

Command Reference for Smart Licensing Using Policy

This section provides complete command syntax information for Smart Licensing commands.

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license smart (global config)

To configure licensing-related settings such as the mode of transport and URL that the product instance uses to communicate with Cisco Smart Software Manager (CSSM), or Cisco Smart Licensing Utility (CSLU), or Smart Software Manager On-Prem (SSM On-Prem), the usage reporting interval, the information that must be exluded or included in a license usage report (RUM report), a VRF to send licensing data, enter the **license smart** command in global configuration mode. Use the **no** form of the command to revert to default values.

license smart { **custom_id** *ID* | **enable** | **privacy** { **all** | **hostname** | **version** } | **proxy** { **address** *address_hostname* | **port** *port* } | **reservation** | **server-identity-check** | **transport** { **automatic** | **callhome** | **cslu** | **off** | **smart** } | **url** { *url* | **cslu** *cslu_or_on-prem_url* | **default** | **smart** *smart_url* | **utility** *secondary_url* } | **usage** { **customer-tags** { **tag1** | **tag2** | **tag3** | **tag4** } *tag_value* | **interval** *interval_in_days* } | **utility** [**customer_info** { **city** *city* | **country** *country* | **id** *id* | **name** *name* | **postalcode** *postalcode* | **state** *state* | **street** *street* }] | **vrf** *vrf_string* }

no license smart { **custom_id** | **enable** | **privacy** { **all** | **hostname** | **version** } | **proxy** { **address** *address_hostname* | **port** *port* } | **reservation** | **server-identity-check** | **transport** | **url** { *url* | **cslu** *cslu_or_on-prem_url* | **default** | **smart** *smart_url* | **utility** *secondary_url* } | **usage** { **customer-tags** { **tag1** | **tag2** | **tag3** | **tag4** } *tag_value* | **interval** *interval_in_days* } | **utility** [**customer_info** { **city** *city* | **country** *country* | **id** *id* | **name** *name* | **postalcode** *postalcode* | **state** *state* | **street** *street* }] | **vrf** *vrf_string* }

Syntax Description

custom_id *ID*	Although visible on the CLI, this option is not supported.
enable	Although visible on the CLI, configuring this keyword has no effect. Smart Licensing is always enabled.
privacy { **all**	**hostname**	**version** }	Sets a privacy flag to prevent the sending of the specified data privacy related information. When the flag is disabled, the corresponding information is sent in a message or offline file created by the product instance. Depending on the topology this is sent to one or more components, including CSSM, CSLU, and SSM On-Prem. *All data privacy settings are disabled by default*. You must configure the option you want to exclude from all communication: • **all**: All data privacy related information is excluded from any communication. The **no** form of the command causes all data privacy related information to be sent in a message or offline file. **Note** The Product ID (PID) and serial number are *included in the RUM report* regardless of whether data privacy is enabled or not. • **hostname**: Excludes hostname information from any communication. When hostname privacy is enabled, the *UDI* of the product instance is displayed on the applicable user interfaces (CSSM, CSLU, and SSM On-Prem). The **no** form of the command causes hostname information to be sent in a message or offline file. The hostname is displayed on the applicable user interfaces (CSSM, CSLU, and SSM On-Prem). • **version**: Excludes the Cisco IOS-XE software version running on the product instance and the Smart Agent version from any communication. The **no** form of the command causes version information to be sent in a message or offline file.

proxy { **address** *address_hostname* | **port** *port* }	Configures a proxy for license usage synchronization with CSLU or CSSM. This means that you can use this option to configure a proxy only if the transport mode is **license smart transport smart** (CSSM), or **license smart transport cslu** (CSLU). However, you cannot configure a proxy for license usage synchronization in an SSM On-Prem deployment, which also uses **license smart transport cslu** as the transport mode. When a proxy is configured, messages are sent to the proxy along with the final destination URL (CSSM). The proxy sends the message on to CSSM. Configure the following options: • **address** *address_hostname*: Configures the proxy address. For *address_hostname*, enter the enter the IP address or hostname of the proxy. • **port** *port*: Configures the proxy port. For *port*, enter the proxy port number.
reservation	Enables the reservation mode for Permanent License Reservation (PLR) in the Smart Licensing Using Policy environment. In the Smart Licensing Using Policy environment, PLR is supported starting from Cisco IOS XE Dublin 17.10.1 only. The product instances that support PLR are only Catalyst 8000V Edge Software and Cloud Services Router 1000v on which a .bin upgrade to Catalyst 8000V Edge Software is performed. The **no** form of the command disables reservation. You must enable the reservation mode using this keyword before you can access the privileged EXEC commands used to cancel, install, request, and return a PLR code.
server-identity-check	Enables or disables the HTTP secure server identity check.

transport { **automatic** | **callhome** | **cslu** | **off** | **smart** }	Configures the mode of transport the product instance uses to communicate with CSSM. Choose from the following options: • **automatic**: Sets the transport mode **cslu**. • **callhome**: Enables Call Home as the transport mode. • **cslu**: Enables CSLU as the transport mode. This is the default transport mode. **Note** The same transport mode applies to both CSLU *and* SSM On-Prem, but the URLs are different. See **cslu***cslu_or_on-prem_url* in the following row. • **off**: Disables all communication from the product instance. • **smart**: Enables Smart transport.

url { *url* | **cslu** *cslu_or_on-prem_url* | **default**
| **smart** *smart_url* | **utility** *secondary_url* }

Sets URL that is used for the configured transport mode. Choose from the following options:

- *url*: If you have configured the transport mode as **callhome**, configure this option. Enter the CSSM URL exactly as follows:

  `https://tools.cisco.com/its/service/oddce/services/DDCEService`

  The **no license smart url** *url* command reverts to the default URL.

- **cslu** *cslu_or_on-prem_url*: If you have configured the transport mode as **cslu**, configure this option, with the URL for CSLU or SSM On-Prem, as applicable:

  - If you are using CSLU, enter the URL as follows:

    `http://<cslu_ip_or_host>:8182/cslu/v1/pi`

    For `<cslu_ip_or_host>`, enter the hostname or the IP address of the windows host where you have installed CSLU. 8182 is the port number and it is the only port number that CSLU uses.

    The **no license smart url cslu** *cslu_or_on-prem_url* command reverts to `http://cslu-local:8182/cslu/v1/pi`

  - If you are using SSM On-Prem, enter the URL as follows:

    `http://<ip>/cslu/v1/pi/<tenant ID>`

    For <ip>, enter the hostname or the IP address of the server where you have installed SSM On-Prem. The <tenantID> must be the default local virtual account ID.

    Tip
    You can retrieve the entire URL from SSM On-Prem. See Retrieving the Transport URL (SSM On-Prem UI)

    The **no license smart url cslu** *cslu_or_on-prem_url* command reverts to `http://cslu-local:8182/cslu/v1/pi`

- **default**: Depends on the configured transport mode. Only the **smart** and **cslu** transport modes are supported with this option.

  If the transport mode is set to **cslu**, and you configure **license smart url default**, the CSLU URL is configured automatically (`https://cslu-local:8182/cslu/v1/pi`).

  If the transport mode is set to **smart**, and you configure

license smart url default, the Smart URL is configured automatically (`https://smartreceiver.cisco.com/licservice/license`).

- **smart** *smart_url*: If you have configured the transport type as **smart**, configure this option. Enter the URL exactly as follows:

  `https://smartreceiver.cisco.com/licservice/license`

  When you configure this option, the system automatically creates a duplicate of the URL in **license smart url** *url*. You can ignore the duplicate entry, no further action is required.

  The **no license smart url smart***smart_url* command reverts to the default URL.

- **utility** *smart_url*: Although available on the CLI, this option is not supported.

usage { **customer-tags** { **tag1** | **tag2** | **tag3** | **tag4** } *tag_value* | **interval** *interval_in_days* }	Provides usage reporting settings. You can set the following options: • **customer-tags** { **tag1** | **tag2** | **tag3** | **tag4** } *tag_value*: Defines strings for inclusion in data models, for telemetry. Up to 4 strings (or tags) may be defined. For *tag_value*, enter the string value for each tag that you define. • **interval** *interval_in_days*: Sets the reporting interval days. By default the RUM report is sent every 30 days. The valid value range is 1 to 3650. If you set the value to zero, RUM reports are not sent, regardless of what the applied policy dictates - this applies to a topology where CSLU or CSSM may be on the receiving end. If you set a value that is greater than zero and the transport type is set to **off**, then, between the *interval_in_days* and the policy value for `Ongoing reporting frequency(days):`, the lower of the two values is applied. For example, if *interval_in_days* is set to 100, and the value in the in the policy says `Ongoing reporting frequency (days):90`, RUM reports are sent every 90 days. If you do not set an interval, and the default is effective, the reporting interval is determined entirely by the policy value. For example, If the default value is effective and only unenforced licenses are in use, if the policy states that reporting is not required, then RUM reports are not sent. If you are using the utility mode, we recommend a reporting interval of seven days or less. This ensures that the 30- day ACK requirement, which applies to a product instance in the utility mode, is met in timely manner.

utility [**customer_info** { **city** *city* | **country** *country* | **id** *id* | **name** *name* | **postalcode** *postalcode* | **state** *state* | **street** *street* }]	Enables the utility mode on the product instance. The utility mode must be enabled if you have an MSLA and use licenses with subscription IDs. When enabled, all communication to and from the product instance is flagged accordingly. For a product instance in the utility mode, you can optionally include the additional information in a RUM report. This information is not used by Cisco. To include optional information in the RUM report, enter the **customer_info** keyword, followed by one or more of the following options: • **city** *city* • **country** *country* • **id** *id*: Enter a user-defined ID • **name** *name*: Enter a user-defined name. • **postalcode** *postalcode* • **state** *state* • **street** *street* The no form of the **license smart utility** command disables the utility mode.
vrf *vrf_string*	Configures a Virtual Routing and Forwarding (VRF) name that is used by the product instance. The product instance uses the VRF to send licensing-related data to CSSM, CSLU, or SSM On-Prem. For *vrf_string*, enter the VRF name you have defined. Ensure that the following requirements are met: • The product instance is one that supports VRF. • The transport type is **smart** or **cslu**, with the corresponding URL.

Command Default

Starting from Cisco IOS XE Amsterdam 17.3.2, Smart Licensing Using Policy is enabled by default.

Command Modes

Global config (Device(config)#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Release	Modification
Cisco IOS XE Amsterdam 17.3.2	The following keywords and variables were introduced with Smart Licensing Using Policy: • Under the **url**keyword, these options were introduced: { **cslu** *cslu_url* | **smart** *smart_url* } • Under the **transport** keyword, these options were introduced: { **cslu** | **off** } Further, the default transport type was changed from **callhome**, to **cslu**. • **usage** { **customer-tags** { **tag1** | **tag2** | **tag3** | **tag4** } *tag_value* | **interval** *interval_in_days* } The following keywords and variables under the **license smart** command are deprecated and no longer available on the CLI: **enable**and **conversion automatic**.
Cisco IOS XE Amsterdam 17.3.3	SSM On-Prem support was introduced. For product instance-initiated communication in an SSM On-Prem deployment, the existing [**no**]**license smart url cslu***cslu_or_on-prem_url* command supports the configuration of a URL for SSM On-Prem as well. But the required URL format for SSM On-Prem is: `http://<ip>/cslu/v1/pi/<tenant ID>`. The corresponding transport mode that must be configured is also an existing command (**license smart transport cslu**).
Cisco IOS XE Cupertino 17.7.1a	If version privacy is disabled (**no license smart privacy version** global configuration command), the Cisco IOS-XE software version running on the product instance and the Smart Agent version is *included* in the RUM report. To exclude version information from the RUM report, version privacy must be enabled (**license smart privacy version**).

Release	Modification
Cisco IOS XE Cupertino 17.9.1a	• Support for the **utility** keyword was introduced. Configure the **license smart utility** command to enable the utility mode on the product instance. The utility mode must be enabled if you have an MSLA and use licenses with subscription IDs. • A new mechanism to send all data privacy related information was introduced. This information is no longer included in a RUM report. If data privacy is disabled (**no license smart privacy** {**all** | **hostname** | **version**} global configuration command), data privacy related information is sent in a separate sync message or offline file. • Support for sending hostname information was introduced. If the privacy setting for the hostname is disabled (**no license smart privacy hostname** global configuration command), hostname information is sent from the product instance, in a separate sync message, or offline file. Depending on the topology you have implemented, the hostname information is received by CSSM, CSLU, or SSM On-Prem. It is also displayed on the corresponding user interface. • The **vrf** *vrf_string* keyword was introduced. On a product instance where VRF is supported, you can configure the **license smart vrf** *vrf_string* command to send all licensing data to CSSM, or CSLU, or SSM On-Prem.
Cisco IOS XE Dublin 17.10.1	Support for the **reservation** keyword was introduced. The [**no**] **license smart reservation** command enables or disables the reservation mode on supported product instances.

Usage Guidelines

Data Privacy Settings

When you disable a privacy setting, the topology you have implemented determines the recipient and how the information reaches its destination:

- The recipient of the information may be one or more of the following: CSSM, CSLU, and SSM On-Prem. The privacy setting has no effect on a controller (Cisco DNA Center).

  In case of the **hostname** keyword, after the hostname information is received by CSSM, CSLU, or SSM On-Prem, it is also displayed on the corresponding UIs – as applicable. If you then *enable* privacy, the corresponding UIs revert to displaying the UDI of the product instance.

- How the information is sent.

  - In case of a topology where the product instance initiates communication, the product instance initiates the sending of this information in a message, to CSSM, or CSLU, or SSM On-Prem.

    The product instance sends the hostname sent every time one of the following events occur: the product instance boots up, the hostname changes, there is a switchover in a High Availability set-up.

  - In case of a topology where CSLU or SSM On-Prem initiate communication, the corresponding component initiates the retrieval of privacy information from the product instance.

The hostname is retrieved at the frequency you configure in CSLU or SSM On-Prem.

- In case of a topology where the product instance is in an air-gapped network, privacy information is included in the offline file that is generated when you enter the **license smart save usage** privileged EXEC command.



Note For all topologies, data privacy related information is *not* included in the RUM report.

Data privacy related information it is not stored by the product instance *prior* to sending or saving. This ensures that if and when information is sent, it is consistent with the data privacy setting at the time of sending or saving.

Communication failure and reporting

The reporting interval that you configure (**license smart usage interval** *interval_in_days* command), determines the date and time at which the product instance sends out the RUM report. If the scheduled interval coincides with a communication failure, the product instance attempts to send out the RUM report for up to four hours after the scheduled time has expired. If it is still unable to send out the report (because the communication failure persists), the system resets the interval to 15 minutes. Once the communication failure is resolved, the system reverts the reporting interval to the value that you last configured.

The system message you may see in case of a communicatin failure is %SMART_LIC-3-COMM_FAILED. See the *Troubleshooting Smart Licensing Using Policy* section for information about resolving this error and restoring the reporting interval value.

Proxy server acceptance

When configuring the **license smart proxy** {**address** *address_hostname* | **port***port*} command, note the change in the criteria for the acceptance of proxy servers, starting with Cisco IOS XE Bengaluru 17.6.1: only the status code of the proxy server response is verified by the system and not the reason phrase. The RFC format is `status-line = HTTP-version SP status-code SP reason-phrase CRLF`, where the status code is a three-digit numeric code. For more information about the status line, see section 3.1.2 of RFC 7230.

Setting the Utility Mode

If the utility mode is enabled (**license smart utility**) and a license without a subscription ID is in use, the %SMART_LIC-4-UTILITY_SUBSCRIPTION_LICENSE system message is generated - once, for every license, and 30 days after the use of the license without the subscription ID is detected.

To remedy the situation, ensure that subscription IDs are deposited in the correct Smart Account and Virtual Account in CSSM. This enables all communication to be flagged accordingly.

To support the utility mode, the transport type must be set to one of the following options only:

- **smart**, if the product instance is directly connected to CSSM).
- **cslu**, if the product instance is connected to CSSM via CSLU or SSM On-Prem.
- **off**, if the product instance is in an air-gapped network.

Using a VRF

When you use the **license smart vrf** *vrf_string* global configuration command, the topology you implement must be one where the product instance is connected to CSSM, or CSLU, or SSM-OnPrem. (The supported transport types when using a VRF are **smart** and **cslu** only.)

Further, if connected to CSSM via CSLU or SSM On-Prem, you must implement a topology where the product instance initiates communication. CSLU or SSM On-Prem can be connected to CSSM or disconnected from it.

In order to use a VRF to send licensing data, other supporting VRF configuration may also be required. This will depend on your network. For more information, see IP Routing: Protocol-Independent Configuration Guide, Cisco IOS XE 17.

Sample VRF configuration is provided in the *Examples* section below.

Examples

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- Examples for Usage Reporting Options, on page 15
- Example for Using VRF, on page 15

Examples for Data Privacy

The following examples show how to configure data privacy related information using **license smart privacy** command in global configuration mode. The accompanying **show license status** output displays the privacy options that are enabled and those that are disabled.

Note The output of the **show** command only tells you if a particular option is enabled or disabled.

Here, no data privacy related information information is sent:

```
Device# configure terminal
Device(config)# license smart privacy all
Device(config)# exit
Device# show license status
<output truncated>
Data Privacy:
  Sending Hostname: no
    Callhome hostname privacy: ENABLED
    Smart Licensing hostname privacy: ENABLED
  Version privacy: ENABLED

Transport:
  Type: Callhome
<output truncated>
```

Here, hostname is included and version information is excluded in the message initiated from the product instance. The product instance is directly connected to CSSM (transport type is **smart**, with the corresponding URL).

```
Device# configure terminal
Device(config)# license smart privacy version
Device(config)# no license smart privacy hostname
```

```
Device(config)# exit

Device# show license all
<output truncated>

Data Privacy:
  Sending Hostname: no
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: ENABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured
  VRF:
    Not Configured

<output truncated>
```

Examples for Transport Type and URL

The following examples show how to configure some of the transport types using the **license smart transport** and the **license smart url** commands in global configuration mode. The accompanying **show license all** output displays configured information.

Transport **cslu**:

```
Device# configure terminal
Device(config)# license smart transport cslu
Device(config)# license smart url default
Device(config)# exit
Device# show license all
<output truncated>
Transport:
  Type: cslu
  Cslu address: http://192.168.0.1:8182/cslu/v1/pi
  Proxy:
    Not Configured
<output truncated>
```

Transport **smart**:

```
Device# configure terminal
Device(config)# license smart transport smart
Device(config)# license smart url smart https://smartreceiver.cisco.com/licservice/license
Device(config)# exit
Device# show license all
<output truncated>
Transport:
  Type: Smart
  URL: https://smartreceiver-stage.cisco.com/licservice/license
  Proxy:
    Not Configured
<output truncated>
```

Examples for Usage Reporting Options

The following examples show how to configure some of the usage reporting settings using the **license smart usage** command in global configuration mode. The accompanying **show running-config** output displays configured information.

Configuring the **customer-tag** option:

```
Device# configure terminal
Device(config)# license smart usage customer-tags tag1 SA/VA:01
Device(config)# exit
Device# show running-config | include tag1
license smart usage customer-tags tag1 SA/VA:01
```

Configuring a narrower reporting interval than the currently applied policy:

```
Device# show license status
<output truncated>
Usage Reporting:
Last ACK received: Sep 22 13:49:38 2020 PST
Next ACK deadline: Dec 21 12:02:21 2020 PST
Reporting push interval: 30 days
Next ACK push check: Sep 22 12:20:34 2020 PST
Next report push: Oct 22 12:05:43 2020 PST
Last report push: Sep 22 12:05:43 2020 PST
Last report file write: <none>
<output truncated>

Device# configure terminal
Device(config)# license smart usage interval 20
Device(config)# exit
Device# show license status
<output truncated>

Usage Reporting:
Last ACK received: Sep 22 13:49:38 2020 PST
Next ACK deadline: Nov 22 12:02:21 2020 PST
Reporting push interval: 20 days
Next ACK push check: Sep 22 12:20:34 2020 PST
Next report push: Oct 12 12:05:43 2020 PST
Last report push: Sep 22 12:05:43 2020 PST
Last report file write: <none>
<output truncated>
```

Example for Using VRF

Here, *SLP_VRF* is used to send licensing data from the product instance. The **license smart vrf** *vrf_string* command is used to specify the VRF that will be used to send licensing data. The rest of the supporting configuration is for example purposes.

```
Device (config)# vrf definition SLP_VRF
Device(config-vrf)# address-family ipv4
Device(config-vrf-af)# exit
Device(config-vrf)# interface GigabitEthernet 0/0/0
Device (config-if)# no shutdown
Device (config-if)# vrf forwarding SLP_VRF
Device (config-if)# ip address 192.168.0.47 255.255.0.0
Device (config-if)# exit
Device (config)# ip route vrf SLP_VRF 0.0.0.0 0.0.0.0 192.168.0.1
Device (config)# ip name-server vrf SLP_VRF 173.37.137.85
```

```
Device (config)# license smart transport smart
Device (config)# license smart url https://smartreceiver.cisco.com/licservice/license
Device (config)# license smart vrf SLP_VRF
Device (config)# ip http client source-interface GigabitEthernet 0/0/0
```

license smart (privileged EXEC)

To configure licensing functions such as requesting or returning authorization codes, saving Resource Utilization Measurement reports (RUM reports), importing a file on to a product instance, establishing trust with Cisco Smart Software Manager (CSSM), synchronizing the product instance with CSSM, or Cisco Smart License Utility (CSLU), or Smart Software Manager On-Prem (SSM On-Prem), and removing licensing information from the product instance, enter the **license smart** command in privileged EXEC mode with the corresponding keyword or argument.

license smart { **authorization** { **request** { **add** | **replace** | **save** *filepath_filename* } *feature_name* { **all** | **local** } [*request_count*] | **return** { **all** | **force-reload** [**no-prompt**] | **local** } { **offline** [*filepath_filename*] | **online** } } | **clear eventlog** | **export return** { **all** | **local** } *feature_name* | **factory reset** | **import** *filepath_filename* | **renew** { **ID** | **auth** } | **reservation** { **cancel** [**all** | **local**] | **install** { *plr_code* | **file** *filepath_filename* } | **request** { **all** | **local** | **universal** } | **return** [**all** | **authorization** { *return_code* | **file** *filepath_filename* } | **local**] } | **save** { **trust-request** *filepath_filename* | **usage** { **all** | **days** *days* | **rum-id** *rum-ID* | **unreported** } { **file** *filepath_filename* } } | **sync** { **all** | **local** } | **trust idtoken** *id_token_value* { **local** | **all** } [**force**] }

Syntax Description

smart	Provides options for Smart Licensing.
authorization	Provides the option to request for, or return, authorization codes.
request	Requests an authorization code from CSSM, CSLU (CSLU in-turn fetches it from CSSM), or SSM On-Prem and installs it on the product instance.
add	Adds the requested license to the existing authorization code. The new authorization code will contain all the licenses of the existing authorization code and the requested license. **Note** Do not use this option even though it is available on the CLI, for any of the supported product instances that are within the scope of this document. Use the replace option in all scenarios.
replace	Requests SLAC if it is not already installed, or replaces an existing SLAC. When you enter this option, the product instance verifies if licenses that correspond to the authorization codes that will be removed, are in-use. If licenses are being used, an error message tells you to first disable the corresponding features. A device requires only one SLAC.
save *filepath_filename*	Saves the authorization code request to a file. For *filepath_filename*, specify the absolute path to the file, including the filename.
feature_name	Name of the license for which you are requesting an authorization code.

all	Performs the action for all product instances in a High Availability configuration.
local	Performs the action for the *active* product instance. This is the default option.
request_count	Enter the license request count. Enter a value between 0 and 4294967295.
return	Returns an authorization code back to the license pool in CSSM.
force-reload [**no-prompt**]	Forces the SLAC on the device to be returned even if the HSECK9 license is in-use. Use the optional **no-prompt** keyword to skip the confirmation prompt that follows the entry of the command. On virtual product instances, the keyword displayed on the CLI is **force** . The **no-prompt** is not available because a reload is not required. If these keywords are not displayed on the CLI, it means that either the option to forcibly return SLAC is not supported on the product instance, or the HSECK9 license is not supported on the product instance.
offline *filepath_filename*	Means the product instance is not connected to CSSM. The authorization code is returned offline. This option requires you to print the return code to a file. For *file_path*, specify the location of the file where you have saved the return code.
online	Means that the product instance is in a connected mode. The authorization code is returned to CSLU or CSSM directly.
clear eventlog	Clears all event log files from the product instance.
export return	Returns the authorization key for an export-controlled license.
factory reset	Clears all saved Smart Licensing information from the product instance.
import *filepath_filename*	Imports a file on to the product instance. The file may be that of an authorization code, a trust code, or, or a policy. For *filepath_filename*, specify the location, including the filename.

{ **reservation** { **cancel** [**all** | **local**] | **install** { *plr_code* | **file** *filepath_filename* } | **request** { **all** | **local** | **universal** } | **return** [**all** | **authorization** { *return_code* | **file** *filepath_filename* } | **local**] } }	Configures reservation settings. You must specify one of these options: • **cancel** [**all** | **local**]: Cancels a reservation request before the authorization code is installed. Use this if you have generated a PLR request code, but dont want to use it. If you have already installed a PLR code, you must use the **return** option instead. • **install** {*plr_code* | **file** *filepath_filename*}: Installs the PLR code. Any older PLR code version, if it exists, is deleted during the installation process. You must first generate a reservation request code on the product instance, enter the request code in CSSM, generate the PLR authorization code in CSSM, copy it from CSSM, and then use this keyword to install it on the product instance. • **request** { **all** | **local** | **universal** }: Generates a reservation request code on the product instance. **Note** Although visible on the CLI, the **universal** keyword is deprecated and not supported. To generate a reservation request code, specify **all** to perform the action for all product instances in a High Availability configuration, or **local** to perform the action on the active product instance. • **return** [**all** | **authorization** | **local**]: Returns a PLR authorization code that was installed. After you configure this command, a return code is displayed on the CLI, you must enter this return code in CSSM to complete the return process.
save	Provides options to save RUM reports or trust code requests.
trust-request *filepath_filename*	Saves the trust code request for the active product instance in the specified location. For *filepath_filename*, specify the absolute path to the file, including the filename.
usage { **all** | **days** *days* | **rum-id** *rum-ID* | **unreported** } { **file** *filepath_filename* }	Saves RUM reports (license usage information) in the specified location. You must specify one of these options: • **all**: Saves all RUM reports. • **days** *days*: Saves RUM report for the last *n* number of days (excluding the current day). Enter a number. The valid range is 0 to 4294967295. For example, if you enter 3, RUM reports of the last three days are saved. • **rum-Id** *rum-ID*: Saves a specified RUM ID. The valid value range is 0 to 18446744073709551615. • **unreported**: Saves all unreported RUM reports. **file** *filepath_filename*: Saves the specified usage information to a file. Specify the absolute path to the file, including the filename.

sync { **all** | **local** }	Synchronizes with CSSM or CSLU, or SSM On-Prem, to send and receive any pending data. This includes uploading pending RUM reports, downloading the ACK response, any pending authorization codes, trust codes, and policies for the product instance. Specify the product instance by entering one of these options: • **all**: Performs synchronization for all the product instances in a High Availability set-up. If you choose this option, the product instance also sends the list of all the UDIs in the synchronization request. • **local**: Performs synchronization only for the active product instance sending the request, that is, its own UDI. This is the default option.
trust idtoken *id_token_value*	Establishes a trusted connection with CSSM. To use this option, you must first generate a token in the CSSM portal. Provide the generated token value for *id_token_value*.
force	Submits a trust code request even if a trust code already exists on the product instance. A trust code is node-locked to the UDI of a product instance. If the UDI is already registered, CSSM does not allow a new registration for the same UDI. Entering the **force** keyword overrides this behavior.

Command Default

Starting from Cisco IOS XE Amsterdam 17.3.2, Smart Licensing Using Policy is enabled by default.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Release	Modification
Cisco IOS XE Amsterdam 17.3.2	The following keywords and variables were introduced with Smart Licensing Using Policy: • **authorization** { **request** { **add** | **replace** } *feature_name* { **all** | **local** } | **return** { **all** | **local** } { **offline** [*path*] | **online** } } • **import** *file_path* • **save** { **trust-request** *filepath_filename* | **usage** { **all** | **days** *days* | **rum-id** *rum-ID* | **unreported** } { **file** *file_path* } } • **sync** { **all** | **local** } • **trust idtoken** *id_token_value* { **local** | **all** } [**force**] The following keywords and variables under the **license smart** command are deprecated and no longer available on the CLI: • **register idtoken** *token_id* [**force**] • **renew id** { **ID** | **auth** } • **debug** { **error** | **debug** | **trace** | **all** } • **mfg reservation** { **request** | **install** | **install file** | **cancel** } • **conversion** { **start** | **stop** }
Cisco IOS XE Amsterdam 17.3.3	Support for SSM On-Prem was introduced. You can perform licensing-related tasks such as requesting or returning authorization codes, saving Resource Utilization Measurement reports (RUM reports), importing a file on to a product instance, synchronizing the product instance, and removing licensing information from the product instance in an SSM On-Prem deployment.
Cisco IOS XE Cupertino 17.7.1a	The following enhancements were introduced in this release: • The **save** *path* keyword and variable were added to the **license smart authorization request** command string. You can use this option to generate a SLAC request and save it to a file. The new options are displayed as follows: **license smart authorization request** { **add** | **replace** | **save** *path* } *feature_name* { **all** | **local** } [*request_count*] • The existing **license smart save usage** command was enhanced to automatically include a trust code request if it doesn't already exist.
Cisco IOS XE Dublin 17.10.1	The **reservation** keyword was restored. You can cancel, install, request, and return a PLR code.
Cisco IOS XE Dublin 17.15.1	The **force-reload** [**no-prompt**] keywords were introduced.

Usage Guidelines

Requesting a Trust Code in an Air-Gapped Network

Starting with Cisco IOS XE Cupertino 17.7.1a if a trust code is not available on the product instance, the product instance automatically includes a trust code request in the RUM report when you enter the **license smart save usage** command. This supported in a standalone set-up, as well as a High Availability set-up. In a High Availability set-up, the active product instance requests the trust code for all connected product instances where a trust code is not available. CSSM includes the trust code in the ACK which is available for download from the CSSM Web UI. You then have to install the ACK on the product instance. You can verify trust code installation by entering the **show license status** command in privileged EXEC mode - check for the updated timestamp in the `Trust Code Installed` field.

Overwriting a Trust Code

Use cases for the **force** option when configuring the **license smart trust idtoken** command:

- You use same token for all the product instances that are part of one Virtual Account. If the product instance has moved from one account to another (for instance, because it was added to a High Availability set-up, which is part of another Virtual Account), then there may be an existing trust code you have to overwrite.
- There is already a factory-installed trust code on the product instance, but you want to implement a topology where the product instance is directly connected to CSSM. A factory-installed trust code cannot be used for secure communication with CSSM. You must generate an ID token in the CSSM Web UI and download a trust code file. When you install this new trust code, you must overwrite the existing factory-installed trust code.

Requesting and Returning SLAC in an Air-Gapped Network

Starting with Cisco IOS XE Cupertino 17.7.1a, you can request and install a SLAC without having to enter the required PIDs or generating a SLAC in the CSSM Web UI. Instead, save a SLAC request in a file on the product instance by configuring the **license smart authorization request** command, followed by the **license smart authorization request save** commands. Upload the SLAC request file, to CSSM (in the same location and just as you would, a RUM report). After the request is processed, a SLAC file is available on the CSSM Web UI. Download, and import the SLAC file into the product instance.

Similarly, to return a SLAC configure the **license smart authorization return** command with the **offline** keyword to save the file. Upload the file to CSSM (in the same location and just as you would, a RUM report).

You can verify authorization code installation by entering the **show license authorization** command in privileged EXEC mode.

Removing Licensing Information

Entering the **licence smart factory reset** command removes all licensing information (except the licenses in-use) from the product instance, including any authorization codes, RUM reports etc. Therefore, we recommend the use of this command only if the product instance is being returned (Return Material Authrization, or RMA), or being decommissioned permanently. We also recommend that you send a RUM report to CSSM, before you remove licensing information from the product instance - this is to ensure that CSSM has up-to-date usage information.

Authorization Codes in an SSM On-Prem Deployment

Before you enter the **license smart authorization request** command on the product instance to request SSM On-Prem for SLAC, ensure that the following requirements are met.

- The product instance must be added to SSM On-Prem. The process of addition validates and maps the product instance to the applicable Smart Account and Virtual account in CSSM. See Assigning a Smart Account and Virtual Account (SSM On-Prem UI).

- The authorization codes required for export-controlled and enfored licenses must be generated in CSSM and imported into SSM On-Prem. See Submitting an Authorization Code Request (SSM On-Prem UI, Disconnected Mode).

Examples

- Example: Requesting a SLAC and Returning a SLAC (Connected Directly to CSSM), on page 22
- Example: Requesting a SLAC and Returning a SLAC (No Connectivity to CSSM and No CSLU), on page 23
- Example: Saving Licensing Usage Information, on page 24
- Example: Installing a Trust Code, on page 24

Example: Requesting a SLAC and Returning a SLAC (Connected Directly to CSSM)

The following example shows how to request CSSM for a SLAC and also how to return a SLAC to CSSM. Here the product instance is a Cisco 4000 Series Integrated Services Router and is configured to communicate with CSSM.

Requesting and installing a SLAC:

```
Device# license smart authorization request replace hseck9 all
*Sep 23 17:41:10.938: %SMART_LIC-6-AUTHORIZATION_INSTALL_SUCCESS: A new licensing
authorization code
was successfully installed on PID:ISR4331/K9,SN:FDO224917Q6
*Sep 23 17:41:12.929: %SMART_LIC-6-POLICY_INSTALL_SUCCESS: A new licensing policy was
successfully
installed

Device# show license authorization
Overall status:
  Active: PID:ISR4331/K9,SN:FDO224917Q6
Status: SMART AUTHORIZATION INSTALLED on Sep 23 17:41:10 2020 UTC
      Last Confirmation code: 5fd33d79

Authorizations:
  ISR_4331_Hsec (ISR_4331_Hsec):
    Description: U.S. Export Restriction Compliance license for 4330 series
    Total available count: 1
    Enforcement type: EXPORT RESTRICTED
    Term information:
      Active: PID:ISR4331/K9,SN:FDO224917Q6
        Authorization type: SMART AUTHORIZATION INSTALLED
        License type: PERPETUAL
          Term Count: 1

Purchased Licenses:
  No Purchase Information Available
```

Returning a SLAC to CSSM:

```
Device# license smart authorization return all online

Enter this return code in Cisco Smart Software Manager portal:
UDI: PID:ISR4331/K9,SN:FDO224917Q6
    Return code: CPo1Sb-CHc1jc-dFu2Fj-R9qkZc-V46wAG-7KWxKB-8vmQgp-4xZAE4-BAS

*Sep 23 17:46:12.284: %SMART_LIC-6-AUTHORIZATION_REMOVED: A licensing authorization code
```

```
has been
removed from PID:ISR4331/K9,SN:FDO224917Q6.
```

Example: Requesting a SLAC and Returning a SLAC (No Connectivity to CSSM and No CSLU)

The following example shows how to request CSSM for a SLAC and also how to return a SLAC to CSSM from a product instance in an air-gapped network. Here the product instance is a Cisco 4000 Series Integrated Services Router. The software version running on the product instance is Cisco IOS XE Cupertino 17.7.1a, which introduces support for a more simplified way of requesting and returning SLAC in an air-gapped network.

Requesting a SLAC

```
Device# license smart authorization request replace hseck9 local
Device# license smart authorization request save bootflash:slac.txt
```

After the above steps, upload the file to CSSM and download the file containing the SLAC code, and install it on the product instance. For the steps you have to complete in CSSM, see Uploading Data or Requests to CSSM and Downloading a File. Once the file is downloaded, continue as follows:

```
Device# copy tftp://10.8.0.6/user01/slac_code.txt bootflash:
Device# license smart import bootflash:slac_code.txt
```

Returning a SLAC

```
Device# show license summary
Account Information:
  Smart Account: Eg-SA As of Oct 29 17:19:04 2021 UTC
  Virtual Account: EG-VA

License Usage:
  License                 Entitlement Tag               Count Status
  -----------------------------------------------------------------------------
  booster_performance     (ISR_4431_BOOST)                  1 IN USE
  appxk9                  (ISR_4400_Application)            1 IN USE
  AdvUCSuiteK9            (ISR_4400_AdvancedUCSuite)        1 IN USE
  Router US Export Lic... (DNA_HSEC)                        0 NOT IN USE
  ISR_4400_Hsec           (ISR_4400_Hsec)                   0 NOT IN USE

Device# license smart authorization return local offline bootflash:auth_return.txt
*Nov  3 05:12:06.515: %SMART_LIC-6-AUTHORIZATION_REMOVED: A licensing authorization code
has been removed from PID:ISR4431/K9,SN:FOC22446T0U.
```

After the above steps, upload the file to CSSM. For the steps you have to complete in CSSM, see Uploading Data or Requests to CSSM and Downloading a File. A file is available for download after this, but import and installation of this file is optional.

```
Device# show license authorization
Overall status:
  Active: PID:ISR4431/K9,SN:FOC22446T0U
      Status: NOT INSTALLED
      Last return code: CqAMzh-nsjvdh-ZZCnYK-4pELCF-cZgySA-yBiYgg-qBxfdM-ykmGMs-QAT

Purchased Licenses:
  No Purchase Information Available


Device# show license summary
Account Information:
  Smart Account: Eg-SA As of Nov 03 05:02:01 2021 UTC
  Virtual Account: Eg-VA
```

```
License Usage:
  License                 Entitlement Tag               Count Status
  -----------------------------------------------------------------------------
  booster_performance     (ISR_4431_BOOST)                  1 IN USE
  appxk9                  (ISR_4400_Application)            1 IN USE
  AdvUCSuiteK9            (ISR_4400_AdvancedUCSuite)        1 IN USE
```

Example: Saving Licensing Usage Information

The following example shows how you can save license usage information on the product instance. You can use this option to fulfil reporting requirements in an air-gapped network. In the example, the file is first save to flash memory and then copied to a TFTP location:

```
 Device> enable
Device# license smart save usage unreported file flash:RUM-unrep.txt
Device# copy flash:RUM-unrep.txt tftp://192.168.0.1//auto/tftp-user/user01/
Address or name of remote host [192.168.0.1]?
Destination filename [//auto/tftp-user/user01/RUM-unrep.txt]?
!!
15128 bytes copied in 0.161 secs (93963 bytes/sec)
```

After you save RUM reports to a file, you must upload it to CSSM (from a workstation that has connectivity to the internet, and Cisco).

Example: Installing a Trust Code

The following example shows how to install a trust code even if one is already installed on the product instance. This requires connectivity to CSSM. The accompanying **show license status** output shows sample output after successful installation:

Before you can install a trust code, you must generate an ID token and download the corresponding file from CSSM.

Use the **show license status** command (`Trust Code Installed:`) to verify results.

```
Device> enable
Device# license smart trust idtoken
NGMwMjk5mYtNZaxMS00NzMZmtgWm local force
Device# show license status
<output truncated>
Trust Code Installed:
  Active: PID:C9500-24Y4C,SN:CAT2344L4GH
    INSTALLED on Sep 04 01:01:46 2020 EDT
  Standby: PID:C9500-24Y4C,SN:CAT2344L4GJ
    INSTALLED on Sep 04 01:01:46 2020 EDT
<output truncated>
```

show license all

To display all licensing information enter the **show license all** command in Privileged EXEC mode. This command displays status, authorization, UDI, and usage information, all combined.

show license all

This command has no arguments or keywords.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	Command output was updated to display information relating to Smart Licensing Using Policy. Command output no longer displays Smart Account and Virtual account information.
Cisco IOS XE Cupertino 17.7.1a	The output of the command was enhanced to display the following information: • RUM report statistics, in section `Usage Report Summary`. • Smart Account and Virtual Account information, in section `Account Information`.

Usage Guidelines

This command concatenates the output of other **show license** commands, enabling you to display different kinds of licensing information together. For field descriptions, refer to the corresponding commands in the links provided below.

The `Smart Licensing Status` and `Account Information` sections of the **show license all** command corresponds with the output of the show license status, on page 50 command.

The `License Usage` section of the **show license all** command corresponds with the output of the show license usage, on page 73 command.

The `Product Information` section of the **show license all** command corresponds with the output of the show license udi, on page 72 command.

The `Agent Version` section of the **show license all** command displays the Smart Agent version and is available only in this command.

The `License Authorizations` section of the **show license all** command corresponds with the output of the show license authorization, on page 30 command.

The `Usage Report Summary` section of the **show license all** command corresponds with the output in the show license tech, on page 61 command.

Examples

• Example: show license all (Catalyst 8200 Series Edge Platform), on page 25
• Example: show license all (Cisco 4000 Series Integrated Services Routers), on page 27

Example: show license all (Catalyst 8200 Series Edge Platform)

The following is sample output of the **show license all** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1a. Note the addition of the two new sections in this release: `Account Information` and `Usage Report Summary`:

```
Device# show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED

License Conversion:
  Automatic Conversion Enabled: True
  Status: Not started

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: <none>
  Virtual Account: <none>

Data Privacy:
  Sending Hostname: yes
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: cslu
  Cslu address: <empty>
  Proxy:
    Not Configured
  VRF:
    Not Configured

Miscellaneous:
  Custom Id: <empty>

Policy:
  Policy in use: Merged from multiple sources.
  Reporting ACK required: yes (CISCO default)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 365 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 90 (CISCO default)
    Reporting frequency (days): 90 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)

Usage Reporting:
  Last ACK received: <none>
```

```
  Next ACK deadline: Jan 30 10:27:22 2022 UTC
  Reporting push interval: 30  days
  Next ACK push check: <none>
  Next report push: Nov 01 15:11:57 2021 UTC
  Last report push: <none>
  Last report file write: <none>

Trust Code Installed: <none>

License Usage
=============

network-advantage_250M (ESR_P_250M_A):
  Description: network-advantage_250M
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: network-advantage_250M
  Feature Description: network-advantage_250M
  Enforcement type: NOT ENFORCED
  License type: Perpetual

dna-advantage_250M (DNA_P_250M_A):
  Description: dna-advantage_250M
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: dna-advantage_250M
  Feature Description: dna-advantage_250M
  Enforcement type: NOT ENFORCED
  License type: Subscription

Product Information
===================
UDI: PID:C8200-1N-4T,SN:FGL2447LGZ1

Agent Version
=============
Smart Agent for Licensing: 5.3.15_rel/49

License Authorizations
======================
Overall status:
  Active: PID:C8200-1N-4T,SN:FGL2447LGZ1
      Status: NOT INSTALLED

Purchased Licenses:
  No Purchase Information Available

Usage Report Summary:
=====================
Total: 6,  Purged: 0
Total Acknowledged Received: 0,  Waiting for Ack: 0
Available to Report: 6  Collecting Data: 2
```

Example: show license all (Cisco 4000 Series Integrated Services Routers)

The following is sample output from the **show license all** command.

```
Device# show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED
License Reservation is ENABLED

Registration:
  Status: REGISTERED - SPECIFIC LICENSE RESERVATION
  Export-Controlled Functionality: ALLOWED
  Initial Registration: SUCCEEDED on Sep 23 22:08:22 2020 UTC

License Authorization:
  Status: AUTHORIZED - RESERVED on Sep 23 22:08:22 2020 UTC

License Conversion:
  Automatic Conversion Enabled: False
  Status: Not started

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Data Privacy:
  Sending Hostname: yes
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Callhome

Miscellaneus:
  Custom Id: <empty>

License Usage
==============

ISR_4400_Application (ISR_4400_Application):
  Description: AppX License for Cisco ISR 4400 Series
  Count: 1
  Version: 1.0
  Status: AUTHORIZED
  Export status: NOT RESTRICTED
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 1

ISR_4400_UnifiedCommunication (ISR_4400_UnifiedCommunication):
  Description: Unified Communications License for Cisco ISR 4400 Series
  Count: 1
  Version: 1.0
  Status: AUTHORIZED
  Export status: NOT RESTRICTED
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 1

ISR_4400_Security (ISR_4400_Security):
  Description: Security License for Cisco ISR 4400 Series
```

```
  Count: 1
  Version: 1.0
  Status: AUTHORIZED
  Export status: NOT RESTRICTED
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 1

ISR_4431_1G_Performance (ISR_4431_1G_Performance):
  Description: Performance on Demand License for 4430 Series
  Count: 1
  Version: 1.0
  Status: AUTHORIZED
  Export status: NOT RESTRICTED
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 1

hseck9 (ISR_4400_Hsec):
  Description: Export Controlled Feature hseck9
  Count: 1
  Version: 1.0
  Status: AUTHORIZED
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: Export Controlled Feature hseck9
  Reservation:
    Reservation status: SPECIFIC EXPORT AUTHORIZATION KEY INSTALLED
    Total reserved count: UNLIMITED

Product Information
====================
UDI: PID:ISR4431/K9,SN:FOC21030CHG

Agent Version
=============
Smart Agent for Licensing: 4.11.5_rel/41

Reservation Info
================
License reservation: ENABLED

Overall status:
  Active: PID:ISR4431/K9,SN:FOC21030CHG
      Reservation status: SPECIFIC INSTALLED on Sep 23 22:08:22 2020 UTC
      Export-Controlled Functionality: ALLOWED
      Last Confirmation code: ea24d89a

Specified license reservations:
  ISR_4400_Application (ISR_4400_Application):
    Description: AppX License for Cisco ISR 4400 Series
    Total reserved count: 1
    Term information:
      Active: PID:ISR4431/K9,SN:FOC21030CHG
        License type: PERPETUAL
          Term Count: 1
  ISR_4400_Hsec (ISR_4400_Hsec):
    Description: U.S. Export Restriction Compliance license for 4400 series
    Total reserved count: 1
    Term information:
      Active: PID:ISR4431/K9,SN:FOC21030CHG
        License type: PERPETUAL
          Term Count: 1
  ISR_4400_Security (ISR_4400_Security):
```

```
  Description: Security License for Cisco ISR 4400 Series
  Total reserved count: 1
  Term information:
    Active: PID:ISR4431/K9,SN:FOC21030CHG
      License type: PERPETUAL
        Term Count: 1
ISR_4400_UnifiedCommunication (ISR_4400_UnifiedCommunication):
  Description: Unified Communications License for Cisco ISR 4400 Series
  Total reserved count: 1
  Term information:
    Active: PID:ISR4431/K9,SN:FOC21030CHG
      License type: PERPETUAL
        Term Count: 1
ISR_4431_1G_Performance (ISR_4431_1G_Performance):
  Description: Performance on Demand License for 4430 Series
  Total reserved count: 1
  Term information:
    Active: PID:ISR4431/K9,SN:FOC21030CHG
      License type: PERPETUAL
        Term Count: 1
```

show license authorization

To display authorization-related information for (export-controlled and enforced) licenses, enter the **show license authorization** command in privileged EXEC mode.

show license authorization

This command has no arguments or keywords.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Examples

The following are sample outputs of the **show license authorization** command, on various Cisco product instances. See Table 1: show license authorization Field Descriptions, on page 31 for information about fields shown in the display.

- HSECK9 on Cisco 4000 Series Integrated Services Router, on page 33
- HSECK9 PAK on Cisco 1000 Series Integrated Services Router, on page 34
- HSECK9 SLR on Cisco 1000 Series Integrated Services Router, on page 35
- No HSEC, SLAC on Cisco 4000 Series Integrated Services Router, on page 37

For information about *when* SLAC is required, see Authorization Code.

Table 1: show license authorization Field Descriptions

Field		Description
Overall Status	Header for UDI information for all product instances in the set-up, the type of authorization that is installed, and configuration errors, if any. In a High Availability set-up, all UDIs in the set-up are listed.	
	Active: Status:	The active product instance UDI, followed by the status of the authorization code installation for this UDI. If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.
	Standby: Status:	The standby product instance UDI, followed by the status of the authorization code installation for this UDI. If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.
	Member: Status:	The member product instance UDI, followed by the status of the authorization code installation for this UDI. If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.
	ERROR:	Configuration errors or discrepancies in the High Availability set-up, if any.

Field		Description
Authorizations	Header for detailed license authorization information. All licenses, their enforcement types, and validity durations are displayed. Errors are displayed for each product instance if its authorization or mode does not match what is installed on the active. This section is displayed only if the product instance is using a license that requires one of these authorization codes: SLAC, SLR, PAK, RTU. This section is not displayed if a PLR authorization code is installed on the product instance.	
	():	License name and a shortened form of the license name.
	Description	License description.
	Total available count:	Total count of licenses that are available to consume. This includes licenses of all durations (perpetual and subscription), including expired subscription licenses, for all the product instances in a High Availability setup.
	Enforcement type	Enforcement type for the license. This may be one of the following: • Enforced • Not enforced • Export Restricted (same as export-controlled) For more information about enforcement types, see License Enforcement Types.
	Term information:	

Field		Description
		Header providing license duration information. The following fields maybe included under this header: • Active: The active product instance UDI, followed by the status of the authorization code installation for this UDI. • Authorization type: Type of authorization code installed and date of installation. The type can be: SLAC, UNIVERSAL, SPECIFIED, PAK, RTU. • Start Date: Displays validity start date if the license is for a specific term or time period. • Start Date: Displays validity end date if the license is for a specific term or time period. • Term Count: License count. • Subscription ID: Displays ID if the license is for a specific term or time period. • License type: License duration. This can be: SUBSCRIPTION or PERPETUAL. • Standby: The standby product instance UDI, followed by the status of the authorization code installation for this UDI. • Member: The member product instance UDI, followed by the status of the authorization code installation for this UDI. For more information about the duration or term of a license's validity, see License Duration.
Purchased Licenses	Header for license purchase information.	
	Active:	The active product instance and its the UDI.
	Count:	License count.
	Description:	License description.
	License type:	License duration. This can be: SUBSCRIPTION or PERPETUAL.
	Standby:	The standby product instance UDI.
	Member:	The member product instance UDI.

HSECK9 on Cisco 4000 Series Integrated Services Router

The following sample output of the **show license authorization** command shows an export-controlled license (HSECK9) with SLAC installed on a Cisco 4000 Series Integrated Services Router.

```
Device# show license authorization

Overall status:
```

```
  Active: PID:ISR4331/K9,SN:FDO224917Q6
  Status: SMART AUTHORIZATION INSTALLED on Sep 23 17:41:10 2020 UTC
      Last Confirmation code: 5fd33d79

Authorizations:
  ISR_4331_Hsec (ISR_4331_Hsec):
    Description: U.S. Export Restriction Compliance license for 4330 series
    Total available count: 1
    Enforcement type: EXPORT RESTRICTED
    Term information:
      Active: PID:ISR4331/K9,SN:FDO224917Q6
        Authorization type: SMART AUTHORIZATION INSTALLED
        License type: PERPETUAL
          Term Count: 1

Purchased Licenses:
  No Purchase Information Available
```

HSECK9 PAK on Cisco 1000 Series Integrated Services Router

The following sample output of the **show license authorization** command shows an HSECK9 PAK license on a Cisco 4000 Series Integrated Services Router.

In the output, fields `Status: NOT INSTALLED` and `Status:PAK` show that SLAC is not installed, and that the product instance has been migrated from an earlier Cisco Software Licensing (CSL) licensing model with PAK licences, to Smart Licensing Using Policy. The `Legacy License Info` section also shows this.

An HSECK9 PAK license is honored after migration and does not require SLAC installation. See: How Upgrade Affects Enforcement Types for Existing Licenses.

The accompanying **show license usage** command output for the same product instance helps confirm that the necessary authorization is present (`Export status: RESTRICTED - ALLOWED` and `License type: Perpetual`).

```
Device# show license authorization

Overall status:

  Active: PID:C1111-8PLTEEAWB,SN:FGL214391J3
      Status: NOT INSTALLED
      Status:PAK

Legacy License Info:
  regid.2017-04.com.cisco.ISR_1100_8P_Application,1.0_c4cf42aa-2d60-4f4e-83dd-c5c9672132c9:

    DisplayName: appxk9
    Description: appxk9
    Total available count: 1
    Term information:
      Active: PID:C1111-8PLTEEAWB,SN:FGL214391J3
        License type: PERPETUAL
          Term Count: 1

  regid.2017-04.com.cisco.ISR_1100_8P_Security,1.0_6b61b693-0daa-42d4-8cee-930de5c1b37c:
    DisplayName: securityk9
    Description: securityk9
    Total available count: 1
    Term information:
      Active: PID:C1111-8PLTEEAWB,SN:FGL214391J3
        License type: PERPETUAL
```

```
          Term Count: 1

  regid.2017-08.com.cisco.ISR_1100_8P_Hsec,1.0_34a5e7e7-722a-41ab-bdad-d53d5a3cac14:
    DisplayName: hseck9
    Description: hseck9
    Total available count: 1
    Term information:
      Active: PID:C1111-8PLTEEAWB,SN:FGL214391J3
        License type: PERPETUAL
          Term Count: 1

Device# show license usage

License Authorization:
  Status: Not Applicable

hseck9 (ISR_1100_8P_Hsec):
  Description: hseck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: hseck9
  Enforcement type: EXPORT RESTRICTED
  License type: Perpetual

appxk9 (ISR_1100_8P_Application):
  Description: appxk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: appxk9
  Feature Description: appxk9
  Enforcement type: NOT ENFORCED
  License type: Perpetual

securityk9 (ISR_1100_8P_Security):
  Description: securityk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: securityk9
  Feature Description: securityk9
  Enforcement type: NOT ENFORCED
  License type: Perpetual
```

HSECK9 SLR on Cisco 1000 Series Integrated Services Router

The following sample output of the **show license authorization** command on a Cisco 1000 Series Integrated Services Router shows a Specific License Reservation (SLR) authorization code that includes an HSECK9 license.

In the output, fields `Status: SPECIFIC INSTALLED on Jan 19 05:59:54 2021 UTC` and `Last Confirmation code: 0708eeec` show that an SLR authorization code has been installed. The `Specified license reservations` section shows that and HSECK9 license (ISR_1100_8P_Hsec) is included. This shows that the product instance has been migrated from the earlier Smart Licensing

environment with reserved licenses (or SLR licenses), to Smart Licensing Using Policy, and includes an HSECK9 license.

A SLAC does not have to be installed again in this scenario. See: How Upgrade Affects Enforcement Types for Existing Licenses.

The accompanying **show license usage** command output for the same product instance helps confirm that the necessary authorization is present (`Export status: RESTRICTED - ALLOWED`).

```
Device# show license authorization
Overall status:
  Active: PID:C1111-8PLTEEAWB,SN:FGL214391JK
      Status: SPECIFIC INSTALLED on Jan 19 05:59:54 2021 UTC
      Last Confirmation code: 0708eeec

Specified license reservations:
  Cisco 1100 Series with 8 LAN Ports, Cisco One Foundation Suite
(ISR_1100_8P_FoundationSuite):
    Description: Cisco 1100 Series with 8 LAN Ports, Cisco One Foundation Suite
    Total reserved count: 1
    Enforcement type: NOT ENFORCED
    Term information:
      Active: PID:C1111-8PLTEEAWB,SN:FGL214391JK
        Authorization type: SPECIFIC INSTALLED on Jan 19 05:59:54 2021 UTC
        License type: PERPETUAL
          Term Count: 1
  ISR_1100_8P_Hsec (ISR_1100_8P_Hsec):
    Description: Cisco 1100 Series with 8 LAN Ports, U.S. Export Restriction Compliance
license
    Total reserved count: 1
    Enforcement type: EXPORT RESTRICTED
    Term information:
      Active: PID:C1111-8PLTEEAWB,SN:FGL214391JK
        Authorization type: SPECIFIC INSTALLED on Jan 19 05:59:54 2021 UTC
        License type: PERPETUAL
          Term Count: 1

Purchased Licenses:
  No Purchase Information Available


Derived Licenses:
  Entitlement Tag:
regid.2017-08.com.cisco.ISR_1100_8P_Hsec,1.0_34a5e7e7-722a-41ab-bdad-d53d5a3cac14
  Entitlement Tag:
regid.2018-12.com.cisco.ISR_1100_8P_UnifiedCommunication,1.0_55775cb5-538d-482e-b57f-fc8af02f93a3

  Entitlement Tag:
regid.2017-04.com.cisco.ISR_1100_8P_FoundationSuite,1.0_6f4a1f6f-b607-45cb-8bd0-d672ac06a314
```

```
Device# show license usage

License Authorization:
  Status: Not Applicable

hseck9 (ISR_1100_8P_Hsec):
  Description: hseck9
  Count: 1
  Vecsion: 1.0
  Status: IN USE
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: hseck9
  Enforcement type: EXPORT RESTRICTED
```

```
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC EXPORT AUTHORIZATION KEY INSTALLED
    Total reserved count: UNLIMITED

uck9 (ISR_1100_8P_UnifiedCommunication):
  Description: uck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: uck9
  Feature Description: uck9
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: NOT INSTALLED

FoundationSuiteK9 (ISR_1100_8P_FoundationSuite):
  Description: FoundationSuiteK9
  count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: FoundationSuiteK9
  Feature Description: FoundationSuiteK9
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 1
```

No HSEC, SLAC on Cisco 4000 Series Integrated Services Router

The following sample output of the **show license authorization** command a Cisco 4000 Series Integrated Services Router that is not using export-controlled functionality or throughput greater than 250 Mbps.

In the output, field `Status: NOT INSTALLED` shows that SLAC is not installed.

The accompanying **show license usage** command output for the same product instance helps verify that all the licenses being used on this product instance are unenforced (all of them have `Enforcement type: NOT ENFORCED`), therefore not requiring SLAC installation.

```
Device# show license authorization
Overall status:
  Active: PID:ISR4351/K9,SN:FDO21512BJB
      Status: NOT INSTALLED

Purchased Licenses:
  No Purchase Information Available

Derived Licenses:
  Entitlement Tag:
regid.2015-01.com.cisco.ISR_4351_400M_Performance,1.0_79a9ccb4-d7c3-46fd-9980-7efe247c90e5
  Entitlement Tag:
regid.2015-01.com.cisco.ISR_4351_Application,1.0_601ccfff-5601-4293-98d2-2f653d864ce0
  Entitlement Tag:
regid.2014-12.com.cisco.ISR_4351_UnifiedCommunication,1.0_a04fec0e-e944-4096-bcf8-05d6e9a0a6d3

  Entitlement Tag:
regid.2014-12.com.cisco.ISR_4351_Security,1.0_df7d8d7f-b71a-4d3d-a9ab-aec7828a37a7
```

```
Device# show license usage
License Authorization:
  Status: Not Applicable

throughput (ISR_4351_400M_Performance):
  Description: throughput
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: throughput
  Feature Description: throughput
  Enforcement type: NOT ENFORCED
  License type: Perpetual

appxk9 (ISR_4351_Application):
  Description: appxk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: appxk9
  Feature Description: appxk9
  Enforcement type: NOT ENFORCED
  License type: Perpetual

uck9 (ISR_4351_UnifiedCommunication):
  Description: uck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: uck9
  Feature Description: uck9
  Enforcement type: NOT ENFORCED
  License type: Perpetual

securityk9 (ISR_4351_Security):
  Description: securityk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: securityk9
  Feature Description: securityk9
  Enforcement type: NOT ENFORCED
  License type: Perpetual
```

show license data

To display license data conversion information, enter the **show license data** command in privileged EXEC mode.

show license data conversion

Syntax Description

conversion	Displays information about the license conversion.

Command Modes Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

show license data conversion

The following is sample output from the **show license data conversion** command.

```
Device# show license data conversion
Smart Licensing Data - Conversion
================================
```

show license eventlog

To display event logs relating to Smart Licensing Using Policy, enter the **show license eventlog** command in privileged EXEC mode.

show license eventlog [*days*]

Syntax Description

days	Enter the number of days for which you want to display event logs. The valid value range is from 0 to 2147483647.

Command Modes Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2.	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	Additional events were added with the introduction of Smart Licensing Using Policy: • Installation and removal of a policy • Request, installation and removal of an authorization code. • Installation and removal of a trust code. • Addition of authorization source information for license usage.

Examples

• Example: Event log for one day, on page 40

• Example: All event logs , on page 40

Example: Event log for one day

The following is sample output from the **show license eventlog** command. The command is configured to display events for one day.

```
Device# show license eventlog 1

Load for five secs: 0%/0%; one minute: 0%; five minutes: 0%
No time source, 12:50:20.640 EDT Fri Sep 11 2020

**** Event Log ****

2020-09-11 00:50:17.693 EDT SAEVT_PLATFORM eventSource="INFRA_SL"
eventName="INFRA_SL_EVLOG_ERM_RESET" MSG="ERM-Reset: Client 0, AP-GROUP group, 2 features
air-network-advantage,air-dna-advantage"
2020-09-11 00:50:17.695 EDT SAEVT_ENDPOINT_USAGE count="0"
entitlementTag="regid.2018-06.com.cisco.DNA_NWStack,1.0_e7244e71-3ad5-4608-8bf0-d12f67c80896"
2020-09-11 00:50:17.695 EDT SAEVT_ENDPOINT_USAGE count="0"
entitlementTag="regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790"
2020-09-11 00:50:50.175 EDT SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
2020-09-11 08:50:17.694 EDT SAEVT_PLATFORM eventSource="INFRA_SL"
eventName="INFRA_SL_EVLOG_ERM_RESET" MSG="ERM-Reset: Client 0, AP-GROUP group, 2 features
air-network-advantage,air-dna-advantage"
2020-09-11 08:50:17.696 EDT SAEVT_ENDPOINT_USAGE count="0"
entitlementTag="regid.2018-06.com.cisco.DNA_NWStack,1.0_e7244e71-3ad5-4608-8bf0-d12f67c80896"
2020-09-11 08:50:17.696 EDT SAEVT_ENDPOINT_USAGE count="0"
entitlementTag="regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790"
2020-09-11 08:50:52.804 EDT SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
```

Example: All event logs

The following is sample output from the **show license eventlog** command. The command is configured to display all events.

```
Device# show license eventlog
**** Event Log ****

2020-09-22 20:23:27.699 UTC SAEVT_INIT_START version="4.13.23_rel/62"
2020-09-22 20:23:27.701 UTC SAEVT_INIT_CRYPTO success="False" error="Crypto Initialization
 has not been completed"
2020-09-22 20:23:27.702 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHArmfRegister"
2020-09-22 20:23:32.840 UTC SAEVT_READY
2020-09-22 20:23:32.841 UTC SAEVT_ENABLED
2020-09-22 20:23:33.455 UTC SAEVT_EXPORT_FLAG exportAllowed="False"
2020-09-22 20:23:35.806 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHArmfInitialize"
2020-09-22 20:23:35.815 UTC SAEVT_HA_CHASSIS_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6"
2020-09-22 20:23:35.816 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHAchkptRegister"
2020-09-22 20:23:49.682 UTC SAEVT_HA_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6" haRole="Active"
2020-09-22 20:23:49.735 UTC SAEVT_HA_CHASSIS_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6"
haRole="Active"
2020-09-22 20:23:49.737 UTC SAEVT_HA_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6" haRole="Active"
2020-09-22 20:23:50.043 UTC SAEVT_INIT_CONFIG_READ_BEGIN
2020-09-22 20:23:54.353 UTC SAEVT_INIT_CONFIG_READ_DONE
2020-09-22 20:23:55.112 UTC SAEVT_INIT_SYSTEM_INIT
2020-09-22 20:23:56.114 UTC SAEVT_INIT_CRYPTO success="False" error="Crypto Initialization
 has not been completed"
2020-09-22 20:24:26.120 UTC SAEVT_INIT_CRYPTO success="True"
```

```
2020-09-22 20:24:26.133 UTC SAEVT_COMM_RESTORED
2020-09-22 20:24:26.402 UTC SAEVT_INIT_COMPLETE
2020-09-22 20:25:26.132 UTC SAEVT_PRIVACY_CHANGED enabled="True"
2020-09-22 20:31:34.912 UTC SAEVT_HOSTNAME_CHANGE
2020-09-22 20:35:30.873 UTC SAEVT_CONFIG_PERSISTED
2020-09-22 20:39:27.795 UTC SAEVT_INIT_START version="4.13.23_rel/62"
2020-09-22 20:39:27.798 UTC SAEVT_INIT_CRYPTO success="False" error="Crypto Initialization
 has not been completed"
2020-09-22 20:39:27.798 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHArmfRegister"
2020-09-22 20:39:33.333 UTC SAEVT_READY
2020-09-22 20:39:33.334 UTC SAEVT_ENABLED
2020-09-22 20:39:33.914 UTC SAEVT_EXPORT_FLAG exportAllowed="False"
2020-09-22 20:39:36.300 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHArmfInitialize"
2020-09-22 20:39:36.311 UTC SAEVT_HA_CHASSIS_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6"
2020-09-22 20:39:36.312 UTC SAEVT_HA_EVENT eventType="SmartAgentEvtHAchkptRegister"
2020-09-22 20:39:52.391 UTC SAEVT_TAG_EXPORT exportAllowed="False" count="0"
entitlementTag="regid.2015-02.com.cisco.ISR_4331_Hsec,1.0_7998f136-248d-4ee9-94be-2b561c04a51e"
2020-09-22 20:39:53.058 UTC SAEVT_HA_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6" haRole="Active"
2020-09-22 20:39:53.300 UTC SAEVT_HA_CHASSIS_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6"
haRole="Active"
2020-09-22 20:39:53.300 UTC SAEVT_HA_ROLE udi="PID:ISR4331/K9,SN:FDO224917Q6" haRole="Active"
2020-09-22 20:39:55.146 UTC SAEVT_INIT_CONFIG_READ_BEGIN
2020-09-22 20:40:01.700 UTC SAEVT_TAG_AUTHORIZED count="1"
entitlementTag="regid.2017-05.com.cisco.ISR_4331_BOOST,1.0_d5ca3d93-a3a9-480d-98f7-c7b06ddcc973"
2020-09-22 20:40:01.704 UTC SAEVT_HOSTNAME_CHANGE
2020-09-22 20:40:02.140 UTC SAEVT_TAG_AUTHORIZED count="1"
entitlementTag="regid.2015-01.com.cisco.ISR_4331_Application,1.0_4dd5e243-4754-4fed-b8aa-cdd9ff0e82c0"
2020-09-22 20:40:02.142 UTC SAEVT_PLATFORM eventSource="INFRA_SL"
eventName="INFRA_SL_EVLOG_LICENSE_REQUEST" MSG="License appxk9, dev ISR4331, count 1, reslt
 0, alt 0"
2020-09-22 20:40:02.374 UTC SAEVT_TAG_AUTHORIZED count="1"
entitlementTag="regid.2014-12.com.cisco.ISR_4331_UnifiedCommunication,1.0_fc59e79d-8a80-469b-b1fb-0307e6e76108"
2020-09-22 20:40:02.376 UTC SAEVT_PLATFORM eventSource="INFRA_SL"
eventName="INFRA_SL_EVLOG_LICENSE_REQUEST" MSG="License uck9, dev ISR4331, count 1, reslt
0, alt 0"
2020-09-22 20:40:02.608 UTC SAEVT_TAG_AUTHORIZED count="1"
entitlementTag="regid.2014-12.com.cisco.ISR_4331_Security,1.0_dba7c7eb-f2b3-4824-9690-10e46d998fa5"
2020-09-22 20:40:02.610 UTC SAEVT_PLATFORM eventSource="INFRA_SL"
eventName="INFRA_SL_EVLOG_LICENSE_REQUEST" MSG="License securityk9, dev ISR4331, count 1,
reslt 0, alt 0"
2020-09-22 20:40:02.651 UTC SAEVT_INIT_CONFIG_READ_DONE
2020-09-22 20:40:03.445 UTC SAEVT_INIT_SYSTEM_INIT
2020-09-22 20:40:04.456 UTC SAEVT_INIT_CRYPTO success="False" error="Crypto Initialization
 has not been completed"
2020-09-22 20:40:34.458 UTC SAEVT_INIT_CRYPTO success="True"
2020-09-22 20:40:34.461 UTC SAEVT_COMM_RESTORED
2020-09-22 20:40:34.739 UTC SAEVT_INIT_COMPLETE
2020-09-22 20:41:34.459 UTC SAEVT_PRIVACY_CHANGED enabled="True"
2020-09-22 20:41:39.216 UTC SAEVT_INIT_CRYPTO success="True"
2020-09-22 20:42:35.750 UTC SAEVT_UTILITY_REPORT_START
2020-09-22 20:42:36.725 UTC SAEVT_UTILITY_RUM_FAIL error="[CSSM_ACCOUNT_ACCESS_DENIED] Smart
 Account access denied, user has no permission."
2020-09-22 21:33:20.102 UTC SAEVT_UTILITY_RUM_FAIL error="[ERROR_CSSMCONN_PING_ERR] CSLU
could not connect to the Cisco network. Please check your network settings."
2020-09-22 21:36:21.869 UTC SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
2020-09-23 00:07:15.577 UTC SAEVT_UTILITY_RUM_FAIL error="[ERROR_CSSMCONN_API] CSSM connector
 API failed"
2020-09-23 06:25:36.828 UTC SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
2020-09-23 16:23:05.822 UTC SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
2020-09-23 16:31:11.018 UTC SAEVT_POLL_MESSAGE messageType="LICENSE_USAGE"
2020-09-23 17:41:10.921 UTC SAEVT_RESERVE_INSTALL_START udi="PID:ISR4331/K9,SN:FDO224917Q6"

[redacted]
 Export Restriction Compliance license for 4330
```

[illegible]
2020-09-23 17:41:10.937 UTC SAEVT_TAG_EXPORT exportAllowed="False" count="0"
entitlementTag="regid.2015-02.com.cisco.ISR_4331_Hsec,1.0_7998f136-248d-4ee9-94be-2b561c04a51e"
2020-09-23 17:41:10.965 UTC SAEVT_TAG_EXPORT exportAllowed="True" count="0"
entitlementTag="regid.2015-02.com.cisco.ISR_4331_Hsec,1.0_7998f136-248d-4ee9-94be-2b561c04a51e"
2020-09-23 17:41:11.965 UTC SAEVT_STATE_RESERVE_AUTHORIZED
2020-09-23 17:46:12.269 UTC SAEVT_RESERVE_RETURN_START udi="PID:ISR4331/K9,SN:FDO224917Q6"

[illegible]
Export Restriction Compliance license for 4330
[illegible]
2020-09-23 17:46:12.283 UTC SAEVT_TAG_EXPORT exportAllowed="False" count="0"
entitlementTag="regid.2015-02.com.cisco.ISR_4331_Hsec,1.0_7998f136-248d-4ee9-94be-2b561c04a51e"

show license history message

To display communication history between the product instance and CSSM or CSLU (as the case may be), enter the **show license history message** command in privileged EXEC mode. The output of this command is used by the technical support team, for troubleshooting.

show license history message

Syntax Description

This command has no keywords or arguments.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Usage Guidelines

When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra** privileged EXEC commands.

show license reservation

To display license reservation information, enter the **show license reservation** command in privileged EXEC mode.

show license reservation

This command has no arguments or keywords.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2.	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	The command continues to be available, but with the introduction of Smart Licensing Using Policy, it is not longer applicable to SLR and PLR licenses. Use the **show license authorization** command in privileged EXEC mode instead.
Cisco IOS XE Dublin 17.10.1	With the introduction of support for PLR in this release, this command was restored.

Examples

show license reservation: PLR Installed in the Smart Licensing Using Policy Environment (Cisco Cloud Services Router 1000v)

The following is sample output of the **show license reservation** command on a product instance where PLR is activated.

```
Devide# show license reservation
Overall status:
  Active: PID:CSR1000V,SN:9QLBLATKXM4
      Status: UNIVERSAL INSTALLED on Nov 09 00:12:18 2022 UTC
```

show license rum

To display information about Resource Utilization Measurement reports (RUM report) available on the product instance, including report IDs, the current processing state of a report, error information (if any), and to save the detailed or summarized view that is displayed, enter the **show license rum** command in privileged EXEC mode.

show license rum { **feature** { *license_name* | **all** } | **id** { *rum_id* | **all** } } [**detail**] [**save** *path*]

Syntax Description

feature { *license_name* | **all** }	Displays RUM report information based on the license name. Specify a particular license name to display all RUM reports for that license, or use the **all** keyword to display all RUM reports available on the product instance.
id { *rum_id* | **all** }	Displays RUM report information based on the RUM report ID. Specify a report ID to display information for a single report, or use the **all** keyword to display all RUM reports available on the product instance.

detail	Displays detailed RUM report information. You can use this to display detailed information by license name and detailed information by RUM report ID.
save *path*	Saves the information that is displayed. This can be the simplified or detailed version and depends on the preceeding keywords you have entered. Information about 200 RUM reports can be displayed. If there are more 200 RUM reports on the product instance, you can view information about all the RUM reports by saving it to a text (.txt) file. **Note** This option saves the information *about* RUM reports and is not for reporting purposes. It does not save the RUM report, which is an XML file containing usage information.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
Cisco IOS XE Cupertino 17.7.1a	This command was introduced.

Usage Guidelines

A RUM report is a license usage report, which the product instance generates, to fulfil reporting requirements as specified by the policy. An acknowledgement (ACK) is a response from CSSM and provides information about the status of a RUM report. Once the ACK for a report is available on the product instance, it indicates that the corresponding RUM report is no longer required and can be deleted. You can use the **show license rum** command to:

- Display information about the available RUM reports on the product instance - filtered by ID or license name.
- Display a short summary of the information or display a detailed view of the information.
- Track a RUM report throughout its lifecycle (from the time it is first generated until its acknowledgement from CSSM). By displaying the current processing state and condition of a report you can ascertain if and when there is a problem in the reporting workflow.
- Save the displayed information. The CLI displays information about up to 200 reports. If there are more than 200 reports on the product instance and you want to view information about all of them, save the displayed info in a .txt file and export to the desired location to view.

To display a statistical view of RUM report information (the total number of reports on the product instance, the number of reports that have a corresponding ACK, the number of reports waiting for an ACK etc.) refer to the `Usage Report Summary:` section of the **show license all** and **show license tech** privileged EXEC commands.

The **show license tech** command also provides RUM report related information that the Cisco technical support team can use to troubleshoot, if there are problems with RUM reporting.

Examples

For information about fields shown in the display, see Table 2: show license rum (simplified view) Field Descriptions, on page 45 and Table 3: show license rum (detailed view) Field Descriptions, on page 46

For examples of the **show license rum** command, see:

- show license rum feature: Simplified and Detailed View, on page 48
- Saving RUM Report View, on page 50

Table 2: show license rum (simplified view) Field Descriptions

Field Name	Description
Report Id	A numeric field that identifies a RUM report. The product instance automatically assigns an ID to every RUM report it generates. An ID may be up to 20 characters long.
State	This field displays the current processing state of a RUM report, and can be only one of the following: • OPEN: This means new measurements are being added to the report. • CLOSED: This means no further measurements can be added to this report, and the report is ready for communication to CSSM. • PENDING: This is a transitional status that you may see if you display a report while it is being transmitted. • UNACK: This means the report was transmitted and is waiting for confirmation from CSSM, that it is processed. • ACK: This means the report was processed or acknowledged by CSSM and is eligible for deletion.

Field Name	Description

Flag	Indicates the condition of the RUM report, and is displayed in the form of a character. Each character represents a specific condition, and can be only one of the following values:
	• N: Normal; This means no errors have been detected and the report is going through normal operation.
	• P: Purged; This means the report was removed due to system resource limitation, and can refer to a shortage of disk space or insufficient memory. If this flag is displayed, refer to the `State Change Reason` field in the detailed view for more information.
	• E: Error; This means an error was detected in the RUM report. If this flag is displayed, refer to the detailed view for more information. Possible workflow issues include and are not limited to the following:
	  • RUM report was dropped by CSSM. If this is the issue, the `State` field displays value `ACK`, but the `State Change Reason` does not change to `ACKED`.
	  • RUM Report data is missing. If this is the issue, the `Storage State` field displays value `MISSING` .
	  • Tracking information is missing. If this is the case the `State` field displays value `UNACK` and the `Transaction ID` field has no information.
	Note
	Occasional errors in RUM reports do not require any action from you and are not an indication of a problem. It is only if you see a large number of reports (greater than 10) with errors that you must contact the Cisco technical support team.

Feature Name	The name of the license that the RUM report applies to.

Table 3: show license rum (detailed view) Field Descriptions

Field Name	Description
Report Id	A numeric field that identifies a RUM report. The product instance automatically assigns an ID to every RUM report it generates. An ID may be up to 20 characters long.
Metric Name:	Shows the type of data that is recorded. For a RUM report, the only possible value is ENTITLEMENT, and refers to measurement of license usage.
Feature Name:	The name of the license that the RUM report applies to.
Metric Value	A unique identifier for the data that is recorded. This is the same as the “Entitlement Tag” in the output of the **show license tech** commad and it displays information about the license being tracked.

Field Name	Description
UDI	Composed of the Product ID (PID) and serial number of the product instance.
Previous Report Id:	ID of the previous RUM report that the product instance generated for a license.
Next Report Id:	The ID that the product instance will use for the next RUM report it generates for a llicense.
State:	Displays the current processing state of a RUM report. The value displayed here is always the same as the value displayed in the simplified view. For the list of possible values see Table 2: show license rum (simplified view) Field Descriptions, on page 45above.
State Change Reason:	Displays the reason for a RUM report state change. Not all state changes provide a reason. • NONE: This means the RUM report is going through its normal lifecycle (for instance, from OPEN → CLOSED → ACK). This state change reason is usually accompanied by an `N` flag (meaning Normal) in the simplified view and requires no action from you. • ACKED: RUM report was processed normally by CSSM. • REMOVED: RUM report was received and requested to be removed by CSSM. • RELOAD: RUM report state was changed due to some type of device reload. • DECONFIG: License was removed from configuration.
Start Time: End Time:	Timestamps for measurement start and measurement end for a RUM report. Together, the start time and end time provide the time duration that the measurements cover.
Storage State:	Displays current storage state of the RUM report and can be one of the following values: • EXIST: This means the data for the RUM report is located in storage. • DELETED: This means the data was intentionally deleted. Refer to the `Storage State Change Reason` in the output of the **show license tech** command for more information about this storage state. • PURGED: This means the data was deleted due to a system resource limitation. Refer to the `Storage State Change Reason` in the output of the **show license tech** command for more information about this storage state. • MISSING: This means data is missing from storage. If reports are identified as missing, there is no recovery process.

Field Name	Description
Transaction ID:	Contains tracking information for the RUM report. This information can be either polling information or ACK import information. The Transaction Message contains the error message, if the product instance receives one when importing an ACK. The information in these fields is used by the Cisco technical support team when troubleshooting problems with RUM reports.
Transaction Message:	

show license rum feature: Simplified and Detailed View

The following is sample output of the **show license rum feature all** and **show license rum feature alldetail** commands on a Cisco Catalyst 8300 router (C8300-1N1S-4T2X).

The output is filtered to display a simplified view of all the RUM reports for all the licenses on the product instance, followed by a detailed view of all the RUM reports for all the licenses:

```
Router# show license rum feature all

Smart Licensing Usage Report:
=====================================
Report Id,          State,    Flag, Feature Name
1638518477          UNACK     N     network-advantage_10M
1638518478          UNACK     N     dna-advantage_10M
1638518479          ACK       E     network-advantage_10M
1638518480          ACK       E     dna-advantage_10M
1638518482          ACK       N     network-advantage_T2
1638518483          ACK       N     dna-advantage_T2
1638518484          ACK       N     hseck9
1638518485          OPEN      N     network-advantage_T2
1638518486          OPEN      N     dna-advantage_T2
1638518487          OPEN      N     hseck9


Router# show license rum feature all detail

Smart Licensing Usage Report Detail:
=====================================
Report Id: 1638518477
  Metric Name: ENTITLEMENT
  Feature Name: network-advantage_10M
  Metric Value: regid.2018-12.com.cisco.ESR_P_10M_A,1.0_8946a476-b904-4d0a-9d0b-2b1e5de891a3

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518479
  State: UNACK,      State Change Reason: REPORTING
  Start Time: Dec 03 08:12:05 2021 UTC,      End Time: Dec 03 08:12:06 2021 UTC
  Storage State: EXIST
  Transaction ID: 715896687973761034
  Transaction Message: <none>

Report Id: 1638518478
  Metric Name: ENTITLEMENT
  Feature Name: dna-advantage_10M
  Metric Value: regid.2018-12.com.cisco.DNA_P_10M_A,1.0_7f2e8a7a-e74d-4d71-af46-1ae7b3faf320

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518480
  State: UNACK,      State Change Reason: REPORTING
```

```
  Start Time: Dec 03 08:12:05 2021 UTC,      End Time: Dec 03 08:12:06 2021 UTC
  Storage State: EXIST
  Transaction ID: 715896687973761034
  Transaction Message: <none>

Report Id: 1638518479
  Metric Name: ENTITLEMENT
  Feature Name: network-advantage_10M
  Metric Value: regid.2018-12.com.cisco.ESR_P_10M_A,1.0_8946a476-b904-4d0a-9d0b-2b1e5de891a3

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 1638518477,    Next Report Id: 0
  State: ACK,      State Change Reason: DROPPED
  Start Time: Dec 03 08:12:06 2021 UTC,      End Time: Dec 03 08:24:19 2021 UTC
  Storage State: EXIST
  Transaction ID: 0
  Transaction Message: Report already received.

Report Id: 1638518480
  Metric Name: ENTITLEMENT
  Feature Name: dna-advantage_10M
  Metric Value: regid.2018-12.com.cisco.DNA_P_10M_A,1.0_7f2e8a7a-e74d-4d71-af46-1ae7b3faf320

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 1638518478,    Next Report Id: 0
  State: ACK,      State Change Reason: DROPPED
  Start Time: Dec 03 08:12:06 2021 UTC,      End Time: Dec 03 08:24:19 2021 UTC
  Storage State: EXIST
  Transaction ID: 0
  Transaction Message: Report already received.

Report Id: 1638518482
  Metric Name: ENTITLEMENT
  Feature Name: network-advantage_T2
  Metric Value: regid.2020-10.com.cisco.NWSTACK_T2_A,1.0_83edc508-0ee4-468e-8962-0a4fde995e80

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518485
  State: ACK,      State Change Reason: ACKED
  Start Time: Dec 03 08:29:31 2021 UTC,      End Time: Dec 03 08:29:32 2021 UTC
  Storage State: DELETED
  Transaction ID: 0
  Transaction Message: Report already received.

Report Id: 1638518483
  Metric Name: ENTITLEMENT
  Feature Name: dna-advantage_T2
  Metric Value: regid.2020-10.com.cisco.DSTACK_T2_A,1.0_b072e613-aa2c-4ed0-ab46-ae91ddc7dfb5

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518486
  State: ACK,      State Change Reason: ACKED
  Start Time: Dec 03 08:29:31 2021 UTC,      End Time: Dec 03 08:29:32 2021 UTC
  Storage State: DELETED
  Transaction ID: 0
  Transaction Message: Report already received.

Report Id: 1638518484
  Metric Name: ENTITLEMENT
  Feature Name: hseck9
  Metric Value: regid.2019-03.com.cisco.DNA_HSEC,1.0_509c41ab-05a8-431f-95fe-ec28086e8844
  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518487
  State: ACK,      State Change Reason: ACKED
```

```
  Start Time: Dec 03 08:29:31 2021 UTC,      End Time: Dec 03 08:29:32 2021 UTC
  Storage State: DELETED
  Transaction ID: 0
  Transaction Message: Report already received.

Report Id: 1638518485
  Metric Name: ENTITLEMENT
  Feature Name: network-advantage_T2
  Metric Value: regid.2020-10.com.cisco.NWSTACK_T2_A,1.0_83edc508-0ee4-468e-8962-0a4fde995e80

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 1638518482,    Next Report Id: 0
  State: OPEN,      State Change Reason: None
  Start Time: Dec 03 08:29:32 2021 UTC,      End Time: Dec 07 01:45:57 2021 UTC
  Storage State: EXIST
  Transaction ID: 0
  Transaction Message: <none>

Report Id: 1638518486
  Metric Name: ENTITLEMENT
  Feature Name: dna-advantage_T2
  Metric Value: regid.2020-10.com.cisco.DSTACK_T2_A,1.0_b072e613-aa2c-4ed0-ab46-ae91ddc7dfb5

  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 1638518483,    Next Report Id: 0
  State: OPEN,      State Change Reason: None
  Start Time: Dec 03 08:29:32 2021 UTC,      End Time: Dec 07 01:45:57 2021 UTC
  Storage State: EXIST
  Transaction ID: 0
  Transaction Message: <none>

Report Id: 1638518487
  Metric Name: ENTITLEMENT
  Feature Name: hseck9
  Metric Value: regid.2019-03.com.cisco.DNA_HSEC,1.0_509c41ab-05a8-431f-95fe-ec28086e8844
  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 1638518484,    Next Report Id: 0
  State: OPEN,      State Change Reason: None
  Start Time: Dec 03 08:29:32 2021 UTC,      End Time: Dec 07 01:45:57 2021 UTC
  Storage State: EXIST
  Transaction ID: 0
  Transaction Message: <none>
```

Saving RUM Report View

The following example shows you how to save a simplified view of the **show license rum feature all** command.

By using the **feature** and **all** keywords, the output is filtered to display all RUM reports for all licenses being used on the product instance. You can then transfer it to a location from where you can open the text file and view the information.

```
Device# show license rum feature all save bootflash:all-rum-stats.txt
Device# copy bootflash:all-rum-stats.txt tftp://10.8.0.6/user01/
```

show license status

To display license status information, enter the **show license status** command in privileged EXEC mode.

show license status

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy. This includes `Trust code installed:`, `Policy in use`, `Policy name:` , reporting requirements as in the policy (`Attributes:`), and fields related to usage reporting. Command output no longer displays Smart Account and Virtual account information.
Cisco IOS XE Cupertino 17.7.1a	Command output was updated to display Smart Account and Virtual account information.

Usage Guidelines

Account Information in the output

Starting with Cisco IOS XE Cupertino 17.7.1a, every ACK includes the Smart Account and Virtual Account that was reported to, in CSSM. When it receives the ACK, the product instance securely stores only the latest version of this information - as determined by the timestamp in the ACK. The Smart Account and Virtual Account information that is displayed in the `Account Information` section of this command's output is therefore always as per the latest available ACK on the product instance.

If a product instance is moved from one Smart Account and Virtual Account to another, the next ACK after the move will have this updated information. The output of this command is updated once this ACK is available on the product instance.

The ACK may be received directly (where the product instance is connected to CSSM), or indirectly (where the product instance is connect to CSSM through CSLU, Cisco DNA Center, or SSM On-Prem), or by manually importing the ACK (where a product instance is in an air-gapped network).

Note Account information is not displayed if the product instance is managed by Cisco vManage. In this case, account information is maintained and displayed in the **License Management** page of the Cisco vManage menu.

Examples

For information about fields shown in the display, see Table 4: show license status Field Descriptions, on page 52

For sample output, see:

- Example: show license status (Cisco Catalyst 8300 Series Edge Platforms), on page 57
- Example: show license status (Cisco 4000 Series Integrated Services Routers), on page 58.

Table 4: show license status Field Descriptions

Field		Description
Utility	Header for utility settings that are configured on the product instance.	
	Status:	Status
	Utility report:	Last attempt:
	Customer Information:	The following fields are displayed: • Id: • Name: • Street • City: • State: • Country: • Postal Code:
Smart Licensing Using Policy:	Header for policy settings on the product instance.	
	Status:	Indicates if Smart Licensing Using Policy is enabled. Smart Licensing Using Policy is supported starting from Cisco IOS XE Amsterdam 17.3.2 and is always enabled on supported software images.
Account Information:	Header for account information that the product instance belongs to, in CSSM. This section is displayed only if the software version on the product instance is Cisco IOS XE Cupertino 17.7.1a or a later release. If an ACK is not installed on the product instance, these fields display `<none>`.	
	Smart Account:	The Smart Account that the product instance is part of. This information is always as per the latest available ACK on the product instance.
	Virtual Account:	The Virtual Account that the product instance is part of. This information is always as per the latest available ACK on the product instance.

Field		Description
Data Privacy:	Header for privacy settings that are configured on the product instance.	
	Sending Hostname:	A *yes* or *no* value which shows if the hostname is sent in usage reports.
	Callhome hostname privacy:	Indicates if the Call Home feature is configured as the mode of transport for reporting. If configured, one of these values is displayed: • ENABLED • DISABLED
	Smart Licensing hostname privacy:	One of these values is displayed: • ENABLED • DISABLED
	Version privacy:	One of these values is displayed: • ENABLED • DISABLED
Transport:	Header for transport settings that are configured on the product instance.	
	Type:	Mode of transport that is in use. Additional fields are displayed for certain transport modes. For example, if transport type is set to CSLU, the CSLU address is also displayed.

Field		Description
Policy:	Header for policy information that is applicable to the product instance.	
	Policy in use:	Policy that is applied This can be one of the following: Cisco default, Product default, Permanent License Reservation, Specific License Reservation, PAK license, Installed on <date>, Controller.
	Policy name:	Name of the policy
	Reporting ACK required:	A *yes* or *no* value which specifies if the report for this product instance requires CSSM acknowledgement (ACK) or not. The default policy is always set to "yes".
	Perpetual Attributes	Policy values for perpetual licenses. • First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name. • Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name. • Report on change (days): he maximum amount of time available to send a report in case of a change in license usage, followed by policy name
	Subscription Attributes:	Policy values for subscription licenses. • First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name. • Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name. • Report on change (days): he maximum amount of time available to send a report in case of a change in license usage, followed by policy name
	Enforced License Attributes:	

Field		Description
		Policy values for subscription licenses. • First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name. • Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name. • Report on change (days): The maximum amount of time available to send a report in case of a change in license usage, followed by policy name
	Export License Attributes:	Policy values for subscription licenses. • First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name. • Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name. • Report on change (days): The maximum amount of time available to send a report in case of a change in license usage, followed by policy name
Miscellaneous	Header for custom ID.	
	Custom Id:	ID

Field		Description
Usage Reporting:	Header for usage reporting (RUM reports) information.	
	Last ACK received:	Date and time of last ACK received, in the local time zone.
	Next ACK deadline:	Date and time for next ACK. If the policy states that an ACK is not requires then this field displays `none`. **Note** If an ACK is required and is not received by this deadline, a syslog is displayed.
	Reporting Interval:	Reporting interval in days The value displayed here depends on you configure the **license smart usage interval***interval_in_days* and the policy value. For more information, see the corresponding Syntax Description: license smart (global config), on page 1.
	Next ACK push check:	Date and time when the product instance will submit the next polling request for an ACK. Date and time are in the local time zone. This applies only to product instance- initiated communication to CSSM or CSLU. If the reporting interval is zero, or if no ACK polling is pending, then this field displays `none`.
	Next report push:	Date and time when the product instance will send the next RUM report. Date and time are in the local time zone. If the reporting interval is zero, or if there are no pending RUM reports, then this field displays `none`.
	Last report push:	Date and time for when the product instance sent the last RUM report. Date and time are in the local time zone.
	Last report file write:	Date and time for when the product instance last saved an offline RUM report. Date and time are in the local time zone.
	Last report pull:	Date and time for when usage reporting information was retrieved using data models. Date and time are in the local time zone.

Field		Description
Trust Code Installed:	Header for trust code-related information. Displays date and time if trust code is installed. Date and time are in the local time zone. If a trust code is not installed, then this field displays `none`.	
	Active:	Active product instance. In a High Availability set-up, the the UDIs of all product instances in the set-up, along with corresponding trust code installation dates and times are displayed.
	Standby:	Standby product instance.
	Member:	Member product instance

Example: show license status (Cisco Catalyst 8300 Series Edge Platforms)

The following is sample output of the **show license status** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1a. The account information as in the last installed ACK is displayed (Last ACK received: Dec 03 08:34:58 2021 UTC):

```
Device# show license status

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: Eg-SA As of Dec 03 15:26:02 2021 UTC
  Virtual Account: Eg-VA

Data Privacy:
  Sending Hostname: yes
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured
  VRF:
    Not Configured

Policy:
  Policy in use: Installed On Dec 03 08:23:45 2021 UTC
  Policy name: SLE Policy
  Reporting ACK required: yes (Customer Policy)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 60 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
```

```
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 120 (Customer Policy)
    Reporting frequency (days): 111 (Customer Policy)
    Report on change (days): 111 (Customer Policy)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 30 (Customer Policy)
    Report on change (days): 30 (Customer Policy)

Miscellaneous:
  Custom Id: <empty>

Usage Reporting:
  Last ACK received: Dec 03 08:34:58 2021 UTC
  Next ACK deadline: Jan 02 08:34:58 2022 UTC
  Reporting push interval: 30  days
  Next ACK push check: Dec 07 08:31:32 2021 UTC
  Next report push: Jan 02 08:30:57 2022 UTC
  Last report push: Dec 03 08:30:57 2021 UTC
  Last report file write: <none>

Trust Code Installed: Dec 03 08:23:45 2021 UTC
```

Example: show license status (Cisco 4000 Series Integrated Services Routers)

The following is sample output of the **show license status** command on a Cisco 4000 Series Integrated Services Router.

```
Device# show license status

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Data Privacy:
  Sending Hostname: yes
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured

Policy:
  Policy in use: Installed On Oct 29 21:43:33 2020 UTC
  Policy name: SLP Policy
  Reporting ACK required: yes (Customer Policy)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 60 (Customer Policy)
    Reporting frequency (days): 60 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 30 (Customer Policy)
```

```
    Reporting frequency (days): 30 (Customer Policy)
    Report on change (days): 30 (Customer Policy)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 90 (Customer Policy)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 90 (Customer Policy)

Miscellaneous:
  Custom Id: <empty>

Usage Reporting:
  Last ACK received: Oct 23 23:36:38 2020 UTC
  Next ACK deadline: Dec 22 23:36:38 2020 UTC
  Reporting push interval: 30  days
  Next ACK push check: Oct 30 05:45:45 2020 UTC
  Next report push: Nov 22 23:32:38 2020 UTC
  Last report push: Oct 23 23:32:38 2020 UTC
  Last report file write: <none>

Trust Code Installed: Oct 09 17:56:19 2020 UTC
```

show license summary

To display a brief summary of license usage, which includes information about licenses being used, the count, and status, enter the **show license summary** command in Privileged EXEC mode.

show license summary

Syntax Description

This command has no keywords or arguments.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	Command output was updated to reflect valid license status for Smart Licensing Using Policy. Valid license statuses include: `IN USE`, `NOT IN USE`, `NOT AUTHORIZED`. Command output was also updated to remove registration and authorization information. Command output no longer displays Smart Account and Virtual account information.
Cisco IOS XE Cupertino 17.7.1a	Command output was updated to display Smart Account and Virtual account information.

Usage Guidelines

Account Information in the output

Starting with Cisco IOS XE Cupertino 17.7.1a, every ACK includes the Smart Account and Virtual Account that was reported to, in CSSM. When it receives the ACK, the product instance securely stores only the latest version of this information - as determined by the timestamp in the ACK. The Smart Account and Virtual Account information that is displayed in the `Account Information` section of this command's output is therefore always as per the latest available ACK on the product instance.

If a product instance is moved from one Smart Account and Virtual Account to another, the next ACK after the move will have this updated information. The output of this command is updated once this ACK is available on the product instance.

The ACK may be received directly (where the product instance is connected to CSSM), or indirectly (where the product instance is connect to CSSM through CSLU, Cisco DNA Center, or SSM On-Prem), or by manually importing the ACK (where a product instance is in an air-gapped network).

Note Account information is not displayed if the product instance is managed by Cisco vManage. In this case, account information is maintained and displayed in the **License Management** page of the Cisco vManage menu.

Examples

For information about fields shown in the display, see Table 5: show license summary Field Descriptions, on page 60

For sample outputs, see:

- Example: show license summary: Displaying Account Information (Catalyst 8200 Series Edge Platform), on page 61
- Example: show license summary: All IN USE (Cisco 4000 Series Integrated Services Routers), on page 61

Table 5: show license summary Field Descriptions

Field	Description
Account Information: Smart Account: Virtual Account:	The Smart Account and Virtual Account that the product instance is part of is always as per the latest available ACK on the product instance. This field is displayed only if the software version on the product instance Cupertino 17.7.1a or a later release. If an ACK is not installed on the product instance, these fields display <n
License	Name of the licenses in use
Entitlement Tag	Short name for license
Count	License count

Field	Description
Status	License status can be one of the following • In-Use: Valid license, and in-use. • Not In-Use • Not Authorized: Means that the license requires installation of S more information, see Authorization Code

Example: show license summary: Displaying Account Information (Catalyst 8200 Series Edge Platform)

The following is sample output of the **show license summary** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1a.

```
Device# show license summary

Account Information:
  Smart Account: Eg-SA As of Dec 03 15:26:02 2021 UTC
  Virtual Account: Eg-VA

License Usage:
  License                 Entitlement Tag               Count Status
  -----------------------------------------------------------------------------
  network-advantage_T2    (NWSTACK_T2_A)                    1 IN USE
  dna-advantage_T2        (DSTACK_T2_A)                     1 IN USE
  Router US Export Lic... (DNA_HSEC)                        1 IN USE
```

Example: show license summary: All IN USE (Cisco 4000 Series Integrated Services Routers)

The following is sample output of the **show license summary** command where all licenses are in-use.

```
Devide# show license summary
License Usage:
  License                 Entitlement tag               Count Status
  -----------------------------------------------------------------------------
  hseck9                  (ISR_4331_Hsec)                   1 IN USE
  booster_performance     (ISR_4331_BOOST)                  1 IN USE
  appxk9                  (ISR_4331_Application)            1 IN USE
  uck9                    (ISR_4331_UnifiedCommun...)       1 IN USE
  securityk9              (ISR_4331_Security)               1 IN USE
```

show license tech

To display licensing information to help the technical support team, enter the **show license tech** command in privileged EXEC mode. The output for this command includes outputs of several other **show license** commands and more.

show license tech { **message** | **rum** { **feature** { *license_name* | **all** } | **id** { *rum_id* | **all** } } [**detail**] [**save** *path*] | **support** }

Syntax Description

message	Displays messages concerning trust establishment, usage reporting, result polling, authorization code requests and returns, and trust synchronization. This is the same information as displayed in the output of the **show license history message** command.
rum { **feature** { *license_name* | **all** } | **id** { *rum_id* | **all** } } [**detail**] [**save** *path*]	Displays information about Resource Utilization Measurement reports (RUM reports) on the product instance, including report IDs, the current processing state of a report, error information (if any), and an option save the displayed RUM report information. **Note** This option saves the information *about* RUM reports and is not for reporting purposes. It does not save the RUM report, which is an XML file containing usage information.
support	Displays licensing information that helps the technical support team to debug a problem.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2.	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2.	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy.
Cisco IOS XE Cupertino 17.7.1a	The **rum** keyword and additional options under this keyword were added: { **feature** { *license_name* | **all** } | **id** { *rum_id* | **all** } } The output of the **show license tech support** command was enhanced to display the following information: • RUM report information, in section `License Usage` and `Usage Report Summary`. • Smart Account and Virtual account information, in section `Account Information:`. The **data conversion**, **eventlog** and **reservation** keywords were removed from this command. They continue to be available as separate show commands, that is, **show license data**, **show license eventlog**, and **show license reservation** respectively.

Usage Guidelines

Smart Licensing: If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing (whether smart licensing is enabled, all associated licensing certificates, compliance status, and so on).

Smart Licensing Using Policy: If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2 or a later release, command output displays fields pertinent to Smart Licensing Using Policy. Note the following guidelines:

- Troubleshooting with a Support Representative

  When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra all** privileged EXEC commands.

- RUM Report Information in the output

  - The output of the **show license tech support** command displays the following sections pertaining to RUM reports:

    Table 6: show license tech support: Field Descriptions for Header "License Usage", on page 63

```
<output truncated>
License Usage
=============
 Measurements:
    ENTITLEMENT:
      Interval: 00:15:00
      Current Value: 1
      Current Report: 1638518487       Previous: 1638518484
<output truncated>
```

Table 6: show license tech support: Field Descriptions for Header "License Usage"

Field Name	Description
Interval:	This is a fixed measurement duration and is always 15 minutes.
Current Value:	Information about the current license count.
Current Report:	ID of the currently OPEN report for the license.
Previous:	ID of the last OPEN report for the license. This report will have state CLOSED now.

  - Table 7: show license tech support: Field Descriptions for Header "Usage Report Summary", on page 64

```
<output truncated>
Usage Report Summary:
=====================
Total: 10,  Purged: 0(0)
Total Acknowledged Received: 3,  Waiting for Ack: 2(7)
Available to Report: 3  Collecting Data: 3
Maximum Display: 10  In Storage: 7,  MIA: 0(0)
Report Module Status: Ready
<output truncated>
```

Table 7: show license tech support: Field Descriptions for Header "Usage Report Summary"

Field Name	Description
Total:	Total number of reports that the product instance has ever generated. **Note** This total does not refer to the total number of reports *currently available* on and being tracked by the product instance. For this you must sum up the `Total Acknowledged Received:` and `Available to Report` fields.
Purged:	The number of reports deleted due to a system resource limitation. This number includes RUM reports where the product instance no longer has tracking information.
Total Acknowledged Received:	The number of RUM reports acknowledged on this product instance.
Waiting for Ack:	The number of RUM reports waiting for an ACK. This is the total number of reports in an `UNACK` state, where the product instance still has tracking information.
Available to Report:	The number of RUM reports that are available to send to CSSM. This is the total number of reports in an `OPEN` or `CLOSED` state, where the product instance still has tracking information.
Collecting Data:	Number of reports where the product instance is currently collecting measurements.
Maximum Display:	Number of reports available for display in a **show** command's output.
In Storage:	Number of reports currently stored on the disk
MIA:	The number of reports missing.

- The output of the **show license tech rum** command with the **detail** option, displays the following fields pertaining to RUM reports: Table 8: show license tech rum: Field Descriptions for Header "Smart Licensing Usage Report Detail", on page 65

```
<output truncated>
Smart Licensing Usage Report Detail:
====================================
Report Id: 1638518477
  Metric Name: ENTITLEMENT
  Feature Name: network-advantage_10M
  Metric Value:
regid.2018-12.com.cisco.ESR_P_10M_A,1.0_8946a476-b904-4d0a-9d0b-2b1e5de891a3
  UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
  Previous Report Id: 0,    Next Report Id: 1638518479
  Version: 2.0
  State: UNACK,      State Change Reason: REPORTING
  Start Time: Dec 03 08:12:05 2021 UTC,      End Time: Dec 03 08:12:06 2021 UTC
  Storage State: EXIST,  Storage State Change Reason: None
```

```
  Transaction ID: 715896687973761034
  Transaction Message: <none>
  Report Size: 1129(947)
<output truncated>
```

The options available under the **show license tech rum** keyword are the same as the options available with the **show license rum** privileged EXEC command. The sample output that is displayed in the *simplified view* is also the same. But if you use the **detail** keyword (for example if you enter **show license tech rum feature** *license_name* **detail**), the detailed view is displayed and this has a few *additional* fields when compared to **show license rum**.

Table 8: show license tech rum: Field Descriptions for Header "Smart Licensing Usage Report Detail"

Field Name	Description
Version:	Displays the format of the report during transmission. Starting with Cisco IOS XE Cupertino 17.7.1a, RUM reports are stored in a new format that reduces processing time. This field indicates if the product instance is using the old format or the new format.
Storage State:	Indicates if a given report is currently in storage. In addition to the displaying the current storage state of the RUM report, with these possible values: EXIST, DELETED, PURGED, MISSING, if a "(1)" is displayed next to the label (`Storage State (1)`), this means the RUM report is in the older (pre-17.7.1a format) and will be processed accordingly. If the RUM report is in the new format, the field is displayed as `Storage State` - without any extra information.
Storage State Change Reason:	Displays the reason for the change in the storage state change. Not all state changes provide a reason. • NONE: This means no reason was recorded for the the storage state change. • PROCESSED: This means the RUM report was deleted after CISCO has processed the data. • LIMIT_STORAGE: This means the RUM report was deleted because the product instance reached it's storage limit. • LIMIT_TIME: This means the RUM report was deleted because the report reached the persisted time limit.
Transaction ID: Transaction Message:	If the transaction ID displays a correlation ID and an error status is displayed, the product instance displays the error code field in this section. If there are no errors, no data is displayed here.

Field Name	Description
Report Size	This field displays two numbers. The first number is the size of raw report for communication, in bytes. The second number is the disk space used for saving the report, also in bytes. The second number is displayed only if report is stored in the new format.

Examples

show license tech support on Catalyst 8300 Series Edge Platforms, on page 66

show license tech support on Catalyst 8300 Series Edge Platforms

The following is sample output of the **show license tech support** command on a Catalyst 8300 Series Edge router running Cisco IOS XE Cupertino 17.7.1a.

```
Device# show license tech support

Smart Licensing Tech Support info

Smart Licensing Status
======================

Smart Licensing is ENABLED

License Conversion:
  Automatic Conversion Enabled: True
  Status: Not started

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: Eg-SA As of Dec 03 15:26:02 2021 UTC
  Virtual Account: Eg-VA

Data Privacy:
  Sending Hostname: yes
    Callhome hostname privacy: DISABLED
    Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Address: <empty>
    Port: <empty>
    Username: <empty>
    Password: <empty>
  Server Identity Check: True
```

```
  VRF: <empty>

Miscellaneous:
  Custom Id: <empty>

Policy:
  Policy in use: Installed On Dec 03 08:23:45 2021 UTC
  Policy name: SLE Policy
  Reporting ACK required: yes (Customer Policy)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 60 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 120 (Customer Policy)
    Reporting frequency (days): 111 (Customer Policy)
    Report on change (days): 111 (Customer Policy)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 30 (Customer Policy)
    Report on change (days): 30 (Customer Policy)

Usage Reporting:
  Last ACK received: Dec 03 08:34:58 2021 UTC
  Next ACK deadline: Jan 02 08:34:58 2022 UTC
  Reporting push interval: 30  days State(4) InPolicy(30)
  Next ACK push check: Dec 07 08:31:32 2021 UTC
  Next report push: Jan 02 08:30:57 2022 UTC
  Last report push: Dec 03 08:30:57 2021 UTC
  Last report file write: <none>

License Usage
=============
Handle: 1
  License: network-advantage_T2
  Entitlement Tag:
regid.2020-10.com.cisco.NWSTACK_T2_A,1.0_83edc508-0ee4-468e-8962-0a4fde995e80
  Description: network-advantage_T2
  Count: 1
  Version: 1.0
  Status: IN USE(15)
  Status time: Dec 03 08:28:54 2021 UTC
  Request Time: Dec 03 08:28:54 2021 UTC
  Export status: NOT RESTRICTED
  Feature Name: network-advantage_T2
  Feature Description: network-advantage_T2
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Measurements:
    ENTITLEMENT:
      Interval: 00:15:00
      Current Value: 1
      Current Report: 1638518485       Previous: 1638518482
  Soft Enforced: True

Handle: 2
  License: dna-advantage_T2
  Entitlement Tag:
regid.2020-10.com.cisco.DSTACK_T2_A,1.0_b072e613-aa2c-4ed0-ab46-ae91ddc7dfb5
  Description: dna-advantage_T2
```

```
  Count: 1
  Version: 1.0
  Status: IN USE(15)
  Status time: Dec 03 08:28:54 2021 UTC
  Request Time: Dec 03 08:28:54 2021 UTC
  Export status: NOT RESTRICTED
  Feature Name: dna-advantage_T2
  Feature Description: dna-advantage_T2
  Enforcement type: NOT ENFORCED
  License type: Subscription
  Measurements:
    ENTITLEMENT:
      Interval: 00:15:00
      Current Value: 1
      Current Report: 1638518486       Previous: 1638518483
  Soft Enforced: True

Handle: 3
  License: Router US Export Lic. for DNA
  Entitlement Tag: regid.2019-03.com.cisco.DNA_HSEC,1.0_509c41ab-05a8-431f-95fe-ec28086e8844

  Description: U.S. Export Restriction Compliance license for DNA based Routers
  Count: 1
  Version: 1.0
  Status: IN USE(15)
  Status time: Dec 03 08:28:57 2021 UTC
  Request Time: Dec 03 08:28:57 2021 UTC
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: hseck9
  Enforcement type: EXPORT RESTRICTED
  License type: Export
  Measurements:
    ENTITLEMENT:
      Interval: 00:15:00
      Current Value: 1
      Current Report: 1638518487       Previous: 1638518484

Product Information
===================
UDI: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5

Agent Version
=============
Smart Agent for Licensing: 5.3.16_rel/55

Upcoming Scheduled Jobs
=======================
Current time: Dec 07 02:12:02 2021 UTC
Daily: Dec 07 08:28:52 2021 UTC (6 hours, 16 minutes, 50 seconds remaining)
Authorization Renewal: Expired Not Rescheduled
Init Flag Check: Expired Not Rescheduled
Reservation configuration mismatch between nodes in HA mode: Expired Not Rescheduled
Retrieve data processing result: Dec 07 08:31:32 2021 UTC (6 hours, 19 minutes, 30 seconds
 remaining)
Start Utility Measurements: Dec 07 02:15:57 2021 UTC (3 minutes, 55 seconds remaining)
Send Utility RUM reports: Jan 02 08:30:56 2022 UTC (26 days, 6 hours, 18 minutes, 54 seconds
 remaining)
Save unreported RUM Reports: Dec 07 03:01:07 2021 UTC (49 minutes, 5 seconds remaining)
Process Utility RUM reports: Dec 07 08:39:57 2021 UTC (6 hours, 27 minutes, 55 seconds
remaining)
External Event: Jan 02 08:34:57 2022 UTC (26 days, 6 hours, 22 minutes, 55 seconds remaining)
Operational Model: Expired Not Rescheduled
```

```
Communication Statistics:
=========================
Communication Level Allowed: DIRECT
Overall State: <empty>
Trust Establishment:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Trust Acknowledgement:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Usage Reporting:
  Attempts: Total=1, Success=1, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: OK_POLL on Dec 03 08:30:56 2021 UTC
    Failure Reason: <none>
  Last Success Time: Dec 03 08:30:56 2021 UTC
  Last Failure Time: <none>
Result Polling:
  Attempts: Total=5, Success=1, Fail=4  Ongoing Failure: Overall=3 Communication=0
  Last Response: INVALID STATUS CODE on Dec 06 08:31:32 2021 UTC
    Failure Reason: Invalid Polling Id 4294967295 provided in the polling request
  Last Success Time: Dec 03 08:34:58 2021 UTC
  Last Failure Time: Dec 06 08:31:32 2021 UTC
Authorization Request:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Authorization Confirmation:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Authorization Return:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Trust Sync:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Hello Message:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
    Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>

License Certificates
====================
Production Cert: True
Not registered. No certificates installed
```

```
HA Info
==========
RP Role: Active
Chassis Role: Active
Behavior Role: Active
RMF: True
CF: True
CF State: Stateless
Message Flow Allowed: True

Reservation Info
================
License reservation: DISABLED

Overall status:
  Active: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
      Reservation status: SMART AUTHORIZATION INSTALLED on Dec 03 08:24:35 2021 UTC
      Request code: <none>
      Last return code: <none>
      Last Confirmation code: 418b11b3
      Reservation authorization code:
<smartLicenseAuthorization><udi>P:C8300-1N1S-4T2X,S:FDO2250A0J5</udi><authorizationCode><customerInfo><smartAccount>BU
 Production
[redacted]
 US Export Lic. for DNA</displayName><tagDescription>U.S. Export Restriction Compliance
license for DNA based
[redacted]


Authorizations:
  Router US Export Lic. for DNA (DNA_HSEC):
    Description: U.S. Export Restriction Compliance license for DNA based Routers
    Total available count: 1
    Enforcement type: EXPORT RESTRICTED
    Term information:
      Active: PID:C8300-1N1S-4T2X,SN:FDO2250A0J5
        Authorization type: SMART AUTHORIZATION INSTALLED
        License type: PERPETUAL
          Start Date: <none>
          End Date: <none>
          Term Count: 1
          Subscription ID: <none>

Purchased Licenses:
  No Purchase Information Available

Usage Report Summary:
=====================
Total: 10,  Purged: 0(0)
Total Acknowledged Received: 3,  Waiting for Ack: 2(7)
Available to Report: 3  Collecting Data: 3
Maximum Display: 10  In Storage: 7,  MIA: 0(0)
Report Module Status: Ready

Other Info
==========
Software ID: regid.2020-05.com.cisco.C8300BE,1.0_5b66594f-27ab-4615-9d15-4aad4969497f
Agent State: authorized
TS enable: True
Transport: Smart
  Default URL: https://smartreceiver.cisco.com/licservice/license
Locale: en_US.UTF-8
Debug flags: 0x7
Privacy Send Hostname: True
```

```
Privacy Send IP: True
Build type:: Production
sizeof(char)  : 1
sizeof(int)   : 4
sizeof(long)  : 4
sizeof(char *): 8
sizeof(time_t): 4
sizeof(size_t): 8
Endian: Big
Write Erase Occurred: False
XOS version: 0.12.0.0
Config Persist Received: True
Message Version: 1.3
connect_info.name: <empty>
connect_info.version: <empty>
connect_info.additional: <empty>
connect_info.prod: False
connect_info.capabilities: <empty>
agent.capabilities: UTILITY, DLC, AppHA, MULTITIER, EXPORT_2, OK_TRY_AGAIN, POLICY_USAGE
Check Point Interface: True
Config Management Interface: False
License Map Interface: True
HA Interface: True
Trusted Store Interface: True
Platform Data Interface: True
Crypto Version 2 Interface: False
SAPluginMgmtInterfaceMutex: True
SAPluginMgmtIPDomainName: True
SmartTransportVRFSupport: True
SmartAgentClientWaitForServer: 2000
SmartAgentCmReTrySend: True
SmartAgentClientIsUnified: True
SmartAgentCmClient: True
SmartAgentClientName: UnifiedClient
builtInEncryption: True
enableOnInit: True
routingReadyByEvent: True
systemInitByEvent: True
SmartTransportServerIdCheck: True
SmartTransportProxySupport: True
SmartAgentPolicyDisplayFormat: 0
SmartAgentReportOnUpgrade: False
SmartAgentIndividualRUMEncrypt: 2
SmartAgentMaxRumMemory: 50
SmartAgentConcurrentThreadMax: 10
SmartAgentPolicyControllerModel: False
SmartAgentPolicyModel: True
SmartAgentFederalLicense: True
SmartAgentMultiTenant: False
attr365DayEvalSyslog: True
checkPointWriteOnly: False
SmartAgentDelayCertValidation: False
enableByDefault: False
conversionAutomatic: True
conversionAllowed: True
storageEncryptDisable: False
storageLoadUnencryptedDisable: False
TSPluginDisable: False
bypassUDICheck: False
loggingAddTStamp: False
loggingAddTid: True
HighAvailabilityOverrideEvent: UnknownPlatformEvent
platformIndependentOverrideEvent: UnknownPlatformEvent
platformOverrideEvent: UnknownPlatformEvent
```

```
WaitForHaRole: False
standbyIsHot: False
chkPtType: 2
delayCommInit: False
roleByEvent: True
maxTraceLength: 150
traceAlwaysOn: True
debugFlags: 0
Event log max size: 5120 KB
Event log current size: 11 KB
Local Device: P:C8300-1N1S-4T2X,S:FDO2250A0J5, state[2], Trust Data INSTALLED  TrustId:256
Overall Trust: INSTALLED (2)
Clock sync-ed with NTP: False

Platform Provided Mapping Table
===============================
  C8300-1N1S-4T2X: Total licenses found: 2595
Enforced Licenses:
  P:C8300-1N1S-4T2X,S:FDO2250A0J5:
    hseck9: regid.2019-03.com.cisco.DNA_HSEC,1.0_509c41ab-05a8-431f-95fe-ec28086e8844 (3)
    hseck9:  (3)
```

show license udi

To display UDI information for a product instance, enter the **show license udi** command in Privileged EXEC mode. In a High Availability set-up, the output displays UDI information for all connected product instances.

show license UDI

This command has no arguments or keywords.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Examples

The following are sample outputs of the **show license summary** command, on various Cisco product instances, and various set-ups.

- Example: show license udi with standalone (Cisco 4000 Series Integrated Services Router), on page 72
- Example: show license udi with active and standby (Cisco Catalyst 8000 Edge Platforms Family), on page 73

Example: show license udi with standalone (Cisco 4000 Series Integrated Services Router)

The following is sample output from the **show license udi** command on a product instance with a single RP.

```
Device# show license udi
```

```
UDI: PID:ISR4331/K9,SN:FDO224917Q6
```

Example: show license udi with active and standby (Cisco Catalyst 8000 Edge Platforms Family)

The following is sample output from the **show license udi** command in a High Availability set-up where an active and a standby product instances exist. UDI information is displayed for both.

```
Device# show license udi

UDI: PID:C8500L-8S4X,SN:JAD2331191E
HA UDI List:
    Active:PID:C8500L-8S4X,SN:JAD2331191E
    Standby:PID:C8500L-8S4X,SN:JAD2331191E
```

show license usage

To display license information for all licenses on a product instance, enter the **show license usage** command in privileged EXEC mode.

show license usage

This command has no arguments or keywords.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy. This includes the `Status`, `Enforcement type` fields. Command output was also updated to remove reservation related information, authorization status information, and export status information.

Examples

The following are sample outputs of the **show license usage** command on various product instances. See Table 9: show license usage Field Descriptions, on page 74 for information about fields shown in the display.

- Example: show license usage with unenforced and export-controlled licenses (Cisco 4000 Series Integrated Services Routers), on page 75
- Example: show license usage with unenforced licenses (Cisco Catalyst 9500 Series Switches), on page 76

Table 9: show license usage Field Descriptions

Field	Description
License Authorization: Status:	Displays overall authorization status.
():	Name of the license as in CSSM. If this license is one that requires an authorization code, the name of the li the code.
Description	Description of the license as in CSSM.
Count	License count. If the license is not in-use, the count is reflected as zero.
Version	Version.
Status	License status can be one of the following • In-Use: Valid license, and in-use. • Not In-Use • Not Authorized: Means that the license requires installation of SLA more information, see Authorization Code
Export Status:	Indicates if this license is export-controlled or not. Accordingly, one of the is displayed: • RESTRICTED - ALLOWED • RESTRICTED - NOT ALLOWED • NOT RESTRICTED
Feature name	Name of the feature that uses this license.
Feature Description:	Description of the feature that uses this license.
Enforcement type	Enforcement type status for the license. This may be one of the followin • ENFORCED • NOT ENFORCED • EXPORT RESTRICTED - ALLOWED • EXPORT RESTRICTED - NOT ALLOWED For more information about enforcement types, see License Enforcemen

Example: show license usage with unenforced and export-controlled licenses (Cisco 4000 Series Integrated Services Routers)

The following is sample output of the **show license usage** command. Unenforced and export-controlled licenses are in-use here.

```
Device# show license usage

License Authorization:
  Status: Not Applicable

hseck9 (ISR_4331_Hsec):
  Description: hseck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: hseck9
  Enforcement type: EXPORT RESTRICTED

booster_performance (ISR_4331_BOOST):
  Description: booster_performance
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: booster_performance
  Feature Description: booster_performance
  Enforcement type: NOT ENFORCED

appxk9 (ISR_4331_Application):
  Description: appxk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: appxk9
  Feature Description: appxk9
  Enforcement type: NOT ENFORCED

uck9 (ISR_4331_UnifiedCommunication):
  Description: uck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: uck9
  Feature Description: uck9
  Enforcement type: NOT ENFORCED

securityk9 (ISR_4331_Security):
  Description: securityk9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: securityk9
  Feature Description: securityk9
  Enforcement type: NOT ENFORCED
```

Example: show license usage with unenforced licenses (Cisco Catalyst 9500 Series Switches)

The following is sample output of the **show license usage** command. Only unenforced licenses are in-use here.

```
Device# show license usage
Load for five secs: 1%/0%; one minute: 0%; five minutes: 0%
No time source, 12:59:18.941 EDT Fri Sep 11 2020

License Authorization:
  Status: Not Applicable
network-advantage (C9500 Network Advantage):
  Description: C9500 Network Advantage
  Count: 2
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: network-advantage
  Feature Description: C9500 Network Advantage
  Enforcement type: NOT ENFORCED
dna-essentials (C9500 24Y4C DNA Essentials):
  Description: C9500-24Y4C DNA Essentials
  Count: 2
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: dna-essentials
  Feature Description: C9500-24Y4C DNA Essentials
  Enforcement type: NOT ENFORCED
```

show platform software sl-infra

To display troubleshooting information and for debugging, enter the **show platform software sl-infra** command in privileged EXEC mode. The output of this command is used by the technical support team, for troubleshooting and debugging.

show platform software sl-infra { **all** | **current** | **debug** | **stored** }

Syntax Description

all	Displays current, debugging, and stored information.
current	Displays current license-related information.
debug	Enables debugging
stored	Displays information that is stored on the product instance.

Command Modes

Privileged EXEC (Device#)

Command History

Release	Modification
Cisco IOS XE Amsterdam 17.3.2	This command was introduced.

Usage Guidelines

When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra all** privileged EXEC commands.