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Cisco Crosswork Network Controller Licensing

Licensing for Cisco Crosswork Network Controller

This article provides details on using the Smart Licensing option in Cisco Crosswork Network Controller.

Smart Licensing Overview

Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and your organization. It provides complete visibility into your software usage and gives you full control over your licensing status.

For detailed information on Cisco Licensing, go to cisco.com/go/licensingguide.

Benefits of Smart Licensing

These are the key benefits of Smart Licensing.

- **Easy activation**—Establishes a pool of software licenses that can be used across the entire organization—no more entering Product Activation Keys (PAKs).
- **Unified management**—Provides a complete view into all of your Cisco products and services in a user-friendly portal.
- **License flexibility**—Allows you to easily use and move licenses as needed since the software is not node-locked to your hardware.

Smart Licensing in Cisco Crosswork Network Controller

To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com). A Cisco Smart Account is a repository for Smart enabled products and enables you to activate Cisco licenses, monitor license usage, and track Cisco purchases. All licenses you have purchased are kept in a centralized system called Cisco Smart Software Manager (CSSM), in customer specific Smart Accounts. With CSSM, you may create and manage multiple Virtual Accounts within your Smart Account to manage licenses. Cisco Crosswork Network Controller periodically sends the license usage information to CSSM. You can log in to your Smart Account to access the license utilization information.

Once the smartlicense service is active and you check out a license in the Cisco Crosswork Network Controller UI, the system enters the evaluation mode (up to 90 days) until the registration or reservation is completed. In evaluation mode, you will have access to all the features, but only for a limited duration of 90 days. After registration or reservation is completed, you can use all features until the license period expires. After the evaluation period of 90 days, if the product is still not registered with CSSM, or a reservation is not installed, all features will be marked as EvalExpired, and you will not be able to use any features until the smart license service is registered with CSSM or reservation is completed. Smart Licensing remains enabled, allowing you to register Cisco Crosswork Network Controller with CSSM or complete the reservation.

Important Information for Device Counts

All unmanaged devices contribute to the device limits specified in Crosswork licenses. To avoid this, remove your unmanaged devices through the Crosswork UI.

For Crosswork Optimization Engine, the node count is tracked:

- After initial installation and startup of these pods.

- Crosswork UI
 - RESTCONF
 - Any of the feature packs such as Local Congestion Mitigation, Bandwidth on Demand, or Circuit Style Manager
- When the pods are manually restarted.
 - Daily at a fixed time (1:00 AM)

Lab System Licenses

Licenses for lab systems are acquired through the same process as those for production environments. If you need a license for a lab beyond the 90-day trial period, please coordinate with your account team or a Cisco partner to obtain the appropriate license.

Smart Licensing Workflow

These are the high-level steps involved in configuring Smart Licensing for Cisco Crosswork Network Controller:

1. Set up a Smart Account on [Cisco Software Central](#). Go to [Smart Account Request](#) and follow the instructions on the website.
2. Configure the communication between Cisco Crosswork Network Controller and Cisco Smart Software Manager (CSSM). For details, see [Configure Transport Settings, on page 2](#).
3. Register Cisco Crosswork Network Controller with CSSM. For details, see [Register Cisco Crosswork Network Controller with CSSM Using Token, on page 3](#) and [Register Cisco Crosswork Network Controller with CSSM Using Offline Reservation, on page 5](#).



You can register an application using either a solution-based license or an application-based license, but not both. If you try to register a product that is already licensed, the system will display an error and prompt you to deregister the previous license. Depending on the type of license you choose, the respective entitlements will be displayed.

Configure Transport Settings

You can configure the transport settings to decide how Cisco Crosswork Network Controller communicates with CSSM.



You cannot modify the transport settings while the product is in the Registered state. You have to deregister to update them.

Follow these steps to configure the transport settings.

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- Step 1** From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab.
 - Step 2** The **Transport settings** field displays the current transport mode selected. To modify, click **View/Edit**. The **Transport Settings** dialog box appears.
 - Step 3** Select the relevant transport mode and enter the required information in the corresponding fields.

The available options include

- **Direct**—Cisco Crosswork Network Controller directly connects with CSSM.
- **On-prem Smart Software Manager**—Cisco Crosswork Network Controller communicates via CSSM On-Prem, ensuring that all user communication remains on premises. For details on the CSSM On-prem option, see the [Smart Software Manager guide](#).
- **HTTP/HTTPS gateway**—Cisco Crosswork Network Controller communicates to the direct mode end point through an intermediate proxy server.

Step 4 Click **Save**.

Register Cisco Crosswork Network Controller with CSSM Using Token

To enable licensed features, the Cisco Crosswork Network Controller application must be registered to CSSM using a registration token. For information on generating a registration token, refer to the support resources provided in the [Cisco Software Central](#) web page. Once registered, an Identity Certificate is securely saved in the Smart Account and used for all ongoing communications. The certificate is valid for one year and will be renewed automatically after six months to ensure continuous operation.

Follow these steps to register Cisco Crosswork Network Controller with CSSM using token.

Before you begin

Ensure that you have a Smart Account. If not, go to [Smart Account Request](#) and follow the instructions on the website.

Step 1 From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab. The registration status and license authorization status displays **Unregistered** and **Evaluation mode** respectively.

Step 2 Click the **Select Crosswork Product** drop-down list and choose the relevant option.
Choose from:

- Select **Crosswork Network Controller** to register using a solution-based license.
- Select the application name to register using a specific application-based license.

Step 3 In the Smart Software Licensing information box at the top, click **Register**.

The Smart Software Licensing Product Registration dialog box appears. The **Register via token** radio button is selected by default.

Step 4 In the **Product instance registration token** field, enter the registration token generated from your Smart Account. Ensure that the token ID is accurate and within validity period.

Step 5 If you are re-registering the application, check the **Re-register this product registration if it is already registered** check box.

After a backup restore, disaster recovery, or data migration operation, you must manually re-register the Cisco Crosswork Network Controller with CSSM. This requirement applies if the Cisco Crosswork Network Controller VM was already registered at the time the backup was taken and is used in the restore operations.

Step 6 Click **Register**. It may take a few minutes to process the registration. If successful, the 'Product Registration completed successfully' message appears.

The registration status and license authorization status displays **Registered** and **Authorized** respectively.

**Note**

- It will take at least 20 seconds for the request to succeed. If you do not receive a correct response within the first 20 seconds, the system will continue to check every 10 seconds for up to five minutes. If no response is obtained after five minutes, the system will display a generic error message.
- If you encounter a registration error, for example, "Communication send error" or "Invalid response from licensing cloud", wait for some time and retry the registration. If the error persists after multiple attempts, contact the Cisco Customer Experience team.
- If you encounter a communication timeout error during registration, click **OK** in the error dialog box, and the application will reattempt the registration.
- In some cases, after successful registration, the page may need to be refreshed manually to see the updated status.

Perform Licensing Actions Manually

The renewal of registration and authorization is automatically enabled in Cisco Crosswork Network Controller, by default. However, when the communication fails between the application and CSSM, you can manually initiate these actions.

Follow these steps to manually renew, re-register, or deregister Cisco Crosswork Network Controller.

Before you begin

Ensure that the product is in the **Registered** state.

Step 1 From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab.

Step 2 Click **Actions** and select the relevant option.

The available options include

- **Renew Authorization**—Use this option to renew the authorization manually if the automatic renewal fails at the end of 30 days.
- **Renew Registration**—Use this option to renew the registration manually if the automatic renewal fails at the end of six months.
- **Re-register**—Use this option to re-register the application, for example, if the registration tokens have expired.
- **De-register**—Use this option to deregister the application, for example, when you need to change the transport settings.

**Note**

Once deregistered, the application is moved to **Evaluation** mode (if the evaluation period is available) or **Evaluation Expired** mode. For details, see [License Authorization Statuses](#).

Smart License Reservation

When Smart Licensing is used, Cisco Crosswork Network Controller shares usage information to CSSM at regular intervals. If you do not want to connect with CSSM regularly, Cisco Smart Licensing provides an option of offline reservation. It is useful in highly secure networks.

Cisco Crosswork Network Controller uses **Specific License Reservation (SLR)**, an enforced licensing model that is similar to node-locked licensing. SLR allows you to select only the required licenses. Anyone with a Smart Account can use the SLR feature if they have the product instances that support it.

Register Cisco Crosswork Network Controller with CSSM Using Offline Reservation

Follow these steps to register Cisco Crosswork Network Controller with CSSM using offline reservation.

Before you begin

Ensure that you have a Smart Account. If not, go to [Smart Account Request](#) and follow the instructions on the website.

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- Step 1** From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab. The registration status and license authorization status displays **Unregistered** and **Evaluation mode** respectively.
- Step 2** Click the **Select Crosswork Product** drop-down list and choose the relevant option.
Choose from:
- Select **Crosswork Network Controller** to register using a solution-based license.
 - Select the application name to register using a specific application-based license.
- Step 3** In the Smart Software Licensing information box at the top, click **Register**.
The Smart Software Licensing Product Registration dialog box appears. Select the **Register via Reserved License** radio button.
- Step 4** Under the **Reservation code** section, click **Generate**. Your Reservation Request Code is generated and populated in the text field. Copy this code using the **Copy** option.
- Step 5** Generate the Authorization Code in CSSM.
- a) Log in to CSSM and select the appropriate Virtual Account.
 - b) Click the **Licenses** tab and then click **License Reservation**.
 - c) Paste the Reservation Request Code that you generated in Step 4 and click **Next**.
 - d) On the Select Licenses page, select the **Reserve a specific license** radio button. Then, click **Next**.
 - e) On the Review and Confirm page, click **Generate Authorization Code**. Copy the code using the **Copy to Clipboard** option.
- Step 6** Navigate back to the Smart Software Licensing Product Registration page in the Cisco Crosswork Network Controller UI.
- Step 7** Select the **Paste authorization code** option and paste the authorization code in the text field.
- Step 8** Click **Register**.
It may take a few minutes to process the registration. Once completed, the registration status and license authorization status is updated as **Registered** and **Authorized** respectively.

Update Offline Reservation

Follow these steps to update the license counts reserved using offline reservation.

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- Step 1** From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab. Make a note of the Product Instance Name (available under the Smart software licensing status section).
- Step 2** Generate the Authorization Code in CSSM.
- Log in to CSSM and select the appropriate Virtual Account.
 - Navigate to the required product instance and click **Actions > Update Reservation**.
 - On the Select Licenses page, select the **Reserve a specific license** radio button. Then, click **Next**.
 - On the Review and Confirm page, click **Generate Authorization Code**. Copy the code using the **Copy to Clipboard** option.
- Step 3** Navigate back to the Smart Software Licensing Product Registration page in the Cisco Crosswork Network Controller UI.
- Step 4** Click **Actions > Update Reservation**.
- Step 5** Paste the Authorization Code generated in Step 2 and click **Update**.
- A Confirmation Code is generated. You can find this under the Smart Software Licensing Status section. Copy this code.
- Step 6** Enter the Confirmation Code in CSSM.
- Navigate back to CSSM and click the required product instance name.
 - Click the **Actions > Enter Confirmation Code**.
 - Enter or paste the Reservation Confirmation Code generated in Step 5 and click **OK**.
- The license count will be updated in the Smart License page of the Cisco Crosswork Network Controller UI.

Disable Offline Reservation

Follow these steps to release the reserved licenses. Once the licenses are released, the application will be moved to **Evaluation** mode (if evaluation period is available) or **Evaluation Expired** mode.

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- Step 1** From the main menu, choose **Administration > Smart Licenses** to display the **Smart licenses** tab. Make a note of the Product Instance Name (available under the Smart Software Licensing Status section).
- Step 2** Click **Actions > Return Reservation**.
- Step 3** In the Confirm Return Reservation window, click **Confirm**.
- A Reservation Return Code (Release Code) is generated. Copy this code using the **Copy** option.
- Step 4** Enter the Reservation Request Code in CSSM.
- Log in to CSSM and select the appropriate Virtual Account.
 - Navigate to the required product instance and click **Actions > Remove**.

- c) In the Remove Reservation dialog box, paste the Reservation Return Code generated in Step 3 and click **Remove Reservation**.

Step 5 Navigate back to the Smart License page in the Cisco Crosswork Network Controller UI. Notice that the Registration status has changed to **Unregistered**.

Step 6 Click **Actions > Disable License Reservation**.

License Authorization Status

This table describes the license authorization statuses based on the registration status.

Table 1: License Authorization Status

Registration Status	License Authorization Status	Description
Unregistered	Evaluation mode	A 90-day evaluation period during which the licensed features of Cisco Crosswork Network Controller can be freely used. This state is initiated when you use Cisco Crosswork Network Controller for the first time.
	Evaluation Expired	Cisco Crosswork Network Controller has not been successfully registered at the end of the evaluation period. During this state, the Cisco Crosswork Network Controller features are disabled, and you must register to continue using the product.
	Registered Expired	Cisco Crosswork Network Controller is unable to contact the CSSM before the expiration of Identity Certificates and has returned to the unregistered state. Cisco Crosswork Network Controller resumes the remaining evaluation period, if available. At this stage, new registration ID token is required to reregister the product.
Registered	Authorized (In Compliance)	Cisco Crosswork Network Controller has been fully authorized to use the reserved licensed features. The authorization is automatically renewed every 30 days.
	Out of Compliance	The associated Virtual Account does not have enough licenses to reserve for Cisco Crosswork Network Controller's current feature use. You must renew the entitlement or usage limit registered with the token to continue using Cisco Crosswork Network Controller.
	Authorization Expired	Cisco Crosswork Network Controller is unable to communicate with the CSSM for 90 days or more, and the authorization has expired.

Authorization Status Responses

This table describes the actions or message enforced by Cisco Crosswork Network Controller in case of "Out of Compliance" or "Evaluation Expired" authorization status for Right-to-Use (RTU) and Right-to-Manage (RTM) licenses.

Table 2: Authorization Status Responses

Registration Status	License Authorization Status	Solution or Product	Enforced Action or Message
Registered	Out of Compliance	Crosswork Network Controller (solution)	No action taken.
		Crosswork Optimization Engine	No action taken. A message is logged with license state indicating that "License usage has exceeded the limit".
		Crosswork Active Topology	No action taken. A message is logged with license state indicating that "License usage has exceeded the limit".
		Crosswork Service Health	No action taken. A message is logged with license state indicating that "License usage has exceeded the limit".
		Crosswork Change Automation	RTU: No action taken. A message is logged with license state indicating that "License usage has exceeded the limit".
		Crosswork Health Insights	RTU: No action taken. A message is logged with license state indicating that "License usage has exceeded the limit".
		Crosswork External Collection	No action taken.
		Element Management Functions	RTM: No action taken (in case of normal token-based registration).