

Tekelec EAGLE[®] 5 Integrated Signaling System

Feature Manual - IDP and Analyzed Information Features

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Chapter 1

Introduction

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This manual describes 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).

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.
- 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 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.
- 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.
- Info Analyzed Relay features - Provide provisioning of subscriber data to be used to screen and manipulate AnalyzedInformation messages related to ported subscribers differently than messages related to non-porting subscribers. (IAR Base, IAR NP, IAR ASD, IAR GRN)

Scope and Audience

This manual is intended for anyone responsible for installing, maintaining, and using IDP and Analyzed Information features in the EAGLE 5 ISS. Users of this manual and the others in the EAGLE 5 ISS family of documents must have a working knowledge of telecommunications and network installations.

Manual Organization

This document is organized into the following chapters:

- *Introduction* contains general information about the documentation for IDP and Analyzed Information features, organization of this manual, and how to get technical assistance.
- *Prepaid IDP Query Relay Feature* describes the IDP feature and related features for Additional Subscriber Data and Generic Routing Number. It describes the functions of IDP Relay, the user interface for IDP Relay-related features, and the message protocols for IDP Relay-related features.
- *IDP A-Party Blacklist Feature* describes the functions, user interface, and message protocols for the IDP A-Party Blacklist feature.
- *IDP A-Party Routing Feature* describes the functions, user interface, and message protocols for the IDP A-Party Routing feature and the IDP Service Key Routing feature.
- *IDP Screening for Prepaid Feature* explains how this 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.

- [Info Analyzed Relay Features](#) describes the functions, user interface, and message protocols for the Info Analyzed Relay Base feature and related features IAR Number Portability, IAR Additional Subscriber Data, and IAR Generic Routing Number .
- [Feature Configuration](#) provides procedures for configuring the IDP Relay-related features and the IAR-related features for use in the EAGLE 5 ISS.

Related Publications

For information about additional publications that are related to this document, refer to the *Related Publications* document. The *Related Publications* document is published as a part of the *Release Documentation* and is also published as a separate document on the Tekelec Customer Support Site.

Documentation Availability, Packaging, and Updates

Tekelec provides documentation with each system and in accordance with contractual agreements. For General Availability (GA) releases, Tekelec publishes a complete EAGLE 5 ISS documentation set. For Limited Availability (LA) releases, Tekelec may publish a documentation subset tailored to specific feature content or hardware requirements. Documentation Bulletins announce a new or updated release.

The Tekelec EAGLE 5 ISS documentation set is released on an optical disc. This format allows for easy searches through all parts of the documentation set.

The electronic file of each manual is also available from the [Tekelec Customer Support](#) site. This site allows for 24-hour access to the most up-to-date documentation, including the latest versions of Feature Notices.

Printed documentation is available for GA releases on request only and with a lead time of six weeks. The printed documentation set includes pocket guides for commands and alarms. Pocket guides may also be ordered separately. Exceptions to printed documentation are:

- Hardware or Installation manuals are printed without the linked attachments found in the electronic version of the manuals.
- The Release Notice is available only on the Customer Support site.

Note: Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from Severity 1 and 2 PRs are made to existing manuals. Other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Customers with printed documentation should contact their Sales Representative for an addendum. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation Bulletins are posted on the Customer Support site and can be viewed per product and release.

Documentation Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Table 1: Admonishments

	<p>DANGER: (This icon and text indicate the possibility of <i>personal injury</i>.)</p>
	<p>WARNING: (This icon and text indicate the possibility of <i>equipment damage</i>.)</p>
	<p>CAUTION: (This icon and text indicate the possibility of <i>service interruption</i>.)</p>

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

Phone:

1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Central and Latin America (CALA)**

Phone:

USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

0-800-891-4341 (toll-free)

TAC Regional Support Office Hours:

8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

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1230-020-555-5468

- **Columbia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

Regional Office Hours:

8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91 124 436 8552 or +91 124 436 8553

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- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

Emergency Response

In the event of a critical service situation, emergency response is offered by the Tekelec Customer Care Center 24 hours a day, 7 days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with an EAGLE 5 ISS that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical problems affect service and/or system operation resulting in:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system

- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with the Tekelec Customer Care Center.

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the [Tekelec Customer Support](#) site.

Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Prepaid IDP Query Relay Feature

Topics:

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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.

Feature Description

This chapter describes the Prepaid IDP Query Relay (IDP Relay) feature. The following chapters and sections describe IDP Relay-related features:

- [IDP A-Party Blacklist Feature](#)
- [IDP A-Party Routing Feature](#)
- [IDP Relay Additional Subscriber Data Feature](#)
- [IDP Relay Generic Routing Number 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.

IDP Relay processes messages with ITU MTP/SCCP/TCAP parts that are GT-routed. It does not process MTP-routed messages.

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 5 ISS, the EAGLE 5 ISS 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.

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.

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".

IDP Relay High Level Message Flow

IDP Relay high-level message flow

- Service Selection
 - Component match
 - Service Selector IDPR or TTR
- Identify number type and context
 - ITU TCAP message with Op Code = IDP
 - SCCP CdPA found in CSL GT list
 - SK+BCSM present and found in CSL SKBCSM list
- NPP Pre-processing
 - TCAP DN present
 - Number conditioning
- NPP Processing
 - IDPRCDPN service called
 - Conditioning Actions
 - Service Actions
 - Formatting Actions
 - CgPN Lookup needed - IDPRCGPN service called
 - Conditioning Actions
 - Service Actions
 - Formatting Actions
- Post NPP Processing
 - Encode outgoing IDP message
- Peg measurements
- Pass to GTT for routing

Call Flows

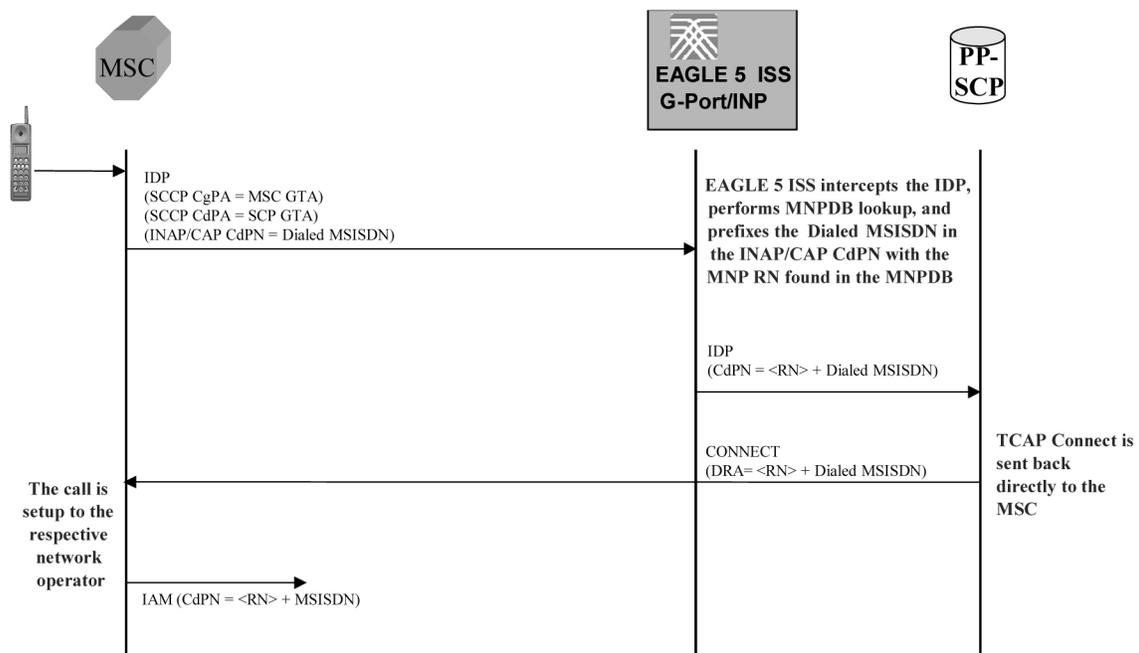
Mobile Originated Prepaid Call to a Ported Out Subscriber

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 1: 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 5 ISS serving as either the Intermediate or Final GTT service provider. In either case, the EAGLE 5 ISS 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 5 ISS 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 5 ISS 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 EventTypeBCSM 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.

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 5 ISS finds a match on the B-party DN in the RTDB with an association to a Routing Number (RN).

Note: Typically, a 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 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.

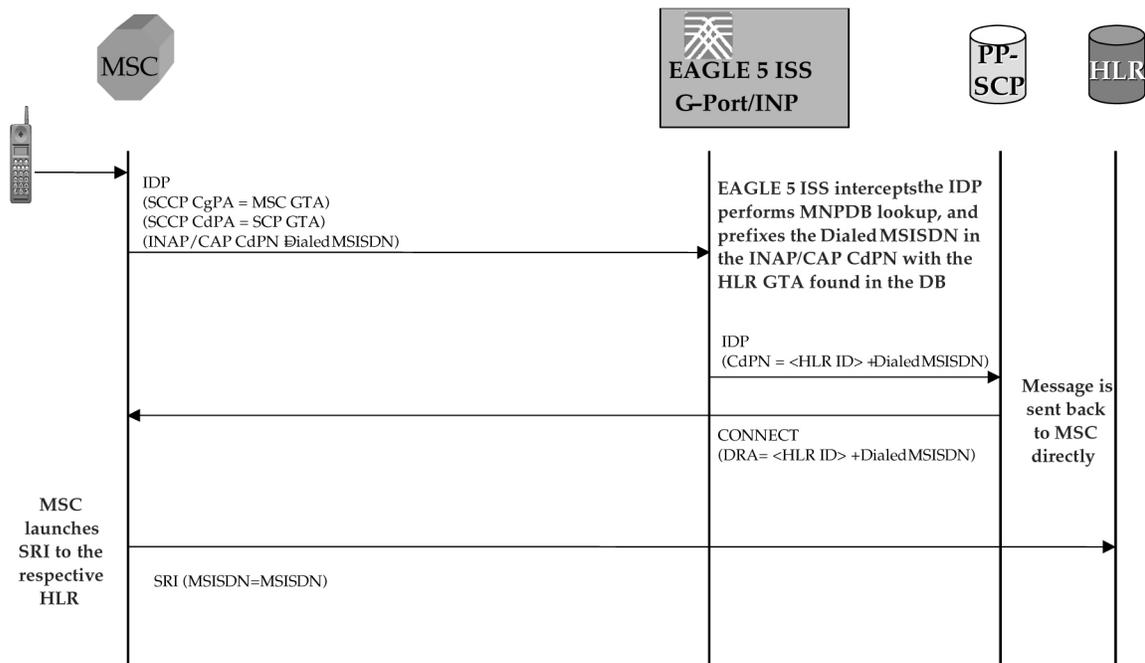
When a prepaid subscriber originates a call, the MSC/MSC/VLR serving that subscriber formulates an INAP or CAP IDP message and routes it to the Prepaid SCP. This message is routed by GTT (SCCP CdPA = PPSCP GTA), with the EAGLE 5 ISS serving as either the Intermediate or Final GTT service provider. In either case, the EAGLE 5 ISS 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 5 ISS 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.

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: 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.

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 that 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 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 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 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.

Service Selection

When an IDP is sent by an MSC, it is sent to the Prepaid SCP (PPSCP) through the EAGLE 5 ISS for GTT processing. As such, the message will contain MTP DPC = EAGLE 5 ISS PC and SCCP CdPA = PPSCP GTA with RI = GT. Because the MTP destination of the message is the EAGLE 5 ISS, the message is delivered to the EAGLE 5 ISS 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.
- 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. See [Info Analyzed Relay Features](#).
 - If the TCAP Type is GSM, checking of additional IDPR service selection criteria continues.

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 GT digits are compared to a provisioned Common Screening List (CSL) 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 GT 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 a provisioned Common Screening List of Service Keys + Event Types. If the Service Key + EventTypeBCSM matches one of the provisioned SKBCSM combinations pointing to IDP Relay service, 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.

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: IDP Relay Number Conditioning](#) summarizes the IDP Relay number conditioning process.

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: IDP Relay Number Conditioning

Incoming Address Format			Number Conditioning	Outgoing Address Format	
TCAPDN 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

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

NPP Processing for IDP Relay

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

See the *Numbering Plan Processor (NPP) Overview* manual for more information about NPP components and processing.

NPP Pre-Processing

The message is decoded and verified.

NPP Processing

IDP Relay provides the IDPRCDPN 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 service is used to process TCAP Called Party Numbers (CdPN).
- The IDPRCGPN service is used to process Calling Party Numbers (CgPN).

The IDPRCDPN 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 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. The following types of data can be searched for in the CgPN lookup:
 - CgPN Additional Subscriber Data (ASD)
 - CgPN Generic Routing Number (GRN)
 - Subscriber blacklist status (see [IDP A-Party Blacklist Feature](#))
 - A-Party routing or Service Key routing requirements (see [IDP A-Party Routing Feature](#))

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.

NPP Conditioning Actions

The IDP Relay services can use all Conditioning Actions provided by NPP.

The IDP Relay IDPRCDPN service uses the ACCGPN Conditioning Action.

IDP Relay provides and uses the ACLAC Conditioning Action.

IDP A-Party Routing adds the CCCGPN Conditioning Action to the Conditioning Actions used by IDP Relay..

Table 3: IDP Relay Conditioning Actions

Name	Description	Function
ACLAC - Area Code from Location Area Code (LAC)	Area code is not included in the incoming DN and needs to be obtained from the Local Area Information (LAI)	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 - CgPN Country Code	The Country Code needs to be extracted from the Calling Party Number.	The number of digits specified in the SCCPOPTS CCLEN 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.
ACCGPN - CgPN Area Code	The Area Code needs to be extracted from the Calling Party Number.	If a match is found to the provisioned STPOPTS DEFCC value, the Country Code is skipped. The number of digits specified in the SCCPOPTS ACLEN 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.

NPP Service Actions

The NPP Service Actions listed in [Table 4: Service Actions used by the IDP Relay Feature](#) 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.

Table 4: Service Actions used by the IDP Relay Feature

Service Action	Description	Service	Precedence
ASDLKUP	Performs an RTDB lookup to obtain CdPN Additional Subscriber Data (ASD) that can	IDPRCDPN, IDPRCGPN	50

Service Action	Description	Service	Precedence
	be used when formatting the outgoing CdPN.		
CCNCCHK	Used to match conditioned number to a CCNC Common Screening List entry; used only during upgrade.	IDPRCDPN	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	80
CgPNASDRqd	Used to Invoke the IDPRCGPN service to obtain CgPN Additional Subscriber Data for use when formatting the CdPN.	IDPRCDPN	50
GRNLKUP	Use of CdPN Generic Routing Number when formatting CdPN	IDPRCDPN, IDPRCGPN	50
CgPNGRNRqd	Used to Invoke the IDPRCGPN service to obtain CgPN Generic Routing Number when formatting the CdPN.	IDPRCDPN	90
CGPNSVCRQD	Used to invoke the IDPRCGPN service for CgPN number conditioning and RTDB lookup.	IDPRCDPN	80
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
LACCK	Match LA I LAC with populated AC; on match, delete FPFx and PFXA digits.	IDPRCDPN	80
CDIAL	Corrective Dialing; can be invoked by any other Service Action to force Formatting Action execution even if the	IDPRCDPN, IDPRCGPN	10

Service Action	Description	Service	Precedence
	Service Action indicates that Formatting Action execution should not be performed.		

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 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 5: RTDB Lookup Success Criteria and Results](#).

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 5: RTDB Lookup Success Criteria and Results

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

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 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 5: RTDB Lookup Success Criteria and Results](#).

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.

NPP Formatting Actions

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

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 5: RTDB Lookup Success Criteria and Results](#).

Post-NPP Processing

IDP Relay verifies the encoding of the outgoing message.

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 passes the IDP message to GTT handling.
- 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.

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.

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

[Table 6: TTROPTS Configuration Options](#) describes the TTROPTS options.

[Table 7: SCCPOPTS Options](#) describes the SCCPOPTS options.

Table 6: TTROPTS Configuration Options

Parameter	Value	Description	Notes
<p>NPTYPE - Entity type for CdPN RTDB lookup.</p> <p>Specifies the CdPN entity type for which the lookup is considered a success.</p>	SP	Service Provider	
	RN	Routing Number	
	RNSP	Routing Number or Service Provider	
	ANYSMATCH	RN, SP, or match with any entity	The value is also used as the RN in the outgoing CgPN.
	ALWAYS	The lookup is always considered successful.	
	RNSPDN	RN, SP, or DN	
<p>SNAI - CdPN Nature of Address Indicator</p> <p>Specifies the CdPN NAI that is used during number conditioning.</p>	INCOMING	The incoming CdPN NAI is used.	<p>If a value other than INCOMING is used, then the chg-npp-serv command should not change the INTL, NATL, NAI1, NAI2, NA3 or UNKN values to non-default values for the IDPRCDPN service.</p>
	INTL	A CdPN NAI of International is used.	
	NATL	A CdPN NAI of National is used.	
	UNKN	A CdPN NAI of Unknown is used.	
<p>CGNPTYPE - CgPN entity type for RTDB lookup.</p> <p>Specified the CgPN entity type for which the lookup is considered a success.</p>	SP	Service Provider	
	RN	Routing Number	
	RNSP	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.
	ALWAYS	The lookup is always considered successful.	
<p>CGSNAI - Calling Party Number Nature of Address Indicator</p> <p>Specifies the CgPN NAI that is used during number conditioning.</p>	INCOMING	The incoming CgPN NAI is used.	<p>If a value other than INCOMING is used, then the chg-npp-serv command should not change the INTL, NATL, NAI1, NAI2, NA3 or UNKN values to non-default values</p>
	INTL	The CgPN NAI is set to International.	
	NATL	The CgPN NAI is set to National.	
	UNKN	The CgPN NAI is set to Unknown.	

Parameter	Value	Description	Notes
			for the IDPRCDPN service
DLMA - Delimiter A Specifies the first delimiter that is used to format the outgoing TCAP dialed number.	1-16 hex digits		
	NONE	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	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	The delimiter is not used	
CGPACCK - 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	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	A default RN is not used.	
DRAFRMT - DRA Digit Format	GRN	The format is GRN	(GRN = Generic Routing Number)
	GRNDN	The format is GRN + DN	(DN = Dialed Number)

Parameter	Value	Description	Notes
Specifies the format of the DRA digits in the outgoing message.	DNGRN	The format is DN +GRN	
	CCGRNDN	The format is CC + GRN + DN	(CC = Country Code)
	GRNCCDN	The format is GRN + CC + DN	
DRANAI - DRA Nature of Address Indicator Specifies the DRA NAI that is used during number conditioning.	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	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.
	NO	Do not execute IDP Service Key Routing if IDP A-Party Routing fails	
SPORTTYPE - Service Portability Type Specifies whether Service Portability is performed for the feature.	NONE	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	
	ALL	Apply Service Portability prefix (GRN from RTDB entity) for all own-network subscribers	
SPFILL - SP entity type population for NPP processing Specifies whether the SP entity type is populated if the value specified for	OFF	Do not populate the SP entity type	
	ON	Populate the SP entity type	

Parameter	Value	Description	Notes
the DFLTRN or GRN parameter is used for NPP processing.			
<p>RNSPFILL - Set RN and SP entities for certain conditions</p> <p>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.</p>	OFF	<p>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 RN digits from the RTDB.</p> <p>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.</p>	
	ON	<p>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.</p> <p>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.</p>	

The following `chg-sccopts` command parameters are used to provision the data in the SCCOPTS table:

Table 7: SCCPOPTS Options

Parameter	Value	Description	Notes
ACLEN	0-8	Length of the Area Code extracted from the CgPN.	Used in ACCGPN Conditioning Action execution.
CCLLEN	0-3	Length of the Country Code extracted from the CgPN.	Used in CCCGPN Conditioning Action execution.
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.

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 service in NPP processing. 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.

IDPR ASD uses the ASDLKUP and CgPNASDRqd Service Actions for the IDPRCDPN service 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.

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 service 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.

EAGLE 5 ISS Commands

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

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

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.

ent-csl / chg-csl / dlt-csl / rtrv-csl

Common screening list commands are used to define, change, and display screening requirements of various features. The screenings are performed on digit strings. For the IDP Relay feature, 3 screening lists are required. Each screening list is based on digit strings.

- GT screening list - The SCCP CDPA GT from the incoming message is compared to this list. If not found, the message falls to GTT handling.
- SKBCSM screening list - The concatenated SK + BCSM from the incoming message is compared to this list. 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.

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-stpopts / rtrv-stpopts

The STP Options commands are used to provision system options for the EAGLE 5 ISS. 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.

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.

rept-stat-sccp

This command is used to display the status of Service Module cards, GTT (Global Title Translation), and services for EPAP-related features executing on those cards. This command also displays any cards that are denied SCCP service. Refer to the *Commands Manual* for details on using this command.

Maintenance Commands

The following commands can be used for maintenance when an EPAP-based feature is on.

Refer to the command descriptions in the *Commands Manual* for complete descriptions of the commands, including parameters, valid values, and output examples.

Table 8: 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 subsystem operating status, CPU usage, and Service Module card status. When the loc parameter is specified, the command displays detailed card traffic statistics. See the section in this manual for each feature that describes the use of the <code>rept-stat-sccp</code> command for that feature.
rept-stat-mps	Displays the overall status of the 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.

Command	Description
rept-stat-alm	Displays the alarm counts and totals for local subsystems and DSM/EPAP IP links.
rept-stat-db	Displays the status information for the EAGLE 5 ISS databases. This includes the level information for each Service Module card, and for the active and standby EPAP databases. It reports database exception status such as corrupted, incoherent, or inconsistent, as well as providing the birth dates and levels. It shows the status of the PDB and RTDB databases when an EPAP-based feature is enabled.
rept-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	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. The alw-card 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.
inh-alm/unhb-alm	Used to allow and inhibit alarms on the Service Module card ports. The commands allow both Port A and Port B to be specified.
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 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 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.

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 Blacklist, IDP A-Party Routing, and IDP Service Routing features are enabled and turned on. [Table 10: IDP Relay Counters Updated for IDP A-Party Blacklist](#) and [Table 9: IDP Relay Counters Updated for IDP A-Party Routing and IDP Service Key Routing](#) summarize the updates.

- Depending upon provisioning configuration, feature status, Service Action outcome, and feature results, the IDP and IDPSMS messages which are successfully processed by IDP A-Party Routing, IDP Service Key Routing, or IDP A-Party Blacklist Query or Relay will not result in pegging 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.

Table 9: 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: TTR:Success TTR:Total	Update: TTR:Success TTR:Total	Update: TTR:Success TTR:Forward to GTT TTR:Total	Update: TTR:Success TTR:Total	Update: TTR:Success TTR:Fall-through to GTT TTR:Total

Table 10: IDP Relay Counters Updated for IDP A-Party Blacklist

IDP A-Party Blacklist Query		IDP A-Party Blacklist Relay	
Match (Connect response)	No Match/incomplete data (Continue response)	Match (Connect response)	No Match/incomplete data (fall-through to GTT)
Update: TTR:Success TTR:Total	Update: TTR:Success TTR:Total	Update: TTR:Success TTR:Total	Update: TTR:Success TTR:Forward to GTT

IDP A-Party Blacklist Query		IDP A-Party Blacklist Relay	
			TTR:Total

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 Blacklist feature.

See [Prepaid IDP Query Relay Measurements](#) and the *Measurements* manual for a description of the measurements used for IDP Relay.

Prepaid IDP Query Relay Measurements

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-Part Routing or IDP Service Key Routing errors .
- **IDPRMSFAIL** Total number of MSUs selected for IDPR service which fell through to GTT due to (1) no match on MSISDN in the RTDB lookup, or (2) match on MSISDN but no association to RN or SP for the CDPNNP or CGPNNP Service Actions, (3) no match for IDP A-Party Black list query-response criteria, (4) IDP A-Party Blacklist Relay resulted in falling through to GTT for routing, or (5) 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.
- **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 IDPPTYRTD, IDPSKRTD, IDPBKLCONN, and IDPBKLCONT registers.

The measurements for IDP Relay are available through OAM collection and Measurements Platform collection. Refer to the procedures in the *Database Administration Manual - System Management* for configuring the Measurements Platform for IDP Relay measurements collection.

Refer to the *Measurements* manual for descriptions of the IDP Relay measurements registers.

[Figure 3: IDP A-Party Routing Impact on IDP Relay Measurements](#) illustrates the impact of the IDP A-Party Routing feature measurements pegging on the IDPR registers.

Figure 3: IDP A-Party Routing Impact on IDP Relay Measurements

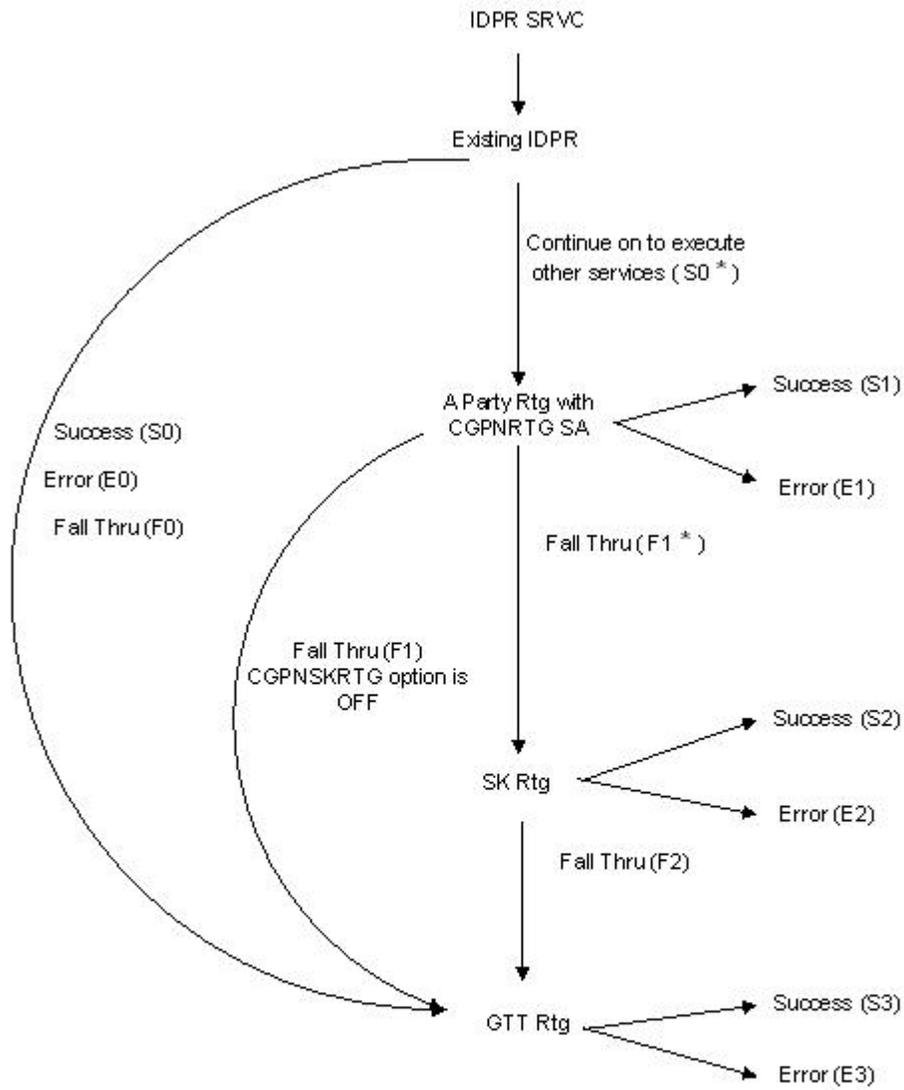


Table 11: IDP A-Party Routing and IDP Relay Pegs

IDP A-Party Routing and Service Key Routing Pegs	IDP Relay Pegs
IDPAPTYRTD = S1	IDPRMSERR = E0 + E1 + E2

Table 12: 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.

Figure 5: IDP A-Party Blacklist (Query and Relay) Impact on IDP Relay Measurements illustrates the impact of the IDP-A-Party Blacklist feature measurements pegging on the IDPR registers.

Figure 5: IDP A-Party Blacklist (Query and Relay) Impact on IDP Relay Measurements

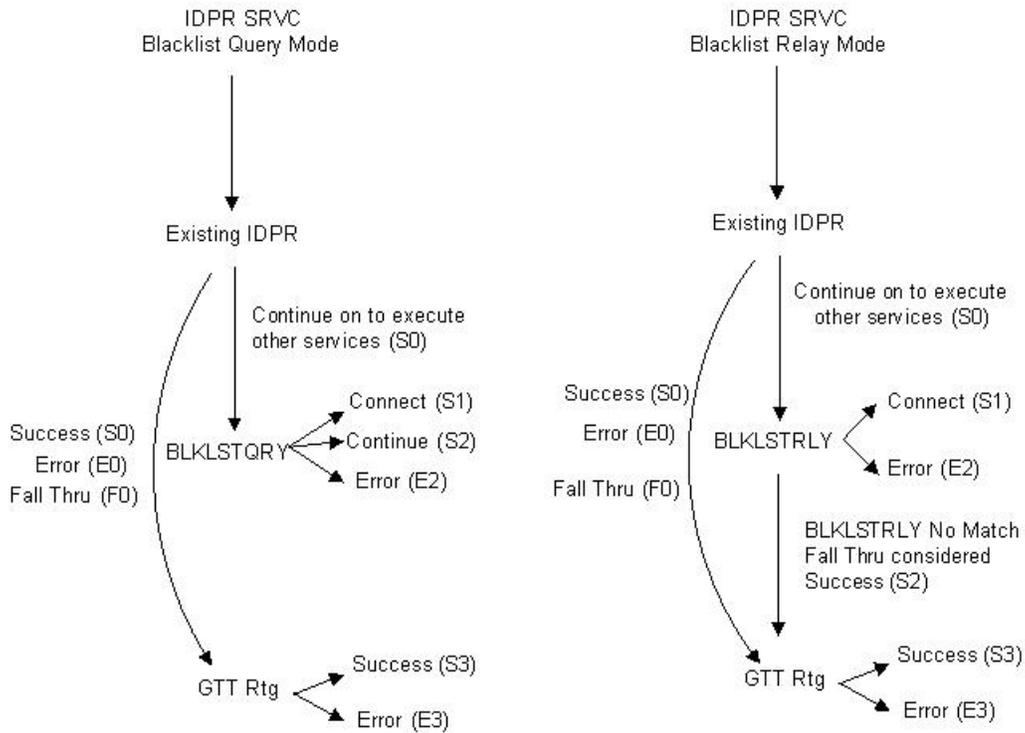


Table 13: IDP A-Party Blacklist and IDP Relay Pegs

IDP A-Party Blacklist Pegs	IDP Relay Pegs
IDPBKLCNN = S1 IDPBKLCONT = S2	IDPRMSERR = E0 + E2 IDPRMSFAIL = F0 IDPRMSSUCC = S0 + S1 + S2 IDPRMSRCV = IDPRMSERR + IDPRMSFAIL + IDPRMSSUCC
Note: GTT success (S3) and GTT failure (E3) measurements registers are pegged separately.	

IDP Relay-Related UIMs

The Unsolicited Information Messages (UIMs) in [Table 14: IDP Relay-Related UIMs](#) support the IDP Relay feature. The *Unsolicited Alarm and Information Messages* manual contains a complete description of all UIM text and formats.

Table 14: IDP Relay-Related UIMs

UIM	Text	Description	Action
1392	IDPRCDPN NPP SERVICE is Disabled	The status of the IDPRCDPN service is OFF while processing an IDP message.	Set the status of the IDPRCDPN 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 srvc prttd 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.

Chapter 3

IDP A-Party Blacklist Feature

Topics:

- [Feature Description.....50](#)
- [EAGLE 5 ISS Commands.....54](#)
- [IDP A-Party Blacklist Measurements.....55](#)

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.

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 blacklisting function is achieved using either a query-based mode, or a relay-based mode in conjunction with IDP Relay feature processing.

EAGLE 5 ISS receives an IDP query message destined to the EAGLE 5 ISS PC, or a prepaid IDP message sent to the EAGLE 5 ISS 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 Common Screening List SKBCSM filter). 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.

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; it has the highest precedence and is mutually exclusive with the rest of the IDPRCgPN NPP SAs in the same rule. It is an IDPRCgPN terminating Service Action.

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.

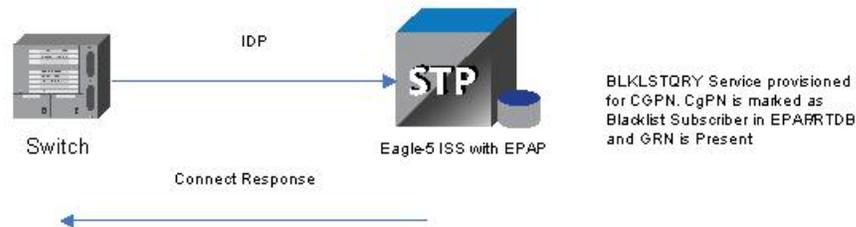
A Connect response is encoded and sent back to originator of the IDP/IDPSMS message.

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.

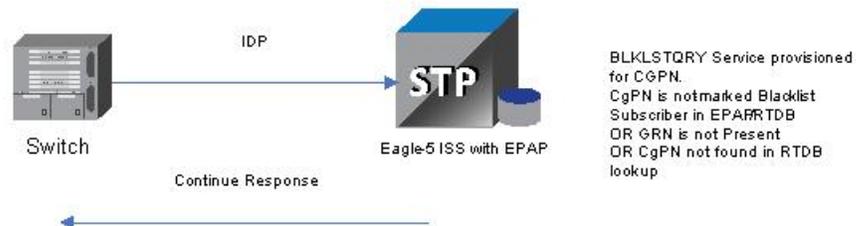
Figure 6: IDP A-Party Blacklist Query Response - Connect



- 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/IDPSMS message using the existing routing mechanism.

Figure 7: 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. 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. 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.

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. It 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 8: IDP A-Party Blacklist Relay*).

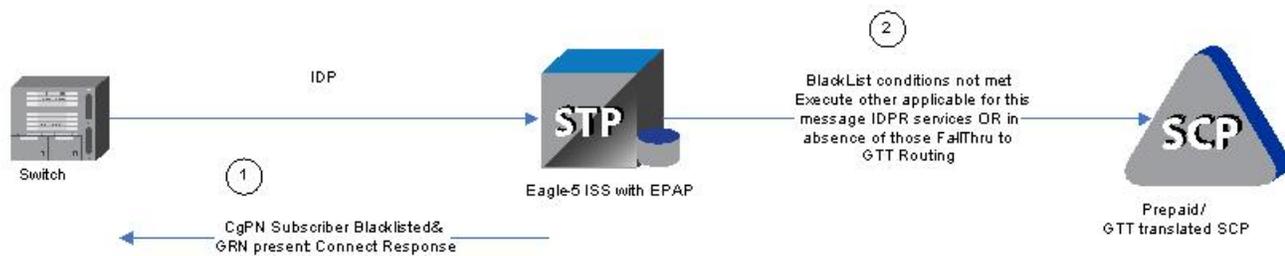
The DRA parameter in the associated GRN entity digits are used to encode the DRA digits according to the TTROPTS DRAFRMT option value.

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 8: IDP A-Party Blacklist Relay*.)

Figure 8: IDP A-Party Blacklist Relay



In the post-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.

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 15: Summary of IDP A-Party Blacklist Service Actions provides a summary of the Service Actions used for IDP A-Party Blacklist.

Table 15: 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

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.

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.

EAGLE 5 ISS Commands

This section describes the commands used for the configuration and maintenance of the IDP A-Party Blacklist feature.

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

enable/chg/rtrv-ctrl-feat

These commands are used to enable, turn on, and display the on/off status of IDP A-Party Blacklist feature.

ent/chg/dlt/rtrv-srvsel

The IDP Relay (IDPR) service selector commands are used to provision and display service selector information for the idpr service. The IDPR service selector is used by IDP A-Party Blacklist.

chg/rtrv-ttropts

The TTR Options commands are used to provision the configuration options for the IDP A-Party Blacklist feature. The options control number portability processing for IDP messages and response message formatting.

`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 NPP uses to process digit strings.

Maintenance Commands

See [Maintenance Commands](#) for a list of maintenance commands that can be used with the IDP A-Party Blacklist feature.

rtrv-data-rtdb

The `rtrv-data-rtdb` 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 Blacklist Feature Data

The `rtrv-data-rtdb` command displays the blacklist indicator for a number that is blacklisted. 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 Blacklisted number
- A DN that is located in a ranged entry and is listed as an A-Party Blacklisted number

The `rtrv-data-rtdb` command with the DN parameter also displays an indicator for a number that is public or private.

IDP A-Party Blacklist Measurements

The following measurement registers are defined for the IDP A-Party Blacklist feature. All registers added in this feature are reported in the STP System Total (SYSTOT-STP) report.

- **IDPBKLCONN** 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 (see [Prepaid IDP Query Relay Measurements](#)):

- **IDPRMSFAIL** Total number of MSUs selected for IDPR service that fell through to GTT due to (1) no match on MSISDN in the RTDB, (2) match on MSISDN but no association to RN or SP for CDPNNP or CGPNNP, (3) no match for IDP A-Party Blacklist query-response criteria, or (4) 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 IDPBKLCONN and IDPBKLCONT registers.

The measurements are available in 30-minute intervals for OAM measurements and for the Measurements Platform. For the Measurements Platform feature, measurement are available in 30-minute intervals, and in 15-minute intervals when 15-Minute Measurements collection is enabled.

Refer to the *Measurements* manual for descriptions of the measurements for IDP A-Party Blacklist and IDP Relay.

IDP A-Party Routing Feature

Topics:

- [Feature Description.....58](#)
- [EAGLE 5 ISS Commands.....63](#)
- [IDP A-Party Routing Measurements.....64](#)

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 Service Key and EventType BCSM parameters in the incoming IDP or IDPSMS message.

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 IDPRCdPN and IDPRCgPN services and specific Conditioning Actions and Service Actions.

IDP A-Party Routing

IDP A-Party Routing in the EAGLE 5 ISS 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.

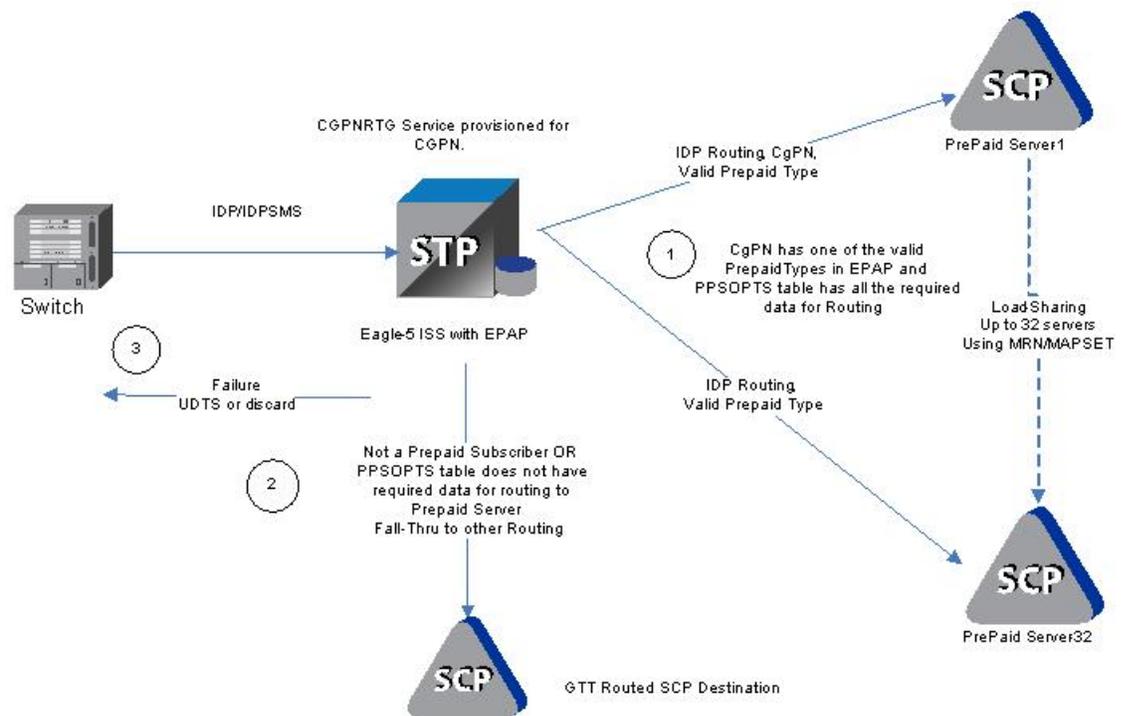
The IDP A-Party Routing function is provided by an NPP Service Action, and by routing algorithms used during post-NPP processing. The routing algorithms use Prepaid Short Message (PPSOPTS) table data and MRNSET or MAPSET table data.

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 9: IDP A-Party Routing Message Flow 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 9: IDP A-Party Routing Message Flow



IDP Service Key Routing

IDP Service Key Routing in the EAGLE 5 ISS 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.

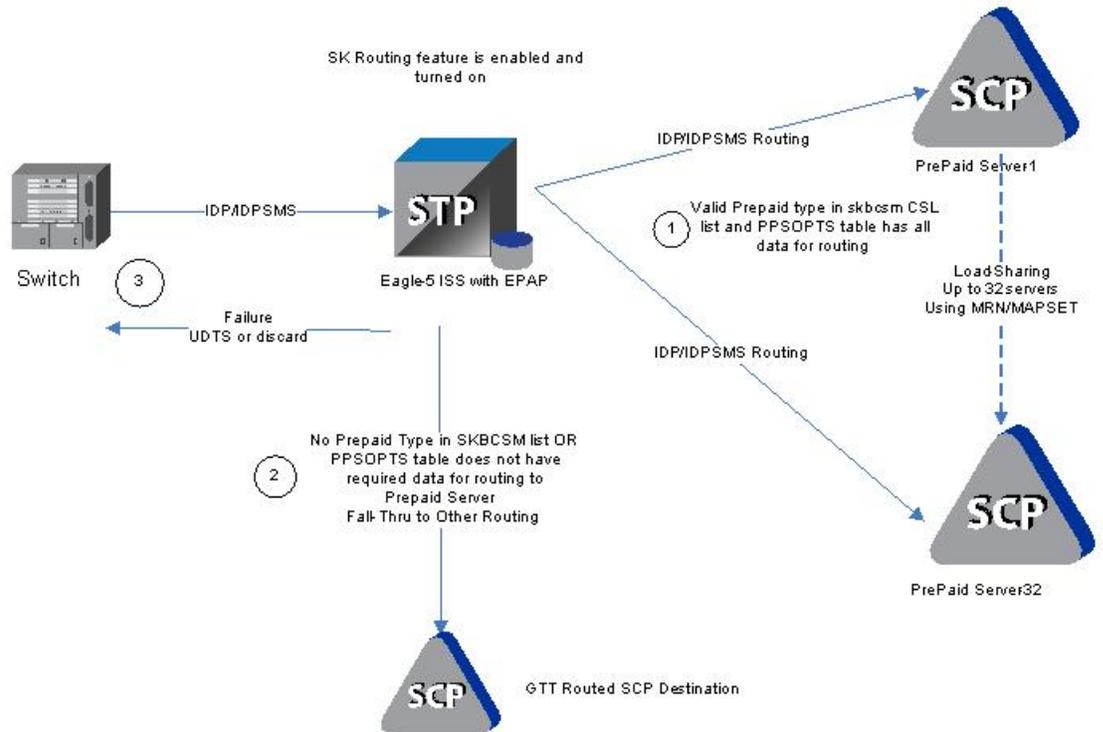
IDP Service Key Routing uses the Service Key and EventType BCSM parameters in the incoming IDP or IDPSMS message, the provisioned prepaid type data in the SKBCSM Common Screening List, and data in the Prepaid Short Message (PPSOPTS), MRNSET, and MAPSET tables.

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 10: IDP Service Key Routing Message Flow 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
3. Failed Service Key routing; either a UDTs is sent back to the originator or the message is discarded

Figure 10: IDP Service Key Routing Message Flow



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 16: 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 CGPNSKRTG	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)

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 17: Summary of IDP A-Party Routing Service Actions provides a summary of the Service Actions used for IDP A-Party Routing.

Table 17: 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
CGPNSVCRQD	Calling Number lookup	Sets a flag to cause the IDPRCGPN service to be invoked for the message.	60

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.

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.

EAGLE 5 ISS Commands

This section describes the commands that are used for the configuration and maintenance of the IDP A-Party Routing and IDP Service Key Routing features.

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

enable/chg/rtrv-ctrl-feat

These commands are used to enable, turn on, and display the on/off status of the features.

ent/chg/dlt/rtrv-csl

Common screening list commands are used to define, change, and display screening requirements of various features. The screenings are performed on digit strings. For the IDP Service Key Routing feature, the following screening list is required. The screening list is based on Prepaid Type information.

- SKBCSM screening list - The Service Key and the EventType BCSM parameters from the incoming message are concatenated and compared to the Prepaid Type data in this list. If not found, either a UDTS is sent to the originator or the message is discarded.

chg/rtrv-ttropts

The TTR Options commands are used to provision the configuration options for the IDP Relay, IDP A-Party Routing, and IDP Service Key features. Options control IDP Relay, IDP A-Party Blacklist, and IDP A-Party Routing processing for IDP messages, and formatting of response messages.

chg/rtrv-ppsopts

The Prepaid Short Message Service options commands are used to enter and display PPSOPTS table entries that correspond to Intelligent Network (IN) platforms. IDP A-Party Routing and IDP Service Key Routing use Prepaid Portability Type information from the PPSOPTS table.

chg/rtrv-sccopts

The SCCPOPTS commands are used to change and display the values of the SCCP option indicators maintained in the STP options table.

ent/chg/dlt/rtrv-srvsel

The service selector commands are used to provision and display service selector information for the IDPR service. The IDPR service selector is used by the IDP Relay, IDP A-Party Blacklist, and IDP A-Party Routing features.

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.

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.

IDP A-Party Routing Measurements

The following measurement registers are defined for the IDP A-Party Routing feature. The registers are updated through the IDPR service processing. All registers added in this feature are reported in the STP System Total (SYSTOT-STP) report.

- **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).

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).

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).

IDPSKGTGTT 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.

IDPSKRRTD 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.

The following existing registers are affected by the IDP A-Party Routing feature (see [Prepaid IDP Query Relay Measurements](#)):

- **IDPRMSFAIL** Total number of MSUs selected for IDPR service that fell through to GTT due to (1) no match on MSISDN in the RTDB, (2) match on MSISDN but no association to RN or SP for CDPNNP or CGPNNP, (3) 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 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 IDPSKRRTD registers.

The measurements are available in 30-minute intervals for OAM measurements and for the Measurements Platform. For the Measurements Platform feature, measurement are available in 30-minute intervals, and in 15-minute intervals when 15-Minute Measurements collection is enabled.

Refer to the *Measurements* manual for descriptions of the measurements for IDP A-Party Routing, IDP Service Key Routing, and IDP Relay.

Chapter 5

IDP Screening for Prepaid Feature

Topics:

- *Feature Description.....66*
- *Call Flow.....67*
- *IDP Screening for Prepaid Feature Commands.....68*
- *IDP Screening for Prepaid Feature Measurements.....69*

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.

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 5 ISS 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 5 ISS 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 5 ISS 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 5 ISS 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 5 ISS 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 5 ISS 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.

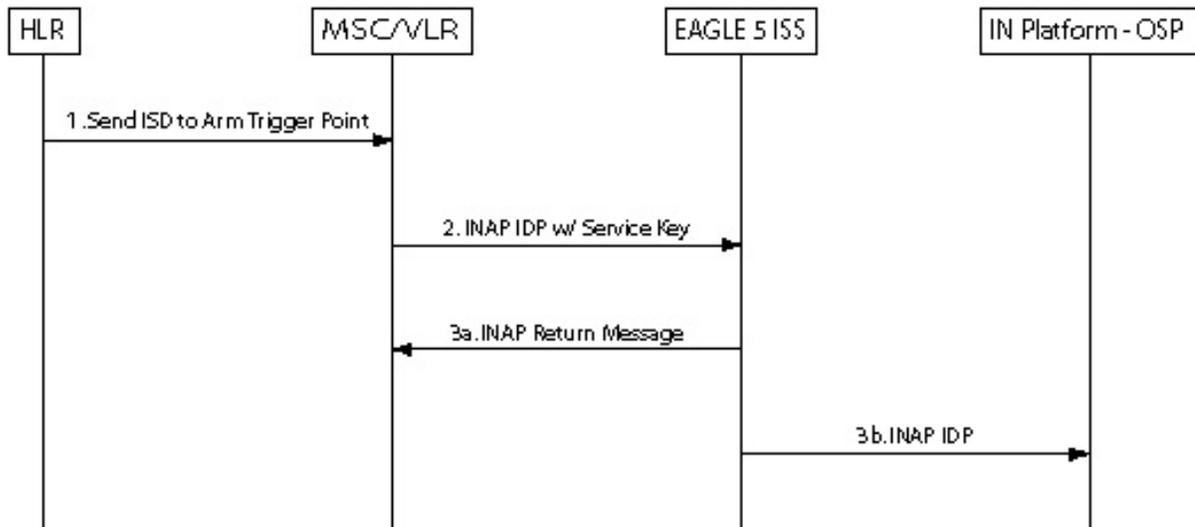
When text calls are originated from prepaid subscribers with a specified "unlimited" text or "unlimited" call and text plan, the EAGLE 5 ISS examines whether the call is an in-network call. If it is an in-network text call, the EAGLE 5 ISS returns an INAP Continue message to instruct the MSC to continue the call.

For any other types of calls, the EAGLE 5 ISS relays the IDP message to the prepaid engine.

Call Flow

Figure 11: IDP Message Subject to IDP Screening for Prepaid illustrates an IDP message that is subject to IDP screening for prepaid.

Figure 11: 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 5 ISS 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 5 ISS 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 5 ISS performs on of the following:
 - a. The EAGLE 5 ISS 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 5 ISS relays the INAP IDP message to its intended destination.

IDP Screening for Prepaid Feature Commands

This section provides a description of commands that can be used for configuration of the IDP Screening for Prepaid feature.

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

See [Maintenance Commands](#) for a list of maintenance commands that can be used with the IDP A-Party Blacklist feature.

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.

IDP Screening for Prepaid Feature Measurements

Two measurement registers are defined for the IDP Screening for Prepaid feature. All registers added in this feature are reported in the STP System Total (SYSTOT-STP) report. The registers are:

- `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 5 ISS 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.

Info Analyzed Relay Features

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This chapter describes the Info Analyzed Relay features (IAR Base, IAR NP, IAR ASD, and IAR GRN). The Info Analyzed Relay (IAR) features provide EAGLE 5 ISS provisioning of subscriber data to be used to screen and manipulate AnalyzedInformation messages related to ported subscribers differently than messages related to non-ported subscribers. Other network entities then do not have to distinguish one kind of subscriber from another, but only react to message data that is already screened and manipulated by the EAGLE 5 ISS.

Operation Overview

The following Info Analyzed Relay (IAR) features are used to process AnalyzedInformation messages that are sent from an MSC to an SCP or SN.

- IAR Base (Part Number 893034201)

IAR Base intercepts and identifies the AnalyzedInformation messages that require IAR feature processing, and performs all message processing.

The IAR Base feature must be on before any other IAR features can be used in the system.

- IAR Number Portability (IAR NP) (Part Number 893026101)

IAR NP performs an RTDB lookup on the conditioned number from the message, distinguishes own network subscribers from foreign network subscribers, populates Formatting Action values used for outgoing message formatting, and performs Service Portability processing when the Service Portability feature is on.

The IAR NP feature supports MNP and Service Portability processing, but it does not dictate how the customer will use it. For example, the IAR NP feature can be used to identify subscribers that belong to the customer's network, but it does not dictate whether or not AnalyzedInformation messages associated with them should be modified before they are relayed. Each customer can decide how to represent subscribers of own and foreign networks in the RTDB. The IAR features allow each customer to decide how to react to that data appropriately.

Service Portability (S-Port) processing is also applied by the IAR NP feature, allowing the RTDB GRN value to be used as the RN in the outgoing message.

- IAR Additional Subscriber Data (IAR ASD) (Part Number 893035001)

IAR ASD provides the ability to obtain Additional Subscriber Data from the RTDB and populate the ASD Formatting Action value with the ASD.

- IAR Generic Routing Number (IAR GRN) (Part Number 893035101)

IAR GRN provides the ability to obtain the Generic Routing Number from the RTDB and populate the GRN Formatting Action value with the GRN.

Note: There are several features that can use GRN data: 1. IDPR A-party Blacklist, 2. INP/G-Port /ATINP Support for ROP, 3. Service Portability. The IDPR A-party Blacklist feature is mutually exclusive with Service Portability; the two features cannot be enabled in the same system. There is no other restriction placed in the code to make other combinations of features using GRN mutually exclusive with each other. It is anticipated that the other combinations will not occur in the same system, based on market requirements. The combinations of features that use GRN should be considered in configuring each system.

Subscriber data population and feature configuration provide information to identify subscribers as own-network or foreign network, and to determine which AnalyzedInformation messages will be processed by IAR features.

Message processing is also guided by configuration of the Numbering Plan Processor (NPP). After a message is determined to require IAR feature processing, the NPP configuration determines whether or not the CdPN parameter or CgPN parameter, or both, will be modified.

IAR General Relay Call Flow

The following general call flow relays AnalyzedInformation messages:

- An incoming MSC event trips an Intelligent Network trigger.
- The MSC sends an AnalyzedInformation message to the EAGLE 5 ISS.
- The IAR Base feature intercepts an AnalyzedInformation query based on customer configured criteria.
- The following actions are performed, based on configuration options:
 - The B-Party number and A-Party number are extracted from the CdPN parameter and CgPN parameter.
 - An RTDB lookup is performed on the CdPN or CgPN or both to check subscriber status.
 - The CdPN parameter or CgPN parameter, or both, could be modified based on configuration options and RTDB lookup results.
 - The message is relayed to its original destination.

The SCP uses the information in the AnalyzedInformation message to apply a billing tariff to the associated call, and check the balance of a prepaid subscriber, among other things. An AnalyzedInformation response message will be returned to the originator of the AnalyzedInformation message.

The MSC handles the call based on the information in the AnalyzedInformation response. The MSC could have been instructed to terminate the call. The SCP can also have the MSC reroute the call by providing a DGTSDIAL parameter in the response message

Call Flow Example for a Foreign Network Subscriber

For a configuration that would modify AnalyzedInformation messages when the CdPN parameter describes a subscriber that is served by a foreign network, the RTDB could be provisioned to associate an RN that identifies the network supporting all foreign subscribers:

- Subscriber range records could be used for blocks of numbers that are used by foreign networks.
- Individual records could be used to describe subscribers that have had their numbers ported out of the customer's network to some foreign network.

The IAR NP feature can key off of the existence of an RTDB record for some CdPN to determine which messages should be modified before relay, and also use the RN in the modification. The RN would probably be prepended to the original CdPN, but NPP allows the the data to be used in whatever way best suits the needs.

The Home SCP can easily strip an RN from the front of a CdPN parameter if all of the RN values used to provision of the RTDB are the same length.

This example represents the following processing:

- A prepaid subscriber attempts to make a call that trips an IN trigger at the MSC. The MSC sends an AnalyzedInformation message to the network served by the EAGLE 5 ISS.
- The IAR Base feature intercepts the AnalyzedInformation message, and determines that it requires IAR processing.
- The IAR NP feature performs an RTDB lookup using the digit string in the CdPN parameter, and finds that the number is associated with an RN; the B-party subscriber was ported to a foreign network.
- The IAR Base feature formats a new CdPN parameter using the RN and DN (as directed by NPP).

- The modified AnalyzedInformation message is sent to the Home SCP.
- The Home SCP detects and strips the RN from the CdPN parameter, and uses it to determine an appropriate tariff rate for the call.

Call Flow Example for an Own Network Subscriber

The following processing illustrates a call to an own-network subscriber:

- A prepaid subscriber attempts to make a call that trips an IN trigger at the MSC. The MSC sends an AnalyzedInformation message to the network served by the EAGLE 5 ISS.
- The IAR Base feature intercepts the AnalyzedInformation message, and determines that it requires IAR processing.
- The IAR NP feature performs an RTDB lookup using the digit string in the CdPN parameter, and finds that the number is not associated with an RN; the B-party subscriber was ported into the customer's network.
- The IAR Base feature does not modify the CdPN parameter.
- The unmodified AnalyzedInformation message is sent to the Home SCP.
- The Home SCP detects the lack of an RN in the CdPN parameter, and associates an appropriate tariff rate with the call.

NPP

Message processing is also guided by configuration of the Numbering Plan Processor (NPP). After a message is determined to require IAR feature processing, the NPP configuration determines whether or not the CdPN parameter will be modified.

NPP processing relies on Nature of Address Indicator (NAI) values. These values are available in SCCP parameters and GSM MAP parameters, but they are not available in the CdPN and CgPN parameters of AnalyzedInformation query operations. The National Indicator bit (least significant bit) of the Nature of Number field in the CdPN and CgPN will be used wherever the NAI is called for in this document.

Interaction with Other EAGLE 5 ISS Functions

MTP-Routed Messages

All incoming GT-routed traffic is sent to a Service Module card by the LIM card that receives it, but MTP-routed traffic may not be. See [. MTP-Routed AnalyzedInformation Message Processing](#)

- The Gateway Screening (GWS) feature on a LIM card inspects message traffic before it is directed to a Service Module card. It can be used to select incoming MTP-routed traffic for Service Module card processing on a linkset basis.
- The MTP Routed Messages for SCCP Applications feature can be used to direct all MTP routed SCCP messages to Service Module cards for service selection processing.

IS41 GSM Migration

When the IGM feature is ON; an IS41 own-network subscriber will be associated with an RN entity and a Portability Type of 0, instead of an SP entity.

MTP-Routed AnalyzedInformation Message Processing

An MTP-routed message is a “through-switched” message that is not generated by or destined to the EAGLE 5 ISS (neither the MTP OPC nor DPC is the EAGLE 5 ISS true point code or capability point

code). An MTP-routed message is routed to the destination designated by the DPC of the MTP3 routing label.

Typically, MSUs that receive service on a Service Module card require the message to be GT-routed to the EAGLE 5 ISS, so that GTT service selector-based discrimination can be applied to the message to select a specific service (such as TTR or IDPR). Some MTP-routed messages might not contain Global Title digits (GTI=0); they are referred to as "GTI=0" messages. The GTT Service Selector cannot be applied

The IAR Base feature can process MTP-routed SCCP messages with SCCP CdPA GTI=0 and an ANSI TCAP Query With Permission package that has a Invoke Last component that contains an ANLYZD operation. One of the following methods can be used:

- The MTP Routed Messages for SCCP Applications (MTP Msgs for SCCP Apps) feature

The feature is available system-wide and sends all MTP-routed SCCP messages from LIM cards to Service Module cards for processing.

The feature can be turned on when the IAR Base feature is turned on.

- The MTP Routed GWS Stop Action feature with Gateway Screening

The MTP Routed GWS Stop Action feature (Part Number 893-0356-01; also called MTPRTD GWS Stop Action) can be turned on and off after it has been enabled.

The Gateway Screening SCCP Stop Action can be provisioned only if the MTP Routed GWS Stop Action feature is enabled, and must be the last stop action in the GWS action set.

The SCCP Stop Action is mutually exclusive with the TIF, TIF2, TIF3, TLNP, CNCF and RDCT Stop Actions. Screening with the SCCP Stop Action occurs only when the MTP Routed GWS Stop Action feature is turned on.

When the MTP Routed GWS Stop Action feature is on, and Gateway Screening (GWS) is provisioned to screen MSUs using the GWS SCCP Stop Action, only UDT, UDTS, XUDT, and XUDTS SCCP messages are sent from a LIM card to a Service Module card for processing.

Gateway Screening is applied to messages on a linkset basis, and it is applied to all traffic on that linkset. The GWS SCCP Stop Action must be configured to process MTP-routed traffic on appropriate linksets.

In case of failure, the screened MSU continues with MTP routing. (Failure is the LIM card could not deliver MSU to SCCP Service Module due to some reason, such as all Service Module cards are out of service or Service Module cards deny service grant.)

Both the MTP Routed GWS Stop Action and MTP Msgs for SCCP Apps features can be turned on at the same time.

When both features are turned on, the MTP Msgs for SCCP Apps feature takes precedence over the MTP Routed GWS Stop Action feature. The MTP Msgs for SCCP Apps feature forwards the SCCP message to a Service Module card whether or not the message is screened by the GWS SCCP Stop Action.

When a Service Module card receives an MTP-routed AnalyzedInformation message that has GTI=0 in the Address Indicator, the IAR Base feature is selected to process the message.

The IAR Base feature processes only those GTI Zero messages that are bound for a Home SCP.

The IAR Base feature performs DPC Screening on the message.

- The message DPC is compared with DPCs with the HOMESCP option provisioned in the Destination table.
- If a matching DPC that is a full point code for a Home SCP is found, then the IAR Base feature will continue processing the message.
- Otherwise, the message is dismissed.

The IAR Base feature processing for GTI=0 messages that pass the DPC screening is the same as the processing other AnalyzedInformation messages, as described in <IAR Pre-NPP Processing, NPP Processing, and IAR Post-NPP Processing>.

After the MTP-routed SCCP message is processed by a Service Module card, the MSU is MTP routed if the processing indicates to do so. If the message was dismissed due to errors in processing, the message is relayed without modification.

While routing the MTP-routed SCCP message to its destination, if the DPC is not defined in the Route table, then UIM 1004 is generated along with a TFP to the adjacent node. The message is discarded.

IAR Base Feature Message Processing

The IAR Base feature provides the message processing functions upon which the other IAR-related features are built. The other IAR-related features modify how AnalyzedInformation messages are handled as they pass through the IAR Base feature. The IAR Base feature performs all AnalyzedInformation message processing.

The IAR Base feature processes AnalyzedInformation messages that are sent from an MSC to an SCP or SN.

- Called Party Number (CdPN) parameters are used to carry B-Party numbers in MAP messages. WIN AnalyzedInformation operations have one or two CdPNs: the DSTDGTS parameter, the DGTSDIAL parameter, or both. ANSI AnalyzedInformation messages use only the DGTSDIAL parameter.
- Calling Party Number (CgPN) parameters are used to carry A-Party numbers in MAP messages. Both WIN and ANSI AnalyzedInformation messages use the CPNDGTS1 parameter to carry the CgPN.
- The IAR Base feature only uses A- and B-Party numbers that are encoded using the Binary Coded Decimal (BCD) format.

A message that reaches the Service Module card when the IAR Base feature is enabled and turned on is subjected to further analysis to determine if it needs processing by the IAR Base feature.

IAR Base feature message processing has four main components:

- Service Selector processing
- IAR pre-NPP processing
- NPP processing for IAR
- IAR post-NPP processing

IAR Base message processing has the following considerations:

- All messages that are received by the TTR Service Selector on the Service Module card are eventually routed, whether or not they are modified first.

- A message that is routed to the IAR Base feature from the TTR Service Selector may not pass IAR pre-NPP processing.
- A message that passes through NPP processing still may not have any IAR-specific modification made to it.

Service Selection for Analyzed Information Messages

On a Service Module card, the service selection process selects messages for IAR processing in the following sequence of steps:

1. Check for SCCP CdPA GTI=0.

If GTI is not 0, service selection continues as described in Step 2.

If GTI=0, verify that the IAR Base feature is on.

If the IAR Base feature is not on, the message is dismissed.

If the IAR Base feature is on, the message is sent to the IAR Base feature for Pre-NPP processing. See [IAR Pre-NPP Processing](#).

Additional service selection is bypassed, because GTI=0 messages do not contain the GT information in the CdPA parameter that is required for the additional service selection.

2. Decode the SCCP layer to identify the CdPA and CgPA parameters.

Decoding errors cause the message to be dismissed.

3. Compare provisioned Service Selector data to the CdPA SCCP data (Global Title Indicator, - GTI Subsystem Number, SSN Translation Type - TT, Nature of Address Indicator - NAI, and Numbering Plan - NP) to determine whether the TTR service applies to the message.

The message will be handled by another service or dismissed if the TTR service is not selected.

If the TTR service is selected, processing continues with Step 4.

4. The TTR service verifies that the TCAP layer of the message starts with a PRIVATE tag (the ANSI TCAP Package Type is defined using PRIVATE tag values).

If the PRIVATE tag is present, the TTR service verifies that the IAR Base feature is on.

If the IAR Base feature is on, the IAR Base feature begins IAR Pre-NPP processing on the message. See [IAR Pre-NPP Processing](#).

If the IAR Base feature is not on, the message is dismissed.

IAR Pre-NPP Processing

The IAR Base feature applies IAR pre-NPP processing to SCCP UDT message and unsegmented XUDT messages; all other SCCP messages are dismissed.

The IAR Base feature applies pre-NPP screening to a message in the following sequence:

Note: NPP processing relies on Nature of Address Indicator (NAI) values. These values are available in SCCP parameters and GSM MAP parameters, but they are not available in the CdPN and CgPN parameters of AnalyzedInformation query operations. The National Indicator bit (least significant bit) of the Nature of Number field in the CdPN and CgPN will be used wherever the NAI is called for in this document.

DPC Screening or SCCP CdPA GT Digit Screening

- **DPC Screening**

The IAR Base feature applies DPC Screening to MTP-routed messages with SCCP CdPA GTI=0.

- DPC screening compares the message DPC with DPCs provisioned with the HOMESCP option in the Destination table.
- If a matching DPC that is a full point code for a Home SCP is found, the IAR Base feature processing continues for the message.
- If no Home SCP DPC match is found, the message is dismissed.

- **SCCP CdPA GT Digit Screening**

The IAR Base feature applies CdPA GT Digit Screening to GT-routed and MTP-routed messages with SCCP CdPA GTI not 0.

CdPA GT Digit Screening can be used to make sure that the IAR Base feature processes only messages that are bound for a customer Home SCP.

- The IAR Base feature compares the CdPA parameter GT digits to a list of digits string values provisioned in the GT list of the Common Screening List (CSL) table.
- The IAR Base feature continues processing the message only if a match is found.
- If a match is not found, the message is dismissed.

TCAP and MAP Decoding

The IAR Base feature decodes the TCAP portion of the message to continue processing. The IAR Base feature checks the structure of the message, checks to make sure that the message carries an AnalyzedInformation operation, and identifies the MAP CdPN and CgPN parameters.

- The message must contain an ANSI TCAP Query with Permission package; if not, the message is dismissed.
- The IAR Base feature uses and modifies only data within the first Invoke Last TCAP component portion of the message.
- The IAR Base feature handles WIN Standard Phase 2 ANLYZD operations.
- The MAP layer can contain a DSTDGTS parameter, a DGTSDIAL parameter, or both.
 - If only a DSTDGTS parameter is present, or both parameters are present, the DSTDGTS parameter is used as the CdPN.
 - If only a DGTSDIAL parameter is present, the DGTSDIAL parameter is used as the CdPN.
 - If neither parameter is present, UM 1427 is generated and the message is dismissed.
- The MAP layer CPNDGTS1 parameter is used as the CgPN.
 - If the CPNDGTS1 parameter is not present, UIM 1428 is generated and the message is dismissed.
 - Messages that contain TCAP decoding errors relating to the CgPN parameter will be dismissed and the associated UIM will be issued, only if and when CgPN processing is to be used - if the IARCDPN service invokes the IARCGPN service.
- If the CdPN or CgPN parameter is not encoded in BCD format, UIM 1427 or UIM 1428 is generated and the message is dismissed.
- If the MAP layer does not contain a TRIGTYPE parameter, UIM 1429 is generated and the message is dismissed.

Trigger Type Screening

The message TRIGTYPE parameter indicates the kind of trigger that caused the AnalyzedInformation message to be sent:

- The Calling_Routing_Address_Available trigger that trips when an MSC has all of the information it needs to route a call
- The Initial_Termination and Called_Routing_Address_Available triggers that trip when an MSC is handling a call to a prepaid subscriber

The IAR Base feature compares the message TRIGTYPE parameter value to numeric values provisioned in the TRIGTYPE list of the CSL table.

The IAR Base feature continues processing only if an exact match is found.

If an exact match is not found, the message is dismissed.

SCCP CgPA Default Country Code (DEFCC) Check

This check can be used when a roaming subscriber dials a number that is local to the area in which he is roaming, and uses the national number format instead of international format. MNP control does not need to be applied across international boundaries. The IAR Base feature will not process messages sent on behalf of a roaming subscriber calling a number in national format.

CgPA DEFCC screening is enabled and disabled by the CGPACCK configuration option, independent of provisioning of the STPOPTS DEFCC option.

- The check is not performed if the CGPACCK option value is NONINTL and the CdPN National Indicator bit of the Nature of Number field is INTL.
- The check is not performed if the SCCP CgPA does not contain GT digits (GTI=0), or if the SCCP CgPA contains and NAI (GTI=4) and the SCCP CgPA NAI is not International.

If the CGPACCK option is on, the IAR Base feature compares the SCCP CgPA parameter value to a provisioned Default Country Code (STPOPTS DEFCC parameter value).

- The IAR Base feature will continue processing only if the SCCP CgPA matches the Default Country Code.
- If no match is found, the message is dismissed.

NPP Processing for IAR Features

If a message passes all IAR pre-processing, then NPP processing is applied to it.

Refer to the *Numbering Plan Processor (NPP) Overview* manual for descriptions of NPP components and procedures for NPP provisioning.

Note: NPP processing relies on Nature of Address Indicator (NAI) values. These values are available in SCCP parameters and GSM MAP parameters, but they are not available in the CdPN and CgPN parameters of AnalyzedInformation query operations. The National Indicator bit (least significant bit) of the Nature of Number field in the CdPN and CgPN will be used wherever the NAI is called for in this document.

The IAR Base feature defines two NPP services:

- **IARCDPN** - The service that processes Called Party (CdPN; B-Party) Numbers

The IAR Base feature Invoke IARCDPN for every message that passes IAR pre-NPP processing.

The value of the National Indicator bit of the Nature of Number field of the CdPN is passed as the NAI to NPP when the IARCDPN service is applied to the message.

The IARCDPN service always executes before the IARCGPN service. The IARCDPN service Rule must be provisioned with the CgPNSVCRqd, CgPNASDRqd, or CgPNGRNRqd Service Action to invoke the IARCGPN service.

- **IARCGPN** - The service that processes Calling Party Number (CgPN), A-Party) Numbers.

The IARCGPN service is invoked only by the IARCDPN service when the CgPNSVCRqd, CgPNASDRqd, or CgPNGRNRqd Service Action is provisioned in the NPP Rule.

The value of the National Indicator bit of the Nature of Number field of the CgPN is passed as the NAI to NPP when the IARCGPN service is applied to the message.

IAR Base NPP processing consists of the following functions:

- Verify the the IARCDPN service status is ON.
- Execute IARCPDN processing.
 - Apply NPP filters to select the appropriate NPP Rule for the message processing.
 - Execute provisioned Conditioning Actions and Service Actions.
 - The Conditioning Actions can condition the CdPN digit string RTDB lookup, and can extract data to populate the values for the provisioned Formatting Actions.
 - The CDPNNP Service Action can be executed to apply number portability processing if the IAR NP feature is on, apply Service Portability processing if the Service Portability feature is on, and populate provisioned Formatting Action values.
- If the CgPNSVCRqd, CgPNASDRqd, or CgPNGRNRqd Service Action is provisioned in the NPP Rule, call the IARCGPN service.
 - Execute IARCGDN processing.
 - Apply NPP filters to select the appropriate NPP Rule for the message processing.
 - Execute provisioned Conditioning Actions and Service Actions.
 - The Conditioning Actions can condition the CgPN digit string for RTDB lookup, and can extract data to populate the values for the provisioned Formatting Actions.
 - The CGPNNP Service Action can be executed to apply number portability processing if the IAR NP feature is on, and populate provisioned Formatting Action values.
 - Execute Formatting Actions for modifying the CgPN in the outgoing digit string if required by provisioning and processing results.
- Execute Formatting Actions for modifying the CdPN in the outgoing digit string, if required by provisioning and processing results.

Conditioning Actions

The IARCDPN and IARCGPN services can use all general NPP Conditioning Actions.

Service Actions

For each service, the NPP service status must be ON for service processing to occur.

The IAR Base feature NPP services use the Service Actions shown in [Table 18: IAR Base Feature NPP Service Actions](#).

Table 18: IAR Base Feature NPP Service Actions

Service Action	Feature	Precedence	IARCDPN	IARCGPN
ASDLKUP	IAR ASD	50	Yes	Yes
CCNCCHK	IAR Base	100	Yes	No
CDIAL	IAR Base	10	Yes	Yes
CDPNNP	IAR NP	80	Yes	No
CgPNASDRqd	IAR ASD	50	Yes	No
CgPNGRNRqd	IAR GRN	50	Yes	No
CGPNNP	IAR NP	80	No	Yes
CgPNSVCRqd	IAR Base	60	Yes	No
GRNLKUP	IAR GRN	50	Yes	Yes

Provisioning restrictions require specific features to be enabled when defining NPP Rules. The status of each of the ON/OFF features is also checked at run-time. The ASDLKUP and CGPNASDRQD cannot be provisioned in the same Rule. The GRNLKUP and CGPNGRNRQD Service Actions cannot be provisioned in the same Rule.

In the following Service Action summaries, the term DN is used to describe a value that is the result of applying Conditioning Action execution to the digit string passed into an NPP service. The DN within the IARCDPN service is the CdPN in international format. The DN within the IARCGPN service is the CgPN in international format.

- ASDLKUP - Populates the ASD Formatting Action value using the ASD found in the RTDB lookup.
- CCNCCHK - Highest precedence Service Action for IAR. Compares the first digits of the DN to the entries in the CCNC list of the CSL table. If a match is found, NPP processing continues. If a match is not found, all other Service Actions in the NPP Rule are ignored,, the message is not modified, and the message is dismissed.
- CDiAL - Requests Formatting Action execution to be performed even when the prior Service Action requested that it be skipped.
- CDPNNP - Applies CdPN number portability functions for IARCDPN when the IAR NP feature is on; evaluates the result of an RTDB lookup based on the TATROPTS CDPNTYPE option value, or on the SPORTTYPE option value for Service Portability. Populates the RN or SP Formatting Action value with the data from the RTDB lookup or the provisioned DFLTRN option value, depending on provisioning and lookup results. Populates the SRFIMSI Formatting Action value with the SRFIMSI associated with the RN or SP entity from the RTDB, if any.
- CGPNASDRQD - Used by the IARCDPN service to invoke the IARCGPN service, and to populate the ASD Formatting Action value prior to IARCDPN Formatting Action execution.
- CGPNGRNRQD - Used by the IARCDPN service to invoke the IARCGPN service, and to populate the GRN Formatting Action value prior to IARCDPN Formatting Action execution.
- CGPNNP - Applies CgPN number portability functions when the IAR NP feature is on and the IARCGPN service is invoked; evaluates the result of an RTDB lookup based on the TATROPTS CGPNTYPE option value. Populates the SRFIMSI Formatting Action value with the SRFIMSI associated with the RN or SP entity from the RTDB, if any.
- CDPNSVCRQD - Used by the IARCDPN service to invoke the IARCGPN service for CgPN processing.

- GRNLKUP - Populates the GRN Formatting Action value using the GRN found in the RTDB lookup.

Formatting Actions

Both services can use all general NPP Formatting Actions.

Formatting Action execution can modify the CdPN or CgPN, or both, in the outgoing digit string before IAR NPP post-processing begins.

NPP RTDB Lookup and NPTYPE Evaluation

RTDB lookup is performed at the request of the CDPNNP and CGPNNP Service Action Handlers that are used by the IARCDPN and IARCGPN services.

RTDB lookup is performed once per service execution.

A conditioned number of maximum 15 digits is used to query RTDB records for individual subscribers. If a matching record is found then processing continues based on that record. Otherwise, the number is used to query RTDB records for subscriber groups. If a match is found, processing continues based on that record.

The NPTYPE Evaluation process uses the result of the RTDB Lookup process, and is guided by either the TATROPTS:CDNPTYPE or TATROPTS:CGNPTYPE option value. The option value is used to determine whether the lookup result was a success or a failure. For example, if the option is set to SP then the lookup result is a success only if a matching record was found and that record contains an SP entity.

- For the IARCDPN service, the CdPN from the message is conditioned, and the lookup success is determined by the TATROPTS CDNPTYPE option value.
- For the IARCGPN service, the CgPN from the message is conditioned, and the lookup success is determined by the TATROPTS CGNPTYPE option value.

Table 19: NPTYPE Evaluation Success

Configuration Option Value	Success Criteria
RN	An RTDB match is found with an RN entity and PT is not 0. An RTDB match is found with an RN entity and PT = 0, if the Service Portability feature is not enabled or the IGM feature is OFF.
SP	An RTDB match is found with an SP entity. An RTDB match is found with an RN entity and PT = 0 if the Service Portability feature is enabled or the IGM feature is ON.
RNSP	An RTDB match is found with an RN or SP entity.
RNSPDN	An RTDB match is found with an RN or SP entity.
ALWAYS	Always matches
ANYMATCH	An RTDB matching record exists.

IS41 GSM Migration (IGM) Feature

IGM functions are applied by the When the IGM feature is ON, the IAR NP feature CDPNNP and CGPNNP Service Actions interpret RTDB subscriber data slightly differently: A customer's own IS41 subscribers are associated with RN entities that have a Portability Type of 0. This affects the NPTYPE Evaluation procedure.

Table 20: NPTYPE Success Criteria for IGM Feature and Service Portability Feature

NPTYPE Option	Success
RN	When an RTDB match is found with an RN entity that has a Portability Type other than 0
SP	When an RTDB match is found with an SP entity, or an RN entity that has a Portability Type of 0
RNSP	When an RTDB match is found with an RN or SP entity
RNSPDN	
ALWAYS	Always
ANYSMATCH	When an RTDB match is found

This data interpretation also applies for the purposes of RN and SP Formatting Action population; when the IGM feature is ON, and the IAR NP feature is handling an IS41 subscriber associated with an RN entity with Portability Type of 0, the RN entity is treated as if it were an SP entity in .

IAR NPP Number Portability

The *IAR Number Portability Feature* can be called by the IAR Base feature to apply number portability functions using both the CDPNNP and CGPNNP NPP Service Actions.

NPP Formatting Action value population occurs when the RTDB lookup success criteria are met (see *NPP RTDB Lookup and NPTYPE Evaluation*). If the success criteria are not met, then the CDPNNP and CGPNNP Service Action Handlers will request that Formatting Action execution be skipped for the respective service only.

Note: The TATROPTS:DFLTRN option value overrides an SP entity when one is provisioned in the RTDB.

When the RTDB does not contain an RN or SP entity, but the NPTYPE Evaluation success criteria are still met (ALWAYS or ANYSMATCH), then neither the RN Formatting Action value nor the SP Formatting Action value is changed.

Table 21: Number Portability NPTYPE RN and SP Formatting Action Population

NPTYPE Option	RTDB has RN Entity	SP Entity and DFLTRN	SP Entity No DFLTRN
RN	Set RN Formatting Action value to RTDB RN. SP Formatting Action value not changed.	(failure)	(failure)

NPTYPE Option	RTDB has RN Entity	SP Entity and DFLTRN	SP Entity No DFLTRN
SP	(failure)	Set RN Formatting Action value to DFLTRN. SP Formatting Action value not changed.	RN Formatting Action value not changed, SP Formatting Action value set to RTDB SP.
RNSP	Set RN Formatting Action value to RTDB RN. SP Formatting Action value not changed.		
RNSPDN			
ALWAYS			
ANYSMATCH			

Service Portability for IAR

With the Service Portability feature (Part Number 893034301), the subscriber can port to a different network technology with the same service provider. Service Portability is applied only to the subscribers served the the customer's own network.

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 considered to be the SP (the IS-41 HLR address).

The SPORTTYPE option in the TATROPTS table controls the mode of Service Portability that is applied for IAR NP. The SPORTTYPE option has the following values:

- NONE - Apply standard NP processing for own-network GSM and IS41 subscribers.
- GSM - Use the GSM Service Portability prefix (GRN) for GSM own-network subscribers, and apply standard NP processing for own-network IS41 and OLO subscribers.
- IS41 - Use the IS41 Service Portability prefix (GRN) for Is41 own-network subscribers, and apply standard NP processing for own-network GSM and OLO subscribers.
- ALL - Use the GSM Service Portability prefix (GRN) for GSM own-network subscribers, use the IS41 Service Portability prefix (GRN) for IS41 own-network subscribers, and apply standard NP processing for OLO subscribers.

Service Portability is handled by the NPP CDPNNP Service Action Handler in the IAR NP feature. The NPTYPE Evaluation criteria for the Service Portability feature are the same as those for the IGM feature. See [Table 20: NPTYPE Success Criteria for IGM Feature and Service Portability Feature](#).

After the Service Portability feature is considered to be applicable, the CDPNNP Service Action uses the subscriber GRN data in the RTDB to populate the the Service Portability prefix in the RN Formatting Action value.

If the GRN is not present in the RTDB, then UIM 1426, "S-Port: Missing GRN for srvc prtcd subs" is generated indicating that Service Portability could not be applied due to missing Service Portability data.

IAR Base Post-NPP Processing

The IAR Base feature pulls together the results of the IARCDPN and IARCGPN service processing to determine whether or not the message should be modified.

If required, the message is encoded with any modified parameters.

The IARPASSD and IARFAILED measurement pegs are updated.

The message is routed.

IAR Number Portability Feature

The Number Portability (IAR NP) feature, the Numbering Plan Processor (NPP), and the Service Portability feature support Mobile Number Portability (MNP) and Service Portability (S-Port).

IAR NP uses provisioning of subscriber data to treat messages that relate to ported subscribers differently than it does non-ported subscribers. In this way, other entities in the customer network can treat these subscribers differently by simply reacting to the message data screened and manipulated by the EAGLE 5 ISS, rather than having to distinguish one kind of subscriber from another themselves.

Feature and NPP configuration options can be used to identify which AnalyzedInformation messages need processing by IAR-related features.

After the IAR Base feature determines that an AnalyzedInformation message requires IAR processing, IAR NP can perform an RTDB lookup using the digit string in the CdPN parameter or the CgPN parameter, or both. RTDB subscriber data from the the lookup results can be used to identify which subscribers belong to a customer's own network and which belong to a foreign network.

Depending on the RTDB lookup results, IAR NP can modify RN and DN of the CdPN parameter or the CgPN parameter, or both, in the message. If the Service Portability feature is used with IAR NP and GRN data is found in the RTDB lookup, the IAR NP feature can use the GRN data to modify the CdPN RN.

When IAR NP and NPP processing is complete for the message, the IAR Base feature relays the message to the originator.

IAR Additional Subscriber Data Feature

The IAR Additional Subscriber Data (IAR 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 message.

IAR ASD uses the ASDLKUP and CgPNASDRqd Service Actions for the IARCDPN service in NPP processing. 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.

IAR ASD uses the ASDLKUP and CgPNASDRqd Service Actions for the IARCDPN service 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 causes the IARCGPN service to be called. The IARCGPN service 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 IAR features. 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.

IAR Generic Routing Number Feature

The IAR Generic Routing Number (IAR 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 message.

IAR GRN uses the GRNLKUP and CgPNGRNRqd Service Actions for the IARCDPN service 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 causes the IARCGPN service to be called. The IARCGPN service 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 IAR features. 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.

IAR-Related Feature Processing

Every IAR SA depends upon one or more features. Some feature status checking is performed at provisioning time. Many of the IAR-related features may be turned ON and OFF at any time. All SA that are associated with features other than the IAR Base check the ON/OFF status of those features at run-time.

With all IAR-related features ON, Service Actions can perform NP, extract ASD data from the RTDB, invoke the IARCGPN service, and reformat the CdPN. However, if the IAR NP feature is OFF then NP is not performed. Likewise, if the IAR ASD feature is OFF then the ASDLKUP SA has no effect. Turning OFF a feature can also have the side-effect of disabling use of the IARCGPN service.

The Service Portability (S-Port) feature affects only the CDPNNP SA, and that SA depends upon the IAR NP feature. S-Port processing applies only when both of these features are ON. Although the S-Port feature may be ON, S-Port processing is ignored when the IAR NP feature is turned OFF.

IAR-Related Features Configuration Options

The TATROPTS table contains configuration option values for the IAR-related features, and the Service Portability feature when it is used with IAR NP. The TATROPTS 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.

TATROPTS options can be provisioned after the IAR Base feature is enabled and before the feature is turned on.

Table 22: TATROPTS Configuration Options describes the TATROPTS options.

Table 22: TATROPTS Configuration Options

Parameter	Value	Description	Notes
CDNPTYPE - Entity type for CdPN RTDB lookup performed by IAR NP. Specifies the CdPN entity type for which the lookup is considered a success.	SP	Service Provider	
	RN	Routing Number	
	RNSP	Routing Number or Service Provider	
	ANYSMATCH	RN, SP, or match with any entity	
	ALWAYS	The lookup is always considered successful.	
	RNSPDN	RN, SP, or DN	
CGNPTYPE - CgPN entity type for RTDB lookup performed by IAR NP. Specified the CgPN entity type for which the lookup is considered a success.	SP	Service Provider	
	RN	Routing Number	
	RNSP	Routing Number or Service Provider	
	ANYSMATCH	RN, SP, or match with any entity	
	ALWAYS	The lookup is always considered successful.	
CGPACCCK - CgPA Country Code Check Specifies whether IAR Base checks the incoming CgPA for presence of the country code defined in the STPOPTS DEFCC option.	ALWAYS	Always check for the DEFCC value	
	NONINTL	Check for the DEFCC value if the CDPN NAI is not International.	The value refers to the National Indicator bit in the Nature of Number file of the CdPN parameter. The check is performed only when the National Indicator bit in the Nature of Number field of the CdPN is not INTL.
	OFF	The DEFCC check is not performed.	

Parameter	Value	Description	Notes
DFLTRN - Default Routing Number Specifies the default RN that is used when a value of SP or RNSP is specified for the CDNPTYPE or CGNPTPE parameter, and the CdPN or CgPN RTDB lookup finds entity type SP.	1-15 hex digits		
	NONE	A default RN is not used.	
SPORTTYPE - Service Portability Type Specifies whether Service Portability is performed for the feature.	NONE	Service Portability is not performed for IAR NP.	Can be provisioned only when the IAR Base, IAR NP, and Service Portability features are 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	
	ALL	Apply Service Portability prefix (GRN from RTDB entity) for all own-network subscribers	

Destination-based Configuration Options for IAR Pre-NPP Processing

The Destination table can contain an IAR-related option value for destination point codes. The HOMESCP option contains a flag that is used by IAR pre-NPP processing for messages with GTI=0 to determine if the associated full point code is for a Home SCP.

See [EAGLE 5 ISS Commands](#) and the *Commands Manual* for a description of the destination-based option for IAR and the EAGLE 5 ISS commands that are used to configure the option.

EAGLE 5 ISS Commands

This section describes commands that can be used for the configuration and maintenance of the Info Analyzed Relay-related features.

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

enable/chg/rtrv-ctrl-feat

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

ent/chg/dlt/rtrv-csl

Common Screening List commands are used to define, change, and display screening requirements of various features. The screenings are performed on digit strings. For the IAR Base feature, 3 screening lists are used. Each screening list is based on digit strings.

- GT screening list - The SCCP CdPA is compared to this list to determine if IAR Base feature processing should be applied to the message. If not found, the message is dismissed.
- TRIG screening list - The TRIGTYPE from the incoming message is compared to this list. If not found, the message is dismissed.

ent/dlt/chg/rtrv-srvsel

The service selector commands are used to provision and display service selector information for the ttr service that is used by the IAR Base feature.

chg/rtrv-stpopts

The STP Options commands are used to provision system options for the EAGLE 5 ISS. The options are used to control system-level processing. Features can check the option values to determine what processing to apply. The IAR-related features and the ANSIGFLEX option cannot be used together in the same system. The DEFCC option defines the Default Country Code, which is used in the CgPA DEFCC Check to identify message from the home network that should not be modified.

chg/rtrv-tatropts

The TATR Options commands are used to provision the configuration options for the IAR Base, IAR NP, and Service Portability features. The options control number portability, Service Portability, and NPP processing for incoming messages and formatting of response messages.

ent/chg/dlt/rtrv-dstn

The destination commands are used to provision destination point codes (DPCs). The IAR Base feature uses the flag that is set by the homescp=yes parameter to identify a DPC as a Home SCP.

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.

chg/rtrv-tatr-msg, tst-msg

The `chg/rtrv-tatr-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 IAR Base feature to verify call flow.

Maintenance Commands

See [Maintenance Commands](#) for a list of maintenance commands that can be used with IAR features.

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.

Refer to the *Commands Manual* for a description of the `rept-stat-sccp` command, including parameter names, valid values, and output examples for the command.

IAR Base Feature Statistics

The following statistics are updated for the GTT service when the IAR Base feature is turned on:

- TOTAL = the total number of messages that were passed into the IAR Base feature by the TTR Service Selector processing. TOTAL = ERRORS plus SUCCESS plus REROUTE/WARNINGS.
- SUCCESS = the number of messages that passed pre-NPP processing, NPP processing, and post-NPP processing without being dismissed, and were modified before being routed to the destination.
- WARNINGS = the number of messages for which a UIM (1020, 1021, 1427-1431) was generated, indicating messages that were not counted in SUCCESS.
- ERRORS = the number of messages that were not counted in SUCCESS and a UIM was not counted in WARNINGS. The problem could be that the message was dismissed, or that a routing failure occurred on a message that was not dismissed.
- FORWARD TO GTT = the total number of GT-routed messages that were sent for GTT processing by the IAR Base feature processing.

Measurements Commands

This section describes the following commands that can be used for generating, scheduling, displaying, and transferring measurements reports.

Refer to the command descriptions in the *Commands Manual* for complete descriptions of the commands, including parameters, valid values, and output examples.

chg-meas

Used to change both the report and collecting status of the OAM-based (UI) measurement subsystem.

rept-meas

Used to generate measurement reports on demand. The reports are displayed on the UI terminal, and are not transferred to the customer FTP server when the Measurements Platform feature is enabled.

chg-measopts

Used to enable the Measurements Platform collection function, turn on and off the 15-minute measurements collection function, enable or disable the automatic generation and FTP transfer of scheduled measurement reports to the FTP server, and turn on or off the CLLI-based file name option for measurements reports files.

rept-stat-meas

Reports the status of the measurements subsystem including card location and state, Alarm level, and Subsystem State.

rept-ftp-meas

Manually initiates generation and FTP transfer of a measurements report from the MCPM card to the FTP server.

rtrv-measopts

Generates a user interface display showing the enabled/disabled status of all FTP scheduled reports.

rept-meas-sched

Used to retrieve the list of measurement reports currently scheduled to be generated to the UI, and the collection settings for OAM-based measurements.

chg-mtc-measopts

Used to enable or disable the automatic generation and FTP transfer of scheduled hourly and daily maintenance measurements reports from the MCPM card to the FTP server.

rtrv-mtc-measopts

Used to show the enabled or disabled status of all hourly and daily scheduled maintenance measurements reports.

Debug Commands

The *Commands Manual* contains descriptions of debug commands that can be used in assessing and modifying system status and operation. Most of the debug commands are used only under the direction of Tekelec support personnel.

The `ent-trace` command can be used to trace MSUs sent to Service Module cards that are running the VSCCP application. The EAGLE 5 ISS traps MSUs that meet the specified tracing criteria, which include DN, some point codes, Entity ID, and message verification and message processing errors.

Measurements for IAR-Related Features

The following measurement registers are defined for the IAR-related features. All registers for this feature are reported in the STP System Total (SYSTOT-STP) report.

Refer to the *Measurements* manual for descriptions of the IAR measurements and measurements reports.

- **IARTOTAL** The total number of messages received by the IAR Base feature from TTR service selection; the total number to which IAR pre-processing is applied; the sum of the IARNOTAP, IARPASSD, and IARFAILED pegs.
- **IARFAILED** Number of messages counted by IARTOTAL that were dismissed due to one of the problems reported by the UIMs that are specific to the IAR Base feature (1020, 1021, 1427-1431). See [IAR-Related UIMs](#).
- **IARPASSD** Number of messages counted by IARTOTAL that were modified by the IAR Base feature. The IAR Base feature changed the CdPN parameter, CgPN parameter, or both.
- **IARNOTAP** Number of messages counted by IARTOTAL that were not counted by IARPASSD or IARFAILED; they were dismissed because modification was determined to be inappropriate (not applicable).

The measurements for IAR-related features are available through OAM collection and Measurements Platform collection.

Refer to the procedures in the *Database Administration Manual - System Management* for configuring the Measurements Platform for IAR-related feature measurements collection.

See [Measurements Commands](#) and refer to the Commands Manual for descriptions of the commands used for measurements collection and reports.

Alarm Used by IAR-Related Features

Refer to the *Unsolicited Alarm and Information Messages* manual for a complete description of and the associated corrective procedure for UAMs. Refer to the *Tekelec 1000 AS MPS Platform Software and Maintenance Manual* or the *EPAP Alarms on T1200 Platform* manual for more information and corrective procedures for the MPS-related alarms.

The following UAM can be generated by the IAR NP, IAR, ASD, and IAR GRN features and other features that use the RTDB. There are no UAMs that are specific to the IAR-related features.

Table 23: IAR-Related UAM

UAM	Message Text	Description
0451	RTDB reload is required	The RTDB is not already downloaded on the Service Module card and a feature that needs the RTDB is turned ON.

IAR-Related UIMs

The Unsolicited Information Messages (UIMs) in [Table 24: IAR-Related UIMs](#) support the IAR-related features, and the UIM in supports the Service Portability feature. The *Unsolicited Alarm and Information Messages* manual contains a complete description of all UIM text and formats.

Table 24: IAR-Related UIMs

UIM	Text	Description	Action
1020	IARCDPN NPP SERVICE is off	The status of the IARCDPN service is OFF while processing a message.	Set the status of the IARCDPN service to ON.
1021	IARCGPN NPP SERVICE is off	The status of the IARCGPN service is OFF while processing a message.	Set the status of the IARCGPN service to ON.
1427	IAR CdPN parameter invalid or not found	<p>The IAR Base feature cannot find the CdPN parameter within a message, when it cannot decode the parameter after it finds it, or when the parameter does not contain the required information in a usable format.</p> <p>If there is a DSTDGTS parameter, it is used as the CdPN. If there is no DSTDGTS parameter, the DGTSDIAL parameter is used as the CdPN. If neither parameter is in the AnalyzedInformation message, or one parameter is present but invalid, or both parameters are present but the chosen CdPN is invalid, UIM 1427 is generated.</p> <p>The DSTDGTS and DGTSDIAL parameters are considered invalid if they are encoded in a format other than BCD.</p>	
1428	IAR CgPN parameter invalid or not found	The IAR Base feature cannot find the CgPN parameter within a message, when it cannot decode the parameter after it finds it, or when the parameter does not contain the required information in a usable format.	

UIM	Text	Description	Action
		The CPNDGTS1 parameter is considered invalid if it is encoded in a format other than BCD.	
1429	IAR TRIGTYPE invalid or not found	The IAR Base feature cannot find the TRIGTYPE parameter within a message, when it cannot decode the parameter after it finds it, or when the parameter does not contain the required information in a usable format.	
1430	IAR CdPN parameter encoding failed	The IAR Base feature cannot encode the message after modifying its CdPN parameter. One way that this can occur without invalid data is when a CdPN parameter length increases, and the containing message grows too large (more than 275 octets).	
1431	IAR CgPN parameter encoding failed	The IAR Base feature cannot encode the message after modifying its CgPN parameter. One way that this can occur without invalid data is when a CgPN parameter length increases, and the containing message grows too large (more than 275 octets).	

The following UIM is generated when Service Portability is used with IAR NP, and the required GRN data has not been provisioned.

Table 25: UIM for Service Portability

UIM	Text	Description	Action
1426	S-Port: Missing GRN for srcv prtcd subs	The GRN data is not present that is needed for Service Portability processing.	Verify and correct the GRN data provisioning in the RTDB.

Feature Configuration

Topics:

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- *Prepaid IDP Query Relay Configuration.....96*
- *IDP A-Party Blacklist Configuration.....110*
- *IDP A-Party Routing Configuration.....113*
- *IDP Screening for Prepaid Configuration.....119*
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- *Provisioning Service Module Cards.....140*
- *Activating the 1100 TPS/DSM for ITU NP Feature143*
- *Activating the E5-SM4G Throughput Capacity Feature.....148*

This chapter provides procedures for configuring the IDP Relay-related features and IAR-related features for use in the EAGLE 5 ISS. Procedures are included for configuration of the Service Portability feature for use with the IDP Relay and IAR NP features.

Introduction

This chapter describes prerequisites and procedures for the EAGLE 5 ISS configuration of the IDP Relay-related features and the IAR-related features. This chapter also provides procedures for configuration of the Service Portability feature for use with the IDP Relay feature and the IAR NP feature.

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 Tekelec before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Tekelec 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.

System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in [Table 26: System Prerequisites](#) are required in the system.

Table 26: 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>

Prerequisite	Verification and Provisioning
<p>Up to 25 Service Module cards must be equipped. Some features require only E5-SM4G cards and cannot use DSM cards. See specific feature prerequisites, if any, in this section.</p> <p>Note: Refer to the <i>Dimensioning Guide for EPAP Advanced DB Features Technical Reference</i> for information on the dimensioning rules and the database capacity requirements for EPAP-related features.</p>	<p>Enter the <code>rept-stat-card:appl=vsccp</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 the <i>Database Administration Manual - GTT</i> to add Service Module cards or remove DSM 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 the <i>Database Administration Manual - GTT</i> to turn on and provision the GTT feature and any other GTT-related features that will be used in the system.</p>

Hardware Requirements

EPAP-related features require Service Module cards (DSM cards or E5-SM4G cards) running the VSCCP application. The EAGLE 5 ISS can be equipped with up to 25 Service Module cards to support EPAP-related features.

EPAP-related features require EPAP running in a T1000 AS or T1200 AS MPS system.

Prepaid IDP Query Relay Configuration

The Prepaid IDP Query Relay (IDP Relay) feature and related features are configured on the EAGLE 5 ISS. 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-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 Tekelec before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Tekelec Sales or Account Representative.

Configuration Procedure for IDP Relay-Related Features

The EAGLE 5 ISS configuration of the Prepaid IDP Query Relay (IDP Relay) feature and related features 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 Action Sets, Service Rule Sets, and Services. See [Provisioning NPP for IDP Relay](#).

Set the NPP service status to ON for each IDP service. See [Provisioning NPP for IDP Relay](#).

4. Enable each IDP-Relay-related feature. See [Enabling IDP Relay-Related Features](#).
5. Enable the Service Portability feature, if it will be used with the IDP Relay feature. See [Enabling the Service Portability Feature](#).
6. 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 the *Commands Manual* to change and display the STPOPTS DEFCC value.
7. Turn on each feature. See [Turning On IDP Relay-Related Features](#).
8. Provision IDP Relay and SCCP options. See [Provisioning the TTR and SCCP Options for IDP Relay](#).
9. Provision the required Common Screening List (CSL) entries. See [Provisioning the Common Screening List for IDP Relay](#).
10. Provision the IDPR service selector. See [Provisioning the IDPR Service Selector](#).
11. Turn on the Service Portability feature if it will be used with the IDP Relay feature. See [Turning On the Service Portability Feature](#).

IDP Relay-Related Feature Prerequisite

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

Table 27: 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 LNP ported TNs entry in the command output, features described in this manual cannot be enabled.

Enabling IDP Relay-Related Features

This procedure is used to enable IDP Relay-Related features in the EAGLE 5 ISS.

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 must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative or Account Representative.

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



CAUTION

CAUTION: The IAR Base feature and the Service Portability feature cannot be enabled if the LNP feature is on. Enter the `rtrv-ctrl-feat` command to verify whether or not the LNP feature is on. If the LNP feature is on, shown with a quantity greater than zero for the LNP ported TNs field in the command output, this procedure cannot be performed for the features.

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](#).

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 `rtrv-ctrl-feat` output shows a LNP ported TNs quantity entry, this procedure cannot be performed for the IDP Relay-related features.

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>
```

Note: The feature access key is provided by Tekelec 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 Tekelec Sales Representative or Account Representative.

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     ----
;
```

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.
```

Turning On IDP Relay-Related Features

Before an IDP Relay-related feature can be turned on, the feature must be enabled in the EAGLE 5 ISS.

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 5 ISS. 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. 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 [Step 2](#).

2. Turn on the feature, by entering the `chg-ctrl-feat` command.
`chg-ctrl-feat:partnum=<893xxxxxx>:status=on`

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          ----
;

```

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.

```

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.

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

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 [Step 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 [Step 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 [Step 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.

```

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 [Step 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.

```

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

:nsnp

If the service selector being changed contains an SNP value and the new service selector cannot contain an SNP value, this value must be changed to **none** with this parameter.

:nsnai

If the service selector being changed contains an SNAI value and the new service selector cannot contain an SNAI, this value must be changed to **NONE** with this parameter.

The `chg-srvsel` command requires that the following 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 a 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.

:gtii/gtin/gtin24

Global title indicator for ITU international (gtii), ITU national using 14-bit point codes (gtin), and ITU national using 24-bit point codes (gtin24).

:tt

Translation type

:ssn

Subsystem number

:nai

Nature of address indicator

:naiv

Nature of address indicator value

:np

Numbering plan

:npv

Numbering plan value

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 feature that uses the new service selector 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          ----
E5-SM4G Throughput Cap 893019101   on          3125
;

```

- If the feature is enabled and turned on, continue with [Step 3](#).
- If the feature is not enabled or turned on, go to the procedure in the *Feature Manual* for the new feature to enable and turn on the feature. Then continue with [Step 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:snp=none:snai=none:nserv=idpr`

Note: 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 `naiv` parameters as long as parameter values be specified correspond to the values shown in the `rtrv-srvsel` output. Refer to the `chg-srvsel` command description in the *Commands Manual*.

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 [Step 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.
```

Provisioning the TTR and SCCP Options for IDP Relay

This procedure is used to provision the following configuration options:

- 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.
- The TTROPTS SPORTTYPE configuration option for the Service Portability feature.

The IDP Relay feature and the Service Portability feature must be enabled before the TTROPTS SPORTTYPE option can be provisioned.

- The SCCPOPTS ACLEN configuration option used for the IDP Relay 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 [Step 2](#).
 - If the required features are enabled, continue with [Step 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. If Service Portability will be used with IDP Relay, change the SPORTTYPE option for Service Portability to the required setting.
Refer to [EAGLE 5 ISS Commands](#) in this manual and to the `chg-ttropts` command description in the *Commands Manual* for valid parameter values, input examples, and rules for entering the command correctly.
 4. Verify the changes, by entering the `rtrv-ttropts` command.
 5. Display the current settings of the SCCP options, using the `rtrv-sccopts` command.
 6. Change the SCCP ACLEN option to the desired setting, by entering the `chg-sccopts` command with the ACLEN parameter specified.
 7. Verify the change, by entering the `rtrv-sccopts` command.

8. If a required feature was not turned on (status is off in the output in [Step 1](#)), and one or more features need to be turned on now, go to [Turning On IDP Relay-Related Features](#) or to [Turning On the Service Portability Feature](#) to turn on each feature.

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.
```

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 GT 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 to compare the conditioned TCAP DN in international format to the digit strings in this list. 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 entries in this list. If not found, the message falls through to GTT handling.

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.

```
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 [Enabling IDP Relay-Related Features](#) to enable the feature. Then continue with [Step 2](#).
 - If the IDP Relay feature is enabled, continue with [Step 2](#).
2. Display the current Common Screening List settings, using the `rtrv-csl` command.
 3. Enter the digit string value for each list, by entering the `chg-csl` command.

Refer to [EAGLE 5 ISS Commands](#) in this manual and to the `chg-csl` command description in the *Commands Manual* for valid parameter values, input examples, and rules for entering the command correctly.

```
chg-csl:feature="Prepaid IDP Query Relay":list=ccnc:ds=<1-6 hex digits>
chg-csl:feature="Prepaid IDP Query Relay":list=gt:ds=<1-15 hex digits>
chg-csl:feature="Prepaid IDP Query Relay":list=skbcsm:ds=<1-10 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.
```

Provisioning NPP for IDP Relay

Refer to the *Numbering Plan Processor (NPP) Overview* manual and the *Commands Manual*, and see 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.

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 5 ISS.

This procedure is used to turn off the following IDP Relay-related features in the EAGLE 5 ISS. 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 [Step 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 of, 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.
```

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 IDPRCDPN 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 following information 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 28: TTR Test Message Parameters

Parameter		Range	Default
Message Number	MSGN	1-10	(Must be specified)
Service Key	SK	8 hexadecimal digits	00006b00

Parameter		Range	Default
Basic Call State Model	BCSM	2 digits	02 (Info Collected)
IDP Message Type	TCAPTYPE	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
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 `test-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 the *Commands Manual* for descriptions of the commands, parameter values, and output examples.

IDP A-Party Blacklist Configuration

The IDP A-Party Blacklist feature is configured on the EAGLE 5 ISS. 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.

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

IDP A-Party Blacklist Feature Configuration Procedure

The EAGLE 5 ISS 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 the *Numbering Plan Processor Overview* manual.

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 the Commands Manual 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](#).

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 29: 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 on.</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.

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 5 ISS.

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 must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative 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 [Step 2](#).

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

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 5 ISS Commands](#) in this manual and to the `chg-ttropts` command description in the *Commands Manual* 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.
```

IDP A-Party Routing Configuration

The IDP A-Party Routing feature is configured on the EAGLE 5 ISS. This section describes prerequisites and procedures for the configuration of the IDP A-Party Routing feature.

lists the steps for enabling and turning on the IDP A-Party Routing 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 Routing. See [TTR Test Tool](#).

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

The EAGLE 5 ISS 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 Feature Prerequisite](#).
3. Provision NPP Action Sets, Service Rule Sets, and Service data . See [Provisioning NPP for IDP Relay](#) and the *Numbering Plan Processor Overview* manual.

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](#).
 8. Use the Test Tool to verify the IDP A-Party Routing provisioning. See [TTR Test Tool](#).

IDP A-Party Routing Feature Prerequisite

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

Table 30: 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 on.</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.

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 5 ISS.

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 must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative 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 [Step 2](#).

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

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 5 ISS. 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 must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative or Account Representative.

When the IDP Service Key Routing feature is enabled, it is permanently enabled. The IDPService 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 procedures in to configure the IDP Relay feature so that it is enabled, turned on, and fully operational in the system. Then continue with [Step 2](#).

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

Note: The feature access key is provided by Tekelec 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 Tekelec Sales Representative or Account Representative.

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.
```

Provisioning the Common Screening List for IDP Service Key Routing

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

- 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 entries in this list. If not found, the message falls through to GTT handling.

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 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        ----
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 A-Party Routing Feature Enabling IDP Relay-Related Features](#) to enable and turn on the feature. Then continue with [Step 2](#).
 - If the IDP Service Key Routing feature is enabled and turned on, continue with [Step 2](#).
2. Display the current Common Screening List settings, using the `rtrv-csl` command.
 3. Enter the Portability Type values for the SKBCSM list, by entering the `chg-csl` command. Refer to the `chg-csl` command description in the *Commands Manual* for valid parameter values, input examples, and rules for entering the command correctly.

```
chg-csl:feature=" IDP Service Key Routing":list=skbcm:ds=<1-6 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.
```

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 CLEN 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 [Step 2](#).
 - If the required features are enabled, continue with [Step 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 5 ISS Commands](#) in this manual and to the `chg-ttropts` command description in the *Commands Manual* 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-sccopts` command.
 6. Change the SCCP CLEN option and the INTLUNKNNAI option to the desired setting, by entering the `chg-sccopts` command with the option parameters specified.
 7. Verify the changes, by entering the `rtrv-sccopts` 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.
```

IDP Screening for Prepaid Configuration

The IDP Screening for Prepaid feature is configured on the EAGLE 5 ISS. 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 Tekelec before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Tekelec Sales or Account Representative.

IDP Screening for Prepaid Feature Configuration Procedure

The EAGLE 5 ISS 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](#).

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 31: 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 LNP ported TNs entry

Prerequisite	Verification and Provisioning
	in the command output, features described in this manual cannot be enabled.

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 5 ISS.

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 must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative 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 [Step 2](#).

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

```

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 the *Commands Manual* for complete descriptions of the commands used in these procedures, including parameter names, valid values, and output examples for the commands.

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 [Step 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 [Step 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 [Step 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.
```

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 entires 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 [Step 2](#).
 - If the IDP Screening for Prepaid feature is enabled, continue with [Step 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 5 ISS Commands](#) in this manual and to the `chg-csl` command description in the *Commands Manual* 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.
```

Turn On the IDP Screening for Prepaid Feature

This procedure is used to turn on the IDP Screening for Prepaid feature in the EAGLE 5 ISS.

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.
```

IAR-Related Features Configuration

The IAR-related features are configured on the EAGLE 5 ISS . This section describes prerequisites and procedures for the configuration of IAR-related features. This section also includes the following procedures:

- Configuration of the Service Portability feature for use with the IAR NP feature
- Configuration of the Gateway Screening (GWS) feature and the SCCP Stop Action to filter MTP-routed UDT, UDTS, XU DT, and XU DTS SCCP messages for Service Card module processing
- Configuration of the MTP Routed Messages for SCCP Applications feature to forward all MTP-routed AnalyzedInformation messages for Service Module card processing

[Configuration Procedure for IAR-Related Features](#) lists the steps for enabling and turning on the IAR-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 optional and must be purchased from Tekelec before they can be used in your system. If you are not sure whether you have purchased a specific feature, contact your Tekelec Sales or Account Representative.

Configuration Procedure for IAR-Related Features

The EAGLE 5 ISS configuration of the Info Analyzed Relay Base (IAR Base) feature and related features 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 [IAR-Related Feature Prerequisites](#).
3. Provision NPP Action Sets, Service Rule Sets, and Services. See [Provisioning NPP for IAR-Related features](#) .

Set the NPP service status to ON for each IAR service. See [Provisioning NPP for IAR-Related features](#).

4. Verify that the Default Country Code value for the STPOPTS DEFCC parameter is not NONE. Refer to the `chg-stpopts` and `rtrv-stpopts` command descriptions in the *Commands Manual* to change and display the STPOPTS DEFCC value.

5. Enable the IAR Base feature, and enable IAR-related features (IAR NP, IAR ASD, IAR GRN) if they are needed. See [Enabling IAR-Related Features](#).
6. Enable the Service Portability feature, if it will be used with the IAR Base feature. See [Enabling the Service Portability Feature](#).
7. Provision the service selector for IAR features (ttr). See [Provisioning the TTR Service Selector](#).
8. Provision the required Common Screening List (CSL) entries. See [Provisioning the Common Screening List for IAR Base](#).
9. Provision IAR (TATROPTS) options. See [Provisioning the TATR Options](#).
10. Turn on the Service Portability feature if it will be used with the IAR NP feature. See [Turning On the Service Portability Feature](#).
11. Provision IAR test messages for use with the Test Tool. See [TATR Test Tool](#).
12. With the IAR Base feature enabled but not turned on, turn on any other enabled IAR-related features. See [Turning On IAR-Related Features](#).
13. Use the Test Tool to verify the IAR provisioning. See [TATR Test Tool](#).
14. Turn on the IAR Base feature. See [Turning On IAR-Related Features](#).
15. If IAR features will process MTP-routed AnalyzedInformation messages, either:
 - Use the MTP Routed Messages for SCCP Applications feature to forward all SCCP MTP-routed messages to the Service Module cards.

Provision destination point codes (DPCs) with the Home SCP indicator for any Home SCPs that receive outgoing messages. See [Destination-based Configuration Options for IAR Pre-NPP Processing](#) and refer to the procedures in the *Database Administration Manual - SS7* to provision DPCs that include the homescp=yes parameter.

Enable and turn on the MTP Routed Messages for SCCP Applications feature. See [Enabling the MTP Routed Messages for SCCP Applications Feature](#) and [Turning On the MTP Routed Messages for SCCP Applications Feature](#).

- Use the Gateway Screening feature SCCP Stop Action to forward UDT, UDTS, XDT, and XDTS SCCP MTP-routed messages to the Service Module cards.

Verify that the feature prerequisites for Gateway Screening are provisioned as described in [IAR-Related Feature Prerequisites](#)

IAR-Related Feature Prerequisites

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

Table 32: IAR-Related Feature Prerequisites

Prerequisite	Verification and Provisioning
The ANSIGFLEX system option cannot be set to Yes.	Enter the <code>rtrv-stpopts</code> command. Verify that the ANSIGFLEX entry does not appear in the command output or that the ANSI GFLEX entry shows a value of No.
The LNP feature cannot be on in the system	Enter the <code>rtrv-ctrl-feat</code> command.

Prerequisite	Verification and Provisioning
	If the LNP feature is on, shown with a quantity greater than zero for the LNP ported TNs entry in the command output, features described in this manual cannot be enabled.
<p>If the MTP Routing GWS Stop Action feature will be used to select UDT, UDTS, XDT, and XDTS MTP-routed messages for IAR processing:</p> <ul style="list-style-type: none"> • Up to 8 GLS cards must be equipped. • The Gateway Screening feature must be turned on. • The MTP Routed GWS Stop Action feature must be enabled and turned on. • The GWS SCCP Stop Action must be provisioned. 	Refer to the procedures in the <i>Database Administration Manual - Gateway Screening</i> .

The following functions and components of Gateway Screening (GWS) can be used by IAR features:

- The SCCP Stop Action, provisioned as the last Stop Action in the Action Set
- Gateway Screening linkset options

The options determine whether Gateway Screening is on or off for the linkset, and how MSUs are handled when Gateway Screening is on for the linkset.

The gwsa option must be turned on for each linkset that will be screened using the SCCP Stop Action. The gwsd and gwsn options are not required, but can be used if desired.

Enabling IAR-Related Features

This procedure is used to enable IAR-related features in the EAGLE 5 ISS.

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

- Info Analyzed Relay Base (IAR Base) - Part Number 893034201
- Info Analyzed Relay Number Portability (IAR NP) - Part Number 893026101
- Info Analyzed Relay Additional Subscriber Data (IAR ASD) - Part Number 893035101
- Info Analyzed Relay Generic Routing Number (IAR GRN) - Part Number 893034301

Note: Controlled features must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative or Account Representative.

 **CAUTION:** The IAR Base feature and the Service Portability feature cannot be enabled if the LNP feature is on. Enter the `rtrv-ctrl-feat` command to verify whether or not the LNP feature is on. If the LNP feature is on, shown with a quantity greater than zero for the LNP ported TNs field in the command output, this procedure cannot be performed for the features.

The IAR Base feature must be enabled before any other IAR-related features can be enabled.

When the IAR-related features are enabled, they are permanently enabled. IAR-related features cannot be temporarily enabled.

Provisioning of TATROPTS options, NPP rules containing the CCNCCHK, CDIAL, and CGPNSVCRQD Service Actions, service selectors, and Common Screening Lists can be done after the IAR Base feature is enabled and before the feature is turned on.

Provisioning of NPP rules containing the CDPNNP and CGPNNP Service Actions can be done after the IAR NP feature is enabled and before the feature is turned on.

Provisioning of NPP rules containing the ASDLKUP and CGPNASDRQD Service Actions can be done after the IAR ASD feature is enabled and before the feature is turned on.

Provisioning of NPP rules containing the GRNLKUP and CGPNGRNRQD Service Actions can be done after the IAR GRN feature is enabled and before the feature is turned on.

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

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 `rtrv-ctrl-feat` output shows a LNP ported TNs quantity entry, this procedure cannot be performed for the IAR-related features.

If the entry for the IAR-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 each IAR-related feature, by entering the `enable-ctrl-feat` command and specify the part number and feature access key for the feature. The IAR Base feature must be enabled before other IAR-related features can be enabled.

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

Note: The feature access key is provided by Tekelec 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 Tekelec Sales Representative or Account Representative.

When a 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
Info Analyzed Relay Base  893034201  off        ----
Info Analyzed Relay NP   893026101  off        ----
IAR ASD                893035001  off        ----
IAR GRN                893035101  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.
```

Provisioning the TTR 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 IAR-related features.

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

Adding a TTR Service Selector

This procedure is used to add a TTR service selector for the IAR Base feature.

The IAR Base feature must be enabled before a TTR service selector can be added.

1. Verify that the IAR Base feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the IAR Base feature is enabled, the status of the Info Analyzed Relay Base 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
Info Analyzed Relay Base 893034201   on      ----
;
```

- If the IAR Base feature is enabled, continue with [Step 2](#).
 - If the IAR Base feature is not enabled, go to [Enabling IAR-Related Features](#) to enable the IAR Base feature. Then continue with [Step 2](#).
2. Display any existing TTR service selectors in the database, by entering the `rtrv-srvsel:serv=ttr` 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    ---  ---   ttr
4     2   e164    intl *    ---  ---   ttr

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

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

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

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

- Verify the changes by entering the `rtrv-srvsel` command with the parameters and values used in [Step 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    ---  ---   ttr
4      2  e164  intl  *    ---  ---   ttr

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

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

```

- 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.

```

Provisioning the Common Screening List for IAR Base

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

- GT screening list - This list is used in CdPA Screening, to compare the SCCP CdPA from the incoming message to the digit strings for Home SCP GTs in this list. If an exact match is not found, the message is dismissed. (The message GTI value must not be zero and cannot be a value other than 2 or 4.)
- CCNC screening list - This screening list is used to compare the conditioned TCAP DN in international format to the Country Code and National Destination Code digit strings in this list. If not found, NPP processing stops and the message is dismissed.
- TRIG screening list - This screening list is used to compare the TRIGTYPE from the incoming message to the entries in this list. Processing of the message is continued only if an exact match is found.

- Verify that the IAR Base feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the IAR Base 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
Info Analyzed Relay Base 893034201 off     ----
;

```

- If the IAR Base feature is not enabled (the entry does not appear in the output), go to [Enabling IAR-Related Features](#) to enable the feature. Then continue with [Step 2](#).

- If the IAR Base feature is enabled, continue with [Step 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 5 ISS Commands](#) in this manual and to the `chg-csl` command description in the *Commands Manual* for valid parameter values, input examples, and rules for entering the command correctly.

```
chg-csl:feature="Info Analyzed Relay Base":list=ccnc:ds=<1-6 hex digits>
chg-csl:feature="Info Analyzed Relay Base":list=gt:ds=<1-15 hex digits>
chg-csl:feature="Info Analyzed Relay Base":list=trig:ds=<2 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.
```

Provisioning the TATR Options

This procedure is used to provision the configuration options for IAR-related features, and for the Service Portability feature when it is used with the IAR NP feature.

- The IAR Base feature must be enabled before TATROPTS options can be provisioned for any IAR-related feature.
 - The Service Portability feature must be enabled before the TATROPTS option for Service Portability can be provisioned.
1. Verify that the IAR Base feature is enabled, and that any required IAR-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
Info Analyzed Relay Base 893034201  off     ----
Service Portability    893034301  off     ----
;
```

- If a required feature is not enabled (the entry does not appear in the output), go to [Enabling IAR-Related Features](#) or [Enabling the Service Portability Feature](#) to enable each required feature. Then continue with [Step 2](#).
 - If the required features are enabled, continue with [Step 2](#).
2. Display the current settings of the TATR options, using the `rtrv-tatropts` command.
 3. Change the TATR options to the required settings, by entering the `chg-tatropts` command with at least one of the option parameters specified. If Service Portability will be used with the IAR Base feature, change the TATR options that apply to Service Portability to the required settings.

Refer to *EAGLE 5 ISS Commands* in this manual and to the `chg-tatropts` command description in the *Commands Manual* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the changes, by entering the `rtrv-tatropts` command.
5. If a required feature was not turned on (status is off in the output in *Step 1*), and one or more features need to be turned on now, go to *Turning On IAR-Related Features* or to *Turning On the Service Portability Feature* to turn on each feature.
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.
```

Provisioning NPP for IAR-Related features

Refer to the *Numbering Plan Processor (NPP) Overview* manual and the *Commands Manual*, and see the IAR feature description in this manual for the required information and procedures to provision NPP components for IAR services.

NPP provisioning is performed in the following sequence for the components that are used for the specified IAR 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 IAR-related features, 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 IAR-related features. 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.

Turning On IAR-Related Features

Before an IAR-related feature can be turned on, the feature must be enabled in the EAGLE 5 ISS.

Provisioning of TATROPTS 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"). messages will not be processed by the feature until the feature is turned on.

This procedure is used to turn on IAR-related features in the EAGLE 5 ISS. Each feature must be turned on using its feature part number.

- Info Analyzed Relay Base (IAR Base) - Part Number 893034201
- Info Analyzed Relay Number Portability (IAR NP) - Part Number 893026101
- Info Analyzed Relay Additional Subscriber Data (IAR ASD)- Part Number 893035001
- Info Analyzed Relay Generic Routing Number (IAR GRN) - Part Number 893035101

After the IAR Base feature and IAR NP feature are enabled and turned on, they cannot be turned off again. The IAR ASD and IAR 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
Info Analyzed Relay Base 893034201 off      ----
Info Analyzed Relay NP  893026101 off      ----
Info Analyzed Relay ASD 893035001 off      ----
Info Analyzed Relay GRN 893035101 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 [Step 2](#).

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

```
chg-ctrl-feat:partnum=<893xxxxxxx>:status=on
```

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
Info Analyzed Relay Base 893034201 on      ----
Info Analyzed Relay NP  893026101 on      ----
Info Analyzed Relay ASD 893035001 on      ----
Info Analyzed Relay GRN 893035101 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.
```

Enabling the MTP Routed Messages for SCCP Applications Feature

This procedure is used to enable the MTP Routed Messages for SCCP Applications feature (MTP Msgs for SCCP Apps) feature in the EAGLE 5 ISS.

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

- MTP Msgs for SCCP Apps - Part Number 893017401

A feature that uses the MTP Msgs for SCCP Apps feature to select MTP-routed messages must be enabled before the MTP Msgs for SCCP Apps feature can be enabled.

Note: Controlled features must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative or Account Representative.

When the feature is enabled, it is permanently enabled. The MTP Msgs for SCCP Apps feature cannot be temporarily enabled.

After the MTP Msgs for SCCP Apps feature has been enabled, the feature status must be set to on (the feature must be “turned on”) before MTP Msgs for SCCP Apps processing will occur. The feature can be turned off after it has been 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
;
```

If the MTP Msgs for SCCP Apps entry appears in the `rtrv-ctrl-feat` output, performing this procedure is not necessary.

2. Enable the MTP Msgs for SCCP Apps feature, by entering the `enable-ctrl-feat` command. `enable-ctrl-feat:partnum=893017401:fak=<feature access key>`

Note: The feature access key (the fak parameter) is provided by Tekelec. If you do not have the controlled feature part number or the feature access key for the S-Port feature, contact your Tekelec Sales Representative or Account Representative.

When the feature is enabled, the MTP Msgs for SCCP Apps 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
MTP Msgs for SCCP Apps 893017401 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.
```

Turning On the MTP Routed Messages for SCCP Applications Feature

Before the MTP Routed Messages for SCCP Applications (MTP Msgs for SCCP Apps) feature can be turned on and off, the feature must be enabled in the EAGLE 5 ISS.

This procedure is used to turn on the MTP Routed Msgs for SCCP Apps feature in the EAGLE 5 ISS, using the feature part number 893017401.

Note: MSUs are processed by a feature when the feature is turned on in the system.

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
MTP Msgs for SCCP Apps 893017401  off       ----
;
```

If the entry for the MTP Routed Msgs for SCCP Apps feature appears in the `rtrv-ctrl-feat` output with status off, performing this procedure is not necessary.

If the status of the MTP Routed Msgs for SCCP Apps feature in the output is on, continue with

2. Turn on the MTP Routed Msgs for SCCP Apps feature, by entering the `chg-ctrl-feat` command.


```
chg-ctrl-feat:partnum=<893xxxxxxx>:status=on
```

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
MTP Msgs for SCCP Apps 893017401  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.
```

Turning off the MTP Routed Msgs for SCCP Apps Feature

Before the MTP Routed Msgs for SCCP Apps feature can be turned on and off, the feature must be enabled in the EAGLE 5 ISS.

This procedure is used to turn off the MTP Routed Msgs for SCCP Apps feature in the EAGLE 5 ISS, using the feature part number 893017401.

Note: MSUs are processed by a feature when the feature is turned on in the system.

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
MTP Msgs for SCCP Apps 893017401 on        ----
;
```

If the entry for the MTP Routed Msgs for SCCP Apps feature appears in the `rtrv-ctrl-feat` output with status off, performing this procedure is not necessary.

If the status of the MTP Routed Msgs for SCCP Apps feature in the output is on, continue with

2. Turn off the MTP Routed Msgs for SCCP Apps 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
MTP Msgs for SCCP Apps 893017401 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.
```

TATR Test Tool

The TATR Test Tool can be used to send provisioned test messages through parts of the IAR Base feature to test an IAR-related feature configuration before the configuration is used to process real message traffic

The TATR Test Tool can be used when the IAR Base feature is enabled and off. The `tst-msg` command operates as though the IAR Base feature is on.

The other IAR-related features can be turned on and off when the IAR Base feature is off. An IAR Base configuration cannot be tested without testing the way in which it uses NPP. The ON/OFF status of the IAR NP, IAR ASD, and IAR GRN features influences the processing performed by several NPP Service Action Handlers; these handlers will do nothing when the feature that controls them is OFF.

The TATR Test Tool processing is the same as IAR Base processing with the following exceptions:

- TTR service selection is skipped.
- IAR pre-NPP processing
 - TCAP decoding is replaced by test message data retrieval.

- The IAR Base feature supports the `test-msg` command in such a way that the same IAR pre-NPP processing and NPP processing code that is used for run-time message traffic is also exercised by the test message data.
- If the `test-msg` command is used with data that emulates a MTP-routed GTI=0 message, then the message will pass IAR pre-NPP processing DPC Screening only when there is at least one DPC with Home SCP defined in the EAGLE 5 ISS Destination table.
- IAR post-NPP processing message encoding and routing is replaced by TST-MSG output generation.

The following information can be configured for each TATR test message (default values are underlined>):

Table 33: TATR Test Message Table Fields

Field	Description
MSGN	{ <u>1</u> ..10} Specifies the number of the test message to be sent for feature service processing; this number identifies the message modified by all of the other parameters.
CDPAGT	{0, <u>1</u> , <u>2</u> , 3 .. 15} Specifies the CdPA GTI for the message.
CDPAGTNAI	{0, 1, 2, 3, <u>4</u> , 5 .. 127} Specifies the CdPA NAI for the message.
CDPADGTS	{<s>}, where <s> is a string of between 0 and 15 hexadecimal digits in length, with a default value of 0123456789ABCDE. Specifies the CdPA GT digits for the message.
CGPAGT	{0, <u>1</u> , <u>2</u> , 3, .., 15} Specifies the CgPA GTI for the message.
CGPAGTNAI	{0, 1, 2, 3, <u>4</u> , 5, .., 127} Specifies the CgPA NAI for the message.
CGPADGTS	{<s>}, where <s> is a string of between 0 and 15 hexadecimal digits in length, with a default value of 0123456789ABCDE. Specifies the CgPA GT digits for the message.
CDPNNAI	{0, <u>1</u> , <u>2</u> , <u>3</u> , <u>...</u> , 255} Specifies the CgPN NAI for the message.
CDPNDGTS	{<s>}, where <s> is a string of between 0 and 32 hexadecimal digits in length, with a default value of 0123456789ABCDE. Specifies the CdPN GT digits for the message.
CGPNNAI	{0, <u>1</u> , <u>2</u> , <u>3</u> , <u>...</u> , 255} Specifies the CgPN NAI for the message.

Field	Description
CGPNDGTS	{<s>}, where <s> is a string of between 0 and 32 hexadecimal digits in length, with a default value of 0123456789ABCDE. Specifies the CgPN GT digits for the message.
ACTIVE	{YES, <u>NO</u> } Specifies whether the message can be sent to the network card for processing.
RESET	{ <u>YES</u> } Resets all of the message parameters to their default values.
TRIGTYPE	{0..36, <u>3Z</u> , 38..255} Specifies the TRIGTYPE for the message as a hexadecimal number. The TRIGTYPE may also be entered as a hexadecimal number; range 00..FF, with a default value of 25. Refer to the "Notes" section of the <code>ent-cs1</code> command description in the <i>Commands Manual</i> for a list of hexadecimal codes.

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

The `rtrv-tatr-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=tatr` parameter, the message number for the test, the network card location (`loc` parameter), the `feat=iar` 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 the *Commands Manual* for descriptions of the commands, parameter values, and output examples.

Service Portability Feature Configuration Procedures

The procedures in this section are used for configuration of the Service Portability feature.

Enabling the Service Portability Feature

If Service Portability can be applied to the messages processed by a feature described in this manual, use this procedure to enable the Service Portability (S-Port) feature in the EAGLE 5 ISS.

The Service Portability feature must be enabled using the feature part number 893034301 and the feature access key.

Note: Controlled features must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Tekelec Sales Representative 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 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 `rtrv-ctrl-feat` output shows a LNP ported TNs quantity entry, this procedure cannot be performed.

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>`

Note: The feature access key (the `fak` parameter) is provided by Tekelec. If you do not have the controlled feature part number or the feature access key for the ATINP feature, contact your Tekelec Sales Representative or Account Representative.

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.
```

Turning On the Service Portability Feature

This procedure is used to turn on the Service Portability feature in the EAGLE 5 ISS, 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 5 ISS.

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 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
ATINP                 893022101 on         ----
Service Portability  893034301 off        ----
;
```

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 [Step 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.
```

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 5 ISS.

This procedure is used to turn off the Service Portability feature, using its feature part number 8930343091.

Note: MSUs will not be processed by a feature when the feature is turned off in the system.

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
TIF Number Portability 893018901 on         ----
Service Portability   893025501 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 [Step 2](#).

2. Turn off the S-Port 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 09-05-29 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.
```

Provisioning Service Module Cards

EPAP-based features that perform RTDB lookup require “Service Module cards” running the VSCCP application.

Any of the following cards can be used as Service Module cards running the VSCCP application in the system:

- DSM 4G – a DSM card with 4 gigabytes of memory
- E5-SM4G - an EPM-based card with 4 gigabytes of memory

This section contains a procedure for adding Service Module cards to the system.

Adding a Service Module Card

This procedure uses the `ent -card` command to add Service Module cards to the database, to support GTT-related features and EPAP-related features.



CAUTION: Refer to the *Dimensioning Guide for EPAP Advanced DB Features Technical Reference* for important information on the dimensioning rules and the DSM database capacity requirements.

A Service Module card can be inserted only in an odd/even numbered pair of empty card slots of an EAGLE 5 ISS shelf. Slots 09 and 10 of each shelf contain an HMUX card, a HIPR card, or a HIPR2 card. A Service Module card cannot be inserted in slots 09 and 10. A Service Module card occupies two card slots, so the even-numbered card slot to the right of the odd-numbered slot where the Service Module card has been inserted must be empty. The Service Module card is connected to the network through the odd-numbered card slot connector.

Note: Service Module cards can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11.

Table 34: Service Module Card Locations

Location of the Service Module	Empty Card Location	Location of the Service Module	Empty Card Location
Slot 01	Slot 02	Slot 11	Slot 12
Slot 03	Slot 04	Slot 13	Slot 14
Slot 05	Slot 06	Slot 15	Slot 16
Slot 07	Slot 08	Slot 17	Slot 18

The shelf to which the card is to be added must already be provisioned in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, refer to the procedure for adding a shelf in the *Database Administration Manual – System Management*.

The card cannot be added to the database if the specified card location already has a card assigned to it.

The system can contain a maximum of 25 Service Module cards for EPAP-based features.

Note: This manual contains brief descriptions of the commands that are used in these procedures to configure EPAP-based features. Refer to the *Commands Manual* for complete descriptions of the

commands that are used in this procedure. The complete descriptions include all valid parameter values and output examples.

1. Verify that the GTT feature is on. Enter the `rtrv-feat` command.

If the GTT feature is on, the `GTT = on` field appears in the command output.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. To see all the fields displayed by the `rtrv-feat` command, refer to the `rtrv-feat` command description in the *Commands Manual*.

- If the GTT feature is on, shown by the entry `GTT = on` in the `rtrv-feat` command output, continue with [Step 2](#).
- If the GTT feature is off, shown by the entry `GTT = off` in the `rtrv-feat` command output, use the procedures in the *Database Administration Manual - GTT* to turn on the GTT feature. Then continue with [Step 2](#).

2. Display the cards in the system, by entering the `rtrv-card` command. Odd-even pairs of card locations that do not contain cards (are not listed in the output or are not HMUX or HIPR card locations) could be used for Service Module cards.

```

rlghncxa03w 08-03-15 16:34:56 EST EAGLE 39.2.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1201   LIMDS0      SS7ANSI    LS1             A    0    LS1            B
1102   DSM         VSCCP     -----      A    --  -----      B   --
1113   GPSPM      OAM
1114   TDM-A
1115   GPSPM      OAM
1116   TDM-B
1117   MDAL
;

```

3. If an E5-SM4G card is being added, verify that card locations 09 and 10 contain HIPR cards or HIPR2 cards in the shelf where the E5-SM4G card will be installed.

Enter the `rept-stat-gpl:gpl=hipr` command and the `rept-stat-gpl:gpl=hipr2` command to list the installed HIPR cards and HIPR2 cards in the system.

- If the shelf contains HIPR cards or HIPR2 cards, continue with [Step 4](#).
- If the shelf does not contain HIPR cards or HIPR2 cards, refer to the *Installation Manual - EAGLE 5 ISS* to install HIPR cards or HIPR2 cards in the shelf. Continue with [Step 4](#).

Note: Cards should be distributed throughout the system for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

4. Verify that the Service Module card has been physically installed into the proper location.



CAUTION

CAUTION: If the version of the BPDCM GPL on the Service Module card does not match the BPDCM GPL version in the database when the Service Module card is inserted into the card slot, UAM 0002 is generated indicating that these GPL versions do not match. If UAM 0002 has been generated, perform the alarm clearing procedure for UAM 0002 in the *Maintenance Unsolicited Alarm and Information Messages* manual before proceeding with this procedure.

5. Add the Service Module card to the database, using the `ent-card` command.

`ent-card:loc=1301:type=dsm:appl=vscpp`

- Verify the temperature threshold settings for an E5-SM4G card by performing the “Changing the High-Capacity Card Temperature Alarm Thresholds” procedure in the *Database Administration Manual - SS7*.

- Verify the changes by entering the `rtrv-card` command with the card location specified.

```
rtrv-card:loc=1102
```

```
rlghncxa03w 08-03-15 16:34:56 EST EAGLE 39.2.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1301   DSM         VSCCP     -----      A   --  -----      B
;
```

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

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

The following messages should 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.
```

- Repeat this procedure for each Service Module card that needs to be added to the system.

Activating the 1100 TPS/DSM for ITU NP Feature

This procedure is used to enable and turn on the 1100 TPS/DSM for ITU NP feature.

The 1100 TPS/DSM for ITU NP feature increases the processing capacity of SCCP traffic for an EAGLE 5 ISS processing EPAP-based traffic to 26,400 transactions per second. To provide this increase in SCCP processing capacity, the maximum of 25 Service Module cards must be provisioned and installed in the EAGLE 5 ISS, and one or more EPAP-related features enabled and turned on. This feature can be enabled only for Service Module cards that are rated at 850 transactions per second (TPS).

Note: The increased capacity to 1100 TPS per Service Module card assumes incoming traffic consists of at least 30% of GTT routed traffic that does not require EPAP-based lookup. If more than 70% of incoming traffic requires EPAP-based lookup, Group Ticket Voucher (TVG) may shutdown and overall TVG capacity of 1100 for the card may not be met.

The 1100 TPS/DSM for ITU NP feature cannot be enabled if:

- The EAGLE 5 ISS does not contain any Service Module cards.
- The LNP feature is enabled.
- The ANSI G-Flex STP Option is enabled.
- The GTT feature is not turned on.

The feature access key for the 1100 TPS/DSM for ITU NP feature is provided by Tekelec. Contact your Tekelec Sales Representative or Account Representative before beginning the feature activation procedure if you do not have the feature access key for this feature. Based on the feature part number and the serial number of the EAGLE 5 ISS, the feature access key is site-specific. The feature access key contains thirteen alphanumeric characters and is not case sensitive. The 1100 TPS/DSM for ITU NP feature cannot be enabled with a temporary feature access key.

The `enable-ctrl-feat` command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. Verify with the `rtrv-serial-num` command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked after the EAGLE 5 ISS is on-site with the `ent-serial-num` command.

Note: To enter and lock the serial number of the EAGLE 5 ISS, the `ent-serial-num` command must be entered twice. The first entry of the `ent-serial-num` command adds the correct serial number to the database with the `serial` parameter. The second entry of the `ent-serial-num` command with the `serial` and `lock=yes` parameters locks the serial number. Verify that the serial number in the database is correct before locking the serial number. The serial number is on a label attached to the control shelf (shelf 1100).

Refer to *Commands Manual* for detailed descriptions of all commands used in this procedure.

1. Display the status of the 1100 TPS/DSM for ITU NP feature by entering the `rtrv-ctrl-feat` command.

Example of a possible output:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0

The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
HC-MIM SLK Capacity   893012707  on      64
Prepaid SMS Intercept Ph1 893006701  on      ----
1100 TPS/DSM for ITU NP 893018001  on      ----

The following features have been temporarily enabled:
Feature Name          Partnum  Status  Quantity  Trial Period Left
MNP Circ Route Prevent 893000140  On      ----    20 days 8 hrs 57 mins

The following features have expired temporary keys:
Feature Name          Part Num
OnOffFeatV
```

2. Based on the output in [Step 1](#), perform one of the following:
 - If the `rtrv-ctrl-feat` output shows that the LNP feature is enabled, this procedure cannot be performed. The 1100 TPS/DSM for ITU NP feature cannot be enabled if the LNP feature is enabled.
 - If the 1100 TPS/DSM for ITU NP entry of the `rtrv-ctrl-feat` output shows that the 1100 TPS/DSM for ITU NP feature is enabled and the feature status is on, no further action is necessary.
 - If the feature is enabled and the feature status is off, go to [Step 13](#).
 - If the 1100 TPS/DSM for ITU NP and LNP features are not enabled, continue to [Step 3](#).
3. Determine whether the G-Flex feature is turned on by entering the `rtrv-ctrl-feat`.
The status of the G-Flex feature is shown by the G-Flex entry in the `rtrv-ctrl-feat` output.
 - If the G-Flex feature is on, continue to [Step 4](#).
 - If the G-Flex feature is off, go to [Step 5](#).
4. Verify that the ANSI G-Flex option is not enabled or turned on by entering the `rtrv-stpopts` command.

The 1100 TPS/DSM ITU NP feature cannot be enabled if the ANSI G-Flex option is turned on.

The ANSI G-Flex option is shown by the ANSIGFLEX entry in the `rtrv-stpopts` output. If the ANSIGFLEX entry is displayed in the `rtrv-stpopts` output, both the G-Flex and the GTT features are turned on.

- If the ANSIGFLEX value is *yes* in the `rtrv-stpopts` output, the ANSI G-Flex option is enabled and the remainder of this procedure cannot be performed.
 - If the ANSIGFLEX value is *no* in the `rtrv-stpopts` output, the ANSI G-Flex option is not enabled. Proceed to [Step 6](#).
5. Determine whether the GTT feature is turned on by examining the output of the `rtrv-feat` command.

The 1100 TPS/DSM ITU NP feature cannot be enabled unless the GTT feature is turned on. The GTT feature is shown by the GTT entry in the `rtrv-feat` output in [Step 3](#).

- If the GTT feature is turned on, continue to [Step 6](#).
 - If the GTT feature is turned off, perform "Adding a Service Module" in *Database Administration Manual - Global Title Translation* to turn on the GTT feature and to add the required number of Service Module cards to the database. After "Adding a Service Module" has been performed, go to [Step 11](#).
6. Verify the number of Service Module cards provisioned in the database using the `rtrv-card:appl=vsccp` command:

Example of a possible output:

```
tk1c1110501 07-04-12 17:28:02 EST EAGLE5 37.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1111  128-015-000    DSM      SCCPHC   IS-NR    Active   -----
1101  128-015-000    DSM      VS CCP   IS-NR    Active   -----
```

Command Completed.

7. Based on the output shown in [Step 6](#), perform one of the following:
- If the required number of Service Module cards is provisioned in the database, continue to [Step 8](#).
 - If the required number of Service Module cards is not provisioned in the database, perform "Adding a Service Module" in *Database Administration Manual - Global Title Translation* to add the required number of Service Module cards to the database. After "Adding a Service Module" has been performed, continue with [Step 8](#).
8. Display the serial number in the database with the `rtrv-serial-num` command.

Example of a possible output:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
System serial number = nt00000123
System serial number is not locked
.
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
Command Completed
```

9. Compare the serial number located on a label affixed to the control shelf (shelf 1100) to the output shown in [Step 8](#), then perform one of the following:

- If the serial number is not correct and is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact [Customer Care Center](#) to change an incorrect and locked serial number.
 - If the serial number is not correct and is not locked, continue to [Step 10](#).
 - If the serial number is correct but is not locked, go to [Step 12](#).
 - If the serial number is correct and is locked, go to [Step 13](#).
10. Enter the correct serial number into the database using the `ent-serial-num` command with the `serial` parameter.

Command example:

```
ent-serial-num:serial=<EAGLE 5 ISS serial number>
```

After the command has completed successfully, this message is displayed:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

11. Verify with the `rtrv-serial-num` command that the serial number entered in [Step 10](#) was entered correctly. If the serial number was not entered correctly, repeat [Step 10](#) and enter the correct serial number.

Example of a possible output:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
System serial number = nt00000123

System serial number is not locked.

rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
Command Completed
```

12. Lock the serial number in the database by entering the `ent-serial-num` command with the correct serial number as shown in [Step 11](#) and with the `lock=yes` parameter value.

Command example:

```
ent-serial-num:serial=<EAGLE 5 ISS serial number>:lock=yes
```

After the command has completed successfully, this message is displayed:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

13. Enable the 1100 TPS/DSM for ITU NP feature with the feature access key using the `enable-ctrl-feat` command.

Command example:

```
enable-ctrl-feat:partnum=893018001:fak=<feature access key>
```

Note: The feature access key for the 1100 TPS/DSM for ITU NP feature is provided by Tekelec. Contact your Tekelec Sales Representative or Account Representative if you do not have the feature access key for this feature. This feature cannot be enabled with a temporary feature access key.

After the command has completed successfully, this message is displayed:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

14. Perform on of the following:

- To turn on the 1100 TPS/DSM for ITU NP feature, go to [Step 15](#).
 - To not turn on the 1100 TPS/DSM for ITU NP feature, go to [Step 17](#). The transaction rate will remain at 850 TPS per Service Module card.
15. To turn on the 1100 TPS/DSM for ITU NP feature, enter the `chg-ctrl-feat` command, specifying the 1100 TPS/DSM for ITU NP feature part number and the `status=on` parameter value.

Command example:

```
chg-ctrl-feat:partnum=893018001:status=on
```

This message is displayed:

```
CAUTION: Rated TPS for this feature supports an engineered GTT
traffic mix of no more than 70 percent EPAP-based traffic.
Re-enter the command within 30 seconds to confirm change.
```



CAUTION

CAUTION: If the EPAP-based traffic is higher than 70% of all traffic on the EAGLE 5 ISS, the Service Module card performance may not reach 1100 TPS per Service Module card.

16. Re-enter the `chg-ctrl-feat` command to turn on the feature.

Command example:

```
chg-ctrl-feat:partnum=893018001:status=on
```

After the command has completed successfully, this message is displayed:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

17. Verify the changes by entering the `rtrv-ctrl-feat` command with the 1100 TPS/DSM for ITU NP feature part number.

Command example:

```
rtrv-ctrl-feat:partnum=893018001
```

Example of a possible output:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
1100 TPS/DSM for ITU NP 893018001 on        ----

The following features have been temporarily enabled:
Feature Name          Partnum    Status    Quantity Trial Period Left
Zero entries found.

The following features have expired temporary keys:
Feature Name          Part Num
Zero entries found.
```

18. Back up the new database changes with the `chg-db` command:

Command example:

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

These messages are displayed. The active Maintenance and Administration Subsystem Processor (MASP) is displayed 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.
```

To turn off the 1100 TPS/DSM for ITU NP feature, enter the `chg-ctrl-feat` command, specifying the 1100 TPS/DSM feature part number and the `status=off` parameter value.

```
chg-ctrl-feat:partnum=893018001:status=off
```

This message is displayed:

```
CAUTION: This command decreases the total TPS of the SCCP system from 1100 to 850
TPS for each DSM card.
```

Confirm that you wish to turn off the 1100 TPS/DSM for ITU NP feature by re-entering the command within 30 seconds.

```
chg-ctrl-feat:partnum=893018001:status=off
```

This message is displayed:

```
rlghncxa03w 09-08-24 21:15:37 EST EAGLE 40.1.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

Activating the E5-SM4G Throughput Capacity Feature

The E5-SM4G Throughput Capacity feature quantities are used to increase the processing capacity of the E5-SM4G card and of system SCCP traffic for an EAGLE 5 ISS that contains E5-SM4G cards only (no DSM cards). The achievable TPS maximums are shown in [Table 35: Maximum E5-SM4G Card and System TPS Capacity](#).

Table 35: Maximum E5-SM4G Card and System TPS Capacity

Feature Quantity Part Number	Maximum TPS Capacity per E5-SM4G Card	Maximum System TPS Capacity
893019101 - Feature Quantity 5000	3125	<ul style="list-style-type: none"> 75,000 TPS with one or more EPAP-related features and 24+1 cards
	5000	<ul style="list-style-type: none"> 150,000 TPS with no EPAP-related or ELAP-related feature traffic and 31+1 cards 120,000 TPS with G-Flex and the ANSIGFLEX STP option and 24+1 cards 40,000 TPS with ELAP and 8+1 cards

Feature Quantity Part Number	Maximum TPS Capacity per E5-SM4G Card	Maximum System TPS Capacity
893019102 - Feature Quantity 6800	6800	<ul style="list-style-type: none"> • 210,800 TPS with no EPAP-related or ELAP-related feature traffic and 31+1 cards • 163,200 TPS with one or more EPAP-related features and 24+1 cards • 54,400 TPS with ELAP and 8+1 cards

An E5-SM4G Throughput Capacity quantity feature must be enabled using an E5-SM4G Throughput Capacity feature part number (893019101 or 893019102) and a feature access key.

The feature access key is based on the feature part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

Note: The E5-SM4G Throughput Capacity quantity feature must be purchased to receive the feature access key used to enable the feature. Contact your Tekelec Sales Representative or Account Representative before beginning this procedure if you have purchased the E5-SM4G Throughput Capacity quantity feature, but do not have the feature access key. A temporary feature access key is not available for this feature.

After an E5-SM4G Throughput Capacity feature is enabled and turned on, the E5-SM4G Throughput Capacity feature cannot be turned off. When the E5-SM4G Throughput Capacity feature is enabled, it is permanently enabled. The E5-SM4G Throughput Capacity feature cannot be temporarily enabled.

System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in [Table 36: System Prerequisites](#) are required in the system.

Table 36: System Prerequisites

Prerequisite	Verification and Provisioning
<p>For new installations, the system serial number must be verified and locked. 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 has already been verified and locked.</p>	<p>Enter the <code>rtrv-serial-num</code> command to display the serial number and its lock status.</p> <p>Verify that the displayed serial number is correct for the system. The serial number is shown on a label affixed to the control shelf (shelf 1100).</p> <p>If no serial number is displayed, or if the displayed serial number is not locked, refer to the <code>ent-serial-number</code> command description in the <i>Commands Manual</i> for instructions to enter and lock the serial number.</p>
<p>Service Module cards (DSM cards, E5-SM4G cards, or a mixture of both) 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>

Prerequisite	Verification and Provisioning
<p>Some features require only E5-SM4G cards and cannot use DSM cards. See the specific feature prerequisites in this section.</p> <p>Some features require only E5-SM4G cards and cannot use DSM cards. See the specific feature prerequisites in this section.</p> <p>Note: Refer to the <i>Dimensioning Guide for EPAP Advanced DB Features Technical Reference</i> for information on the dimensioning rules and the database capacity requirements for EPAP-related features.</p>	
<p>The GTT feature must on in the system.</p>	<p>Enter the <code>rtrv-feat</code> command.</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 the <i>Database Administration Manual – Global Title Translation</i> to turn on the GTT feature.</p>

E5-SM4G Throughput Capacity Feature Prerequisite

Before the E5-SM4G Throughput Capacity feature can be enabled, the prerequisite shown in [Table 37: E5-SM4G Throughput Capacity Feature Prerequisite](#) is required in the system.

Table 37: E5-SM4G Throughput Capacity Feature Prerequisite

Prerequisite	Verification and Provisioning
<p>E5-SM4G cards running the VSCCP application must be equipped.</p> <p>The required number of cards depends on the desired total system TPS to be achieved by the cards. See Table 35: Maximum E5-SM4G Card and System TPS Capacity.</p>	<p>Enter the <code>rept-stat-gpl:gpl=sccphc</code> command to list the E5-SM4G cards in the system.</p> <p>If the number of cards is not sufficient, use the procedure in Adding a Service Module Card to add E5-SM4G cards.</p>

The following procedure explains how to enable an E5-SM4G Throughput Capacity quantity feature.

Note: After a quantity feature has been enabled, a feature for a higher quantity can be enabled; a feature for a lower quantity cannot be enabled. Quantity features are automatically turned on when they are enabled.

1. Display the status of the features that are controlled by feature access keys. Enter the `rtrv-ctrl-feat` command.

```
rlghncxa03w 09-07-29 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
E5-SM4G Throughput Cap  893019101  on          5000
;

```

- If the `rtrv-ctrl-feat` output shows that the correct E5-SM4G Throughput Capacity quantity feature is enabled and its status is on, no further action is necessary.
 - If no E5-SM4G Throughput Capacity feature quantity is enabled or a higher quantity needs to be enabled, continue with step [Step 2](#).
2. Enable the E5-SM4G Throughput Capacity quantity feature by entering the `enable-ctrl-feat` command with the correct part number and FAK for the desired quantity.
 3. Verify the status of the E5-SM4G Throughput Capacity quantity feature by entering the `rtrv-ctrl-feat` command with the feature part number that was just enabled (893033501 or 893019102).

```
rtrv-ctrl-feat:partnum=893019102
```

```

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
E5-SM4G Throughput Cap  893019102  on      6800
;

```

Glossary

A

AC	Alternating Current Application Context Authentication Center
----	---

B

BCD	Binary Coded Decimal
-----	----------------------

C

CAMEL	Customized Applications for Mobile networks Enhanced Logic
-------	---

CAP	Communication & Application Processor
-----	--

CdPA	Called Party Address The portion of the MSU that contains the additional addressing information of the destination of the MSU. Gateway screening uses this additional information to determine if MSUs that contain the DPC in the routing label and the subsystem number in the called party address portion of the MSU are allowed in the network where the EAGLE 5 ISS is located.
------	--

D

DN	Directory number A DN can refer to any mobile or wireline subscriber number, and can include MSISDN, MDN, MIN, or the wireline Dialed Number.
----	--

DPC	Destination Point Code
-----	------------------------

D

DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.

E

EPAP EAGLE Provisioning Application Processor

F

FTP File Transfer Protocol
A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network.

G

GSM Global System for Mobile Communications

GT Global Title Routing Indicator

GTA Global Title Address

GTI Global Title Indicator

GTT Global Title Translation
A feature of the signaling connection control part (SCCP) of the SS7 protocol that the EAGLE 5 ISS uses to determine which service database to send the query message when an MSU enters the EAGLE 5 ISS and more information is needed to route the MSU. These service databases also verify calling card numbers and credit card numbers. The service

G

databases are identified in the SS7 network by a point code and a subsystem number.

H

HLR Home Location Register

I

IDP Initial Detection Point

IEC International Escape Code

INAP Intelligent Network Application Protocol

M

MCPM Measurement Collection and Polling Module

The Measurement Collection and Polling Module (MCPM) provides comma delimited core STP measurement data to a remote server for processing. The MCPM is an EDSM with 2 GB of memory running the MCP application.

MPS Multi-Purpose Server

The Multi-Purpose Server provides database/reload functionality and a variety of high capacity/high speed offboard database functions for applications. The MPS resides in the General Purpose Frame.

MSC Mobile Switching Center

MSISDN Mobile Station International Subscriber Directory Number

The MSISDN is the network specific subscriber number of a mobile

M

communications subscriber. This is normally the phone number that is used to reach the subscriber.

MTP

The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network.

N

NAI

Nature of Address Indicator

Standard method of identifying users who request access to a network.

NEC

National Escape Code

NP

Number Plan

Number Conditioning

Conversion of incoming digits into subscriber format prior to RTDB lookup and conversion of outgoing RTDB digits into a format matching the original incoming digits.

O

OAM

Operations, Administration, and Maintenance

The generic load program (application) that operates the Maintenance and Administration Subsystem which controls the operation of the EAGLE 5 ISS.

P

PC

Point Code

The identifier of a signaling point or service control point in a network. The format of the point code can be one of the following types:

P

- ANSI point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Non-ANSI domestic point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Cluster point codes in the format network indicator-network cluster-* or network indicator-*-*.
- ITU international point codes in the format **zone-area-id**.
- ITU national point codes in the format of a 5-digit number (**nnnnn**), or 2, 3, or 4 numbers (members) separated by dashes (**m1-m2-m3-m4**) as defined by the Flexible Point Code system option. A group code is required (**m1-m2-m3-m4-gc**) when the ITUDUPPC feature is turned on.
- 24-bit ITU national point codes in the format main signaling area-subsignaling area-service point (**msa-ssa-sp**).

The EAGLE 5 ISS LNP uses only the ANSI point codes and Non-ANSI domestic point codes.

R

RI	Routing Indicator
RN	Routing Number
RTDB	Real Time Database

S

SCCP	Signaling Connection Control Part
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S

SCP	<p>Service Control Point</p> <p>Service Control Points (SCP) are network intelligence centers where databases or call processing information is stored. The primary function of SCPs is to respond to queries from other SPs by retrieving the requested information from the appropriate database, and sending it back to the originator of the request.</p>
SK	<p>South Korea</p>
S-Port	<p>Service Portability</p> <p>A number portability extension which allows a subscriber to retain the same subscriber number when moving from one network type or service technology to another within the network of a single operator. Service Portability provides different routing number digits for formats that require routing numbers. Service Portability does not affect message flows.</p>
SRF	<p>Service Resource Function</p> <p>Provide resources to a call, such as announcements, voice prompting, and voice recognition. An example of a SRF is a Voice Recognition Unit (VRU).</p>
SSN	<p>Subsystem Number</p> <p>The subsystem number of a given point code. The subsystem number identifies the SCP application that should receive the message, or the subsystem number of the destination point code to be assigned to the LNP subsystem of the EAGLE 5 ISS.</p>

S

A value of the routing indicator portion of the global title translation data commands indicating that no further global title translation is required for the specified entry.

STP

Signal Transfer Point

STPs are ultra-reliable, high speed packet switches at the heart of SS7 networks, which terminate all link types except F-links. STPs are nearly always deployed in mated pairs for reliability reasons. Their primary functions are to provide access to SS7 networks and to provide routing of signaling messages within and among signaling networks.

T

TCAP

Transaction Capabilities Application Part

TT

Translation Type.

Resides in the Called Party Address (CdPA) field of the MSU and determines which service database is to receive query messages. The translation type indicates which Global Title Translation table determines the routing to a particular service database.

U

UAM

Unsolicited Alarm Message.

UI

User Interface

UIM

Unsolicited Information Message

V

VLR

Visitor Location Register