



Licensing Requirement for NFVIS Support

- Prerequisites for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers, on page 1
- Cisco smart licensing for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers, on page 1
- Configure Cisco smart licensing for Cisco NFVIS, on page 2
- Monitor Cisco NFVIS support for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers, on page 4
- Action commands, on page 7
- Enforcement behavior for smart licensing, on page 8

Prerequisites for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers

This reference identifies the essential prerequisites that must be met before implementing Cisco NFVIS support for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers.

- You require an active Cisco Smart Account. For more information on Smart Account see, [How to Request a Smart Account](#)
- You need to purchase Cisco BEx7K/CE1400V appliances based out of UCS-C series servers along with Cisco NFVIS Smart License.

Cisco smart licensing for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers

Starting with Cisco NFVIS Release 26.2.1, Cisco Smart Licensing capability is added.

Cisco Smart Licensing is a flexible and unified licensing model that

- centralizes the management of all Cisco software licenses across organizations
- enables you to manage all product licenses from one central location, and
- allows licenses to be easily transferred between devices without hosting or issuing the license again or going through Return Material Authorization (RMA) or license re-issuance.

Smart licensing characteristics

The Cisco NFVIS smart licenses have these characteristics:

- Not node-locked to the device, so they can be used across all devices in your organization
- Can be ordered together with any Cisco BExK / CE1400V appliances through the Cisco Commerce Workspace (CCW) page
- Appear as **Licenses Available to Use** in your Virtual Account on the Cisco Smart Software Manager (CSSM) once purchased

For more information on Smart Licenses see, [Cisco Software Licensing Guide](#).

Configure Cisco smart licensing for Cisco NFVIS

Smart Licensing for Cisco NFVIS operates in two modes:

1. Smart Mode
2. CSLU Mode

Smart mode

Smart mode is a licensing operation mode that

- enables Cisco BEx7K/CE1400V appliances based out of UCS-C series servers to connect directly to Cisco Smart Software Manager (CSSM) using Cisco NFVIS
- requires specific configuration inputs including CSSM tokens and transport settings, and
- reports license usage periodically to the CSSM server after successful trust handshake.

Smart mode configuration requirements

The Cisco BEx7K/CE1400V appliances based out of UCS-C series servers requires these inputs to operate in smart mode:

1. A unique token for customer virtual account on CSSM.



Note Generate a unique token using your Cisco Virtual Account on the Licensing Server (CSSM). For more information, see [How can I create a token to register my device?](#)

2. Provide the generated token as the input to the Cisco BEx7K/CE1400V appliances based out of UCS-C series servers. The CSSM token is your password for the user account on CSSM. This input is mandatory for the Smart Mode to function and has no default values.
3. Transport Mode

The Transport Mode specifies the type of connection existing between the device and CSSM (whether the device is directly connected/ Connected through CSLU). For the Smart Mode, the Transport Mode is called as Smart Transport. The default value for the transport mode is CSLU Mode.

4. Transport URL

The Transport URL specifies the URL to reach a CSSM/CSLU server from the device. The default transport URL for Smart Mode is <https://smartreceiver.cisco.com/licservice/license>. The default transport URL for CSLU mode is available on online search engines.

5. Time interval between two licence usage announcements

The Resource Usage Measurement (RUM) is sent periodically from the device to CSSM/CSLU which presents the License Usage pertaining to the NFVIS License Entitlement to the CSSM server. You can specify the periodic time interval as an input. The default value is 30 days.

Use these methods to provide inputs to the Cisco BEx7K/CE1400V appliances based out of UCS-C series servers using Cisco NFVIS:

- Using the Cisco NFVIS CLI
- Using NETCONF/Rest APIs

When the device is provided with the above listed inputs for the smart mode of operation, the device initiates the Trust Handshake with the CSSM server. Once Trust Handshake is successful, the device starts reporting license usage according to the time interval specified.

Configure smart mode using the CLI

```
configure terminal
license smart transport smart smart-url
license smart transport smart token
license smart transport smart usage
```

Verify smart mode using the CLI

Use the **show license opdata** command to verify the success of smart mode.

```
show license opdata
license opdata operational-status OK
license opdata usage-reporting last-ack-received None
license opdata usage-reporting usage-interval 1
license opdata usage-reporting next-ack-deadline "Oct 01 20:32:19 2023 UTC"
license opdata usage-reporting last-report-push None
license opdata usage-reporting next-report-push None
```

CSLU mode

CSLU mode is a Smart Licensing transport mode that

- provides reachability between Cisco BEx7K/CE1400V appliances based out of UCS-C series servers and a Cisco Smart Licensing Utility (CSLU) application
- operates as the default transport mode without requiring token input, and
- reports license usage at 30-day intervals by default.

CSLU mode characteristics



Note Cisco NFVIS supports SSM On-Prem in CSLU transport mode.

CSLU mode has these characteristics:

- Ensure that you've logged into CSLU using your Cisco Smart Account on the CSSM.
- The license reporting in the CSLU mode happens at an interval of 30 days by default.
- The CSLU is the default Transport Mode and no token is required as an input.
- The default Transport URL for CSLU mode is <http://CSLU-local:8182/CSLU/v1/pi>
- If you require any change in the inputs other than the defaults, configure the inputs for CSLU mode.
- The CSLU Mode doesn't require any inputs and the CSLU Mode is the default mode of operation for the Cisco NFVIS on Cisco BEx7K/CE1400V appliances based out of UCS-C series servers.



- Note**
- There are no specific operations in terms of Cisco NFVIS Licensing with regards to the device reboot and upgrade. The Cisco NFVIS continues to operate with respect to the interactions established through the modes of operations.
 - The licensing configuration and Smart Licensing Database aren't cleared from the device in case of a Factory Default Reset.
License usage reporting to CSSM/CSLU resumes when the device regains network connectivity through a reconfig operation after a Factory Default Reset.
 - To initiate an RMA for a device, manually release the licenses associated with the device from the CSSM, or use the Cisco NFVIS action command **license smart release**. The command frees up the license entitlements used by this device on CSSM. If the device continues to operate with Cisco NFVIS even after the license release, it will, after a set time interval, resend the usage report (RUM) to CSSM. This report indicates the correct number of license units consumed, which is reserved again on CSSM.
 - While performing a device data backup, Cisco NFVIS backups the config to a file and sends the forced License Usage report to CSSM .

Monitor Cisco NFVIS support for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers

This reference provides show commands used to monitor Cisco NFVIS Smart Licensing for Cisco BEx7K/CE1400V appliances based out of UCS-C series servers along with some configuration examples.

Show commands for license monitoring

- Use the **show running-config license** command in the Cisco NFVIS CLI to view the license information:

```

show running-config license
license smart
  transport smart
  usage interval 1
  token
  "S$tkXjw30mU/A2WdH8LwR6wESUMzTqNCRQmrbpMg83WpJwVngSRZjstf49mF0sH#92V/USiUwGjwQ40z6770jswd
NMLNM0pR/+IF\nhNRgo4762u2ob6DjSr2YGcez8s7TMKQfjswUURDXyXn1AG8VgSjs9RfPpFVi4Ly4BUFJg=="

```

- Use the **show license accounts** command in the Cisco NFVIS CLI to view the Cisco smart account information that the device is linked with:

```

show license accounts
license accounts VIRTUAL ACCOUNT:NFVIS-VA-1
                SMART ACCOUNT:InternalTestDemoAccount8.cisco.com

```

- Use the **show license license-units-consumed** to view the units of entitlement used by the device on the CSSM:

```

show license license-units-consumed
license license-units-consumed 2

```

- Use the **show license opdata** command to view the licensing operational data:

```

show license opdata
license opdata operational-status OK
license opdata usage-reporting last-ack-received None
license opdata usage-reporting usage-interval 1
license opdata usage-reporting next-ack-deadline "Oct 01 20:32:19 2023 UTC"
license opdata usage-reporting last-report-push None
license opdata usage-reporting next-report-push None

```

- Use the **show license status** command to view the status of your license:

```

show license status
Current tenant: nfvis-single-tenant

Smart Licensing is ENABLED

Smart Licensing Policy:
  Status: ENABLED

Transport:
  Type: SmartTransport
  URL: https://smartreceiver-stage.cisco.com/licservice/license
  Proxy:
    Not configured

Trust Code Installed: Jul 05 06:20:56 2023 UTC
  Last Attempt Date: Jul 05 06:19:31 2023 UTC
  Last Attempt Status: JobStatus.success
  Last Attempt Result: success
  Attempt In Progress: False
  Next Attempt Date: None

Usage Reporting:
  Last ACK received: None
  Next ACK deadline: Oct 01 20:32:19 2023 UTC
  Reporting push interval: 1
  Next ACK push check: None

```

```

Next report push: None
Last report push: None
Last report file write: None

```

Policy:

```

Policy in use: None
Policy name: Default Policy
Reporting ACK required: yes
Subscription:
  First report requirement (days): 90
  Ongoing reporting frequency (days): 90
  On change reporting (days): 90
Perpetual:
  First report requirement (days): 365
  Ongoing reporting frequency (days): None
  On change reporting (days): 90
Enforced:
  First report requirement (days): None
  Ongoing reporting frequency (days): None
  On change reporting (days): None
Export:
  First report requirement (days): None
  Ongoing reporting frequency (days): None
  On change reporting (days): None

```

- Use the command **show license summary** to view the summary of your license

```

show license summary
license summary
#### Current tenant: nfvis-single-tenant

Smart Licensing is ENABLED

Smart Licensing Policy:
  Status: ENABLED

Transport:
  Type: SmartTransport
  URL: https://smartreceiver-stage.cisco.com/licservice/license
  Proxy:
    Not configured

Trust Code Installed: Jul 05 06:20:56 2023 UTC
  Last Attempt Date: Jul 05 06:19:31 2023 UTC
  Last Attempt Status: JobStatus.success
  Last Attempt Result: success
  Attempt In Progress: False
  Next Attempt Date: None

Usage Reporting:
  Last ACK received: None
  Next ACK deadline: Oct 01 20:32:19 2023 UTC
  Reporting push interval: 1
  Next ACK push check: None
  Next report push: None
  Last report push: None
  Last report file write: None
Policy:
  Policy in use: None
  Policy name: Default Policy
  Reporting ACK required: yes
  Subscription:

```

```

First report requirement (days): 90
Ongoing reporting frequency (days): 90
On change reporting (days): 90
Perpetual:
First report requirement (days): 365
Ongoing reporting frequency (days): None
On change reporting (days): 90
Enforced:
First report requirement (days): None
Ongoing reporting frequency (days): None
On change reporting (days): None
Export:
First report requirement (days): None
Ongoing reporting frequency (days): None
On change reporting (days): None

```

```

License Usage
=====
Name: None
Short-name-tag: NFVIS_CORE_UCSC
Name-tag:
regid.2023-04.com.cisco.NFVIS_CORE_UCSC,1.0_81ac6671-e3e7-489e-ae14-9610ae3ccdaf
Description: None
Count: 2
Version: None
Status: IN USE
Enforcement_type: NOT ENFORCED
Feature: None
Feature description: None

```

- Use the **show license usage** command to view your license usage:

```

show license usage
license usage
License Usage
=====
Name: None
Short-name-tag: NFVIS_CORE_UCSC
Name-tag:
regid.2023-04.com.cisco.NFVIS_CORE_UCSC,1.0_81ac6671-e3e7-489e-ae14-9610ae3ccdaf
Description: None
Count: 2
Version: None
Status: IN USE
Enforcement_type: NOT ENFORCED
Feature: None
Feature description: None

```

- The license tech support is a part of Cisco NFVIS tech support.

Action commands

Use action commands that can help you release, sync and trust Cisco NFVIS licences.

This command reference includes action commands for managing Cisco NFVIS licenses:

- **license smart release**: Use this command to send a "License Usage 0" message to CSSM. This action prompts the CSSM to release the license entitlement associated with your Cisco UCS C Rack

servers. If the device continues to operate with Cisco NFVIS after the license release, a usage report, also known as RUM, is sent to CSSM after a predetermined time interval. This report will indicate the actual number of license units consumed, which will then be reserved again on CSSM. Following a license release, a notification and system logging warning is issued, urging you to cease using Cisco NFVIS as the license has been released. You receive this notification every 8 hours during the 24 hours after a license release. If you continue to use Cisco NFVIS beyond this 24-hour period, a RUM report will be generated reflecting the appropriate number of license units consumed by Cisco NFVIS. This report is sent to the Licensing server based on the set periodic interval, after which the licensing server will reserve the correct number of license units for the device again.

- **license smart sync**: Report a license usage to CSSM using this action command.
- **license smart trust**: Initiate the establishment of trust between the device and the CSSM. This action can prove beneficial in various scenarios, including but not limited to these:
 1. If you delete the product instance from CSSM but wish to continue with Cisco NFVIS Licensing.
 2. If you transfer your licenses from one Virtual Account to another.
 3. If there is an asynchrony between the licensing state on CSSM and on the device.
 4. If the licensing certificates on the device reach their expiry date.

Enforcement behavior for smart licensing

Enforcement behavior for smart licensing is a Day-N behavior model that

- conditionally enforces Smart Licensing Using Policy in NFVIS
- transitions devices between states based on trust establishment and synchronization status, and
- maintains licensing compliance through operational recovery commands and state persistence.

Smart licensing states and transitions

When trust is established and account mapping is successful, the device transitions to AUTHORIZED state and reports the consumed license units to CSSM. In this state, usage and reporting continue at the configured intervals with no service-impacting enforcement action.

If trust is not established (for example after certificate loss, account/VA movement, or stale token/config mismatch), the device can show a PENDING state and should be recovered using **license smart trust** and/or **license smart sync**.

If synchronization is overdue beyond policy limits, the device can move to out-of-compliance related states and follow policy retry/overdue intervals.

Operationally, use these commands for lifecycle recovery and maintenance:

- **license smart trust** to re-establish trust certificates with CSSM.
- **license smart sync** to push policy/usage synchronization when state mismatch is observed.
- **license smart release** to release entitlement usage from CSSM before decommissioning or transfer workflows.

For steady state validation, check that:

- Licensing status is AUTHORIZED.
- Trust Code Installed has a valid timestamp.
- Last Attempt Status is success.
- Smart Account and Virtual Account are populated.

NFVIS persists Smart Licensing enforcement state in the `/data/cisco/licensing/state` file.

This file is JSON and is used to track enforcement-related runtime state across service restarts and upgrades.

The current state keys and meaning are:

- **expired**: Boolean. True when grace has expired and out-of-compliance must be enforced.
- **grace**: Boolean. True when the device is currently in grace period.
- **overdue**: Boolean. True when synchronization is overdue (sync overdue event).
- **grace_expiry_ts**: UNIX timestamp (seconds). Grace period end time used to decide whether OOC is still within grace window.
- **grace_reason**: String. Reason text captured from usage-specific out-of-compliance information.

Default state when file is absent:

```
{"expired": false, "grace": false, "overdue": false, "grace_expiry_ts": 0, "grace_reason": ""}
```

State transitions used by NFVIS Smart Licensing workflow:

- **in_compliance event**: resets overdue/expired/grace and clears grace_expiry_ts and grace_reason.
- **grace_period event**: sets grace=true, expired=false, and updates grace_expiry_ts/grace_reason when available.
- **out_of_compliance event**: if grace window has expired, sets expired=true and clears grace metadata; if still in grace window, keeps grace=true.
- **sync_overdue event**: sets overdue=true.

