



## Manage Licenses

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## Smart Licensing in Crosswork Network Controller

Cisco Smart Licensing is the licensing model that Crosswork Network Controller uses to register product usage, reserve licenses, and report license compliance through Cisco Smart Software Manager (CSSM).

Crosswork Network Controller supports two licensing paths:

- **Online licensing:** Crosswork Network Controller connects to CSSM, CSSM On-Prem, or CSSM through an HTTP/HTTPS gateway.
- **Offline reservation:** Crosswork Network Controller uses Specific License Reservation (SLR) when the deployment cannot connect to CSSM regularly.

### Licensing lifecycle

The Crosswork Network Controller licensing lifecycle includes these states:

- **Evaluation mode:** Crosswork Network Controller starts a 90-day evaluation period when the Smart Licensing service becomes active and licensing is not yet registered or reserved.
- **Initial registration or reservation:** Register online or complete offline reservation before the evaluation period ends.
- **Licensed operation:** Crosswork Network Controller reports license usage and displays the registration and authorization status on the **Smart Licenses** page.
- **Out-of-compliance status:** Crosswork Network Controller reports out-of-compliance status when the associated Smart Account or Virtual Account does not include enough licenses, the correct license tier, or the required license type for current usage.



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**Note** Evaluation Expired is the licensing state that blocks access to Crosswork Network Controller features. After registration or reservation is complete, out-of-compliance status does not block users from using Crosswork Network Controller.

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### License usage reporting

Crosswork Network Controller reports the licenses that the deployment uses. CSSM compares the reported usage with the licenses that are available in the associated Smart Account or Virtual Account.

Current Crosswork Network Controller consumption-based licensing is based on device Right-to-Manage (RTM) license counts.

### External licensing resources

- For general Cisco Smart Licensing information, see [Cisco Licensing](#).
- For Crosswork Network Controller tier capabilities, see the [Cisco Crosswork Network Controller Data Sheet](#).
- For the Crosswork Network Controller licensing journey, see [Cisco Crosswork Network Controller Licensing](#).

## Lab system licenses

Lab licenses follow the same product behavior as production licenses in Crosswork Network Controller.

- Engineering does not implement lab licenses differently in the product.
- Use the Cisco account team or Cisco partner process to obtain lab licenses.
- Deposit lab licenses in a separate Virtual Account from production licenses.
- Do not treat lab licensing as an extension of the 90-day evaluation period.

## Plan and review Crosswork Network Controller licenses

License planning and review help you align Crosswork Network Controller usage with the licenses in the associated Smart Account or Virtual Account. Use the topics in this section to plan license tiers and device license counts, review license usage in Crosswork Network Controller, prepare entitlements before upgrade, and interpret license authorization status.

### Plan Crosswork Network Controller licenses

Use this task before you register or reserve Crosswork Network Controller licenses. Planning helps align the licenses in Cisco Smart Software Manager (CSSM) with the package tier, functions, and devices that the deployment uses or plans to use.

Online registration reports current usage to CSSM. Offline reservation requires you to select the licenses that the deployment needs before you generate and install the authorization code.

## Procedure

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- Step 1** Identify the Crosswork Network Controller tier that is installed.
- Crosswork Network Controller is available in Essentials, Advantage, and Premier tiers. Use the Cisco Crosswork Network Controller data sheet as the source of truth for the functions in each tier.
- If the deployment uses a function that requires a higher tier than the licenses available in the Smart Account or Virtual Account, Crosswork Network Controller reports out-of-compliance status for the required tier.
- Note**  
Do not mix license tiers across device subsets. Use device licenses that align with the installed Crosswork Network Controller tier.
- Step 2** Identify the required Right-to-Use (RTU) licenses.
- Review the Right-to-Use (RTU) rows on the Smart Licenses page and make sure that the required RTU licenses are available in the associated Smart Account or Virtual Account.
- Step 3** Identify the required device Right-to-Manage (RTM) licenses.
- RTM licenses are consumption-based licenses for managed devices. Plan RTM licenses by device count, device type, and license tier.
- Device categories include Type A, Type B, and Type C. For onboarded devices, Crosswork Network Controller shows the license type in device details and reports device counts by license type on the Smart Licenses page.
- If the deployment includes third-party devices, confirm the required RTM licenses with your Cisco account team, Cisco partner, or ordering guide.
- Note**  
For exact device type categorization and ordering guidance, use the ordering guide or work with your Cisco account team or Cisco partner.
- Step 4** Identify other licensed functions used by the deployment.
- Review the Smart Licenses page and CSSM to identify other licensed functions that the deployment uses.
- Step 5** For offline reservation, select licenses based on planned usage.
- The Smart Licenses page shows current usage. If the deployment has not yet added all planned devices, reserve the licenses that match the planned deployment, not only the licenses currently shown as used.
- For example, if the page shows one RTU license and eight RTM licenses in use, reserve at least those licenses. If the deployment currently uses eight RTM licenses but will manage 50 devices, reserve the RTM licenses required for 50 devices.
- Step 6** After licensing is complete, review compliance when usage changes.
- Review license compliance after you add devices, enable licensed functions, change package tiers, or complete an upgrade.
- Crosswork Network Controller does not warn users before the deployment reaches the entitlement limit in CSSM. Users may first learn about a shortage when Crosswork Network Controller reports out-of-compliance status.

If multiple Crosswork Network Controller deployments use the same Smart Account or Virtual Account, CSSM tracks the aggregate license consumption for that account. Make sure that the total license consumption across the deployments does not exceed the licenses available in the account.

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## View license usage and device license types

Use this task to understand the license usage that Crosswork Network Controller reports and to find the Type A, Type B, or Type C license type for an onboarded device.

The Smart Licenses page shows current Crosswork Network Controller license usage. It does not show every entitlement in the Smart Account or Virtual Account.



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**Note** Some entitlements, such as Segment Routing Path Computation Element (SR-PCE) licenses, are visible in the Cisco Smart Software Manager (CSSM) but are not reported in the Crosswork Network Controller Smart Licenses page.

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### Procedure

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**Step 1** Choose **Administration > Smart Licenses**.

**Step 2** Review the registration status and license authorization status.

Use these fields to determine whether Crosswork Network Controller is in evaluation mode, registered, reserved, authorized, out of compliance, or evaluation expired.

**Step 3** Review the license usage table.

Right-to-Use (RTU) rows show function-level or application-level license usage. Right-to-Manage (RTM) rows show managed-device license usage by tier and device type.

**Step 4** Open Device Lifecycle Management and view the details for an onboarded device.

The device details include the license type that Crosswork Network Controller uses for the device. Use this value to understand whether the device is counted as Type A, Type B, or Type C.

**Step 5** Open CSSM to view all entitlements in the Smart Account or Virtual Account.

Use CSSM when you need to see account-level entitlements, remaining quantities, or licenses that are not shown in the Crosswork Network Controller user interface.

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## Prepare license entitlements for an upgrade

Use this task before you upgrade from Crosswork Network Controller 6.0 or an earlier release to Release 7.0 or a later release.

License entitlements can change between releases. A deployment can become out of compliance after upgrade if the Smart Account or Virtual Account contains older entitlements but the upgraded product reports target-release license usage.

### Procedure

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- Step 1** Before the upgrade, identify the Crosswork Network Controller release that you are upgrading from and the release that you are upgrading to.
- Step 2** Confirm that the Smart Account or Virtual Account includes entitlements for the target release.
- For example, older release-specific Right-to-Manage (RTM) entitlements might not satisfy Advantage RTM usage reported by a later release.
- Step 3** If the required target-release entitlements are missing, work with your Cisco account team, Cisco partner, or Cisco Technical Assistance Center (TAC) before you complete the upgrade.
- Step 4** After the upgrade, register or re-register Crosswork Network Controller licensing as required by the upgrade workflow. License tags are not automatically registered as part of the upgrade operation. Register them manually after the upgrade.
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### What to do next

Review the Smart Licenses page after the upgrade to confirm the registration and authorization status.

## License authorization status

Use this table to interpret the licensing state on the Smart Licenses page.

**Table 1: License authorization status**

Registration status	Authorization status	Description
Unregistered	Evaluation mode	Crosswork Network Controller is in the 90-day evaluation period, during which licensed features can be used.
	Evaluation Expired	Crosswork Network Controller was not registered or reserved before the evaluation period ended. Evaluation Expired blocks access except for Smart Licensing. Smart Licensing remains available so that users can register or complete reservation.
	Registered Expired	Crosswork Network Controller is unable to contact CSSM before the expiration of Identity Certificates and has returned to the unregistered state. Crosswork Network Controller resumes the remaining evaluation period, if available. At this stage, a new registration ID token is required to re-register the product.

Registration status	Authorization status	Description
Registered	Authorized	Crosswork Network Controller is fully compliant. User has not exceeded the license usage.
	Out of Compliance	The associated Smart Account or Virtual Account does not include enough licenses, the correct license tier, or the required license type for current usage. You must acquire the required number of licenses in your Virtual Account and renew registration to get to Authorized state.  <b>Note</b> Out of Compliance does not block users from using Crosswork Network Controller after registration or reservation is complete.
	Not Authorized	Equivalent of Out of Compliance in offline reservation mode. You must acquire the required number of licenses in your Virtual Account and update reservation to get to Authorized state.
	Authorization Expired	Crosswork Network Controller cannot communicate with Cisco Smart Software Manager (CSSM) for 90 days or more, and authorization has expired.

## Authorization status responses

Use this table to understand what Crosswork Network Controller enforces when the authorization status is Out of Compliance or Evaluation Expired.

*Table 2: Authorization status responses*

Registration status	Authorization status	Enforced action or message
Registered	Out of Compliance	No action is enforced. Users can continue to use Crosswork Network Controller while they correct the license entitlement, allocation, or reservation issue.
Unregistered	Evaluation Expired	All user interface screens are disabled, and only the Smart Licensing window is displayed. The user interface remains blocked until registration or reservation is complete.

## Use online licensing

Online licensing uses a transport connection from Crosswork Network Controller to Cisco Smart Software Manager (CSSM), CSSM On-Prem, or CSSM through an HTTP or HTTPS gateway.

### Online licensing tasks

Use the topics in this section to configure the transport path, register Crosswork Network Controller, and manage online registration or authorization actions after registration.

## Configure Smart Licensing transport settings

Use this task only for online or connected licensing. Offline reservation does not use transport settings.

### Before you begin

Make sure that Crosswork Network Controller is not in the **Registered** state. You must de-register before you can modify transport settings.

### Procedure

**Step 1** Choose **Administration > Smart Licenses**.

**Step 2** In **Transport settings**, click **View/Edit**.

**Step 3** Select the transport mode.

Cisco Smart Software Manager (CSSM) receives online license usage from Crosswork Network Controller.

*Table 3: Transport modes*

Mode	Description
<b>Direct</b>	Crosswork Network Controller connects directly to CSSM.
<b>On-prem Smart Software Manager</b>	Crosswork Network Controller communicates through CSSM On-Prem.
<b>HTTP/HTTPS gateway</b>	Crosswork Network Controller communicates with CSSM through an intermediate proxy server.

**Step 4** Enter the required information for the selected transport mode.

**Step 5** Click **Save**.

### What to do next

Register Crosswork Network Controller with CSSM by using the online registration task.

## Register Crosswork Network Controller online

Use this task when Crosswork Network Controller can communicate with Cisco Smart Software Manager (CSSM), CSSM On-Prem, or CSSM through an HTTP/HTTPS gateway.

### Before you begin

- Create or identify the Smart Account and Virtual Account that contain the required Crosswork Network Controller licenses.
- Generate a product instance registration token in CSSM.
- Configure Smart Licensing transport settings in Crosswork Network Controller.

## Procedure

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- Step 1** Choose **Administration > Smart Licenses**.
- Step 2** In the **Smart Software Licensing** information box, click **Register**.
- Step 3** In the **Smart Software Licensing Product Registration** dialog box, select **Register via token**.
- Step 4** In **Product instance registration token**, enter the registration token from CSSM.  
Make sure that the token ID is accurate and within its validity period.
- Step 5** If you are re-registering an existing product registration, select **Re-register this product registration if it is already registered**.  
Use this option after backup restore, disaster recovery, data migration, or upgrade when the Crosswork Network Controller virtual machine was already registered when the backup was taken or when licensing must be re-associated after the operation.
- Note**  
Do not select this option for a new installation.
- Step 6** Click **Register**.  
When registration completes, the registration status changes to **Registered** and the license authorization status changes to **Authorized**.
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Crosswork Network Controller is registered with CSSM and can report license usage through the configured transport path.

## Manage online license registration and authorization

Use this task after online registration when registration or authorization renewal requires manual action, or when you must de-register the product.

These actions apply to online or connected licensing. They are not part of the normal first-time registration workflow.

### Before you begin

Make sure that the product is in the **Registered** state.

## Procedure

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- Step 1** Choose **Administration > Smart Licenses**.
- Step 2** Click **Actions** and select the required action.

Table 4: Online licensing actions

Action	Use case
Renew Authorization	Use this action when automatic authorization renewal fails.
Renew Registration	Use this action when automatic registration renewal fails.
Re-register	Use this action after backup restore, disaster recovery, data migration, upgrade, or token expiration when the product must be registered again.
De-register	Use this action before you change transport settings or disconnect the product from the current registration.

After de-registration, Crosswork Network Controller returns to evaluation mode if evaluation time remains. If the evaluation period has expired, Crosswork Network Controller enters Evaluation Expired mode.

## Use offline license reservation

Offline license reservation uses a reservation request code from Crosswork Network Controller and an authorization code from Cisco Smart Software Manager (CSSM). The deployment does not need an ongoing network connection to CSSM.

### Offline reservation tasks

Use the topics in this section to reserve licenses, update the reservation when usage changes, and disable reservation when you must return reserved licenses to the license pool.

## Reserve Crosswork Network Controller licenses offline

Use this task for disconnected or highly secure environments. Offline reservation uses a Reservation Request Code from Crosswork Network Controller and an Authorization Code from Cisco Smart Software Manager (CSSM).

### Before you begin

- Create or identify the Smart Account and Virtual Account that contain the required Crosswork Network Controller licenses.
- Plan the Right-to-Use (RTU) and Right-to-Manage (RTM) licenses that the deployment needs.

### Procedure

- Step 1** Choose **Administration > Smart Licenses**.
- Step 2** In the **Smart Software Licensing** information box, click **Register**.
- Step 3** In the **Smart Software Licensing Product Registration** dialog box, select **Register via Reserved License**.
- Step 4** Under **Reservation code**, click **Generate**, and then copy the Reservation Request Code.

- Step 5** In CSSM, generate the Authorization Code.
- Log in to CSSM and select the appropriate Virtual Account.
  - Choose **Licenses > License Reservation**.
  - Paste the Reservation Request Code and click **Next**.
  - On the **Select Licenses** page, select the RTU licenses and RTM licenses that the deployment uses or plans to use.
  - On the **Review and Confirm** page, click **Generate Authorization Code**, and then copy the code.

**Note**

If the current Crosswork Network Controller Smart Licenses page shows one RTU license and eight RTM licenses in use, select at least those licenses. If you plan to manage more devices than are currently onboarded, select the planned RTM count.

**Step 6** Return to the **Smart Software Licensing Product Registration** dialog box in Crosswork Network Controller.

**Step 7** Select **Paste authorization code**, paste the Authorization Code, and click **Register**.

When reservation completes, the registration status changes to **Registered** and the license authorization status changes to **Authorized**.

## Update an offline license reservation

Use this task after growth, additional device onboarding, additional licensed functionality, or correction of an incomplete offline reservation.

Offline reservation has one main change operation: update the reservation. Update the reservation when the deployment needs more licenses than were reserved.

### Procedure

- Step 1** Choose **Administration > Smart Licenses**, and note the **Product Instance Name**.
- Step 2** In Cisco Smart Software Manager (CSSM), open the required product instance and choose **Actions > Update Reservation**.
- Step 3** On the **Select Licenses** page, select the updated license reservation.
- Step 4** On the **Review and Confirm** page, click **Generate Authorization Code**, and then copy the code.
- Step 5** Return to Crosswork Network Controller and choose **Actions > Update Reservation**.
- Step 6** Paste the Authorization Code and click **Update**.  
Crosswork Network Controller generates a Confirmation Code.
- Step 7** Copy the Confirmation Code from Crosswork Network Controller and enter it in CSSM.  
In CSSM, open the product instance and choose **Actions > Enter Confirmation Code**.

The license count is updated on the Smart Licenses page in Crosswork Network Controller.

## Disable an offline license reservation

Use this task to release reserved licenses from the current Crosswork Network Controller instance.

Disable offline reservation when you switch to online licensing, decommission or replace a cluster, move a deployment to a different data center, or complete a forklift migration to a new Crosswork Network Controller release.



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**Note** After the licenses are released, Crosswork Network Controller moves to evaluation mode if evaluation time remains. If the evaluation period has expired, Crosswork Network Controller moves to Evaluation Expired mode.

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### Procedure

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- Step 1** Choose **Administration > Smart Licenses**, and note the **Product Instance Name**.
- Step 2** Click **Actions**, and then click **Disable License Reservation**.
- Step 3** In the confirmation dialog box, click **Confirm**.
- Crosswork Network Controller generates a Reservation Return Code.
- Step 4** Copy the Reservation Return Code.
- Step 5** In Cisco Smart Software Manager (CSSM), remove the reservation from the required product instance.
- Log in to CSSM and select the appropriate Virtual Account.
  - Navigate to the required product instance and choose **Actions > Remove**.
  - Paste the Reservation Return Code and click **Remove Reservation**.
- Step 6** Return to the Smart Licenses page in Crosswork Network Controller and confirm that the registration status is **Unregistered**.
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