

LOTC Time Synchronization

OPERATING INSTRUCTIONS

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1 Introduction

This document is the Operating Instruction (OPI) for the alarm **LOTIC Time Synchronization**.

Scope

This document covers the following topics:

- Alarm description
- Alarm handling procedure

Target Groups

This document is intended for personnel involved in alarm handling.

1.1 Prerequisites

This section describes the possible documents, tools, and conditions needed before performing steps to cease the alarm.

1.1.1 Documents

Not applicable.

1.1.2 Tools

Not applicable.

1.1.3 Conditions

Not applicable.

1.2 Related Information

The definition and explanation of acronyms and terminology, information about trademarks used, and typographic conventions can be found in the following documents:

- *LDE Glossary of Terms and Acronyms*, Reference [1]



- *LDE Trademark Information*, Reference [2]
- *Typographic Conventions*, Reference [3]

1.3 Revision Information

Other than editorial changes, this document has been revised from revision D to revision E according to the following:

- Update alarm and product naming to match LDEwS product



2 Alarm Description

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 following is as list of the alarm attributes:

Note: This view of the alarm attributes will be presented to the user from Common Operation and Maintenance (COM), only when the LDE adaptations for Component Based Architecture (CBA) have been installed and the LDE alarm model has been registered to COM.

Attribute Name	Attribute Value/Interpretation
Major Type	193
Minor Type	3341942785
Managed Object Class	SafNode
Specific Problem	LOTC Time Synchronization
Event Type	6 ⁽¹⁾
Additional Information	Not applicable.
Perceived Severity	<p>Critical: There are time differences between the blades in the cluster that exceeds the threshold value</p> <p>Major: The ntp servers from cluster.conf are not accepted by ntpd (unusable), no ntp server is reachable (unreachable) or a peer cannot be selected (rejected)</p> <p>Minor: Some of the configured ntp servers are unreachable</p>

(1) *Environmental*

1. The possible cause for the **Critical** severity alarm is:

- The time difference between the local system time and the remote time server is greater than a threshold (10 seconds)



2. The possible causes for the `Major` severity alarm are:

- **2.1. Unusable:** The `ntp` servers provided in `cluster.conf` cannot be used by the local `ntp` daemon, `ntpd`. The additional text for this case is:

```
"Time servers not reachable: 1.2.3.4 (unusable) "
```

- **2.2. Rejected:** None of the configured `ntp` servers can be selected as a current time source. If this occurs right after the alarm daemon has started, the alarm is raised after 60 minutes. If it occurs after a peer has been previously selected, then the alarm is raised after 90 seconds. The additional text for this case is:

```
Time servers not reachable: 1.2.3.4 (rejected at  
initial selection)
```

```
Time servers not reachable: 1.2.3.4 (rejected at  
reselection)
```

- **2.3. Unreachable:** All of the configured `ntp` servers are reported as unreachable by the local `ntp` daemon, `ntpd`. This usually means that the network connectivity to the servers is lost. The additional text for this case is:

```
"Time servers not reachable: 1.2.3.4 (unreachable) "
```

As a result of the fault, the time within the cluster might not be synchronized.

3. The possible cause for the `Minor` severity alarm is:

- Some of the configured `ntp` servers are reported as unreachable by the local `ntp` daemon, `ntpd`. This usually means that the network connectivity is lost. The additional text is as follows:

```
"Time servers not reachable: 1.2.3.4 (unreachable) "
```

Note: The initial synchronization time for a newly started or rebooted cluster can be up to 20 minutes.



3 Procedure

To clear the alarm, perform the following steps:

1. If the affected node is a payload node, go to Step 3.
2. Check that the NTP server(s) listed in the cluster configuration are correct and have network connectivity from the cluster nodes.

If the name or address of any NTP server must be updated, see the following document for further information about how to configure an NTP server:

- *LDE Management Guide*, Reference [4]

The alarm service must then be restarted with the command `service alarmd restart`.

3. Restart the NTP service with the command `service ntp restart`
4. Wait 20 minutes.

If the alarm ceases, exit this procedure.

5. Reboot the affected node.

Warning!

As a consequence of a reboot, any application may lose sessions or traffic. Therefore, restart only one node at a time and only if the state of the cluster as whole is stable and running.

6. Wait up to 20 minutes.
7. If the alarm does not cease, contact the next level of maintenance support. Further actions are outside the scope of this operating instruction.





Reference List

- [1] *LDE Glossary of Terms and Acronyms*
TERMINOLOGY, 1/0033-APR 901 0551/1
- [2] *LDE Trademark Information*
LIST, 1/006 51-APR 901 0551/1
- [3] *Typographic Conventions*
DESCRIPTION, 1/1551-FCK 101 05
- [4] *LDE Management Guide*
USER GUIDE, 1/1553-CAA 901 2978/1