Oracle® Communications EAGLE

Feature Notice

Release 45.1

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Oracle® Communications Feature Notice, Release 45.1

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EAGLE 5 Release 45.1

Feature Content

Introduction

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

This Feature Notice includes a brief description of each feature, lists new hardware required, provides the hardware baseline for this release, and explains how to find the Release Notice and other customer documentation on the Customer Support Site. For comprehensive information about all EAGLE commands, refer to *Commands Manual*.

The EAGLE 45.1 release includes all feature functionality of EAGLE 45.0 with the exception of the SIP Number Portability feature.

New and Enhanced Features

Operational Changes

J7 Feature

J7 Support Over SIGTRAN

The Eagle requires updates to be made in order to support the Japanese TTC (Telecommunication Technology Committee) standards, also known as J7. SIGTRAN specific implementation (SS7 networks) in Japan do not use standard ITU formats and procedures. The TTC has modified the ITU specifications to suit Japanese telecom signaling requirements.

Configurable J7 Point Code Format

- When the J7 feature is enabled, a new parameter is available in the STPOPTS table: PCN16FMT. This parameter has two values:
  - 745 (UN-SNA-MNA format) (default)
  - 547 (MNA-SNA-UN format)

Eagle displays command input, output, and UAM/UIMs for the ITUN16 point codes in the format specified by PCN16FMT when the J7 feature is enabled.

Extended J7 Requirements

- Feature is supported over M3UA/M2PA links only - the linkset configured for ITUN16 APC cannot have DS0, E1/T1 or ATM links.
- Eagle sets "Network Indicator" field to 0 for MSUs destined toward ITUN16 point code (`dpc=itun16`).
- ITUN16 linksets' default `sltset` uses a test pattern of 1177 as per JT-Q707.
- Feature adds new point code type ITUN16 to support the 16 bit point code and MTP3 routing label formats used in Japanese networks.
- Feature adds support for JT-Q704/JT-Q707 procedures and messaging.
- Feature adds a new default Signalling Link Test set (sltset 3) for ITUN16 linksets for TTC SRT/SRA messaging.
- ITUN16 point code type is mutually exclusive with ANSI and ITUN24 point code types; thus, the Eagle node can support ITUN16 or ANSI/ITUN24 types but not both at the same time.

Feature Control Requirements

- FAK for Part Number 893-0408-01.
- A temporary FAK cannot be used to enable the feature.
- The feature cannot be enabled if ANSI and/or ITUN24 point codes are provisioned.
- The feature cannot be turned off after it has been turned on.

Commands

Commands modified for J7 Support over SIGTRAN feature

The commands modified to support the J7 Support over SIGTRAN feature are listed in and . lists the commands for which a new parameter or parameter value is added. lists additional commands that are modified to support the J7 Support Over SIGTRAN feature, but do not add new parameters or parameter values.

Table 1: Commands with new parameter or parameter value

`ent-dstn`	added new parameters `spcn16`, `ppcn16`, `aliasn16`, and `dpcn16`
`chg-dstn`	added new parameters `spcn16`, `aliasn16`, and `dpcn16`

`dlt-dstn`
`rept-stat-dstn`
`rst-dstn`
	added new parameters `spcn16`, `ppcn16`, `aliasn16`, and `dpcn16`

rtrv-dstn	added new parameters aliasn16, ppcn16, spcn16, and dpcn16 A new value itun16 is added to the range of parameter pctype.
ent-rte chg-rte dlt-rte rept-stat-rte	added new parameter dpcn16
rtrv-rte	added new parameter dpcn16 A new value itun16 is added to the range of parameter pctype
ent-ls	added new parameters apcn16, spcn16, and ppcn16
chg-ls	added new parameters apcn16 and spcn16
rept-stat-ls	added new parameter apcn16
rtrv-ls	added new parameters apcn16, spcn16, and ppcn16
chg-rtx ent-rtx dlt-rtx rept-stat-rtx rtrv-rtx	added new parameters dpcn16 and opcn16
chg-appl-rtkey ent-appl-rtkey dlt-appl-rtkey rtrv-appl-rtkey	added new parameters dpcn16 and opcn16
ent-sid	added new parameter pcn16
chg-sid	added new parameters pcn16, cpcn16, and ncpcn16
rtrv-sid	added new parameter cpcn16
ent-loopset dlt-loopset	added new parameter pcln16

`rtrv-loopset`	displays J7 point code in the command output
`chg-loopset`	added new parameters `apcln16`, `rpcln16`, `pc1n16`, `npc1n16`, `pc2n16`, and `npc2n16`

`ent-spc`
`dlt-spc`
`rtrv-spc`
	added new parameter `spcn16`

`chg-gws-redirect` `ent-gws-redirect`	added new parameter `dpcn16`

`ent-scr-aftpc`
`chg-src-aftpc`
`dlt-src-aftpc`
`rtrv-src-aftpc`
	added new parameters `un`, `sna`, and `mna`

`ent-scr-cdpa`
`chg-scr-cdpa`
`dlt-scr-cdpa`
`rtrv-scr-cdpa`
	added new parameters `un`, `sna`, and `mna`

`ent-scr-cgpa`
`chg-scr-cgpa`
`dlt-scr-cgpa`
`rtrv-scr-cgpa`
	added new parameters `un`, `sna`, and `mna`

`ent-scr-blkdpc`
`chg-scr-blkdpc`
`dlt-scr-blkdpc`
`rtrv-scr-blkdpc`
	added new parameters `un`, `sna`, and `mna`

`ent-scr-blkopc`
`dlt-scr-blkopc`
`rtrv-scr-blkopc`
	added new parameters `un`, `sna`, and `mna`

`ent-scr-destfld`
`chg-scr-destfld`
`dlt-scr-destfld`
`rtrv-scr-destfld`
	added new parameters `un`, `sna`, and `mna`

ent-cspc dlt-cspc rtrv-cspc	added new parameter pcn16
ent-scr-dpc chg-scr-dpc dlt-scr-dpc rtrv-scr-dpc	added new parameters un, sna, and mna
ent-scr-opc chg-scr-opc dlt-scr-opc rtrv-scr-opc	added new parameters un, sna, and mna
ent-trace	added new parameters sspn16, opcn16, dpcn16, and cpcn16
inh-alm unhb-alm	added new parameters dpcn16 and opcn16
dbg-ddb	added new parameter dpcn16
ent-gta chg-gta	added new parameters pcn16, cgpcn16, opcn16, dpcn16, and cgpcaction
chg-stpopts	added new parameter cnvcgdn16
dlt-gta	added new parameters cgpcn16, opcn16, and dpcn16
rtrv-gta	added new parameters cgpcn16, opcn16, dpcn16, and pcn16 A new value itun16 is added to the range of parameter pctype
ent-gttact chg-gttact rtrv-gttact	added new parameters pcn16 and cgpcn16 A new value remove is added to the range of parameter cgpcogmsg
ent-gttsel chg-gttsel	added new parameter gtin16

dlt-gttsel rtrv-gttsel	
ent-map chg-map	added new parameters pcn16, mpcn16, and mrnpcn16
dlt-map rtrv-map	added new parameter pcn16
ent-mrn chg-mrn	added new parameters pcn16, mappcn16, pcn161, pcn162, pcn163, and pcn164
dlt-mrn	added new parameters pcn16, pcn161, pcn162, pcn163, and pcn164
rtrv-mrn	added new parameter pcn16
ent-na dlt-na	added new value itun16 to the range of parameter type
chg-sccp-msg	added new parameters opcn16, cdpcn16, cgpcn16, dpcn16
ent-rmt-appl dlt-rmt-appl	added new parameter ipcn16
chg-l3t rtrv-l3t	tc timer with a default value of 3 seconds.
ent-cspc dlt-cspc	added new parameter pcn16

Table 2: Commands modified without new parameters or new parameter values

rtrv-log rtrv-rmt-appl rtrv-sccp-msg rtrv-gws-redirect rept-stat-trbl	displays J7 point code in command output
chg-sccpopts	itun16scmg has two values: ON and OFF
chg-stpopts	pcn16fmt has two values: 745 and 547

`msucount`	Range of -p (pctype) flag includes `itun16`
`msutrace`	Range of -p (pctype) flag includes `itun16` `filtkey` provided with -k option can be ITUN16 Point Code format
`msuroute`	Range of -p (pctype) flag includes `itun16`
`lg`	All Point Code parameters have N16 variant

Limitations

- The J7 support over SIGTRAN feature is mutually exclusive with the ANSI and ITU-N24 Point Code format.
- ITU-N16 Point Codes on external interfaces (e.g., EPAP, EMS, IMF/SCOPY and SLAN) are not currently supported.
- Only SIGTRAN-based cards are allowed to have ITU-N16 links.
- MSUs of ITUN16 type will NOT be processed by any Service reachable via SRVSEL table. SRVSEL table does not support GTIN16 parameter.
- MSUs of ITUN16 type will NOT be processed by any Local Subsystem based Service, reachable via MAP table. Local Subsystems cannot be provisioned for ITUN16 SID.
- If the J7 feature is enabled and `SCCPOPTS:ITUN16SCMG=OFF`, SCMG messages sent to Eagle SID J7 point codes will be discarded and UIM 1023 will be generated; MTP can be routed to any other J7 node.

EIR S13/S13' Interface Support

Equipment Identity Register (EIR) is a database containing records of all mobile stations that are allowed or banned in a network. Generally, the banned mobile stations have been declared lost or stolen. Each mobile station is identified by its International Mobile Equipment Identity (IMEI). When a mobile station is detected by the network, the Mobility Management Entity (MME) or Serving GPRS Support Node (SGSN) requests the IMEI of the mobile station, which is sent to the EIR for authorization.

The EIR S13/S13' Interface Support feature allows EIR to support the S13 and S13' Diameter interfaces for these messages. By supporting the S13/S13' interfaces, Diameter requests can be received by an EAGLE card and processed by EIR, and then a response transmitted back to the requester.

Feature Control Requirements

- The feature Part Number is 893-0424-01.
- A temporary Feature Access Key (FAK) cannot be used to enable the feature.

- The feature cannot be turned off after it is turned on.
- The feature appears as `S13/S13' Int for EIR` in the `rtrv-ctrl-feat` output.

Hardware Requirements

- The E5-SM8G-B card is the only Service Module card which supports the DEIRHC application for the EIR S13/S13' Interface Support feature.
- A maximum of 16 E5-SM8G-B cards running the DEIRHC application can be configured in one EAGLE 5.
- A maximum of 32 Service Module cards running a combination of the SCCPHC, SIPHC, and DEIRHC applications can be configured in one EAGLE 5.

Commands

Commands added for EIR S13/S13' Interface Support feature

The commands in *Table 3: Commands added for EIR S13/S13' Interface Support* are added to support the EIR S13/S13' Interface Support feature.

Table 3: Commands added for EIR S13/S13' Interface Support

Command	Description
`chg-deiropts`	configures S13-specific options
`rtrv-deiropts`	displays S13-specific options
`ent-dconn`	configures Diameter connection and flow control by entering Diameter connection values associated to a particular association in table IPAPSOCK
`chg-dconn`	changes Diameter connection and flow control configuration values
`dlt-dconn`	deletes Diameter connection
`rtrv-dconn`	displays Diameter connection status and flow control data
`rept-stat-deir`	displays S13 card statistics

Table DEIROPTS

The new `chg-deiropts` and `rtrv-deiropts` commands configure and display the EIR S13/S13' Interface Support options of the new virtual table DEIROPTS, which is part of table EGLEOPTS. The table DEIROPTS options are shown in *Table 4: Table DEIROPTS options*.

Examples of the `chg-deiropts` command:

```
chg-deiropts:deirimsichk=on:deirrsptype=type2:deirgrsp=off
chg-deiropts:congerr=3004:vendid=10415:product=eagles13:dprcause=2
```

Example of `rtrv-deiropts` command output:

```
DEIRGRSP    = off                DEIRRSPTYPE = type1
DEIRIMSICHK = off               CONGERR     = 3004
VENDID      = 0                  APPLID      = 16777252
PRODUCT     = none               DPR Cause   = Do not want to talk(2)
```

Table 4: Table DEIROPTS options

Name	Values	Description
DEIRIMSICHK	OFF ON	IMSI Check The IMSI Check specifies whether IMSI is used when determining if an IMEI is to be blacklisted. If this option is set to ON and an IMEI is found on the Blacklist, then the corresponding IMSI will be retrieved. If the IMSI found in the message matches the IMSI retrieved, then the IMEI is considered to be on the Whitelist. If the IMSIs do not match or the IMSI is not found, then the IMEI will remain blacklisted. Default value is OFF.
DEIRRSPTYPE	TYPE1 TYPE2 TYPE3	S13 Response Type The S13 Response Type is used to determine how the lists are to be searched. Default value is TYPE1.
DEIRGRSP	OFF WHITELST GRAYLST BLKLST UNKNOWN	S13 Global Response Type The S13 Global Response Type is used to override the response that is sent to the MME or SGSN. When S13 Global Response Type is set to OFF, the normal list logic is applied to the IMEI. If the S13 Global Response Type is set to any value except OFF, then list logic processing is not performed and the corresponding response is sent to the MME or SGSN. Default value is OFF.
CONGERR	3004 5006	Congestion Error This is the value in the result code Attribute Value Pair (AVP) of the response sent at the time of congestion. If the incoming messages on the card running the DEIRHC GPL exceed the card capacity and the card is not able to process the messages, the messages are discarded and the card responds with the configured value in the result code.

Name	Values	Description
		• 3004 - DIAMETER_TOO_BUSY [default value] • 5006 - DIAMETER RESOURCES EXCEEDED
VENDID	*unsigned32* [Default: 0]	S13 local Vendor ID All outgoing messages that require Vendor ID in VENDOR_SPECIFIC_APPLICATION_ID use this configured value. Currently only 10415 is supported; The CEA message will have 10415 in the response.
PRODUCT	*alphanumeric string*	Product Name The configured value contains the vendor-assigned name for the product. All outgoing messages that require the Product Name AVP use this configured value. Default value is *none*.
APPLID	*unsigned32*	Authentication Application ID The configured Application ID should match the Auth-Application-Id (AVP Code 258) value in the Vendor-Specific-Application-ID AVP. Currently, only 16777252 APPLID is supported by EAGLE 5 and this parameter cannot be changed. Default value is 16777252.
DPRCAUSE	REBOOTING (0) BUSY (1) DO_NOT_WANT_TO_TALK (2)	Disconnect Cause The Disconnect Cause in all DPR messages generated by EAGLE 5 use this value. Default value is DO_NOT_WANT_TO_TALK (2).

Table DCONN

The new `ent-dconn`, `chg-dconn`, `dlt-dconn`, and `rtrv-dconn` commands configure and display the EIR S13/S13' Interface Support options of the new table DCONN, which supports the provisioning information associated with the Diameter connection. The table DCONN options are shown in *Table 5: Table DCONN options*.

Example of `ent-dconn` command:

```
ent-dconn:dcname=dcon1:aname=asoc1101:tw=8:td=4:rsvdtps=5000:maxtps=8000
```

Example of `chg-conn` command with mandatory parameter `dcname`:

```
chg-dconn:dcname=dcon1:tw=6:td=3:rsvdtps=6000:maxtps=7000
```

Example of `dlt-dconn` command with mandatory parameter `dcname`:

```
dlt-dconn:dcname=dcon1
```

Examples of `rtrv-dconn` command which can be executed with or without supported parameters `aname`, `dcname`, or `loc`:

```
rtrv-dconn
rtrv-dconn:dcname=dcon1
rtrv-dconn:aname=assoc1101
rtrv-dconn:loc=1101
```

Table 5: Table DCONN options

Name	Values	Description
DCNAME	*alphanumeric string*	Diameter Connection Name The Diameter Connection Name identifies the Diameter connection linked to an association. This option is mandatory.
ANAME	*alphanumeric string*	Association Name This name identifies the association configured in the association table with the Diameter adapter. This option is mandatory.
RSVDTPS	*integer from 100 to 8000, inclusive*	Reserved TPS This is the guaranteed TPS for a connection. Total RSVDTPS on a card cannot exceed 8000. Default value is 250.
MAXTPS	*integer from 100 to 8000, inclusive*	Max TPS The unused S13 card capacity is allocated among the connections that have exceeded their RSVDTPS values up to the limit of MAXTPS value provisioned for the particular connection. Default value is 250.
TW	6sec - 30sec	Diameter Watchdog Timer Default value is 6sec.
TD	1sec - 10sec	Diameter Peer Disconnect Timer Default value is 3sec.

REPT-STAT-DEIR Command

The new `rept-stat-deir` command displays the overall status of the Diameter EIR S13/S13' service on the EAGLE 5. This command is similar to the existing `rept-stat-sccp` and `rept-stat-sip` commands. The Diameter connection status is displayed in the *Status* field when the `rept-stat-deir` command is entered with the `dcname` parameter. The possible values for Diameter *Status* parameter are:

- UP - The Diameter connection status is up and active. This status supports the following Diameter connection states: Active, Closing, Pending.
- DOWN - The Diameter connection status is down or closed. This status supports the following Diameter connection states: Inactive, Open.

The `rept-stat-deir` command can be entered with or without parameters. If the `rept-stat-deir` command is entered without parameters, the displayed consists of a *per diameter card* status, TPS on each S13 card, total S13 statistics, and alarms associated with the Diameter EIR S13/S13' service in the `DEIR ALARM STATUS` field. The following parameters can be entered with the `rept-stat-deir` command:

- `loc` - Diameter card location for which card status, overall card TPS and total card statistics are reported
- `peakreset` - Reset peak values for a card or a specified Diameter connection
- `mode` - Overall S13 TPS and per diameter connection statistics in the EAGLE 5 displayed; allowed value: perf
- `dcname` - Diameter connection name, which is the unique logical name assigned to each diameter connection; output display: status, TPS, and statistics of the specified Diameter connection

Examples of the `rept-stat-deir` command:

```
REPT-STAT-DEIR
REPT-STAT-DEIR:LOC=<S13 card location>
REPT-STAT-DEIR:PEAKRESET=YES
REPT-STAT-DEIR:MODE=PERF
REPT-STAT-DEIR:DCNAME=<Diameter Connection Name>
REPT-STAT-DEIR:DCNAME<Diameter Connection Name>: PEAKRESET=YES
REPT-STAT-DEIR:LOC=<S13 Card LOC>:PEAKRESET=YES
```

The `rept-stat-deir` command displays the pegs shown in *Table 6: REPT-STAT-DEIR Pegs*

Table 6: REPT-STAT-DEIR Pegs

Pegs	Condition
SUCCESS	Messages which fall in these categories: • Success response • IMEI Lookup failure and DEIRRSPTYPE=TYPE1
ERROR	Messages which fall in these categories: • Decoding error • Unsupported messages
WARNING	Messages which fall in these categories: • IMEI Lookup failure and DEIRRSPTYPE=TYPE2 or TYPE3 • Unknown equipment is sent in response
OVERFLOW	Number of message discarded due to congestion
TOTAL MSGS	Total number of messages received: Success + Error + Warning messages

Example of `rept-stat-deir` command output when no parameters are included:

```
abcdestp 13-04-1505:23:50 MST  EAGLE 45.1.0
DEIR ALARM STATUS = No Alarms
DEIR Cards Configured= 2          Cards IS-NR= 2
Average CPU Usage  =  2%

CARD     VERSION    PST            SST       TPS    PTPS   PTIMESTAMP
------------------------------------------------------------------------
1217 P 009-069-000 IS-NR           Active    699    699    13-04-1505:23:22
1301   009-069-000 IS-NR           Active    0      0      13-04-1505:23:22
------------------------------------------------------------------------

TOTAL DEIR SERVICE STATISTICS:
========================================================================
SERVICE   SUCCESS     ERROR       WARNINGS   OVERFLOW    TOTAL
DEIR SRV: 20998       0           0          0           20998
```

Commands modified for EIR S13/S13' Interface Support feature

The commands modified to support the EIR S13/S13' Interface Support feature are listed in *Table 7: Commands with new parameter or parameter value* and *Table 8: Commands modified without new parameters or new parameter values*. *Table 7: Commands with new parameter or parameter value* lists the commands for which a new parameter or parameter value is added. *Table 8: Commands modified without new parameters or new parameter values* lists additional commands which are modified to support the EIR S13/S13' Interface Support feature, but do not add new parameters or parameter values.

Table 7: Commands with new parameter or parameter value

Command	Change
`chg-ctrl-feat`	added EIR S13/S13' Interface Support Part Number.
`enable-ctrl-feat`	
`chg-assoc`	added new `adapter` value `diam` to provide an SCTP interface for Diameter messages arriving at the EAGLE 5 for processing
`dlt-assoc`	
`ent-assoc`	
`rept-stat-assoc`	
`rtrv-assoc`	
`dlt-ip-host`	added new parameter `realm` which specifies the supported domain name from which the message can be sent and received from a host; added the new output mode `display=detail` for `rtrv-ip-host` `realm` parameter value: string with maximum length of 60 characters; must start with an alphabetic character; valid values are 0-9, a-z, A-Z, - (dash), . (period)
`ent-ip-host`	
`rtrv-ip-host`	
`ent-card`	added support for new DEIRHC GPL The `ent-card` command accepts `appl=deirhc` only when the Service Module card is the E5-SM8G-B.
`rept-stat-card`	

Command	Change
chg-th-alm	added new parameters deirconglvl1 and deirconglvl2 deirconglv1 is the S13 Threshold Level 1 Congestion Alarm. deirconglv2 is the S13 Threshold Level 2 Congestion Alarm. Valid parameter values are integers in the range of 1 - 100. The default value is 40 for deirconglv1 and 80 for deirconglv2.
rtrv-th-alm	

Table 8: Commands modified without new parameters or new parameter values

Command	Change
aud-data	added support for auditing of new DEIRHC GPL and new table DEIROPTS
act-gpl	added support for new DEIRHC GPL
chg-gpl	
copy-gpl	
rtrv-gpl	
rept-stat-gpl	
chg-ip-card	modified to provision default gateway for the S13 card
alw-card	added support for new DEIRHC GPL and new DEIR Maintenance Block
chg-card	
dlt-card	
inh-card	
rmv-card	
rst-card	
rtrv-card	added support for new DEIRHC GPL
alw-card	added verification of warm restart capability for S13 cards when the EIR S13/S13' Interface Support feature is enabled, if the data parameter is specified
ent-ip-rte	modified to provision static IP route for the EPAP connection with the S13 card
chg-mtc-measopts	modified to enable or disable the automatic generation and FTP transfer of EIR S13/S13' Interface Measurements reports
rept-ftp-meas	modified for Measurements reports that are generated and FTP transferred for EIR S13/S13' Interface Measurements data

Command	Change
rept-meas	added support of S13 card to generate Measurements report for SCTPCARD Entity
rtrv-ctrl-feat	added EIR S13/S13' Interface Support Part Number
rtrv-mtc-measopts	modified to display the status of EIR S13/S13' Interface scheduled maintenance Measurements reports
rtrv-measopts	added options to display the status of EIR S13/S13' Interface Measurements reports
copy-fta	added support for S13 Table ID
copy-tbl	
disp-disk-stats	
disp-tbl	
set-tbl	
rept-stat-db	enhanced to show the status of the PDB and RTDB databases on cards running the new DEIRHC GPL
rept-stat-alm	added support for display of the new alarm
rept-stat-trbl	
rept-stat-mps	enhanced to include S13 cards
rtrv-data-rtdb	
rept-stat-sys	modified to display the status of the EIR S13/S13' Interface Support feature
chg-ip-lnk	modified to provision IP for Diameter
rtrv-ip-lnk	modified to display IP for the S13 card
rtrv-stp	added support for the EIR S13/S13' Interface Support feature
init-card	added verification of warm restart capability for S13 cards when the EIR S13/S13' Interface Support feature is enabled, if the data parameter is specified
init-network	
init-sys	

PASS Command

The S13 card supports the following PASS commands:

- **ARP** - displays and modifies the Internet to Ethernet address translation tables used by the address resolution protocol

- **ASSOCRTT** - displays round-trip statistics for a given association
- **CPUM** - displays CPU utilization
- **MSUCOUNT** - displays MSU count for particular association and routes, including S13/S13' protocol
- **NETSTAT** - displays network statistics from the IP stack
- **NSLOOKUP** - returns the IP address for a specified hostname, or returns a hostname for a specified IP address
- **PING** - tests for the presence of hosts on the network
- **SCTP -** displays MSU count and current state of specific association
- **SYSSTAT** - display system buffer, CPU configuration, and database-related information
- **TRACEROUTE** - returns/traces the complete path a message has taken to reach the destination

Measurements

Measurement Registers

Eight new measurement registers are added for the EIR S13/S13' Interface Support feature and are supported on a per Diameter connection basis. These new measurement registers listed in *Table 9: EIR S13/S13' Interface Support Measurement Registers* are supported only with the Measurements Platform feature enabled and the Measurements Platform option on. The data for these registers originate from the S13 cards running DEIRHC GPL. The existing SCTPASSOC and SCTPCARD measurement registers are also supported by the DEIRHC GPL.

Table 9: EIR S13/S13' Interface Support Measurement Registers

Register	Description
ECRRCV	Total number of ME-Identity-Check requests (ECR) received by the EIR
WHITEIMEI	Total number of searches that resulted in a match with a *whitelisted* IMEI
GRAYIMEI	Total number of searches that resulted in a match with a *graylisted* IMEI
BLACKIMEI	Total number of searches that resulted in a match with a *blacklisted* IMEI
BLKALIMEI	Total number of searches that resulted in a match with a *blacklisted* IMEI, but were allowed due to IMSI Check match
BLKNALIMEI	Total number of searches that resulted in a match with a *blacklisted* IMEI, and the IMSI in the database did not match the IMSI in the message
UNKNIMEI	Total number of searches that resulted in a match with an Unknown IMEI
NOMTCHIMEI	Total number of searches that resulted in no match in the database

For IMEIs present in multiple lists, the appropriate measurement peg is determined by the logic shown in *Table 10: Logic for IMEIs in Multiple Lists*.

Table 10: Logic for IMEIs in Multiple Lists

Presence in List			EIR Response Type		
WHITE	**GRAY**	**BLACK**	**TYPE 1**	**TYPE 2**	**TYPE 3**
X			in Whitelist	in Whitelist	in Whitelist
X	X		in Graylist	in Graylist	in Graylist
X	X	X	in Blacklist	in Blacklist	in Blacklist
X		X	in Blacklist	in Blacklist	in Blacklist
	X		in Graylist	in Graylist	Unknown
	X	X	in Blacklist	in Blacklist	Unknown
		X	in Blacklist	in Blacklist	Unknown
See Note.			in Whitelist	Unknown	Unknown

Note: This entry indicates no match is found for the IMEI in the database. The result is an increment of two measurement pegs: NOMTCHIMEI and either WHITEIMEI or UNKNIMEI.

Measurement Reports

The new measurement registers are reported in new DEIR SYS and DEIR DCONN measurement reports: Hourly Maintenance Measurements on S13 System (MTCHDEIR) and Daily Maintenance Measurements on S13 System (MTCDDEIR). The MTCHDEIR and MTCDDEIR reports are transferred to an FTP server.

Table 11: DEIR Measurement Reports

Report	Reporting modes	Period	Retention	Display	Reports supported on GPLs
DEIR SYS System Wide report Hourly (60 minute) and Daily (24 hour)	On-demand, Scheduled (MTCHDEIR /MTCDDEIR)	Hourly Daily	24 hours for Hourly data 7 days for Daily data	FTP	MCP / MCPHC / OAMHC
DEIR DCONN report Hourly (60 minute) and Daily (24 hour)	On-demand, Scheduled (MTCHDEIR /MTCDDEIR)	Hourly Daily	24 hours for Hourly data 7 days for Daily data	FTP	MCP / MCPHC / OAMHC

Limitations

- If the S13 card loses EPAP connection, the cable of the S13 card must be manually moved to the other EPAP and the S13 card must be re-provisioned with the address of the new EPAP.
- A S13 card can process traffic using a stale database.
- If the Signaling network interface on a S13 card goes down, S13 traffic corresponding to that interface will be affected.
- An external load balancer is needed to support load-balancing of Diameter messages.
- Relay and proxy modes are not included.
- The response is returned on the same Diameter connection on which the request was received.
- The EIR S13/S13' Interface Support feature does not support FTRA for new commands.

Operational Changes

EAGLE Release 45.1 contains new and updated alarms and error messages.

Unsolicited Alarm Messages

The Unsolicited Alarm Messages (UAMs) in this section are introduced in EAGLE Release 45.1.

EIR S13/S13' Interface Support

New UAMs for the EIR S13/S13' Interface Support feature are shown in *Table 12: New UAMs for EIR S13/S13' Interface Support*.

Table 12: New UAMs for EIR S13/S13' Interface Support

UAM ID	Severity	Message Text	Output Group	Notes
483	Critical	DEIR System is not available	SYSTEM	S13 feature is not ON OR System has no S13 card which is Active/IS_NR
484	Major	DEIR System normal, card(s) abnormal	SYSTEM	Number of active S13 cards (i.e. in IS-NR state) are less than half the configured S13 cards
485	Normal	DEIR System is available	SYSTEM	Number of active S13 cards (i.e. in IS-NR state) are equal to or more than half the configured S13 cards
486	Minor	DEIR Threshold -Level1 exceeded	CARD	DEIRCONGLVL1 of S13 card capacity exceeded.
487	Major	DEIR Threshold -Level2 exceeded	CARD	DEIRCONGLVL2 of S13 card capacity exceeded

UAM ID	Severity	Message Text	Output Group	Notes
488	Normal	DEIR Threshold Condition Cleared	CARD	Congestion cleared on S13 card.
489	Critical	DEIR capacity exceeded	CARD	S13 card's capacity has been exceeded and S13 card is in congestion (overflow counts are pegged in rept-stat-deir command).
490	Normal	DEIR normal	CARD	S13 card capacity is normal.
491	Major	Connection TPS exceed	LINK	Connection TPS is exceeded and Message(s) has been discarded on the connection.
492	Normal	Connection TPS normal	LINK	Connection TPS is normal
493	Major	Diameter Connection Down	LINK	SCTP association is Open (open=yes) and diameter connection status is down. Diameter connection name will get displayed with UAM.
494	Normal	Diameter Connection UP	LINK	SCTP association is Open (open=yes) and diameter connection status changes to UP (or connection state changes to Active). Diameter connection name will get displayed with UAM.
495	Normal	Diameter Connection Closed	LINK	Diameter connection is closed with (open=no). Diameter connection name will get displayed with UAM.

Unsolicited Information Messages

The Unsolicited Information Messages (UIMs) in this section are introduced in EAGLE Release 45.1.

EIR S13/S13' Interface Support

The new UIMs added for the EIR S13/S13' Interface Support feature are displayed in a new format shown in *Table 13: New UIM format*. The maximum length of origin host/origin realm/AVP code and error to be displayed in UIM is 32 bytes.

Table 13: New UIM format

New UIM format - Release 45.1	
Literal	RPT_DEIR_MSG (I-85)

New UIM format - Release 45.1

Format

```
         1         2         3         4         5         6
7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    xxxx.xxxx    CARD cccc,ppp INFO     'text'
                 DCNAME= xxxxxxxxxxxxxxx
                 Command Code = xxxx
                 Error Cause=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

         1         2         3         4         5         6
7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    xxxx.xxxx    CARD cccc,ppp INFO     'text'
                 DCNAME= xxxxxxxxxxxxxxx
                 Command Code = xxxx
                 Origin Realm= xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
                 Error Cause=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx


         1         2         3         4         5         6
7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    xxxx.xxxx    CARD cccc,ppp INFO     'text'
                 DCNAME= xxxxxxxxxxxxxxx
                 Command Code = xxxx
                 Origin Host= xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
                 Error Cause=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

Output Examples

```
         1         2         3         4         5         6
7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    0014.1133    CARD 1103,B   INFO     Diameter msg decode failed
                 DCNAME= Con1
                 Command Code = 324
                 Error Cause= Unsupported appl id

                 Report Date:10-10-12  Time:16:20:19

         1         2         3         4         5         6
7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    0014.1138    CARD 1103,B   INFO     Connection Refused
                 DCNAME= Con3
                 Command Code = 324 (R)
                 IP Address=10.248.4.5
                 Error Cause= IP Addr Mismatch

                 Report Date:03-22-13  Time:16:20:19
```

New UIMs to support the EIR S13/S13' Interface Support feature are shown in *Table 14: New UIMs for EIR S13/S13' Interface Support*.

Table 14: New UIMs for EIR S13/S13' Interface Support

UIM ID	Message Text	Output Group	Notes
1133	Diameter msg decode failed	LINK	Diameter message parsing FAILS. Examples: • ECR Message does not have IMEI AVP or value in IMEI AVP. • CER Message does not have mandatory AVP present. • DPR message received does not have disconnect cause AVP present.
1134	Diameter msg encode failed	LINK	Diameter message Encoding FAILS.
1135	Invalid Diameter Msg received	LINK	Diameter message was received which is not supported in the EAGLE 5 or an error exists in Diameter message header.
1136	Invalid Diameter Msg length	LINK	Total Diameter message length specified in diameter header does not match with the actual diameter message length.
1137	Diameter AVP Decode Fail	LINK	AVP decoding failed.
1138	Connection Refused	LINK	• Origin host and Origin Realm AVPs in CER message does not match with the host and realm values provisioned in the IPAPSOCK table. • Source IP Address of the CER message does not match with the IP Address present in the Host-IP-Address AVP. Error Cause: • Origin Host Mismatch • Origin Realm Mismatch • IP Address Mismatch • No common application
1139	DEIR Global Response is set.	APSS	DEIR Global Response is set to Whitelist/Graylist/Blacklist/Unknown from OFF in DEIROPTS table.
1140	DEIR Global Response is not set	APSS	DEIR Global Response is set to OFF from Whitelist/Graylist/Blacklist/Unknown in DEIROPTS table.

Error Messages

EIR S13/S13' Interface Support

New and modified error codes to support the EIR S13/S13' Interface Support feature are listed in *Table 15: Error Messages for EIR S13/S13' Interface Support*.

Table 15: Error Messages for EIR S13/S13' Interface Support

Response ID Code	Error Message	Used by Command
E2069	Card location specified must be an SM card	`rept-stat-mps`
E2073	SCCP, SIP or DEIR not Configured	`rept-stat-mps`
E2074	Card location specified must be an DEIR card	`rept-stat-deir` `rtrv-dconn`
E2101	Card location is unequipped	`act-cdl` `alw-slk` `blk-slk` `canc-slk` `chg-card` `chg-lbp` `dact-cdl` `dact-lbp` `dact-slk` `dbg-ddb` `disp-bp` `disp-mem` `dlt-bp` `dlt-card` `dlt-ip-node` `dlt-lbp` `ent-bp` `ent-dlk` `ent-ip-node` `ent-lbp` `ent-lg-card` `ent-slk` `inh-alm` `inh-slk` `init-card` `rept-meas` `rept-stat-cdl` `rept-stat-lfs` `rept-stat-slk` `rept-stat-tstslk` `rtrv-dconn` `rtrv-dlk` `rtrv-ip-conn` `rtrv-lbp` `rtrv-slk` `set-mem` `tst-msg` `tst-slk` `ublk-slk` `unhb-alm`
E2112	At least one parameter must be changed	`chg-ainpopts` `chg-deiropts` `chg-inpopts` `chg-meas` `chg-sip-npp` `chg-sipopts`
E2144	Location invalid for hardware configuration	`act-dlk` `act-ip-lnk` `act-lpo` `act-slk` `alw-card` `alw-slk` `blk-slk` `canc-dlk` `canc-lpo` `canc-slk` `copy-fta` `copy-gpl` `dact-ip-lnk` `dact-slk` `disp-disk-dir` `disp-tbl` `ent-card` `ent-ip-rte` `inh-card` `inh-slk` `rept-stat-card` `rept-stat-db` `rept-stat-deir` `rept-stat-dlk` `rept-stat-enet` `rept-stat-rtd` `rept-stat-slk` `rmv-card` `rst-card` `rtrv-card` `rtrv-data-rtdb` `rtrv-ip-rte` `set-tbl` `tst-dlk` `ublk-slk` `unhb-slk`
E2155	Invalid parameter combination specified	`act-flash` `act-lg-engine` `act-upgrade` `aud-data` `chg-csl` `chg-ctrl-feat` `chg-db` `chg-gsmopts` `chg-gta` `chg-gttact` `chg-gttapath` `chg-is41opts`

Response ID Code	Error Message	Used by Command
		chg-lg-engine chg-lg-event chg-lnp-serv chg-ls chg-measopts chg-mtc-measopts chg-npp-as chg-secu-dflt chg-srvsel chg-stpopts copy-ext-stats dact-lg-engine dbg-ddb dlt-csl dlt-gta dlt-map dlt-mrn dlt-pct ent-card ent-csl ent-gta ent-gttact ent-gttapath ent-lg-engine ent-lg-event ent-lnp-serv ent-pct ent-slk ent-srvsel ent-trace format-disk init-card init-ext-stats init-flash rept-imt-info rept-stat-alm rept-stat-cluster rept-stat-db rept-stat-ddb rept-stat-deir rept-stat-gpl rept-stat-iptps rept-stat-lg rept-stat-ls rept-stat-mfc rept-stat-rte rept-stat-slk rtrv-csl rtrv-data-rtdb rtrv-dstn rtrv-gta rtrv-gtmod rtrv-gttact rtrv-gttapath rtrv-gttaset rtrv-ls rtrv-pct rtrv-rte rtrv-rtx rtrv-stp rtrv-vflx-cd rtrv-vflx-rn rtrv-vflx-vmsid tst-e1 tst-slk
E2170	SNMP host table entry not found for specified HOST/IPADDR	chg-snmp-host dlt-snmp-host
E2192	Pattern contains invalid characters	
E2582	RHOST and RPORT must be specified	ent-assoc ent-ip-conn
E2588	Connection Name already exists	ent-dconn ent-ip-conn
E2589	Maximum number of Connections provisioned	ent-ip-conn
E2682	Cannot delete an open Connection	dlt-dconn dlt-ip-conn
E2685	Remote IP address exists in the IPLINK table	chg-assoc ent-assoc ent-ip-conn
E2724	S13 Feature Must Be Enabled	chg-dconn chg-deiropts dlt-dconn ent-card ent-dconn rtrv-dconn rtrv-deiropts
E2728	S13 Feature Must Be Activated	alw-card chg-mtc-measopts init-card rept-ftp-meas rept-meas rst-card
E2730	Invalid Realm	ent-ip-host rtrv-ip-host

Response ID Code	Error Message	Used by Command
E2731	RHOST required for DIAM association	ent-assoc
E2732	RSVDTPS must be less than or equal to MAXTPS	chg-dconn ent-dconn
E2735	Failed reading DCONN table	chg-dconn dlt-dconn ent-dconn rtrv-dconn
E2782	Failed reading IPAPSOCK table	ent-dconn
E2783	DCNAME not present in DCONN table	chg-dconn dlt-dconn rtrv-dconn
E2791	DEIR not Configured	rept-stat-deir
E2792	Association already assigned to Connection	dlt-assoc ent-dconn
E2799	Association adapter is not DIAM	dlt-dconn ent-dconn rtrv-dconn
E2800	Cannot assign ALHOST with Adapter=DIAM association	chg-assoc ent-assoc ent-ip-host
E2803	EIR or S13 feature must be ON	rtrv-data-rtdb
E2804	GFLEX or EIR or S13 feature must be ON	rtrv-data-rtdb
E2805	Host and Realm required for diameter connection	chg-assoc ent-assoc ent-ip-host
E2808	TPS exceeded on DEIR card	chg-dconn ent-dconn
E2985	Application ID not supported	chg-deiropts
E3047	Parameter combination invalid	chg-e1 chg-t1 clr-imt-stats ent-e1 ent-t1 rept-imt-lvl1 rept-imt-lvl2 rtrv-dconn rtrv-gttset rtrv-ip-host tst-imt
E3448	LHOST has open socket or association	chg-ip-lnk dlt-slk ent-dconn
E3739	No Entry found	chg-assoc chg-ip-conn dlt-ip-conn dlt-ip-host ent-assoc
E4099	Association name not found	chg-assoc ent-slk rept-meas rtrv-dconn
E4385	Use type=local or remove ipaddr from IPLNK table	ent-ip-host

Response ID Code	Error Message	Used by Command
E4820	Failure accessing EGLEOPTS table	chg-atinpqopts chg-ctrl-feat chg-deiropts chg-gsmopts chg-gsmsmsopts chg-is41opts chg-is41smsopts chg-sipopts chg-tatropts chg-tifopts chg-ttropts dlt-gttset rtrv-atinpqopts rtrv-deiropts rtrv-gsmopts rtrv-gsmsmsopts rtrv-is41smsopts rtrv-sipopts rtrv-tatropts rtrv-tifopts rtrv-ttropts
E5414	DATA parm must be specified with VSCCP or SIPHC Appl	chg-card ent-card
E5467	Invalid value specified for the parameter	chg-assoc chg-stpopts

Customer Care Center

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

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

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

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

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

  Phone:

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

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

  TAC Regional Support Office Hours:

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

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

  Phone:

  +1-919-460-2150

  TAC Regional Support Office Hours (except Brazil):

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

  - **Argentina**

    Phone:

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

  - **Brazil**

    Phone:

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

    TAC Regional Support Office Hours:

    8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

  - **Chile**

    Phone:

    1230-020-555-5468

  - **Colombia**

    Phone:

    01-800-912-0537

  - **Dominican Republic**

    Phone:

    1-888-367-8552

  - **Mexico**

    Phone:

    001-888-367-8552

  - **Peru**

    Phone:

    0800-53-087

  - **Puerto Rico**

    Phone:

    1-888-367-8552

  - **Venezuela**

    Phone:

    0800-176-6497

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

  Regional Office Hours:

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

  - **Signaling**

    Phone:

    +44 1784 467 804 (within UK)

  - **Software Solutions**

    Phone:

    +33 3 89 33 54 00

- **Asia**

  - **India**

    Phone:

    +91-124-465-5098 or +1-919-460-2150

    TAC Regional Support Office Hours:

    10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays

  - **Singapore**

    Phone:

    +65 6796 2288

    TAC Regional Support Office Hours:

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

Emergency Response

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

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations

- Loss of the system ability to provide any required critical or major trouble notification

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

Related Publications

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

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 Tekelec products. To enroll in any of the courses or for schedule information, contact the Tekelec Training Center at (919) 460-3064 or E-mail `training@tekelec.com`.

A complete list and schedule of open enrollment can be found at `www.tekelec.com`.

Locate Product Documentation on the Customer Support Site

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

1. Log into the *Tekelec Customer Support* site.

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

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

EAGLE 5 Card Overview Table

The EAGLE 5 Card Overview table is a resource table that provides an overview of information for cards that can be provisioned in the EAGLE 5. For a detailed description of supported hardware, see *Hardware Baseline*.

This table lists the following card information:

- Name of the card on the card label
- Card part number
- Provisioned card type
- Number of shelf slots that the card occupies (1 or 2)
- Number of physical ports on the card
- Maximum number of links that can be assigned to the card
- GPLs and applications that can run on the card

Table 16: EAGLE 5 Card Overview Table

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
DCM	870-1945-01 870-1945-02 870-1945-03 870-1984-01 (DCMX)	dcm	2	2	1 IP Service	bpdcm vwxslan	stplan
		stc	2	2	2 IP Service	bpdcm eroute	eroute
EDCM (SSEDCM)	870-2372-01 870-2372-08 870-2372-13^	dcm	1	2	1 IP Service	bpdcm vwxslan	stplan
	870-2372-01	stc	1	2	2 IP Service	bpdcm eroute	eroute
EDCM-A (SSEDCM)	870-2508-01 870-2508-02^	dcm	1	2	1 IP Service	bpdcm vwxslan	stplan
		stc	1	2	2 IP Service	bpdcm eroute	eroute
DSM†	1 GB MEM 870-1984-02 870-1984-08 870-1984-09 870-1984-15^ 870-1984-17^ 2 GB MEM	dsm	2	2	2 IP service	bpdcm vsccp gls	vsccp

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
	870-1984-03 4 GB MEM 870-1984-05 870-1984-06 870-1984-07 870-1984-13^ 870-1984-16^						
EDSM-2G*	870-2372-03 870-2372-07 870-2372-09 870-2372-14^ 870-2372-15^	mcpm	1	2 (use only A)	1 IP service	bpdcm bpdcm2 mcp	mcp
E1/T1 MIM††	870-2198-01 870-2198-02 870-2198-03 870-2198-04 870-2198-07^	lime1 limt1 limch	1	2	8	ss7ml bpmplt	ss7ansi ccs7itu
E1-ATM	870-2455-01 870-2455-02 870-2455-03 870-2455-05^	lime1atm	1	2	1	atmitu bphcap bphcapt	atmitu
E5-ATM	870-1872-01^ 870-1872-02^	limatm lime1atm	1	4 (3 used)	3	atmhc blbepm blcpld bldiag6 blvxw6 imtpci blixp	atmansi atmitu
E5-ATM-B	870-2972-01	limatm	1	4 (3 used)	3	atmhc blmcap	atmansi atmitu
E5-E1T1	870-1873-02	lime1	1	8	32	ss7hc	ss7ansi

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
	870-1873-03^ 870-1873-04^	limt1				blbepm blidag6 blvxw6 blcpld imtpci pldpmc1 blixp	ccs7itu
		lime1 (for SE-HSL)	1	8	1		ccs7itu
		limt1 (for ST-HSL-A)	1	8	1		ss7ansi
E5-ENET	870-2212-02 870-2212-03^ 870-2212-04^ 870-2212-05^	dcm	1	2	16	iplhc blbepm bldiag6 blvxw6 blcpld imtpci blixp	iplim iplimi
			1	2	1	ipghc blbepm bldiag6 blvwx6 blcpld imtpci blixp	ss7ipgw ipgwi
			1	2	2 IP Service	slanhc blbepm bldiag6 blvxw6 blcpld imtpci blixp	stplan
		stc	1	2	2 IP Service	erthc blbepm bldiag6	eroute

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
						blvxw6 blcpld imtpci blixp	
		enet	1	2	32	ipsg blbepm bldiag6 blvxw6 blcpld imtpci blixp	ipsg
E5-ENET-B	870-2970-01	dcm	1	2	16	iplhc blmcap	iplim iplimi
			1	2	1	ipghc blmcap	ss7ipgw ipgwi
			1	2	2 IP Service	slanhc blmcap	stplan
		stc	1	2	2 IP Service	erthc blmcap	eroute
		enetb	1	2	32	ipsg blmcap	ipsg
		ipsm	1	2 (use only A)	1 ipshc service	ipshc blmcap	ips
E5-IPSM	870-2877-01^ 870-2877-02^	ipsm	1	2 (use only A)	1 ipshc service	ipshc blbepm bldiag6 blvxw6 blcpld imtpci blixp	ips

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
E5-MASP	870-2903-01^ 870-2903-02^ 870-2903-03^	N/A	2	2	N/A	oamhc blmcap	oam
E5-MCPM-B	870-3089-01	mcpm	1	2 (use only A)	1 IP service	mcphc blmcap	mcp
E5-MDAL	870-2900-01^	N/A	2	N/A	N/A	N/A	N/A
E5-SM4G	870-2860-01^ 870-2860-02^	dsm	2	2	2 IP Service	sccphc blbsmg bldiag6 blvxw6 blcpld imtpci blixp	vsccp
E5-SM8G-B	870-2990-01	dsm	2	1	2 IP Service 16 TCP 1 UDP	deirhc siphc sccphc blmcap	deir siphc vsccp
E5-TSM	870-2943-03^	tsm	1	1	N/A	glshc blbepm bldiag6 blvxw6 blcpld imtpci blixp	gls
HC-MIM††	870-2671-01 870-2671-02 870-2671-03^	lime1 limt1	2	8	64	ss7hc blbios bldiag6 blvxw6 blcpld imtpci	ss7ansi ccs7itu
		lime1 (for SE-HSL)	2	8	2		ccs7itu

Card Name as shown on card label	Part Number	Provisioned Card Type	Per Card Slots/Ports		Links per Card	Card GPLs	Card Applications
						pldpmc1 blixp	
HIPR	870-2574-01 870-2574-02^	N/A	1	N/A	N/A	hipr	hipr
HIPR2	870-2872-01^ 870-2872-02^ 870-2872-03^	N/A	1	N/A	N/A	hipr2	hipr2
HMUX	870-1965-01 870-1965-03^	N/A	1	N/A	N/A	bphmux	bphmux
LIM-ATM	870-1293-02 870-1293-03 870-1293-06 870-1293-07 870-1293-08 870-1293-10 870-1293-13^	limatm	1	2	1	atmansi bphcap bphcapt	atmansi
MPL	870-2061-01 870-2061-03 870-2061-04 870-2061-06^	limds0	1	2	8	bpmpl ss7ml	ss7ansi

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

†DSM or E5-SM4G cards are required for the LNP, 50,000 GTT, or EPAP-related features. For more information about turning these features on, refer to the appropriate manual.

††For the E1 or T1 interface, an 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.

^This part number is the ROHS equivalent of the immediately preceding part number.

Hardware Baseline

The Hardware Baseline is shown in the following table.

Table 17: Hardware Baseline

Component	Part Number	ROHS Number (if applicable)	Required for
Control Shelf	870-2321-02 Rev A	870-2321-08 Rev A	Standard Frame
	870-2321-04 Rev A		
	870-2377-01 Rev A	870-2377-02 Rev A	Heavy Duty Frame
Control Shelf Backplane	850-0330-06 Rev A	850-0330-07 Rev A	
Extension Shelf	870-2378-01 Rev A	870-2378-02 Rev A	Heavy Duty Frame
	870-0776-02 Rev C		Standard Frame
	870-0776-03 Rev D		
	870-0776-06 Rev A		
	870-0776-07 Rev A		
	870-0776-08 Rev A or		
	870-0776-11 Rev A		
Air Management Card	870-1824-01 Rev A	870-1824-02 Rev A	Shelves with Fan Assembly
DCM	870-1945-01 Rev A or		
	870-1945-02 Rev A or		
	870-1945-03 Rev A		
DCMX	870-1984-01 Rev A		
EDCM-A (single slot)	870-2508-01 Rev A	870-2508-02 Rev A	
DSM, 1GB MEM	870-1984-02 Rev A or		
	870-1984-08 Rev A or		
	870-1984-09 Rev A	870-1984-15 Rev A 870-1984-17 Rev A	
DSM, 2GB MEM	870-1984-03 Rev A		
DSM, 4GB MEM	870-1984-05 Rev A		Heavy Duty Frame
	870-1984-06 Rev A or		

Component	Part Number	ROHS Number (if applicable)	Required for
	870-1984-07 Rev A	870-1984-13 Rev A 870-1984-16 Rev A	
EDSM-2G (MCPM)	870-2372-03 Rev A		
	870-2372-07 Rev A		
	870-2372-09 Rev A or	870-2372-14 Rev A	
		870-2372-15 Rev A	
E1/T1 MIM	870-2198-01 Rev G or		
	870-2198-02 Rev A or		
	870-2198-03 Rev A or		
	870-2198-04 Rev A	870-2198-07 Rev A	
E1-ATM	870-2455-01 Rev B		
	870-2455-02 Rev B		
	870-2455-03 Rev A	87-02455-05 Rev A	
E5-ATM		870-1872-01 Rev A	
		870-1872-02 Rev A	
E5-ATM-B		870-2972-01 Rev A	
E5-ATM Adapter		830-1342-05	
E5-E1T1	870-1873-02 Rev A	870-1873-03 Rev A	
		870-1873-04 Rev A	
E5-ENET	870-2212-02 Rev A	870-2212-03 Rev A	
		870-2212-04 Rev A	
		870-2212-05 Rev A	
E5-ENET-B		870-2971-01 Rev A	
E5-IPSM		870-2877-01 Rev A	
		870-2877-02 Rev A	
E5-MASP		870-2903-01 Rev C	
		870-2903-02 Rev A	
		870-2903-03 Rev A	
E5-MCPM-B		870-3089-01 Rev A	
E5-MDAL		870-2900-01 Rev A	
E5-SM4G		870-2860-01 Rev F	

Component	Part Number	ROHS Number (if applicable)	Required for
		870-2860-02 Rev A	
E5-SM8G-B		870-2990-01 Rev A	
E5-TSM		870-2943-03 Rev A	
FAP	870-1606-01 Rev A or		Standard frame or standard frame with HC-MIMs
	870-1606-02 Rev A	870-1606-05 Rev A	
	870-2320-01 Rev A	870-2320-03 Rev A	Heavy duty frame or heavy duty frame with HC-MIMs
	870-1823-01 Rev B	870-2804-01 Rev B	
FAP-CF/EF	870-0243-08 Rev C		
FAP-MISC	870-0243-09 Rev C		
FAP Fuse and Alarm Panel	870-2804-01 Rev A		
Fast Copy Adapter Upper		830-1343-01 Rev A	
Fast Copy Adapter Lower		830-1343-02 Rev A	
	870-2360-05 Rev A		
	870-2360-06 Rev A	870-2360-08 Rev A	
		870-2360-09 Rev A	
HC-MIM	870-2671-01 Rev P or		
	870-2671-02 Rev B	870-2671-03 Rev A	
HIPR	870-2574-01 Rev D	870-2574-02 Rev A	
HIPR2		870-2872-01 Rev A	
		870-2872-02 Rev A	
		870-2872-03 Rev A	
High-speed Fiber Channel Cable		830-1344-xx	
LIM-ATM	870-1293-02 Rev A or		
	870-1293-03 Rev A or		
	870-1293-06 Rev A or		
	870-1293-07 Rev A or		

Component	Part Number	ROHS Number (if applicable)	Required for
	870-1293-08 Rev B or		
	870-1293-10 Rev A or	870-1293-13 Rev A	
MPL	870-2061-01 Rev A or		
	870-2061-03 Rev A or		
	870-2061-04 Rev A	870-2061-06 Rev A	
MPS DC Frame Assembly	890-1843-01 Rev C	890-1843-02 Rev A	
MPS in Heavy Duty Frame	890-1801-01 Rev E	890-1801-02 Rev A	
Kit E1	890-1037-01 Rev A	890-1037-06 Rev A	
Kit, Holdover Clock Assy	890-1013-01 Rev A		
Fan Assy (Standard Frame)	890-1038-01 Rev D		
Fan Assy (Shelves with HC-MIM cards)	890-0001-01 Rev A or		
	890-0001-02 Rev A	890-0001-04 Rev A	
T1000 Application Server	870-2640-01 Rev F	870-2640-03 Rev A	
Dual Port G-Bit E-Net Card	870-2706-02 Rev B	870-2706-04 Rev A	T1000 Application Server
Modem Card	870-2707-01 Rev B	870-2707-02 Rev A	T1000 Application Server
Quad Serial Exp. Card	870-2708-01 Rev B	870-2708-02 Rev A	T1000 Application Server
120 GB Hard Drive Assy	870-2721-02 Rev B	870-2721-04 Rev A	T1000 Application Server
T1100 (Application Server - DC)	870-2754-01 Rev P or	870-1893-03 Rev A	
	870-2807-01 Rev A		
Dual Port Ethernet	870-2706-02 Rev A	870-2706-04 Rev A	T1100 (Application Server - DC)
Hard Disc Drive - 250 GB SATA	870-2787-01 Rev B	870-2787-02 Rev A	T1100 (Application Server - DC)
2 GB RAM Kit	870-2833-01 Rev C	870-2833-02 Rev A	T1100 (Application Server - DC)

Glossary

A

ATM

Asynchronous Transfer Mode

A packet-oriented transfer mode that uses an asynchronous time division multiplexing technique to multiplex information flow in fixed blocks, called cells.

A high-bandwidth, low-delay switching, and multiplexing technology to support applications that include high-speed data, local area network interconnection, multimedia application and imaging, and residential applications such as video telephony and other information-based services.

C

CCS7ITU

The application for the ITU SS7 signaling links that is used with card types `limds0, limch, lime1, and limt1`.

D

DCM

Database Communication Module

The DCM provides IP connectivity for applications. Connection to a host is achieved through an ethernet LAN using the TCP/IP protocol.

DSM

Database Service Module.

The DSM provides large capacity SCCP/database functionality. The DSM is an application card that supports network specific functions

D

	such as EAGLE Provisioning Application Processor (EPAP), Global System for Mobile Communications (GSM), EAGLE Local Number Portability (ELAP), and interface to Local Service Management System (LSMS).

E

E1	The European equivalent of T1 that transmits digital data over a telephone network at 2.048 Mbps.
E5-E1T1	EPM-based E1/T1 Multi-Channel Interface Module An EPM-based card that provides E1 and T1 connectivity. The E5 indicates the card is for existing EAGLE 5 control and extension shelves. E1T1 is an abbreviation for the ITU E1 and ANSI T1 interfaces. Thus the nomenclature defines the shelves where the card can be used and the physical interface that it provides.
E5-ENET	EPM-based Ethernet card A high capacity single-slot IP signaling card (EPM card plus Gig Ethernet PMC cards).
EDCM	Enhanced DCM Enhanced Database Communication Module

G

GB	Gigabyte — 1,073,741,824 bytes

H

H

HC-MIM	High Capacity Multi-Channel Interface Module A card that provides access to eight E1/T1 ports residing on backplane connectors A and B. Each data stream consists of 24 T1 or 31 E1 DS0 signaling links assigned in a time-division multiplex (TDM) manner. Each channel occupies a unique timeslot in the data stream and can be selected as a local signaling link on the interface card. Each card has 8 E1 or 8 T1 port interfaces with a maximum of 64 signaling links provisioned among the 8 E1/T1 ports.
HIPR	High-Speed IMT Packet Router A card that provides increased system throughput and traffic capacity. HIPR moves EAGLE from an intra-shelf ring topology to an intra-shelf switch topology. HIPR acts as a gateway between the intra-shelf IMT BUS, running at 125Mbps, and the inter-shelf operating at 1.0625Gbps. The HIPR card will seat in the same slot as an HMUX card (slots xx09 & xx10 of each shelf).
HIPR2	High-Speed IMT Packet Router 2 A card that provides increased system throughput and traffic capacity on the existing Fibre-Channel ring. A high rate Fibre-Channel option of 2.5 Gbps is available when an EAGLE is provisioned with all HIPR2 cards. In a mixed topology where a HIPR2 is used in an EAGLE along with HMUX and HIPR, the Fibre-Channel ring runs at the lower rate of 1.0625 Gbps.

H

HMUX	High-Speed Multiplexer A card that supports the requirements for up to 1500 links, allowing communication on IMT buses between cards, shelves and frames. HMUX cards interface to 16 serial links, creating a ring from a series of point to point links. Each HMUX card provides a bypass multiplexer to maintain the ring's integrity as cards are removed and inserted into an operational shelf. High-Speed IMT Multiplexer, a replacement card for the IPMX.

L

LIM-ATM	A link interface module (LIM) with the ATM interface.
LNP	Local Number Portability The ability of subscribers to switch local or wireless carriers and still retain the same phone number.

M

MIM	Multi-Channel Interface Module
MPL	Multi-port LIM

S

SE-HSL	Synchronous E1 High Speed Link Format for E1 high-speed signaling links where time-slot 0 is used for framing and error control. The remainder of bandwidth, equivalent to 31 channels of 64Kbps data, is used as a single data link yielding a total capacity of 1.984 Mbps. Also known as Unchannelized E1.

S

SS7	Signaling System #7 A communications protocol that allows signaling points in a network to send messages to each other so that voice and data connections can be set up between these signaling points. These messages are sent over its own network and not over the revenue producing voice and data paths. The EAGLE 5 ISS is an STP, which is a device that routes these messages through the network.
SS7ANSI	SS7 ANSI An application used by the LIM cards and the E1/T1 MIM card for the MTP functionality.
SSEDCM	Single Slot Enhanced Data Communications Module

T

T1	Transmission Level 1 A T1 interface terminates or distributes T1 facility signals for the purpose of processing the SS7 signaling links carried by the E1 carrier. A leased-line connection capable of carrying data at 1,544,000 bits-per-second.