

# License Management, Capacity Usage Threshold Reached

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## OPERATING INSTRUCTIONS

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License Management, Capacity Usage Threshold Reached



# 1 Introduction

This document describes the License Management, Capacity Usage Threshold Reached alarm and provides instructions for fault management.

## 1.1 Alarm Description

License Management, Capacity Usage Threshold Reached is raised when the number of reserved tokens in a capacity license approaches the `licensedCapacityLimit`.

This primary alarm is issued by the `ManagedElement=1, SystemFunctions=1, Lm=1, LicenseId=<licenseId>` Managed Object (MO).

Possible alarm causes and fault locations are explained in Table 1.

*Table 1 Alarm Causes*

Alarm Cause	Description	Fault Reason	Fault Location	Impact
351	License Management, Capacity Usage Threshold Reached	Requested capacity has exceeded the <code>capacityAlarmThreshold</code> or the <code>licensedCapacityLimit</code> .	LM Server	Requested capacity may be unavailable.

The following consequences are expected if the alarm condition is not resolved:

- The application may not be able to use additional instances of the licensed feature.

The alarm attributes are listed and explained in Table 2.



Table 2 Alarm Attributes

Attribute Name	Attribute Value
activeSeverity	<p>WARNING:</p> <p>The reserved capacity of the license identified by the <code>CapacityKey.capacityKeyId</code> has passed the warning threshold defined by the <code>Lm.capacityAlarmThreshold</code> parameter but is still below the total licensed capacity.</p> <p>MAJOR:</p> <p>The <code>CapacityKey.licensedCapacityLimit</code> of the license identified by the <code>capacityKeyId</code> has been reached.</p>
additionalInfo	N/A
additionalText	"Capacity usage threshold reached"
eventType	QUALITYOFSERVICEALARM
lastEventTime	A timestamp of the last alarm update, such as an alarm status change or severity change.
majorType	193
minorType	393219
originalAdditionalText	Content of the <code>additionalText</code> field when the alarm was raised.
originalEventTime	Timestamp when the alarm was raised.
originalSeverity	Value of the <code>activeSeverity</code> level when the alarm was raised.



Table 2 Alarm Attributes

Attribute Name	Attribute Value
probableCause	351 (x733 Threshold Crossed)
sequenceNumber	The notification identity for this object instance. It is not the same as the <code>fmAlarmId</code> since multiple notifications may be sent for one alarm instance. This value changes for every notification (such as a severity change, alarm clear, and so on).
source	ManagedElement=1, SystemFunctions=1, Lm=1, License=<licenseId>
specificProblem	License Management, Capacity Usage Threshold Reached

## 1.2 Prerequisites

This section lists the prerequisite documents, tools, and conditions for the alarm handling procedure.

### 1.2.1 Documents

Review the following documents before starting the procedure:

- *Personal Health and Safety Information* (Reference [1])
- *System Safety Information* (Reference [2])
- The user guide for your LM deployment:
  - "Installing License Key Files" in the *LM User Guide for Sentinel RMS* (Reference [3])
  - "Installing License Key Files" in the *LM User Guide for ELIM* (Reference [4])
  - "Obtaining License Key Files" in the *LM User Guide for Arwa* (Reference [5])
- "Configuration Management Using CLI" in the *COM Management Guide* for your version of the product software.



## 1.2.2 Tools

Ensure that the following tools are available before starting the procedure:

- Element Management System (for example: OSS)
- COM CLI

For more information on these tools, refer to the documentation for your version of the product software.

## 1.2.3 Conditions

Ensure that the following conditions are met before starting the procedure:

- Know the IP address of the blade where the active COM CLI is running.
- Have the proper authority to handle configuration management of the network elements.
- Be familiar with basic UNIX commands.

# 2 Procedure

This section describes the alarm handling procedure.

## 2.1 Analyzing the Alarm

The License Management, Capacity Usage Threshold Reached alarm will clear automatically when the reserved capacity drops below the `Lm.capacityAlarmThreshold` minus a hysteresis value defined by the `Lm.capacityAlarmHysteresis` configuration parameter. For more information about `Lm.capacityAlarmThreshold` and `Lm.capacityAlarmHysteresis`, refer to "Configuration Management" in the user guide for your LM deployment.

- *LM User Guide for Sentinel RMS* (Reference [3])
- *LM User Guide for ELIM* (Reference [4])
- *LM User Guide for Arwa* (Reference [5])





If the alarm persists, or if it is triggered frequently, adjusting the LM configuration, ordering a new license with higher capacity, or both may be required.

To better determine the fault location and cause do the following:

1. From a terminal window, use ssh to connect to the COM CLI Management System server port (default 22) on the blade where the active COM CLI is running:

```
ssh <username>@<blade_IP_address> -p 22 -t -s cli
```

The COM CLI opens after supplying your password.

2. Retrieve the current percentage value of the `capacityAlarmHysteresis` configuration parameter:

```
show verbose ManagedElement=1, SystemFunctions=1, Lm=1,
capacityAlarmHysteresis
```

3. Retrieve the current percentage value of the `capacityAlarmThreshold` configuration parameter:

```
show verbose ManagedElement=1, SystemFunctions=1, Lm=1,
capacityAlarmThreshold
```

4. Retrieve information about the affected capacity license:

```
ManagedElement=1, SystemFunctions=1, Lm=1
```

```
show --moc CapacityKey --condition (keyId=="<licenseId>")
```

Where `<licenseId>` is the license identify from the alarm *source*. For example:

```
(Lm=1)>show --moc CapacityKey --condition (keyId=="FAT1020383")
CapacityKey=1
  capacityUnit="token"
  expiration="2016-10-1"
  grantedCapacityLevel=900
  keyId="FAT1020383"
  licensedCapacityLimitReached=false
  name="FAT1020383"
  productType=""
  validFrom="2014-3-5"
  version="1.0"
  licensedCapacityLimit
    value=1000
```

5. Provide the LM configuration and license information for capacity planning.



- After obtaining a work order to adjust the LM configuration, refer to Section 2.2 on page 6.
- After obtaining a work order for a new license with higher capacity, refer to Section 2.3 on page 7 or Section 2.4 on page 8.

## 2.2 Actions to Adjust the LM Configuration

After obtaining a work order to adjust the LM configuration:

1. From a terminal window, use ssh to connect to the COM CLI Management System server port (default 22) on the blade where the active COM CLI is running:

```
ssh <username>@<blade_IP_address> -p 22 -t -s cli
```

The COM CLI opens after supplying your password.

2. Verify that the `capacityAlarmHysteresis` configuration parameter has the proper value:

```
show verbose ManagedElement=1, SystemFunctions=1, Lm=1, capacityAlarmHysteresis
```

3. If required, set a new percentage value for `Lm.capacityAlarmHysteresis` with the following commands:

```
configure
```

```
ManagedElement=1, SystemFunctions=1, Lm=1, capacityAlarmHysteresis=<n>
```

Where `<n>` is the new parameter value.

```
commit
```

4. Verify that the `capacityAlarmThreshold` configuration parameter has the proper value:

```
show verbose ManagedElement=1, SystemFunctions=1, Lm=1, capacityAlarmThreshold
```

5. If required, set a new percentage value for `capacityAlarmThreshold` with the following commands:

```
configure
```

```
ManagedElement=1, SystemFunctions=1, Lm=1, capacityAlarmThreshold=<n>
```

Where `<n>` is the new parameter value.



```
commit
```

6. Check the alarm status.

If the alarm is still active, or if it is triggered frequently, a new license with higher capacity may be required.

## 2.3 Actions to Order and Install a New License Key File

**Note:** This procedure only applies to Sentinel RMS, ELIM, and Arwa No Connection deployments.

After obtaining a work order for a new license with higher capacity:

1. If required, contact your Ericsson supplier and order a new license key file with the required changes.
2. Install the new license key file.

For more information on installing a license key file, refer to "Installing License Key Files" in the user guide for your LM deployment.

- *LM User Guide for Sentinel RMS* (Reference [3])
- *LM User Guide for ELIM* (Reference [4])

**Note:** For Arwa No Connection, refer to the ELIM documentation.

3. After installing the license key file, use ssh to connect to the COM CLI Management System server port (default 22) on the blade where the active COM CLI is running:

```
ssh <username>@<blade_IP_address> -p 22 -t -s cli
```

The COM CLI opens after supplying your password.

4. Check the alarm status.
5. If the alarm is still active, trigger an additional refresh of the license inventory to ensure that the license changes are applied:

```
ManagedElement=1, SystemFunctions=1, Lm=1, refreshLicenseInventory
```

The system returns `true` if the action was executed successfully.

6. Verify that the license inventory has been synchronized with the new license key file by checking the `lastLicenseInventoryRefresh` timestamp:

```
show ManagedElement=1, SystemFunctions=1, Lm=1, lastLicenseInventoryRefresh
```

A recent timestamp indicates a successful update.



7. Check the alarm status.

If the alarm is still active, consult the next level of maintenance support. Further actions are outside the scope of this instruction.

## 2.4 Actions to Obtain New License Keys for Arwa

**Note:** This procedure is not applicable to LM deployments using Arwa No Connection. When deployed in Arwa No Connection mode, LM uses ELIM formatted license key files to store license information locally. For more information on ordering and installing a new license key file, refer to Section 2.3 on page 7.

After obtaining a work order for a new license with higher capacity:

1. If required, contact your Ericsson supplier to order an entitlement containing the necessary licenses.
2. After the new license keys have been provisioned in Arwa, use ssh to connect to the COM CLI Management System server port (default 22) on the blade where the active COM CLI is running:

```
ssh <username>@<blade_IP_address> -p 22 -t -s cli
```

The COM CLI opens after supplying your password.

3. Check the alarm status.
4. If the alarm is still active, trigger an additional refresh of the license inventory to ensure that the license changes are applied:

```
ManagedElement=1, SystemFunctions=1, Lm=1, refreshLicenseInventory
```

The system returns `true` if the action was executed successfully.

5. Verify that the license inventory has been synchronized with Arwa by checking the `lastLicenseInventoryRefresh` timestamp:

```
show ManagedElement=1, SystemFunctions=1, Lm=1, lastLicenseInventoryRefresh
```

A recent timestamp indicates a successful update.

6. Check the alarm status.

If the alarm is still active, consult the next level of maintenance support. Further actions are outside the scope of this instruction.



## Reference List

- [1] *Personal Health and Safety Information*, 12446-2885 Uen
- [2] *System Safety Information*, 12446-2886 Uen
- [3] *LM User Guide for Sentinel RMS*, 1/1553-APR 901 0503/5 Uen
- [4] *LM User Guide for ELIM*, 2/1553-APR 901 0503/5 Uen
- [5] *LM User Guide for Arwa*, 3/1553-APR 901 0503/5 Uen