

Cisco Smart Licensing for NFVIS

Objective

This reference groups information about Cisco Smart Licensing for NFVIS, including Prerequisites, Smart Licensing Modes, Monitoring, Enforcement Behavior, License Renewal Workflow.

- Prerequisites, on page 1
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Prerequisites

Objective

Lists the requirements needed before implementing Cisco NFVIS on Cisco BE6K/BE7K/CE1400V appliances. This reference identifies the essential prerequisites that must be met before implementing Cisco NFVIS support for Cisco BE6K/BE7K/CE1400V appliances.

NFVIS Smart Licensing prerequisites

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 BE6K/BE7K/CE1400V appliances along with Cisco NFVIS Smart License.

Smart licensing modes

Objective

Describes how to configure Cisco Smart Licensing for Cisco NFVIS, which operates in two distinct modes: Smart Mode and CSLU Mode for license management and activation.

Smart and CSLU licensing modes

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 calling appliances 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

Objective

Lists the requirements for configuring Smart Mode.

Smart mode configuration requirements

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

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?

1. Provide the generated token as the input to the Cisco calling appliances. 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.
2. 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.

1. 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.

1. 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.

When the device has 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

Procedure

Configure smart mode using the CLI.

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

Smart mode verification using the CLI

Objective

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

Smart mode operational status output

```
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.



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

CSLU mode has these characteristics:

- Ensure that you have 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 does not 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 are not 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 backs up the config to a file and sends the forced License Usage report to CSSM.

Monitoring

Objective

This reference provides show commands used to monitor Cisco NFVIS Smart Licensing for Cisco calling appliances along with some configuration examples.

Smart Licensing monitoring commands

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
"SSNiXjw3R0wUU/A2WDdH8aLvRF6v+PSUXpZZqINCKQYujbbJPki8C3WWpjtWnqS8FU2ljisfd9MV0qS+F9X8/uD3iLbwGqjrWQ4R0z2o77OjeAwbD
NMLNM0pR/+IF\nhNRgo4762u2ob6DjSr2YGcez8s7TMKQfjswUURDXYxYn1AG8VgSjs9RfPpFVi4Ly4BUFJg=="
```

- 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 more

```
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 more

```
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 more

```
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.

How enforcement works

Summary

At Day-0 (NFVIS connecting to Licensing server)

Workflow

Three triggers for entering Grace are below:

Process details

At Day-0 (NFVIS connecting to Licensing server)

- License requested in PENDING status
- Sync Overdue Timer started.
- Sync Overdue Timer expiry entitlement will move to Out of Compliance (OOC).
- Day-0 enforcements post Sync Overdue Timer expiry
- Day-0 enforcement kicks in after 30 days if no connectivity to License server.
  - NFVIS becomes read-only except NFVIS network settings and licensing configs. List of blocked commands are listed below after Day-N
  - Host action commands are exempted from enforcements
  - Banner in the login prompt displays number of days remaining for Timer expiry
  - Same Banner on the local portal

    In normal case where Sync overdue timer has not expired and customer is able to use license till the term of the license. After term expiration, we enter a grace period.

Day-N enforcements post Grace Period Expiry

- NFVIS becomes read-only. Configuration paths that are blocked are listed below in next bullet.
- Host action commands are exempted from enforcements
- Banner in the login prompt displays number of days remaining for Grace expiry
- Same Banner on the local portal
- Device enforces post Grace expiry

Configuration blocked during Day-0 /Day-N enforcement

- Networking: /networks/network, /bridges/bridge, /pnics/pnic and its /speed, /duplex, /promiscuous, and /track-state subpaths; /routers/router/bgp, /route-distributions, /system/routes, and /host-firewall/default-action
- Security and access: /security:security, /security_servers, /security_servers/aaa/groups/group/user, /security_servers/aaa/groups/group/policy, and /system:system/security/selinux/mode
- System and services: /banner-motd, /netsnmp, /monitor/session, /pnp, /nfvis-ip:ip/hosts, /system/portal, /system/time, /system:system/system:mode, /system:system/storage, and /system/usb-mount
- Maintenance: /system/fwupdate/image-name, /system/fwupdate/apply-image, /system/upgrade/image-name, and /system/upgrade/apply-image

Following configuration paths are exempted from enforcements

- /system:system/settings
- /network
- /license:license/smar

Three triggers for entering Grace are given below:

- License over-consumption (OOC)
- Subscription expiry
- Sync-overdue Timer expiry (For additional Licenses requested at Day-N)

License renewal workflow

Objective

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

Cisco NFVIS license action commands

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.