



# **Verify the identity of remote servers using certificates**

**ONTAP 9**

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# Table of Contents

- Verify the identity of remote servers using certificates ..... 1
  - Verify the identity of remote servers using certificates overview ..... 1
  - Verify digital certificates are valid using OCSP ..... 1
  - View default certificates for TLS-based applications ..... 3

# Verify the identity of remote servers using certificates

## Verify the identity of remote servers using certificates overview

ONTAP supports security certificate features to verify the identity of remote servers.

ONTAP software enables secure connections using these digital certificate features and protocols:

- Online Certificate Status Protocol (OCSP) validates the status of digital certificate requests from ONTAP services using SSL and Transport Layer Security (TLS) connections. This feature is disabled by default.
- A default set of trusted root certificates is included with ONTAP software.
- Key Management Interoperability Protocol (KMIP) certificates enable mutual authentication of a cluster and a KMIP server.

## Verify digital certificates are valid using OCSP

Beginning with ONTAP 9.2, Online Certificate Status Protocol (OCSP) enables ONTAP applications that use Transport Layer Security (TLS) communications to receive digital certificate status when OCSP is enabled. You can enable or disable OCSP certificate status checks for specific applications at any time. By default, OCSP certificate status checking is disabled.

### What you'll need

You need advanced privilege level access to perform this task.

### About this task

OCSP supports the following applications:

- AutoSupport
- Event Management System (EMS)
- LDAP over TLS
- Key Management Interoperability Protocol (KMIP)
- Audit Logging
- FabricPool
- SSH (beginning with ONTAP 9.13.1)

### Steps

1. Set the privilege level to advanced: `set -privilege advanced`.
2. To enable or disable OCSP certificate status checks for specific ONTAP applications, use the appropriate command.

If you want OCSP certificate status checks for some applications to be...	Use the command...
Enabled	<code>security config ocsp enable -app app name</code>
Disabled	<code>security config ocsp disable -app app name</code>

The following command enables OCSP support for AutoSupport and EMS.

```
cluster::*> security config ocsp enable -app asup,ems
```

When OCSP is enabled, the application receives one of the following responses:

- Good - the certificate is valid and communication proceeds.
  - Revoked - the certificate is permanently deemed as not trustworthy by its issuing Certificate Authority and communication fails to proceed.
  - Unknown - the server does not have any status information about the certificate and communication fails to proceed.
  - OCSP server information is missing in the certificate - the server acts as if OCSP is disabled and continues with TLS communication, but no status check occurs.
  - No response from OCSP server - the application fails to proceed.
3. To enable or disable OCSP certificate status checks for all applications using TLS communications, use the appropriate command.

If you want OCSP certificate status checks for all applications to be...	Use the command...
Enabled	<code>security config ocsp enable</code>  <code>-app all</code>
Disabled	<code>security config ocsp disable</code>  <code>-app all</code>

When enabled, all applications receive a signed response signifying that the specified certificate is good, revoked, or unknown. In the case of a revoked certificate, the application will fail to proceed. If the application fails to receive a response from the OCSP server or if the server is unreachable, the application will fail to proceed.

4. Use the `security config ocsp show` command to display all the applications that support OCSP and their support status.

```
cluster::*> security config ocsf show
Application                                OCSP Enabled?
-----
autosupport                               false
audit_log                                 false
fabricpool                                false
ems                                        false
kmip                                       false
ldap_ad                                   true
ldap_nis_namemap                          true
ssh                                        true

8 entries were displayed.
```

## View default certificates for TLS-based applications

Beginning with ONTAP 9.2, ONTAP provides a default set of trusted root certificates for ONTAP applications using Transport Layer Security (TLS).

### What you'll need

The default certificates are installed only on the admin SVM during its creation, or during an upgrade to ONTAP 9.2.

### About this task

The current applications that act as a client and require certificate validation are AutoSupport, EMS, LDAP, Audit Logging, FabricPool, and KMIP.

When certificates expire, an EMS message is invoked that requests the user to delete the certificates. The default certificates can only be deleted at the advanced privilege level.



Deleting the default certificates may result in some ONTAP applications not functioning as expected (for example, AutoSupport and Audit Logging).

### Step

1. You can view the default certificates that are installed on the admin SVM by using the security certificate show command:

```
security certificate show -vserver -type server-ca
```

```
fas2552-2n-abc-3::*> security certificate show -vserver fas2552-2n-abc-3
-type server-ca
Vserver      Serial Number  Common Name                                     Type
-----
fas2552-2n-abc-3
              01                      AAACertificateServices
server-ca
  Certificate Authority: AAA Certificate Services
    Expiration Date: Sun Dec 31 18:59:59 2028
```

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