	Number of IDP messages processed by the SKGTARTG Service Action from the IDPRCDPN4 service.		X

Table 7-1 (Cont.) IDPR Measurements Registers

Register	Description	In SYSTOT- STP Report	In SYSTOT- IDPR Report
IDPSKGTART G4	Number of IDP messages processed by the SKGTARTG Service Action from the IDPRCDPN4 service.		X
IDPINPCONN	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONNECT message from the IDPRCDPN service.		X
IDPINPCONN2	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONNECT message from the IDPRCDPN2 service.		X
IDPINPCONN3	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONNECT message from the IDPRCDPN3 service.		X
IDPINPCONN4	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONNECT message from the IDPRCDPN4 service.		X
IDPINPCONT	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONTINUE message from the IDPRCDPN service.		X
IDPINPCONT2	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONTINUE message from the IDPRCDPN2 service.		X
IDPINPCONT3	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONTINUE message from the IDPRCDPN3 service.		X
IDPINPCONT4	Number of IDP MSUs for which the NPP INPRTG Service Action sent a CONTINUE message from the IDPRCDPN4 service.		X
IDPINPRLC	Number of IDP MSUs for which the NPP INPRTG Service Action sent a RELEASECALL message from the IDPRCDPN service.		X
IDPINPRLC2	Number of IDP MSUs for which the NPP INPRTG Service Action sent a RELEASECALL message from the IDPRCDPN2 service.		X
IDPINPRLC3	Number of IDP MSUs for which the NPP INPRTG Service Action sent a RELEASECALL message from the IDPRCDPN3 service.		X
IDPINPRLC4	Number of IDP MSUs for which the NPP INPRTG Service Action sent a RELEASECALL message from the IDPRCDPN4 service.		X
IDPRCDPN	Total number of IDP messages processed for the IDPRCDPN service.		X
IDPRCDPN2	Total number of IDP messages processed for the IDPRCDPN2 service.		X
IDPRCDPN3	Total number of IDP messages processed for the IDPRCDPN3 service.		X
IDPRCDPN4	Total number of IDP messages processed for the IDPRCDPN4 service.		X

The following IDPR measurements registers are defined for the IDP Relay feature IDPR service. All IDPR registers are reported in the STP System Total (SYSTOT-STP) report.

- **IDPRMSERR** The total number of MSUs selected for IDPR service that could not be processed due to errors in encoding, decoding, or formatting, or to IDP A-Party Routing or IDP Service Key Routing errors .
- **IDPRMSFAIL** Total number of MSUs that were selected for IDPR service and fell through to GTT due to the following conditions:
 - No match on MSISDN in the RTDB lookup
 - Match on MSISDN but no association to RN or SP for the CDPNNP or CGPNNP Service Actions
 - No match for IDP A-Party Blacklist query-response criteria
 - IDP A-Party Blacklist Relay resulted in falling through to GTT for routing
 - IDP A-Party Routing or IDP Service Key Routing resulted in falling through to GTT routing (due to no match on MSISDN or insufficient data)
- **IDPRMSRCV** Total number of MSUs received and selected for IDPR service. This register includes counts for MSUs that resulted in both successful and unsuccessful RTDB lookups.
- **IDPRMSUCC** Number of MSUs selected for IDPR service for which the RTDB lookup resulted in a match on **MSISDN** with association to an RN or SP. This includes pegs to IDPPTYRTD, IDPSKRTD, IDPBKLCONN, and IDPBKLCONT registers.

Measurements for the IDP A-Party Routing feature are described in [.IDP A-Party Routing and IDP Service Key Routing Measurements Figure 7-1](#) illustrates the impact of the IDP A-Party Routing feature measurements pegging on the IDPR registers.

Figure 7-1 IDP A-Party Routing Impact on IDP Relay Measurements

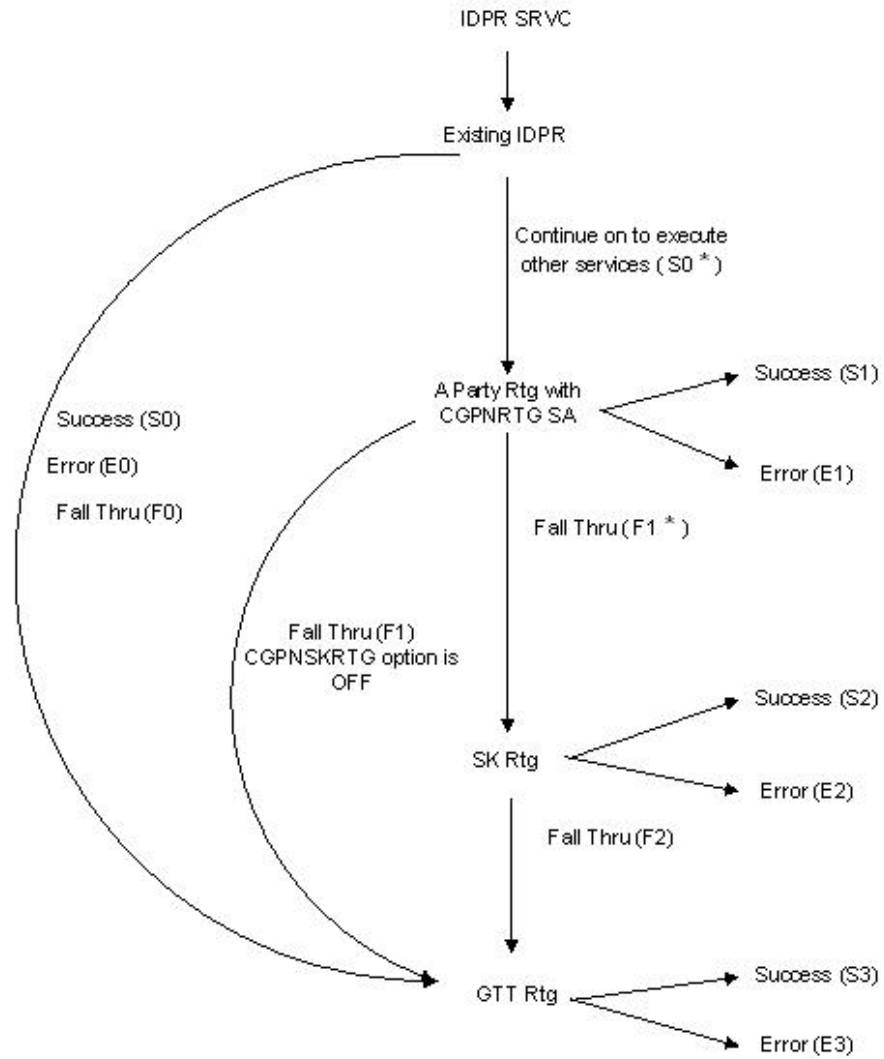


Table 7-2 IDP A-Party Routing and IDP Relay Pegs

IDP A-Party Routing and Service Key Routing Pegs	IDP Relay Pegs
IDPPTYRTD = S1	IDPRMSERR = E0 + E1 + E2
IDPPTYSKR = S2	IDPRMSFAIL = F0 + F1 + F2
IDPPTYGTT = F1 + F2	IDPRMSSUCC = S0 + S1 + S2
	IDPRMSRCV = IDPRMSERR + IDPRMSFAIL + IDPRMSSUCC
Note: GTT success (S3) and GTT failure (E3) measurements registers are pegged separately.	

Measurements for the IDP Service Key Routing feature are described in [IDP A-Party Routing and IDP Service Key Routing Measurements](#). Figure 7-2 illustrates the impact of the IDP Service Key Routing feature measurements pegging on the IDPR registers.

Figure 7-2 IDP Service Key Routing Impact on IDP Relay Measurements

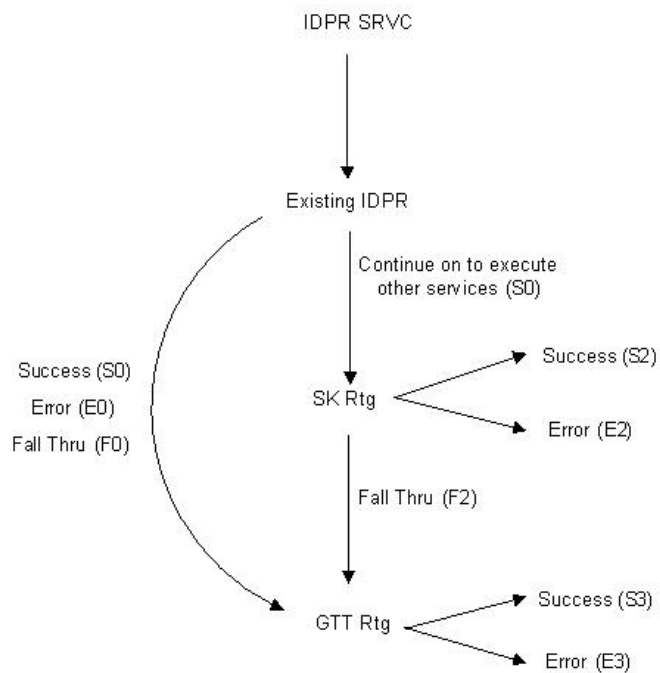


Table 7-3 IDP Service Key Routing and IDP Relay Pegs

IDP Service Key Routing Pegs	IDP Relay Pegs
IDPSKRTC = S2	IDPRMSERR = E0 + E2
IDPSKGTT = F2	IDPRMSFAIL = F0 + F2
	IDPRMSSUCC = S0 + S2
	IDPRMSRCV = IDPRMSERR + IDPRMSFAIL + IDPRMSSUCC

Note: GTT success (S3) and GTT failure (E3) measurement registers are pegged separately.

Measurements for the IDP A-Party Blacklist feature are described in [IDP A-Party Blacklist Measurements](#). [Figure 7-3](#) illustrates the impact of the IDP-A-Party Blacklist feature measurements pegging on the IDPR registers.

Figure 7-3 IDP A-Party Blacklist (Query and Relay) Impact on IDP Relay Measurements

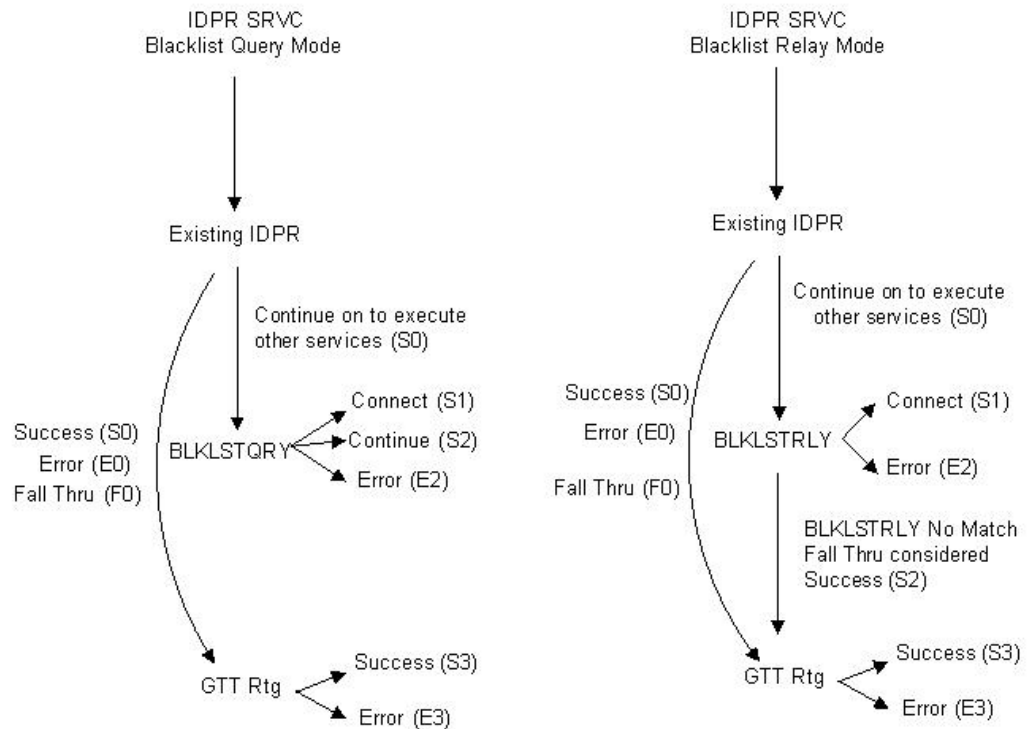


Table 7-4 IDP A-Party Blacklist and IDP Relay Pegs

IDP A-Party Blacklist Pegs	IDP Relay Pegs
IDPBKLCNN = S1	IDPRMSERR = E0 + E2
IDPBKLCONT = S2	IDPRMSFAIL = F0
	IDPRMSSUCC = S0 + S1 + S2
	IDPRMSRCV = IDPRMSERR + IDPRMSFAIL + IDPRMSSUCC
Note: GTT success (S3) and GTT failure (E3) measurements registers are pegged separately.	

7.2 IDP A-Party Blacklist Measurements

Refer to *Measurements Reference* for descriptions of measurements and measurements reports for IDP A-Party Blacklist and IDP Relay.

See [Prepaid IDP Query Relay Measurements](#) for information about supported collection methods for IDP Relay-related measurements, and for a description of the relationship between IDP Relay and IDP A-Party Blacklist measurements.

The following measurement registers are defined for the IDP A-Party Blacklist feature. All registers for this feature are reported in the STP System Total (SYSTOT-STP) report.

- **IDPBKLCNN** Total number of IDP messages received that matched the blacklist criteria and a CONNECT response was generated.
- **IDPBKLCONT** Total number of IDP messages received that did not match the blacklist criteria and a CONTINUE response was generated.

The following existing IDP Relay registers are affected by the IDP A-Party Blacklist feature:

- **IDPRMSFAIL** Total number of MSUs that were selected for IDPR service and that fell through to GTT due to the following conditions:
 - No match on MSISDN in the RTDB
 - Match on MSISDN but no association to RN or SP for CDPNNP or CGPNNP
 - No match for IDP A-Party Blacklist query-response criteria
 - IDP Blacklist relay resulted in falling through to GTT for routing
- **IDPRMSERR** Total number of MSUs selected for IDPR service that could not be processed due to error in encoding, decoding, or formatting.
- **IDPRMSSUCC** Number of MSUs selected for IDPR service for which the requested IDPR feature set functions were executed successfully. This includes pegs to the IDPBKLCNN and IDPBKLCONT registers.

The measurements are available in 30-minute intervals, and in 15-minute intervals when 15-Minute Measurements collection is enabled.

7.3 IDP A-Party Routing and IDP Service Key Routing Measurements

Refer to *Measurements Reference* for descriptions of measurements and measurements reports for IDP A-Party Routing, IDP Service Key Routing, and IDP Relay

Refer to [Prepaid IDP Query Relay Measurements](#) for information about supported collection methods for IDP Relay-related measurements, and for a description of the relationship between IDP Relay, IDP A-Party Routing, and IDP Service Key Routing measurements.

The following measurement registers are defined for the IDP A-Party Routing and IDP Service Key Routing features. The registers are updated through the IDPR service processing. All registers for these features are reported in the STP System Total (SYSTOT-STP) report.

- **IDPSKGTT** Total number of IDP/IDPSSM messages that were selected for Service Key Routing (without having first gone to A-Party Routing), but fell through to GTT.
- **IDPSKRTD** Total number of IDP/IDPSSM messages that were selected for Service Key Routing (without having first gone to A-Party Routing), and were successfully routed based on SK/BCSM PPSOPTS data.
- **IDPPTYRTD** Total number of IDP/IDPSSM messages that were selected for A-Party Routing service, and were successfully routed based on A-Party PPSOPTS routing data (routing data associated with the RTDB Prepaid Type assigned to the A-Party digits).
- **IDPPTYSKR** Total number of IDP/IDPSSM messages that were selected for A-Party Routing service, but fell through to Service Key (SK) Routing, and were successfully routed based on SK/BCSM PPSOPTS data (routing data associated with the RTDB Prepaid Type assigned to the SK/BCSM entry).
- **IDPSKGTT** Total number of IDP/IDPSSM messages that were selected for Service Key Routing (without having first gone to A-Party Routing), but fell through to GTT.
- **IDPPTYGTT** Total number of IDP/IDPSSM messages that were selected for A-Party Routing service, but fell through to GTT (with or without having attempted Service Key Routing first).

The following existing registers are affected by the IDP A-Party Routing and IDP Service Key Routing features:

- **IDPRMSFAIL** Total number of MSUs selected for IDPR service that fell through to GTT due to the following conditions:
 - No match on MSISDN in the RTDB
 - Match on MSISDN but no association to RN or SP for CDPNNP or CGPNNP
 - IDP A-Party or SK Routing resulted in falling through to GTT routing (due to no match on MSISDN or insufficient data)
- **IDPRMSERR** Total number of MSUs selected for IDPR service that could not be processed due to an error in encoding, decoding, formatting, or IDP A-Party Routing or IDP SK Routing.
- **IDPRMSSUCC** Number of MSUs selected for IDPR service for which the requested IDPR feature set functions were executed successfully. This includes pegs to the IDPPTYRTD and IDPSKRTD registers.

The measurements are available in 30-minute intervals, and in 15-minute intervals when 15-Minute Measurements collection is enabled.

7.4 IDP Screening for Prepaid Feature Measurements

The EAGLE Measurements system supports the collection and retrieval of measurements related to the IDP Screening for Prepaid feature. The IDP Screening for Prepaid measurements can be collected and reported with the following collection methods:

- OAM-based measurements collection
- The Measurements Platform feature enabled and the Measurements Platform collection option on
- The E5-OAM Integrated Measurements feature enabled and on and the E5-OAM Integrated Measurements collection option on

15 Minute Measurements can be used with the Measurements Platform or E5-OAM Integrated Measurements.

Refer to *Measurements Reference* for descriptions of collection methods, measurements, and measurements reports.

Refer to *Commands User's Guide* for descriptions of the commands used to enable and turn on features, turn on measurements collection options, and schedule and generate measurements reports.

Refer to the procedures in *Database Administration - System Management User's Guide* to configure the Measurements Platform feature or E5-OAM Integrated Measurements feature for use with IDP Screening for Prepaid.

The following measurement registers are defined for the IDP Screening for Prepaid feature. All registers for this feature are reported in the STP System Total (SYSTOT-STP) report.

- **MSIDPNOMCH** The total number of IDP messages that did not fully meet the criteria of the IDP Screening for Prepaid feature. These messages are relayed to their destination by GTT.
- **MSIDPMATCH** The total number of IDP messages that fully met the criteria of the IDP Screening for Prepaid feature. Instead of sending the IDP message onward, a Continue message is sent to the originating MSC. The criteria involve matching the following TCAP fields with EAGLE Common Screening Lists:
 - The CalledPartyBCDNumber and Calling Party Number digits are provisioned in the In-Network Subscriber List (INSL).
 - The TeleService and Service Key values are in the SKTS List.

8

Maintenance

This chapter describes commands, tools and reports that can be used for IDP Relay and IDP-Relay-related feature maintenance, including status reporting and problem identification.

8.1 Alarms

Refer to *Unsolicited Alarms and Information Messages Reference* for descriptions and corrective procedures associated with EAGLE-related alarms (**UAMs**). Refer to *Alarms and Maintenance Guide* for EPAP for the descriptions and corrective procedures associated with MPS-related alarms.

8.2 IDP Relay-Related UIMs

The Unsolicited Information Messages (**UIMs**) in [Table 8-1](#) support the IDP Relay feature. *Unsolicited Alarm and Information Messages Reference* contains a complete description of UIMs, including text, output examples, and recovery procedures.



Note:

"IDPRCDPN(X)" refers to any of the IDPRCDPN, IDPRCDPN2, IDPRCDPN3, and IDPRCDPN4 services,

Table 8-1 IDP Relay-Related UIMs

UIM	Text	Description	Action
1382	Too many digits for DRA parameter	Too many digits (>31) in the DRA parameter to encode.	Decrease the number of RN digits or modify the querying node to send fewer digits in DN.
1392	IDPRCDPNIDPRCDPN(X) NPP SERVICE is Disabled	The status of the IDPRCDPNIDPRCDPN(X) service is OFF while processing an IDP message.	Set the status of the IDPRCDPNIDPRCDPN(X) service to ON.
1393	IDPRCGPN NPP SERVICE is Disabled	The status of the IDPRCGPN service is OFF while processing an IDP message.	Set the status of the IDPRCGPN service to ON.
1426	S-Port: Missing GRN for svc prtd subs	The GRN data is not present that is needed for Service Portability processing.	Verify and correct the GRN data provisioning in the RTDB.



Note:

The **EPAP** does not have any UIM requirements.

8.3 Maintenance Commands

The following commands can be used for maintenance when an EPAP-related feature is on.

Refer to *Commands User's Guide* for complete descriptions of the commands, including parameters, valid parameter values, rules for using the commands, and output examples.

Table 8-2 Maintenance Commands

Command	Description
rept-stat-sys	Reports the status of system entities, including cards. The output includes the number of Service Module cards that are in service (IS-NR) and how many are in another state (IS-ANR, OOS-MT, OOS-MT-DSBLD).
rept-stat-sccp	Reports operating status of services and subsystems, CPU usage, and Service Module card status. When the <code>loc</code> parameter is specified, the command displays detailed card traffic statistics, including cards that are denied SCCP service. See the section in this manual that describes the use of the <code>rept-stat-sccp</code> command.
rept-stat-mps	Displays the overall status of the EPAP application running on the MPS (multi-purpose server). Command output for the various reports of this command include overall MPS alarm status and card status, and status for a specific Service Module card when a feature is on.
rept-stat-trbl	Includes a summary of any trouble notifications (UAMs) for local subsystems, cards, and linksets. The severity of each alarm is indicated in the output report.
rept-stat-alm	Displays the alarm counts and totals for local subsystems and Service Module card/EPAP IP links.
rept-stat-db	Displays the status information for the EAGLE databases. This includes the level information for each Service Module card, and for the active and standby EPAP RTDB. The command reports database exception status such as corrupted, incoherent, or inconsistent, as well as providing the birth dates and levels. It shows the status of each PDB and RTDB when an EPAP-related feature is enabled.
rtrv-tbl capacity	Retrieves table use capacity summary information. For each table listed, the number of table entry elements in use and the total allowed number of table elements is presented, along with a percent (%) full value. Information is shown for some tables only if the feature that uses the table is enabled.
inh-card/alw-card	<p>The <code>inh-card</code> command is used to change the operating state of the card from In-Service Normal (IS-NR) to Out-of-Service Maintenance-Disabled (OOS-MT-DSBLD). A craftsperson then can test the card or physically remove it from the shelf.</p> <p>The <code>alw-card</code> command is used to change the card from OOS-MT-DSBLD (Out-of-Service Maintenance-Disabled) to IS-NR (In-Service Normal) if card loading is successful.</p>
inh-alm/unhb-alm	Used to allow and inhibit reporting of alarms for a given device, including the Service Module card ports. The commands allow both Port A and Port B to be specified. Inhibited alarms will not generate UAMs or cause alarm indicators to be turned on. All <code>rept-stat-xxx</code> commands continue to display the alarms with an indication that the device has its alarms inhibited.

Table 8-2 (Cont.) Maintenance Commands

Command	Description
rtrv-data-rtdb	Retrieves Entity data, DN data, IMEI data, IMSI data, TN data, NPANXX data, and LRN data from the RTDB on an active Service Module card. If the <code>loc</code> parameter is specified and the target card is an active Service Module card, the RTDB data is retrieved from that card. If the <code>loc</code> parameter is not specified, the RTDB data is retrieved on the active Service Module card that has the lowest IMT address. The RTDB status on the active Service Module card can be coherent or incoherent.

8.3.1 rept-stat-sccp

The `rept-stat-sccp` command provides statistics for Service Module cards and for the services that execute on the cards. The statistics can be displayed for all Service Module cards, or for a specified card.

IDP Relay Feature Statistics

The following statistics are updated for the GTT service when the IDP Relay feature is turned on:

- FORWARD TO GTT = total number of messages sent for GTT processing
- SUCCESS = the IDPRSUCC measurements register count.
- ERRORS = the total of the IDPRERR and IDPRFAIL measurements register counts
- FAIL RATIO = ERRORS divided by the total of ERRORS plus SUCCESS
- REROUTE/WARNINGS = number of UIMs generated
- TOTAL = ERRORS plus SUCCESS plus REROUTE/WARNINGS

Statistics Affected by IDP-Related Features

The following IDP Relay statistics are updated for the TTR service when one or more of the IDP A-Party Blocklist, IDP A-Party Routing, and IDP Service Routing features are enabled and turned on. [Table 8-4](#) and [Table 8-3](#) summarize the updates.

- Depending upon provisioning configuration, feature status, Service Action outcome, and feature results, the IDP and IDPSMS messages that are successfully processed by IDP A-Party Routing, IDP Service Key Routing, or IDP A-Party Blocklist Query or Relay will not result in updating the Forward to GTT counters.
- If message processing results in success, the Success counters for the TTR service are updated, and the Forward to GTT counters are not updated.
- If message processing results in an encoding or routing error, the Error counters for the TTR service are updated, and the Forward to GTT counters are not updated.
- If message processing results in a fall-through to GTT due to insufficient feature data or success match criteria, the TTR Forward to GTT counters are updated
- The TTR Total count is updated for every message serviced (resulting in success or failure) through the IDPR service.

The number of messages handled by any IDP Relay-related feature that did not go through to GTT can be derived from the difference between the TTR Total and Forward to GTT counters.

The TTR Error counter is updated in the case of routing failure for the IDP A-Party Routing and IDP Service Key Routing features, and in the case of Connect/Continue Encoding failure for the IDP A-Party Blocklist feature.

Table 8-3 IDP Relay Counters Updated for IDP A-Party Routing and IDP Service Key Routing

IDP A-Party Routing		IDP Service Key Routing		
Success	No Match/incomplete data	Success	Fall-through to GTT	
	SK Routing success	Fall-through to GTT		
Update:	Update:	Update:	Update:	Update:
TTR:Success	TTR:Success	TTR:Success	TTR:Success	TTR:Success
TTR:Total	TTR:Total	TTR:Forward to GTT	TTR:Total	TTR:Fall-through to GTT
		TTR:Total		TTR:Total

Table 8-4 IDP Relay Counters Updated for IDP A-Party Blocklist

IDP A-Party Blocklist Query		IDP A-Party Blocklist Relay	
Match (Connect response)	No Match/incomplete data (Continue response)	Match (Connect response)	No Match/incomplete data (fall-through to GTT)
Update:	Update:	Update:	Update:
TTR:Success	TTR:Success	TTR:Success	TTR:Success
TTR:Total	TTR:Total	TTR:Total	TTR:Forward to GTT
			TTR:Total

8.3.2 rtrv-data-rtddb

The `rtrv-data-rtddb` command retrieves data from the RTDB on an active Service Module card. If the `loc` parameter is specified and the target card is an active Service Module card, the RTDB data is retrieved from that card. If the `loc` parameter is not specified, the data is retrieved on the active Service Module card that has the lowest IMT address.

IDP A-Party Blocklist Feature Data

The `rtrv-data-rtddb` command displays the blocklist indicator for a number that is blocklisted. The DN parameter must be entered to specify the DN to be displayed:

- A DN that is located in a non-ranged entry and is listed as an A-Party Blocklisted number
- A DN that is located in a ranged entry and is listed as an A-Party Blocklisted number

The `rtrv-data-rtddb` command with the DN parameter also displays an indicator for a number that is public or private.