

# Certificate Management, a Valid Certificate is Not Available

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## OPERATING INSTRUCTIONS

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Certificate Management, a Valid Certificate is Not Available



# 1 Introduction

This instruction concerns alarm handling.

## 1.1 Alarm Description

The alarm is raised when a secure service failed because of an expired, revoked, or non-existing certificate.

The possible alarm causes and fault locations are explained in Table 1.

*Table 1 Alarm Causes*

Alarm Cause	Description	Fault Reason	Fault Location	Impact
No valid certificate available at secured service invocation	No valid certificate is available when a secured service is invoked	No certificate exists yet	Node credential	A secured service fails, for example, an IP Security (IPsec) connection authenticated by an expired certificate fails
		The certificate has expired		
		The certificate is revoked		

**Note:** Given the fault impact on secured protocols, more protocol-specific alarms can be raised as a consequence.

The alarm attributes are listed and explained in Table 2.

*Table 2 Alarm Attributes*

Attribute Name	Attribute Value
Major Type	193
Minor Type	6946817
Managed Object Class	<i>NodeCredential</i>
Managed Object Instance	ManagedElement=<node_name>, SystemFunctions=1, SecM=1, CertM=1, NodeCredential=<node_credential_id>
Specific Problem	Certificate Management, a Valid Certificate is Not Available
Event Type	operationalViolation (8)
Probable Cause	x736OutOfService (414)



Table 2 Alarm Attributes

Attribute Name	Attribute Value
Additional Text	The certificate provided by the alarming object is expired, revoked, or unavailable, which can result in the failure of a secure service using this certificate
Perceived Severity	critical (3)

## 1.2 Prerequisites

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

### 1.2.1 Documents

This instruction references the following documents:

- *Configure Enrollment Authority*
- *Configure Enrollment Server Group Together with Enrollment Servers*
- *Data Collection Guideline*
- *Install Node Credential Online*
- *Install or Renew Node Credential by CSR*
- *Install or Renew Node Credential by PKCS 12*

### 1.2.2 Tools

No tools are required.

### 1.2.3 Conditions

Before starting this procedure, ensure that the following conditions are met:

- A Certificate Management, a Valid Certificate is Not Available alarm is raised.
- The user has the System Security Administrator role.
- The user is familiar with the security policy and environment of the organization. The user knows what mechanism is appropriate to use to install and renew node credentials (online, PKCS#12, or CSR).



- If online renewal of node credentials is used, the correct configuration information for enrollment server groups and enrollment authorities is obtained from the IT or security administrator.
- No ongoing maintenance activities are affecting the network or network elements.
- An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.

## 2 Procedure

This section describes the procedure to follow when this alarm is received.

### 2.1 Analyzing Alarm

Do the following:

1. Navigate to the *NodeCredential* Managed Object (MO) given in the alarm, for example:

```
>ManagedElement=NODE06ST, SystemFunctions=1, SecM=1, CertM=1, NodeCredential=1
```

2. Check attribute `certificateState`:

```
(NodeCredential=1)>show certificateState
```

The following is an example output:

```
certificateState=EXPIRED
```

3. Select the appropriate action based on the result:
  - Attribute 'certificateState' not set – The certificate does not exist. Proceed with Section 2.2 Actions for Installation on page 4.
  - EXPIRED – The certificate has expired based on the `validTo` date. Continue with the next step.
  - REVOKED – The certificate was revoked by a trusted Certification Authority (CA). Continue with the next step.
4. Check attribute `renewalMode`:



```
(NodeCredential=1) >show renewalMode
```

The following is an example output:

```
renewalMode=MANUAL
```

5. Select the appropriate action based on the result:
  - **MANUAL** – The alarm can be cleared by repeating the installation or renewal for the `NodeCredential` MO. Proceed with Section 2.3 Actions for Renewal on page 4.
  - **AUTOMATIC** – Proceed with Section 2.4 Actions for Repairing Automatic Configuration on page 4.

## 2.2 Actions for Installation

Do the following:

1. Based on the security policy, use the appropriate operation among the following to install the node credential:
  - *Install Node Credential Online*
  - *Install or Renew Node Credential by PKCS 12* (select installation in step 2)
  - *Install or Renew Node Credential by CSR* (select installation in step 2)
2. Job is completed.

## 2.3 Actions for Renewal

Do the following:

1. Based on the security policy, use the appropriate operation among the following to renew the node credential:
  - *Install Node Credential Online*
  - *Install or Renew Node Credential by PKCS 12* (select renewal in step 2)
  - *Install or Renew Node Credential by CSR* (select renewal in step 2)
2. Job is completed.

## 2.4 Actions for Repairing Automatic Configuration

Do the following:

1. Navigate to the *CertM* MO, for example:



```
>dn ManagedElement=NODE06ST,SystemFunctions=1,SecM=1,CertM=1
```

2. View the enrollment authority, enrollment server group, and enrollment server configuration:

```
(CertM=1)>show -r
```

The following is an example output:

```
CertM=1
[...]
  EnrollmentAuthority=1
    enrollmentAuthorityName="/CN=atrcus3409NECertCA/OU==>
ericssonOAM/O=Ericsson"
    enrollmentCaCertificate="ManagedElement=NODE06ST,>
SystemFunctions=1,SecM=1,CertM=1,TrustedCertificate=1"
    userLabel="atrcus3409NECertCA O&M Certificate Authority"
  EnrollmentAuthority=2
    enrollmentAuthorityName="/CN=atrcus3841NECertCA/OU==>
ericssonOAM/O=Ericsson"
    enrollmentCaCertificate="ManagedElement=NODE06ST,>
SystemFunctions=1,SecM=1,CertM=1,TrustedCertificate=2"
    userLabel="atrcus3841NECertCA O&M Certificate Authority"
  EnrollmentServerGroup=1
    EnrollmentServer=1
      protocol=CMF
      uri="cmp://192.0.2.10"
  EnrollmentServerGroup=2
    EnrollmentServer=1
      protocol=CMF
      uri="cmp://192.0.2.10"
```

3. Does the output in Step 2 show that an enrollment authority with the correct CA authority name (`enrollmentAuthorityName`) and CA certificate (`enrollmentCaCertificate`) is configured on the Managed Element (ME)? That is, does the attributes values for an *EnrollmentAuthority* MO match the values obtained from the IT or security administrator?

Yes: Continue with the next step.

No: Proceed with Step 5.

4. Does the output in Step 2 show that an enrollment server group contains a correct enrollment server configuration (attributes `protocol` and `uri`)?

Yes: Proceed with Step 8.

No: Proceed with Step 7.

5. Configure an enrollment authority.



For information on how to configure an enrollment authority, refer to *Configure Enrollment Authority*.

6. Proceed with Step 8.
7. Configure an enrollment server group with enrollment servers.

For information on how to configure an enrollment server group with enrollment servers, refer to *Configure Enrollment Server Group Together with Enrollment Servers*.

8. Navigate to the *NodeCredential* MO, for example:

```
>dn ManagedElement=NODE06ST, SystemFunctions=1, SecM=1  
, CertM=1, NodeCredential=1
```

9. Enter Config mode:

```
(NodeCredential=1) >configure
```

10. Change to manual renewal mode:

```
(config-NodeCredential=1) >renewalMode=MANUAL
```

11. Commit the change:

```
(config-NodeCredential=1) >commit
```

12. Install a node credential online using the enrollment authority and enrollment server group configuration checked or added previously.

For information how to install a node credential online, refer to *Install Node Credential Online* (step 3 results in navigating to the existing MO and not in creating an MO).

13. Is the alarm cleared?

Yes: Continue with the next step.

No: Proceed with Step 18.

14. Enter Config mode:

```
(NodeCredential=1) >configure
```

15. Change to automatic renewal mode:

```
(config-NodeCredential=1) >renewalMode=AUTOMATIC
```

16. Commit the change:

```
(config-NodeCredential=1) >commit
```

17. Proceed with Step 20.



18. Perform data collection, refer to *Data Collection Guideline*.
19. Consult the next level of maintenance support. Further actions are outside the scope of this instruction.
20. Job is completed.