MACsec Smart Licensing

MACsec Smart Licensing Overview

This chapter provides an overview of MACsec Smart Licensing. Smart Licensing feature is a standardized licensing platform that simplifies the Cisco software experience and helps you to understand how Cisco software is used across your network. Smart Licensing is the next generation licensing platform for all Cisco software products. MACsec licensing allows you to enable CSL permanent and Smart Licensing on Cisco ASR 1000 platforms.

Feature Information for MACsec Smart Licensing

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for MACsec Smart Licensing

Feature Name	Releases	Feature Information
MACsec and DLC Support	Cisco IOS XE Fuji 16.9.1	Smart Licensing feature is a standardized licensing platform that simplifies the Cisco software experience and helps you to understand how Cisco software is used across your network. Smart Licensing is the next generation licensing platform for all Cisco software products. No commands were introduced or modified by this feature.

Information about MACsec Smart Licensing

Effective with Cisco IOS XE Fuji Release 16.9.1, MACsec Smart Licensing (SL) is supported on the following platforms:

Ports	License Feature	License PID	Supported Platform		
			MIP-100 (RP2/RP3)	ASR1001-HX	ASR1002-HX
BUILT-IN 1 GE ports	MACSEC1G	FLSA1-MACSEC1G	N/A	Yes	Yes
BUILT-IN 10 GE ports	MACSEC10G	FLSA1-MACSEC10G	N/A	Yes	Yes
EPA-18X1GE	MACSEC1G	FLSA1-MACSEC1G	Yes	N/A	Yes
EPA-10X10GE	MACSEC10G	FLSA1-MACSEC10G	Yes	N/A	Yes
EPA-1X40GE	MACSEC40G	FLSA1-MACSEC40G	Yes	N/A	Yes
EPA-2X40GE	MACSEC40G	FLSA1-MACSEC40G	Yes	N/A	Yes
EPA-QSFP-1X100GE	MACSEC100G	FLSA1-MACSEC100G	Yes	N/A	Yes

MACsec licenses are available for each port and are applicable only for physical ports (sub-interfaces do not require additional license). Device Led Conversion (DLC) support is available for MACsec port licenses to ensure that your paper licenses are added to smart account.

The Device-led conversion allows license migration from Classic to Smart license automatically for licences that are on the devices. The devices needs to be registered in Cisco Smart Software Manager (SSM) for automatic conversion to smart license.

Note

- According to earlier releases, ASR1001-X built-in continues with the IPsec license which acts as MACsec license.

- MACsec license is not supported for EPA-1X100GE and EPA-CPAK-2X40GE.

- CSL – EvalRTU license is not available for MACsec licenses.

One unit of MACsec license is used when a port containing MACsec configuration is unshut or when the configuration is applied on an unshut port.

One unit of MACsec license is released when a port containing MACsec configuration is shut or when the configuration is removed from an unshut port.

Deployment and Migration Examples

MACSec support is available in Cisco Software License (CSL) and Smart License (SL) modes from Cisco IOS XE Fuji 16.9.1. However, for releases after 16.9.1, MACSec will support only Smart License.

The following scenarios explain how an existing router is deployed and migrated to Cisco IOS XE Fuji 16.9.1:

Upgrade in CSL Mode when a permanent license is installed

If MACsec permanent licenses are installed on the device before upgrading (prior to Cisco IOS XE Fuji 16.9.1 release), then these licenses are used after the upgrade.

- Before the upgrade, assume the following:

    - Router is operating on a release prior to Cisco IOS XE Fuji 16.9.1

    - MACsec is configured on four un-shut 1G interfaces

    - Four MACSEC1G permanent licenses are installed

- After the upgrade, four MACSEC1G licenses are used.

Upgrade in CSL Mode when a permanent license is not installed

When MACsec is configured on unshut ports, ideally EvalRTU licenses should be used after the upgrade. Since EvalRTU support is not available, the license request is skipped and a warning message is displayed. For example:

%IOSXE_LICENSE_POLICY_MANAGER-4-INSUF_PERM_LIC: 0/0/0: Insufficient MACSEC40G permanent license, skipping license request assuming customer has honour license

- Before the upgrade, assume the following:

    - Router is operating on a release prior to Cisco IOS XE Fuji 16.9.1

    - MACsec is configured on four un-shut 1G interfaces

- After the upgrade

    - No MACsec license is used

• Warning message is displayed

• If you install four permanent licenses at a later point of time, then these licenses are used immediately

Migration to SL Mode

To avoid **Out of Compliance** scenario, all Product Activation Keys (PAK) and non-PAK licenses should be added to customer's virtual CSSM account.

The Device Led Conversion (DLC) feature migrates licenses to Smart Account. For DLC to work properly, all licenses should be enabled in CSL mode before migrating to SL mode.

Perform the following steps to migrate to SL Mode:

• Upgrade from releases prior to Cisco IOS XE 16.9.1 to Cisco IOS XE 16.9.1

   1. Upgrade to Cisco IOS XE Fuji 16.9.1 in CSL mode

   2. Migrate to SL mode and trigger DLC

• Upgrade from releases prior to Cisco IOS XE Fuji 16.9.1 to later releases

   1. Upgrade to Cisco IOS XE Fuji 16.9.1 in CSL mode

   2. Migrate to SL mode and trigger DLC

   3. Upgrade to releases later than Cisco IOS XE Fuji 16.9.1