

Smart Licensing Using Policy

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SLP Overview

Smart Licensing Using Policy (SLP), previously known as Smart Licensing Enhanced (SLE), is the default mode for IoT routers. SLE replaced Smart Software Licensing.

This guide supports all IoT routers, and replaces individual chapters in each of the software configuration guides.

The following sections show the features and software differences between the IoT routers.

IR1800

The IR1800 series only supports SLP. Some of the feature differences are:

- Support started with IOS-XE release 17.3.2
- An Authorization Code is required only for export control requirement
- Throughput greater than 250MB requires an HSEC license
- No more EVAL licenses. Authorized status has changed to In Use or Not In Use with an Enforcement Type class.
- Cisco Smart Licensing Utility (CSLU) is a new tool interfacing between the devices and Cisco Smart Software Manager (CSSM) in specific customer topologies.

IR1101

The IR1100 series only supports SLP. Some of the feature differences are:

• Support started with IOS-XE release 17.3.2

- An Authorization Code is required only for export control requirement
- No more EVAL licenses. Authorized status has changed to In Use or Not In Use with an Enforcement Type class.
- Cisco Smart Licensing Utility (CSLU) is a new tool interfacing between the devices and Cisco Smart Software Manager (CSSM) in specific customer topologies.
- Throughput is defaulted and capped at 250MB.

IR8100

The IR8100 series only supports SLP. Some of the feature differences are:

- Support started with IOS-XE release 17.3.2
- An Authorization Code is required only for export control requirement
- Throughput greater than 250 Mbps requires an HSEC license
- No more EVAL licenses. Authorized status has changed to In Use or Not In Use with an Enforcement Type class.
- Cisco Smart Licensing Utility (CSLU) is a new tool interfacing between the devices and Cisco Smart Software Manager (CSSM) in specific customer topologies.

IR8300

The IR8300 series only supports SLP. Some of the feature differences are:

- Support started with IOS-XE release 17.3.2
- An Authorization Code is required only for export control requirement
- Throughput greater than 250 Mbps requires an HSEC license
- No more EVAL licenses. Authorized status has changed to In Use or Not In Use with an Enforcement Type class.
- Cisco Smart Licensing Utility (CSLU) is a new tool interfacing between the devices and Cisco Smart Software Manager (CSSM) in specific customer topologies.

ESR6300

The ESR6300 embedded router operates slightly different than the other IoT routers. Some of the feature differences are:

- Support started with IOS-XE release 17.4.1
- · An Authorization Code is required only for export control requirement
- Throughput greater than 250 Mbps requires an HSEC license
- No more EVAL licenses. Authorized status has changed to In Use or Not In Use with an Enforcement Type class.
- Cisco Smart Licensing Utility (CSLU) is a new tool interfacing between the devices and Cisco Smart Software Manager (CSSM) in specific customer topologies.

License Enforcement Types

A given license belongs to one of three enforcement types. The enforcement type indicates if the license requires authorization before use, or not.

• Unenforced or Not Enforced

The vast majority of licenses belong to this enforcement type. Unenforced licenses do not require authorization before use in air-gapped networks, or registration, in connected networks. The terms of use for such licenses are as per the end user license agreement (EULA).

Enforced

Licenses that belong to this enforcement type require authorization before use. The required authorization is in the form of an authorization code, which must be installed in the corresponding product instance.

An example of an enforced license is the Media Redundancy Protocol (MRP) Client license, which is available on Industrial Ethernet Switches.

Export-Controlled

Licenses that belong to this enforcement type are export-restricted by U.S. trade-control laws and these licenses require authorization before use. The required authorization code must be installed in the corresponding product instance for these licenses as well. Cisco may pre-install export-controlled licenses when ordered with hardware purchase.

An example of an export-controlled license is the High Security (HSEC) license, which is available on certain Cisco Routers.

High Security (HSEC) License

HSEC (High Security) license is a feature license that can be configured in addition to the network license (NE/NA). An HSEC license provides export controls for strong levels of encryption. HSEC is available to customers in all currently non-embargoed countries as listed by the U.S. Department of Commerce. Without an HSEC license, SEC performance is limited to a total of 250 Mbps of IPsec throughput in each direction. An HSEC license removes this limitation.

Command Line Interface

The configuration mode CLI to enable HSEC on the IR1101 is the following:

IR1101(config)# license feature hsec9

To benefit from the HSEC license, a new bandwidth will be available. The new bandwidth is called **uncapped**, and it is available with the following CLI from configuration mode:

```
IR1101(config)# platform hardware throughput level ?
250M throughput in bps
uncapped throughput in bps
IR1101# platform hardware throughput level uncapped
```

After performing the above commands, write mem and reload the router. The configuration will take effect when the router comes back up.

License Types

With this new feature, the IR1101 will support the following bandwidth/license types:

- Network-essentials 250 Mbps
- Network-advantage 250 Mbps
- Network-essentials uncapped
- Network-advantage uncapped
- HSEC

Ordering

The following is an example from the IR1101-K9. The license will be available on the IR1101-A-K9 as well. In the following example, select the SL-1101-NE/UNCP-K9 (Network Essentials Uncapped License):

IR1101-K9 > Software Licenses

Expand	All Collapse All		
Θs	oftware Licenses		
	SKU	Qty	Estimated Lead Time 🕕
0	SL-IR1101-NE SA Network Essentials License for Cisco IR1101 Industrial ISR More	1	3 days
0	SL-IR1101-NE-NPE SA Network Essentials NPE for Cisco IR1101 Industrial ISR More	1	3 days
0	SL-1101-NE/UNCP-K9 PLH SA Network Essentials Uncapped License for Cisco IR1101 More	1	21 days

The L-1101-HSEC-K9 license will get auto included when you select the uncapped license, as shown in the following:

				Warnings (8):					
Configuration Summary	Vi	w Full Summary			Shipment Package is required. Please adjust yo	ur selection. (CE2	02343)		
Category ()	Qty	Extended List Price (USD)	·	A selection of IR1	100-P-BLANK is required when no Base Module	e is selected. Pleas	se adjust the sel	lections. (CE200440)	
SOFTWARE LICENSE		^							
Software Licenses			0	ption Search 🚺	Multiple Options Search				~
HSEC License			IR1101	I-K9 > HSEC Licen	ise				Key
MODULES									
Base Module				d All Collapse All	1				
Expansion Module			O HSEC License						
Expansion Module Placement				SKU			Qty	Estimated Lead Time 🚯	Unit List Price (USD)
ACCESSORIES		^	0	L-1101-HSEC-K	9 PLH SA		Qty	21 days	
Antennas				U.S. Export Restric	ction Compliance license for IR1101 More				
Subtotal		1,182.89							
Estimated Lead Time		206 days							

Cisco Software Central

This guide provides information on how to order, activate, and manage your Cisco Smart Licenses.

https://software.cisco.com/software/csws/ws/platform/home?locale=en_US&locale=en_US&locale=en_US#

SLP Architecture

This section explains the various components that can be part of your SLP implementation.

Product Instance

A product instance is a single instance of a Cisco product, identified by a Unique Device Identifier (UDI).

A product instance records and reports license usage (RUM reports), and provides alerts and system messages about overdue reports, communication failures, etc. The RUM reports and usage data are also stored securely in the product instance.

A Resource Utilization Measurement report (RUM report) is a license usage report, which fulfils reporting requirements as specified by the policy. RUM reports are generated by the product instance and consumed by CSSM. The product instance records license usage information and all license usage changes in an open RUM report. At system-determined intervals, open RUM reports are closed and new RUM reports are opened to continue recording license usage. A closed RUM report is ready to be sent to CSSM.

A RUM acknowledgement (RUM ACK or 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.

CSSM displays license usage information as per the last received RUM report.

Cisco Smart Software Manager (CSSM)

CSSM is a portal that enables you to manage all your Cisco software licenses from a centralized location. CSSM helps you manage current requirements and review usage trends to plan for future license requirements.

You can access CSSM at https://software.cisco.com. Under the License tab, click the Smart Software Licensing link.

In CSSM you can:

- · Create, manage, or view virtual accounts.
- Create and manage Product Instance Registration Tokens.
- Transfer licenses between virtual accounts or view licenses.
- Transfer, remove, or view product instances.
- Run reports against your virtual accounts.
- Modify your email notification settings.
- View overall account information.

Prior to using CSSM, please view a short video about how to use the portal found here:

https://www.cisco.com/c/en/us/buy/smart-accounts/software-manager.html

Click on the View Video button.

Cisco Smart Licensing Utility (CSLU)

CSLU is a Windows-based reporting utility that provides aggregate licensing work-flows. It helps you administer all your licenses and their associated product instances from your premises instead of having to connect to CSSM.

This utility performs the following key functions:

- Provides the options relating to how work-flows are triggered. The work-flows can be triggered by CSLU
 or by the product instance,
- Collects usage reports from the product instance and upload these usage reports to the corresponding smart account or virtual account – online, or offline, using files. Similarly, the RUM report ACK is collected online, or offline, and provided back to the product instance.
- Sends authorization code requests to CSSM and receives authorization codes1 from CSSM.

CSLU can be part of your SLP topology in the following ways:

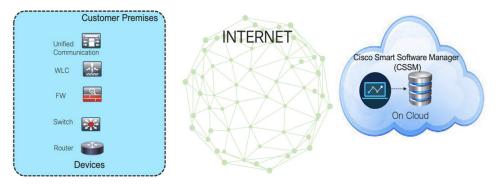
- Install the windows application, to use CSLU as a standalone tool and connect it to CSSM.
- Install the windows application, to use CSLU as a standalone tool and not connect it to CSSM. With this option, the required usage information is downloaded to a file and then uploaded to CSSM. This is suited to air-gapped networks.
- Embed it in a controller such as Cisco DNA Center.

Customer Topologies

IoT Routing platforms use two different topologies.

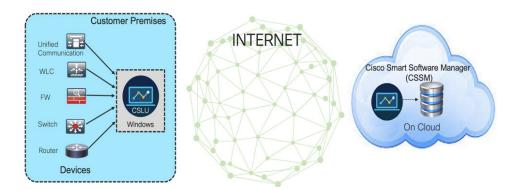
- Full Offline Access
- CSLU has No Access to CSSM

The following figure illustrates the Full Offline Access:



In this topology, devices do not have connectivity to CSSM (software.cisco.com). The user must copy and paste information between Cisco products and CSSM to manually check in and out licenses.

The following figure illustrates the CSLU having No Access to CSSM:



In this topology the devices are connected to the CSLU controller, but there is no connectivity between CSLU and CSSM (Cisco Smart Software Manager – software.cisco.com).

Cisco devices will send usage information to a locally installed CSLU. The user must copy and paste information between the CSLU and CSSM to manually check-in and check-out licenses.

License Installation Procedure - Full Offline Access Topology

This procedure requires a manual exchange of required information between the router and CSSM.

Refer to the following graphic for the flow of information:



- 1. Generate a License Usage Data file or AuthCode Request
- 2. Export to CSSM
- 3. Upload License Usage Data or AuthCode Request
- 4. Export ACK/AuthRequest file to Router
- 5. Upload ACK file or AuthRequestAuthCode

This section contains the following topics:

Procedure to Register Product Instance in CSSM

 Step 1
 Generate a license usage file from the Router.

 In exec mode, perform the following:
 Example:

Router# license smart save usage all file flash:slp

- **Step 2** Export the license usage file (slp) to your host laptop/PC.
- **Step 3** Importing the license usage file to CSSM on Cloud. Click on the Usage Data Files tab.

Figure 1: Usage Data File

Cisco Software Central > Smart Software	ware Licensing	dla SJ
Smart Software Lice	ensing	Fee
Alerts Inventory Convert to Sm	art Licensing Reports Preferen	nces On-Prem Accounts Activity
Reports	3	
Report Usage Data Files	Reporting Policy	
Name		Description
Licenses		Includes a summary of current license counts and usage over selected virtual accounts.
License Subscriptions		Includes a summary of current subscription license counts and usage over selected virtual accounts.
Product Instances		Includes count and listing of current product instances for selected virtual accounts.
Product Instances		Includes count and listing of current product instances for selected virtual accounts.

Step 4 The **Upload Usage Data** window appears. Click **Browse**, and navigate to where the file is.

Step 5

Click on Upload Data.

Figure 2: Browse and Upload

		Upload Usage Data	
Smart S	Central > Smart Softwa Software Lices	sing • Usage Data File: Browse Sis	5 th SA-Switching-Polaris Feedback Support H
Reports		Upload Data	Cancel
Report	Usage Data Files	Reporting Policy	
		features that they are using. ses are needed, in order to be compliant.	

Step 6 Select the Virtual Account.

Figure 3: Select Account

		alaala	
	Select Virtual Accounts	×	
Cisco Software Central > Smart Software Licens Smart Software Licensing Alerts Inventory Convert to Smart Licensin	Some of the usage data files do not include t virtual account is unrecognized. Please select an account:	the name of the virtual account that the data refers to, or the Select VA	1 SA-Switching-Polaris - Feedback Support Help
Reports Report Usage Data Files Repo		Ok	
Devices can be configured to report the features to This usage then determines which licenses are no			

Step 7 From the pull-down, select your respective virtual account.

Figure 4: Select Your Account

	Select Virtual Accounts \times	Select your respective virtual account
Cisco Software Central > Smart Software Licens	Some of the usage data files do not include the name of the virtual account that the data refers to, or the virtual account is unrecognized.	7 t≣ SA-Switching-Polaris ▼
Smart Software Licensing	Please select an account:	Feedback Support Help
Alerts Inventory Convert to Smart Licensin	Select one account for all files: DEFAULT Select a virtual account per file:	
Reports		
Report Usage Data Files Repo	Ok Cancel	
Devices can be configured to report the features This usage then determines which licenses are n		8

Step 8 Click Ok.

Step 9

Observe the Smart Software Licensing window. Initially, the Reporting Status state will be Pending. Wait until the window reflects No Errors before continuing.

Figure 5: Reporting Status

co Software Central > Smart Software Licen				IIII SA-Switching-Polaris ♥ Feedback Support Help
ts Inventory Convert to Smart Licensir	ng Reports Prefer	ences On-Prem Accour	nts Activity	
eports				vill be in pending state hange to "no errors"
Report Usage Data Files Rep	orting Policy		wait to c	
Devices can be configured to report the feature This usage then determines which licenses are	, ,	noliant	9	
Upload Usage Data		nymmu.	earch by File	e Name, Virtual Account
Usage Data File	Reported	Virtual Account	Reporting Status	Devices Acknowledger It
				Download

- **Step 10** Click **Download** to download the ACK file.
- **Step 11** Check under the **Product Instances** tab to verify your device is listed.

Figure 6: Product Instances

eneral Licenses Product Instances E	vent Log			
Authorize License-Enforced Features		Search	by Name, Product Type	٩
Name	Product Type	Last Contact	Alerts	Actions
UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC23032UWF;	5900	2020-Sep-24 20:23:59 (Rese	rved Licenses)	Actions -
UDI_PID:ESR-6300-CON-K9; UDI_SN:SJC19700415;	5900	2020-Sep-24 20:41:41 (Rese	rved Licenses)	Actions 👻
UDI_PID:IR1101-K9; UDI_SN:FCW24150J0F;	IR1100	2020-Jul-30 02:22:04		Actions -
UDI_PID:IR1833-K9; UDI_SN:FCW2420P0VB;	M2M800	2020-Jul-07 20:15:11 (Resen	red Licenses)	Actions 👻
UDI_PID:IR1835-K9; UDI_SN:FHH2416P00Z;	M2M800	2020-Sep-30 01:01:21		Actions -
UDI PID:IR8140H-P-K9; UDI SN:FDO2420J786;	CGR1000	2020-Sep-08 18:37:24		Actions -

Note This example shows an IR1835 highlighted. Your product name might be different.

Step 12 Import the ACK file from CSSM to your device using the command line interface.

Importing the ACK file from CSSM to your Device

Step 1 Copy the ACK file from CSSM to your host laptop or usbflash device. In exec mode on the device:

Example:

```
Router#license smart import <flash: | usbflash0:> ACK_slp
Import Data Successful
Router#
*Sep 1 21:12:58.576: %SIP-1-LICENSING: SIP service is Up. License report acknowledged.
*Sep 1 21:12:58.616: %SMART_LIC-6-POLICY_INSTALL_SUCCESS: A new licensing policy was successfully
installed
```

- **Step 2** Verify Product Instance has imported the data.
 - a) The following example is from an IR1800:

Example:

```
Router# show license usage
License Authorization:
Status: Not Applicable
network-advantage_250M (IR1800_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
```

b) The following example is from an ESR6300:

Example:

```
Router# show license usage
License Authorization:
Status: Not Applicable
network-advantage_250M (ESR6300_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
```

Step 3 Verify the license is in use.

a) The following example is from an IR1800:

Example:

```
Router# show license summary
  License Usage:
    License
                                      Entitlement tag
                                                                    Count Status
    _____
    network-advantage 250M (IR1800 P 250M A)
                                           1 IN USE
  Router#
  Router#show license all | beg Usage Reporting:
  Usage Reporting:
    Last ACK received: Sep 01 21:12:58 2020 UTC
    Next ACK deadline: <none>
    Reporting Interval: 0 (no reporting)
    Next ACK push check: <none>
    Next report push: <none>
    Last report push: <none>
    Last report file write: <none>
  Trust Code Installed: Sep 01 00:28:48 2020 UTC
b) The following example is from an ESR6300:
```

Example:

```
Router# show license summary
License Usage:
 License
                                      Entitlement tag
                                                                Count Status
 _____
 network-advantage 250M (ESR6300 P 250M A) 1 IN USE
Router#
Router#show license all | beg Usage Reporting:
Usage Reporting:
 Last ACK received: Sep 01 21:12:58 2020 UTC
 Next ACK deadline: <none>
 Reporting Interval: 0 (no reporting)
 Next ACK push check: <none>
 Next report push: <none>
 Last report push: <none>
 Last report file write: <none>
Trust Code Installed: Sep 01 00:28:48 2020 UTC
```

- - .

Step 1

Removing the Device from CSSM

. .

→ C	Inventory		\$	0 6 <u>×</u> 14 (
Alerts Inventory Convert to Smart Licensing Reports	Preferences On-Prem A	ccounts Activity		
Virtual Account: DEFAULT -			1 Major 🚯 Minor 🤅	Informational Hide A
General Licenses Product Instances	Event Log			
Authorize License-Enforced Features		Sear	th by Name, Product Type	Q
Name	Product Type	Last Contact	Alerts	Actions
UDI_PID:IE-3300-8U2X; UDI_SN:FCW24030HD6;	IE3000	2020-Aug-14 12:25:07 (Res	erved Licenses)	Actions -
UDI_PID:IE-3400-8T2S; UDI_SN:FOC2330V02D;	IE3000	2020-Aug-14 12:14:00 (Res	erved Licenses)	Actions -
UDI_PID:IE-3400H-24T; UDI_SN:FCW23200H5S;	IE3000	2020-Sep-24 07:43:31		Actions -
UDI_PID:IR1835-K9; UDI_SN:FHH2416P00Z;	M2M800	2020-Oct-01 05:48:27 (Res	erved Licenses)	Actions -
UDI_PID:IR8140H-P-K9; UDI_SN:FDO241519G8;	CGR1000	2020-Aug-12 17:14:56 (Res	erved Licenses) Tran	sfer
UDI_PID:IR8140H-P-K9; UDI_SN:FDO2420J4ZK;	CGR1000	2020-Sep-24 21:01:56 (Res	erved Licenses) Upd	ate Reserved Licenses
UDI_PID:IR8140H-P-K9; UDI_SN:FDO2420J64L;	CGR1000	2020-Sep-26 00:39:13	Ren	nove
UDI_PID:IR8140H-P-K9; UDI_SN:FDO2420J77G;	CGR1000	2020-Sep-08 22:10:30	_	Actions -

Step 2 Click on Actions beside your device, and from those options click **Remove**.

Navigate back to the product instances tab. Locate your device.

The Confirm Remove Product Instance window appears.

Figure 8: Confirm Remove Product Instance

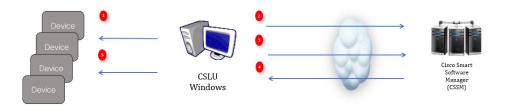
Confirm Remove Product Instance
If you continue, the product instance "UDI_PID: <product> UDI_SN:<serial number="">, " will no longer appear in the Smart Software Manager and will no longer be consuming any licenses. In order to bring it back, you will need to re- register the product instance.</serial></product>
Remove Product Instance Canc

Step 3 Click Remove Product Instance.

License Installation Procedure - CSLU has No Access to CSSM

This procedure performs an online exchange of required information between the Router and CSLU.

Refer to the following graphic for the flow of information:



- **Step 1** In CSLU, identify the devices that require an AuthCode, and initiate the request. An AuthCode file is created.
- **Step 2** Export the AuthCode file to CSSM.
- **Step 3** Upload the AuthCode to CSSM SA/VA account.
- **Step 4** Export the AuthRequestAuthcode file to CSLU.
- **Step 5** Upload ACK file or AuthRequestAuthCode.

What to do next

This section contains the following:

Procedure when devices are connected to the CSLU

First, perform these steps on the router using the CLI to get a license UDI:

Example from an IR1800:

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z. Router(config)#platform hardware throughput level 2G % 2G throughput level requires hseck9 license! Router(config)#end

Router**#sh license udi** UDI: PID:IR1835-K9,SN:FHH2416P00Z

Example from an ESR6300:

```
Router#show license summary
License Reservation is ENABLED License Usage:
License Entitlement tag Count Status
network-advantage_250M (ESR6300 _P_250M_A) 1 IN USE
```

Router#configure terminal

```
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#platform hardware throughput level 2G
% 2G throughput level requires hseck9 license!
```

Router(config)#**end** Router#sh license udi UDI: PID:ESR-6300-CON-K9,SN:FOC23032UVB

- **Step 1** Open the Cisco Smart License Utility (CSLU).
- **Step 2** Navigate to the **Product Instances** tab, then click on the UDI.

Figure 9: Select UDI - IR1835 Example

Cis	co Smart	License Utility		
U	Product	t Instances Edit Help		Logout from C
ļ		Inventory Preferences		
[Produ	uct Instances		
	Add S	Single Product Actions for Selected	Refresh Product Instance Lis	t
		Name	Last Contact	Alerts
		Filter By Host/IP, SN or PID	Filter By Last Contact	Filter By Alerts
		UDI_PID:IR8140H-P-K9; UDI_SN:FD02420J64L	29-Sep-2020 18:27	COMPLE SSM
	\checkmark	UDI_PID:IR1835-K9; UDI_SN:FHH2416P00Z	-never-	
	4			*
		Items per page: 5	1 − 2 of 2 < <	> >1

Step 3 The **Edit Single Product Instance** window appears.

Figure 10: Edit Single Product Instance

Produ	ict Instances	Edit Single Product Instance		
Add	Single Product Actions for Selected Pattern Product	Ear ongie riodast maande		
	Name	Details	General	
	File It HostP, IN & PD	Npt 172:27:168.71	Host Identifier	
	COLUMN REPORT OF THE COLUMN COSTOCIAL	litur ment	MAC Address	DLC request cent to CDSM
	LOL PORTOSIO, OL DIVINIO INPUTZ	Parison	SUM	Usage reportition product instance
	UDLIPE PHOSEX LOLINHOW HTP/T	Covert Million CSLU Initiated - REST API	10 ESR-6300-CON-K9	Usage report uptoaded to CSSM
	UDI_PED.EDIA 8380-CONVER.UDI_BIN/F0C23833044		F0C23032UM	Usage report up/caded to CSISM
			VD	
-			uup	-
		Save Cancel		

Step 4 The **Edit Multiple Devices** window appears. Supply your account password and click **Save**.

Figure 11: Edit Multiple Devices

	Single Device Actions for Selected	Refresh Device List				
	Device	Last Contacted		Alerts		
	Filter By HostilP, SN or PID	Filter Ry Last Contacted		Filter Ry Alarts		
-	172.27.167.69 SN: FCW2150TH0F PID: IR1101-K9	Edit Multiple Devices			aport from product instance	
-	172.27.167.58 SN: FCW24160HHE PID: IR1101-K9	Details Host 172,27,167,71	Unique Device Identifier (UDI) Host Identifier		eport from product instance	
2	172.27.167.56 SN: FCW24150JBK PID: IR1101-K9	User Name admin Password	MAC Address		sport from product instance	
2	172.27.167.71 SN: FOC23032UVB PID: ESR-6300-CON-K9	Convect Method CSLU Initiated - REST API	PID ESR-6300-CON-K9 Seriar Number		sport from product instance	
2	172 27.167.70 SN: FOC23232KC7 PID: ESR-6300-CON-K9		FOC22032UVB		eport from product instance	
			UUID			
		Save Cancel				

Step 5 In the **Product Instances** window, click on the **Actions for Selected Devices** Tab.

Figure 12: Actions for Selected Devices

	tInstances Edit Help			
	Inventory	Preferences		
rodu	uct Instances			
Add S	Single Product	Actions for Selected Refresh Product Instance List		
8	Name 🕇	Remove	Last Contact	Alerts
	Filter By HostilP, SN or	Edt	Filter By Last Contact	Filter By Alerts
~	UDI_PIDIR1835-K9; U	Collect Usage	16-Oct-2020 11:37	COMPLETE Usage report from product instance
	UDI_PIDIR8140HP-K	Authorization Code Request	12-04-2020 18:25	COMPLETE DLC request sent to CSSM
0	UDI_PIDJR1835-K9; UD	DL_SNFCW2417P176	08-Oct-2020 09:47	COMPLETE Usage report uploaded to CSSM

- Step 6 Select Authorization Code Request.
- Step 7 The Authorization Request Information window appears. Read the contents and then click Accept.

Figure 13: Authorization Request Information

Authorization Request Information

This operation will download an authorization request file for the devices that have been selected. Once this file is downloaded please:

- Upload the file to CSSM.
- After uploading to CSSM you will be able to download the file containing the authorization codes for devices you selected.
- Please upload this file using the "Upload From CSSM" menu option to apply the authorization codes for the devices.



Step 8 The CSLU downloads a Authorization Request file to your laptop. Click **Save**.

Figure 14: Authorization Request File

blob:file:///ed160eab-5216-4c02-a3f0-21249da01f89					×	
) 🖉 👌 at			+ +y Searc		٩	
Drganize 👻 New folder				E •		
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🚼 Videos						Filter ByAlerts
E Computer Local Disk (C:) HINGSTON (E:)						COMPLETE DLC request sent to CSSM
File name: AuthRequest_Aventus					•	COMPLETE Acknowledgement received from CSSM
Save as type: All Files (*.*)				ve Cance	- 	lterns per page: <u>5</u> ▼ 1−2 of 2 < <

Exporting the AuthRequest File to CSSM

The next step is to take the Authorization Request file you just saved, and export it into Cisco Smart Software Manager (CSSM).

Launch CSSM.

Click on the Inventory Tab, select your Virtual Account.

- Step 1 Click on the **Product Instances** Tab.
- Step 2 Click on Authorize License-Enforced Features.

Figure 15: Authorize License-Enforced Features

Cisco Software Central		cisco			Q 🛞 (⊕us en
Cisco Software Central > Smart Sol	Rware Licensing			🛍 SA-IOT-Polaris 👻		
Smart Software Lic	censing			Feedback Support Help		
Alerts Inventory Convert to S	Smart Licensing Reports Preferences On-Pref	n Accounts Activity				
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General Licent 2	Product Instances Event Log					
General Licent 2 Authorize License-Enforced		Search by Name, Pi	Product Type	٩		
		Search by Name, Pr Last Contact	Yroduct Type Alerts	Q. Actions		
Authorize License-Enforced	Features					
Authorize License-Enforced Name	FeaturesProduct Type DL_SN.FOC23032UVB; 5900	Last Contact		Actions		
Authorize License-Enforced Name UDL/PID ESR-6300-CON-K9, UD	Features Product Type DL_SN F0C23032UVE: 5900 DL_SN F0C23232XC7: 5900	Last Contact 2020-Aug-26 00:37:52		Actions Actions -		
Autholize License-Enforced Name UDL_PID ESR-4300-CON-K9, UD UDL_PID ESR-4300-CON-K9, UD	Product Type Product Type DL_SN F0C230320V67 5900 DU_SNF0C232328C7 5900 XXX4150467 IR1150	Last Contact 2020-Aug-26 00 37 52 2020-Aug-26 01:10:34		Actions - Actions - Actions -		
Autholize License-Enferced Name UDL-FID ESR-4300-CON-430, UD UDL-FID ESR-4300-CON-430, UDL UDL-FID R1101-430, UDL_SN-FC	Product Type Product Type DL_DNFF0C23932(V/R): 5960 DL_UNFF0C23922(K): 5950	Last Contact 2020-Aug-26 00 37 52 2020-Aug-26 01 10 34 2020-Jul-30 02 22 04		Actions - Actions - Actions -		
Authorize License Enforced Name UCL_PID_ESR-8300_CON-R0_UT UCL_PID_ESR-8300_CON-R0_UT UCL_PID_BSR-8300_CON-R0_UT UCL_PID_BT151-80, UCL_PID_ESR-000_ENFO	Peakures Product Type DL_SNF0C23920/VE 5900 DL_SNF0C23920/VE 5900 DL_SNF0C23920/VE 18100 VX01500/VE 181100 XX01500/VE 181100 XX01500/VE 181100	Last Contact 2020-Aug-28 00 37:52 2020-Aug-28 01:10:34 2020-Jul-30 04:22:04 2020-Jul-30 04:24:13		Actions + Actions + Actions + Actions + Actions +		
Authorise License Enforced Name Up, IDE 584,5300-CON-450, UT UD, UTD 558-5300-CON-450, UT UD, UTD 558-5300-CON-450, UT UD, UTD 558-5300-CON-450, UT UD, UTD 558-5400, UT, UT, UT, UT, UT, UT, UT, UT, UT, UT	Peakures Product Type DL_INFOC23920V/R 5950 DL_INFOC239220V/R 5950 DL_INFOC239220V/R 181100 XXX415048E; 181100 XX415048E; 181100 XX415048E; 181100 XX415048E; 181100 XX415048E; 181100 XX415048E; 181100 XX415048E; 18100 XX415048E; 18100 XX415048E; 18100 XX415048E; 18100 XX415048E; 18100	Last Contact 2020-Aug-26 00 37 52 2020-Aug-26 01 50 34 2020-Aug-26 01 50 34 2020-Aug-30 01 22 04 2020-Aug-30 04 24 13 2020-Aug-30 04 24 13	Alerts	Actions + Actions + Actions + Actions + Actions +		2

The Authorize License-Enforced Features window appears.

Figure 16: Authorize License-Enforced Features

Cisco Softwa	4		a de a de s				Q	(EM)	۳
CISCO SOITWA	Authorize License-Enfo	rced Features				×	C	CINI	\$
	STEP 1	STEP 2	STEP 3	STEP 4		- 1			
	Enter Request Code	Select Licenses	Review and confirm	Authorization Code					
	to the device to enable the featur	es. Learn More			e reserved, an authorization code is uploade Licensing Manager, to report the features they	a			
	Single Device	~							
	Single Device Multiple Devices					11			
	UUID:					11			
	Serial Number:								
	PID: Version ID:								
	Host ID:					- 14			
	MAC Address:								
	Virtual ID/SLIMIY								
					Cancel	Next			
		an and a second s				_			
					Showing All 7 R	ecords			

- **Step 3** Choose **Multiple** or **Single** devices from the pull-down.
- **Step 4** The window changes to an option to select a device file. Click on **Choose File**.

← → O A https://soft	tware-stage0.cisco.com/software/	/csws/ws/platform/home?lo	ocale=en_US#SmartLicensing	-Inventory			立 神 倒	
Cisco Softw	Authorize License-Enfor	rced Features				. ×	Q 🕑	⊕US EN
	the device to enable the features.	Learn More ere is only required for devices that evices to be licensed.			reerved, an authoritation code is spload			٩
					Cancel	Next		
					Showing Ail 7 F	Records		

Step 5

A popup window opens to navigate to where you saved your Authorization Request file on your laptop.

File Home Share View			~ 😮
Pin to Quick access		ew Troperties	Open ~ Elsect all Edit Estect none History Invert selection Select
← → · ↑ 🖡 → This PC → Download	s	ٽ ~	Search Downloads 🔎
 OneDrive Pictures Saved Games Searches Videos This PC 3D Objects Desktop Documents Music Pictures Videos Videos 	Auth_Request.xlsx		Select a file to preview.
 Hereinen Hereinen 	v <	>	

Figure 17: Open File Navigation Window

- **Step 6** Select your file, and then click **Open**.
- **Step 7** The authorization file loads, and the window changes to present your devices.

Figure 18: Present Devices

-			يارينان.				
Cisco Software Central	Authorize License-Enfo	×					
	STEP 1	STEP 2	STEP 3	STEP 4			
	Enter Request Code	Select Licenses	Review and confirm	Authorization Code			
	the device to enable the features.	Learn More here is only required for devices that of devices to be licensed.			re reserved, an authorization code is uplo		
	Device		Sta	tus			
	Device		S	elect Status		~	
	SN: FHH2416P00Z			Success			
	Selected: 1				Success: 1	Errors: 0	
					Cancel	Next	

- Step 8 When successful, click Next.
- **Step 9** The **Select Licenses** Tab opens.

Figure 19: Select Licenses

Cisco Softwa	Authorize License-Enfo	rced Features					×	Q 🛞
	step 1 🗸	STEP 2	STEP 3		STEP Z			
	Enter Request Code	Select Licenses	Review and confirm		Authorizatie	m Code		
	Select the Licenses to Enable	the Features						
	Select the set of licenses that wi	I enable the desired features. The lice	enses will be reserved on the	devices			Device Selected: 2	
	License			Purchased	Available	Quantity per Device	Total Quantity	
	ESR6300_HSEC_License	stomers exceeding 2505/bps enabled with encrypt	too .	32	30	1	2	
	IR1800 HSEC	stomers according 2508.ltps anabled with encrypt		10	10	0	0	
							Cancel Back Next	
							Showing All 7 Records	

Step 10 Under **Quantity per Device**, enter the number you wish.

Figure 20: Enter Number

Cisco Softwa	Authorize License-Enfor	cod Features						× Q 🖲	
	Authorize Elcense-Elhor								
	STEP 1 🗸	STEP 2	STEP 3		STEP 4				
	Enter Request Code	Select Licenses	Review and confirm	1	Authorizatio	n Code			
	Select the Licenses to Enabled	the Features							
	Select the set of licenses that will	enable the desired features. The lic	censes will be reserved on the	e devices					
	License			Purchased	Available	Quantity per Device	Device Selected: 2 Total Quantity		
	ESR6300_HSEC_License	omers exceeding 2501/bps enabled with encry	ption	32	30	1	2		
	IR1800 HSEC	omers exceeding 2504/bps enabled with encry		10	10	0	0		
		and the starting strengt the start nor story							
							Cancel Back Next		
								-	
							Showing All 7 Record		

 Step 11
 If CSSM cannot identify your device from the identifying information, you can select it manually.

 Figure 21: Select a Device Type

Cisco Softwi Authorize License-Enforced Ferture: Select a Davice Type There Request Code Select A Davice Type There Request Co	
TUTP Import Anderson Tutor Importutor Import Anderson Tutor Import A	
Learning Convex Total construction 2 ESERVICE_Victories Basecon 2 Million required for administrat administration Basecon 2 Million required for administration Basecon 0 Million required for administration Basecon 0 Million required for administration Basecon 0 Million required for administration Billion required for administration 0 Million required for administration Billion required for administration 0 Million required for administration Billion required for administration 0 Million required for administration Billion required for administration 0 Million required for administration adminintervaleted administration adminintered administration adminint	
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H11901-145EC Mol Collabolity Mole Reverse research for antimized industries of antimized in the collabolity Mole Reverse research for antimized industries of antimized in the collabolity Mole Reverse research for antimized in the collabolity Mole Reverse research for antimized in the collabolity Mole Reverse research for antimized in the collabolity of devices, you must perform the operation separationy for another antimized in the collabolity Mole Reverse research for antimized in the collabolity of devices, you must perform the operation separationy for another antimized in the collabolity of devices. You must perform the operation separationy for another antimized in the collabolity of devices. You must perform the operation separationy for another antimized in the collabolity of devices. You must perform the operation separationy for another antimized in the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation separation of the collabolity of devices. You must perform the operation of the collabolity of devices. You must perform the collabolity of devic	
PIO ESIA 4080 CON KS	
If you want to enable features on otherest types of devices, you must perform this operation separately for each type.	
Candou Cancel	
Cancel Back Next	
Shaving Al 7 Records	

Step 12 Click Continue, and the window changes to Review and Confirm.

Figure 22: Review and Confirm

-									
Cisco Software Central	Authorize License-Enfo	rced Features		×					
	STEP 1 🗸	STEP $2 \checkmark$ Select Licenses	STEP 3 Review and confirm	STEP 4 Authorization Code					
	Devices								
	Device			Device Type					
	Device			Select Device Type	v				
	SN: FHH2416P00Z PID: IR1835-K9			819 routing pids					
	Selected: 1								
	License			Quantity per Device	Total Quantity to Reserve				
	IR1800 HSEC HSEClosce regulard for authorited curbo	ants exceeding 2508bps enabled with encryptio		1	1				
					Cancel Back Res	erve Licenses			

Step 13 Click on Reserve Licenses, and CSSM generates feature authorization codes.

Figure 23: Feature Authorization Codes

_			als als			-	0	0	THE
Cisco Softw	Authorize License-Enfor	ced Features				×	Q	(EM)	⊕ ^{US} EN
	step 1 🗸	STEP 2 ~	STEP 3 ~	STEP 4					
	Enter Request Code	Select Licenses	Review and confirm	Authorization Code		- 8			
	Feature Authorization Co	odes Have Been Generate	d			- 8			
	Feature authorization codes have	e been generated for the devices, a	and the licenses are reserved in your in	wentory.		- 81			
			Download Authorizati	ion Codes		- 8			6
	If you are configuring the devi			nvoes. Inder the code into the Smart Licensing settir	gs of that device, to enable the features.				
					Ck	50			
					Showing All 7 Rec	ords			

Step 14 Click Download Authorization Codes, and a window opens to navigate to where you wish to save the codes.

Figure 24: Save Authorization Code

File Home Share	View							^
lavigation 📑 Details pane	Extra large icon		nall icons 👻	Sort by•	 Item check boxes File name extension Hidden items 	Hide selected	Options	
Panes		Layout		Current view	Show/I	hide		
← → × ↑ 🚺 → This	s PC > Downloads				ٽ ~	Search Downloa	ds	P
 OneDrive 		^	Name					
hictures			Auth_Reque	est Auth Codes	SLE.xlsx			
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he Pictures								
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Uploading the Authorization Request Code file into CSLU

- **Step 1** Open the Cisco Smart License Utility (CSLU).
- Step 2 Navigate to Product Instances, and then select Upload From Cisco.

Figure 25: Upload From Cisco

Deveload All Poduct Instruct List Od-0 Signale Poduct Instruct List Od-0 Deveload All To Gice Od-0 Product Instances Last Centact Add To Bit Polication Filter By Last Centact Filter By Last Centact Filter By Last Centact Du Up (PD-081804FAPa; UUC) SV DP D 0 U Up (PD-081804FAPa; UUC) SV DP D 0 Deveload All To By Last Centact Bits By Last Centact Display	roduc	ctInstances Edit Help		
Set Al To Ciso Off-Ener Ourlog & Star Ener Off-Ener Debutg & Star Ener Off-Ener Product Instances Last Contact Add Single Product Actions for Selected. Refere Product Instance List Last Contact Name Last Contact Filter By Hast PS, Stor PD Filter By Last Contact Upp Dig Ret Hark PL, Up, Dig NFDOLXDARAL, Selep-2020 1152				1
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Name Last Contact Alerts Filter By Last Contact Filter By Last Contact Filter By Last Contact VDL/PD/RR14IN-FAR_UD_SNFD02420LIAL 39-Step-2020 1102 © COMPLETE DLC: request sent to CSSM	100	uct Instances		
Filter 69 Host80 (SN or PD	Add	Single Product Actions for Selected Refresh Product Instance List		
UDL/POURS14HH-Avg.UDL/SH/FDO1X03/64L 39 686-200 11 02 © COMPLETE DLC Hequilities sent to CSSM	-	Name	Last Contact	Alerts
		Filter By HostilP, SN or PID	Filter By Last Contact	Filter By Alerts
UDI_PDJR1515K9_UDI_SNEHH2416F00Z 2058p-20201103 OCMPLETE Admonited pament neckined from CSSM		UDI_PID:IR8140H-P-K9; UDI_SN FD02420J84L	30-Sep-2020 11:02	COMPLETE DLC request sent to CSSM
UD_PD_IR163548, UD_SNEH48216F00Z 38-Sep-202011.03 COMPLETE Advowledgement received from CSBM				
	~	UDI_PID:IR1835-K9; UDI_SN:FHH2416P00Z	30-Sep-2020 11:03	COMPLETE:Acknowledgement received from CSSM
				ltems per page: 5 ▼ 1-2 of 2 < < >

Step 3 There are two options to load your file. **Drag and Drop**, or **Browse** to where you saved your file. This example shows Browse.

Step 15

Figure 26: Browse to File

Cisco Smart License Utility		- a
a 🕑 📜 🖛 Downloads	- 0 ×	
File Home Share View	^ ()	
	n chrick boxes name extensions Holde selected Items Shownbide	
→ ↑ ↑ > This PC > Downloads	ν δ Search Downloads ρ	
OneDrive Name		
Pictures Auth_Request_Auth_Codes_SLExise		
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Searches		
Videos		Filter By Alerta
🤙 This PC		
SD Objects		
a Desktop		 COMPLETE Usage report from product instance
R Documents		
Downloads		X
Music		COMPLETE Usage report from product instance
E Pictures		
Videos SDisk (C:)		
	rop a File	
tem	your computer.	COMPLETE:Usage report from product instance
PID: RCTUT-KV	Jour computer.	
172.27.167.71		
SN FOC23032UVB		COMPLETE:Usage report from product instance
PID: ESR-6300-CON-K9		
PLD EDROSOPONYNS		
172.27.167.68		
SN F0C23232KC7	26-Aug-2020 19:01	 COMPLETE.Usage report from product instance
PID: ESR-6300-CON-K9		
		Berns per page: 5 1−5 of 5 (ζ ζ > >)

Step 4 Select your authorization code file, and then click **Open**. The system uploads the authorization code file, then a successful upload message appears.

Figure 27: Successful Upload

hod	at Instances			
400	Single Product Actions for Selected			
	Kene	Last Contact	Aberts	
	Film Reword # 3N or PD	Film By Last Context	Enter Doriverts	
۵	LOLING FRI GHF VE LOLING TO HUMA.	inc. wearing	© COMPLETE DUC request sent to CSSM	
0	LOL FORMISHR, LOCINITI-CHIPPIC	Upload From Cisco	CONFLETE Usage report from product instance	
0	LO FORMANE COLUMPOONTHIN	AuthRequest_AuthCodes_multiple_devices.cov uploaded successfully	COMPLETE Usage report uptraded to CODM	
	UDI PERSISANS CONVERTED ENVIRONMENTAL	Drag & Drop a File or Browse from your computer.	COMPLETE Usage report acknowledgement to product instance	

License Installation Process in the Router

Perform the following from the command line interface.

IR1800 Example

Perform the following from the command line interface.

```
Router#show license summary
License Reservation is ENABLED
```

```
License Usage:
                    Entitlement tag
                                              Count Status
 License
 _____
 network-essentials_250M (IR1800_P_250M_E) 1 IN USE
                   (IR1800 HSEC)
                                                  1 IN USE
 hseck9
Router#show license usage
License Authorization:
 Status: Not Applicable
network-essentials 250M (IR1800 P 250M E):
 Description: network-essentials 250M
 Count: 1
 Version: 1.0
 Status: IN USE
 Export status: NOT RESTRICTED
 Feature Name: network-essentials 250M
 Feature Description: network-essentials 250M
 Enforcement type: NOT ENFORCED
hseck9 (IR1800 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
Router (config) #platform hardware throughput level 2G
% Please write mem and reload
% The config will take effect on next reboot
Router (config) #end
Router#
*Sep 30 18:05:55.654: %SYS-5-CONFIG I: Configured from console by cisco on console
Router#show license summary
License Reservation is ENABLED
License Usage:
                                              Count Status
 License
                    Entitlement tag
 _____
 network-essentials_250M (IR1800_P_250M_E)
                                              1 IN USE
 hseck9
                     (IR1800 HSEC)
                                                   1 IN USE
 network-essentials 2G (IR1800 P 2G E)
                                                   1 IN USE
```

ESR6300 Example

Perform the following from the command line interface.

```
Router#show license summary
```

```
License Reservation is ENABLED
License Usage:
  License Entitlement tag Count Status
  network-advantage_250M (ESR6300_P_250M_E) 1 IN USE
  hseck9 (ESR6300_HSEC) 1 IN USE
```

```
Router#show license usage
```

```
License Authorization:

Status: Not Applicable

network-advantage_250M (ESR6300_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
hseck9 (ESR6300 HSEC License):
  Description: hseck9
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: RESTRICTED - ALLOWED
  Feature Name: hseck9
  Feature Description: hseck9
  Enforcement type: EXPORT RESTRICTED
Router (config) #platform hardware throughput level 2G
% Please write mem and reload
% The config will take effect on next reboot
Router (config) #end
Router#
*Sep 30 18:05:55.654: %SYS-5-CONFIG I: Configured from console by cisco on console
Router#show license summary
License Reservation is ENABLED License Usage:
  License Entitlement tag Count Status
network-advantage_250M (ESR6300_P_250M_A) 1 IN USE
  hseck9 (ESR6300_HSEC_License) 1
network-advantage_2G (ESR6300_P_2G_A) 1
                                                             IN USE
                                                             IN USE
```

HSEC Installation

This example uses the IR8300 series router.

Perform the following from the command line interface.

```
Router#license smart authorization request add hseck9 local
Router#
Sep 23 05:29:37.894: %SMART LIC-6-AUTHORIZATION INSTALL SUCCESS: A new licensing authorization
code was successfully installed on PID:IR8340-K9, SN:FD02523J6N1
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #license feature hseck9
Router (config) #end
Router#show running-config | i license
license feature hseck9
license udi pid IR8340-K9 sn FD02523J6N1
license boot level network-advantage
license smart url https://smartreceiver-stage.cisco.com/licservice/license
license smart url smart https://smartreceiver-stage.cisco.com/licservice/license
license smart transport smart
Router#
Router#show license summary
Account Information:
 Smart Account: SA-IOT-Polaris As of Sep 23 05:29:41 2021 UTC
 Virtual Account: Router
License Usage:
 License
                       Entitlement Tag
                                                   Count Status
  _____
 network-advantage_T1 (IR8300 NA T1 PERF)
                                                      1 IN USE
 hseck9
                      (IR8300 HSEC)
                                                      1 IN USE
Router#
Router#show license usage
License Authorization:
```

Status: Not Applicable

```
.
.
.
hseck9 (IR8300_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: Export
```

Change to Smart Licensing Packaging

This release brings the IoT routing products inline with other Integrated Service Routers (ISR).

Smart Licensing Overview

Cisco Smart Licensing is a flexible licensing model that provides users with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across their organization. And it's secure. With Smart Licensing users get:

- Easy Activation: Smart Licensing establishes a pool of software licenses that can be used across the entire organization—no more Product Activation Keys (PAKs).
- Unified Management: My Cisco Entitlements (MCE) provides a complete view into all of your Cisco
 products and services in an easy-to-use portal, so you always know what you have and what you are
 using.
- License Flexibility: Your software is not node-locked to your hardware, so you can easily use and transfer licenses as needed.

Smart Licensing Using Policy (SLP), was previously referred to as Smart Licensing Enhanced (SLE), and is the default mode starting with Cisco IOS-XE release 17.3.2. SLE replaced Smart Software Licensing. This feature change for Cisco IOS XE release 17.11.1a focuses on the licensing packaging.

License Levels

The following are the license levels available for all Cisco IR devices.

Base Licenses

- · Network Essentials
- Network Advantage (includes Network Essentials)



Note These licenses are ordered through Cisco Commerce Workspace (CCW), and are permanent.

Add-on Licenses — These can be subscribed for a fixed term of three, five, or seven years.

Digital Networking Architecture (DNA) Essentials

• DNA Advantage (includes DNA Essentials)



Note These licenses are ordered through Cisco Commerce Workspace (CCW), and relate to DNA-C and SDWAN. For further information, see the Cisco SD-WAN and Cisco DNA Center web pages.

The following tables provide details on the licensing levels:

Table 1: Network Essentials (Perpetual License)

Essential Switch Capabilities	Layer 2, Routed Access(RIP, EIGRP Stub, OSPF (1000 routes)), PBR, PIM Stub Multicast (1000 routes) PVLAN, VRRP, PBR, CDP, QoS, FHS, 802.1x, Macsec-128, CoPP, SXP, IP SLA Responder SSO			
	Note For the device to be compliant with the DNA Essential License it must not exceed 1000 routes in the routing table regardless of how the routes were learned.			
DevOps Integration	Netconf, Restconf, gRPC			
	Yang Data Models			
	GuestShell (On-Box Python)			
	• PnP Agent, ZTP			

Table 2: Network Advantage (Perpetual License) Contains all of the Network Essentials plus the following:

IoT & Mobility	CoAP
Full Routing Functionality	BGP, HSRP, OSPF, ISIS,GLBP
Flexible Network Segmentation	VRF, VXLAN, LISP, SGT, MPLS
High Availability & Resiliency	NSF, GIR, Stackwise Virtual*, ISSU/eFSU, Patching (CLI)
Optimize Bandwidth Utilization with Multicast	MSDP, mVPN, AutoRP, PIM-BIDIR

Table 3: DNA Essentials (3,5,7 year terms)

Basic Automation	PnP Application
	LAN Automation
	• Embedded Event Manager
Basic Assurance	Health Dashboards – Network and Client
	Basic Device & Wired Client Health Monitoring

Advanced Automation	Encrypted Traffic Analytics
	DNA Service for Bonjour
Assurance & Analytics	Compliance, Custom Reports
	Switch 360 & Wired Client 360

Table 4: DNA Advantage (3,5,7 year terms) Contains all of the DNA Essentials plus the following:

Licensing Throughput Levels

In addition to configuring the license level, it is also possible to configure the throughput level on the device. The throughput level determines the bandwidth limit which is applied to encrypted traffic. There is no limit applied to the non-encrypted (clear) traffic going through a device.

Important

tant To comply with global export regulations, if more than 250Mbs of encrypted traffic is required, then an "uncapped" – platform dependent – selection must be done on CCW, as well as an HSEC license.

This limit is imposed bidirectionally. This means that if the throughput limit is set to 250Mbps then up to 250Mbps of encrypted traffic can flow through the device in either direction. For example, the device can both receive and transmit up to 250Mbps of encrypted traffic. There is no limit applied on unencrypted traffic.

When the throughput level on the device is set to 'uncapped' there are no limits imposed on both encrypted and unencrypted traffic flowing through it.



Note

To avoid confusion on throughput limits and IOS XE software releases, please note the following:

Cisco IOS XE release 17.11.1a and earlier running on the ESR6300, IR1800, and IR8140 platforms support boost, uncapped, and unlimited licenses. These are configured using the **platform hardware throughput level 2G** CLI.

Future Cisco IOS XE release 17.12.1 and later running on the ESR6300, IR1800, and IR8140 support the same licenses, but will be configured using the **platform hardware throughput level uncapped** CLI.

With future Cisco IOS XE release 17.12.1 and later, the **platform hardware throughput level 2G** and the **platform hardware throughput level uncapped** CLIs will both provide the same throughput as the uncapped license.

The following table shows the throughput limits (also referred to as Tier license) supported on IoT devices as of Cisco IOS XE 17.11.1a release.

Platform	25 Mbps bidirectional (Tier 0)	50 Mbps bidirectional		250 Mbps bidirectional	2 Gbps	Uncapped (Tier 2)
ESR 6300	N/A	Yes	N/A	Yes	Yes	To be supported starting with 17.12.1

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Platform	25 Mbps bidirectional (Tier 0)	50 Mbps bidirectional	Up to 200 Mbps bidirectional (Tier 1)	250 Mbps bidirectional	2 Gbps	Uncapped (Tier 2)
ESR-6300-LIC-K9	N/A	Yes	N/A	N/A	N/A	Yes
IR1101	N/A	N/A	N/A	Yes	N/A	Supported starting with 17.10.1.
IR1800	N/A	Yes	N/A	Yes	Yes	To be supported starting with 17.12.1
IR8100	N/A	Yes	Yes	Yes	Yes	To be supported starting with 17.12.1
IR8300	Yes	N/A	Yes	N/A	N/A	Yes

Command Line Interface

The following commands are available:

license boot level <network-essentials/network-advantage>

The throughput level can be configured using the following CLI on all IR devices except IR8300:

platform hardware throughput level <limit>

On the IR8300, the throughput level can be configured using the following CLI:

platform hardware throughput crypto <limit>

To see the throughput configured on the device, use the following CLI:

show version | include throughput
The current crypto throughput level is: 50000 kbps

Uncapped License Implementation

The Cisco IOS XE 17.11.1 release introduced a new throughput level called "uncapped". This release extends the new throughput level to all of the Cisco IoT routing platforms. The following is a recap of the uncapped license implementation:

Licensing Throughput Levels

The throughput level determines the bandwidth limit which is applied to encrypted traffic. There is no limit applied to the non-encrypted (clear) traffic going through a device.

Important To comply with global export regulations, if more than 250Mbs of encrypted traffic is required, then an "uncapped" – platform dependent – selection must be done on CCW, as well as an HSEC license.
 This limit is imposed bidirectionally. This means that if the throughput limit is set to 250Mbps then up to 250Mbps of encrypted traffic can flow through the device in either direction. For example, the device can both receive and transmit up to 250Mbps of encrypted traffic. There is no limit applied on unencrypted traffic. When the throughput level on the device is set to "uncapped" there are no limits imposed on both encrypted and unencrypted traffic flowing through it.
 Note To avoid confusion on throughput limits and IOS XE software releases, please note the following:
 Cisco IOS XE release 17.11.1a and earlier running on the ESR6300, IR1800, and IR8140 platforms support boost, uncapped, and unlimited licenses. These are configured using the platform hardware throughput level 2G CLI.

Future Cisco IOS XE release 17.12.1a and later running on the ESR6300, IR1800, and IR8140 support the same licenses, but will be configured using the **platform hardware throughput level uncapped** CLI.

With Cisco IOS XE release 17.12.1a and later, the **platform hardware throughput level 2G** and the **platform hardware throughput level uncapped** CLIs will both provide the same throughput as the uncapped license.

The following table shows the throughput limits (also referred to as Tier license) supported on IoT devices.

Platform	25 Mbps bidirectional (Tier 0)	50 Mbps bidirectional	Up to 200 Mbps bidirectional (Tier 1)	250 Mbps bidirectional	2 Gbps	Uncapped (Tier 2)
ESR 6300	N/A	Yes	N/A	Yes	Yes	Supported starting with 17.12.1a
ESR-6300-LIC-K9	N/A	Yes	N/A	N/A	N/A	Yes
IR1101	N/A	N/A	N/A	Yes	N/A	Supported starting with 17.10.1.
IR1800	N/A	Yes	N/A	Yes	Yes	Supported starting with 17.12.1a
IR8100	N/A	Yes	Yes	Yes	Yes	Supported starting with 17.12.1a
IR8300	Yes	N/A	Yes	N/A	N/A	No