

Revised: September 25, 2024

Smart Licensing Using Policy on the Cisco Catalyst IR1101, IR1800, IR8140, and IR8340 Routers

Smart Licensing Using Policy Overview

Smart Licensing Using Policy (SLP) is a flexible licensing model that simplifies and streamlines the process of purchasing and managing software. It provides users with a faster, easier, and more consistent experience across the entire Cisco portfolio.

SLP users benefit from:

- Easy Activation: A centralized pool of software licenses for the entire organization, eliminating the need for Product Activation Keys (PAKs).
- Unified Management: Access to My Cisco Entitlements (MCE), offering a comprehensive view of all Cisco products and services through an intuitive portal, ensuring you always know what you have and are using.
- License Flexibility: Software licenses are not tied to specific hardware, allowing for seamless use and transfer as needed.

This guide supports all IIoT Routers and replaces individual chapters in each software configuration guide.

SLP as Default Licensing Model

SLP became the default licensing model for IIOT Routers starting with IOS-XE release 17.3.2. It was formerly known as Smart Licensing Enhanced (SLE), which had replaced Smart Software Licensing model.

Features Supported on IIOT Routers

Table 1: Features Supported on IIOT Routers

Feature	IR1101	IR1800	IR8100	IR8300	ESR6300
Supported in IOS-XE release 17.4.1	NA	Yes	NA	NA	NA
Supported in IOS-XE release 17.3.2	Yes	Yes	Yes	Yes	Yes
Authorization code required for export control compliance	Yes	Yes	Yes	Yes	Yes
HSEC license required for throughput exceeding 250 Mbps	Yes	Yes	Yes	Yes	Yes
No EVAL license. Authorized status changed to In Use or Not In Use with an Enforcement Type class.	Yes	Yes	Yes	Yes	Yes
CSLU serves as a new interface between devices and CSSM in certain customer environments	Yes	Yes	Yes	Yes	Yes

Feature	IR1101	IR1800	IR8100	IR8300	ESR6300
Throughput is defaulted and capped at 250MB	NA	Yes	NA	NA	NA

License Levels

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

- Base Licenses
- Add-on Licenses

Base Licenses

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

They include:

- Network Essentials
- Network Advantage (includes Network Essentials)

Table 2: Network Essentials

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, and IP SLA Responder SSO
	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 3: Network Advantage

IoT and mobility	CoAP
Full routing functionality	BGP, HSRP, OSPF, ISIS,GLBP
Flexible network segmentation	VRF, VXLAN, LISP, SGT, MPLS
High availability and resiliency	NSF, GIR, Stackwise Virtual*, ISSU/eFSU, Patching (CLI)
Optimize bandwidth utilization with multicast	MSDP, mVPN, AutoRP, PIM-BIDIR

Add-on Licenses

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

They are:

- Digital Networking Architecture (DNA) Essentials
- DNA Advantage (includes DNA Essentials)

Table 4: DNA Essentials

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

Table 5: DNA Advantage

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

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.

Licensing Throughput Levels

The throughput level on the device sets the bandwidth limit for encrypted traffic. There is no limit imposed on non-encrypted (clear) traffic passing through the device.

Compliance with Global Export Regulations

To comply with global export regulations, if more than 250 Mbps of encrypted traffic is needed, you must select an "uncapped" option—dependent on the platform—on CCW, and obtain an HSEC license.

This limit is imposed bidirectionally. For instance, if the throughput limit is set to 250 Mbps, the device can handle up to 250 Mbps of encrypted traffic in either direction—both for receiving and transmitting. There is no limit on unencrypted traffic.

When the throughput level on the device is set to 'uncapped,' there are no limits on either encrypted or unencrypted traffic passing through it.

Note

To avoid confusion regarding throughput limits on IOS XE software releases, see these points:

- Cisco IOS XE release 17.11.1a and earlier on the ESR6300, IR1800, and IR8140 platforms support boost, uncapped, and unlimited licenses, configured using the **platform hardware throughput level 2G** CLI.
- Cisco IOS XE release 17.12.1 and later on the ESR6300, IR1800, and IR8140 platforms support the same licenses but are configured using the **platform hardware throughput level uncapped** CLI.
- For Cisco IOS XE release 17.12.1 and later, both the **platform hardware throughput level 2G** and the **platform hardware throughput level uncapped** CLIs will deliver the same throughput as the uncapped license.

Throughput Limits on IIoT Routers

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

Table 6: Throughput Limits

Platform	25 Mbps bidirectional (Tier 0)	50 Mbps bidirectional	Up to 200 Mbps bidirectional (Tier 1)	250 Mbps bidirectional	2 Gbps	Uncapped (Tier 2)
IR1101	NA	NA	NA	Yes	NA	Support started from 17.10.1
IR1800	NA	Yes	NA	Yes	Yes	Support started from 17.12.1
IR8100	NA	Yes	Yes	Yes	Yes	Support started from 17.12.1
IR8300	Yes	NA	Yes	NA	NA	Yes
ESR 6300	NA	Yes	NA	Yes	Yes	Support started from 17.12.1
ESR-6300-LIC-K9	NA	Yes	NA	NA	NA	Yes

Commands to Configure Throughput Level

Set License Level

Use the license boot level {network-essentials | network-advantage} command to set the desired license level for the device.

Device# license boot level network-advantage

Configure Throughput Level

Use the **platform hardware throughput level** *limit* command to configure the throughput level for all the devices, except IR8300.

Device# platform hardware throughput level 25

Configure Throughput Level on IR8300

Use the platform hardware throughput crypto limit command to configure the throughput level for IR8300.

Device# platform hardware throughput crypto 25

Verify Throughput Level

Use the show version | include throughput command to see the throughput configured on the device.

Device# show version | include throughput

License Enforcement Types

Each license falls under one of three enforcement types, indicating whether authorization is required prior to use.

- Unenforced or Not Enforced
- Enforced
- Export-Controlled

Unenforced or Not Enforced

The majority of licenses fall under this category. Unenforced licenses do not require authorization for use in air-gapped networks or registration in connected networks. Their usage is governed by the terms outlined in the End User License Agreement (EULA).

Enforced

Licenses under this enforcement type require authorization before use. This authorization comes in the form of an authorization code, which must be installed on the corresponding product instance.

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

Export-Controlled

Licenses in this enforcement type are restricted by U.S. trade-control laws and require authorization before use. An authorization code must be installed on the corresponding product instance. Cisco may pre-install export-controlled licenses when purchased with hardware.

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

High Security License

The High Security (HSEC) License is an additional feature license that can be configured alongside the network license. It provides export controls for strong encryption levels. HSEC is available to customers in all non-embargoed countries as listed by the U.S. Department of Commerce. The HSEC license removes the default limit of 250 Mbps of IPsec throughput in each direction, allowing for higher performance.

As part of HSEC license, a new bandwidth option called "uncapped" is available. With this new feature, the IR1101 will support the following bandwidth and license types:

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

See the Configure Uncapped Throughput Level from CLI procedure on how to configure uncapped throughput level on IR1101.

Ordering

An example of ordering license for the IR1101-K9 is shown here:

1. Select Network Essentials Uncapped License.



The L-1101-HSEC-K9 license is included automatically when you select the uncapped license, as shown below.

2. Click Done.

OPTION SELECTION IR1101-K9					Global Price L	ist in US Dollars (USD)
Configuration Summary	View Fi	ull Summary	 Warnings (8): A Selection from Shipment Package is required. Please adjust your select 	ion. (CE202343)		•
Category	Qty Ex	tended List Price (USD)	A selection of IR1100-P-BLANK is required when no Base Module is selected	cted. Please adjust the sel	ections. (CE200440)	
SOFTWARE LICENSE Software Licenses		Ŷ	Option Search I Multiple Options Search I			~
HSEC License			IR1101-K9 > HSEC License			Key 🗸
MODULES Base Module		^	Expand All Collapse All HSEC License			
Expansion Module Placement			SKU	Qty	Estimated Lead Time 🚯	Unit List Price (USD)
ACCESSORIES Antennas		^	L-1101-HSEC-K9 ETT EX U.S. Export Restriction Compliance license for IR1101 More	Qty	21 days	-
Subtotal		1,182.89				
Estimated Lead Time		206 days				
Reset Configuration	Cancel	Done				

Cisco Software Central

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

Smart Licensing Using Policy Architecture

This section outlines the different components that may be included in your SLP implementation.

Product Instance

A product instance refers to a single unit of a Cisco product, identified by a Unique Device Identifier (UDI). It tracks and reports license usage through RUM reports, and provides alerts and system messages for overdue reports, communication failures, and other issues. Additionally, the RUM reports and usage data are securely stored within the product instance.

RUM Report

A Resource Utilization Measurement (RUM) report is a license usage report that meets the reporting requirements outlined by the policy. Generated by the product instance and processed by CSSM, RUM reports document license usage and any changes in an open report. At predetermined intervals, the system closes open RUM reports and creates new ones to continue recording license usage. Once closed, a RUM report is prepared for submission to CSSM.

RUM Acknowledgement

A RUM acknowledgement (RUM ACK or ACK) is a response from CSSM indicating the status of a RUM report. When an ACK for a report is received by the product instance, it means the corresponding RUM report is no longer required and can be deleted.

CSSM shows license usage information based on the most recent RUM report received.

Cisco Smart Software Manager

CSSM is a portal that allows you to manage all your Cisco software licenses from a central location. It helps you handle current needs, review usage trends, and plan for future licensing 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 or view licenses between virtual accounts
- transfer, remove, or view product instances
- run reports on your virtual accounts
- · modify your email notification settings, and
- view overall account information.

Before using CSSM, watch a brief video on New User Introduction to Cisco Smart Software Manager.

Cisco Smart Licensing Utility

CSLU is a Windows-based reporting tool that offers aggregate licensing workflows. It allows you to manage all your licenses and their associated product instances directly from your premises, eliminating the need to connect to CSSM.

This utility performs the following key functions:

- Provides options for triggering workflows, either by CSLU or by the product instance.
- Collects usage reports from the product instance and uploads them to the corresponding smart account or virtual account, either online or offline using files. It also collects RUM report ACKs and returns them to the product instance.
- Sends authorization code requests to CSSM and receives authorization codes from CSSM.

CSLU in SLE Topology

CSLU can be part of your SLE 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 without connecting to CSSM. In this case, usage information is downloaded to a file and then uploaded to CSSM, which is suitable for air-gapped networks.
- Embed it in a controller such as Cisco Catalyst Center.

Customer Topologies

IoT Routing platforms use two different topologies. They are

- Full Offline Access
- CSLU has No Access To CSSM

Full Offline Access

The following image illustrates the Full Offline Access topology, where devices do not have connectivity to (Cisco Smart Software Manager – software.cisco.com). The user must manually copy and paste information between Cisco products and CSSM to check in and out licenses.



CSLU has No Access To CSSM

The following image illustrates the CSLU having No Access to CSSM topology, where devices are connected to the CSLU controller. However, there is no connectivity between CSLU and CSSM (Cisco Smart Software Manager – software.cisco.com). Cisco devices will send usage information to the locally installed CSLU. The user must manually copy and paste information between CSLU and CSSM to 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

Register a Product Instance in CSSM

Step 1	Generate a license usage file from the Router.
	Router# license smart save usage all file flash:sle
Step 2	Export the license usage file (sle) to your host laptop/PC.
Step 3	Import the license usage file to CSSM on Cloud.
-	a) Click on the Usage Data Files tab.
	The Upload Usage Data window appears.
	b) Click Browse , and navigate to where the file is.
	c) Click on Upload Data.
	d) Select the Virtual Account using the drop-down list.

e) Click Ok.

- Step 4 Observe the Smart Software Licensing window. Initially, the Reporting Status state will be Pending. Wait until the window reflects No Errors before continuing.
- **Step 5** Click **Download** to download the ACK file.
- **Step 6** Check under the **Product Instances** tab to verify your device is listed.

What's next

Import the ACK file from CSSM to your device.

Import the ACK file from CSSM to your Device

Step 1 Copy the ACK file from CSSM to your host laptop or usbflash device.

```
Router# license smart import bootflash: ACK_sle
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 that the Product Instance has imported the data.

Example from an IR1800.

```
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
```

Example from an ESR6300.

```
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 that the license is in use.

Example from an IR1800.

Router# show license summary License Usage: License Entitlement tag Count Status 1 IN USE network-advantage 250M (IR1800 P 250M A) 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 Example from an ESR6300. 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
```

Remove the Device from CSSM

Step 1 Navigate to the **Product Instances** tab and locate your device.

erts Inventory Convert to Smart Licensing Repo	rts Preferences On-Prem Ar	ccounts Activity		
rtual Account: DEFAULT -			1 Major 3 Minor 2 Ir	nformational Hide Al
General Licenses Product Instances	Event Log			
Authorize License-Enforced Features		Sean	th by Name, Product Type	୍
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	rved Licenses)	Actions -
UDI_PID:IR8140H-P-K9; UDI_SN:FDO241519G8;	CGR1000	2020-Aug-12 17:14:56 (Res	erved Licenses) Transfe	r
UDI_PID:IR8140H-P-K9; UDI_SN:FDO2420J4ZK;	CGR1000	2020-Sep-24 21:01:56 (Res	erved Licenses) Update	Reserved Licenses
UDI_PID:IR8140H-P-K9; UDI_SN:FDO2420J64L;	CGR1000	2020-Sep-26 00:39:13	Remove	e
UDI PID:IR8140H-P-K9; UDI SN:FDO2420J77G;	CGR1000	2020-Sep-08 22:10:30		Actions -

Step 2Click on Actions link beside your device, and from the list of options click Remove.The Confirm Remove Product Instance window appears.

4	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>

Step 3 Click Remove Product Instance.

License Installation When CSLU has No Access to CSSM

This procedure performs an online exchange of required information between the Router and CSLU. An image showing the flow of information is given below.



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

Install License When Devices are Connected to the CSLU

Before you begin

Get the license UDI using the Generate a License UDI from CLI procedure.

Step 1 Open the Cisco Smart License Utility.

Step 2 Navigate to the Product Instances tab, then click on the UDI.



Step 3 The Edit Single Product Instance window appears. Enter details and click Save.

riodoctinis	sances	Edit Single Product Instance		
Add Single	Product Actions for Selected Petresh Produ	Edit oligie Froduct Instance		
E Nor	ne Berkenster Inn in FEC	Details	General Host Identifier	
0 w	PERMITER PARTICIPATION	17227 100.71	MAC Address	DLC required cont to CEEM
D 10	Promission op (anniholaiseat	Persont	SUM	Usage report from product instance
	PERMISSING UD SHEEWANTERIN	Convertingerse CSLUI Indiated - REST API	+0 ESR-6300-CON-K9	Usage report uptraited to CSSM
2 10	PERMISSION CONTRACTOR STOCENESS		FOC23032164	Usage report up/caded to CSDM
			<u>V0</u>	dumo per page - 5
			uup	-

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

	Device	Last Contacted		Alerts		
	Filter By HostilP, SN or PID	Filter Rv I act Contacted		Filter Ry Alerts	_	
2	172.27 167.69 SN: FCW2150TH0F PID: IR1101-K9	Edit Multiple Devices			eport from product instance	
2	172.27.167.58 SN: FCW24160HHE PID: IR1101-K9	Details Host 172.27.167.71	Unique Device Identifier (UDI) Host Identifier		opert from product instance	
2	172.27.167.56 SN: FCW24150JBK PID: IR1101-K9	User Name admin Passeord	MAC Address		eport from product instance	
2	172.27.167.71 SN: FOC23032UVB PID: ESR-6300-CON-K9	Connect Method CSLU Infliated - REST API	PID ESR-6300-CON-K9 Senar Number		sport from product instance	
2	172.27.167.70 SN: FOC23232KC7 PID: ESR-5300-CON-K9		FOC23032UVB VID		eport from product instance	
			auu			
		Save Cancel				

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

sco Smar	t License Utility			
Produc	tInstances Edit Help			
	Inventory	Preferences		
_				
Prod	uct Instances			
Add	Single Product	Actions for Selected Refresh Product Instance	ist	
	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-Qct-2020 11:37	COMPLETE Usage report from product instance
0	UDI_PID1R8140H-P-K	Authorization Code Request	12-0th20201625	COMPLETE DLC request sent to CSSM
	UDI_PID1R1835-K9; UI	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.

Authorization Request Information

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

- 1. 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.





DODCTINE////E010068D-5210-4C02-83T0-212490801789							
J⊖ J ↓ at			-	7	earch SLE	۶	
Drganize 👻 New folder					10	- 0	
Favorites AName	Date modified	Type	Size				
Desktop AuthRequest Downloads Recent Places	9/17/2020 1:27 AM	CSV File		1 KB			
Libraries Documents Music Drunes							Abrits
Videos							Filter By Alerts
Local Disk (C) KINGSTON (E)							COMPLETE DLC request sent to CSSM
File name: AuthRequest_Aventus				_			 COMPLETE Acknowledgement received from CSSM
mender (minered)				_	Sea	Consul	items per page: 5 💌 1−2 of 2 < <

What's next

Upload the Authorization Request file to the Cisco Smart Software Manager.

Generate a License UDI from CLI

Step 1 Use the **show license summary** command to get an overview of the licensing status on the router. 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 hseck9 (IR1800 HSEC) 1 IN USE Step 2 Use the **configure terminal** command to enter global configuration mode. Router# configure terminal Use the **platform hardware throughput level 2G** command to configure the total throughput capacity of a router. Step 3 Router(config) # platform hardware throughput level 2G Step 4 Use the end command to exit configuration mode and return to privileged EXEC mode. Router(config) # end Step 5 Use the show license udi command to view the Unique Device Identifier (UDI) of the router, which includes the Product ID (PID) and Serial Number (SN). Router# show license udi UDI: PID:IR1835-K9, SN:FHH2416P00Z

Install License in IR1800 from CLI

Step 1 Use the **show license summary** command to get an overview of the licensing status on the router.

Step 2 Use the **show license usage** command to get detailed information about the status and usage of each license feature on the router.

```
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
```

Step 3 Use the **configure terminal** command to enter global configuration mode.

Router# configure terminal

Step 4 Use the **platform hardware throughput level 2G** command to configure the total throughput capacity of a router.

Router(config) # platform hardware throughput level 2G

Step 5 Use the **end** command to exit configuration mode and return to privileged EXEC mode.

Router(config) # end

Step 6 Use the **show license summary** command to verify the licensing status on the router

Router# show license summary

License Reservation is ENABLED License Usage: License Entitlement tag Count Status

```
      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
```

Install License in ESR6300 from CLI

Step 1 Use the **show license summary** command to get an overview of the licensing status on the router.

```
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
```

Step 2 Use the **show license usage** command to get detailed information about the status and usage of each license feature on the router.

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
```

Step 3 Use the **configure terminal** command to enter global configuration mode.

```
Router# configure terminal
```

- **Step 4** Use the **platform hardware throughput level 2G** command to configure the total throughput capacity of a router. Router(config) # platform hardware throughput level 2G
- Step 5Use the end command to exit configuration mode and return to privileged EXEC mode.Router(config)# end
- **Step 6** Use the **show license summary** command to verify the licensing status on the router

ary		
ABLED License Usage:		
Entitlement tag	Count	Status
(ESR6300_P_250M_A)	1	IN USE
(ESR6300 HSEC License)	1	IN USE
(ESR6300_P_2G_A)	1	IN USE
	ARY ABLED License Usage: Entitlement tag (ESR6300_P_250M_A) (ESR6300_HSEC_License) (ESR6300_P_2G_A)	ABLED License Usage: Entitlement tag Count (ESR6300_P_250M_A) 1 (ESR6300_HSEC_License) 1 (ESR6300_P_2G_A) 1

Export the Authorization Request File to CSSM

Step 1 Launch CSSM.

 \leftarrow

- Step 2 Click on the Inventory tab, select your Virtual Account.
- Step 3 Click on the Product Instances tab.
- Step 4 Click on Authorize License-Enforced Features.

Cisco	Software Central		cisco						
	Cisco Software Central > Smart Software Licensing				💼 SA-IOT-Pelaris 👻				
	Smart Software Licensing				Feedback Support Help				
	Alerts Inventory Convert to Smart Licensing Reports	Preferences On-Prem A	counts Activity						
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	General Licent 2 Product Instances	Event Log							
	Authorize License-Enforced Features		Search	h by Name, Product Type	٩				
	Authorize License-Enforced Features	Product Type	Search Last Contact	h by Name, Product Type Alerts	Q, Actions				
	Authorize License-Enforced Features.	Product Type 5900	Last Contact 2020-Aug-26 00:37:52	h by Name, Product Type Alerts	Q. Actions Actions ~				
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The Authorize License-Enforced Features window appears.



Choose **Multiple** or **Single** devices from the drop-down. Step 5

			also de			~ ~	(Thurs
Cisco Softw	Authorize License-Enfo	rced Features			×	C (M)	⊕ US EN
	STEP	STEP 2	STEP 3	STEP 4			
	Enter Request Code	Select Licenses	Review and confirm	Authorization Code			
	Cincuses Devices Som advances or expendances Generatory an autorization code in Multiple Device United Text College Fails Not the College Fails Not the College Fails Not the College Fails	illed features must be licensed in Learn Mare es only required for devices that the orders to be licensed.	advance, before they can be enabled do not connect to the Smart Software I	5 on the device. After the Ticenses are i	eserved, en authorization code is uphoaded to unring Manager, to report the features (bay neet)		٩
		na na 184			Cancel Next		

Step 6 Click on Choose File when the window displays an option to select a device file.

A popup window appears, allowing you to navigate to the location where you saved your Authorization Request file on your laptop.

Step 7 Select your file, and then click **Open**.

The authorization file loads, and the window changes to present your devices.

Cisco Sonware Central					
	Authorize License-Enfo	prced Features			×
	STEP 1	STEP 2	STEP 3	STEP 4	
	Enter Request Code	Select Licenses	Review and confirm	Authorization Code	
	Multiple Devices Upload a file that contains the set Device File Choose File AuthR Download a template	of devices to be licensed. lequest_Aventus.csv	•	miningsi uncogo e integri ne orice a	
	Device		Sta	dus	
	Device			ielect Status	~
	SN: FHH2416F00Z		Z	Success	

Step 8 Click Next to open Select Licenses tab.

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CISCO SOTIWA	Authorize License-Enfor	rced Features					×	CT EM	₩.
	STEP 1 V	STEP 2	STEP 3		STEP 4				
	Enter Request Code	Select Licenses	Review and confirm		Authorization	n Code			
	Select the Licenses to Enabled	I the Features							
	Select the set of licenses that will	I enable the desired features. The licenses	will be reserved on the device	ices			Davies Oxforded 2		
	License		Pun	rchased	Available	Quantity per Device	Total Quantity		
	ESR6300_HSEC_License	tioners exceeding 2508/bes enabled with encryption	32		30	1	2		
	IR 1800 HSEC		10		10	0	0		
							Cancel Back Next		
							Cancel Back Next		

Step 9 Enter a number under **Quantity per Device**.

CISCO SOTTWE Aut	step 1	ced Features						×	CZ (EM)	· · · · ·
	STEP 1									
	Enter Request Code	STEP 2 Select Licenses	STEP 3 Review and confirm		STEP 4	n Code				
	Select the Licenses to Enabled	the Features	men will be received on the	desices						
	Construction and of Incenses that mill			Cerices.			Device Selected: 2			
	License			Purchased	Available	Quantity per Device	Total Quantity			
	ESR6300_HSEC_License HSEC Scense required for authroized outh	mers exceeding 2501/bps enabled with encryp	tion	32	30	1	2			
	IR1800 HSEC			10	10	0	0			
							Cancel Back No.			
							Showing All 7 Record	ds		

If CSSM cannot identify your device from the identifying information, select it manually.



Step 10 Click **Continue**, the window changes to **Review and Confirm**.

_ 1	, alcala, a							
Cisco Software Central	Authorize License-Enfor	ced Features				×		
	STEP 1 🗸	STEP 2 ✓ Select Licenses	STEP 3 Review and confirm	STEP 4				
	Devices							
	Device			Device Type				
	Device			Select Device Type		•		
	SN: FHH2416P00Z PID: IR1835-K9			819 routing pids				
	Selected: 1							
	Licenses to Reserve							
	License		G	Juantity per Device	Total Quantity to Reserve			
	IR1800 HBEC HSEC literate required for authorited custoe	ers exceeding 2508bps enabled with encryption	1	1	1			
					Cancel Back Reserve Lice	ISES		

Step 11 Click on **Reserve Licenses**, and CSSM generates feature authorization codes.

Cisco Softw			de de			0		Aus
CISCO SOITW	Authorize License-Enfor	ced Features			×		Civy	EN EN
	STEP 1 ✓ Enter Request Code	STEP 2 ~ Select Licenses	STEP $3 \checkmark$ Review and confirm	STEP 4 Authorization Code				
	Feature Authorization Co Feature authorization codes have	odes Have Been Generated	f ind the licenses are reserved in your in	wentory.				
			Download Authorizat	ion Codes				ſ
	If you are using the Clicco Lic If you are configuring the devi To learn how to enter this cod	ensing Utility, upload the file to the u cas directly, open the file, copy the e, see the configuration guide for th	tillity, be enable the features on your de authorization code for a device, then e e product.	ncoss. Inter the code into the Smart Licensing settings of th	st device, to enable the features.			
					Close			
					Showing All 7 Records			

Step 12 Click Download Authorization Codes, and a window opens to navigate to where you wish to save the codes.

File Home Share	view						
Navigation	Extra large ico	ns 📰 L 🔛 S	arge icons 🔺 mall icons 👻	Sort	 ☐ Item check boxes ✓ File name extensio 	ns Hide selected	
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Upload the Authorization Request Code file to CSLU

Step 13

Cisco Smart License Ubility CSLU Product Instances Edit Help		{
Download All Product Instance List Ctrl+S Upload Product Instance List Ctrl+U		la
Send All To Cisco Ctrl+Enter		
- Download All For Cisco Chil - Shift + S Upload From Cisco Chil-Shift + U		
Product Instances		
Add Single Product Actions for Selected Refresh Product Instance List		
E Name	Last Contact	Alerts
Filter By Hostilf, SN or PID	Filter By Last Contact	Filter By Alerts
UDL_PIDIR8140H-P-K3;UDL_SNFD0242064L	30-Sep-2020 11:02	COMPLETE DLC request sent to CSSM
UDI PIDIR1835-KR UDI SNEHH2416P007	30-Sec-2020 11:03	 COMPLETE Acknowledgement received from CSSM

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

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P1L 01101-69	your computer.	
172.27.167.71		
SN FOC23032UVB		COMPLETE: Usage report from product instance
PID: ESR-6309-CON-K9		
172.27.167.68		
SN: FOC23232KC7	26-Aug-2020 19:01	 COMPLETE Usage report from product instance
PID: ESR-6300-CON-K9		

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

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Enable and Install High Security License

This section contains procedures required to enable and install High Security License from CLI.

Enable High Security License from CLI

To benefit from the HSEC license, a new bandwidth called **uncapped** is available. The new bandwidth is configured using the procedure given here.

Step 1 Use the **configure terminal** command to enter into configuration mode.

```
Device# configure terminal
```

- Step 2Use the platform hardware throughput level {250m | uncapped } command to enter into configuration mode.Device (config) # platform hardware throughput level uncapped
- Step 3 Use the exit command to go to the Privileged EXEC mode.
 Device(config)# exit
- **Step 4** Use the write memory command to save the current running configuration to the device's startup configuration. Device# write memory
- Step 5
 Use the reload command to restart the device to apply the configuration changes.

 Device# reload

Install HSEC License from CLI

The procedure given here uses an IR8300 series router.

Step 1	Use license smart authorization request add hseck9 local command to generate a local authorization request for HSEC license.
	Router# license smart authorization request add hseck9 local
Step 2	Use the configure terminal command to enter global configuration mode.
	Router# configure terminal
Step 3	Use the license feature hseck9 command to enable the HSEC license on the router. The HSEC license allows access to enhanced cryptographic features, such as high-throughput encryption and VPN services.
	Router(config)# license feature hseck9
Step 4	Use the end command to exit configuration mode and return to privileged EXEC mode.
	Router(config)# end
Step 5	Use the show running-config i license command to verify the licensing configuration on the router.
	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
Step 6	Use the show license summary command to get an overview of the licensing status on the 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:	Datitlement Des	Gaugh	
	Entitlement Tag		
network-advantage_T1 hseck9	(IR8300_NA_T1_PERF) (IR8300_HSEC)	1 1	IN USE IN USE

Step 7 Use the **show license usage** command to get detailed information about the status and usage of each license feature on the 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
```

Configure Uncapped Throughput Level from CLI

t