Tekelec EAGLE® Provisioning Application Processor (EPAP)

Release 13.0

Feature Notice

910-5800-001 Revision A

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Notice

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WEEE - All products shipped to European Union member countries comply with the EU Directive 2002/96/EC, Waste Electronic and Electrical Equipment. All components that are WEEE compliant will be appropriately marked. For more information regarding Tekelec's WEEE program, contact your sales representative.

Trademarks

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Patents

This product is covered by one or more of the following U.S. and foreign patents:
U.S. Patent Numbers:
5,732,213; 5,953,404; 6,115,746; 6,167,129; 6,324,183; 6,327,350; 6,456,845; 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; 6,987,781; 6,987,849; 6,990,089; 6,990,347; 6,993,038; 7,002,988; 7,020,707; 7,031,340; 7,035,239; 7,035,387; 7,043,000; 7,043,001; 7,043,002; 7,046,667; 7,050,456; 7,050,562; 7,054,422; 7,068,773; 7,072,678; 7,075,331; 7,079,524; 7,088,728; 7,092,505; 7,108,468; 7,110,780; 7,113,581; 7,113,781; 7,117,411; 7,123,710; 7,127,057; 7,133,420; 7,136,477; 7,139,388; 7,145,875; 7,146,181; 7,155,206; 7,155,243; 7,155,505; 7,155,512; 7,181,194; 7,190,702; 7,190,772; 7,190,959; 7,197,036; 7,206,394; 7,215,748; 7,219,264; 7,222,192; 7,227,927; 7,231,024; 7,242,695; 7,254,391; 7,260,086; 7,260,207; 7,283,969; 7,286,516; 7,286,647; 7,286,839; 7,295,579; 7,299,050; 7,301,910; 7,304,957; 7,318,091; 7,319,857; 7,327,670
Foreign Patent Numbers:
EP1062792; EP1308054; EP1247378; EP1303994; EP1252788; EP1161819; EP1177660; EP1169829; EP1135905; EP1364520; EP1192758; EP1240772; EP1173969; CA2352246

Ordering Information

Your Tekelec Sales Representative can provide you with information about how to order additional discs.

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EAGLE Provisioning Appication Processor

Feature Notice

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 Release Notice and other customer documentation on the Customer Support Site for the EAGLE Provisioning Application Processor (EPAP) Release 13.0 (see Locate Product Documentation on the Customer Support Site).

New Features for EPAP 13.0

EPAP 13.0 contains the following features:

EPAP on T1200 Application Server
Support 22 Non-Provisionable EPAP Nodes (48 total EPAP Servers)
Provisioning Database Interface (PDBI) Command Statistics
Support Migration of EPAPs from T1000 to T1200
IDP A-Party Blacklist
INP, G-Port, and ATINP Enhancements for Support of ROP

Important Operational Changes

New or changed Error Messages are listed here. There are no new Alarms.

Compatibility

EPAP 13.0 is fully compatible with EAGLE 5 ISS Release 41.1. The Compatibility Matrix – EPAP 13.0 table identifies the compatibility of EPAP 13.0 with other products

Note: The EAGLE 5 ISS must be upgraded to a compatible release before the EPAP is upgraded to 13.0.

Table 1: Compatibility Matrix - EPAP 13.0

Product	Release	Compatibility
EAGLE® 5 ISS	38.0	NC
	39.0	NC
	39.2	NC
	40.0	NC

Product	Release	Compatibility
	40.1	NC
	41.0	NC
	41.1	FC

EPAP on T1200 Application Server

The EPAP on T1200 Application Server feature provides the ability to run EPAP on both the T1000 and T1200 Application Servers. When running on T1000, hubs are used, and when running on T1200, Telco GigE switches are used.

When running on a T1200 AS, a minimum of two switches are needed to support up to 17 Service Module (SM) cards. A maximum of four switches are supported, which in turn support up to 32 SM cards per node.

Note: EAGLE 5 ISS Release 41.1 supports 24 SCCP cards or less.

EPAP to SM Card Network Support

This feature, when running on a T1000 AS, supports SM cards running at 100Mbps at half duplex on side A, and 10Mbps at half duplex on side B, regardless of the type of SM cards used.

When running on a T1200 AS, the speed is determined by specific card combinations:

1. A T1200 AS running with only DSM Cards:
   a. On side A: 100 Mbps and half duplex
   b. On Side B: 10 Mbps and half duplex
2. A T1200 AS running with only SM4G Cards
   a. On side A: 100 Mbps and full duplex
   b. On Side B: 100 Mbps and full duplex
3. A T1200 AS running with a mixture of DSM and SM4G cards: (since each individual port on the switch is not configured, the switch is set to run at the DSM card's rate)
   a. On side A: 100 Mbps and half duplex
   b. On Side B: 10 Mbps and half duplex

Removal of Man-Machine Interface (MMI) Connectivity on T1200 AS

Due to the lack of serial ports on the T1200 AS, the MMI Connection shall be removed when the feature is running on a T1200 AS. The MMI connection is still available when the feature is running on a T1000 AS.

Hardware Requirements

Either a T1000 AS with hubs or a T1200 AS with switches is required.

Limitations

This feature requires TPD version 3.3.2 and MySQL version 5.0.37.

T1200 AS will not function with hubs that are already in place with a T1000 setup.

Alarms

None.

Feature Control Requirements

There are no feature control requirements identified for this feature.

Support 22 Non-Provisionable EPAP Nodes (48 total EPAP Servers)

EPAP supports two provisionable EPAP nodes feeding up to 22 non-provisionable EPAP nodes. Each EPAP node contains two EPAP servers, or a total of 48 EPAP servers. The provisioning server should be a T1200 AS, and the non-provisioning EPAPs can be either T1000 or T1200 ASs

Hardware Requirements

A T1200 Application Server

Limitations

None.

Alarms

None.

Feature Control Requirements

There are no feature control requirements identified for this feature.

Provisioning Database Interface (PDBI) Command Statistics

The PDBI Command Statistics feature provides the ability to monitor EPAP provisioning performance using reports. These reports are stated in commands per second. Reported statistics include information on provisioning patterns, degradation of performance, and performance impact due to various activities (maintenance related or not).

This feature generates reports for a period of time containing at least the following information:

- Average number of PDBI connections for the reported period
- Peak number of PDBI connections for the reported period
- Average system PDBI commands per second (CPS) for the reported period
- Peak system PDBI commands per second (CPS) for the reported period (calculated per second)

- Percentage of commands with a return code of zero that successfully updated the database for the reported period (ent/upd/dlt commands only).

Statistics related to numbers of PDBI connections are based on the number of PDBI connections at one time.

These reports is accessible via Command Line Interface (CLI) and GUI. PDBI statistics are kept for a specific period called the retention period. During the retention period, reports can be generated on-demand.

Report intervals:

- 5 minutes interval
- 1 hour interval
- 1 day interval - When the daily PSR type is generated, the statistical data for a 24 hour period is displayed in the report. Only daily boundary timings are considered for this purpose.

For this feature to work in the event of a PDBA Switchover, the feature must be ON for both PDBA systems (Active PDBA and Standby PDBA).

On T1200 AS, the PDBI Command Statistics Feature is ON by default. On T1000 AS, the PDBI Command Statistics Feature is OFF by default.

User Interface (EPAP GUI)

The EPAP GUI shall provide the following two new menu options for this feature:

1. PDBA --> List PDBI Connections
2. PDBA--> PDBI Statistics Report

PDBI Statistics Report

This feature will provide a new menu option “PDBA--> PDBI Statistics Reports” to enable EPAP GUI users to view available statistics reports.

Clicking this menu item will display a new screen in a browser’s right frame to view a statistics report. Select the report generation type and identify the time period for the report.

Click on the “Generate Report” button to display the report.

List PDBI Connections

This feature provides a new menu option “PDBA--> List PDBI Connections” to enable EPAP GUI users to view all provisioning connections to the PDBA. This GUI provides non-persistent data about PDBI and SOG connections along with some performance data based on the totals for the entire lifetime of each connection.

Upgrade Considerations

A new MySql database must be created to house PDBI statistical data on MPS-A servers during an upgrade or fresh install.

Hardware Requirements

None

Limitations

PDBI statistical-data reports will be generated on-demand and are only available if the PDBI Command Statistics feature is ON. This feature is OFF by default, except on T1200 AS where it is ON by default.

This feature is not intended to provide the customer with an instantaneous (less than 1 second) performance rate. Dedicating too much processing power to keeping and calculating rates could be detrimental to performance. Additionally, performance rates calculated on too small of a time period could provide misleading information.

Peak CPS values in the PSR or listPDBIConns.pl output shall be displayed as whole number values (no fractional values or anything less than 1 CPS) since these are calculated with the reported number of commands that completed processing in a one-second time frame. A majority of commands under normal processing will take fractions of a second to perform. The average CPS values for larger time periods (minutes) will provide a much more accurate indication of system PDBI performance.

Due to current implementations, data in the EPAP pdba.cmd log, PDBI Statistics Report and List PDBI Connections may not match due to slight differences in the timestamps used to record a PDBI command. This discrepancy between a PDBI Statistics Report and List PDBI Connections might be most noticeable for a peak CPS on a system with a single provisioning stream.

This feature is not supported on non-provisionable EPAP systems. This feature is also not supported on B servers of a provisionable EPAP pair.

Note: The Peak CPS reported in both the GUI PDBI Statistics Report and List PDBI Connections menus is not sustainable. It is provided for information purposes only. Customers should not expect to get this rate on a regular basis for any sustained period of time.

Alarms

None.

Feature Control Requirements

There are no feature control requirements identified for this feature.

Support Migration of EPAPs from T1000 to T1200

The Support Migration of EPAPs from T1000 to T1200 feature provides the procedure to migrate an existing EPAP 13.0 system running on a T1000 AS to a T1200 AS server.

Note: The provisioning server should be a T1200 AS, and the non-provisioning servers can be either T1000 or T1200 ASs.

The T1200 AS is connected to the SM cards using switches instead of hubs when compared to a T1000 AS. Using switches allows the software to take advantage of SM4G cards by using a full duplex 100 Mbps connection between the switches and the cards.

The T1200 AS will require new IP addresses if possible, and the software should be fully configured and operational before running health checks or migration procedures. If new IP addresses cannot be provided for the T1200 AS, the software on the T1200 AS should not be started until the database backups have been copied over, and the T1200 AS has been configured with the IP addresses of the T1000 AS.

Hardware Requirements

A T1200 Application Server is required.

The 830-1104-04 adapters are required for SM4Gs that connect to the T1200 AS.

Limitations

Both the T1000 AS and T1200 AS must be running TPD 3.3.2 and have the same EPAP 13.0 release installed. The T1200 servers must have pre-configured switches, and both systems must be up and running prior to the migration.

Alarms

None.

Feature Control Requirements

There are no feature control requirements identified for this feature.

IDP A-Party Blacklist

The IDP A-Party Blacklist feature for EAGLE 5 ISS enhances the Prepaid IDP Query Relay feature to provide a generic framework to support the subscriber blacklisting capability that works with either a query-based or relay-based method. The feature supports the blacklist check on the Calling Party (A-Party or CgPN) number in the Initial Detection Point (IDP) Customized Applications for Mobile Networks Enhanced Logic (CAMEL) or Intelligent Network Application Protocol (INAP) message.

For EPAP, this feature allows calling and called-party blacklist data to be associated with Directory Numbers (DNs) and DN Blocks that reside in the PDBA and RTDB databases. The blacklist data will be used by the EAGLE to support IDP Queries. If the calling party is associated with a blacklisted flag and a Generic Routing Number (GRN), then a connect message is sent back to the switch along with the GRN. The GRN is then used to re-route the call to a predetermined destination. Currently only Calling party is used by the EAGLE 5 ISS.

Hardware Requirements

Service Module cards (DSM cards with at least 4G of memory, E5-SM4G cards, or a mixture of both).

Limitations

The IDPR Relay feature must be enabled and turned on before any of the new IDP enhancements can be enabled.

IDP A-Party Blacklist feature only processes IDP messages. It will not process IDPSMS messages, since the expected response is not known.

1. Prepaid subscribers can have either prepaid types or associated portability status, but not both.
2. The customer cannot have different SCP servers for SMS and IDPR handling for the same subscriber.
3. Care must be taken when performing subscriber provisioning to make sure that the PT type does not conflict with any other EAGLE 5 ISS feature solutions.

4. To select an IDPRCDPN NPP service rule set, the CdPN number of digits in the received IDP/IDPSMS message must be non-zero.
5. Network conversion between the incoming msu-type and a connect/continue response is not supported.
6. Blacklist feature changes will support a Connect/Continue response only for InitialDP messages (Opcode 0). IDPSMS/IDPGPRS messages will not be checked by the Blacklist feature, but this does not affect processing by any other IDPR feature components.
7. Network conversion between the msu-type of the incoming IDP/IDPSMS message and the associated prepaid PPSOPTS:PC msu-type is only supported between ITU-I/ITU-N network types.
8. If both IDPS and IDP SK Routing feature functionality is required on a NODE for the same Service Key and EventType BCSM parameters, then the srvsel should be different for both. IDPS encodes a “continue” when a match is made in the skbcsm list for SK-BCSM parameters of incoming messages, but IDPR SK Routing will attempt to route the message to the defined prepaid server.

PDBI Changes

PDBI supports the provisioning and retrieval of the Calling and Called Blacklist data for DNs by adding two new optional parameters:

- Calling Party Blacklist (`cgbl`)
- Called Party Blacklist (`cdbl`)

These parameters can have the values "no" (default) or "yes".

The updated commands are:

- ent_sub
- rtrv_sub
- upd_sub

Example: If the Calling Party Blacklist is selected as ‘no’ and the Called Party Blacklist is selected as ‘yes’, PDBI command will be as follows:

```
ent_sub(iid 3, bdn 123456, edn 654321, pt 12, cdbl yes, asd 545454, rn
234567)
```

Alarms

None.

Feature Control Requirements

See the *EAGLE 5 ISS Release 41.1 Feature Notice.*

Performance

The Blacklist feature will have a negligible impact on the rated performance of the application software.

INP, G-Port, and ATINP Enhancements for Support of ROP

The INP, G-Port, and ATINP Enhancements for Support of ROP feature allows additional data to be associated with a subscriber (DN) or a range of subscribers. This data is called Additional Subscriber Data (ASD).

Some countries use an additional piece of information called the CNL (Small Geographic Area) for number porting. Each ported subscriber in these countries must be associated with a CNL. CNLs can be clustered into groups called ROPs (Large Geographic Area) to simplify the routing.

The GRN field in EPAP stores the ROP information. A customer may have both CNL and ROP for a single subscriber entry, but the allowed provisioning on the ATINP, G-Port and INP features only allow one of these fields to be selected in the outgoing message.

For EPAP, this feature adds the ROP into the GRN field. There is a new mapping table, the Generic Mapping Table (GMT) that is used to add the CNL to ROP mappings. If a CNL is configured, it triggers an automatic lookup of the GMT and back-populates the GRN field with the retrieved ROP information.

Hardware Requirements

None.

Limitations

Each feature being modified requires the base feature or capability on which it is built, specifically:

- ATINP (all protocol versions) with GRN - requires ATINP (all protocol versions)
- G-Port and G-Port SRI Query for Prepaid with GRN - requires G-port and G-port SRI Query
- INP and/or AINPQ with GRN - requires INP and/or AINPQ

This feature is mutually exclusive with all other features that use the GRN field to carry feature specific information. Examples are IDP A-Party Blacklist, TIF, and MO-SMS.

Alarms

None.

Feature Control Requirements

None.

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.

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 **new** Customer Support site at *support.tekelec.com*.

   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**.

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 ISS. 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`.

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

Customer Care Center

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

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

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

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

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

  Phone:

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

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

  TAC Regional Support Office Hours:

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

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

  Phone:

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

  TAC Regional Support Office Hours (except Brazil):

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

  - **Argentina**

    Phone:

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

  - **Brazil**

    Phone:

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

    TAC Regional Support Office Hours:

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

  - **Chile**

    Phone:

    1230-020-555-5468

  - **Columbia**

    Phone:

    01-800-912-0537

  - **Dominican Republic**

    Phone:

    1-888-367-8552

  - **Mexico**

    Phone:

    001-888-367-8552

  - **Peru**

    Phone:

    0800-53-087

  - **Puerto Rico**

Phone:

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

- **Venezuela**

  Phone:

  0800-176-6497

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

    Phone:

    +44 1784 467 804 (within UK)

    TAC Regional Support Office Hours:

    8:00 a.m. through 7:00 p.m. (GMT), Monday through Friday, excluding holidays
  - **Software Solutions**

    Phone:

    +33 3 89 33 54 00

    TAC Regional Support Office Hours:

    8:00 a.m. through 7:00 p.m. (GMT), Monday through Friday, excluding holidays
- **Asia**
  - **India**

    Phone:

    +91 124 436 8552 or +91 124 436 8553

    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 an EAGLE 5 ISS that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical problems affect service and/or system operation resulting in:

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

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