

# **Smart Software Licensing**

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# **Smart Software Licensing**

This chapter describes the different capabilities of Cisco Smart Software Licensing, and the different components involved in licensing your device. Some of the topics described are:

- Cisco Smart Software Manager (CSSM)
- Specific License Reservation (SLR)
- Licensing Feature Support



**Note** If your system is running IOS XE release 17.4.1 or greater, Smart Software Licensing is replaced by Smart Licensing Using Policy (SLP), which is discussed in the next chapter.

## **Licensing Feature Support**

Smart Licensing is enabled by default on the ESR6300. Right-To-Use (RTU) licensing is not supported.

The ESR6300 uses the CDNA licensing model. This model uses the network-essentials (NE) and network-advantage (NA) license scheme. In this model, there are two stacks in the image license, the network-stack and the DNA-stack. The network stack packages features such as IOS features vpn, crypto features, mpls, bgp, etc. This stack is perpetual. The DNA stack has its own set of features get packaged DNAC, etc.

The Throughput-Based licensing on the Cisco ESR6300 has three levels:

Throughput	Network Essentials	Network Advantage
Default (50 Mbps)	ESR-6300-NE/DEF-K9	ESR-6300-NA/DEF-K9
Performance (250 Mbps)	ESR-6300-NE/PERF-K9	ESR-6300-NA/PERF-K9
Boost (2 Gbps)	ESR-6300-NE/BOOS-K9	ESR-6300-NA/BOOS-K9

**Note** A device can only have a single license – either Network-Essentials or Network-Advantage for the universalk9 image.

To find information about platform support and to know which license levels a feature is available with, use Cisco Feature Navigator. To access Cisco Feature Navigator, go to https://www.cisco.com/go/cfn. An account on cisco.com is not required.

#### **Understanding Licensed Throughput Throttling**

The Cisco ESR6300 limits egress throughput based on the license level installed on the platform. The egress throughput is determined by adding the current outbound throughput on all interfaces (either physical or TAP). If this calculated throughput exceeds the licensed throughput, packets will be randomly dropped.

For calculating throughput, the Cisco ESR6300 only uses the L2 header and payload. It does not take into account the 4 byte CRC that would be present on an Ethernet "wire," nor does it take into account the inter-frame gap and pre-amble that would typically be on the "wire." Most traffic generators do take these other items into account. As a result, with small packets especially, the throughput calculated by IOS may be much lower than the throughput reported by the traffic generator.

#### Features Supported in a License Package

The following table is an overview of the features supported in the License Packages:

Network Essentials	Network Advantage				
Essential Routing Protocols:	Routing Capabilities:				
BGP, OSPF, EIGRP, IGMP, IGRP, ISIS, RIP	Multicast, MPLS				
Router Management:	App-based Policy:				
EEM, TACACS+, NETCONF, AAA, DNS, DHCP, DPI Visibility (Full FNF), IPSLA, Basic QoS (classification, policing, remarking, scheduling), NAT	PFR, PBR, App-aware QoS Policy, App Performance Troubleshooting (co-related insights)				
VPNs:	VPNs:				
GETVPN, FlexVPN, GRE, DMVPN (Hub Spoke)	DMVPN (Full Mesh topology support), LISP				
Security:					
IKE, IPSEC, PKI, MacSec, Zone-Based Firewall, Encryption Algorithms (AES, DES, 3DES, SHA, MD5), IPS (community signature), ALG, SSLVPN					

## Specific License Reservation (SLR)

Specific License Reservation (SLR) is a functionality that enables you to deploy a software license on a device without communicating usage information to Cisco. This functionality is especially used in highly secure networks, and it is supported on platforms that have Smart Licensing enabled.

SLR lets you reserve a license for your product instance from the CSSM. These reserved licenses need not be renewed or reauthorized unless there is a license usage change on the device.

To enable and use the SLR feature, you must generate a reservation request code from the router device. Use this code in CSSM and generate an authorization code. When you enter this authorization code on the router, the license reservation becomes effective. After you enable license reservation, the system displays the License Reservation section, which is used to reserve licenses for your product.



**Note** It is assumed that the customer has their Smart Account/Virtual Account already created in CSSM (Cisco Smart Software Manager - (https://software.cisco.com) as part of the purchase setup. Entitlement usage are recorded and tracked in CSSM.

## Cisco Smart Software Manager (CSSM)

CSSM is an intuitive portal where you can activate and manage all of your Cisco licenses. This section provides an overview.



Note Prior to licensing, it is assumed the customer has their Smart Account / Virtual Account already created in CSSM (https://software.cisco.com) as part of the purchase setup. Entitlement usage are recorded and tracked in CSSM.

Some of the highlights of CSSM are:

CSSM Validity Check includes ensuring

- The Smart Account is authorized for Specific License Reservation
  - There are enough available perpetual licenses to authorize consumption
  - The Smart Account is authorized for any Export Restricted Functionality
- · Transfers between Virtual Accounts is allowed
  - License consumption and product must transfer together
- Increased license consumption is allowed
  - • Authorized quantity will be persistent
    - Product will strictly enforce reserved licenses/quantities overage not allowed
- User may change registration, up or down by re-registering
- User may un-register product to release licenses to their pool

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.

## Smart Account

Prior to Smart Account authorization, Specific License Reservation (SLR) functionality is not available on CSSM. Request SLR authorization by sending an email to: smart-ops-support@cisco.com.

Include in the email a Smart Account Name & Domain and a brief justification why SLR is needed.

# **Specific License Reservation (SLR) Overview**

Figure 1: SLR Installation Flow, on page 4 shows a graphical representation of the overall flow to install SLR. This involves a manual exchange of information between the Device and the CSSM.

Figure 1: SLR Installation Flow



The sequence of events for the installation is as follows:

- 1. Product Request (UDI/vUDI, etc.) entered into CSSM (~ 32 characters\*)
- 2. Requested licenses and quantities chosen in CSSM
- 3. CSSM performs a validity check
- 4. CSSM returns an authorization locked to UDI/vUDI
- 5. Install the authorization string on your device

## **Configuring SLR**

To enable Specific License Reservation for your device, you must execute the following commands.

```
Device (config) #license smart reservation
Device (config) #license boot level network-essentials
% use 'write' command to make license boot config take effect on next boot
Device (config) #platform hardware throughput level ?
250M throughput in bps
2G throughput in bps
50M throughput in bps
50M throughput in bps
Device (config) #platform hardware throughput level 50
% Please write mem and reload
% The config will take effect on next reboot
Device (config) #end
Device#
```

```
Device#show run | include license
license udi pid IR1101-K9 sn FCW2150TH0F
license boot level network-essentials
license smart reservation
platform hardware throughput level 50M
Device#show romvar
ROMMON variables:
PS1 = rommon ! >
MCP_STARTUP_TRACEFLAGS = 00000000:0000000
 THRPUT = 50
LICENSE BOOT LEVEL = network-essentials, network-stack:esg;
RET 2 RTS =
BSI = 0
RET 2 RCALTS =
RANDOM NUM = 1027275747
Device#
```

## Configuring SLR for 2GB Throughput

The configuration for a 2Gb throughput requires an additional license. You **MUST** also have the hseck9 license.

```
Device (config) #license smart reservation
Device (config) #license boot level network-essentials
             % use 'write' command to make license boot config take effect on next boot
Device (config) #platform hardware throughput level ?
  250M throughput in bps
  2G
       throughput in bps
  50M throughput in bps
Device (config) #platform hardware throughput level 2G
% 2G throughput level requires hseck9 license!
Device(config)#
Device(config) #license ?
 accept Accept all further License Agreements
             Configure LIC AGENT
  agent
 boot
             license boot config commands
 call-home license call-home config commands
 feature
            License features
  smart
             Smart licensing
  udi
             license udi
Device (config) #license feature ?
 hseck9
             Enable hseck9 license
Device (config) #license feature hseck9
Device (config) #end
Device#show run | inc license
  license feature hseck9
  license udi pid ESR-6300-NCP-K9 sn FOC23232K8U
 license boot level network-essentials
  license smart reservation
Device#
Device#show run | inc platform
 platform qfp utilization monitor load 80
```

platform hardware throughput level 50M
no platform punt-keepalive disable-kernel-core

#### Check the ROMMON variables.

Device# show romvar

```
ROMMON variables:
PS1 = rommon ! >
RET_2_RTS =
BOOT =
MCP_STARTUP_TRACEFLAGS = 00000000:00000000
THRPUT = 50
LICENSE_BOOT_LEVEL = network-advantage,network-stack:esg;
BSI = 0
RET_2_RCALTS =
RANDOM_NUM = 1904849863
Device#
```

#### Change the throughput level.

Device# platform hardware throughput level 2G % Please write mem and reload % The config will take effect on next reboot

\*Nov 13 00:07:03.414: %SMART LIC-5-EVAL START: Entering evaluation period

#### Check the ROMMON variables and then save the configuration.

```
Device# show romvar
ROMMON variables:
PS1 = rommon ! >
RET_2_RTS =
BOOT =
MCP_STARTUP_TRACEFLAGS = 00000000:0000000
LICENSE_BOOT_LEVEL = network-advantage,network-stack:esg;
BSI = 0
RET_2_RCALTS =
RANDOM_NUM = 1904849863
THRPUT = 2000
Device#
*Nov 13 00:08:01.224: %SYS-5-CONFIG I: Configured from console by console
```

Device# write mem Building configuration...

```
[OK]
Device#
*Nov 13 00:08:12.264: %SYS-6-PRIVCFG_ENCRYPT_SUCCESS: Successfully encrypted private config
file
```

#### Verify the configuration changes.

```
Device# show run | inc license
license feature hseck9
license udi pid ESR-6300-CON-K9 sn FOC23232KC7
license boot level network-advantage
license smart reservation
Device#
```

```
Device# show run | inc platform
platform qfp utilization monitor load 80
platform hardware throughput level 2G
platform punt-keepalive disable-kernel-core
Device#
```

```
Device#show license summarv
 Smart Licensing is ENABLED
 License Reservation is ENABLED
 Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: NOT ALLOWED
 License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 69 days, 4 hours, 18 minutes, 29 seconds
 License Usage:
 License
                    Entitlement tag
                                            Count Status
 _____
                     (ESR6300_P_50M_E)
                                               1 EVAL MODE
```

## **Requesting a Smart License Reservation**

Use these commands to obtain a reservation request.

```
Device#license smart reservation ?
 cancel Cancel a Smart License reservation request before the authorization code is
installed
  install Install a Smart License reservation authorization code
  request Request a license reservation
  return Return a Smart License reservation authorization code that was installed
Device#license smart reservation request ?
  all Reservation request for all the systems
  local Reservation request for the active system
  universal Request a universal license reservation (this option has been deprecated and
will be removed in the future)
Device#license smart reservation request all
Enter this request code in the Cisco Smart Software Manager portal:
Request code: CD-ZESR-6300-CON-K9:FOC23232KC7-AySKEQX96-85
Device#
Device# show license tech reservation
License reservation: ENABLED
Overall status:
 Active: PID:ESR-6300-CON-K9, SN:FOC23232KC7
     Reservation status: RESERVATION IN PROGRESS on Nov 12 21:33:35 2019 UTC
      Export-Controlled Functionality: NOT ALLOWED
     Request code: CD-ZESR-6300-CON-K9:FOC23232KC7-AySKEQX96-85
      Last return code: Cebj2B-5tRBm8-f7Dxmt-vi8Q4S-K3wx7f-ck5NRA-U6FoLe-xcMCEc-1bQ
```

## **SLR Installation Procedure Overview**

Step 1 is now complete, and you have a request code. Steps 2, 3, and 4 require a manual exchange of information between the Device and CSSM. A high level overview follows:

# Cisco Software Central Liphin City O <

Log in to Cisco Smart Software Manager. You must log in to the portal using the Cisco provided username and password.

In this section, you will be navigating to the Inventory Tab (1), selecting your Virtual Account (2), and doing a License Reservation (3).

## **SLR Installation Procedure**

Follow these steps to reserve a license in CSSM, and generate a reservation code.

**Step 1** From the Inventory Tab, click the down arrow beside **Virtual Account**.

Figure 2: CSSM Smart License Interface

#### Figure 3: Virtual Account

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Coco Software Currat * Smart Software Licensing Amart Software Licensing Ameri investory i covert to Smart Licensing Virtual Account: Blackhaert * Virtual Account: Virtual Account Virtual Account	ng ) Reports   Preferences   On-Pren Accounts none   Event Log having for 6000 Blackbear	Adday .	Question Try car V	IB BU Production Test Feedback Support Help school Licensing? Intel Assistant Hide Alerts			
Default Virual Account P Product Instance Registration Tokens The registration takens below can be used to reg New Taken	lo						
Totem Experiment user YWAMUSZTEICODEWZ, 2 2020-34-30 17-31 MethAVWWWOAMUSAFFIII, 2 2020-34-35 20,5 ZOOMMASYYWWOATURK, 0 2020-34-35 20,2 The totain will be expired when either the expirat	Uses         Export           :51 (in 261         Allowe           7:45 (in 74         Allowe           16 (in 256         Not Allowe           on or the maximum uses is reached	Lentrowen Lettorpton I Blackheart -Dev Key I Blackheart Testing for SL - weed	emadriag debiswas	Actions + Actions + Actions +			
Contes	ts   Feedback   Help   Site Map   Terms & Conc	itions   Privacy Statement   Cookie Policy	Trademarks	Showing All 3 Records			

Step 2 Click on License Reservation.

#### Figure 4: License Reservation

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	Smart Software Licensing		Feedback Support H					
	Alerts   Inventory   Convert to Smart Licensing   Report	ts   Preferences   On-Prem Accounts   Ar	stivity		Qui	stions About Licensing?		
	Virtual Account: Blackheart -					Hide Alerts		
	General Licenses Product Instances	Event Log						
	Available Actions - Manage License Ta	gs License Reservation		Show License Transaction	s Search by License	By Name By Tag		
						Advanced Search 🗸		
	License	Billing	Purchased	In Use	Balance Alerts	Actions		
	Gisco ESR6300 Network Advantage (250Mbps)	Prepaid	10	2 A (1 Reserved)	+ 8	Actions +		
	Gisco ESR6300 Network Advantage (2Gbps)	Prepaid	10	4 (4 Reserved)	+ 6	Actions 👻		
	Cisco ESR6300 Network Advantage (50Mbps)	Prepaid	10	0	+ 10	Actions +		
	Cisco ESR6300 Network Essentials (250Mbps)	Prepaid	10	1 A (1 Reserved)	+ 9	Actions 👻		
	Gisco ESR6300 Network Essentials (2Gbps)	Prepaid	10	0	+ 10	Actions 👻		
	Gisco ESR6300 Network Essentials (50Mbps)	Prepaid	10	0	+ 10	Actions +		
	ESR6300_HSEC_License	Prepaid	10	5 (4 Reserved)	+ 5	Actions 👻		
						Showing All 7 Records		

**Step 3** The Smart License Reservation Window appears.

#### Figure 5: Smart License Reservation Window

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-	-		and the set					0	
	Smart License Reservat	on					×	C	EN DEN
	STED 1	O OTED	OTED 2	OTED	4				×
	Entre Descent Code	Salast Lissanas	Site 3	Authorized a	<b>+</b>				
	Enter Request Code								
	You can reserve licenses for product You will begin by generating a Reser To learn how to generate this code, a	instances that cannot connect to the vation Request Code from the proc see the configuration guide for the p	e Internet for security reasons. luct instance. roduct being licensed.				1		
	Once you have generated the code:								
	1) Enter the Reservation Reques	t Code below							
	2) Select the licenses to be rese 3) Generate a Reservation Author	ved vization Code							
	4) Enter the Reservation Authori	zation Code on the product instance	to activate the features						
	Reservation Request Code:								
	CD-ZESR-6300-CON-K9-FOC23	32KC7-AySKEQX95-85							
	To have been to entry this ands, or	the configuration wilds for the sec	Bri	Upload					
	to learn now to enter this code, see	the configuration galde for the pro-	sucroeng icensed						
							Cancel Next		
	Cisco ESR6300 Network Essent	als (250Mbps) Prepaid		10	1 🔺 (1 Reserved)	+ 9	Actions +		
	Cisco ESR6300 Network Essent	als (2Gbps) Prepaid		10	0	+ 10	Actions +		
	Cisco ESR6300 Network Essent	als (50Mbps) Prepaid		10	0	+ 10	Actions +		
	ESR6300_HSEC_License	Prepaid		10	5 (4 Reserved)	+ 5	Actions 👻		
							Showing All 7 Records		

Enter your Reservation Request Code and click Next.

**Step 4** Click on the circle beside Reserve a Specific License.

#### Figure 6: Reserve a Specific License

Figure 7: Reserve Licenses

Cisco Softwa	Smart License Reservatio	on	بليبان				,	x Q	EM
	STEP 1 ~ Enter Request Code	STEP 2 Select Licenses	STEP 3 Review and confirm	STEP	4. ation Code				
	Product Instance Details Product Type: UDI PID: UDI Serial Number: Licenses to Reserve	5900 ESR-6300-CON-K9 FOC23232KC7							
	In order to continue, angue that you to Reserve a specific license	have a surplus of the licenses you	a want to reserve in the Virtual Accour	9L					
	In order in continue. ecourge Port you Y	have a surplus of the licenses you	a want to resorve in the Vehal Account	a.			Cancel Next		
	regist incoming array by row     Preserve a specific ionne     Cours ESREQO Interest Essentia	have a surplus of the licenses yor	a want to resorve in the Vehal Account	10	1 🔺 (1 Reserved)	+ 9	Cancel Next Actions -		
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**Step 5** Select your licenses by entering a number in the **Reserve** column. In this example, note that two licenses are required for the 2Gbs throughput to work: Cisco ESR6300 Network Essentials 2Gbps and ESR6300\_HSEC\_License.

#### \* @ 0 0 0 ← → C a software.cisco.com/software/csws/ws/platform/home?locale=en\_US#Sn Q €M ⊕<sup>us</sup> Ξ Cisco Softwa Smart License Reservation STEP 2 STEP 1 🗸 STEP 3 STEP 4 . iest Code Expires work Advantage (2Gbps 0 0 Cancel + 10 • + 10 € Ð

**Step 6** Review your selections. If you are satisfied with the licenses, click Generate Authorization Code.

#### Figure 8: Review Licenses

G   □   □   ↓     ④   ●   M   ← → C ( & software.cisco.com	s   <b>⊙</b>   <b>G</b>   <b>m</b>   <b>m</b>   <b>m</b>   <b>Ø</b>   <b>Ø</b>   <b>●</b>   /software/csws/ws/platform/home	##   ##   <b>⊆</b>   �   ##   <b>a</b>   == Nocale=en_US#SmartLicensin	🏥   🏥   🏊   🤭   🟥   🗰	<b>=</b>   <b>•</b>   <b>•</b>   <b>0</b>   <b>=</b>   <b>w</b>	G   #   G   #   G   #	E   C   G   G   C   C	==   @   👗	< w   == @ 0	+
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	Smart License Reservat	on				×	Q	(EM)	<b>B</b> EN
	STEP 1 🗸	STEP 2 ✓ Select Licenses	STEP 3 Review and confirm	STEP 4					$\times$
	Product Instance Details Product Type: UDI PID: UDI Serial Number: Licenses to Reserve	5900 ESR-6300-CON-K9 FOC23232KC7							
	License Cico ESR300 Network Essen Care Interna Exercise Sont Lawor & ESR8000 (HSEC, License Roll and event for advanced cards	<b>alk (2Cbps)</b> Class Editor Developed Serier Rower - 200 men accessing 2504pts snabled with encryptio	on Prospipul	Expres -never- -never-	Quality to Reserve				
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	Cisco ESR6300 Network Essent	ials (250Mbps) Prepaid		10 1 着 (1 Reserved	+9	Actions +			
	Gisco ESR6300 Network Essent	ials (2Gbps) Prepaid		10 0	0 + 10	Actions +			
	Cisco ESR6300 Network Essent	ials (50Mbps) Prepaid		10 (	D + 10	Actions +			
	ESR6300_HSEC_License	Prepaid		10 (4 Reserved	5 + 5 )	Actions +			
						Showing All 7 Records			
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 Step 7
 The Reservation Authorization Code is generated. The code is located in the text box below the Authorization Code:

 Figure 9: Authorization Code

G   D   🖸   &   ==   O   O   M   ==	🔉   G       🛛   🕹       🛄   Ø	a   a   a   a   a   -   🤣   a   a	<b>=</b>   <b>=</b>   <b>c</b>	)   🛲   w   G   🔤   G	🛲   G   🖬   🛄 🥵   G   🛄   G	€   ∰   ⊗   è × w   ∰   +
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Cisco Softwa	Smart License Reservation	de d			×	Q €M ⊕ <sup>us</sup>
	Step 1     Step 2       Bar Repart ON     Step 2       Deter Repart ON     Step 2	STEP 3 ~ Reveal of other models the conset features.	STEP Authorite Additional Applications Additional Applications Additional Applications Additional Applications Additional Applications Additional Applications Additional Applications Additional Addi	4 -timestamp-15750762446 110000-024700as-1401 110000-024700as-1401 Management-tapprogram 20100-024700as-1401 Management-tapprogram 20100-024700 20100-024000 20100-024700 20100-02000 20100-02000 201000	-rifeestangrantitionets- den-randitionet Coloso and Locare V Coloso accorers ecceding 2008tps	×
	Costa ESB/000 Network Essentials (250Mins)	Prepaid	10	Download as	File Copy to Clipboard Cose	
	Cisco ESR6300 Network Essentials (2Gbps)	Prepaid	10	(1 Reserved) 1 +	9 Actions +	
	Cisco ESR6300 Network Essentials (50Mbps)	Prepaid	10	0 +:	0 Actions +	
	ESR6300_HSEC_License	Prepaid	10	6 * (5 Reserved)	4 Actions +	
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You have the option to **Download as File**, or **Copy to Clipboard**. Use whichever method you wish to capture the code, then click **Close**.

**Step 8** After CSSM generates the Authorization Code, the Product Instance is registered with CSSM.

#### Figure 10: Product Instance Registered

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Consistence Central -> Smart Software Licensing Smart Software Licensing Alers Inventory Converts Smart Licensing   Rep	orts Preferences On-Prem Accounts	Activity	till Feed Questions Abou Try our Virtual A	BU Production Test back Support Help t Licensing?			
Virtual Account: Blackheart - General Loomess Predect Instances	Event Log			Hide Alerts			
Ð		Search by Name, Prod	uct Type	٩,			
Name	Product Type	Last Contact	Alerts	Actions			
Router	5900	2019-Sep-19 12:13:41		Actions -			
UDLPID.ESR-6300-CON-K9, UDL-SN-F0C230320WK	5900	2019-Sep-28 00:34:06 (Reserved Licenses) 2019.Nov.12 22:27:08 (Reserved Licenses)		Actions +			
UDI PID:ESR-6300-CON-K9; UDI SN-FOC23232KDL;	5900	2019-Oct-22 22:05:54 (Reserved Licenses)	License Reservation Pending	Actions -			
UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC233501DL;	5900	2019-Oct-22 22:02:46 (Reserved Licenses)		Actions -			
UDI_PID:ESR-6300-CON-K9; UDI_SN:SJC19700402;	5900	2019-Aug-01 20:50:39 (Reserved Licenses)	1 Failed - Pending Removal	Actions -			
UDI_PID:ESR-6300-NCP-K9; UDI_SN:FOC23032UWA;	5900	2019-Sep-30 07:18:18 (Reserved Licenses)	License Reservation Pending	Actions -			
			Show	ing All 7 Records			
Contacts   Feed	Iback   Help   Site Map   Terms & Conc	ditions   Privacy Statement   Cookie Policy	Trademarks				

**Step 9** The license chosen for that Product Instance are now reserved.

#### Figure 11: Product Instance Reserved

Ľ	Caco Software Control - 5 arrest 5 Smart Software Li JDJ_PID:ESR-6300-CON Overview Event Log Description Caco ESR/SIGO Emecded Series General Name: Product:	tohware Lianning icensing N-K9; UDI_SN:FOC23232KC7; Router	239407.	it Bit Production The Feedback Report Help Orienteer board teachers	8
u	Coro Scheure Central - 5 Ameri & Smartt Software Li JDI_PID:ESR-6300-COO Overview Event Log Description Cisco EBR00 Enclosed Series General Name: Product:	Identify Linearing iccensing N-K9; UDI_SN:FOC23232KC7; Router UDI_PD0ESR-4596-COH-K9; UDI_SN:FOC232	139407.	ill BUPACISTO For Frentisck begrot Hot	а Р
	Smart Software Li JDI_PID:ESR-6300-CON Overview Event Log Description Casce ESRESCO Embedded Series General Name: Product:	ICENSING	aawo,	Friedbark Support Hild	P
	JDI_PID:ESR-6300-CON Overview Event Log Description Claco ESR5000 Embodded Sentes General Name: Product:	N-K9; UDI_SN:FOC23232KC7; Rester UDI_PDESR-6506-C014-R; UDI_SN=F0C232 C000_FDESR-6506-C014-R; UDI_SN=F0C232	539KC7;	O anter ball and the operation of the op	
	Overview Event Log Description Cisco ESR8300 Embedded Series General Name: Product:	Router	138KC7:		
l	Class ESR6300 Embedded Series General Name: Product:	UDL PID ESR-8300-CON H8: UDL SN FOC232	132KC7:		
	Description Cisco ESR8300 Embedded Series General Name: Product:	UDI_PIDESR-8300-CON-K9; UDI_SN-FOC232	32467:		
	Cisco ESR6300 Embedded Series General Name: Product:	UDI_PID:ESR-6300-CON-K9; UDI_SN-FOC232	32KG7;		
	General Name: Product:	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC232	32KC7;		
	Name: Product:	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC232	32KC7;		
	Product:	Class FORDERO Ferbadded Rades 7			
		UNCO CORTISUU Embedded Series Router			
	Host Identifier:				
	MAC Address:				
	PID:	ESR-6300-CON-K9			
	Serial Number:	F0C23232KC7			
	UUD	-			
	Virtual Account:	Blackheart			
	Registration Date:	2019-Nov-12 22:27:08			
	Last Contact:	2019-Nov-12 22:27:06 (Reserved Licenses) - Dr	ownoad Reservation Authorization Code		
	License Usage		These lice	enses are reserved on this product instance Update reservation	
	License	Billing	Expires	Required	
	ESR6300_HSEC_License	Prepaid	÷	1	
	Cisco ESR6300 Network Essentia	ials (2Gbps) Prepaid		1	
				Showing all 2 Rows	
	Antiona				

#### What to do next

The following is an example of the Authorization Code for a combined ESR6300 HSEC/2GB Feature and Throughput License:

<specificPLR>authorizationCode>flag>A</flag>version>C</version>piid>9c9e4c78-ff00401faf6ebed57135cc13
</piid>timestap>1570653908936</timestap>entitlaments>entitlament>tagregid.2019-07.com.cisco.EF6300 P\_23\_A\_1.0\_751le476-34a3-4ce7+98043e49489e2f
</tag>count>1</count>startDate>/endDate>/endDate>/icenseType>FERPEIVAL</licenseType>Cisco
ESR6300 Network Advantage (2Gbps)

</displayName><tagDescription>Cisco Network Advantage Smart License for Cisco ESR6300 Embedded Series Router-2Gbps throughput</tagDescription><subscriptionID>

</sbcriptionID</entitlement>entitlement>tagregid.2019-07.com.cisco.ESR6300\_HEEC\_License,1.0\_a056b6e1-6438-400d-919004c027228086 </tag</count>l</count>startDate</startDate</endbate</licenseType>HEREIUAI</licenseType>cdisplayName>ESR6300\_HEEC\_License </displayName><tagDescription>HSEC license required for authroized customers exceeding 250Mbps enabledwithencryption</tagDescription>

<sbcriptionID</sbcriptionID</entitlements/authorizationCode/signatureMEQIF4WjViFjhuR/INAROEDPTIZETEKEINQAufzetAiBn8/ bVqx3WyyX2SfUrG5+N5ztoEDDH1LL+wNqDc0kjSA=</signature><udi>P:ESR-6300-CON-K9,S:FOC23032UVB</udi>/specificPLR>

## **Register the Device Using the Authorization Code**

After you get the authorization code from CSSM, execute the following commands on your Device to complete the license reservation procedure:

From the executive privileged mode:

```
Device#license smart reservation install file flash:AuthorizationCode NE 2G HSEC.txt
Last Confirmation code UDI: PID:ESR-6300-CON-K9, SN:FOC23232KC7
    Confirmation code: c803ff96
*Nov 13 00:15:42.016: %SMART LIC-6-AGENT REG SUCCESS: Smart Agent for Licensing Registration
 successful. udi PID:ESR-6300-CON-K9, SN:FOC23232KC7
*Nov 13 00:15:42.016: %SMART LIC-6-AUTH RENEW SUCCESS: Authorization renewal successful.
State=authorized for udi PID:ESR-6300-CON-K9, SN:FOC23232KC7
*Nov 13 00:15:42.017: %SMART LIC-6-RESERVED INSTALLED: Specific License Reservation
Authorization code installed for udi PID:ESR-6300-CON-K9, SN:FOC23232KC7
*Nov 13 00:15:42.045: %SMART LIC-6-EXPORT CONTROLLED: Usage of export controlled features
is allowed
*Nov 13 00:15:42.065: %SMART LIC-5-SLR IN COMPLIANCE: The entitlement
regid.2019-07.com.cisco.ESR6300 HSEC License,1.0 a056b6e1-6438-400d-9190-04c027228086 in
use on this device is authorized
*Nov 13 00:15:42.083: %SMART LIC-3-NOT AUTHORIZED: The entitlement
regid.2019-07.com.cisco.ESR6300 P 50M E,1.0 55eae012-2c42-4314-b86f-4457912bd170 is Not
Authorized to be used. Reason: License not present in SLR auth code
*Nov 13 00:15:42.083: %SMART LIC-5-SLR IN COMPLIANCE: The entitlement
regid.2019-07.com.cisco.ESR6300_HSEC_License,1.0_a056b6e1-6438-400d-9190-04c027228086 in
use on this device is authorized
*Nov 13 00:15:42.094: %IOSXE SMART AGENT-3-NOTIFY NOT AUTHORIZED: Requested count 1 for
license level network-essentials_50M is in 'not authorized' state.
```

#### Device#

This command registers the device. The authorization code you copied as a file is used to activate smart licensing reservation for your device. When you run the **show license summary** command, the system displays the details of the reserved licenses.

```
Device#show license summary
Smart Licensing is ENABLED
License Reservation is ENABLED
Registration:
Status: REGISTERED - SPECIFIC LICENSE RESERVATION
Export-Controlled Functionality: ALLOWED
License Authorization:
Status: AUTHORIZED - RESERVED
License Usage:
License Entitlement tag Count. Status
```

Cisco ESR6300 Networ hseck9	(ESR6300_P_2G_E) (ESR6300_HSEC_License)	1 1	AUTHORIZED AUTHORIZED	-
Run the show license tech res	servation command for add	litional d	letails.	
Device# <b>show license tech</b> : License reservation: ENAB	reservation LED			
Overall status: Active: PID:ESR-6300-COI Reservation status: Export-Controlled Fr Last Confirmation co	N-K9,SN: FOC23232KC7 SPECIFIC INSTALLED on Inctionality: ALLOWED ode: c803ff96	Oct 08 1	18:44:11 2019 UTC	
Specified license reservat Cisco ESR6300 Network Es Description: Cisco Net Router - 2Gbps throughput Total reserved count: Term information:	tions: ssentials (2Gbps) (ESR6 twork Essentials Smart : 1	300_P_2 License	G_E): for Cisco ESR6300 Embedded Serie:	S
Active: PID:ESR-630 License type: PER Term Count: 1 ESR6300_HSEC_License (E: Description: HSEC Lice	D-CON-K9,SN: FOC23232KC PETUAL SR6300_HSEC_License):	7 rized c	ustomers exceeding 250Mbps enable	Ь
with encryption Total reserved count: Term information: Active: PID:ESR-6300 License type: PER Term Count: 1	1 )-CON-K9,SN: FOC23232KC PETUAL	7	accounts exceeding 200mpg enables	J.

Step 5 is now complete. Authorization has been installed, and the Eval Mode status transitions to Authorized.

# **Uninstalling Specific License Reservation (SLR) Overview**

The sequence of events for the de-installation is as follows:

- 1. On your Device, request a return code.
- 2. Log into CSSM.
- 3. Enter the return code into CSSM
- 4. CSSM performs a validity check
- 5. The consumed/used license is freed up
- 6. The Product Instance registration is deleted

## **Delete the License Reservation on the Device**

On your device, perform the following:

```
Router#license smart reservation return all
This command will remove the license reservation authorization code and the device will
```

transition back to the unregistered state. Some features may not function properly.
Do you want to continue? [yes/no]: yes
Enter this return code in Cisco Smart Software Manager portal:
UDI: PID:ESR-6300-CON-K9,SN:FOC23032UVB
 CRi21J-Bvya2z-cDrUtB-8EyxuT-SYN68E-e5ises-Qi57ZE-Tg6GLv-fKb
Router#
\*Oct 16 17:03:49.275 PDT: %SMART\_LIC-5-EVAL\_START: Entering evaluation period
\*Oct 16 17:03:49.293 PDT: %SMART\_LIC-6-EXPORT\_CONTROLLED: Usage of export controlled features
 is not allowed
\*Oct 16 17:03:49.296 PDT: %SMART\_LIC-6-RESERVE\_RETURNED: None License Reservation returned
 for UDI: PID:ESR-6300-CON-K9,SN:FOC23032UVB. Smart Agent is now unregistered.
Router#

Verify your command and take note of the return code:

```
Router# show license summary
Smart Licensing is ENABLED
License Reservation is ENABLED
Registration:
 Status: UNREGISTERED
 Export-Controlled Functionality: Not Allowed
License Authorization:
 Status: EVAL MODE
  Evaluation Period Remaining: 18 days, 8 hours, 27 minutes, 53 seconds
License Usage:
 License
                         Entitlement tag
                                                              Count
                                                                         Status
Cisco ESR6300 Networ... (ESR6300 P 2G E) 1 EVAL MODE
Router# show license reservation
License reservation: ENABLED
Overall status:
  Active: PID:ESR6300-K9, SN: FOC23232KC7
     Reservation status: NOT INSTALLED
     Export-Controlled Functionality: Not Allowed
     Last return code: CVsbTg-zEhpdp-YDaBGm-dg5Cms-qmGn7T-1BY3RQ-WnJEB1-cUbGB3-9WS
```

## Uninstalling Specific License Reservation (SLR)

Log in to Cisco Smart Software Manager at https://software.cisco.com/#.

Click the **Inventory** tab. From the **Virtual Account** drop-down list, select your smart account.

From the Product Instances tab, for the device that you want to deregister, click Actions.

Locate the name of the UDI: PID: you are returning. Click **Remove**. The Remove Product Instance window appears.

#### Figure 12: Remove Product Instance

Cisco Sc	offware Central		- duala			O M f
01300 00	Remov	e Product Instar	nce	×		
	Important Notice: Welcome to the to other Pr to other Pr you cannot	Important Notice: Weldome to thi to other Product Instances, entri in the Reservation Return Code, generated by the Product Instance. If you cannot generate a Reservation Return Code, conted Class Support		he nd in the easy access dro	op-down	
	• Reserv Cisco Software Central > Smart Software Licens	ation Return Code:	CVsbTa-zEheda:YDaBGm-da5Cms-amGn7T: 18Y3RG-WhyEB1-cubG83-9WS	di Fee	BU Production Test	
	Chiar Conward Electioning			Quartices Abo	#1 kensing?	
	Alerts Inventory Convert to Smart Licensin			Try our Virtual	Assistant	
	Virtual Account: Blackheart -		Remove Product Instance Cance		Hide Alerts	
		-		_		
	General Licenses Product Instances	Event Log				
	P	Search by Name, Product Type Q				
	Name	Product Type	Last Contact	Alerts	Actions	
	Router	5900	2019-Sep-19 12:13:41		Actions +	
	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC23032UWR;	5900	2019-Sep-28 00:34:06 (Reserved Licenses)		Actions +	
	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC23232KC7;	5900	2019-Nov-12 22:27:08 (Reserved Licenses)		Actions +	
	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC23232KDL;	5900	2019-Oct-22 22:05:54 (Reserved Licenses)	License Reservation Pending	Actions +	
	UDI_PID:ESR-6300-CON-K9; UDI_SN:FOC233501DL;	5900	2019-Oct-22 22:02:46 (Reserved Licenses)		Actions +	
	UDI_PID:ESR-6300-CON-K9; UDI_SN:SJC19700402;	5900	2019-Aug-01 20:50:39 (Reserved Licenses)	Failed - Pending Removal	Actions +	
	UDI_PID:ESR-6300-NCP-K9; UDI_SN:FOC23032UWA:	5900	2019-Sep-30 07:18:18 (Reserved Licenses)	License Reservation Pending	Actions +	
				Shov	ring All 7 Records	

Enter the Reservation Return Code from your device.

#### Click Remove Product Instance.

Figure 13: License Removed

Cisco Smart Software Manager will return a message upon the successful removal of the product instance.

#### x Q Q 📵 a software.cisco.ci uluilu cisco Q €M ⊕<sup>us</sup><sub>en</sub> Ŧ Cisco Software Central Smart Software Licensing Feedback Support Help ant Inv tory Cor Hide Alerts Virtual Account: Black General Licen Event Log ₽ Name 2019-Sep-19 12:1 UDI PID: 5900 2019-Sep-28 00:34:06 5900 2019-0c1-22 22:05:54 UDI PID:ESR-6300-CON-K9: UDI SN:FOC2 5900 2019-Oct-22 22:02:46 (Ret 5900 2019-Aug-01 20:50:39 (F UDI\_PID:ESR-6300-

Click on the License Reservation tab, and you can observe the In Use and Balance counts update.

#### Figure 14: License Counts



The task is now complete, and the license has been returned.

# **Additional Resources**

For a more detailed overview on Cisco Licensing, go to cisco.com/go/licensingguide

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