

Logging Events

Ericsson Service-Aware Policy Controller

USER GUIDE

Copyright

© Ericsson España, S.A. 2017. All rights reserved. No part of this document may be reproduced in any form without the written permission of the copyright owner.

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Ericsson shall have no liability for any error or damage of any kind resulting from the use of this document.

Trademark List

All trademarks mentioned herein are the property of their respective owners. These are shown in the document Trademark Information.

Abstract

This document provides information about the logged events of the SAPC.



Contents

1	Log Overview	1
2	Log Types	3
3	Log Events	5
4	Configuration	21
5	Reported Data	23
5.1	SAPC Application Logs Record Output Format	23





List of Tables

Table	Title	Page
1	Log Events Table Contents	5
2	AF Emergency Session established	6
3	AF Emergency Session terminated	7
4	Autoprovisioned subscriber	7
5	Configuration error	7
6	Diameter incoming message discarded	7
7	Diameter peer node restarted	8
8	Discarded received usage	8
9	End deleting old sessions	9
10	End sessions emergency removal	9
11	End User Notification discarded	10
12	Error fetching data from external DB	10
13	Error sending CCA	10
14	Error sending RAR	11
15	Error sending SLR	11
16	Error sending SNA	11
17	Error sending STR	12
18	Error sending ASR	12
19	Error storing data into external DB	12
20	Existing IP Session removed	12
21	Geographical redundancy state changed	13
22	Internal error	13
23	IP-CAN session exists	14
24	License error	14
25	NetLoc information not received during AF session termination	14
26	Non-Persistent data storage empty	15
27	Notification Server Communication Error	15



28	Protocol error	15
29	Reset of accumulated usage data	16
30	Rule Installation Failure	17
31	SOAP external DB notification not matching object for DN	17
32	SOAP external DB notification event not supported	17
33	Start deleting old sessions	18
34	Start sessions emergency removal	18
35	Timeout receiving RAA	18
36	Timeout receiving SLA	19
37	Timeout receiving STA	19
38	Unable to deliver End User Notification	19
39	Unsuccessful SNA sent	20
40	Unsuccessful STA received	20
41	Usage Limit Surpassed	20
42	Reported Log Files	23
43	Severity identifiers	24



1 Log Overview

Logging information is a high-level, cluster-significant, function-based (as opposed to implementation-particular) information suited primarily for network or system administrators, or automated tools to review current and historical logged information to troubleshoot issues such as misconfigurations, network disconnects and unavailable resources.

This document provides information about the main logged events of the SAPC used by operators or system administrators.

The SAPC provides some other more detailed (implementation dependent, for deeper software troubleshooting purposes) log events, targeted only for Ericsson support personnel which are not listed in this document.





2 Log Types

There are different logs to store different types of events:

Application Log	It is used for events related to the SAPC application noteworthy processing circumstances, those that may affect the service (used for troubleshooting). For example: a subscriber is autoprovisioned. The log events of this category are the ones covered in Section 3 on page 5.
Emergency Calls Log	<p>It is used for events related to the SAPC emergency services. For example: an AF Emergency Session established. The log events of this category are the ones covered in Table 2 and Table 3.</p> <p>Note: All the events printed in this log are also printed in the Application Log.</p>
Alarm Log	Each time an alarm is triggered, a log entry is generated.
Notification Log	Each time a notification is sent, a log entry is generated.
System Log	Used by applications to record noteworthy system circumstances, particularly those that affect service.





3 Log Events

This chapter explains the **application** events logged by the SAPC in tables with the following format:

Table 1 Log Events Table Contents

Event Name	Slogan of the event
Description	The explanation of the cause event
Severity	One of the following level values: <ul style="list-style-type: none">• 0: EMERGENCY. System is unusable• 1: ALERT. Action must be taken immediately• 2: CRITICAL. Critical conditions. If no action is taken, the system may not run properly• 3: ERROR. Error conditions• 4: WARNING. Warning conditions• 5: NOTICE. Advise• 6: INFORMATIONAL. Informational



Source	<p>Subsystem originating the event:</p> <ul style="list-style-type: none">• Access and Charging Control• QoS Control• Dynamic Policy Control• Policy Engine• Subscription• Fair Usage• Time Trigger• End User Notifications• Geographical Redundancy• External Database• Sy Subscriber Charging• SOAP Notification• Obsolete Sessions Notifier
Additional Info	<p>Any other relevant information.</p> <p>This information is literally what is displayed in the log file. When there are several parameters data logged in <code>additional_info</code>, all of them are logged (empty values in case there is no information for any of them).</p> <p>For protocol-related event logs, and to ease the tracking, there are cases where some parameters values are printed, even if they are not directly received in the messages content, but internally completed by the SAPC.</p>

Table 2 AF Emergency Session established

Event Name	AF Emergency Session established.
Description	The SAPC has received and authorized a new request for IMS emergency service.
Severity	6: INFORMATIONAL



Source	Dynamic Policy Control
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • IpAddr: <UE IP Address>, • ServiceUrn: <Service URN>, • IMEISV:<IMEISV>, • SubsId: <Subscriber ID>

Table 3 AF Emergency Session terminated

Event Name	AF Emergency Session terminated.
Description	The SAPC has received a termination request for IMS emergency service.
Severity	6: INFORMATIONAL
Source	Dynamic Policy Control
Additional Info	• SessionId: <Session ID>

Table 4 Autoprovisioned subscriber

Event Name	Autoprovisioned subscriber.
Description	A subscriber has been autoprovisioned.
Severity	6: INFORMATIONAL
Source	Subscription
Additional Info	SubsId: <Subscriber ID>

Table 5 Configuration error

Event Name	Configuration error.
Description	A configuration error has been detected.
Severity	4: WARNING
Source	Any
Additional Info	• Detail: <Detailed Error>

Table 6 Diameter incoming message discarded

Event Name	Diameter incoming message discarded.
Description	Discarded an incoming Diameter message. Therefore, the message has not been processed.
Severity	3: ERROR



Source	Any
Additional Info	<ul style="list-style-type: none">• SessionId: <Session ID>,• SubsId: <SubscriberId⁽¹⁾>,• Protocol: <Gx Rx>,• MessageType: <AAR ASA CCR-I CCR-U CCR-T RAA STR>

(1) Value of the Subscription-Id AVP(s) received inside the message.

Table 7 Diameter peer node restarted

Event Name	Diameter peer node restarted.
Description	A restart on a diameter peer has been detected. Sessions cleaning has been scheduled.
Severity	5: NOTICE
Source	Any
Additional Info	<ul style="list-style-type: none">• RestartedPeer: <Restarted Peer Node>,• Protocol: <Gx Rx>,• OriginStateId: <Current Origin-State-Id>,• PreviousOriginStateId: <Previously Stored Origin-State-Id for that Diameter Peer>

Table 8 Discarded received usage

Event Name	Discarded received usage.
Description	A traffic message (CCR) has been received containing reported usage for a subscriber, but the SAPC discards the received usage.
Severity	6: INFORMATIONAL



Source	Fair Usage
Additional Info	<ul style="list-style-type: none"> • SubsId: <Subscriber ID>, • SubsGroup: <Subscriber group>, • RG: <Reporting Group>, • Counter: <Counter Name>, • UsageType: <Bidir UL DL time>, • ReportedUsage: <Reported Usage Values>, • Reason: <reason nr> The SAPC has discarded the received usage for a session; the <reason nr> specifies why: 1= the usage accumulator was previously reset for another active session of the subscriber/family. 2= the usage accumulator cannot be accessed because of provisioning changes or is not enabled for accumulation.

Table 9 End deleting old sessions

Event Name	End deleting old sessions.
Description	The SAPC has finished to remove old sessions belonging to the restarted peer.
Severity	6: INFORMATIONAL
Source	Obsolete Sessions Notifier
Additional Info	<ul style="list-style-type: none"> • RestartedPeer: <Restarted Peer Node>, • Protocol: <Gx Rx>, • OriginStateId: <Current Origin-State-Id>

Table 10 End sessions emergency removal

Event Name	End sessions emergency removal.
Description	The SAPC has finished the emergency procedure to remove sessions and its Origin-State-Id has changed.
Severity	6: INFORMATIONAL



Source	Sessions Emergency Removal
Additional Info	<ul style="list-style-type: none">• LogFile: <Log file including verbose information about the emergency procedure for session cleanup>,• OriginStateId: <Current Origin-State-Id>

Table 11 End User Notification discarded

Event Name	End User Notification discarded
Description	The internal queue in the End User Notification subsystem is filled. The end user notification is discarded.
Severity	3: ERROR
Source	End User Notifications
Additional Info	<ul style="list-style-type: none">• Protocol: SMPP, SOAP,• SubsId: <Subscriber ID>,• Destination: <SMS destination number>,• Message: <Notification text>

Table 12 Error fetching data from external DB

Event Name	Error fetching data from external DB.
Description	There has been an error requesting data from external database. Example: The database is not accessible.
Severity	3: ERROR
Source	External Database
Additional Info	<ul style="list-style-type: none">• URL: <URL>,• Query:<Query>,• ProbableCause: <Probable Cause>

Table 13 Error sending CCA

Event Name	Error sending CCA.
Description	The SAPC failed to send a CCA message.
Severity	3: ERROR



Source	Access and Charging Control QoS Control
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • Protocol: <Gx Sx>

Table 14 Error sending RAR

Event Name	Error sending RAR.
Description	The SAPC failed to send an RAR message.
Severity	4: WARNING
Source	Access and Charging Control QoS Control Dynamic Policy Control
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • Protocol: <Gx Rx>

Table 15 Error sending SLR

Event Name	Error sending SLR.
Description	The SAPC failed to send an SLR message.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • SubsId: <SubscriberId>, • Protocol: <Sy ESy>

Table 16 Error sending SNA

Event Name	Error sending SNA.
Description	The SAPC failed to send an SNA message.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • Protocol: <Sy ESy >



Table 17 Error sending STR

Event Name	Error sending SNR.
Description	The SAPC failed to send an SNR message.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none">• SessionId:<Session ID>,• Protocol:<Sy ESy>

Table 18 Error sending ASR

Event Name	Error sending ASR.
Description	The SAPC failed to send an ASR message.
Severity	4: WARNING
Source	Dynamic Policy Control
Additional Info	<ul style="list-style-type: none">• SessionId: <Session ID>• Protocol: <Rx>

Table 19 Error storing data into external DB

Event Name	Error storing data into external DB.
Description	There has been an error writing data in the external database. Example: The database is not accessible.
Severity	3: ERROR
Source	External Database
Additional Info	<ul style="list-style-type: none">• URL:<URL>,• Query: <Query>,• ProbableCause: <Probable Cause>

Table 20 Existing IP Session removed

Event Name	Existing IP Session removed.
Description	A CCR Initial message, for an existing IP Session has been received. The old IP Session is removed.
Severity	4: WARNING



Source	Access and Charging Control
Additional Info	<ul style="list-style-type: none"> • SessionId: <SessionID>, • IpAddr:<UE IP Address>, • Protocol: <Gx>, • APN: <Access Point Name>, • PeerId: <PCEF name>

Table 21 Geographical redundancy state changed

Event Name	Geographical redundancy state changed.
Description	Indicates when the SAPC changes its geographical redundancy state.
Severity	4: WARNING
Source	Geographical Redundancy
Additional Info	<ul style="list-style-type: none"> • PreviousState: <INITIAL ACTIVE STANDBY HALTED>, • CurrentState:<INITIAL ACTIVE STANDBY HALTED>, • Reason: <reason text> <ul style="list-style-type: none"> - "The SAPC started as ACTIVE node" - "The SAPC started as STANDBY node" - "Geographical Redundancy has been stopped by ope - "The SAPC mated pair is unreachable or not handl - "The SAPC peer is ACTIVE and preferred node." - "The SAPC peer has been stopped by operational p - "Unplanned restart of the SAPC application."

Table 22 Internal error

Event Name	Internal error.
Description	The SAPC has detected an internal error.
Severity	4: WARNING
Source	Any
Additional Info	<ul style="list-style-type: none"> • Protocol: <Gx Rx Sx>, • Detail: <Detailed Error>



Table 23 IP-CAN session exists

Event Name	IP-CAN session exists.
Description	The IP-CAN session to be created exists.
Severity	4: WARNING
Source	Access and Charging Control
Additional Info	<ul style="list-style-type: none">• SessionId: <SessionID>,• Protocol: <Gx>

Table 24 License error

Event Name	License error.
Description	The SAPC has answered a request with error due to a missing or expired license. When the SAPC can process the request even if a function (for example end user notifications) is not licensed, this log does not appear.
Severity	4: WARNING
Source	Any
Additional Info	<ul style="list-style-type: none">• Detail: <Detailed Error>,• SessionId: <Session ID>

Table 25 NetLoc information not received during AF session termination

Event Name	NetLoc information not received during AF session termination.
Description	The SAPC received an STR from AF requesting network location information, but did not receive it from the PCEF.
Severity	4: WARNING
Source	Dynamic Policy Control
Additional Info	<ul style="list-style-type: none">• SessionId: <SessionID>



Table 26 Non-Persistent data storage empty

Event Name	Non-Persistent data storage empty.
Description	<p>Non-persistent data such as Time of Day, subscriber session, and subscriber notifications are empty. This means that:</p> <ul style="list-style-type: none"> • a) The internal Time Trigger reauthorization events are lost. • b) For end-user notifications, the same notification message can be repeated. • c) For Fair Usage, the usage accumulators may be not accurate.
Severity	4: WARNING
Source	Any
Additional Info	

Table 27 Notification Server Communication Error

Event Name	Notification Server Communication Error.
Description	A communication error between the SAPC and the Notification Server has been detected.
Severity	3: ERROR
Source	End User Notifications
Additional Info	<ul style="list-style-type: none"> • Protocol: SMPP, SOAP, • ServerAddress: <ip:port>, <url>, • Error cause: <ul style="list-style-type: none"> - "Unable to establish a connection"- "Communication lost."

Table 28 Protocol error

Event Name	Protocol error.
Description	The SAPC processes a message with a result different than success, and the reason for the error is information sent inside the message.
Severity	4: WARNING



Source	Any
Additional Info	<ul style="list-style-type: none">• Protocol: <Gx Rx Sx>,• Detail: <Detailed Error>,• SessionId: <Session ID>,• Result-Code: <Result Code>,• Subsid: <Subscriber ID>,• IpAddr: <UE IP Address>,• APN: <Access Point Name>,• PeerId: <Diameter peer name>,• Ip-Domain-Id: <Ip Domain Id>

Table 29 Reset of accumulated usage data

Event Name	Reset of accumulated usage data.
Description	The accumulated usage data have been reset.
Severity	6: INFORMATIONAL
Source	Fair Usage
Additional Info	<ul style="list-style-type: none">• Subsid: <Subscriber ID>,• SubsidGroup: <Subscriber group>,• RG: <Reporting Group>,• Counter: <Counter Name>,• SubscriptionDate: <Subscription Date>,• Bidir: <Bidir value>,• UL: <Uplink value>,• DL: <Downlink value>,• time: <time value>



Table 30 Rule Installation Failure

Event Name	Rule Installation Failure.
Description	A CCR has been received indicating Rule Installation Failure. For example, any rule has been reported as inactive by the PCEF, or there has been an installation with lower QoS (rules active but with Rule-Failure-Code = UNSUCCESSFUL_QOS_VALIDATION).
Severity	5: NOTICE
Source	Access and Charging Control QoS Control
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • Protocol: <Gx>, • Rule-Name: <Charging-Rule-Name or Charging-Rule-Base-Name>, • ErrorCode: <Error Code>

Table 31 SOAP external DB notification not matching object for DN

Event Name	SOAP external DB notification not matching object for DN.
Description	SOAP Request received for a not supported DN.
Severity	4: WARNING
Source	SOAP Notification
Additional Info	<ul style="list-style-type: none"> • HostIpAddr: <Host IP address that sends the notification>, • ReceivedDN: <Received DN>

Table 32 SOAP external DB notification event not supported

Event Name	SOAP external DB notification event not supported.
Description	SOAP Request received containing notificationEvent not supported.
Severity	4: WARNING
Source	SOAP Notification
Additional Info	<ul style="list-style-type: none"> • HostIpAddr: <Host IP address that sends the notification>, • Notif: <Received notification event>



Table 33 Start deleting old sessions

Event Name	Start deleting old sessions.
Description	The SAPC has started to delete old sessions belonging to the restarted peer.
Severity	6: INFORMATIONAL
Source	Obsolete Sessions Notifier
Additional Info	<ul style="list-style-type: none">• RestartedPeer: <Restarted Peer Node>,• Protocol: <Gx Rx>,• OriginStateId: <Current Origin-State-Id>

Table 34 Start sessions emergency removal

Event Name	Start sessions emergency removal.
Description	The SAPC has started the emergency procedure to remove sessions and its Origin-State-Id is going to change.
Severity	6: INFORMATIONAL
Source	Sessions Emergency Removal
Additional Info	<ul style="list-style-type: none">• LogFile: <Log file including verbose information about the emergency procedure for session cleanup>,• OriginStateId: <Current Origin-State-Id>

Table 35 Timeout receiving RAA

Event Name	Timeout receiving RAA.
Description	The SAPC did not receive an RAA because of a timeout.
Severity	3: ERROR
Source	Access and Charging Control QoS Control Dynamic Policy Control
Additional Info	<ul style="list-style-type: none">• SessionId:<Session ID>,• Protocol: <Gx Rx>



Table 36 Timeout receiving SLA

Event Name	Timeout receiving SLA.
Description	The SAPC did not receive an SLA because of a timeout.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none"> • SessionId:<Session ID>, • Protocol: <Sy ESy>

Table 37 Timeout receiving STA

Event Name	Timeout receiving STA.
Description	The SAPC failed to receive an STA because of a timeout.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none"> • SessionId: <Session ID>, • Protocol: <Sy ESy>

Table 38 Unable to deliver End User Notification

Event Name	Unable to deliver End User Notification.
Description	The SAPC has not been able to send the subscriber notification.
Severity	6: INFORMATIONAL
Source	End User Notifications
Additional Info	<ul style="list-style-type: none"> • Protocol:SMPP, SOAP, • ServerAddress: <severAddress:serverPort>,
<webServiceUrl>, • SubsId: <Subscriber ID>, • Destination: <sms destination number>, • Message: <Notification text>, • Additional Info: <ul style="list-style-type: none"> - "Unknown reason (timeout)"- "SMS Center destination is not configured"- "Web Service End Point is not configured"



Table 39 Unsuccessful SNA sent

Event Name	Unsuccessful SNA sent.
Description	The SAPC sent an SNA message with result code not success.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none">• SessionId: <Session ID>,• Result-Code: <Result Code>,• Protocol: <Sy ESy>

Table 40 Unsuccessful STA received

Event Name	Unsuccessful STA received.
Description	The SAPC received an STA message with result code not success.
Severity	3: ERROR
Source	Sy Subscriber Charging
Additional Info	<ul style="list-style-type: none">• SessionId: <Session ID>,• Result-Code: <Result Code>,• Protocol: <Sy ESy>

Table 41 Usage Limit Surpassed

Event Name	Usage Limit Surpassed.
Description	A subscriber usage limit has been surpassed.
Severity	6: INFORMATIONAL
Source	Fair Usage
Additional Info	<ul style="list-style-type: none">• SubsId: <Subscriber ID>,• SubsGroup: <Subscriber group>,• RG: <Reporting Group>,• Counter: <Counter Name>• RgType: <absolute session>,• LimitType: <Bidir UL DL time>



4 Configuration

To configure the log level for the SAPC, set the `loggingLevel` attribute of the `BusinessEvents` object to the proper value. Example using COM cliss:

```
# /opt/com/bin/cliss
```

```
>configure
```

```
(config)>ManagedElement=1,PolicyControlFunction=1,BusinessEvents=1,loggingLevel=3
```

```
(config)>commit
```

```
>show ManagedElement=1,PolicyControlFunction=1,BusinessEvents=1,loggingLevel
```

```
loggingLevel=3
```





5 Reported Data

To check the logs generated by the system follow next steps:

- 1 Access to the SAPC according to [System Administrator Guide](#).
- 2 Depending on the type of log that the user needs to check, enter in the paths defined in Table 42.

The following table shows the default location for log files.

Table 42 Reported Log Files

Logs	File
SAPC Application Logs	/cluster/storage/no-backup/coremw/var/log/safl og/sapc/sapc_<createdate>_<createtime>[_<close date>_<closetime>].log
SAPC Java Application Logs (external database and end user notifications)	/cluster/storage/no-backup/coremw/var/log/safl og/sapc/sapcJava_<createdate>_<createtime>[_<c losedate>_<closetime>].log
SAPC Emergency Calls Logs	/cluster/storage/no-backup/coremw/var/log/safl og/sapc/emergencyCalls_<createdate>_<createtim e>[_<closedate>_<closetime>].log
Alarm Logs	/cluster/storage/no-backup/coremw/var/log/safl og/saLogAlarm_<createdate>_<createtime>[_<clos edate>_<closetime>].log
Notification Logs	/cluster/storage/no-backup/coremw/var/log/safl og/saLogNotification_<createdate>_<createtime >[_<closedate>_<closetime>].log
System Logs	/cluster/storage/no-backup/coremw/var/log/safl og/saLogSystem_<createdate>_<createtime>[_<clo sedate>_<closetime>].log

5.1 SAPC Application Logs Record Output Format

Events in the application log contain the following information:

- Log record identifier
- Timestamp
- Severity. This field contains two characters to define the severity. All the possible severity identifiers are defined in Table 43.



— Message Information. This field includes following information:

- The DomainName, that is the identity of the Service Component, Service Unit, Service Group, and Service Application of the instance triggering the log.
- The Event Name.
- The Additional Info.

The following table shows the set of severity identifiers:

Table 43 Severity identifiers

Severity Identifiers	Description
EM	EMERGENCY
AL	ALERT
CR	CRITICAL
ER	ERROR
WA	WARNING
NO	NOTICE
IN	INFORMATIONAL

The following is an example of a printed log event:

1821 16:59:33 02/22/2016 ER safComp=ERIC-SAPC_PcrfProc,safSu=ERIC-SAPC_PcrfProc

Example 1 SAPC Application Log Example