

*Tekelec EAGLE<sup>®</sup> 5*  
*Signaling Application System*

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**Release 34.3**

**Feature Notice**

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5,008,929, 5,953,404, 6,167,129, 6,324,183, 6,327,350, 6,606,379, 6,639,981, 6,647,113, 6,662,017, 6,735,441, 6,745,041, 6,765,990, 6,795,546, 6,819,932, 6,836,477, 6,839,423, 6,885,872, 6,901,262, 6,914,973, 6,940,866, 6,944,184, 6,954,526, 6,954,794, 6,959,076, 6,965,592, 6,967,956, 6,968,048, 6,970,542

**Ordering Information**

Additional copies of this document can be ordered from:

Tekelec Network Signaling Group  
Attention: Central Logistics  
5200 Paramount Parkway  
Morrisville, North Carolina, 27560

or

e-mail your request to *CentralLogistics@tekelec.com*

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## Introduction

Feature Notices are distributed to customers with each new release of software.

The *Feature Notice* includes a brief feature overview, lists new hardware required if any, provides the hardware baseline for this release, and explains how to find the other customer documentation on the Customer Support Site for Release 34.3 (see “How to Locate Documentation on the Customer Support Site” on page FN-28).

## New Features

The EAGLE<sup>®</sup> 5 Signaling Application System Release 34.3 introduces the following new features:

- SCCP Service Re-Route Capability
- IDP Screening for PrePaid
- M2PA RFC Support

## Important Operational Changes

- “New or Changed UAMs” on page FN-25
- “New or Changed UIMs” on page FN-26
- “New or Changed Hardware Verification Codes” on page FN-26
- “UAM Format Changes” on page FN-26
- “UIM Format Changes” on page FN-26
- “Error Codes” on page FN-27

## Feature Overviews

### SCCP Service Re-Route Capability

The SCCP Service Re-Route Capability feature is designed to re-route G-Flex and G-Port traffic from a node that is unable to process traffic to alternate nodes within an operator network. This feature allows the user to mark the G-Flex or G-Port services OFFLINE, which causes messages to be re-routed to provisioned destinations, either alternate point codes (PCs) or a GTT option. When the user returns either or both services to ONLINE, the services resume processing traffic. The SCCP Service Re-Route Capability feature is optional and doesn't affect normal G-Flex or G-Port functionality.

### IDP Screening for Prepaid

The IDP Screening for Prepaid feature is designed to screen voice and text calls from a prepaid subscriber to determine whether the subscriber has a “24/7 Call and Text Unlimited” or a “24/7 Text Unlimited” calling plan and then route the call accordingly.

This feature requires a predefined Service Key.

### M2PA RFC Support

The M2PA RFC Support feature is designed to add functionality to support the M2PA RFC implementation while continuing to support the Draft 6 M2PA implementation.

The updated support includes changes to:

- Link alignment
- Timers
- Initial Forward Sequence Number
- Processor outage procedures
- Administration and upgrade support for multiple M2PA versions (Draft 6 and RFC)

## SCCP Service Re-Route Capability

### Description

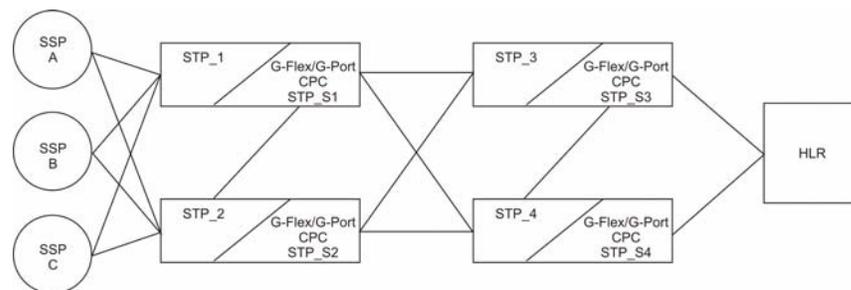
The G-Flex and G-Port services normally run in tandem with the SCCP service, with no way to halt G-Flex or G-Port without bringing down the entire SCCP service. The SCCP Service Re-Route Capability feature allows the user to mark the G-Flex and/or G-Port services OFFLINE, which re-routes traffic for those services to alternate nodes. The user can mark either or both services ONLINE to cause the service to resume processing traffic.

For example, in Figure FN-1, G-Flex and G-Port traffic originating from SSP\_A, SSP\_B, and SSP\_C is distributed between STP\_1 and STP\_2. G-Flex and G-Port traffic is addressed to the relevant service Capability Point Code (CPC) of STP\_S1 and STP\_S2. GTT traffic is addressed to STP\_1 and STP\_2.

When the G-Flex/G-Port service is unavailable on STP\_1, STP\_1 sends a response method TFP message regarding STP\_S1. This causes SSP\_A to stop using Link\_A1 for G-Flex/G-Port traffic. STP\_1 can re-route all in-transit G-Flex/G-Port traffic to STPs STP\_S2, STP\_S3, and STP\_S4 if provisioned. SSP\_A now sends all of its G-Flex/G-Port traffic on link\_A2. GTT traffic and MTP routed traffic is not impacted. Other SSPs perform similar rerouting.

When G-Flex/G-Port service is available on STP\_1, STP\_1 responds with a TFA message (when route-set-test message is received) regarding STP\_S1. This causes SSP\_A to start sending the G-Flex/G-Port traffic through link\_A1. Other SSPs perform similar rerouting.

**Figure FN-1.** G-Flex and G-Port Network Diagram



### New Concepts

The SCCP Service Re-Route Capability feature introduces the following new concepts:

- “Service State” on page FN-4
- “Service Re-routing” on page FN-4

- “Service Capability Point Code” on page FN-4

### ***Service State***

Service State is an administered state of a RTDB-based service and indicates whether a service is ONLINE or OFFLINE. The SCCP Service Re-Route Capability feature supports Service State for the G-Flex and G-Port services only.

Service State allows a user to mark the G-Flex and G-Port services OFFLINE or ONLINE. If a user identifies a problem with G-Flex or G-Port, they can mark the service OFFLINE to initiate re-routing.

Once the service is returned to ONLINE, the G-Flex or G-Port service starts processing messages if at least one SCCP card is IS-NR.

**NOTE: When the SCCP Service Re-Route Capability feature is first turned ON, the G-Flex and G-Port Service States are automatically set to OFFLINE. The user must change the relevant state to ONLINE before any traffic is processed by G-Flex or G-Port.**

### ***Service Re-routing***

Service Re-routing is an optional function that allows a user to determine the destination of a re-routed message by use of a list of up to seven alternate PCs per domain or the GTT option. The SCCP Service Re-Route Capability feature supports Service Re-routing for the G-Flex and G-Port services only.

Re-routing is activated by marking a service OFFLINE. When a service is OFFLINE, any messages destined to that service are re-routed to available alternate PCs that have been defined for that service. If alternate PCs are not defined, or if none of the PCs are available, then the GTT option is invoked. If the GTT option is YES, then messages destined to that service go to GTT.

### ***Service Capability Point Code***

The SCCP Service Re-Route Capability feature provides CPC support for G-Flex and G-Port services. For messages destined to a service, the use of CPCs aids the adjacent nodes in knowing about service outage. When a service is brought down through administrative commands, all traffic destined to this service node performs the following actions:

- Generate response method TFP message to the adjacent node about service CPC. The TFP response to the adjacent node causes the traffic originating nodes to stop sending service traffic to this node. All service traffic coming into this node is sent to the alternate service nodes. Adjacent nodes initiate route-set-test procedures after receipt of the TFP.
- If the messages are destined to EAGLE 5 SAS TPC, then TFP messages are not generated when a service is OFFLINE. Therefore, the originator is not aware of the outage.

- Once the service is back in service on the EAGLE 5 SAS, a TFA is sent to the traffic adjacent nodes in response to route-set-test message. The traffic originating nodes then start sending service traffic to this node.

## Hardware Requirements

The SCCP Service Re-Route Capability feature runs on DSM cards.

## New and Enhanced Commands

### REPT-STAT commands

The **rept-stat-trbl** and **rept-stat-sccp** commands are enhanced to provide state and alarm information for the G-Flex and G-Port services.

**rept-stat-trbl** — Used to display a summary report of device trouble notifications.

**rept-stat-sccp** — Used to provide state and alarm information, including the number of G-Flex and G-Port messages that were re-routed for the 30 seconds prior to entering the command.

The following example displays the output for the **rept-stat-sccp** command when the G-Flex and G-Port services are turned ON:

#### rept-stat-sccp

```

SCCP SUBSYSTEM REPORT IS-ANR Active -----
SCCP ALARM STATUS = No Alarms
EIR SUBSYSTEM REPORT OOS-MT Unavail -----
  EIR: SSN STATUS = ----- MATE SSN STATUS = -----
  EIR ALARM STATUS = *C 0455 EIR Subsystem is not available
GFLEX SERVICE REPORT OOS-MT Unavail -----
  GFLEX ALARM STATUS = XXXX
GPORT SERVICE REPORT OOS-MT Unavail -----
  GPORT ALARM STATUS = XXXX
SCCP Cards Configured=25 Cards IS-NR= 2
System Daily Peak SCCP Load 0 TPS 05-12-29 00:00:27
System Overall Peak SCCP Load 0 TPS 00-00-00 00:00:00
System Total SCCP Capacity 1700 TPS (1700 max SCCP Capacity)
System SCCP Capacity Calc. Method (N)
System TPS Alarm Threshold 1530 TPS ( 90% System N SCCP Capacity)
CARD VERSION PST SST AST MSU CPU
USAGE
-----
1217 ----- OOS-MT Isolated ----- 0% 0%
1317 ----- OOS-MT Isolated ----- 0% 0%
1105 155-044-000 IS-NR Active DB_DIFF 0% 0%
1107 155-044-000 IS-NR Active DB_DIFF 0% 3%
-----
SCCP Service Average MSU Capacity = 0% Average CPU Capacity = 2%
AVERAGE CPU USAGE PER SERVICE:
GTT = 0% GFLEX = 0% GPORT = 0%
EIR = 0%
TOTAL SERVICE STATISTICS:
                                FAIL    re-route/  FORWARD

```

SERVICE	SUCCESS	ERRORS	RATIO	WARNINGS	TO GTT	TOTAL
GTT:	0	0	0%	-	-	0
GFLEX:	0	0	0%	0	0	0
GPORT:	0	0	0%	0	0	0
EIR:	0	0	0%	-	-	0

Command Completed.

**SCCP-SERV commands**

The **chg/dlt/rtrv-sccp-serv** commands are added for the SCCP Service Re-Route Capability feature. These commands allow the G-Flex and G-Port services to be taken ON and OFF line and their processing load to be shifted to designated PCs or to GTT.

**chg-sccp-serv** — Used to add G-Flex and G-Port PCs to a service group, change the Relative Cost (RC) to PCs in a group, and enable GTT if desired.

**dlt-sccp-serv** — Used to remove G-Flex and G-Port entries from the SCCP service table.

**rtrv-sccp-serv** — Used to retrieve SCCP Service application relationship information maintained by the EAGLE 5 SAS.

The following example retrieves SCCP information when no supporting features are turned ON, and no alternate re-route PCs are defined for the SCCP Service Table:

**rtrv-sccp-serv**

```
tekelecstp 05-12-20 08:28:48 EST 33.1.1.0-55.43.0
rtrv-sccp-serv
Command entered at terminal #4.

No Entries Found.
;
```

The following example retrieves SCCP information when the G-Port service is turned ON, and no alternate re-route PCs are defined for the SCCP Service Table:

**rtrv-sccp-serv**

```
tekelecstp 05-12-20 08:31:24 EST 33.1.1.0-55.43.0
rtrv-sccp-serv
Command entered at terminal #4.

-----
Service      : GPORT
State       : Offline
GTT Option  : Yes
-----
;
```

The following example retrieves SCCP information when the G-Port and G-Flex services are turned ON, and no alternate re-route PCs are defined for the SCCP Service Table:

**rtrv-sccp-serv**

```
tekelecstp 05-12-20 08:32:58 EST 33.1.0-55.43.0
rtrv-sccp-serv
Command entered at terminal #4.
```

```
-----
Service      : GFLEX
State        : Offline
GTT Option   : Yes
-----
```

```
-----
Service      : GPORT
State        : Offline
GTT Option   : Yes
-----
```

```
;
```

The following example retrieves SCCP information when the G-Flex service is turned ON, and alternate re-route PCs are defined for the SCCP Service Table:

**rtrv-sccp**

```
Command Accepted - Processing
```

```
tklc1070501 06-02-23 13:24:38 EST EAGLE5 34.3.0-55.61.0
rtrv-sccp-serv
Command entered at terminal #1.
```

```
;
```

```
tklc1070501 06-02-23 13:24:38 EST EAGLE5 34.3.0-55.61.0
```

```
-----
Service      : GFLEX
State        : Online
GTT Option   : No
-----
```

```
ANSI PC      RC
070-040-001  10
070-040-002  10
070-040-003  10
070-040-004  10
070-040-005  10
070-040-006  10
006-050-006  10
```

```
ITUI PC      RC
4-200-0      10
4-200-1      10
4-200-2      10
4-200-3      10
4-200-4      10
```

```

4-200-5      10
4-200-6      10

ITUN PC      RC
04904-aa     10
04905-aa     10
04906-aa     10
04907-aa     10
04904-bc     10
04905-bc     10
04906-bc     10

ITUI SPARE   RC
s-4-200-0    10
s-4-200-1    10
s-4-200-2    10
s-4-200-3    10
s-4-200-4    10
s-4-200-5    10
s-4-200-6    10

ITUN SPARE   RC
s-04904-aa   10
s-04905-aa   10
s-04906-aa   10
s-04907-aa   10
s-04904-bc   10
s-04905-bc   10
s-04906-bc   10

ITUN24       RC
060-060-001  10
060-060-002  10
060-060-003  10
060-060-004  10
060-060-005  10
060-060-006  10
060-060-007  10

-----
Service      : GPORT
State        : Online
GTT Option   : No
-----

ANSI PC      RC
070-050-001  10
070-050-002  10
070-050-003  10
070-050-004  10
070-050-005  10
070-050-006  10
006-050-006  10

ITUI PC      RC
4-201-0      10
4-201-1      10
    
```

4-201-2	10
4-201-3	10
4-201-4	10
4-201-5	10
4-201-6	10
ITUN PC	RC
04912-aa	10
04913-aa	10
04914-aa	10
04915-aa	10
04912-bc	10
04913-bc	10
04914-bc	10
ITUI SPARE	RC
s-4-201-0	10
s-4-201-1	10
s-4-201-2	10
s-4-201-3	10
s-4-201-4	10
s-4-201-5	10
s-4-201-6	10
ITUN SPARE	RC
s-04912-aa	10
s-04913-aa	10
s-04914-aa	10
s-04915-aa	10
s-04912-bc	10
s-04913-bc	10
s-04914-bc	10
ITUN24	RC
060-070-001	10
060-070-002	10
060-070-003	10
060-070-004	10
060-070-005	10
060-070-006	10
060-070-007	10

;

**SID commands**

The **chg/rtrv-sid** commands are enhanced to provide support for the CPCs used by the G-Flex or G-Port services.

**chg-sid** — Used to change CPC parameters. The **cpctype** parameter supports **gflex** and **gport** types for CPCs.

**rtrv-sid** — Used to retrieve CPC parameters.

The following example retrieves CPC parameters when the G-Flex and G-Port services are turned ON:

**rtrv-sid**

```
tekelecstp 06-02-23 14:41:58 EST 33.1.0-55.54.0
rtrv-sid
Command entered at terminal #4.
      PCA          PCI          PCN          CLLI          PCTYPE
010-010-010      1-001-1      00010      tekelecstp      ANSI

CPCA
013-013-013

CPCI
4-004-4

CPCA (GFLEX)
011-011-011

CPCI (GFLEX)
2-002-2

CPCN (GFLEX)
00011

CPCA (GPORT)
012-012-012

CPCI (GPORT)
3-003-3

CPCN (GPORT)
00012
```

;

## IDP Screening for PrePaid

### Description

The IDP Screening for Prepaid feature screens GT-routed messages resulting from voice and text calls from a prepaid subscriber to determine whether the subscriber has a "24/7 Call and Text Unlimited" or a "24/7 Text Unlimited" calling plan and then routes the call accordingly.

For a voice or text (short message) call originated by a prepaid subscriber, the serving MSC formulates an INAP IDP message which is destined for a prepaid engine that checks the subscriber's credit status. The IDP Screening for PrePaid feature causes EAGLE 5 SAS to intercept the IDP message and determine whether the subscriber has one of the calling plans referenced above.

Voice and text calls are identified by a predefined Service Key. The value assigned to the Service Key is set by an originating MSC when the call reaches an Intelligent Network (IN) trigger. These values indicate whether the subscriber has the "24/7 Call and Text Unlimited" or "24/7 Text Unlimited" calling plan.

If the subscriber has one of the calling plans, the EAGLE 5 SAS determines whether the call is an in-network call (a call from one subscriber to another belonging to the same network). For an in-network call, the EAGLE 5 SAS returns an INAP Continue message to instruct the MSC to bypass the credit check and continue the call. If the call is not an in-network call, EAGLE 5 SAS routes the calls to the prepaid engine to have the credit check performed.

If the call originates from a non "24/7 Call and Text Unlimited" or non "24/7 Text Unlimited" prepaid subscriber, the EAGLE 5 SAS routes the IDP message to its intended destination.

This feature requires a feature access key.

### Hardware Requirements

- After the IDP Screening for Prepaid feature is turned on, no TSM SCCP cards can be provisioned.
- Only DSM cards are used with the IDP Screening for Prepaid feature.

### New and Enhanced Commands

#### Common Screening List (CSL) Commands

The **chg/ent/rtrv/dlt-csl** commands are enhanced to support the provisioning of all screening lists used by the IDP Screening for Prepaid feature.

**chg-csl** — Used to provision entries in the In Network Subscriber List (INSL) and the Service Key/TeleService list (SKTS) in the CSL table.

**ent-csl** — Used to provision entries in the INSL and the SKTS in the CSL table.

**dlt-csl** — Used to delete entries in the CSL table.

**rtrv-csl** — Used to retrieve data from the CSL table.

The following example retrieves list values for all screening lists for the IDP Screening for Prepaid feature.

**rtrv-csl:feature="IDP Screening for Prepaid"**

```
tekelecstp 06-03-01 08:44:50 EST 34.3.0-55.32.0
rtrv-csl:pn=893015501
Command entered at terminal #4.
```

```
IDP Screening for Prepaid
SK+TS List
DS
```

```
-----
1233
1234
```

```
SK+TS List table is (2 of 25) 8% full
```

```
IDP Screening for Prepaid
INSL List
DS
```

```
-----
1233
1235
123456789012345
```

```
INSL List table is (3 of 50) 6% full
```

The following example retrieves SKTS list values for the IDP Screening for Prepaid feature.

**rtrv-csl:pn=893015501:list=skts**

```
tekelecstp 06-03-01 08:44:50 EST 34.3.0-55.32.0
rtrv-csl:pn=893015501:list=skts
Command entered at terminal #4.
```

```
IDP Screening for Prepaid
SK+TS List
DS
```

```
-----
1233
1234
```

```
SK+TS List table is (2 of 25) 8% full
```

### **CTRL-FEAT Commands:**

The **chg/enable/rtrv-ctrl-feat** commands are enhanced to support the IDP Screening for Prepaid Feature.

**chg-ctrl-feat** — Used to turn enabled features ON. The IDP Screening for Prepaid feature cannot be turned OFF after it has been turned ON.

**enable-ctrl-feat** — Used to enable features.

- Part number 893-0155-01 and a feature access key are required for the IDP Screening for Prepaid feature.
- The GTT feature must be ON before the IDP Screening for Prepaid feature can be enabled.
- If ASM/TSM cards are present, the IDP Screening for Prepaid feature can not be enabled.

**rtrv-ctrl-feat** — Used to view feature part number and status (ON, OFF).

The following example retrieves the part number and status, including those for IDP Screening for Prepaid.

**rtrv-ctrl-feat**

```
rlghncxa03w 05-08-29 16:40:40 EST EAGLE5 34.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status   Quantity
IPGWx Signaling TPS   893012805 on        2000
ISUP Normalization    893000201 on         ----
Command Class Management 893005801 on         ----
LNP Short Message Service 893006601 on         ----
Prepaid SMS Intercept Ph1 893006701 on         ----
Intermed GTT Load Sharing 893006901 on         ----
G-Port Circ Route Prevent 893007001 on         ----
XGTT Table Expansion   893006101 on       400000
XMAP Table Expansion   893007710 on        3000
Large System # Links    893005910 on        1500
Routesets              893006403 on        8000
EAGLE5 Product         893007101 on         ----
EAGLE Product          893007201 off         ----
IP7 Product            893007301 off         ----
Network Security Enhance 893009101 off         ----
Telnet                 893005701 on         ----
Port Chk for MO SMS    893009301 on         ----
LNP ELAP Configuration 893010901 on         ----
LNP ported TNs        893011012 on     120000000
LNP ported LRNs       893010501 on     150000
LNP ported NPANXXs    893009402 on     300000
15 Minute Measurements 893012101 off         ----
EIR                    893012301 on         ----
EAGLE OA&M IP Security 893400001 off         ----
SCCP Conversion       893012001 on         ----
SE-HSL SLK Capacity   893013005 on         64
GSM Map Screening (GMS) 893013201 on         ----
Enhanced GMS (EGMS)   893012401 on         ----
MTP MAP Screening     893013501 on         ----
Spare Point Code Support 893013601 on         ----
GSM MAP SRI Redirect  893014001 on         ----
ISUP NP with EPAP     893013801 on         ----
Prepaid IDP Query Relay 893016001 on         ----
IDP Screening for Prepaid 893015501 on         ----
```

```

The following features have been temporarily enabled:
Feature Name          Partnum    Status  Quantity    Trial Period Left
G-Port Circ Route Prevent 893007001 On          ---- 20 days 8 hrs 57 mins

```

```

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

```

;

## SRVSEL Commands

The **ent/chg/dlt/rtrv-srvsel** commands are enhanced to support provisioning of the service selector parameters for the IDP Screening for Prepaid feature.

**NOTE: The ent/chg-srvsel commands require the IDP Screening for Prepaid feature to be enabled before the serv parameter can be set to idps.**

**ent-srvsel** — Used to assign the IDPS service for the IDP Screening for Prepaid feature.

**chg-srvsel** — Used to change service selector parameters.

**dlt-srvsel** — Used to delete service selectors.

**rtrv-srvsel** — Used to retrieve service selectors.

The following example retrieves service selectors, including those for the IDP Screening for Prepaid feature.

### rtrv-srvsel

```

tekelecstp 03-03-28 15:43:22 EST EAGLE5 31.0.0
GTII TT NP NAI NPV NAIV SSN SNP SNAI SERV
4 1 e214 intl --- --- 3 --- --- eir
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 e214 intl --- --- * --- --- eir
4 20 e164 intl --- --- 6 --- ---- idps

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

SRV SELECTOR table is (7 of 20992) 1 % full

```

;

## Measurements

The EAGLE 5 SAS Measurements system is modified to support the collection and retrieval of measurements related to the IDP Screening for Prepaid feature. Two new measurement registers are created. These new registers and an existing register are used to keep track of the required measurements events.

The registers are reported in the existing STP System Totals (SYSTOT) report. The data for these registers originates in the VSCCP cards and is transferred as part of the existing Measurements Collection mechanism. The names and descriptions of these registers are shown in Table FN-1.

**Table FN-1. IDP Screening for Prepaid Measurements Registers**

Name	Description
MSIDPNOMCH	Total number of IDP messages relayed to their destination by the IDP Screening for Prepaid feature. This register is pegged when an IDP message does not meet the criteria for MSIDPMATCH.
MSIDPMATCH	<p>Total number of IDP messages returned to the originating MSC by the IDP Screening for Prepaid feature. This register is pegged for SMS INAP IDP messages when:</p> <ol style="list-style-type: none"> <li>1. CgPA and CdPA are provisioned in the In-Network Subscriber List.</li> <li>2. Service Key in the message is provisioned in the Service Key/TeleService Screening List.</li> <li>3. Teleservice in the message is provisioned in the Service Key/TeleService Screening List.</li> </ol>

The IDP Screening for Prepaid measurement registers are supported both with and without the Measurements Platform feature. The EAGLE 5 SAS collects IDP Screening for Prepaid measurements data each 30 minutes following the 30-minute boundary (0000, 0030, 0100, 0130, etc.). The collected data is retained in the appropriate data store. The retention period for IDP Screening for Prepaid measurements data is 24 hours.

## M2PA RFC Support

The MTP Level 2 Peer to Peer Adaptation Layer (M2PA) is a protocol used between the SCTP and the MTP Level 3 that enables SS7 links to run over IP.

M2PA provides a mechanism to transport SS7 MTP2 user signaling (e.g., MTP3 messages) over IP using SCTP. M2PA enables seamless operation between MTP2 user peers in the SS7 and IP space.

The M2PA RFC Support feature adds functionality to support the M2PA RFC implementation while continuing to support earlier (Draft 6) implementations.

To aid the transition from Draft 6 to RFC, the following changes are implemented:

1. 20 new M2PA timer sets are created for M2PA RFC associations.
2. Existing associations are changed to have **ver=d6** during upgrade.
3. M2PA Draft 6 timer set values were not changed during upgrade (T16 changed from ms to s, hence table values are multiplied by 1000).
4. M2PA Draft 6 associations use the **d6** timers.
5. M2PA RFC adapters use the **rfc** timers.

**NOTE: It is not necessary to change the m2patset value on the association to retrieve the new timer values.**

6. The **chg-m2pa-tset** command defaults to the **rfc** values.
7. To change the MP2A Draft 6 timers, a new **ver=d6** parameter is specified.

## New and Enhanced Commands

### ASSOC commands

The **ent/chg/rtrv-assoc** commands are enhanced to support the MP2A RFC implementation.

**ent-assoc** — Used to configure the SCTP Associations in the socket table. An association provides the transport for protocol data units and adapter layer peer messages. Each association is connected to a process on the far end.

If the application is IPLIMx and the association's **adapter** type equals **m2pa**, the M2PA version supported is set to M2PA RFC by default.

**chg-assoc** — Used to change the M2PA version. The user can specify M2PA Draft 6 or M2PA RFC using the **ver** parameter.

**NOTE: The ver parameter is valid only for M2PA adapters.**

- The M2PA version is supported if the application is IPLIMx and the **adapter** equals **m2pa**. Allowed values are Draft 6 (**d6**) and RFC (**rfc**). When changing association adapter type to M2PA, if the version is not specified, the default version M2PA RFC is assigned.
- The **open** parameter must be set to no (**open=no**) before the M2PA version can be changed. This maintains the connection state closed while changing association adapter versions.

**rtrv-assoc** — Used to retrieve the state of an M2PA.

The following example retrieves states for the Draft 6 and RFC implementations of M2PA.

**rtrv-assoc:adapter=m2pa**

```
eagle10212 06-02-08 14:49:15 EST EAGLE5 34.3.0

      ANAME ip11301a
      LINK      A
      ADAPTER   M2PA          VER      M2PA DRAFT 6
      LHOST    e1021201.1301a
      ALHOST    ---
      RHOST    e1021301.1301a
      LPORT    1301          RPORT    1301
      ISTRMS   2             OSTRMS   2
      RMODE    LIN          RMIN     120          RMAX     800
      RTIMES   10          CWMIN    3000          M2PATSET 1
      OPEN     NO          ALW      NO

      ANAME ip11301b
      LINK      B
      ADAPTER   M2PA          VER      M2PA RFC
      LHOST    e1021201.1301a
      ALHOST    ---
      RHOST    e1021301.1301a
      LPORT    1302          RPORT    1302
      ISTRMS   2             OSTRMS   2
      RMODE    LIN          RMIN     120          RMAX     800
      RTIMES   10          CWMIN    3000          M2PATSET 1
      OPEN     YES         ALW      YES
```

IP Appl Sock/Assoc table is (4 of 4000) 1% full

## LINKINFO Command

The **linkinfo** command is used to display the state of a signaling link. The command is enhanced to support both the M2PA Draft 6 states (e.g. AIP) and the M2PA RFC states and events. In addition, the command is enhanced with a larger log and the ability to ignore repeated events (e.g. one LSPN per link proving) to prevent these events from flushing other data.

The following example illustrates requests to display state information for signaling link a, including M2PA RFC signaling link states.

**pass:loc=1301:cmd="linkinfo a -s "**

Command Accepted - Processing

```

CLLI> <date> <time> <timezone> <product> <release ID>
pass:loc=1301:cmd="linkinfo a -s "
Command entered at terminal #1.
;

CLLI> <date> <time> <timezone> <product> <release ID>
PASS: Command sent to card
;

CLLI> <date> <time> <timezone> <product> <release ID>

LINKINFO: Command In Progress
;

CLLI> <date> <time> <timezone> <product> <release ID>

IPLIMx Layer 2 Link State Information for Link A

LINK_STATE_NOT_ALIGNED          IP_CONN_STATE_ESTABLISHED

end of report

```

The following example displays the IPLIMx signaling link event log for signaling link a, including normal link alignment, proving, activation and deactivation for M2PA Draft 6.

**pass:loc=1303:cmd="linkinfo a -l "**

Command Accepted - Processing

```

CLLI> <date> <time> <timezone> <product> <release ID>
pass:loc=1303:cmd="linkinfo a -l "
Command entered at terminal #1.
;

CLLI> <date> <time> <timezone> <product> <release ID>
PASS: Command sent to card
;

CLLI> <date> <time> <timezone> <product> <release ID>

LINKINFO: Command In Progress
;

CLLI> <date> <time> <timezone> <product> <release ID>

IPLIMx Layer 2 Link Events for Link A

eagle10212 06-01-17 10:47:02 EST UNKNOWN ???.?-55.57.9

LINKINFO: Command In Progress

```

;

eagle10212 06-01-17 10:47:02 EST UNKNOWN ???.?-55.57.9

IPLIMx Layer 2 Link Events for Link A

```

06-01-17 15:11:22.810 IP_CONN_OPENED
06-01-17 15:11:22.810 LINK_STATE_CONNECTING
06-01-17 15:11:22.810 IP_CONN_ALLOWED
06-01-17 15:11:22.830 IP_CONN_CONNECTED
06-01-17 15:11:22.830 LINK_STATE_CONNECTED
06-01-17 15:11:22.830 M2PA_LSO_TRANSMITTED
06-01-17 15:11:22.830 M2PA_LSO_RECEIVED
06-01-17 15:11:22.955 M2PA_LSA_RECEIVED
06-01-17 15:11:32.955 M2PA_LSO_RECEIVED
06-01-17 15:11:33.200 L3_L2_EMERGENCY
06-01-17 15:11:33.200 L3_L2_START
06-01-17 15:11:33.200 LINK_STATE_AIP
06-01-17 15:11:33.200 M2PA_LSA_TRANSMITTED
06-01-17 15:11:33.775 M2PA_LSA_RECEIVED
06-01-17 15:11:33.775 LINK_STATE_PROVING
06-01-17 15:11:33.775 M2PA_LSPN_TRANSMITTED
06-01-17 15:11:33.775 M2PA_LSPN_RECEIVED
06-01-17 15:11:33.980 M2PA_T16_EXPIRED
06-01-17 15:11:34.175 M2PA_T16_EXPIRED
06-01-17 15:11:34.375 M2PA_T16_EXPIRED
06-01-17 15:11:34.575 M2PA_T16_EXPIRED
06-01-17 15:11:34.770 M2PA_LSR_RECEIVED
06-01-17 15:11:34.775 M2PA_T4_EXPIRED
06-01-17 15:11:34.775 LINK_STATE_ALIGNED_READY
06-01-17 15:11:34.775 M2PA_LSR_TRANSMITTED
06-01-17 15:11:34.775 LINK_STATE_INS
06-01-17 15:11:34.775 L2_L3_IN_SERVICE
06-01-17 15:12:36.200 L3_L2_STOP
06-01-17 15:12:36.200 LINK_STATE_RETRIEVAL
06-01-17 15:12:36.200 M2PA_LSO_TRANSMITTED
06-01-17 15:12:36.200 L2_L3_OUT_OF_SERVICE
06-01-17 15:12:36.215 M2PA_LSO_RECEIVED
06-01-17 15:12:36.270 RETRIEVAL_COMPLETE
06-01-17 15:12:36.270 LINK_STATE_CONNECTED
06-01-17 15:12:36.270 M2PA_LSO_TRANSMITTED

```

end of report

;

## M2PA-TSET Commands

The **chg/rtrv-m2pa-tset** commands are enhanced to support the M2PA RFC implementation.

**chg-m2pa-tset** — Used to change the version of M2PA (M2PA Draft 6 or M2PA RFC) using the **ver** parameter.

**NOTE:** The **ver** parameter is only valid for M2PA adapters.

**rtrv-m2pa-tset** — Used to retrieve timer values for M2PA Draft 6 or M2PA RFC.

The following example retrieves the default Draft 6 timer values for M2PA.

**rtrv-m2pa-tset:ver=d6**

Command Accepted - Processing

<CLLI> <date> <time> <timezone> Rel <release ID>

rtrv-m2pa-tset:ver=d6

Command entered at terminal #5.

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
2	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
3	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
4	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
5	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
6	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
7	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
8	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
9	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
10	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
11	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
12	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
13	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
14	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
15	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
16	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
17	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
18	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
19	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
20	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000

;

The following example retrieves RFC timer values for M2PA.

**>rtrv-m2pa-tset:ver=rfc**

Command Accepted - Processing

<CLLI> <date> <time> <timezone> Rel <release ID>

rtrv-m2pa-tset:ver=rfc

Command entered at terminal #5.

M2PA RFC Timers (in msec, T16 in microsec)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
2	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
3	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
4	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
5	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
6	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
7	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
8	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
9	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
10	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
11	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000

12	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
13	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
14	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
15	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
16	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
17	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
18	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
19	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000
20	300000	20000	2000	15000	500	100	3000	1200	200000	250	1000

;

## EAGLE 5 SAS Resource Table

Table FN-2 lists the following information for cards that can be equipped in an EAGLE 5 SAS:

- The name of the card on the card label
- The card part number
- The provisioned card type
- The number of shelf slots that the card occupies (1 or 2)
- The number of physical ports on the card
- The maximum number of links that can be assigned to the card
- The GPLs and applications that can run on the card

**Table FN-2.** EAGLE<sup>®</sup> 5 SAS Resource Table

Card Name (shown on card label)	Part Number	Provisioned Card Type	Per Card Slots/ Ports		Links per Card	Card GPLs	Card Applications
ACM-ENET	870-1008-XX	acmenet	2	1	1	stplan	stplan
DCM DCMX	870-1945-XX 870-1984-01	dcm	2	2	1	bpdcm	ebdadcm vxwslan
				2	1	ebdadcm	
				2	1	vxwslan	
		2	2	iplim iplimi	iplim iplimi		
		stc	2	2	N/A	eroute	eroute
EDCM (SSEDCM)	870-2372-01 870-2372-08	dcm	1	2	1	vwslan	vwslan
					8	iplim iplimi	iplim iplimi
					1	ss7ipgw ipgwi	ss7ipgw ipgwi
	870-2372-01 870-2508-01	stc	2	2	N/A	eroute	eroute
DSM†	870-1984-02 to 870-1984-09	dsm	2	2	2 IP service	vsccp gls	vsccp gls

Table FN-2. EAGLE® 5 SAS Resource Table

Card Name (shown on card label)	Part Number	Provisioned Card Type	Per Card Slots/ Ports		Links per Card	Card GPLs	Card Applications
DSM-1G	870-2371-02 870-2371-06 870-2371-08	ipsm	1	2 (use only A)	1 IP service	ips	ips
EDCM-A (SSEDCM)	870-2508-01	dcm	1	2	1	vwxslan	vwxslan
					8	iplim iplimi	iplim iplimi
					1	ss7ipgw ipgwi	ss7ipgw ipgwi
	870-2508-01	stc	2	2	N/A	eroute	eroute
EDSM-2G*	870-2372-03 870-2372-07 870-2372-09	mcpm	1	2 (use only A)	1 IP service	mcp	mcp
E1/T1 MIM††	870-2198-XX	lime1 limt1 limch	1	2	8	ss7ml bpmlpt	ss7ansi ccs7itu
E1 ATM	870-2455-XX	lime1atm	1	2	1	atmitu bphcap bphcapt	atmitu
EILA	870-2049-XX	limds0 limocu limv35	1	2 2 2	1 1 1	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu
GPSM-II	870-2360-01 870-2360-05 870-2360-06	N/A	1	N/A	N/A	eoam bpdcn	oam
HC MIM††	870-2671-XX	lime1 limt1	2	8	64	ss7hc blbios blcpld blvxw bldiag blcpld plde1t1 pldpmc1 imtpci	ss7ansi, ccs7itu
		lime1 (for SE-HSL)		8	2		
HIPR	870-2574-01	N/A	1	N/A	N/A	hipr	hipr
HMUX	870-1965-01	N/A	1	N/A	N/A	bphmux	bphmux
ILA	870-1484-XX	limds0 limocu limv35	1	2 2 2	1 1 1	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu

Table FN-2. EAGLE<sup>®</sup> 5 SAS Resource Table

Card Name (shown on card label)	Part Number	Provisioned Card Type	Per Card Slots/ Ports		Links per Card	Card GPLs	Card Applications
LIM** or LIM-AINF	870-1014-XX 870-1488-XX	limds0 limocu limv35	1	2 2 2	1 1 1	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu
LIM-ATM	870-1293-XX	limatm	1	2	1	atmansi bphcap bphcapt	atmansi
LIM-DS0	870-1009-XX 870-1485-XX	limds0	1	2 2 2	2 1 2	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu
LIM-E1††	870-1379-XX	lime1 limch	1	2 2	1 1	ss7ansi ccs7itu	ss7ansi, ccs7itu
LIM-OCU	870-1010-XX 870-1486-XX	limocu	1	2 2 2	1 1 1	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu
LIM-V.35	870-1012-XX 870-1487-XX	limv35	1	2 2 2	1 1 1	ss7ansi ss7gx25 ccs7itu	ss7ansi ss7gx25 ccs7itu
MDAL	870-0773-05 and later	N/A	2	N/A	N/A	N/A	N/A
MPL MPL-T	870-2061-XX	limds0	1	2	8	bpmpl bpmplt ss7ml	ss7ansi
TDM TDM-GTI	870-0774-10 870-0774-11 870-0774-15	N/A	1	N/A	N/A	N/A	N/A
TSM-512 TSM-768 TSM-1024	870-1290-XX 870-1291-XX 870-1292-XX	tsm	1	N/A	N/A	sccp gls ebdablm	sccp gls ebdablm

\*Though the system allows 250 MCPM cards, practical usage is 2.

\*\*A LIM, EILA, or ILA is a link interface module using the AINF interface and can be installed in place of the LIM-DS0A, LIM-OCU, or LIM-V.35. It is configured in the database as either a LIM-DS0A, LIM-OCU, or LIM-V.35 card.

†DSMs are required for the LNP feature. For more information about turning the LNP feature on, refer to the *LNP Feature Activation Guide*

††For the E1 or T1 interface, either SS7 application (SS7ANSI or CCS7ITU) can be assigned to these cards. For more information on the E1 or T1 interface go to Chapter 3 “System Administration Procedures” in the *Database Administration Manual - SS7*

## Alarms

### New or Changed UAMs

New or changed Unsolicited Alarm Messages (UAMs) necessary to support EAGLE 5 SAS Release 34.3 are defined in Table FN-3.

**Table FN-3.** New or Changed UAMs

Format	526	Format	Output Group
Action	Added for 34.3		
New Optional Parameter	Service is available	GFLEX SERVICE GPORT SERVICE	SYS_MAINT
Format	527	Format	Output Group
Action	Added for 34.3		
New Optional Parameter	Service normal, card(s) abnormal	GFLEX SERVICE GPORT SERVICE	SYS_MAINT
Format	528	Format	Output Group
Action	Added for 34.3		
New Optional Parameter	Service is not available	GFLEX SERVICE GPORT SERVICE	SYS_MAINT
Format	529	Format	Output Group
Action	Added for 34.3		
New Optional Parameter	Service is disabled	GFLEX SERVICE GPORT SERVICE	SYS_MAINT
Format	530	Format	Output Group
Action	Added for 34.3		
New Optional Parameter	Service is removed	GFLEX SERVICE GPORT SERVICE	SYS_MAINT

## New or Changed UIMs

### UIM 1332

**NOTE:** EAGLE 5 SAS 34.3 introduced the feature 'M2PA RFC Support' to provide support for the updated functionality in the M2PA RFC. One aspect of this feature that current M2PA customers should be aware of is the introduction of a new UIM 1332. This UIM was introduced to detect misconfigured networks. M2PA drafts prior to Draft 9 used an initial FSN of 1, while Drafts 9 and later and the RFC use an initial FSN of 0. Therefore, if a Draft 6 implementation and an RFC implementation are connected, this UIM indicates why the link does not remain in service. The UIM is shown for both Draft 6 and RFC connections when the initial FSN is not the one expected.

New or changed Unsolicited Information Messages (UIMs) necessary to support EAGLE 5 SAS Release 34.3 are defined in Table FN-4.

**Table FN-4.** New or Changed UIMs

UIM	1332	Format	Output Group
Action	Added for 34.3		
Old data	N/A		
New data	Invalid Initial M2PA FSN Received	I1	LINK MAINT

## New or Changed Hardware Verification Codes

There are no new or changed hardware verification codes for EAGLE 5 SAS Release 34.3.

## UAM Format Changes

The following UAM format change supports the G-Flex and G-Port services for EAGLE 5 SAS Release 34.3.

```

1           2           3           4           5           6           7           8
1234567890123456789012345678901234567890123456789012345678901234567890

```

The following example shows the new format:

```

xxxx.yyyy zz GFLEX SERVICE          'text'
1           2           3           4           5           6           7           8
1234567890123456789012345678901234567890123456789012345678901234567890
*C 0056.0XXX *C GFLEX SERVICE          Service is not available

```

## UIM Format Changes

There are no UIM format changes for EAGLE 5 SAS Release 34.3.

## Error Codes

Incorrect use of the enhanced commands for the SCCP Service Re-Route Capability feature may generate the error messages listed in Table FN-5.

**Table FN-5.** Error Messages - SCCP Service Re-Route Capability

Response ID Code	Error Message	New?	Used by Command:
E4585	Failed Reading SCCP Service Table	Y	rtrv-sccp-serv
E4587	At least one point code must be specified	Y	dlt-sccp-serv
E4589	SCCP-SERV allocation within MRN table is full	Y	chg/sccp-serv
E4590	Maximum point codes have been allocated to SCCP-SERV set	Y	chg-sccp-serv
E4591	PC must already exist in the SCCP Service table	Y	dlt-sccp-serv
E4594	Feature associated with SERV must be ON or enabled	Y	chg/dlt-sccp-serv

Incorrect use of the enhanced commands for IDP Screening for PrePaid feature may generate the error messages listed in Table FN-6.

**Table FN-6.** Error Messages - IDP Screening for PrePaid

Response ID Code	Error Message	New?	Used by Command:
E4544	The IDPS for Prepaid Feature Must be Enabled	Y	chg/dlt/ent/rtrv-csl
E4545	IDP Screening for Prepaid feature must be ON when SERV=IDPS	Y	ent/chg-srvsel
E4546	GTT must be on before IDPS can be enabled	Y	enable-ctrl-feat
E4547	After: IDPS cannot be enabled if ASM/TSM is present	Y	enable-ctrl-feat
E4548	Requested service parameters not supported for the <b>serv=idps</b> feature. Supported mandatory parameters are <b>tt</b> , <b>serv</b> , <b>ssn</b> , <b>gtin</b> , and <b>gtii</b> . Supported optional parameters are <b>np</b> and <b>nai</b> .	Y	ent/chg-srvsel
E4549	ASM/TSM Cards Cannot be Provisioned when IDPS is Enabled	Y	ent-card

Incorrect use of the enhanced commands for the M2PA RFC feature may generate the error messages listed in Table FN-7.

**Table FN-7.** Error Messages - M2PA RFC

<b>Response ID Code</b>	<b>Error Message</b>	<b>New?</b>	<b>Used by Command:</b>
E4555	Version parameter not supported for SUA or M3UA.	Y	chg-assoc
E4556	Timer not supported for M2PA Draft 6.	Y	chg-m2pa-tset
E4557	Timer value or SRCTSET required.	Y	chg-m2pa-tset

## Customer Documentation

### Documentation Set

The documentation set for EAGLE 5 SAS Release 34.3 comprises the following manuals and documents. The list is sorted by manual name and is followed by a brief description of each manual.

**NOTE: The most current update of each manual can be found on Tekelec's Customer Support website.**

- *Commands Error Recovery Manual*
- *Commands Manual*
- *Database Administration Manual – Features*
- *Database Administration Manual – Gateway Screening*
- *Database Administration Manual – Global Title Translation*
- *Database Administration Manual – IP7 Secure Gateway*
- *Database Administration Manual – SEAS*
- *Database Administration Manual – SS7*
- *Database Administration Manual – System Management*
- *Dimensioning Guide for EPAP Advanced DB Features*
- *EPAP Administration Manual*
- *EPAP DSM Dimensioning Tool*
- *Feature Manual – EIR*
- *Feature Manual – G-Flex C7 Relay*
- *Feature Manual – G-Port*
- *Feature Manual – INP*
- *FTP-Based Table Retrieve Application (FTRA) User Guide*
- *Hardware Manual – EAGLE 5 SAS*
- *Hardware Manual – Tekelec 1000 Application Server*
- *Installation Manual – EAGLE 5 SAS*
- *Installation Manual - Integrated Applications*
- *Maintenance Manual*
- *MPS Platform Software and Maintenance Manual (EAGLE 5 SAS with Tekelec T1000 Application Server)*

- *Provisioning Database Interface Manual*
- *Release Documentation*
  - *Feature Notice*
  - *Glossary*
  - *Master Index*
  - *Release Notice (online only)*
  - *System Overview*

### **Commands Error Recovery Manual**

The *Commands Error Recovery Manual* contains the procedures to resolve error message conditions generated by the commands in the *Commands Manual*. These error messages are presented in numerical order.

### **Commands Manual**

The *Commands Manual* contains procedures for logging into an EAGLE 5 SAS system, logging out of the system, a general description of the terminals, printers, the disk drive used on the system, and a description of all the commands used in the system.

### **Database Administration Manual – Features**

The *Database Administration Manual – Features* contains procedural information required to configure an EAGLE 5 SAS or an IP<sup>7</sup> Secure Gateway system to implement these features: X.25 Gateway, STP LAN, Database Transport Access, GSM MAP Screening, and EAGLE 5 SAS Support for Integrated Sentinel.

### **Database Administration Manual – Gateway Screening**

The *Database Administration Manual - Gateway Screening* contains a description of the Gateway Screening (GWS) feature and the procedures necessary to configure the EAGLE 5 SAS or IP<sup>7</sup> Secure Gateway system to support this feature.

### **Database Administration Manual – Global Title Translation**

The *Database Administration Manual – Global Title Translation* contains procedural information required to configure an EAGLE 5 SAS or an IP<sup>7</sup> Secure Gateway system to implement these features: Global Title Translation, Enhanced Global Title Translation, Variable Length Global Title Translation, Interim Global Title Modification, and Intermediate GTT Load Sharing.

### **Database Administration Manual – IP<sup>7</sup> Secure Gateway**

This manual contains procedural information required to configure the system to implement the SS7-IP Gateway.

### **Database Administration Manual – SEAS**

The *Database Administration Manual – SEAS* contains the EAGLE 5 SAS configuration procedures that can be performed from the Signaling Engineering and Administration Center (SEAC) or a Signaling Network Control Center (SNCC). Each procedure includes a brief description of the procedure, a flowchart showing the steps required, a list of any EAGLE 5 SAS commands that may be required for the procedure but that are not supported by SEAS, and a reference to optional procedure-related information, which can be found in one of these manuals:

Database Administration Manual – Gateway Screening

Database Administration Manual – Global Title Translation

Database Administration Manual – SS7

### **Database Administration Manual – SS7**

The *Database Administration Manual – SS7* contains procedural information required to configure an EAGLE 5 SAS or an IP<sup>7</sup> Secure Gateway system to implement the SS7 protocol.

### **Database Administration Manual – System Management**

The *Database Administration Manual – System Management* contains procedural information required to manage the EAGLE 5 SAS's database and GPLs, and to configure basic system requirements such as user names and passwords, system-wide security requirements, and terminal configurations.

### **Dimensioning Guide for EPAP Advanced DB Features**

The *Dimensioning Guide for EPAP Advanced DB Features* is used to provide EPAP planning and dimensioning information. This manual is used by Tekelec personnel and EAGLE 5 SAS customers to aid in the sale, planning, implementation, deployment, and upgrade of EAGLE 5 SAS systems equipped with one of the EAGLE 5 SAS EPAP Advanced Database (EADB) Features.

### **EPAP Administration Manual**

The *EPAP Administration Manual* describes how to administer the EAGLE 5 SAS Provisioning Application Processor on the MPS/EPAP platform. The manual defines the methods for accessing the user interface, menus, and screens available to the user and describes their impact. It provides the syntax and semantics of user input and defines the output the user receives, including messages, alarms, and status.

### **Feature Manual – EIR**

The *Feature Manual - EIR* provides instructions and information on how to install, use, and maintain the EIR feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 SAS. The feature provides network operators with the capability to prevent stolen or disallowed GSM mobile handsets from accessing the network.

**Feature Manual – G-Flex C7 Relay**

The *Feature Manual - G-Flex C7 Relay* provides an overview of a feature supporting the efficient management of Home Location Registers in various networks. This manual gives the instructions and information on how to install, use, and maintain the G-Flex feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 SAS.

**Feature Manual – G-Port**

The *Feature Manual - G-Port* provides an overview of a feature providing the capability for mobile subscribers to change the GSM subscription network within a portability cluster while retaining their original MSISDNs. This manual provides instructions and information on how to install, use, and maintain the G-Port feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 SAS.

**Feature Manual – INP**

The *Feature Manual - INP* provides the user with information and instructions on how to implement, utilize, and maintain the INAP-based Number Portability (INP) feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 SAS.

**FTP-Based Table Retrieve Application (FTRA) User Guide**

The *FTP-Based Table Retrieve Application (FTRA) User Guide* describes how to set up and use a PC to serve as the offline application for the EAGLE 5 SAS FTP Retrieve and Replace feature.

**Hardware Manual – EAGLE 5 SAS**

The *Hardware Manual – EAGLE 5 SAS* contains hardware descriptions and specifications of Tekelec's signaling products. These include the EAGLE 5 SAS system, OEM-based products which include the ASi 4000 Service Control Point (SCP), the Netra-based Multi-Purpose Server (MPS), and the Integrated Sentinel with Extended Services Platform (ESP) subassembly.

The Hardware Manual provides an overview of each system and its subsystems, details of standard and optional hardware components in each system, and basic site engineering. Refer to this manual to obtain a basic understanding of each type of system and its related hardware, to locate detailed information about hardware components used in a particular release, and to help configure a site for use with the system hardware.

**Hardware Manual – Tekelec 1000 Application Server**

The *Hardware Manual - Tekelec 1000 Application Server* provides general specifications and a description of the Tekelec 1000 Applications Server (T1000 AS). This manual also includes site preparation, environmental and other requirements, procedures used to physically install the Tekelec 1000 AS, and troubleshooting and repair of Field Replaceable Units (FRUs).

### **Installation Manual – EAGLE 5 SAS**

The *Installation Manual - EAGLE 5 SAS* contains cabling requirements, schematics, and procedures used for installing the EAGLE 5 SAS along with LEDs, Connectors, Cables, and Power Cords to Peripherals. Refer to this manual to install components or the complete systems.

### **Installation Manual - Integrated Applications**

The *Installation Manual - Integrated Applications* provides the installation information for integrated applications such as EPAP 4.0 or earlier (Netra-based Multi-Purpose Server (MPS) platform) and Sentinel. The manual includes information about frame floors and shelves, LEDs, connectors, cables, and power cords to peripherals. Refer to this manual to install components or the complete systems.

### **Maintenance Manual**

The *Maintenance Manual* contains procedural information required for maintaining the EAGLE 5 SAS system and the IP<sup>7</sup> Secure Gateway system. The *Maintenance Manual* provides preventive and corrective maintenance procedures used to maintain the different systems.

### **MPS Platform Software and Maintenance Manual (EAGLE 5 SAS with Tekelec T1000 Application Server)**

The *EAGLE 5 SAS with Tekelec T1000 Application Server* describes the platform software for the Multi-Purpose Server (MPS) based on the Tekelec 1000 Application Server (T1000 AS) and describes how to perform preventive and corrective maintenance for the T1000 AS-based MPS. This manual should be used with the EPAP-based applications (EIR, G-Port, G-Flex, and INP).

### **Provisioning Database Interface Manual**

The *Provisioning Database Interface Manual* defines the programming interface that populates the Provisioning Database (PDB) for the EAGLE 5 SAS features supported on the MPS/EPAP platform. The manual defines the provisioning messages, usage rules, and informational and error messages of the interface. The customer uses the PDBI interface information to write his own client application to communicate with the MPS/EPAP platform.

### **Release Documentation**

The *Release Documentation* is a release-specific compilation of the following documents:

- *Feature Notice* - Describes the features contained in the specified release; also provides the hardware baseline, describes the customer documentation set, provides information about customer training, and explains how to access the Customer Support website.
- *Master Glossary* - Contains an alphabetical listing of terms, acronyms, and abbreviations relevant to the system.

- *Master Index* - Lists all index entries used throughout the documentation set.
- *Release Notice* - Describes the changes made to the system during the lifecycle of a release. The final Release Notice provides a list of Generic Program Loads (GPLs), PRs resolved in a build, and all known PRs.

**NOTE: The *Release Notice* is maintained solely on Tekelec's Customer Support Website to provide you with instant access to the most up-to-date release information.**

- *System Overview* - Provides high-level information on SS7, the IP<sup>7</sup> Secure Gateway, system architecture, LNP, and EOAP.

### How to Locate Documentation on the Customer Support Site

Access to Tekelec's Customer Support area is restricted to current Tekelec customers. This section describes how to log into Tekelec's Customer Support site and how to locate customer documentation. Viewing these files requires Adobe Acrobat Reader.

- 1 Go to Tekelec's Customer Support login page at <https://support.tekelec.com/index.asp>
  - 2 Enter your assigned username and chosen password, then click **Go**.  
**Or**, if you do not have access to the Customer Support site, click **Need an Account?**  
Follow the instructions on the screen.
- NOTE: After 20 minutes of inactivity, you will be logged off, and you must repeat this step to regain access.**
- 3 After successful login, select a product from the Product Support drop-down menu.
  - 4 Select a release number from the Product Support Release drop-down menu.
  - 5 Locate the appropriate documentation section (i.e., a Feature Notice would be under **Notices**, and user documentation would be under **Manuals**).
  - 6 To open the documentation in the same window, double click the document name. To open the documentation in a new window, right-click the document name and select **Open in New Window**.
  - 7 To download the document, right-click the document name and select **Save Target As**.

## Customer Training

Tekelec offers a variety of technical training courses designed to provide the knowledge and experience required to properly provision, administer, operate and maintain the EAGLE 5 SAS. To enroll in any of the courses or for schedule information, contact the Tekelec Training Center at (919) 460-3064 or E-mail [eagletrain@tekelec.com](mailto:eagletrain@tekelec.com).

A complete list and schedule of open enrollment can be found at [www.tekelec.com](http://www.tekelec.com).

## Tekelec Customer Care Center

The Tekelec Customer Care Center offers a point of contact through which customers can receive support for problems that may be encountered during the use of Tekelec's products. The Tekelec Customer Care Center is staffed with highly trained engineers to provide solutions to your technical questions and issues seven days a week, twenty-four hours a day. A variety of service programs are available through the Tekelec Customer Care Center to maximize the performance of Tekelec products that meet and exceed customer needs.

## Technical Assistance

To receive technical assistance, call the Tekelec Customer Care Center at one of the following locations:

- Tekelec, Europe and UK  
Phone: +44 1784 467 804  
Fax: +44 1784 477 120  
Email: [ecsc@tekelec.com](mailto:ecsc@tekelec.com)

- Tekelec, USA

Phone (within the continental US) 1 888-FOR-TKLC  
(outside the continental US) +1 919-460-2150

Fax: +1 919 460 0877

Email: [support@tekelec.com](mailto:support@tekelec.com)

When your call is received, the Tekelec Customer Care Center issues a Customer Service Report (CSR). Each CSR includes an individual tracking number. When a CSR is issued, the Tekelec Customer Care Center determines the classification of the trouble. The CSR contains the serial number of the system, problem symptoms, and messages. The Customer Care Center assigns the CSR to a primary engineer, who will work to solve the problem. The Tekelec Customer Care Center closes the CSR when the problem is resolved.

If a critical problem exists, the Customer Care Center initiates emergency procedures (see the following topic, "Emergency Response").

## Emergency Response

If a critical service situation occurs, the Tekelec Customer Care Center offers emergency response twenty-four hours a day, seven days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure a rapid resolution to the problem.

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

- Failure in the system that prevents transaction processing
- Reduction in system capacity or in system traffic-handling capability
- Inability to restart the system
- Corruption of the database
- Inability to perform maintenance or recovery operations
- Inability to provide any required critical or major trouble notification
- Any other problem severely affecting service, capacity, traffic, and billing. Maintenance capabilities may be defined as critical by prior discussion and agreement with the Tekelec Customer Support Center.

## Appendix A. Acronyms and Terminology

**Association**—An association refers to an SCTP association. The association provides the transport for protocol data units and adaptation layer peer messages.

**BSC**—Basic Service Code

**BSN**—Backward Sequence Number. This is the Forward Sequence Number of the last message received from the peer.

**BSNT**—Backward Sequence Number to be Transmitted. This is the BSN that is sent to the peer during changeover.

**CAMEL**—Customized Applications for Mobile Enhanced Logic

**CAP**—CAMEL Application Part

**CDPA**—Called Party Address

**CGPA**—Calling Party Address

**CDT**—Command Database Tool

**CPC**—Capability Point Code

**CSL**—Common Screening List

**DPC**—Destination Point Code (SS7 network address)

**DS**—Digit String

**DSM**—Database Service Module

**EPAP**—EAGLE Provisioning Application Processor

**FSN**—Forward Sequence Number. This is the unique identifier for the message currently being transmitted.

**FSNC**—Forward Sequence Number of the last message acknowledged by the peer. This is the BSNT received from the peer during changeover.

**GPRS**—General Packet Radio Service

**GTI**—Global Title Indicator

**GTT**—Global Translation Table

**HLR**—Home Location Register

**IDD**—International Direct Dialing

**IDP**—INAP Initial DP message

**IAC**—Initial Alignment Control as described in [4] and [5].

**IETF**—Internet Engineering Task Force

**IN**—Intelligent Network

**INAP**—Intelligent Network Application Part

**INP**—INAP Number Portability

**INSL**—In Network Subscriber List

**IP Connection**—A TCP socket or an SCTP association.

**IPLIMx**—Generically refers to both the ANSI (IPLIM) and ITU (IPLIMI) Point-to-Point IP7 application.

**LSC**—Link State Control

**M2PA**—SS7 MTP2-User Peer-to-Peer Adaptation Layer

**MMS**—Multi-Media Services

**MSC**—Message Switching Center

**MSU**—Message Signalling Unit

**NAI**—Nature of Address Indicator

**NDD**—National Direct Dialing

**NEIF**—Network Element Interface

**PC**—Point Code

**PST**—Primary State

**SCCP**—Signal Connection Control Part

**SCTP**—Stream Control Transmission Protocol

**SCTP CDI**—SCTP Connection Down Indicator

**SI**—Service Indicator

**SIGTRAN**—Signaling Transport Working Group within the IETF

**SKTS**—Service Key + TeleService

**SLK**—Signaling Link

**SSN**—Subsystem Number

**SST**—Secondary State – the secondary state value as shown by a SG status query command.

**Stream**—SCTP supports multiple byte streams within a single connection. M2PA generally uses stream zero for link status and a non-zero stream for data messages.

**TCAP**—Transaction Capability Application Part

**TFA**—Transfer Allowed

**TFP**—Transfer Prohibited

**TT**—Translation Type

**UA**—IETF User Adaptation Layers

**UAM**—Unsolicited Alarm Message

**UIM**—Unsolicited Information Message



## Appendix B. Hardware Baseline

The following hardware baseline supports this release. This list shows top-level part numbers (in bold) and assembly part numbers (if applicable).

- Control Shelf **870-2321-02 Rev A<sup>1</sup>** or  
Control Shelf **870-2321-04 Rev A<sup>2</sup>** or  
Control Shelf **870-2377-01 Rev A<sup>3</sup>**
- Control Shelf Backplane **870-0775-03 Rev E**
- Extension Shelf **870-2378-01 Rev A<sup>4</sup>**  
Extension Shelf **870-0776-02 Rev C<sup>5</sup>**  
Extension Shelf **870-0776-03 Rev D**  
Extension Shelf **870-0776-06 Rev A**  
Extension Shelf **870-0776-07 Rev A**
- Extension Shelf Backplane **870-0776-08 Rev A** or  
Extension Shelf Backplane **870-0776-11 Rev A**
- ACM **870-1008-02 Rev D** or  
ACM **870-1008-03 Rev A** or  
ACM **870-1008-04 Rev A** or  
ACM **870-1008-05 Rev A**
- Air Management Card **870-1842-01 Rev A<sup>6</sup>**
- DCM **870-1945-03 Rev A**
- DCM **870-1945-01 Rev A**  
DCM **870-1945-02 Rev A**
- EDCM **870-2371-01 Rev E**  
EDCM **870-2508-01 Rev A**
- EDCM (single-slot) **870-2372-01 Rev E**
- DCMX **870-1984-01 Rev A**
- DSM, 1GB MEM **870-1984-02 Rev A** or  
DSM, 1GB MEM **870-1984-08** or  
DSM, 1GB MEM **870-1984-09** or  
DSM, 2GB MEM **870-1984-03 Rev A** or  
DSM, 3GB MEM **870-1984-04 Rev A** or  
DSM, 4GB MEM **870-1984-05 Rev A<sup>7</sup>** or  
**870-1984-06 Rev A** or  
**870-1984-07 Rev A**

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<sup>1</sup> Required for HMUX.

<sup>2</sup> Required for HMUX, Standard Frame

<sup>3</sup> Required for HMUX, Heavy Duty Frame

<sup>4</sup> Required for Heavy Duty Frame

<sup>5</sup> Required for Standard Frame

<sup>6</sup> Required for shelves with HC-MIM Cards

<sup>7</sup> Required for 192 Million LNP Numbers

• DSM-1G DSM-1G DSM-1G	870-2371-02 Rev A 870-2371-06 Rev A 870-2371-08 Rev A
• EDSM-2G (MCPM) EDSM-2G	870-2372-03 Rev A 870-2372-09 Rev A
• E1/T1 MIM E1/T1 MIM E1/T1 MIM E1/T1 MIM	870-2198-01 Rev G or 870-2198-02 Rev A 870-2198-03 Rev A 870-2198-04 Rev A
• E1-ATM E1-ATM E1-ATM	870-2455-01 Rev B 870-2455-02 Rev B 870-2455-03 Rev A
• EILA EILA w/ DIMM	870-2049-01 Rev A or 870-2049-02 Rev A
• FAP FAP	870-1606-02 Rev C <sup>1 2</sup> or 870-2320-01 Rev J <sup>3 4</sup>
• FAP-CF/EF FAP-MISC	870-0243-08 Rev C 870-0243-09 Rev C
• GPSM-II GPSM-II GPSM-II	870-2360-01 Rev E 870-2360-02 Rev A 870-2360-06 Rev A
• HC-MIM	870-2671-01 Rev P
• HC-MIM	870-2671-02 Rev A
• HIPR	870-2574-01 Rev D
• HMUX	870-1965-01 Rev A
• LIM-AINF LIM-AINF LIM-AINF LIM-AINF LIM-AINF LIM-AINF LIM-AINF w/ DIMM LIM-AINF w/ DIMM LIM-AINF w/ DIMM LIM-AINF w/ DIMM LIM-AINF w/ DIMM LIM-AINF w/ DIMM LIM-AINF w/ DIMM	870-1014-01 Rev D or 870-1014-02 Rev A or 870-1014-03 Rev B or 870-1014-04 Rev A or 870-1014-05 Rev A or 870-1014-06 Rev A or 870-1488-01 Rev A or 870-1488-02 Rev A or 870-1488-03 Rev A or 870-1488-04 Rev A or 870-1488-05 Rev A or 870-1488-06 Rev A
• LIM-ATM LIM-ATM LIM ATM LIM ATM LIM-ATM LIM-ATM	870-1293-02 Rev A or 870-1293-03 Rev A 870-1293-06 Rev A 870-1293-07 Rev A 870-1293-08 Rev A 870-1293-10 Rev A

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<sup>1</sup> Required for Standard Frame

<sup>2</sup> Required for Frames with HC-MIMs

<sup>3</sup> Required for Heavy Duty Frame

<sup>4</sup> Required for Frames with HC-MIMs

• LIM-DS0 LIM-DS0 LIM-DS0 LIM-DS0 w/ DIMM LIM-DS0 w/ DIMM LIM-DS0 w/ DIMM	<b>870-1009-02 Rev D or 870-1009-03 Rev A or 870-1009-04 Rev A or 870-1485-01 Rev A or 870-1485-02 Rev A or 870-1485-03 Rev A</b>
• LIM-E1	<b>870-1379-01 Rev A</b>
• IM-ILA LIM-ILA w/ DIMM	<b>870-1484-01 Rev E or 870-1484-02 Rev C</b>
• LIM-OCU LIM-OCU LIM-OCU LIM-OCU w/ DIMM LIM-OCU w/ DIMM LIM-OCU w/ DIMM	<b>870-1010-03 Rev D or 870-1010-04 Rev A or 870-1010-05 Rev A or 870-1486-02 Rev A or 870-1486-03 Rev A or 870-1486-04 Rev A</b>
• LIM-V.35 LIM-V.35 LIM-V.35 LIM-V.35 w/ DIMM LIM-V.35 w/ DIMM LIM-V.35 w/ DIMM	<b>870-1012-02 Rev D 870-1012-03 Rev A 870-1012-04 Rev A 870-1487-01 Rev A or 870-1487-02 Rev A or 870-1487-03 Rev A</b>
• MDAL MDAL MDAL MDAL	<b>870-0773-04 Rev B or 870-0773-05 Rev A or 870-0773-06 Rev A or 870-0773-08 Rev A</b>
• MPL MPL MPL	<b>870-2061-01 Rev A 870-2061-03 Rev A 870-2061-04 Rev A</b>
• MPL-T	<b>870-2061-02 Rev C</b>
• MPS TekServer EPAP	<b>890-1801-01 Rev D</b>
• MPS Sun Netra ELAP	<b>890-1374-06 Rev A</b>
• TDM TDM	<b>870-0774-10 Rev A or 870-0774-11 Rev A</b>
• TDM GTI	<b>870-0774-15 Rev B</b>
• TSM-256 TSM-256	<b>870-1289-02 Rev A or 870-1289-03 Rev A</b>
• TSM-512 TSM-512	<b>870-1290-02 Rev A or 870-1290-03 Rev A</b>
• TSM-768 TSM-768	<b>870-1291-02 Rev A or 870-1291-03 Rev A</b>
• TSM-1024 TSM-1024	<b>870-1292-02 Rev A or 870-1292-03 Rev A</b>
• Dual GR-376 EOAP	<b>890-1050-02 Rev G</b>
• Single EOAP	<b>890-1050-03 Rev H</b>
• Dual EOAP	<b>890-1050-01 Rev K</b>
• Kit, E1	<b>890-1037-01 Rev A</b>

- Kit, Holdover Clock Assy **890-1013-01 Rev A**
- Fan Assy (Standard Frame) **890-1038-01 Rev D**
- Fan Assy (Heavy Duty Frame) **890-1038-02 Rev A**
- Fan Assy (Shelves with HC-MIM cards) **890-0001-01 Rev A**
- MPS Sun Netra ELAP **890-1277-04 Rev G**
- Sun Netra ELAP **890-1374-04 Rev E**
- T1000 Application Server **870-2640-01 Rev F**
  - Dual Port G-Bit E-Net Card **870-2707-01 Rev B**
  - Quad Serial Exp. Card **870-2708-01 Rev B**
  - 120 GB Hard Drive Assy **870-2721-02 Rev B**
- Upgrade kit, MPS Netra-to-T1000 AS **870-2735-01 Rev A**