

# SAF, LOTC Time Synchronization Failed

## Ericsson Centralized User Database

---

### OPERATING INSTRUCTION

**Copyright**

© Ericsson AB 2016, 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.



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Alarm Description	1
1.2	Prerequisites	7
<b>2</b>	<b>Procedure</b>	<b>9</b>
	<b>Glossary</b>	<b>11</b>
	<b>Reference List</b>	<b>13</b>





# 1 Introduction

This instruction concerns alarm handling for the SAF, LOTC Time Synchronization Failed alarm.

## 1.1 Alarm Description

This alarm is related to Service Availability Forum (SAF), refer to *LOTC Time Synchronization*, Reference [3] for more information.

The alarm is issued when the Network Time Protocol (NTP) server(s) cannot be contacted or if the local time is off by more than the threshold value of 10 seconds.

The alarm has the following severity levels:

- Minor
- Major
- Critical

Depending on severity, the possible alarm causes and the corresponding fault reasons, fault locations, and impacts are described in Section 1.1.1 on page 1.

Depending on severity, the alarm attributes are listed and explained in Section 1.1.2 on page 5.

### 1.1.1 Alarm Causes

Minor severity alarm causes are listed in Table 1:

*Table 1 Minor Severity Alarm Causes*

Alarm Cause	Description	Fault Reason	Fault Location	Impact
Not possible to contact <b>one</b> of the configured NTP servers configured in <code>cluster.conf</code> from a System Controller (SC).	Connectivity from the SCs to the external NTP service cannot be established.	Network infrastructure misconfiguration.	Network infrastructure	Loss of NTP service redundancy
		Internal CUDB node network does not allow communication.	Network infrastructure	
		External NTP server is not available.	External NTP server	
		Network between the CUDB node and the external NTP server does not allow communication between the two endpoints.	Datacenter network	
Not possible to contact <b>one</b> of the SC NTP servers from a payload blade or Virtual Machine (VM).	Connectivity from the SCs to the SC NTP service cannot be established.	Internal CUDB node network does not allow communication.	Network infrastructure	
		NTP server in an SC blade is not available, or the SC blade is not available	SC	

Major severity alarm causes are listed in Table 2:



**Table 2 Major Severity Alarm Causes**

Alarm Cause	Description	Fault Reason	Fault Location	Impact
Unusable: The NTP servers provided in <code>cluster.conf</code> can not be used by the local NTP daemon, <code>ntpd</code> .	Server is listed in NTP configuration ( <code>/etc/ntp.conf</code> ), but is not reported in the list of peers provided by the <code>ntpq -p</code> command.	Server name can not be resolved into IP address.	CUDB configuration	Loss of NTP service redundancy
Rejected: None of the configured NTP servers can be selected as a current time source (rejected at initial selection).	The time server could not be selected after 60 minutes from start.	NTP protocol algorithm declares a rejected server for the following reasons: <ul style="list-style-type: none"><li>• The external server is detected as “insane” as the provided time is too different from the current one.<sup>(1)</sup></li></ul>	NTP server or external network	
Rejected: None of the configured NTP servers can be selected as a current time source (rejected at reselection).	The time server selection was successful, but the NTP daemon was restarted and the reselection process takes longer than 90 seconds.	<ul style="list-style-type: none"><li>• Both SCs have set each other as source as no other NTP source is available.</li><li>• The jitter of the server is perceived as too high by the selection algorithm in the local NTP server.</li></ul>		



Alarm Cause	Description	Fault Reason	Fault Location	Impact
Unreachable: Not possible to contact <b>any</b> of the configured NTP servers configured in <code>cluster.conf</code> from an SC.	Connectivity from the SCs to the external NTP service cannot be established.	Network infrastructure misconfiguration.	Network infrastructure	Risk of losing consistent time reference
		Internal CUDB node network does not allow communication.	Network infrastructure	
		External NTP server is not available.	External NTP server	
		Network between the CUDB node and the external NTP server does not allow communication between the two endpoints.	Datacenter network	
Not possible to contact <b>any</b> of the SC blade NTP servers from a payload blade.	Connectivity from the SCs to the SC NTP service can not be established.	Internal CUDB node network does not allow communication between the location of the raised alarm and the SCs.	Network infrastructure	
		NTP server in <b>both</b> SCs are not available.	SC	

(1) This occurs when the time difference from the local and remote servers is bigger than 1000 seconds.

Critical severity alarm causes are listed in Table 3:

**Table 3 Critical Severity Alarm Causes**

Alarm Cause	Description	Fault Reason	Fault Location	Impact	
The time difference between the local system time and the remote time server is greater than the alarm threshold (10 seconds), but smaller than the insane threshold (1000 seconds).	Between 10 and 1000 seconds time difference between the SC time and the external NTP reference.	Time jump in the external NTP server.	External NTP server	Inaccurate system time	
		The connection towards external NTP servers is re-established after a period of non-connectivity.	Internal CUDB node network, network infrastructure		
			Datacenter network		
	Between 10 and 1000 seconds time difference between the payload blade or VM time and the SC time.	Time jump in the SC NTP server.	SC NTP server		
		The connection towards SC NTP servers is re-established after a period of non-connectivity.	Internal CUDB node network, network infrastructure		



## 1.1.2 Alarm Attributes

Minor severity alarm attributes are listed in Table 4:

*Table 4 Minor Severity Alarm Attributes*

Attribute Name	Attribute Value
Auto Cease	Yes
Module	SAF
Error Code	11
Timestamp First	Date and time when the alarm was raised for the first time.
Repeated Counter	Number which indicates how many times the alarm was raised.
Timestamp Last	Date and time of the most recent alarm raise.
Resource ID	.1.3.6.1.4.1.193.169.9.5.<length>.<NOI>
Alarm Model Description	LOTC Time Synchronization, SAF
Alarm Active Description	SAF platform: LOTC Time Synchronization, minor, @<NON>
ITU Alarm Event Type	other (1)
ITU Alarm Probable Cause	timingProblemX733 (550)
ITU Alarm Perceived Severity	(5) - Minor
Originating Source IP	Node IP where the alarm was raised.
Sequence Number	Number which indicates the order in which alarms were raised.

Major severity alarm attributes are listed in Table 5:

*Table 5 Major Severity Alarm Attributes*

Attribute Name	Attribute Value
Auto Cease	Yes
Module	SAF
Error Code	12
Timestamp First	Date and time when the alarm was raised for the first time.
Repeated Counter	Number which indicates how many times the alarm was raised.
Timestamp Last	Date and time of the most recent alarm raise.
Resource ID	.1.3.6.1.4.1.193.169.9.5.<length>.<NOI>
Alarm Model Description	LOTC Time Synchronization, SAF
Alarm Active Description	SAF platform: LOTC Time Synchronization, major, @<NON>
ITU Alarm Event Type	other (1)
ITU Alarm Probable Cause	timingProblemX733 (550)



Attribute Name	Attribute Value
ITU Alarm Perceived Severity	(4) - Major
Originating Source IP	Node IP where the alarm was raised.
Sequence Number	Number which indicates the order in which alarms were raised.

Critical severity alarm attributes are listed in Table 6:

*Table 6 Critical Severity Alarm Attributes*

Attribute Name	Attribute Value
Auto Cease	Yes
Module	SAF
Error Code	5
Timestamp First	Date and time when the alarm was raised for the first time.
Repeated Counter	Number which indicates how many times the alarm was raised.
Timestamp Last	Date and time of the most recent alarm raise.
Resource ID	.1.3.6.1.4.1.193.169.9.5.<length>.<NOI>
Alarm Model Description	LOTIC Time Synchronization, SAF
Alarm Active Description	SAF platform: LOTIC Time Synchronization, critical, @<NON>
ITU Alarm Event Type	other (1)
ITU Alarm Probable Cause	timingProblemX733 (550)
ITU Alarm Perceived Severity	(3) - Critical
Originating Source IP	Node IP where the alarm was raised.
Sequence Number	Number which indicates the order in which alarms were raised.

In Table 4, Table 5, and Table 6, the indicated variables are as follows:

- <NON> is the notifying object name that indicates where the component that generates the alarm is. For example:

PL\_2\_3

- <NOI> is the notifying object identifier. It corresponds to <NON> in a dot-separated, ASCII-decimal-encoded, character-per-character format. For example:

80.76.95.50.95.51 for safNode=PL\_2\_3

- <length> is the number of characters in <NON>, which is equivalent to the number of octets in <NOI>. In the previous example, <length> is 6.

For more information about attribute descriptions, refer to *CUDB Node Fault Management Configuration Guide*, Reference [1].



## 1.2 Prerequisites

This section provides information on the documents, tools, and conditions that apply to the procedure.

### 1.2.1 Documents

Before starting this procedure, ensure that you have read the following documents:

- *CUDB Node Fault Management Configuration Guide*, Reference [1], regarding alarm configuration.
- *System Safety Information*, Reference [4]
- *Personal Health and Safety Information*, Reference [5]

### 1.2.2 Tools

Not applicable.

### 1.2.3 Conditions

Not applicable.





## 2 Procedure

If the alarm is raised, do the following:

1. Follow the instructions specified in *LOTC Time Synchronization*, Reference [3].
2. If the alarm does not cease, contact the next level of maintenance support. Further actions are outside the scope of this Operating Instruction.



SAF, LOTC Time Synchronization Failed



## Glossary

For the terms, definitions, acronyms, and abbreviations used in this document, refer to *CUDB Glossary of Terms and Acronyms*, Reference [2].



SAF, LOTC Time Synchronization Failed



## Reference List

### **CUDB Documents**

- [1] *CUDB Node Fault Management Configuration Guide*
- [2] *CUDB Glossary of Terms and Acronyms*

### **Other Ericsson Documents**

- [3] *LOTC Time Synchronization*
- [4] *System Safety Information*
- [5] *Personal Health and Safety Information*