

Tekelec EAGLE[®] Collector Application Processor (ECAP)

Release 41.1

Feature Notice

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ECAP Release 41.1

Feature Content

Introduction

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

This *Feature Notice* includes a brief overview of each feature, 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.

New Features

The ECAP Release 41.1 contains these two new features.

- [*EAGLE Collector Application Processor \(ECAP\) on the T1200 Platform*](#)

Along with existing support for the T1100 server, ECAP release 41.1 will support a new high performance server, T1200.

- [*Output Measurements File Size Reduction*](#)

Various options exist to reduce the output file to decrease the transfer time and the congestion experienced on a network during the file retrieval period to the Aggregator.

Other Changes

The ECAP Release 41.1 contains the listed enhancements:

- [*Sequence Numbering for Measurement File Names*](#)

This enhancement allows ECAP to add a sequence number to the output measurement file names.

- [*Signaling Node Information Added to the Output Measurement File*](#)

With this enhancement, the output measurement files provide signaling node (network indicator) information.

Operational Changes

- Major ECAP alarms are listed in [*Table 5: Major Integrated Accounting Feed Application Alarms*](#)
- Minor ECAP alarms are listed in [*Table 6: Minor Integrated Accounting Feed Application Alarms*](#)

EAGLE Collector Application Processor (ECAP) on the T1200 Platform

ECAP release 41.1 will support a new T1200 server, along with the existing support for the T1100 server. All existing ECAP functionality (from prior releases 1.0 and 40.1) supported on the T1100 will now be supported on the T1200. Also, new ECAP functionality introduced in release 41.1 will be supported on both the T1100 and the T1200 servers. For more information, refer to the *Feature Manual - ECAP*.

Operating System

The ECAP server operates on the Tekelec Platform Development (TPD) 3.3 32-bit (i686/i386) Linux distribution operating system.

TPD 3.3

TPD 3.3 provides a method for trapping platform Alarm conditions. ECAP installation turns on the TPD **snmpAgent**, and enables configuration of the agent via the **platcfg** menu.

In addition to **ecapadm**, ECAP installation provides an **ecapuser** account. This is a limited account that can NOT control or configure the ECAP application via **ecapcfg**.

For additional information regarding the ECAP server's architecture, processor type, and node name, execute the **uname -a** command on each server to generate output such as this example:

Output Example

```
# uname -a
Linux ECAP 2.6.18-1.2849prere13.3.0_63.1.0 #1 SMP Thu Nov 13 02:48:50 EST 2008 i686
i686 i386 GNU/Linux
```

ECAP Configuration

Configuration tasks need to be performed on the Aggregator, NMS, ECAP network, Integrated Accounting Feed application, and EAGLE 5 ISS. It is recommended that these tasks be performed in the following sequence:

1. Configure the Aggregator (customer-specific)
2. Configure the ECAP Network Interfaces for a T1100 or T1200 server
3. Configure Switches for a T1100 or T1200 server.
4. Configure file transfer from the ECAP server to the Aggregator
5. Configure NTP to synchronize time between the ECAP server and the Aggregator
6. Configure the NMS on the NMS system (customer specific) and configure the ECAP server to send SNMP traps to the NMS

Note: SNMP traps are not sent to the EAGLE 5 ISS EMS.

7. Configure the Integrated Feed Application
8. Configure the EAGLE 5 ISS SLAN card
9. Configure Gateway Screening on EAGLE 5 ISS
10. Configure the Measurements Platform on EAGLE 5 ISS

The procedures for performing the configuration tasks listed above can be found in the ECAP Configuration section of the *Feature Manual - ECAP*.

Network Interfaces

Each T1200 ECAP server requires three operational network interfaces:

- The Data Collection Interface is the incoming MSU data network interface. The interface connects an ECAP server to the EAGLE 5 ISS SLAN card via direct IP connection. Each ECAP server interfaces with one and only one SLAN card.
- The File Transfer Interface is used to transfer data files from the ECAP server to the Aggregator. This is a secure interface that transfers files via SCP.
- The Maintenance Interface allows the monitoring of alarms on a remote NMS. This interface supports secure remote login via SSH.

All interfaces are standard 100Mbps IP connections. While each ECAP server connects to only one Aggregator, the Aggregator may receive measurements data from multiple ECAP servers associated with a single EAGLE 5 ISS.

Hardware Requirements

Hardware requirements for the ECAP on the T1200 platform are as follows:

- T1200 AS Frame
 - Note:**
Release 41.1 supports a single ECAP Frame.
- Power Distribution breaker panel
- Two or four Telco switches
 - Note:** Two switches (one pair) must be configured if 12 ECAP servers or less are configured. Four switches (two pair) must be configured if more than 12 ECAP servers are configured.
- A T1200 server , running the Integrated Q.752 MTP/SCCP Accounting Feed feature.
- The number of T1200 ECAP Servers per frame is two to eighteen.
- The EAGLE 5 ISS system used with the ECAP must be equipped with SSEDCEM or E5-ENET card types running the SLAN application. The SLAN application cards must be provisioned with 100 Mbps links in order to achieve 10000 MSUs/sec.

The ECAP Servers are configured in an N+1 configuration based on the maximum expected traffic rate as shown in [Table 1: MSU to T1200 Server Mapping](#).

Table 1: MSU to T1200 Server Mapping

MSU per Second	T1200 Servers
<= 10000	2
10001 to 20000	3

MSU per Second	T1200 Servers
20001 to 30000	4
30001 to 40000	5
40001 to 50000	6
50001 to 60000	7
60001 to 70000	8
70001 to 80000	9
80001 to 90000	10
90001 to 100000	11
100001 to 110000	12
110001 to 120000	13
120001 to 130000	14
130001 to 140000	15
140001 to 150000	16
150001 to 160000	17
160001 to 170000	18

Memory and Disk Space

The ECAP application can be installed on either of these hardware platforms:

- T1100 server consisting of two mirrored 250 GB hard drives
- T1200 server consisting of three mirrored 146 GB hard drives

Memory and disk requirements for the ECAP application are due to the massive amounts of data that can be collected from the EAGLE 5 ISS. The ECAP installation take about 10-12 MB of disk space.

Enhanced Commands

The commands or command families in [Table 2: SLAN Card Parameters](#) are used to configure the EAGLE 5 ISS for support of the ECAP feature. For a complete description of these commands, refer to the *Commands Manual* of your current documentation set.

Table 2: SLAN Card Parameters

Command	Parameters	Description
ent-dlk	:loc=XXXX	Location of the SLAN card.
	:ipaddr=x.x.x.x Note: The IP addresses given to the right are the default addresses for the ECAP servers and the recommended addresses for the SLAN cards. These locations can be changed; however, the SLAN cards must be located within the same subnet as the associated ECAP server.	Locally allocated static IP address of the SLAN card. The guideline for allocating the particular IP address is as follows: ECAP IP 192.168.100.1(Server 1A) to SLAN IP 192.168.100.101 ECAP IP 192.168.100.2 (Server 1B) to SLAN IP 192.168.100.102 ... ECAP IP 192.168.100.6 (Server 1F) to SLAN IP 192.168.100.106 ... ECAP IP 192.168.100.12 (Server 1L) to SLAN IP 192.168.100.112 ... ECAP IP 192.168.100.18 (Server 1R) to SLAN IP 192.168.100.118 Note: For T1100 there is a maximum of 6 ECAP servers per frame, so only ECAP servers 1A through 1F are applicable.
	:speed=100	Sets the port speed to 100Mbps.
ent-ip-node	:loc=XXXX	Location of the SLAN card.
	:ipaddr=192.168.100.z	IP address of the ECAP Data Collection Interface.
	:ipappl=stplan	Sets the application that will be using the interface.
	:cap=xxx	Maximum percentage of Ethernet capacity allocated to this connection. For SSED CM SLAN cards communicating with T1100 or T1200 ECAP server: cap =100

Command	Parameters	Description
		<p>For E5-ENET SLAN cards communicating with ECAP server, use the peak performance ratings listed in the capacity formula to calculate the correct cap parameter value:</p> <ul style="list-style-type: none"> • T1100 ECAP server: 6000 MSU/sec • T1200 ECAP server: 12,000 MSU/sec <p>Note: For more information on the capacity formula used to calculate the correct cap parameter value, refer to the <i>Database Administration - Features Manual</i> or the <i>Commands Manual</i>.</p>
	:ipport=[1024..5000]	Port through which EAGLE 5 ISS and ECAP communicate. The value entered must match the "SLAN feed port" parameter used during the the ECAP configuration process.

Limitations

No limitations are associated with this feature.

Output Measurements File Size Reduction

The Accounting File Size Reduction feature provides various options to reduce the output measurement file. Reducing the size of the output measurement file will decrease the transfer time and the congestion experienced on the network during the file retrieval period by the Aggregator.

- [Variable Measurements Collection Period](#)
- [Variable File Transfer Offset Time](#)
- [Multiple Output File Formats](#)
- [Compression of Output Measurement Files](#)

Measurement File Reduction Options Added to the ECAP Configuration Menu

[Table 3: Measurement File Configuration Menu Options](#) and [Table 4: File Mover Configuration Menu Option](#) display the parameters that can be configured to reduce the size of the output measurements file using the `ecapcfg`.

Table 3: Measurement File Configuration Menu Options

Menu Option	Description
Measurement File Format	<p>Sets the output format for the measurement files. File format can be XML or CSV.</p> <p>By default, this field will be set to XML.</p>

Menu Option	Description
Measurement File Compression Required	Compresses the output measurement data files before they are transferred to the Aggregator. By default, this field will be set to N (disabled).
Data Write Intervals	Sets the interval, in minutes, at which the Integrated Accounting Feed application generates the data file. By default, the data write interval will be set to 5.

Table 4: File Mover Configuration Menu Option

Menu Option	Description
File Transfer Time	Sets the number of minutes after the half hour that data files are sent to the Aggregator. By default, the file transfer time will be set to 5.

Variable Measurements Collection Period

The provisioned time period that the ECAP collects measurements before writing to a measurement file is specified by the Data Write Interval. The ECAP server generates a measurement data file per data write interval.

By default, the data write interval is set to 5 minutes. The Data Write Interval field can now be configured at run-time using the `ecapcfg` tool. This time interval can be set to 1, 5, 10, 15, or 30 minutes.

For more information on the variable measurements collection period option, refer to [Table 3: Measurement File Configuration Menu Options](#).

Variable File Transfer Offset Time

The ECAP server generates a measurement data file per data write interval. These files are stored on the ECAP server and transferred to the Aggregator at periodic intervals of 30 minutes.

The File Transfer Offset field sets the number of minutes after the half hour at which the Measurement files are sent to the Aggregator. For example if the value is set to 5 for a collector, then the measurement files will be transferred at clock timings of `xx:05` and `xx:35`.

By default, the file transfer time is set to 5 minutes. The File Transfer Time field can now be configured at run-time using the `ecapcfg` tool. The time interval can be any integer value ranging from 1 to 29.

For more information on the variable file transfer offset option, refer to [Table 4: File Mover Configuration Menu Option](#)

Multiple Output File Formats

The ECAP will be capable of creating output measurement files in any of the two formats:

- XML
- Comma Delimited ASCII (CSV)

The CSV format will enable reduction of the size of the output measurement file. This not only enables minimum space usage, but also enables a faster rate of data transfer to the Aggregator.

Each measurement file will follow a single format. By default, the measurement files are created in XML format. The Measurement Files Format field can be changed at run time with the `ecapcfg` tool. When the file format is changed from one format to another, the new file format is used for the creation of new output files. Any old/historical files stored on the ECAP will not change.

For more information on the multiple output file format option, refer to [Table 3: Measurement File Configuration Menu Options](#).

Compression of Output Measurement Files

The ECAP will now be capable of reducing the size of the output (XML or CSV) file by applying a compression scheme. To accomplish this requirement, ECAP will use gzip compression tool.

By default, no compression is applied to the output files. This configuration can be changed at run-time with the `ecapcfg` tool. After the compression option is enabled on the `ecapcfg` tool, the compression scheme is applied to the files.

For more information on the compression of e output measurement files, refer to [Table 3: Measurement File Configuration Menu Options](#).

Other Changes

These core enhancements are included in ECAP Release 41.1:

Signaling Node Information Added to the Output Measurement File

ECAP can add the Signaling Node Information to the MSU data in the output measurement files.

By default, the measurement file does not contain a network indicator. The Network Indicator in Measurement Files field can now be set or unset at run-time with the `ecapcfg` tool.

Sequence Numbering for Measurement File Names

ECAP can add a 4-digit sequence number to the output measurement data file name. With a new measurement file created at the timeout of every data write interval period, ECAP can now append a sequence number to the end of the file name for all measurement files created in a calendar day. The functionality will be helpful in identifying the files created during time change due to day-light savings. The new filename format is:

```
<stp>_<collector>_<enddate>_<endtime>_[<sequence_no>].<extension>
```

where

- <stp> - name of the EAGLE STP configured through `ecapcfg`
- <collector> - hostname of the ECAP server
- <enddate> - date of completion of Measurement Data File
- <endtime> -time of completion of Measurement Data File
- <sequence_no> - 4-digit sequence number of the file created in current calendar date
- <extension> - .xml extension for the XML file format or .csv extension for the CSV file format

This sequence number is re-set to zero (0) at every change of calendar date. It is incremented every time a new measurement file is created and appended to the file name. Thus, the sequence number for the most recent measurement file created in a calendar day specifies the total number of files created in a day. Moreover, this number can be used at the Aggregator end to verify that all measurements fields are transferred and in proper order.

By default, the measurement file name does not have a sequence number. The File Sequencing Required field can be changed at run-time with the `ecapcfg` tool.

Operational Changes

The listed operational changes are generated for the features and other changes in Release 41.1.

Alarms

The listed alarms are associated with the Integrated Accounting Feed application:

- The ECAP reports errors in the case of measurement file transfer failures to the Aggregator network. These errors are reported as major and minor alarms.
- The ECAP raises and clears alarms based on the current usage of the ECAP logical volume mounted at `/usr/TKLC/ecap`. These alarms are reported as major and minor alarms.
- The ECAP reports errors that occur during the deletion of measurement files that have been present in the `/usr/TKLC/ecap/meas_files/archive_ftp` directory for more than 48 hours.

The [Table 5: Major Integrated Accounting Feed Application Alarms](#) and [Table 6: Minor Integrated Accounting Feed Application Alarms](#) tables list the Major and Minor alarms for the Integrated Accounting Feed application.

Table 5: Major Integrated Accounting Feed Application Alarms

Alarm	Explanation
ecapFileTransferTo AggFailed	FileMover could not transfer one or more measurement files to any of the configured Aggregators.
tpdDiskSpaceShortageError	The disk usage for the ECAP logical volume increases above 90% of its total disk capacity.
tpdPlatProcessError	At least one of the required ECAP processes is not operational.

Table 6: Minor Integrated Accounting Feed Application Alarms

Alarm	Explanation
ecapFileTransferToPriAggFailed	FileMover could not transfer one or more measurement files to Primary Aggregator. Note that an attempt was made to transfer these files to the Backup Aggregator (if configured).
ecapFileScrubFailed	FileScrubber could not purge at least one measurement file older than 48 hours.
tpdDiskSpaceShortageErrorWarning	The disk usage for the ECAP logical volume is between 80% - 90% of its total disk capacity.

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 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**.

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**
Regional Office Hours:
8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays
 - **Signaling**
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+33 3 89 33 54 00

- **Asia**
 - **India**

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+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**

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+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

Glossary

A

Aggregator

A dedicated server where ECAP measurement data files are sent; responsible for aggregating data from multiple ECAPs into billable form.

An Aggregator MUST have the following characteristics:

- SSH capable
- Parse and accumulate XML output from multiple ECAP servers
- 1 virtual IP address
- Format and generate billing reports that are useful to the customer

D

Data Collection Interface

Incoming MSU data network interface from the EAGLE SLAN card.

E

ECAP

EAGLE Collector Application Processor

A dedicated standalone platform for the collection of EAGLE 5 ISS traffic statistical data.

I

IP

Internet Protocol

IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides

I

packet routing, fragmentation and re-assembly through the data link layer.

ISS

Integrated Signaling System

M

MSU

Message Signaling Unit

The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between themselves. The message contains the following information:

- The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages.
- The length indicator which indicates the number of bytes the message contains.
- The type of message and the priority of the message in the signaling information octet of the message.
- The routing information for the message, shown in the routing label of the message, with the identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.

M

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

N

NMS Network Management System
An NMS is typically a standalone device, such as a workstation, that serves as an interface through which a human network manager can monitor and control the network. The NMS usually has a set of management applications (for example, data analysis and fault recovery applications).

NTP Network Time Protocol

S

SCCP Signaling Connection Control Part

SLAN Signaling Transfer Point Local Area Network
A feature in the EAGLE 5 ISS that copies MSUs selected through the gateway screening process and sends these MSUs over the Ethernet to an external host computer for further processing.

SSEDCM Single Slot Enhanced Data Communications Module

SSH Secure Shell
A protocol for secure remote login and other network services over an insecure network. SSH encrypts and authenticates all EAGLE 5 ISS IPUI and MCP traffic, incoming and outgoing (including passwords) to

S

effectively eliminate eavesdropping, connection hijacking, and other network-level attacks.

T

TPD

Tekelec Platform Distribution

TPD is a standard Linux-based operating system packaged and distributed by Tekelec. TPD provides value-added features for managing installations and upgrades, diagnostics, integration of 3rd party software (open and closed source), build tools, and server management tools.