Oracle® Communications

EAGLE Analyzed Information Features User's Guide

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ORACLE®

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Acronyms

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

Table   Acronyms

Acronym	Definition
ASD	Additional Subscriber Data
BCD	Binary Coded Decimal
CdPN	Called Party Number
CgPN	Calling Party Number
CSL	Common Screening List
ELAP	EAGLE LNP Application Processor
EPAP	EAGLE Application Processor
GWS	Gateway Screening
GTI	Global Title Indicator
IAR	Info Analyzed Relay
IGM	IS41 GSM Migration
MPS	Multi-Purpose Server
NAI	Nature of Address Indicator
NPP	Numbering Plan Processor
RTDB	Real Time Database

What's New in This Guide

This section introduces the documentation updates for Release 48.0 in Oracle Communications EAGLE Analyzed Information Features User's Guide.

Release 48.0 -G48910-01, December 2025

There are no updates in the document for this release.

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Introduction

This manual describes the following features:

- Info Analyzed Relay features (IAR Base, IAR NP, IAR ASD, and IAR GRN) - Provide Oracle Communications EAGLE 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.

- ANSI41 AnalyzedInformation Query - no EPAP/ELAP (ANSI41 AIQ) feature - Allows an operator to migrate customers from one technology to another (such as CDMA to LTE); does not require connection to or a Real Time Database (RTDB) from an Oracle Communications EAGLE Application Processor (EPAP) or Oracle Communications EAGLE LNP Application Processor (ELAP).

Overview

This manual describes the following features:

- Info Analyzed Relay features - (IAR Base, IAR NP, IAR ASD, IAR GRN) Provide 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.

    - Service Portability - With IAR NP, allows an own-network subscriber to port to a different network technology with the same service provider.

    - S-Port Subscriber Differentiation - Can be used with the Service Portability feature to allow use of ASD digits to provide an additional Routing Number per own-network subscriber. (ASD digits, if provisioned, are used in place of GRN digits.)

- ANSI41 AnalyzedInformation Query - no EPAP/ELAP (ANSI41 AIQ) feature - Allows network operators to migrate subscribers from one technology to another (such as CDMA to LTE), using information in the incoming message and information provisioned on the EAGLE when Real Time Database lookup is not required; provides the ability to indicate which calls are destined for a particular technology.

Scope and Audience

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

References

For more information, refer to the following documents:

- *Application B Card Hardware and Installation Guide*

- *EPAP Administration Guide*

- *Hardware Reference*

- *NPP User's Guide*

- *Commands User's Guide*

- *Unsolicited Alarm and Information Messages Reference*

- *Database Administration - GTT User's Guide*

- *Database Administration - GWS User's Guide*

- *Database Administration -SS7 User's Guide*

- *Database Administration - System Management User's Guide*

- *Measurements Reference*

- *Unsolicited Alarm and Information Messages Reference*

- *Alarms and Maintenance Guide*

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Info Analyzed Relay Features

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 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.

Service Portability can be used with the IAR NP feature to allow the RTDB GRN value to be used as the RN in the outgoing message.

S-Port Subscriber Differentiation can be used with Service Portability in the IAR NP feature to allow use of provisioned ASD digits in place of GRN digits as an alternative Routing Number for own-network subscribers.

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) (Part Number 893034301) processing can be applied by the IAR NP feature, allowing the RTDB GRN value to be used as the RN in the outgoing message.

  S-Port Subscriber Differentiation (Part Number 893037901) can be used with Service Portability to allow use of provisioned ASD digits in place of GRN digits as an alternative Routing Number for own-network subscribers.

- 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: IDP A-party Blocklist, INP/G-Port / ATINP Support for ROP, and Service Portability. The IDP A-party Blocklist 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:

1. An incoming MSC event trips an Intelligent Network trigger.

2. The MSC sends an AnalyzedInformation message to the EAGLE.

3. The IAR Base feature intercepts an AnalyzedInformation query based on customer configured criteria.

4. 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:

1. 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.

2. The IAR Base feature intercepts the AnalyzedInformation message,and determines that it requires IAR processing.

3. 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.

4. The IAR Base feature formats a new CdPN parameter using the RN and DN (as directed by NPP).

5. The modified AnalyzedInformation message is sent to the Home SCP.

6. 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:

1. 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.

2. The IAR Base feature intercepts the AnalyzedInformation message,and determines that it requires IAR processing.

3. 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.

4. The IAR Base feature does not modify the CdPN parameter.

5. The unmodified AnalyzedInformation message is sent to the Home SCP.

6. 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 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. GWS 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 (neither the MTP OPC nor DPC is the EAGLE 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, 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 enabled and turned on when the GTT feature is turned on.

  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 for IAR Features, and IAR Base 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.

Hardware Requirements

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

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

MPS/EPAP Platform

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

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

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

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

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-Party 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 AnalyzedInformation 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 CGPACCCK configuration option, independent of provisioning of the STPOPTS DEFCC option.

- The check is not performed if the CGPACCCK 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 CGPACCCK 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 *Numbering Plan Processor (NPP) User's Guide* 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 invokes 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 that 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 2-1.

Table 2-1   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; applies Service Portability functions when the feature iand option are onapplies Service Portability and S-Port Differentiation functions when the features and options are on; evaluates the result of an RTDB lookup based on the TATROPTS CDNPTYPE 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 CGNPTYPE 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 2-2   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.

Table 2-2   (Cont.) NPTYPE Evaluation Success

Configuration Option Value	Success Criteria
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 CDPNNP and CGPNNP Service Actions. When the IGM feature is ON, the IAR NP feature interprets 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 2-3   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 RNSPDN	When an RTDB match is found with an RN or SP entity
ALWAYS	Always
ANYMATCH	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 Table 2-4.

IAR NPP Number Portability

The IAR Number Portability feature (IAR NP) can be called by the IAR Base feature to apply Number Portability functions using both the CDPNNP and CGPNNP NPP Service Actions. See IAR Number Portability Feature.

When the Service Portability feature is on with the IAR NP feature, the the CDPNNP and CGPNNP NPP Service Actions can also apply service portability functions. See Service Portability for IAR NP.

The S-Port Subscriber Differentiation feature can work with the Service Portability feature to allow use of ASD digits to provide an additional routing number per in-network subscriber (in addition to the GRN routing number per in-network subscriber). Subscribers without ASD provisioned will follow standard S-Port processing and will always use GRN. See S-Port Subscriber Differentiation.

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 ANYMATCH), then neither the RN Formatting Action value nor the SP Formatting Action value is changed.

Table 2-4   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)
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			
ANYMATCH			

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 IARFAILD measurement pegs are updated.

The message is routed.

IAR Number Portability Feature

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

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, 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.

Service Portability for IAR NP

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 by 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). In the case of RN/PT=0, the RN for this subscriber is considered to be the SP (the IS-41 HLR address).

- The subscriber is considered as an own-network GSM subscriber if the Entity type is SP with any Portability Type.

Service Portability is handled by the NPP CDPNNP Service Action Handler in the IAR NP feature. 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.

The NPTYPE Evaluation criteria for the Service Portability feature are the same as those for the IGM feature. See .

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 prtd subs" is generated indicating that Service Portability could not be applied due to missing Service Portability data.

S-Port Subscriber Differentiation

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

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

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

S-Port and NPP Configuration Recommendations

For features that use Service Portability and the Numbering Plan Processor (NPP), feature-specific configuration options, EPAP, and EAGLE data and NPP Formatting Actions work together to produce the "routing tag" that is used to modify digits in applicable messages. A "routing tag" is the Number Portability or Service Portability digits chosen to prefix the DN. Own-network GSM and IS41 subscribers can be tagged with the GRN (from EPAP entity data), the DFLTRN configuration option value, SP (EPAP entity digits), or no tag. OLO subscribers can be tagged with the RN (EPAP entity digits) or no tag.

Table 2-5 indicates the recommended provisioning for features that use NPP, based on how the subscriber numbers will be tagged. Service Portability provides the capability to use the GRN to tag own-network GSM and IS41 subscribers. A few potential combinations are not supported, because standard Number Portability processing does not differentiate between GSM and IS41 subscribers.

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

- NPTYPE - determines lookup success criterion

- SPORTTYPE - determines which own-network subscribers to tag with the GRN prefix (IS41, GSM, all, or none)

- DFLTRN – specifies feature-specific value for a default Routing Number

- SPFILL – specifies whether NPP should populate both SP and RN Formatting Action values even when DFLTRN or GRN is being used for local subscribers. In some scenarios, setting SPFILL to YES can cause double digits to be present. IS41 digits (RN/PT=0) are considered SP, because they should contain an E.164 HLR ID.

Because S-Port Subscriber Differentiation operates within the Service Portability call flow, when both are on and Service Portability is applicable, then ASD digits are used, if provisioned, in place of GRN digits. If ASD digits are not provisioned, then standard Service Portability processing is used. Wherever GRN appears in Table 2-5, provisioned ASD digits will be used if S-Port Subscriber Differentiation and Service Portability are ON.

Table 2-5   Recommended NPP Provisioning for "Routing Tags"

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

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 Service Action 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 Number Portability processing 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 Service Action and that Service Action depends upon the IAR NP feature. S-Port processing applies only when both S-Port feature and the IAR NP feature are ON. Although the S-Port feature may be ON, S-Port processing is ignored when the IAR NP feature status is OFF.

S-Port Subscriber Differentiation feature processing occurs only when the IAR NP feature is on, the Service Portability feature and option are on, the S-Port Subscriber Differentiation feature and option are on, and Service Portability is applicable.

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 2-6 describes the TATROPTS options.

Table 2-6   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	
	ANYMATCH	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	
	ANYMATCH	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	ALWAYS	Always check for the DEFCC value	

Table 2-6   (Cont.) TATROPTS Configuration Options

Parameter	Value	Description	Notes
STPOPTS DEFCC option.	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.	
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 Commands and *Commands User's Guide* for a description of the destination-based option for IAR and the EAGLE commands that are used to configure the option.

SCCP Options Configuration Option for S-Port Subscriber Differentiation

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

See [EAGLE Commands](#) and *Commands User's Guide* for a description of the SCCPOPTS SUBDFRN option and the EAGLE `chg/rtrv-sccpopts` commands that are used to configure the option.

EAGLE Commands

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

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

Table 2-7   Commands used for IAR-Related Features

Type	Commands
System Serial Number	ent/rtrv-serial-num
Card	ent/dlt/rtrv/alw/inh/init/rept-stat-card
Numbering Plan Processor (NPP)	ent/chg/dlt/rtrv-npp-as, ent/chg/dlt/rtrv-npp-srs, chg/rtrv-npp-serv
STP Options	chg/rtrv-stpopts
Feature Control	chg/rtrv-feat, enable/chg/rtrv-ctrl-feat
Service Selector	chg/dlt/ent/rtrv-srvsel
Common Screening List	chg/rtrv-csl
TATR Options	chg/rtrv-tatropts
SCCP Options	chg/rtrv-sccpopts
Destination Option	ent/chg/dlt/rtrv-dstn
Test Tool	chg/rtrv-tatr-msg, tst-msg

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

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

`chg/rtrv-stpopts`

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

`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/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.

`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.
- CCNC screening list - The conditioned **TCAP DN** in international format is compared to this list. 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.

`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.

`chg/rtrv-sccpopts`

The SCCP Options commands are used to provision SCCP options for the EAGLE. The SUBDFRN option is used to turn on and off the S-Port Subscriber Differentiation function.

`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.

`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.

3

ANSI41 AnalyzedInformation Query - no EPAP/ELAP Feature

This chapter describes the ANSI41 AnalyzedInformation Query - no EPAP/ELAP feature (ANSI41 AIQ). The **ANSI41 AIQ** feature allows an operator to migrate customers from one technology to another (such as **CDMA** to **LTE**).

Feature Description

When an operator is moving (migrating) customers from one technology to another technology (such as CDMA to LTE), the ANSI41 AnalyzedInformation Query - no EPAP/ELAP (ANSI41 AIQ) feature provides the ability to indicate which calls are destined for a particular technology.

- The Home MSC receives a call for its subscriber, and queries the HLR for call treatment instructions.

- Calls that are marked in the HLR will have a termination trigger provided to the Home MSC.

  - The HLR provides a termination trigger to the Home MSC.

  - The Home MSC sends an AnalyzedInformation Query to the EAGLE.

  - The EAGLE normally responds with an AnalyzedInformation Return Result message with routing information.

  - Based on the response, the Home MSC continues with the traditional call set-up procedure.

- If no termination trigger is provided, the Home MSC sends these calls directly to the newer technology.

ANSI41 AIQ is implemented as a local SCCP subsystem in the EAGLE. ANSI41 AIQ does not require connection to, or a Real Time Database (RTDB) from, an EPAP or ELAP. ANSI41 AIQ performs the following operations:

- Process TCAP_Query_with_Permission AnalyzedInformation queries routed to the ANSI41 AIQ feature.

- Respond with an AnalyzedInformation Return Result message, including the routing information in the "Routing Digits or Digits (Dialed)" parameter. Configuration options indicate which parameter to include and the format of the parameter in the response message.

AnalyzedInformation Message Flow

illustrates the EAGLE AnalyzedInformation message flow for the ANSI41 AIQ feature.

Figure 3-1   EAGLE AnalyzedInformation Message Flow
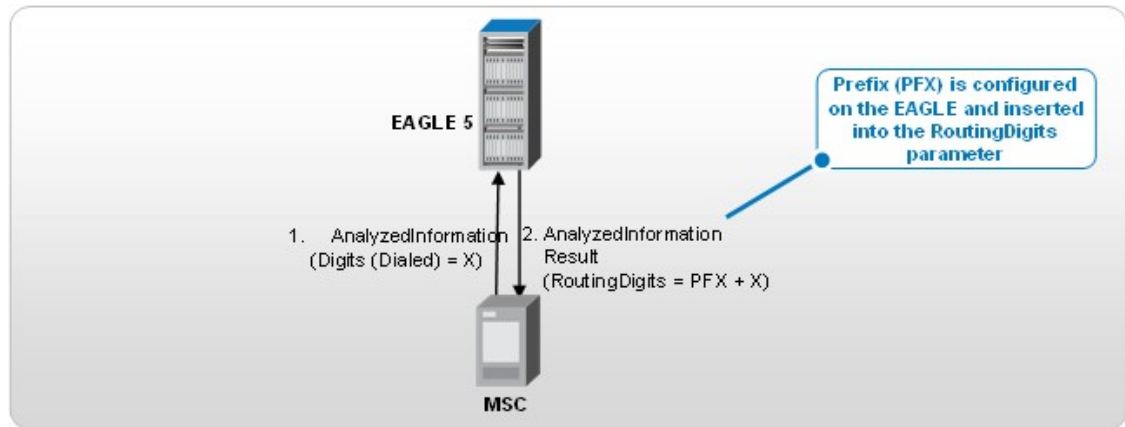
shows a more detailed message flow.

Figure 3-2   EAGLE AnalyzedInformation Message Flow Details
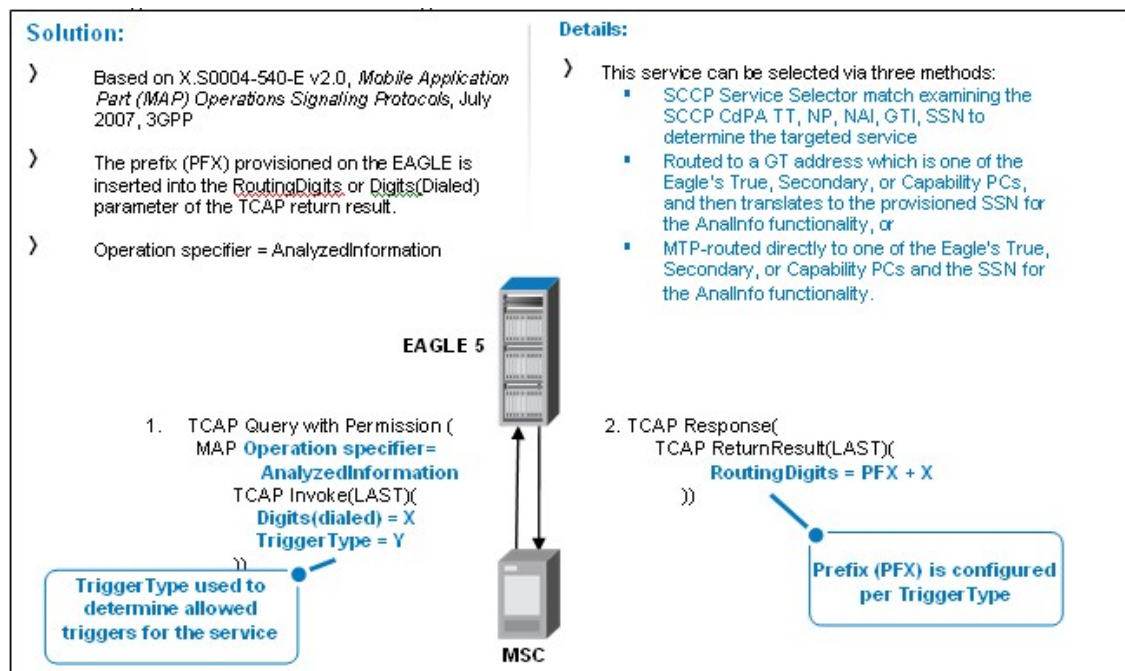
The AIQ Local Subsystem

The AIQ local subsystem receives an incoming MSU, decodes the required data, and generates a response MSU based on decoded information and desired response format.

The **AIQ** local subsystem in the EAGLE processes AnalyzedInformation Query messages (ANSI MTP/SCCP and ITU MTP/SCCP with ANSI TCAP). SCCP UDT and non-segmented XUDT, Class 0 or Class 1 messages are supported. Segmented messages (SCCP or TCAP) are not supported. TCAP must be Query with Permission with Invoke component, and the OpCode must be AnalyzedInformation. The EAGLE responds with an AnalyzedInformation

Return Result including provisioned routing information in the Routing Digits or Digits (Dialed) parameter.

Local subsystems in the EAGLE are maintainable entities for query and response that are used when the STP acts as an SCP. Every local SCCP subsystem includes generic SCCP subsystem capabilities. The following function descriptions provide information that is generic to every local subsystem, and indicate the information that is specific to the AIQ local subsystem:

- Common EAGLE provisioning

  Capability point codes (CPCs) can be defined for routing to local subsystems independently of the STP. For AIQ, the EAGLE supports ANSI, ITU-I, ITU-N, ITU-I Spare, and ITU-N Spare capability point code (CPC) types. ITU-N24 capability point codes are not supported. Capability point codes for the AIQ local subsystem can be configured only after the ANSI41 AIQ feature is enabled.

  The AIQ local subsystem must have a mate subsystem and a concerned point code group assigned to it in the MAP table.The ANSI41 AIQ feature must be enabled before the AIQ local subsystem entry can be entered in the MAP table. The AIQ local subsystem can be configured in only Dominant or Solitary loadsharing mode (end nodes do not perform loadsharing).

- Routing Indicator-based message handling

  Messages for the AIQ local subsystem can arrive Rt-on-SSN or Rt-on-GT. All MSUs must contain either the EAGLE true or **secondary point code** (TSPC), or the AIQ **capability point code** (CPC), in the DPC field of the message.

- Network Management

  The EAGLE must reply to network management queries about the current state of the local subsystem. The response to each query type is based on the status of the local subsystem.

Table 3-1   Network Management Response

Message	Action when Local Subsystem is Online	Action when Local Subsystem is Offline
RSP (CPC)	TFA	No reply
RSR (CPC) (not supported for ITU networks)	TFA	TFP
RSP (TSPC)	TFA	TFA
RSR (TSPC)	TFA	TFA
SST	SSA	No reply
SRT (ANSI only; for ITU, UIM 1058: `SCCP rcvd inv SCMG - bad msg type` is generated)	SNR	No reply

- Network Broadcast.

  When the local subsystem changes state, network management messages are sent to the CSPC group.

  – SNR/SBRs are sent in ANSI networks to the mate node.

  – SSP/SSAs are sent in ANSI and ITU networks to all nodes in the CSPC group.

- Controls and States

The AIQ local subsystem can be taken online and offline using the coordinated state change, or forced offline without using the coordinated state change, using the procedures in Provisioning the AIQ Local Subsystem.

When a command is entered to perform a coordinated state change, SCCP Management (SCMG) sends an SOR message to the mated subsystem and will start a T_{coord} timer (30 seconds). If SCMG receives an SOG message from the mated subsystem before the T_{coord} timer expires, SCMG broadcasts SSPs to the concerned point code group, sends SBR/SSP, and takes the subsystem offline. A UAM will be generated notifying that a particular local system is not available and indicating that the subsystem is PROHIBITED. If the SOG is not received before the T_{coord} timer expires, then the inhibit request is denied. A UIM will be generated indicating failure in inhibiting a particular local subsystem.

When a command is entered to take the subsystem offline without using a coordinated state change, the EAGLE just sends SBR/SSPs. A UAM will be generated notifying that a particular local subsystem is not available and indicating that the subsystem is PROHIBITED.

When a command is entered to take the local subsystem online (regardless of how the subsystem was taken offline), the EAGLE sends SNR/SSA. A UAM will be generated notifying that a particular local subsystem is available and indicating that the subsystem is ALLOWED.

When the EAGLE receives an SOR message from its mated subsystem, it will reply with an SOG message if both of the following conditions are met. If either of the conditions is not met, the EAGLE does not reply to the SOR message.

– The local subsystem is available.

– The total load on the local subsystem is less than 45% of its capacity.

* SCMG Functions on LIM Cards

Table 3-2 shows a summary of actions on the LIM cards when the cards are unable to deliver MSUs to Service Module cards.

> ⓘ **Note**
>
> For Rt-on GT cases, UDTS generation is qualified by two conditions in the incoming MSU: 1) CgPA RI = Rt-on-SSN and 2) message handling = Return message on Error.

* The condition of some Service Module cards being available but overloaded is considered to be a partial failure.

Table 3-2   LIM Card Processing When Service Module Card is Unavailable

Routing Indicator in Incoming Message	DPC	Full or Partial Failure	Local Subsystem Status	Message Handling (see Note)	Network Management
Rt-on-GT	CPC	Full	—	Generate UDTS	For ANSI - TFP concerning CPC For ITU - UPU and TFP concerning CPC
Rt-on-GT	TSPC	Full	—	Generate UDTS	UPU
Rt-on-SSN	CPC	Full	—	Generate UDTS	None
Rt-on-SSN	TSPC	Full	—	Generate UDTS	SSP concerning TSPC
Rt-on-GT	LSS CPC	Partial *	Online	Generate UDTS	None
Rt-on-GT	TSPC	Partial *	Online	Generate UDTS	None
Rt-on-SSN	LSS CPC	Partial *	Online	Generate UDTS	None
Rt-on-SSN	TSPC	Partial *	Online	Generate UDTS	None
Rt-on-GT	LSS CPC	Partial *	Offline	Generate UDTS	TFP concerning CPC
Rt-on-GT	TSPC	Partial *	Offline	Generate UDTS	None
Rt-on-SSN	LSS CPC	Partial *	Offline	Generate UDTS	None
Rt-on-SSN	TSPC	Partial *	Offline	Generate UDTS	SSP concerning TSPC
Rt-on-GT	Non-AIQ CPC	Partial *	—	Generate UDTS	None
Rt-on-SSN	Non-AIQ CPC	Partial *	—	Generate UDTS	None

- MSU decoding (MTP3/SCCP/TCAP decoding) and decode error handling

  Common MSU decoding aspects of local SCCP subsystems include decoding MTP3, SCCP, and TCAP portions. Individual local SCCP subsystems decode only the specific TCAP parameters as needed by the subsystem.

  For the AIQ local subsystem, the operation code, Digits (Dialed), and TriggerType in the TCAP Component of the incoming AnalyzedInformation message are decoded.

  If the ANSI41 AIQ feature is enabled and on, the incoming message is decoded to verify that the operation code is AnalyzedInformation and that valid TriggerType and Digits (Dialed) parameters are present.

– A Return Error response is generated if the operation code is not AnalyzedInformation. A UIM is generated.

– A Reject response is generated if one or more of the parameters are not present. A UIM is generated.

– A Return Error response for a TCAP Error or a Reject response is generated if one or more of the parameters are not valid. A UIM is generated.

– Some malformed messages shall not generate any response; a UIM can be generated.

If the ANSI41 AIQ feature is enabled but turned off when an AnalyzedInformation message is received, a TCAP Error response will be generated with error code "AnalyzedInformation not allowed". No UIM will be generated. If any message other than AnalyzedInformation is received, a UIM is generated and a reply MSU is sent.

Refer to *Unsolicited Alarm and Information Messages Reference* for descriptions of the UIMs that can be generated for local subsystems. AIQ Local Subsystem UIMs describes the UIMs that are used specifically for the AIQ subsystem.

• Response MSU Encoding (MTP3/SCCP/TCAP encoding)

The AnalyzedInformation operation success is reported with a TCAP RETURN RESULT (LAST) response.

If the ANSI41 AIQ feature is enabled and on, and the incoming AnalyzedInformation message contains valid TriggerType and Digits (Dialed) parameters, an AnalyzedInformation Return Result message is generated. The AIQOPTS RESFMT and RESPAR configuration options indicate whether to include RoutingDigits or Digits (Dialed) parameters in the response, and the format of the included parameters.

• AIQ-specific Response Encoding Errors

A UIM is generated to indicate truncation of a parameter in the response message when formatting resulted in too many digits in the parameter. The response message is sent with digits truncated to the maximum allowed number.

A UIM is generated when the CdPA or CgPA cannot be encoded in the response.

ANSI41 AIQ Feature Configuration Options

The AIQOPTS table contains configuration option values for the ANSI41 AIQ feature. The AIQOPTS option data is loaded to the LIM cards. The configuration option values influence number conditioning and response message formatting and generation.

AIQOPTS options can be provisioned after the ANSI41 AIQ feature is enabled and before the feature is turned on.

Table 3-3 describes the AIQOPTS options.

Table 3-3   AIQOPTS Configuration Options

Parameter	Value	Description
DIGMAXLEN - Digits (Dialed) Parameter Maximum Digit Length	1-32	Maximum length of the digit string that will be considered valid in the Digits (Dialed) parameter of an AnalyzedInformation query.
		The specified value must be equal to or greater than the specified minimum length of the digit string (DIGMINLEN).
		Digit strings with a number of characters equal to or greater than the specified minimum length and equal to or less than the specified maximum length are considered to be valid during MSU processing.
		A digit string with more than the specified maximum number of characters generates an error response and a UIM.
		If the same value is specified for the minimum and maximum digit string length, only digit strings of that exact length are considered to be valid during MSU processing.
		System Default = 32.
DIGMINLEN - Digits (Dialed) Parameter Minimum Digit Length	1-32	Minimum length of the digit string that will be considered valid in the Digits (Dialed) parameter of an AnalyzedInformation query.
		The specified value must be equal to or less than the specified maximum length of the digit string (DIGMAXLEN).
		Digit strings with a number of characters equal to or greater than the specified minimum length and equal to or less than the specified maximum length are considered to be valid during MSU processing.
		A digit string with less than the specified minimum number of characters or with no digits generates an error response and a UIM.
		System Default = 1.

Table 3-3   (Cont.) AIQOPTS Configuration Options

Parameter	Value	Description
PFX - Digit string associated with a TRIGTYPE parameter value	1-21 hexadecimal digits, NONE	Mandatory when a TRIGTYPE parameter value is specified. The value NONE indicates that the corresponding TRIGTYPE value is not provisioned. The corresponding TRIGTYPE value will not be displayed in the `rtrv-aiqopts` command output.
RESFMT - Response Format	PFX	Specifies that the provisioned PFX parameter value that corresponds to the TRIGTYPE value (the Trigger Type value received in the AnalyzedInformation query) will be encoded in the AnalyzedInformation Return Result message.
	PFXDN	Specifies that the provisioned PFX parameter value + the incoming Digits (Dialed) will be encoded in the AnaluzedInformation Return Result message. This is the System Default.
RESPAR - Response Parameter	RTDIGITS	Specifies that the RoutingDigits parameter will be used when encoding the AnalyzedInformation Return Result message. This is the System Default.
	DIGITS	Specifies that the Digits (Dialed) parameter will be used when encoding the AnalyzedInformation Return Result message.
TCAPERR - TCAP error code to be returned in the Return Error response message	129-255 See Table 3-4.	The specified TCAP error code is used in the Return Error response when: • The TRIGTYPE parameter is not provisioned for the Trigger Type value received in the incoming AnalyzedInformation query. • The length of the Digits (Dialed) parameter is not within the provisioned range of minimum and maximum length (DIGMINLEN and DIGMAXLEN) The System Default is 138.

Table 3-3   (Cont.) AIQOPTS Configuration Options

Parameter	Value	Description
TRIGTYPE - Trigger Type	0-255 See Table 3-5.	An individual trigger. Each TRIGTYPE value is associated with a PFX digit string. The TRIGTYPE parameter must be specified when the PFX parameter is specified. A maximum of 20 TRIGTYPE-PFX pairs can be defined.

Table 3-4 lists the Corresponding Error Strings for the TCAP Error Codes that can be specified using the TCAPERR option.

Table 3-4   TCAP Error Codes and Corresponding Error Strings

TCAP Error Code	Error String
129	UnrecognizedMIN
130	UnrecognizedESN
131	MIN/HLRMismatch
132	OperationSequenceProblem
133	ResourceShortage
134	OperationNotSupported
135	TrunkUnavailable
136	ParameterError
137	SystemFailure
138	UnrecognizedParameterValue
139	FeatureInactive
140	MissingParameter
141-239	Reserved
240-255	Reserved for Protocol Extension

Table 3-5 lists supported Trigger Type (TRIGTYPE) values and their meanings.

Table 3-5   Trigger Type (TRIGTYPE) Values and their Meanings

Trigger Type Value	Meaning
0	Unspecified.
1	All_Calls.
2	Double_Introducing_Star.
3	Single_Introducing_Star.
4	Reserved [for Home_System_Feature_Code]
5	Double_Introducing_Pound.
6	Single_Introducing_Pound.
7	Revertive_Call.
8	0_Digit.

Table 3-5   (Cont.) Trigger Type (TRIGTYPE) Values and their Meanings

Trigger Type Value	Meaning
9	1_Digit.
10	2_Digit.
11	3_Digit.
12	4_Digit.
13	5_Digit.
14	6_Digit.
15	7_Digit.
16	8_Digit.
17	9_Digit.
18	10_Digit.
19	11_Digit.
20	12_Digit.
21	13_Digit
22	14_Digit.
23	15_Digit.
24	Local_Call.
25	Local_Toll_Call.
26	Non-Local_Toll_Call.
27	World_Zone_Call.
28	International_Call.
29	Unrecognized_Number.
30	Prior_Agreement.
31	Specific_Called_Party_Digit_String.
32	Mobile_Termination.
33	Advanced_Termination.
34	Location.
35-63	Reserved. Treat a reserved value the same as value 0, Unspecified.
64	Terminating_Resource_Available.
65	T_Busy.
66	T_No_Answer.
67	T_No_Page_Response.
68	T_Unroutable.
69-219	Reserved. Treat a reserved value the same as value 0, Unspecified.
220	Reserved for TDP-R DP value.
221	Reserved for TDP-N DP value.
222	Reserved for EDP-R DP value.
223	Reserved for EDP-N DP value.
224-255	Reserved for TIA-41 protocol extension. If unknown, treat the same as value 0, Unspecified.

EAGLE Commands

Table 3-6 lists the EAGLE commands that are used for configuration for the ANSI41 AnalyzedInformation (ANSI41 AIQ) feature.

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

Table 3-6   EAGLE Commands used for the ANSI41 AIQ Feature

Type	Commands
Feature Control	The `chg/rtrv-feat` commands are used to turn on and display the on/off status of features that are controlled with feature bits.
	The `enable/chg/rtrv-ctrl-feat` commands are used to enable, turn on, and display the status of controlled features that are controlled by feature access keys.
	See Enabling the ANSI41 AIQ Feature and Turning On the ANSI41 AIQ Feature.
Subsystem Application	The `ent/chg/dlt/rtrv-ss-appl` commands are used to define or delete the local subsystem application, and to change and display the local subsystem application status in the database. See Provisioning the AIQ Local Subsystem.
Service Selector	The `chg/rtrv-srvsel` commands are used to provision and display service selector information for the service that is used by a feature. See Provisioning the AIQ Service Selector.
ANSI41 AIQ Options	The `chg/rtrv-aiqopts` commands are used to provision the configuration options that control processing for incoming messages and formatting of response messages. See ANSI41 AIQ Feature Configuration Options.
Local Subsystem Activation	The `alw/inh-map-ss` commands are used to allow and inhibit the operation of a mated application local subsystem. See Activating the AIQ Local Subsystem.

4
Feature Configuration

This chapter provides procedures for configuring the IAR-related features for use in the EAGLE. Procedures are included for configuration of the Service Portability feature and the S-Port Subscriber Differentiation feature for use with the IAR NP feature.

This chapter also provides procedures for configuring the ANSI41 AIQ feature.

Introduction

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

- IAR-related features (IAR Base, IAR NP, IAR ASD, IAR GRN)
- The Service Portability feature and the S-Port Subscriber Differentiation feature for use with the IAR NP feature
- The ANSI41 AIQ 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 you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in are required in the system.

Table 4-1   System Prerequisites

Prerequisite	Verification and Provisioning
The system serial number must be correct and locked. 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.	**Note**: The serial number cannot be changed after it is entered and locked in the system. Locate the serial number for the system on a label affixed to the control shelf (1100). Enter the `rtrv-serial-num` command to display the serial number and its locked status.
For systems that are being upgraded, the serial number is usually already verified and locked.	Verify that the displayed serial number is correct for the system. If no serial number is displayed, enter the `ent-serial-num` command (without the lock parameter) to provision the serial number that appears on the control shelf label. Enter the `rtrv-serial-num` command and verify that the serial number was entered correctly. Enter the `ent-serial-num` command with the `lock=yes` parameter to lock the serial number in the system.
A sufficient number of Service Module cards must be equipped.	Enter the `rept-stat-card:appl=vsccp` command to list the Service Module cards in the system. If more cards or cards of a different type are needed, refer to the procedures in *Database Administration - GTT User's Guide* to add or remove Service Module cards.
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.	Enter the `rtrv-feat` command to display the GTT feature status. If the GTT feature is on, the gtt=on entry appears in the output. If the `gtt=off` entry appears in the output, use the procedures in *Database Administration - GTT User's Guide* to turn on and provision the GTT feature and any other GTT-related features and functions that will be used in the system.

IAR-Related Features Configuration

The IAR-related features are configured on the EAGLE. This section describes prerequisites and procedures for the configuration of IAR-related features. This section also describes or provides references for configuration of the following features:

- Configuration of the Service Portability feature and the S-Port Subscriber Differentiation feature for use with the IAR NP feature

- Configuration of the Gateway Screening (GWS) feature and the MTP Routed GWS Stop Action feature to filter MTP-routed UDT, UDTS, XUDT, and XUDTS 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 features, 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 you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

IAR-Related Feature Prerequisites

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

Table 4-2   IAR-Related Feature Prerequisites

Prerequisite	Verification and Provisioning
The ANSIGFLEX system option cannot be set to Yes.	Enter the `rtrv-stpopts` 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 `rtrv-ctrl-feat` 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.
If the MTP Routing GWS Stop Action feature will be used to select UDT, UDTS, XDT, and XDTS MTP-routed messages for IAR processing: • 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 as the last Stop Action in the Action Set. • The Gateway Screening `gwsa` linkset option must be turned on for each linkset that will be screened using the SCCP Stop Action. The `gwsd` and `gwsm` options are not required, but can be used if desired.	Refer to the procedures in *Database Administration - GWS User's Guide.*

Configuration Procedure for IAR-Related Features

The EAGLE 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. 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 *Commands User's Guide* to change and display the STPOPTS DEFCC value.

4. 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.

5. Provision NPP for use with IAR features. See Provisioning NPP for IAR-Related features.

   • Provision NPP Action Sets and Service Rule Sets

   • Provision NAI mapping values for IAR services

   • Set the NPP service status to ON for each IAR service

6. Enable the Service Portability feature, if it will be used with the IAR Base feature. See Enabling the Service Portability Feature.

7. Enable the S-Port Subscriber Differentiation feature if it will be used with the Service Portability feature. See Enabling the S-Port Subscriber Differentiation Feature.

8. Provision the service selector for IAR features (`ttr`). See Provisioning the TTR Service Selector.

9. Provision the required Common Screening List (CSL) entries. See Provisioning the Common Screening List for IAR Base.

10. Provision TATROPTS options for IAR-related features, and for Service Portability if it will be used with IAR NP. See Provisioning the TATR Options.

11. Turn on the Service Portability feature if it will be used with the IAR NP feature. See Turning On the Service Portability Feature.

12. Turn on the S-Port Subscriber Differentiation feature if it will be used with the Service Portability feature. See Turning On the S-Port Subscriber Differentiation Feature.

13. Provision the SCCPOPTS SUBDFRN option if S-Port Subscriber Differentiation will be used with Service Portability for IAR NP. See Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option.

14. Provision IAR test messages for use with the Test Tool. See TATR Test Tool.

15. With the IAR Base feature enabled but not turned on, turn on any other enabled IAR-related features. See Turning On IAR-Related Features.

16. Use the Test Tool to verify the IAR provisioning. See TATR Test Tool.

17. Turn on the IAR Base feature. See Turning On IAR-Related Features.

18. If IAR features will process MTP-routed AnalyzedInformation messages, provision one of the following methods to forward MTP-routed messages to Service Module cards:

   • 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 *Database Administration - SS7 User's Guide* 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 only 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.

19. Configure measurements collection and reporting if measurements are to be collected for IAR-related features.

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

Enabling IAR-Related Features

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

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

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 controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 41.1.0
The following features have been permanently enabled:
```

```
     Feature Name               Partnum    Status  Quantity
     HC-MIM SLK Capacity        893012707  on            64
   ;
```

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

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 2.

- If the IAR Base feature is not enabled, go to Enabling IAR-Related Features to enable the IAR Base feature. Then continue with 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
```

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

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

GTII  TT   NP      NAI   SSN  SNP   SNAI   SERV

4     1    e164    intl  3    ---   ---    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
;
```

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 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.

1. 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 2.

- If the IAR Base feature is enabled, continue with 2.

2. Display the current Common Screening List settings, using the `rtrv-csl` command.

3. Enter one or more digit string values for each list, by entering the `ent-csl` command.

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

```
ent-csl:feature="Info Analyzed Relay Base":list=ccnc:ds=<1-6 hex digits>
ent-csl:feature="Info Analyzed Relay Base":list=gt:ds=<1-15 hex digits>
ent-csl:pn=893034201: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 2.

   - If the required features are enabled, continue with 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 the `chg-tatropts` command description in *Commands User's Guide* for valid parameter values, input examples, and rules for entering the command correctly.

4. Verify the changes, by entering the `rtrv-tatropts` 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 IAR-Related features

Refer to *Numbering Plan Processor (NPP) User's Guide* and *Commands User's Guide*, 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:srvn=<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.

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. 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 controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
rlghncxa03w 09-05-29 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 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
    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.

The MTP Msgs for SCCP Apps feature must be enabled using feature part number 893017401 and a feature access key.

The GTT feature must be turned on before the MTP Msgs for SCCP Apps feature can be enabled.

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

When the 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 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 controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

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

   If the 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>`
   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, the feature must be enabled and off in the EAGLE.

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

MSUs are processed by the feature only when the feature is turned on in the system.

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

```
    rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 41.1.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on           64
    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 `on`, performing this procedure is not necessary.

If the status of the MTP Routed Msgs for SCCP Apps feature in the output is `off`, continue with 2

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

`chg-ctrl-feat:partnum=893017401: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
    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 off, the feature must be enabled and turned on in the EAGLE.

This procedure is used to turn off the MTP Routed Msgs for SCCP Apps feature in the EAGLE, 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 controlled features that are controlled with Feature Access Keys (FAKs). Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

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

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

   `chg-ctrl-feat:partnum=893017401: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 `tst-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 `tst-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 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 4-3   TATR Test Message Table Fields

Field	Description
MSGN	{1..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, 1, 2, 3 .. 15} Specifies the CdPA GTI for the message.
CDPAGTNAI	{0, 1, 2, 3, 4, 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, 1, 2, 3, .., 15} Specifies the CgPA GTI for the message.
CGPAGTNAI	{0, 1, 2, 3, 4, 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	{0,1,2,3,.., 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	{0,1,2,3,.., 255} Specifies the CgPN NAI for the message.

Table 4-3   (Cont.) TATR Test Message Table Fields

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>37</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 `ent-csl` command description in the *Commands User's Guide* 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 User's Guide* 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 (S-Port) feature.

Enabling the Service Portability Feature

If Service Portability can be applied to the messages processed by a feature described in this guide, use this procedure to enable the Service Portability feature in the EAGLE.

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

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

When the S-Port feature is enabled, it is permanently enabled. The S-Port feature cannot be temporarily enabled. After the S-Port feature is enabled and turned on, the S-Port feature can be turned off again.

Provisioning of S-Port options can be done after the feature is enabled and before the feature is turned on.

After the S-Port feature has been enabled and database provisioning is complete, the S-Port feature status must be set to on (the feature must be "turned on") before S-Port processing will occur.

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

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

If the Service Portability entry appears in the `rtrv-ctrl-feat` output, performing this procedure is not necessary.

2. Enable the S-Port feature, by entering the `enable-ctrl-feat` command.

   `enable-ctrl-feat:partnum=893034301:fak=<feature access key>`
   When the feature is enabled, the Service Portability entry appears in the output of the `rtrv-ctrl-feat` command.

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

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

   `chg-db:action=backup:dest=fixed`
   The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Turning On the Service Portability Feature

This procedure is used to turn on the Service Portability feature in the EAGLE, using the feature part number 893034301.

Before the Service Portability (S-Port) feature can be turned on, the feature must be enabled in the EAGLE.

Provisioning of S-Port options can be done after the feature is enabled and before the feature is turned on.

After the S-Port feature has been enabled and database provisioning is complete, the Service Portability feature status must be set to on (the feature must be "turned on"). MSUs will not be processed by the Service Portability feature until the feature is turned on.

After the Service Portability feature is enabled and turned on, it can be turned off again. Service Portability processing can occur only when the Service Portability feature is on and a feature that uses S-Port is on.

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

   - If the entry for the Service Portability feature appears in the `rtrv-ctrl-feat` output with status `on`, performing this procedure is not necessary.

   - If the status of the Service Portability feature in the output is off, continue with 2.

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

   `chg-ctrl-feat:partnum=893034301:status=on`
   When the feature is turned on, the feature status changes to `on` in the `rtrv-ctrl-feat` command output.

   ```
       rlghncxa03w 09-08-29 16:40:40 EST  EAGLE5 41.1.0
       The following features have been permanently enabled:
       Feature Name              Partnum    Status  Quantity
       HC-MIM SLK Capacity       893012707  on            64
       ATINP                     893022101  on          ----
       Service Portability       893034301  on          ----
   ;
   ```

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

   `chg-db:action=backup:dest=fixed`
   The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Turning Off the Service Portability Feature

Before the Service Portability (S-Port) feature can be turned on and off, the feature must be enabled in the EAGLE.

This procedure is used to turn off the Service Portability feature, using its feature part number 8930343001.

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

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

```
    rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 41.1.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    TIF Number Portability    893018901  on          ----
    Service Portability       893034301  on          ----
;
```

If the entry for the Service Portability feature appears in the `rtrv-ctrl-feat` output with status `off`, performing this procedure is not necessary.

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

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

`chg-ctrl-feat:partnum=<893034301>:status=off`
When the feature is turned off, the feature status changes to `off` in the `rtrv-ctrl-feat` command output.

```
    rlghncxa03w 09-05-29 16:40:40 EST  EAGLE5 41.1.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    TIF Number Portability    893018901  on          ----
    Service Portability       893034301  off         ----
;
```

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

`chg-db:action=backup:dest=fixed`
The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

S-Port Subscriber Differentiation Feature Configuration Procedures

The procedures in this section are used for configuration of the S-Port Subscriber Differentiation feature.

Enabling the S-Port Subscriber Differentiation Feature

If S-Port Subscriber Differentiation will be used with Service Portability for the messages processed by a feature described in this manual, use this procedure to enable the S-Port Subscriber Differentiation feature in the EAGLE.

The S-Port Subscriber Differentiation feature must be enabled using the feature part number 893037901 and a feature access key.

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

When the S-Port Subscriber Differentiation feature is enabled, it is permanently enabled. The S-Port Subscriber Differentiation feature cannot be temporarily enabled.

After the S-Port Subscriber Differentiation feature has been enabled, the S-Port Subscriber Differentiation feature status must be set to `on`. See [Turning On the S-Port Subscriber Differentiation Feature](#). The S-Port Subscriber Differentiation feature cannot be turned off after the feature is turned on.

Provisioning of the S-Port Subscriber Differentiation SCCPOPTS configuration option can be done only after the feature is enabled and turned on. See [Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option](#).

Before S-Port Subscriber Differentiation processing of MSUs can occur, the Service Portability feature, the S-Port Subscriber Differentiation feature, the S-Port Subscriber Differentiation option, and a feature that uses Service Portability must be on.

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

   ```
   rlghncxa03w 10-06-29 16:40:40 EST  EAGLE5 42.0.0
   The following features have been permanently enabled:
   Feature Name              Partnum    Status  Quantity
   HC-MIM SLK Capacity       893012707  on            64
   Service Portability       893034301  off         ----
   ;
   ```

   If the `S-Port Sub Dfrntiation` entry appears in the `rtrv-ctrl-feat` output, performing this procedure is not necessary.

2. Enable the S-Port Subscriber Differentiation feature, by entering the `enable-ctrl-feat` command.

   `enable-ctrl-feat:partnum=893037901:fak=<feature access key>`
   When the feature is enabled, the `S-Port Sub Dfrntiation` entry appears in the output of the `rtrv-ctrl-feat` command.

   ```
       rlghncxa03w 10-06-29 16:40:40 EST  EAGLE5 42.0.0
       The following features have been permanently enabled:
       Feature Name              Partnum    Status  Quantity
       HC-MIM SLK Capacity       893012707  on            64
       Service Portability       893034301  off         ----
       S-Port Sub Dfrntiation    893037901  off         ----
    ;
   ```

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

   `chg-db:action=backup:dest=fixed`
   The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Turning On the S-Port Subscriber Differentiation Feature

This procedure is used to turn on the S-Port Subscriber Differentiation feature in the EAGLE, using the feature part number 893037901.

Before the S-Port Subscriber Differentiation feature can be turned on, the feature must be enabled in the EAGLE.

After the S-Port Subscriber Differentiation feature has been enabled, the S-Port Subscriber Differentiation feature status must be set to on (the feature must be "turned on"). After the S-Port Subscriber Differentiation feature is enabled and turned on, it cannot be turned off again.

Provisioning of the S-Port Subscriber Differentiation option can be done only after the feature is enabled and turned on. The S-Port Differentiation option can be turned on and off.

MSUs will not be processed by the S-Port Subscriber Differentiation feature until the feature and the option are turned on. S-Port Subscriber Differentiation processing can occur only when the Service Portability feature, the S-Port Subscriber Differentiation feature, the S-Port Differentiation option, and a feature that uses Service Portability are all on.

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

   ```
   rlghncxa03w 10-06-29 16:40:40 EST  EAGLE5 42.0.0
       The following features have been permanently enabled:
       Feature Name              Partnum    Status  Quantity
       HC-MIM SLK Capacity       893012707  on            64
       Info Analyzed Relay Base  893034201  off         ----
       Service Portability       893034301  off         ----
   ```

```
    S-Port Sub Dfrntiation   893037901  off           ----
;
```

If the `S-Port Sub Dfrntiation` entry appears in the `rtrv-ctrl-feat` output with Status of `on`, performing this procedure is not necessary.

If the status of the S-Port Subscriber Differentiation feature in the output is `off`, continue with 2.

2. Turn on the S-Port Subscriber Differentiation feature, by entering the `chg-ctrl-feat` command.

   `chg-ctrl-feat:partnum=893037901:status=on`
   When the feature is turned on, the feature status changes to `on` in the `rtrv-ctrl-feat` command output.

```
    rlghncxa03w 10-08-29 16:40:40 EST  EAGLE5 42.0.0
    The following features have been permanently enabled:
    Feature Name             Partnum    Status  Quantity
    HC-MIM SLK Capacity      893012707  on            64
    Info Analyzed Relay Base 893034201  off         ----
    Service Portability      893034301  off          ----
    S-Port Sub Dfrntiation   893037901  on           ----
;
```

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

   `chg-db:action=backup:dest=fixed`
   The following messages appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Provisioning the S-Port Subscriber Differentiation SCCPOPTS Option

This procedure is used to provision the SCCPOPTS configuration option for the S-Port Subscriber Differentiation feature.

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

1. Verify that the S-Port Subscriber Differentiation feature is enabled and on, by entering the `rtrv-ctrl-feat` command.

```
    rlghncxa03w 10-06-29 16:40:40 EST  EAGLE5 42.0.0
    The following features have been permanently enabled:
    Feature Name             Partnum    Status  Quantity
    HC-MIM SLK Capacity      893012707  on            64
    Info Analyzed Relay Base 893034201  off         ----
    Service Portability      893034301  off         ----
    S-Port Sub Dfrntiation   893037901  on          ----
;
```

- If the S-Port Sub Dfrntiation feature is enabled and turned on, continue with 2.

- If the S-Port Sub Dfrntiation entry does not appear in the output, go to Enabling the S-Port Subscriber Differentiation Feature and Turning On the S-Port Subscriber Differentiation Feature to enable and turn on the feature. Then continue with 2.

- If the feature is enabled but not turned on (the entry shows Status `off`), go to Turning On the S-Port Subscriber Differentiation Feature to turn on the feature. Then continue with 2.

2. Display the current settings of the SCCPOPTS options, using the `rtrv-sccpopts` command.

3. Change the SCCPOPTS SUBDFRN option to the required setting (`on` or `off`), by entering the `chg-sccpopts` command with the `subdfrn` option parameter specified.

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

4. Verify the changes, by entering the `rtrv-sccpopts` 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.
```

ANSI41 AIQ Configuration

The ANSI41 AIQ feature is configured on the EAGLE. This section describes prerequisites and procedures for the configuration of the ANSI41 AIQ feature.

ANSI41 AIQ Configuration Procedure lists the steps for enabling and turning on the ANSI41 AIQ 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.

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

ANSI41 AIQ Feature Prerequisites

Before the ANSI41 AIQ feature can be enabled, the following prerequisite is required in the system:

Table 4-4   ANSI41 AIQ Feature Prerequisite

Prerequisite	Verification and Provisioning
The LNP feature cannot be on in the system.	Enter the `rtrv-ctrl-feat` command. If the LNP feature is on, shown with a quantity greater than zero for the `LNP ported TNs` entry in the command output, the ANSI41 AIQ feature cannot be enabled.

ANSI41 AIQ Configuration Procedure

The EAGLE configuration of the ANSI41 AnalyzedInformation Query - no EPAP/ELAP (ANSI41 AIQ) 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 ANSI41 AIQ Feature Prerequisites.

3. Enable the ANSI41 AIQ feature. See Enabling the ANSI41 AIQ Feature.

4. Refer to the procedures in the *Database Administration - SS7 User's Guide* to change the self identification of the EAGLE node to include true point codes and ANSI41 AIQ capability point codes.

5. Refer to the procedures in the *Database Administration - GTT User's Guide* to provision the following items:

   • Translation types and mappings

   • Mated Application (MAP) table entries for the ANSI41 AIQ feature that contain the EAGLE true point codes, the ANSI41 AIQ capability point codes, and the ANSI41 AIQ subsystem number. Only solitary and dominant loadsharing are supported.

   The AIQ local subsystem can have a mate subsystem and a concerned point code group assigned to it in the MAP table.

   If multiple point code types for ANSI41 AIQ are provisioned in the MAP table, then the point code type for the Subsystem Out-of-Service Request message (SOR) is determined using the following order:

   • ANSI

   • ITU-N

   • ITU-N Spare

   • ITU-I

   • ITU-I Spare

6. Provision the state and subsystem number for the AIQ local subsystem application. See Provisioning the AIQ Local Subsystem.

7. Provision the service selector for the ANSI41 AIQ feature (`aiq`). See Provisioning the AIQ Service Selector.

8. Provision ANSI41 AIQ (AIQOPTS) options. See Provisioning the ANSI41 AIQ Options.

- Minimum and maximum length for Digits (Dialed), Trigger Type Prefix or Prefix and Incoming Digits (Dialed) response format, and RoutingDigits or Digits (Dialed) Return Result parameter.
- Trigger Type and Prefix pairs
- TCAP Error Code

9. Turn on the ANSI41 AIQ feature. See <u>Turning On the ANSI41 AIQ Feature</u>.

10. Activate the AIQ local subsystem. See <u>Activating the AIQ Local Subsystem</u>.

Enabling the ANSI41 AIQ Feature

This procedure is used to enable the ANSI41 AIQ feature in the EAGLE.

- The ANSI41 AIQ feature must be enabled using the ANSI41 AIQ feature part number 893034901 and a feature access key.

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

When the ANSI41 AIQ feature is enabled, it is permanently enabled. The ANSI41 AIQ feature cannot be temporarily enabled.

Provisioning of ANSI41 AIQ options and other information can be done after the feature is enabled and before the feature is turned on.

- After the ANSI41 AIQ feature has been enabled and database provisioning is complete, the ANSI41 AIQ feature status must be set to on (the feature must be "turned on") to begin operation in the system. See <u>Turning On the ANSI41 AIQ Feature</u>.

After the ANSI41 AIQ feature is enabled and turned on, the ANSI41 AIQ feature can be turned off again.

1. Enable the ANSI41 AIQ feature, by entering the `enable-ctrl-feat` command.

`enable-ctrl-feat:partnum=893034901:fak=<feature access key>`

2. Verify that the ANSI41 AIQ feature is enabled. Enter the `rtrv-ctrl-feat` command.

When the feature is enabled, the ANSI41 AIQ entry appears in the output of the `rtrv-ctrl-feat` command.

```
    rlghncxa03w 08-08-29 16:40:40 EST  EAGLE5 42.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    ANSI41 AIQ                893034901  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 AIQ Local Subsystem

The following procedures in this section are used to add or remove a local subsystem application:

- Adding the AIQ Local Subsystem Application

- Removing a Local Subsystem Application

See the procedures in Changing the State of a Subsystem Application to take the subsystem application online or offline.

Adding the AIQ Local Subsystem Application

This procedure is used to define the AIQ subsystem application. The subsystem application can be taken online when it is defined or later in the configuration process (see Changing the State of a Subsystem Application).

Before the AIQ subsystem application can be added to the database, the following conditions must exist in the system:

Table 4-5   AIQ Local Subsystem Prerequisites

Prerequisite	Verification
The ANSI41 AIQ feature must be enabled and turned on	Enter the `rtrv-ctrl-feat` command.
	If the ANSI41 AIQ entry with Status of `on` does not appear in the output, see the Enabling the ANSI41 AIQ Feature and Turning On the ANSI41 AIQ Feature procedures.
The application specified by the `appl` parameter (`aiq`) cannot already be in the database.	Enter the `rtrv-ss-appl` command.
	If the AIQ entry appears in the output, this procedure cannot be performed.
EAGLE true point codes and AIQ capability point codes must be defined, and entered in the Mated Application table with a subsystem number to be used for the AIQ subsystem application.	Only one subsystem number for the application can be defined, and must be used for all point code types assigned to the local subsystem.
	Enter the `rtrv-sid` command, and verify that the true and capability point codes needed for the feature are correct. If changes are required, refer to the procedures in the *Database Administration - SS7 User's Guide*.
	Enter the `rtrv-map` command, and verify that the MAP table entries are correct for the AIQ local subsystem. If changes are required, refer to the procedures in the *Database Administration – GTT User's Guide* for provisioning solitary and dominant mated applications.

The examples in this procedure reserve the subsystem number 100 for the AIQ subsystem application and set the AIQ subsystem application status to online.

1. Add the AIQ application and subsystem number, using the `ent-ss-appl` command.

   If the `stat` parameter is not specified, the status defaults to offline.

   ```
   ent-ss-appl:appl=aiq:ssn=100:stat=online
   ```

2. Verify the changes, by entering the `rtrv-ss-appl` command.

   ```
       tekelecstp 10-04-25 08:02:22 EST  EAGLE 42.0.0
       APPL   SSN  STAT
       AIQ    100   online

       SS-APPL TABLE IS 25% FULL (1 OF 4)
   ;
   ```

3. 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 Local Subsystem Application

This procedure is used to remove a subsystem application from the database. The subsystem application to be removed must be in the database and the subsystem must be out of service.

1. Display the subsystem application number for the local subsystem application in the database, by entering the `rtrv-ss-appl` command.

2. Display the operating status of the local subsystem, by entering the `rept-stat-sccp` command.

   If the subsystem is out of service , shown by an entry containing OOS-MT-DSBLD for the subsystem in the `rept-stat-sccp` output, go to 5.

3. Place the local subsystem application out of service. Enter the `inh-map-ss` command and specify the subsystem number displayed in 1.

   ```
   inh-map-ss:ssn=11
   ```

   ```
   rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0
   Inhibit map subsystem command sent to all SCCP cards.
   Command Completed.
   ```

   When this command has successfully completed, the following message appears. If the `force=yes` parameter is not specified, wait for a message that indicates the subsystem is inhibited.

   ```
   rlghncxa03w 08-06-28 14:42:38 GMT EAGLE 39.2.0
   Inhibit map subsystem command sent to all SCCP cards.
   Command Completed.
   ```

4. Verify that the local subsystem is out of service (OOS-MT-DSBLD), by entering the `rept-stat-sccp` command. If the local subsystem is not out of service, return to 3 and enter the `inh-map-ss` command with the `force=yes` parameter specified.

5. Remove the local subsystem application from the database, by entering the `dlt-ss-appl` command.

   ```
   dlt-ss-appl:appl=<subsystem>
   ```

6. Verify the changes by entering the `rtrv-ss-appl` command. The deleted entry should not appear in the output.

   ```
   tekelecstp 08-07-25 08:02:22 EST  EAGLE 39.2.0
   APPL   SSN  STAT

   SS-APPL TABLE IS 0% FULL (0 OF 4)
   ;
   ```

7. 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 AIQ 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 ANSI41 AIQ.

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

Adding an AIQ Service Selector

This procedure is used to add a service selector for the ANSI41 AIQ feature.

The ANSI41 AIQ feature must be enabled before an AIQ service selector can be added.

1. Verify that the ANSI41 AIQ feature is enabled, by entering the `rtrv-ctrl-feat` command.

   If the ANSI41 AIQ feature is enabled, the `ANSI41 AIQ` entry appears in the 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
   ANSI41 AIQ                893034901  off           ----
   ;
   ```

   - If the ANSI41 AIQ feature is enabled, continue with 2.

   - If the ANSI41 AIQ feature is not enabled (does not appear in the output), go to Enabling the ANSI41 AIQ Feature to enable the feature. Then continue with 2.

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

```
rlghncxa03w 08-06-28 14:42:38 GMT  EAGLE 41.1.0

GTII  TT  NP       NAI   SSN  SNP   SNAI   SERV

4     1   e164     intl  3    ---   ---    aiq
4     2   e164     intl  *    ---   ---    aiq


GTIN  TT  NP       NAI   SSN  SNP   SNAI   SERV

4     4   e164     natl  4    ---   ---    aiq


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

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

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

`ent-srvsel:serv=aiq:tt=57:ssn=75:gtin=2`

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

```
rlghncxa03w 08-06-28 14:42:38 GMT  EAGLE 41.1.0

GTII  TT  NP       NAI   SSN  SNP   SNAI   SERV

4     1   e164     intl  3    ---   ---    aiq
4     2   e164     intl  *    ---   ---    aiq


GTIN  TT  NP       NAI   SSN  SNP   SNAI   SERV

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


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.

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

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

2. Remove the service selector from the database, using the `dlt-srvsel` command. .

    For example, enter a commands like these

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

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

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

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

    ```
    rtrv-srvsel:serv=aiq: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=aiq: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

    ;
    ```

4. 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 an ANSI41 AIQ Service Selector

This procedure is used to change an existing non-AIQ service selector to an AIQ service selector.

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

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

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

```
rlghncxa03w 10-04-28 14:42:38 GMT  EAGLE 42.0.0


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  34   e164  intl   gflex

4     9    e214    natl  ---  e164  intl   gflex


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

;
```

   - If the `rtrv-srvsel` output does not show any AIQ service selectors, continue with [2](#).
   - If the `rtrv-srvsel` output shows at least one AIQ service selector, go to [3](#).

2. Verify that the ANSI41 AIQ feature is enabled, by entering the `rtrv-ctrl-feat` command. If the ANSI41 AIQ feature is enabled, the ANSI41 `AIQ` entry appears in the output.

   - If the ANSI41 AIQ feature is enabled, continue with [3](#).
   - If the ANSI41 AIQ feature is not enabled (does not appear in the output), go to [Enabling the ANSI41 AIQ Feature](#) to enable the feature. Then continue with [3](#).

3. Change the service selector, using a `chg-srvsel` command similar to the following example.

   For example, enter a command like the following one:

```
chg-
srvsel:gtin=4:tt=4:np=e214:nai=natl:ssn=34:nsnp=none:nsnai=none:nse
rv=aiq
```

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` 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 *Commands User's Guide*.

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

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 ANSI41 AIQ Options

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

1. Verify that the ANSI41 AIQ feature is enabled, by entering the `rtrv-ctrl-feat` command.

If the ANSI41 AIQ feature has not been turned on, the Status in the `ANSI41 AIQ` entry is `off`.

```
    rlghncxa03w 10-04-29 16:40:40 EST   EAGLE5 42.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    ANSI41 AIQ                893034901  off         ----
;
```

• If the ANSI41 AIQ feature is enabled, continue with 2.

• If the ANSI41 AIQ feature is not enabled (the ANSI41 AIQ entry does not appear in the output), go to Enabling the ANSI41 AIQ Feature to enable the ANSI41 AIQ feature. Then continue with 2.

2. Display the current settings of the ANSI41 AIQ options, using the `rtrv-aiqopts` command.

3. Change the ANSI41 AIQ options to the required settings, by entering the `chg-aiqopts` command with at least one of the ANSI41 AIQ option parameters specified.

```
chg-aiqopts:digminlen=<Min Digit Len>:digmaxlen=<Max Digit
Len>:resfmt=<prx or prxd>:respar=<RoutingDigits or DialedDigits>
```

4. Verify the changes, by entering the `rtrv-aiqopts` command.

5. If the ANSI41 AIQ feature was not turned on (feature Status is `off` in the output in 1), go to Turning On the ANSI41 AIQ Feature to turn on the 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.
```

Turning On the ANSI41 AIQ Feature

After the ANSI41 AIQ feature has been enabled and database provisioning is complete, the ANSI41 AIQ feature status must be set to `on` (the feature must be "turned on").

This procedure is used to turn on the ANSI41 AIQ feature in the EAGLE.

1. Verify that the ANSI41 AIQ feature is enabled in the system. Enter the `rtrv-ctrl-feat` command.

   When the feature is enabled, the ANSI41 AIQ entry appears in the output of the `rtrv-ctrl-feat` command.

```
    rlghncxa03w 08-08-29 16:40:40 EST  EAGLE5 42.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    ANSI41 AIQ                893034901  off         ----
;
```

   • If the ANSI41 AIQ feature is enabled and not turned on (the feature appears in the output with Status of `off`), continue with 2.

   • If the ANSI41 AIQ feature is enabled and turned on (the feature appears in the output with Status of `on`), this procedure is not necessary.

   • If the ANSI41 AIQ feature is not enabled (the feature does not appear in the output), go to to enable the feature. Then continue with 2.

2. Turn on the ANSI41 AIQ feature. Enter the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=893034901:status=on
```

3. Verify that the feature is turned on. Enter the `rtrv-ctrl-feat` command.

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

```
rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name              Partnum    Status  Quantity
HC-MIM SLK Capacity       893012707  on            64
ANSI41 AIQ                893034901  on          ----
;
```

4. Back up the database changes, by entering 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 the State of a Subsystem Application

The procedures in this section are used to set the state of an existing subsystem application to either online or offline.

The online or offline status of the subsystem application is shown in the `STAT` field of the `rtrv-ss-appl` command output.

The `rept-stat-sccp` command displays the operating state (in or out of service) of the subsystem.

If the subsystem application is to be taken online, the subsystem application must be offline.

When the subsystem is taken online (regardless of how the subsystem was taken offline), the EAGLE sends SNR/SSA. A UAM is generated, indicating that the subsystem is ALLOWED.

If the subsystem application is to be taken offline, the subsystem application must be online. The subsystem must be taken out of service (OOS-MT-DSBLD) with the `inh-map-ss` command before it can be taken offline.

A subsystem application can be taken offline using coordinated state change, or forced offline without using coordinated state change.

When the `inh-map-ss` command is entered for the subsystem, a coordinated shutdown is attempted. If the coordinated shutdown fails, a UIM is generated, indicating that the shutdown failed. If the `force` parameter is specified, the subsystem is forced to shut down; a coordinated shutdown is not performed.

For coordinated state change, SCMG sends an **SOR** message to the mated subsystem and will start a T_{coord} timer (30 seconds). If SCMG receives an SOG message from the mated subsystem before the T_{coord} timer expires, SCMG will broadcast SSPs to the concerned point code group, send SBR/SSP, and take the subsystem offline. A UAM is generated, indicating that the subsystem is PROHIBITED. If the SOG is not received before T_{coord} expires, then the inhibit request is denied and a UIM is generated.

When the subsystem is taken offline without coordinated state change, the EAGLE sends SBR/SSPs. A UAM is generated, indicating that the subsystem is PROHIBITED.

When the EAGLE receives an **SOR** message from its mated subsystem, it will reply with an **SOG** message if both of the following conditions are met:

- The local subsystem is available
- The total load on the DSM subsystem is less than 45% of its capacity

If either of these conditions is not met, the EAGLE will not reply to the SOR message.

Activating the AIQ Local Subsystem

The procedure in this section explains how to activate the AIQ local subsystem.

When all feature configuration is complete, the AIQ subsystem application must taken online and the local subsystem must be activated to allow it to begin operation.

When the local subsystem operating state is Inhibited, the `chg-ss-appl` command can be used to change the online or offline database state of the subsystem. The `rtrv-ss-appl` command displays the online or offline provisioned value.

When the first Service Module card is loaded, this state tells whether the subsystem should be considered allowed (online) or inhibited (offline). This is a database state. If the command is accepted, then the change is made to the tables and can be read after an `init-sys` command is entered to initialize the system.

When the Service Module cards are in-service and the subsystem application is online, the `alw/inh-map-ss` commands can be used to change the dynamic operating state of the local subsystem to allowed or inhibited. The `inh-map-ss` command does not necessarily force a state change, because it can fail if the mate does not send an SOG. The `force=yes` parameter must be specified to bypass the SOR/SOG exchange and inhibit immediately. (There is no `rtrv-map-ss` command.)

The procedures in Changing the State of a Subsystem Application explain how to take a local subsystem online and offline.

Table 4-6   Subsystem Allow/Inhibit

Command\ Subsystem State	Offline	Online
`alw-map-ss`	Command is rejected because the subsystem must be online to be in the Allowed state.	Attempts to make the local subsystem active.
`inh-map-ss`	Command accepted, but no action because offline implies inhibited.	Attempts to inhibit the local subsystem. Use of the `force=yes` parameter bypasses the SOR/SOG exchange and inhibits immediately.
`chg-ss-appl:appl=aiq:nstat=online`	Changes local subsystem status to online.	No change to local subsystem status in the database.
`chg-ss-appl:appl=aiq:nstat=offline`	Command is rejected because the subsystem must be inhibited to go offline.	Changes local subsystem database status to `offline`.

1. Display the online/offline status of the AIQ subsystem application, by entering the `rtrv-ss-appl` command.

```
tekelecstp 10-04-25 08:02:22 EST  EAGLE 42.0.0
APPL   SSN  STAT
AIQ    11   offline

SS-APPL TABLE IS 25% FULL (1 OF 4)
;
```

2. Change the AIQ subsystem status to online.

```
chg-ss-appl:appl=aiq:nstat=online
```

3. Enter the command to allow the AIQ subsystem to begin operation.

```
alw-map-ss:ssn=<AIQ ssn>

integrat40 10-04-24 10:37:22 EST  EAGLE5 42.0.0
Allow map subsystem command sent to all SCCP cards.
Command Completed.
;
```

4. Display the operating status of the AIQ subsystem, by entering the `rept-stat-sccp` command.

Turning Off the ANSI41 AIQ Feature

This procedure is used to turn off the ANSI41 AIQ feature in the EAGLE.

1. Verify that the ANSI41 AIQ feature is enabled and turned on in the system. Enter the `rtrv-ctrl-feat` command.

   When the feature is enabled and turned on, the ANSI41 AIQ entry appears in the output of the `rtrv-ctrl-feat` command with feature Status of `on`.

```
rlghncxa03w 08-08-29 16:40:40 EST  EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name            Partnum    Status  Quantity
HC-MIM SLK Capacity     893012707  on            64
ANSI41 AIQ              893034901  on          ----
;
```

   • If the ANSI41 AIQ feature is enabled and not turned on (the feature appears in the output with Status of `off`). This procedure is not necessary.

   • If the ANSI41 AIQ feature is enabled and turned on (the feature appears in the output with Status of `on`), continue with 2.

   • If the ANSI41 AIQ feature is not enabled (the feature does not appear in the output), go to to enable the feature, this procedure cannot be performed.

2. Turn off the ANSI41 AIQ feature. Enter the `chg-ctrl-feat` command.

```
chg-ctrl-feat:partnum=893034901:status=off
```

3. Verify that the feature is turned off. Enter the `rtrv-ctrl-feat` command.

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

```
rlghncxa03w 09-06-29 16:40:40 EST  EAGLE5 42.0.0
The following features have been permanently enabled:
Feature Name               Partnum    Status  Quantity
HC-MIM SLK Capacity        893012707  on            64
ANSI41 AIQ                 893034901  off         ----
;
```

4. Back up the database changes, by entering 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.
```

5

Measurements

This chapter describes the measurements that can be collected and generated for Analyzed Information features, and the methods that can be used for generating reports for the measurements.

Measurements for IAR-Related Features

The EAGLE Measurements system supports the collection and retrieval of measurements for the IAR-related features. The IAR-related measurements can be collected and reported with the following collection methods:

- OAM-based (UI) measurements collection
- The Measurements Platform feature enabled and the Measurements Platform collection option on
- The E5-OAM Integrated Measurements feature enabled and on and the E5-OAM Integrated Measurements collection option on

15 Minute Measurements can be used with the Measurements Platform or E5-OAM Integrated Measurements.

Refer to *Measurements Reference* for descriptions of collection methods, measurements, and measurements reports.

Refer to *Commands User's Guide* for descriptions of the commands used to enable and turn on features, turn on measurements collection options, and schedule and generate measurements reports.

Refer to the procedures in *Database Administration - System Management User's Guide* to configure the Measurements Platform feature or E5-OAM Integrated Measurements feature for use with 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 when the IAR Base feature is enabled and on.

- **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 IARFAILD pegs and messages that were dismissed and not included in the IARNOTAP count.

- **IARFAILD** 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 dismissed (not counted as IARPASSD or IARFAILD) by the IAR Base feature.

  The count includes messages that:

- Did not have DPC provisioned in Destination table (for GTI=0 MSUs).

- Did not pass CgPA DEFCC Check.

- Were dismissed due to an NPP Conditioning Action or Service Action or Formatting Action processing error and either UIM 1426 is or no UIM is generated

The count does not include messages that were dismissed because they:

- Did not have an entry in the GT and TRIG CSL lists, or DPC was not marked as HOME SCP (for messages with CDPA GTI=0).

- Did not have a matching NPP Rule provisioned.

- Did not pass the NPTYPE match criteria for the CDPNNP and CGPNNP Service Actions.

- Did not have ASD associated with a matching DN entry in the RTDB for the ASDLKUP Service Action.

- Did not have GRN associated with a matching DN entry in the RTDB for the GRNLKUP Service Action.

Figure 5-1 describes the conditions that cause the measurement counts to be pegged

Figure 5-1   IAR Measurement Counter Pegging
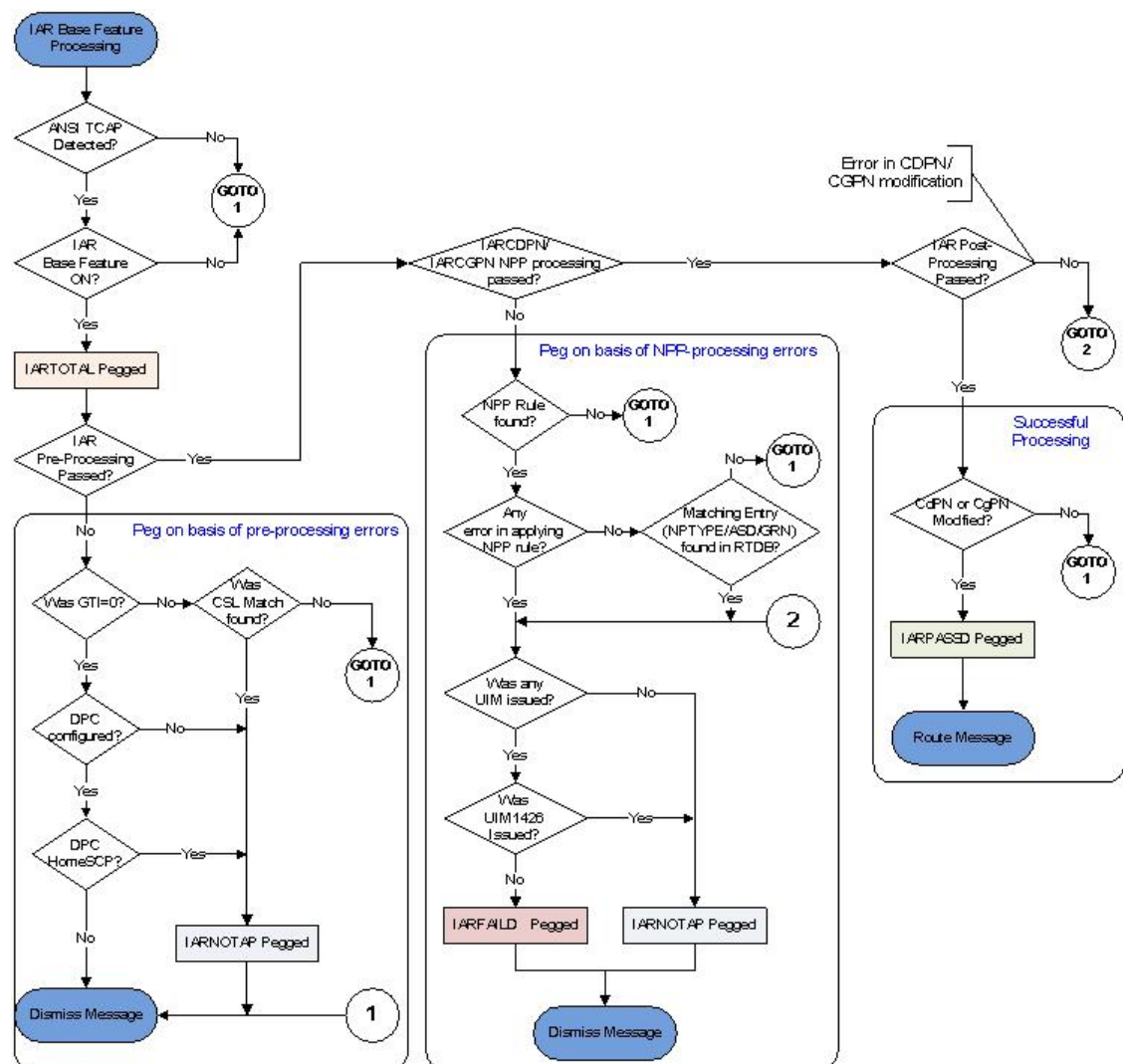
ANSI41 AIQ Measurements

The EAGLE Measurements system supports the collection and retrieval of measurements related to the ANSI41 AIQ feature. The ANSI41 AIQ measurements can be collected and reported with either of the following collection methods:

- The Measurements Platform feature enabled and the Measurements Platform collection option on

- The E5-OAM Integrated Measurements feature enabled and on and the E5-OAM Integrated Measurements collection option on

15 Minute Measurements collection can be used with Measurements Platform or E5-OAM Integrated Measurements.

OAM-based (UI) measurements collection is not available for ANSI41 AIQ. If the Measurements Platform or E5-OAM Integrated Measurements is not on, the ANSI41 AIQ feature operates normally, but measurements are not collected for the feature.

Refer to *Measurements Reference* for descriptions of collection methods, measurements, and measurements reports.

Refer to *Commands User's Guide* for descriptions of the commands used to enable and turn on features, turn on measurements collection options, and schedule and generate measurements reports.

Refer to the procedures in *Database Administration - System Management User's Guide* to configure the Measurements Platform feature or E5-OAM Integrated Measurements feature and the EAGLE OA&M IP Security feature for use with ANSI41 AIQ and the AIQ service.

Per System totals and Per SSP totals are collected for ANSI41 AIQ, using the AIQ entity type. The totals are reported in the Hourly Maintenance Measurements (MTCHAIQ) report and Daily Maintenance Measurements (MTCDAIQ) report.

The ANSI41 AIQ feature must be enabled to provision scheduling of the AIQ measurements reports. The ANSI41 AIQ feature must be turned on for full measurements collection functions to operate for the feature and the AIQ subsystem.

The following measurements registers are defined for the ANSI41 AIQ feature in both the Per System totals and Per SSP totals:

- **AIQRCV** Total number of MSUs received by the AIQ service.
  This measurement also includes MSUs received when the feature is enabled but not turned on.

- **AIQERR** The total number of ANSI41 AnalyzedInformation queries resulting in Return Error and Reject Response generation by the AIQ service.
  This measurement also includes the Return Error responses generated when the feature is enabled but not turned on.

- **AIQSUCC** Total number of Return Result messages sent by the AIQ service.

6

Maintenance

This chapter describes commands, tools and reports that can be used for Analyzed Information feature maintenance, including status reporting and problem identification.

Alarms

Refer to *Unsolicited Alarm and Information Messages Reference* for complete descriptions of and corrective procedures for UAMs.

Refer to *Alarms and Maintenance Guide* for descriptions and corrective procedures for **MPS**-related alarms.

Table 6-1 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 6-1   UAM 0451

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 6-2 support the IAR-related features, and the UIM in Table 6-3 supports the Service Portability feature. *Unsolicited Alarm and Information Messages Reference* contains a complete description of all **UIM** text and recovery procedures.

Table 6-2   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.

Table 6-2   (Cont.) IAR-Related UIMs

UIM	Text	Description	Action
1427	IAR CdPN parameter invalid or not found	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. 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. The DSTDGTS and DGTSDIAL parameters are considered invalid if they are encoded in a format other than **BCD**.	
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. 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 6-3   UIM for Service Portability

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

AIQ Local Subsystem Alarms

This section contains a list of EAGLE UAMs that support the AIQ local subsystem. All ANSI41 AIQ-related UAMs are generated to the LSS Output Group and use the SYS_MAINT format.

Refer to the *Unsolicited Alarm and Information Messages Reference* for a complete description and the associated corrective procedure for each ANSI41 AIQ-related **UAM**, and for information about other EAGLE alarms.

Table 6-4 describes the UAMs that are specific to the AIQ local subsystem.

> ⓘ **Note**
>
> "Active" Service Module cards have a status not equal to OOS (Out-of-Service), loading, or Offline.

Table 6-4   AIQ Local Subsystem UAMs

UAM	Message Text	Description
0592	AIQ : Subsystem is not available	No Service Module cards have an AIQ status of Active (see Note; all are OOS or loading).
0593	AIQ : Subsystem is disabled	All IS-NR (In-Service Normal) Service Module cards have Subsystem status of Offline (with at least 1 card IS-NR). An `inh-map-ss` command has been executed.
0594	AIQ : Subsystem normal, card(s) abnormal	One Service Module card has Subsystem status of Active (see Note), and one or more cards have Subsystem status other than Active.
0595	AIQ : Subsystem is available	All Service Module cars are IS-NR and have Subsystem status of Active.
0596	AIQ : Subsystem is removed	The last Service Module card is deleted.

AIQ Local Subsystem UIMs

The Unsolicited Information Messages (UIMs) in Table 6-5 specifically support the AIQ Local Subsystem.

Refer to *Unsolicited Alarm and Information Messages Reference* for a complete description of all **UIM** text and formats, including UIMs that are used for local subsystems.

Table 6-5   AIQ Local Subsystem UIMs

UIM	Text	Output Group	Description	Action
1433	AIQ: Inhibit request already pending	APSS	A second attempt to inhibit the subsystem has been made while the first attempt is still being processed.	The second attempt is ignored.
1434	AIQ: Failure Inhibiting SS	APSS	The attempted inhibit of the subsystem failed.	A response SOG was not received from the mate.
1435	AIQ: Trigger Type not provisioned	APSS	An entry matching the incoming Trigger Type value is not found in the AIQOPTS table.	Verify the TRIGTYPE option values in the AIQOPTS table, and provision the missing entry if needed.
1436	AIQ: Unsupported Digits (Dialed) length	APSS	The number of Digits (Dialed) in the received AnalyzedInformation Query is not within the provisioned range of the DIGMINLEN and DIGMAXLEN option values in the AIQOPTS table.	Verify the DIGMINLEN and DIGMAXLEN option values in the AIQOPTS table, and modify the values if needed.

Maintenance Commands

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

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

Table 6-6   Maintenance Commands

Command	Description
rept-stat-sys	Reports the status of system entities, including cards. The output includes the number of Service Module cards that are in service (IS-NR) and how many are in another state (IS-ANR, OOS-MT, OOS-MT-DSBLD).
rept-stat-sccp	Reports operating status of services and subsystems, CPU usage, and Service Module card status. When the `loc` parameter is specified, the command displays detailed card traffic statistics, including cards that are denied SCCP service. See the section in this manual that describes the use of the `rept-stat-sccp` command.
rept-stat-mps	Displays the overall status of the EPAP application running on the MPS (multi-purpose server). Command output for the various reports of this command include overall MPS alarm status and card status, and status for a specific Service Module card when a feature is on.
rept-stat-trbl	Includes a summary of any trouble notifications (**UAM**s) for local subsystems, cards, and linksets. The severity of each alarm is indicated in the output report.
rept-stat-alm	Displays the alarm counts and totals for local subsystems and Service Module card/EPAP IP links.

Table 6-6   (Cont.) Maintenance Commands

Command	Description
rept-stat-db	Displays the status information for the EAGLE databases. This includes the level information for each Service Module card, and for the active and standby EPAP RTDB. The command reports database exception status such as corrupted, incoherent, or inconsistent, as well as providing the birth dates and levels. It shows the status of each PDB and RTDB when an EPAP-related feature is enabled.
rtrv-tbl capacity	Retrieves table use capacity summary information. For each table listed, the number of table entry elements in use and the total allowed number of table elements is presented, along with a percent (%) full value. Information is shown for some tables only if the feature that uses the table is enabled.
inh-card/alw-card	The `inh-card` command is used to change the operating state of the card from In-Service Normal (IS-NR) to Out-of-Service Maintenance-Disabled (OOS-MT-DSBLD). A craftsperson then can test the card or physically remove it from the shelf.

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 reporting of alarms for a given device, including the Service Module card ports. The commands allow both Port A and Port B to be specified. Inhibited alarms will not generate UAMs or cause alarm indicators to be turned on. All `rept-stat-xxx` commands continue to display the alarms with an indication that the device has its alarms inhibited. |
| 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.

Refer to *Commands User's Guide* 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 `rept-stat-sccp` command counts and displays the following statistics when the IAR Base feature is enabled and 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.

- TOTAL = the total number of messages for which the IAR Base feature is selected for 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.

Debug Commands

Commands User's Guide 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 Oracle 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 traps MSUs that meet the specified tracing criteria, which include DN, some point codes, Entity ID, message verification errors, and message processing errors.

Status Reporting and Problem Identification

EAGLE commands can be used to obtain status and statistics for the EAGLE system, the EPAP systems, system devices including Service Module cards, EPAP-related features, local subsystems, and SCCP services.

Refer to *Commands User's Guide* for complete descriptions of the commands, including parameters and valid values, rules for using the commands correctly, and output examples.

Refer to *Unsolicited Alarm and Information Messages Reference* for descriptions and recovery procedures for UAMs and UIMs.

Refer to *Administration Guide* for EPAP for descriptions of EPAP functions and operation.

Refer to *Alarms and Maintenance Guide* for descriptions and recovery procedures for EPAP alarms.

Refer to the appropriate feature User's Guide for information about the functions and operation of EPAP-related features.

Table 6-7   Status Reporting for EPAP-Related Features

Reports, Status, and Statistics	Command
EAGLE	
Maintenance Status Report - indicates whether Maintenance, Routing, and SCCP Baselines have been established.	`rept-stat-sys`
Alarms and operating state for system devices, including Service Module ("SCCP") cards.	`rept-stat-sys`
Unsolicited Alarm Messages (UAMs) and Unsolicited Information Messages (UIMs)	`rept-stat-alm` `rept-stat-trbl`

Table 6-7 (Cont.) Status Reporting for EPAP-Related Features

Reports, Status, and Statistics	Command
EPAP/MPS (from the EAGLE)	
EPAP code version and operating state for each EPAP.	`rept-stat-mps`
MPS hexadecimal alarm strings for the active and standby EPAPs.	`rept-stat-mps`
Operating state and alarm status of equipped Service Module cards and their DSM ports and IP connections.	`rept-stat-mps` `rept-stat-mps:loc=<Service Module card location>`
Amount of memory used by the RTDB on the specified card, as a percent of available Service Module card memory.	`rept-stat-mps:loc=<Service Module card location>`
EPAP Provisioning Database (PDB), EPAP Real Time Database (RTDB), and Service Module card RTDB status information - Coherent, birthdate (date and time of creation), and exception (condition when a problem was detected).	`rept-stat-db` `rept-stat-db:db=mps`
Service Module Cards, EPAP-Related Features, Services, Local Subsystems	
Status of the Service Module cards, and the services executing on the cards for EPAP-related features that are turned on. Includes Service Report, Subsystem Report, and Alarm Status; Total Service Statistics.	`rept-stat-sccp`
Operating state and alarm status of equipped Service Module cards and their DSM ports and IP connections; EPAP-related feature status per card.	`rept-stat-mps:loc=<Service Module card location>`
Alarms and operating state for Service Module ("SCCP") cards.	`rept-stat-sys` `rept-stat-mps`
Any cards that are denied SCCP service.	`rept-stat-sccp`
Detailed view of the status of SCCP services provided by the specified Service Module card. Includes Card Alarm Status, Card Service Statistics	`rept-stat-sccp:loc=<Service Module card location>`
General SCCP traffic performance for Service Module cards. Message rates for TVG performance.	`rept-stat-sccp:mode=perf`
Statistics for EPAP-related feature local subsystems - Subsystem Report	`rept-stat-sccp`
Statistics for EPAP-related features	`rept-stat-sccp`

EPAP Status and Alarm Reporting

Because EPAP has no direct means of accepting user input or displaying output messages on EAGLE terminals, EPAP maintenance, measurements, and status information are routed through a Service Module card. EPAP sends two types of messages to the Service Module card: EPAP Maintenance Blocks and DSM Status Requests and DSM Status Messages. Each message type is discussed in the following sections.

EPAP Maintenance Blocks

The EPAP forwards all status and error messages to the Service Module cards in maintenance blocks. Maintenance blocks are asynchronously sent whenever the EPAP has something to report. The status information that is displayed when a `rept-stat-mps` command is issued includes information that came from the maintenance blocks.

The active EPAP generates and sends maintenance blocks to the primary Service Module card. One maintenance block is sent as soon as the IP link is established between the active EPAP and the primary Service Module card. Additional maintenance blocks are sent whenever the EPAP needs to report any change in status or error conditions. The information returned in maintenance blocks is included in the output of the `rept-stat-mps` and `rept-stat-sccp` commands.

The EPAP sends maintenance blocks that contain at least the following information:

- Status of EPAP A - actual states are active, standby, and down (inoperative). Maintenance blocks include a field for this information so that it can be available for the output of the `rept-stat-mps` command.

- Status of EPAP B - actual states are active, standby, and down (inoperative). Maintenance blocks include a field for this information so that it can be available for the output of the `rept-stat-mps` command.

- Identification of Active EPAP - a field to identify the active EPAP.

- Congestion Indicator - an indicator showing provisioning link congestion. The link between the EPAPs and the external source of provisioning data can become congested in high-provisioning traffic situations. When this occurs and subsequently as the congestion clears, the EPAP sends maintenance blocks to the Service Module card.

- Alarm Conditions - an error code field. If the EPAP needs to report an alarm condition, it puts an appropriate UAM identifier in this field.

- Current MPS Database Size - a field indicating the current RTDB size. The Service Module card uses this information to calculate the percentage of memory used by the RTDB.

DSM Status Requests and DSM Status Messages

When the EPAP needs to know the status of a Service Module card, the EPAP sends a DSM Status Request to all Service Module cards, and each Service Module card returns its status to the EPAP.

Service Module cards send a DSM Status Message to the EPAP when any the following events occur in the Service Module card:

- The Service Module card is booted.

- The Service Module card receives a DSM Status Request message from the EPAP.

- The Service Module card determines that it needs to download the entire RTDB; for example, the Service Module card determines that the RTDB needs to be downloaded because it is totally corrupted, or a user requests that the RTDB be reloaded. The Service Module card sends a Full Download Request message to the EPAP

- The Service Module card starts receiving RTDB downloads or updates. When a Service Module card starts downloading the RTDB or accepting updates, the Service Module card sends a DSM Status Message informing the EPAP of the first record received. This helps the EPAP keep track of downloads in progress.

The DSM Status Message provides the following information to the EPAP:

- **DSM Memory Size**. When the Service Module card is initialized, it determines the amount of memory present. The EPAP uses the value to determine if the Service Module card has enough memory to hold the RTDB.

- **Load Mode Status**. This indicator indicates whether or not a sufficient number of the IS-NR (In-Service Normal) LIMs have access to SCCP services.