



## Managing Licenses

The **Administration > Licenses** page allows you to manage Prime Infrastructure, wireless LAN controllers, and Mobility Services Engine (MSE) licenses.

Although Prime Infrastructure and MSE licenses can be fully managed from the **Administration > Licenses** page, you can only view Wireless LAN Controller (WLC). You must use WLC or Cisco License Manager (CLM) to manage WLC licenses.



**Tip**

To learn more about Prime Infrastructure licensing, go to [Cisco.com](https://www.cisco.com) to watch a multimedia presentation. Here you can also find the learning modules for a variety of Prime Infrastructure topics. In future releases, we will add more overview and technical presentations to enhance your learning.

- [Prime Infrastructure Licensing, page 11-1](#)
- [Controller Licensing, page 11-5](#)
- [MSE Licensing, page 11-6](#)
- [Assurance Licensing, page 11-11](#)

## Prime Infrastructure Licensing

You purchase licenses to access the Prime Infrastructure features required to manage your network. Each license also controls the number of devices you can manage using those features.

You need a base license and the corresponding feature licenses (such as assurance or lifecycle license) to get full access to the respective Prime Infrastructure features to manage a set number of devices.

If you have installed Prime Infrastructure for the first time you may access the lifecycle and assurance features using the built-in evaluation license that is available by default. The default evaluation license is valid for 60 days for 100 devices. You can send a request to [ask-prime-infrastructure@cisco.com](mailto:ask-prime-infrastructure@cisco.com) if:

- You need to extend the evaluation period
- You need to increase the device count
- You already have a particular feature license and need to evaluate the other feature licenses

You will need to order a base license and then purchase the corresponding feature license before the evaluation license expires. The license that you purchase must be sufficient to:

- Enable access to all the Prime Infrastructure features you want to use to manage your network.

- Include all the devices in your network that you want to manage using Prime Infrastructure.

To ensure you have the licenses to achieve these goals, do the following:

1. Familiarize yourself with the types of license packages available to you, and their requirements. See [Purchasing a Prime Infrastructure License, page 11-2](#).
2. View the existing licenses. See [Verifying License Details, page 11-3](#) for help on ordering and downloading licenses.
3. Calculate the number of licenses you will need, based both on the package of features you want and the number of devices you need to manage. See [Managing License Coverage, page 11-3](#)
4. Add new licenses. See [Adding Licenses, page 11-4](#).
5. Delete existing licenses. See [Deleting Licenses, page 11-4](#).

If you are already using the Prime Infrastructure or any other network management product and you plan to extend your device coverage, see [Managing License Coverage, page 11-3](#).

## Purchasing a Prime Infrastructure License

You purchase the following licenses based on the features you are required to access:

- Base License—Each Prime Infrastructure management node requires a single base license as a prerequisite for adding feature licenses.
- Lifecycle license—The Lifecycle license type is based on the number of managed devices. The lifecycle license provides full access to the following Prime Infrastructure lifecycle management features:
  - Device configuration management and archiving
  - Software image management
  - Basic health and performance monitoring
  - Troubleshooting

You need to order a single base license, and then purchase lifecycle licenses as necessary to access the Prime Infrastructure lifecycle management features. Lifecycle licenses are available in bundle sizes of 25, 50, 100, 500, 1000, 2500, 5000, and 10,000 devices and can be combined.

- Assurance license—The Assurance license is based on the number of NetFlow-monitored devices and Network Analysis Module (NAM) data collection-enabled devices:
  - NetFlow enabled on multiple interfaces in a device counts as one device towards an Assurance license.
  - Multiple NetFlow technologies (such as NetFlow, medianet, Prime Assurance (PA), and Network-Based Application Recognition (NBAR)) enabled on a device count as one device towards an Assurance license.
  - When NetFlow is enabled on a wireless controller, each active AP for which NetFlow is generated counts as one device towards an Assurance license.
  - Each NAM device for which data collection is enabled counts towards an Assurance license.

The Assurance license provides access to the following management features:

- End-to-end application, network, and end-user experience visibility
- Multi-NAM management
- Monitoring of WAN optimization

You can order a single base license, then purchase additional Assurance licenses as necessary. Assurance licenses are available in bundle sizes of 25, 50, 100, 500, 1000, 2500, 5000, and 10,000 devices and can be combined.

- **Collector License**—The Collector license is based on NetFlow processing in flows per second. By default, the Assurance license provides a Collector license to process NetFlow for up to 20,000 flows per second. You can also purchase a Collector license to support up to 80,000 flows per second.

**Note**

When you see a warning message as ‘Base license is missing’ or ‘Multiple base licenses present, use only one’ under **Administration > Licenses > Files > License Files**, you can ignore the warning and proceed.

## Managing License Coverage

Prime Infrastructure is deployed using a physical or a virtual appliance. You use the standard license center GUI to add new licenses. The new licenses are locked using the standard Cisco Unique Device Identifier (UDI) for a physical appliance and a Virtual Unique Device Identifier (VUDI) for a virtual appliance.

To view the UDI or VUDI, see [Verifying License Details, page 11-3](#).

You can upgrade to Prime Infrastructure 2.0 if you are already using one or more of the following products:

- Prime Infrastructure 1.1.1.24
- Prime Infrastructure 1.2.0.103
- Prime Infrastructure 1.2.1.12
- Prime Infrastructure 1.3.0-20

For ordering information, refer to the Ordering Guide on the Prime Infrastructure [Support](#) page.

**Note**

If you are using LMS, you need to migrate existing data from the previous installation to the new Prime Infrastructure installation. For more details on data that can be exported from LMS 4.2.x to PI 2.0, see [Migrating Data from Cisco Prime LMS to Cisco Prime Infrastructure, page 6-15](#)

## Verifying License Details

Before you order new licenses, you might want to get details about your existing licenses. For example, you can verify your existing license type, product ID, device and interface limits, and number of devices and interfaces managed by your system.

To verify license details, choose **Administration > Licenses**, then rest your cursor on the icon that appears next to **Licenses**.

The licensing ordering help screen that appears provides the following information:

- Feature licenses that your system is licensed for
- Ordering options
- UDI or VUDI

## Adding Licenses

You need to add new licenses when:

- You have purchased a new Prime Infrastructure license.
- You are already using Prime Infrastructure and have bought additional licenses.
- You are upgrading to Prime Infrastructure, see [Managing License Coverage, page 11-3](#).

To add a new license:

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- Step 1** Choose **Administration > Licenses**.
  - Step 2** Under the Summary folder, click **Files**, then click **License Files**.
  - Step 3** Select the licenses that you have ordered with the required device limit, then click **Add**.
  - Step 4** Browse to the location of the license file, then click **OK**.
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## Deleting Licenses

When you delete licenses from Prime Infrastructure, all licensing information is removed from the server. Make a copy of your original license file in case you want to add it again later. There are several reasons you might want to delete licenses:

- You installed temporary licenses and want to delete them before applying your permanent licenses.
- You want to move your licenses to a different server. You must first delete the licenses from the original server, then send an email to [licensing@cisco.com](mailto:licensing@cisco.com) requesting a re-host for your licenses. You can then apply the re-hosted licenses to the new server.

To delete a license file:

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- Step 1** Choose **Administration > Licenses**.
  - Step 2** Under the Summary folder, click **Files**.
  - Step 3** Click **License Files**.
  - Step 4** Select the license file you want to delete, then click **Delete**.
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## Troubleshooting Licenses

To troubleshoot licenses, you will need to get details about the licenses that are installed on your system. Click **Help > About** Prime Infrastructure to access your license information.

Table 11-1 provides a few scenarios and tips for troubleshooting:

**Table 11-1 Troubleshooting Scenarios**

Scenario	Possible Cause	Resolution
Prime Infrastructure reports a Licensing Error.	The license file becomes corrupted and unusable if you make any modifications to the file.	<ol style="list-style-type: none"> <li>1. Delete the existing license.</li> <li>2. Download and install a new license.</li> </ol>
Unable to add new feature licenses.	The base license is a prerequisite to add any additional feature license.	<ol style="list-style-type: none"> <li>1. Install the base license</li> <li>2. Add new licenses</li> </ol>
Unable to add licenses because the UDI of the device does not match.	You are adding invalid license which is not meant for that particular system.	Add the license that is ordered for the device.
The state of the devices has changed to unmanaged.	The device limit must be less than or equal to lifecycle license limit. The state of the inventoried devices will change to unmanaged if you add or delete devices.	<ol style="list-style-type: none"> <li>1. Delete the additional devices.</li> <li>2. The state of the devices will change to managed after the 24 hours synchronization.</li> </ol> <p>To verify that the status of the inventoried devices has changed to “managed” after synchronization:</p> <ol style="list-style-type: none"> <li>1. Choose <b>Operate &gt; Device Work Center &gt; Collection Status</b></li> <li>2. Hover the mouse over the circle beside the device name to view the collection status details.</li> </ol>

## Controller Licensing

If you choose Files > Controller Files from the left sidebar menu, you can monitor the controller licenses.



### Note

Prime Infrastructure does not directly manage controller licenses, rather it simply monitors the licenses. To manage the licenses you can use command-line interface (CLI) commands, Web UI, or Cisco License Manager (CLM).

This page displays the following parameters:

- Controller Name
- Controller IP—The IP address of the controller.
- Feature—License features include wplus-ap-count, wplus, base-ap-count, and base.

For every physical license installed, two license files display in the controller: a feature level license and an ap-count license. For example if you install a “WPlus 500” license on the controller, “wplus” and “wplus-ap-count” features display. There are always two of these features active at any one time that combine to enable the feature level (WPlus or Base) and the AP count.



### Note

You can have both a WPlus and Base license, but only one can be active at any given time.

- AP Limit—The maximum capacity of access points allowed to join this controller.
- EULA status—Displays the status of the End User License Agreement and is either Accepted or Not Accepted.
- Comments—User entered comments when the license is installed.
- Type—The four different types of licenses are as follows:
  - Permanent—Licenses are node locked and have no usage period associated with them. They are issued by Cisco licensing portal and must be installed using management interfaces on the device. Upon installation of these licenses, you have the necessary permissions across different versions.
  - Evaluation—Licenses are non-node locked and are valid only for a limited time period. They are used only when no permanent, extension, or grace period licenses exist. Before using an evaluation license, you must accept an End User License Agreement (EULA). Even though they are non-node locked, their usage is recorded on the device. The number of days left displays for the evaluation license with the fewest number of remaining active license days.
  - Extension—Licenses are node locked and metered. They are issued by Cisco licensing portal and must be installed using management interfaces on the device. Before using an extension license, you must accept a EULA during installation.
  - Grace Period—Licenses are node locked and metered. These licenses are issued by Cisco licensing portal as part of the permission ticket to rehost a license. They are installed on the device as part of the rehost operation, and you must accept a EULA as part of the rehost operation.




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**Note** Types other than Permanent display the number of days left until the license expires. Licenses not currently in use do not have their counts reduced until they become “In Use.”

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- Status
  - In Use—The license level and the license are in use.
  - Inactive—The license level is being used, but this license is not being used.
  - Not In Use—The license level is not being used and this license is not currently recognized.
  - Expired In Use—The license is being used, but is expired and will not be used upon next reboot.
  - Expired Not In Use—The license has expired and can no longer be used.
  - Count Consumed—The ap-count license is In Use.




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**Note** If you need to filter the list of license files, you can enter a controller name, feature, or type and click **Go**.

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## MSE Licensing

The MSE packages together multiple product features related to network topology, design such as NMSP, Network Repository along with related Service Engines, and application processes, such as the following:

- Context-Aware Service
- Wireless Intrusion Prevention System (WIPS)

To enable smooth management of MSE and its services, various licenses are offered.

**Note**

You must have a Cisco Prime Infrastructure license to use MSE and its associated services.

This section contains the following topics:

- [MSE License Structure Matrix, page 11-7](#)
- [Sample MSE License File, page 11-7](#)
- [Revoking and Reusing an MSE License, page 11-8](#)
- [MSE Services Coexistence, page 11-8](#)
- [Managing MSE Licenses, page 11-9](#)

## MSE License Structure Matrix

Table 11-2 lists the breakdown of the licenses between the High end, Low end and Evaluation licenses for MSE, Location services, SCM, wIPS, and MIR.

**Table 11-2** MSE License Structure Matrix

	High End	Low End	Evaluation
<b>MSE Platform</b>	High-end appliance and infrastructure platform such as the Cisco 3350 and 3355 mobility services engines.	Low-end appliance and infrastructure platform such as Cisco 3310 mobility services engine.	—
<b>Context Aware Service</b>	25,000 Tags	2000 Tags	Validity 60 days, 100 Tags and 100 Elements.
	25,000 Elements	2000 Elements	
<b>wIPS</b>	3000 access points	2000 access points	Validity 60 days, 20 access points.

## Sample MSE License File

The following is a sample MSE license file:

```
FEATURE MSE cisco 1.0 permanent uncounted \
  VENDOR_STRING=UDI=udi,COUNT=1 \
  HOST ID=ANY \
  NOTICE="<LicFileID>MSELicense</LicFileID><LicLineID>0</LicLineID> \
  <PAK>dummyPak</PAK>" \
  SIGN="0C04 1EBA BE34 F208 404F 98ED 43EC \
  45D7 F881 08F6 7FA5 4DED 43BC AF5C C359 0444 36B2 45CF 6EA6 \
  1DB1 899F 413F F543 F426 B055 4C7A D95D 2139 191F 04DE"
```

This sample file has five license entries. The first word of the first line of any license entry tells you what type of license it is. It can either be a Feature or Increment license. A feature license is a static lone item to license. There can be multiple services engines running in MSE. An Increment license is an additive license. In MSE, the individual service engines are treated as increment licenses.

The second word of the first line defines the specific component to be licensed. For example, MSE, LOCATION\_TAG. The third word depicts the vendor of the license, for example Cisco. The fourth word denotes the version of the license, for example 1.0. The fifth word denotes the expiration date; this can be permanent for licenses that never expire or a date in the format dd-mm-yyyy. The last word defines whether this license is counted.

## Revoking and Reusing an MSE License

You can revoke an MSE appliance license from one system and reuse it on another system. When you revoke a license, the license file is deleted from the system. If you want to reuse the license on another system, then the license needs to be rehosted.

If you want to reuse a license with an upgrade stock keeping unit (SKU) on another system, then you must have the corresponding base license SKU installed in the system to which you want to reuse the upgrade SKU. You cannot reuse the upgrade license SKU in a system if the corresponding base license SKU is deleted from it.

When you revoke a license, MSE restarts the individual service engines to reflect the changes to the licenses. Then the service engines receives the updated capacity from MSE during startup.

## MSE Services Coexistence

With MSE 6.0 and later, you can enable multiple services (Context Aware and wIPS) to run concurrently. Before Version 6.0, mobility services engines only supported one active service at a time.

The following must be considered with coexistence of multiple services:

- Coexistence of services might be impacted by license enforcement. As long as the license is not expired, you can enable multiple services.



### Note

Limits for individual services differ. For example, a low-end mobility services engine (MSE-3310) tracks a total of 2,000 CAS elements; a high-end mobility services engine (MSE-3350) tracks a total of 25,000 CAS elements.

A low-end mobility services engine has a maximum limit of 2000 wIPS elements; a high-end mobility services engine has a maximum limit of 3000 wIPS elements.

- Expired evaluation licenses prevent the service from coming up.
- If a CAS license is added or removed, this process restarts all services on the mobility services engine including wIPS. If a wIPS license is added or removed, the process does not impact CAS; only wIPS restarts.
- Other services can be enabled in evaluation mode even if a permanent license for the maximum number of elements has been applied.

Whenever one of the services has been enabled to run with its maximum license, another service cannot be enabled to run concurrently because the capacity of the MSE is not sufficient to support both services concurrently. For example, on MSE-3310, if you install a wIPS license of 2000, then you cannot enable CAS to run concurrently. However, evaluation licenses are not subject to this limitation.

## Managing MSE Licenses

If you choose Files > MSE Files from the left sidebar menu, you can manage the Mobility Services Engine (MSE) licenses.

This section contains the following topics:

- [Registering Product Authorization Keys, page 11-9](#)
- [Installing Client and wIPS License Files, page 11-10](#)
- [Deleting a Mobility Services Engine License File, page 11-11](#)

The page displays the MSE licenses found and includes the following information:



**Note** Because tag licenses are added and managed using appropriate vendor applications, tag licenses are not displayed in this page. Refer to the following URL for more information: <http://support.aeroscout.com>. Evaluation (demo) licenses are also not displayed.

Tag licenses are installed using the *AeroScout System Manager* only if the tags are tracked using Partner engine. Otherwise the tags will be counted along with the CAS element license.

- MSE License File—Indicates the MSE License.
- MSE—Indicates the MSE name.
- Type—Indicates the type of mobility services engine (client elements, wIPS local mode or wIPS monitor mode access points).
- Limit—Displays the total number of client elements or wIPS monitor mode access points licensed across the mobility services engine.
- License Type—Permanent licenses are the only license types displayed on this page.
  - Permanent—Licenses are node locked and have no usage period associated with them. They are issued by Cisco licensing portal and must be installed using management interfaces on the device. Upon installation of these licenses, you have the necessary permissions across different versions.

## Registering Product Authorization Keys

You receive a product authorization key (PAK) when you order a client, wIPS, or tag license from Cisco. You must register the PAK to receive the license file for installation on the mobility services engine. License files are emailed to you after successfully registering a PAK.

Client and wIPS PAKs are registered with Cisco.



**Note** Tag PAKs are registered with AeroScout. To register your tag PAK, go to this URL: <http://www.aeroscout.com/content/support>

To register a product authoritative key (PAK) and obtain a license file for installation:

**Step 1** Open a browser page and go to [www.cisco.com/go/license](http://www.cisco.com/go/license).




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**Note** You can also access this site by clicking the Product License Registration link located on the License Center page of Prime Infrastructure.

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**Step 2** Enter the PAK and click **SUBMIT**.

**Step 3** Verify the license purchase. Click **Continue** if correct. The licensee entry page appears.




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**Note** If the license is incorrect, click the **TAC Service Request Tool** link to report the problem.

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**Step 4** At the Designate Licensee page, enter the mobility service engine UDI in the host ID text box. This is the mobility services engine on which the license will be installed.




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**Note** UDI information for a mobility services engine is found in the General Properties group box at Services > Mobility Services Engine > *Device Name* > *System*.

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**Step 5** Select the **Agreement** check box. Registrant information appears beneath the Agreement check box. Modify information as necessary.




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**Note** Ensure that the phone number does not include any characters in the string for the registrant and end user. For example, enter 408 555 1212 rather than 408.555.1212 or 408-555-1212.

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**Step 6** If registrant and end user are not the same person, select the **Licensee (End-User)** check box beneath registrant information and enter the end-user information.

**Step 7** Click **Continue**.

**Step 8** At the Finish and Submit page, review registrant and end-user data. Click **Edit Details** to correct information, if necessary, then click **Submit**.

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## Installing Client and wIPS License Files

You can install CAS element licenses and wIPS licenses from Prime Infrastructure.




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**Note** Tag licenses are installed using the *AeroScout System Manager*. Refer to the following URL for additional information:  
<http://support.aeroscout.com>.

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To add a client or wIPS license to Prime Infrastructure after registering the PAK:

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**Step 1** Choose **Administration > License Center**.

**Step 2** From the left sidebar menu, choose **Files > MSE Files**.

**Step 3** From the License Center > Files > MSE Files page, click **Add** to open the Add a License File dialog box.

**Step 4** From the MSE Name drop-down list, choose the mobility services engine to which you want to add the license file.




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**Note** Verify that the UDI of the selected mobility services engine matches the one you entered when registering the PAK.

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**Step 5** Enter the license file in the License File text box or browse to the applicable license file.

**Step 6** Once displayed in the License File text box, click **Upload**. Newly added license appears in mobility services engine license file list.




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**Note** A Context Aware Service (CAS) restarts if a client or tag license is installed; a wIPS service restarts if a wIPS license is installed.

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**Note** Services must come up before attempting to add or delete another license.

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## Deleting a Mobility Services Engine License File

To delete a mobility services engine license file:

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**Step 1** From the License Center > Files > MSE Files page, select the check box of the mobility services engine license file that you want to delete.

**Step 2** Click **Delete**, then click **OK** to confirm the deletion.

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## Assurance Licensing

As explained in [Purchasing a Prime Infrastructure License, page 11-2](#), licenses for Assurance features are based on the number of NetFlow-monitored devices and Network Analysis Module (NAM) data collection-enabled devices you have in your network. You manage, verify, and troubleshoot Assurance licenses much as you do with other feature licenses, as explained in [Adding Licenses, page 11-4](#), [Deleting Licenses, page 11-4](#) and [Troubleshooting Licenses, page 11-4](#).

In addition to these functions, Prime Infrastructure also lets you choose which NetFlow and NAM devices you want to manage using Assurance features. For example, if you have only 50 Assurance feature licenses and more than 50 NetFlow and NAM devices, you can choose to manage only your most critical devices. If you later purchase additional Assurance licenses, you can add license coverage for the devices previously left unmanaged.

## Verifying Assurance License Details

Before you buy new Assurance licenses, you may want to get details about your existing Assurance licenses and how they are being used. You can find Assurance license information using the resources in the following table.

**Table 11-3 Finding Assurance License Information**

To see	Choose
The NetFlow-enabled devices in your network that are under Assurance management, as a percentage of the total number of Assurance licenses you have.	<b>Administration &gt; Licenses &gt; Summary.</b>
The total number of Assurance licenses you have and the files associated with them.	<b>Administration &gt; Licenses &gt; Files.</b>
A list of the devices sending NetFlow or NAM polling data to Prime Infrastructure.	<b>Administration &gt; Licenses &gt; Assurance License Manager</b>
The number of Assurance Licenses in use.	
The maximum number of Assurance licenses available to you.	

By default, the total count of Assurance licenses on the Assurance License Manager, Summary and Files pages are always updated whenever you add or delete Assurance licenses. However, note that adding or deleting Assurance licenses is a System Defined Job, which runs automatically once every 12 hours. So it can take up to 12 hours for the Summary, and Assurance License Manager pages to show added or deleted Assurance licenses.

In addition to **Administration > Licenses > Assurance License Manager**, you can always access the Assurance License Manager page using the **Assurance License Manager** link in the upper right corner of the Summary and Files pages.

## Adding License Coverage For NetFlow and NAM Devices

You want to add license coverage for NetFlow or NAM devices when:

- You have purchased new or additional Assurance licenses.
- You have NetFlow and NAM devices not already licensed for Assurance management.

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- Step 1** Choose **Administration > Licenses > Assurance License Manager**.
- Step 2** Above the list of devices currently under Assurance management, click **Add Device**.
- Step 3** Select the check box next to each device you want to put under Assurance management, then click **Add License**. Prime Infrastructure adds the devices immediately.
- Step 4** When you are finished, click **Cancel**.
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## Deleting License Coverage for NetFlow and NAM Devices

You may need to delete license coverage for a NetFlow or NAM device when:

- You have too many NetFlow and NAM devices for the number of Assurance licenses you have.
- You want to stop using Assurance management features with one or more NetFlow and NAM devices

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- Step 1** Choose **Administration > Licenses > Assurance License Manager**. Prime Infrastructure displays the list of devices currently under Assurance management. It also displays the total number of Assurance licenses you have, and the total number of devices under Assurance management.
- Step 2** Select the check box next to each device you want to remove from Assurance management, then click **Remove Device**.
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