CISCO

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Cisco Prime Network Registrar Licensing, Release 11.x

Licensing for Cisco Prime Network Registrar

Licensing in Cisco Prime Network Registrar depends on the specific service you require. You need separate licenses for

- Regional Central Configuration Management (CCM) service

- Authoritative Domain Name System (Authoritative DNS) service

- Caching DNS service

- Dynamic Host Configuration Protocol (DHCP) service, or

- combinations of these services.

Cisco Prime Network Registrar supports both Smart Licensing and traditional licensing. However, it does not support a hybrid model, meaning you can use only one type of license at a time.

This article provides information about the licensing options in Cisco Prime Network Registrar.

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 Prime Network Registrar

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) or the Smart Software Manager satellite, in customer specific Smart Accounts. With CSSM, you may create and manage multiple Virtual Accounts within your Smart Account to manage licenses. The Cisco Prime Network Registrar regional server periodically sends the license usage information to CSSM or the Smart Software Manager satellite. You can log in to your Smart Account to access the license utilization information.

In Cisco Prime Network Registrar, Smart Licensing is enabled by default. Once you register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite, the server remains in evaluation mode (up to 90 days) until the registration is successful. In evaluation mode, you will have access to the selected features. After the registration is successful, all Cisco Prime Network Registrar license types will be available in CSSM or the Smart Software Manager satellite. After the evaluation period of 90 days, if the product is still not registered with CSSM or the Smart Software Manager satellite, or a reservation is not installed, all features will be marked as Out of Compliance (OOC). Smart Licensing remains enabled, allowing you to register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite, or install a reservation.

Smart Licensing Configuration Workflow

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

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 Prime Network Registrar, and CSSM or the Smart Software Manager satellite. For details, see Configure the Transport Settings, on page 2.

3. Register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite using web UI or CLI. For details, see Register Cisco Prime Network Registrar with CSSM or the Smart Software Manager Satellite, on page 4.

4. Monitor your Smart License usage. For details, see View Smart License Usage, on page 5.

Enable Smart Licensing

Smart Licensing is enabled by default for both new installations and upgrades from previous versions. If you have disabled it, follow these steps to re-enable it.

Regional Advanced Web UI

Step 1 From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2 Click **Use Smart Software Licensing** to enable Smart Licensing.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, enable Smart Licensing using the **license smart enable** command.

```
nrcmd-R> smart

nrcmd-R [smartlic]> license smart enable
```

Configure the Transport Settings

The Cisco Prime Network Registrar regional server communicates with CSSM using Call Home or Smart Transport, based on the transport configuration. Call Home is the default transport setting. Communication is established between the Smart Agent of Cisco Prime Network Registrar and CSSM.

Smart Transport Requirements

When using Smart Transport for communication:

- Explicitly set the CSSM server URL to default or custom URL. To do this, use the **license smart url [default |** *url***]** command.

- Ensure that libcurl (built with OpenSSL) is present in the system. If libcurl present in the system is not built with OpenSSL, then communication with CSSM will not be successful. In this situation, either you should use Call Home as the transport setting or install libcurl on the system.

Regional Advanced Web UI

Follow these steps to set up the transport mode between Cisco Prime Network Registrar and CSSM.

Step 1   From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

           The Smart Software Licensing page opens.

Step 2   Click the **View / Edit** link next to **Transport Settings** to open the Transport Settings page.

Step 3   Select the required communication mode and make relevant entries in the fields provided.

- **Direct**—Cisco Prime Network Registrar sends usage information directly over the internet. No additional components are required.

- **Transport Gateway**—Cisco Prime Network Registrar sends usage information to a locally installed Smart Software Manager satellite. Periodically, the information is exchanged with Cisco to keep the Smart Software Manager satellite in sync. This synchronization can occur automatically in connected environments or manually in disconnected environments.

- **HTTP/HTTPS Proxy**—Cisco Prime Network Registrar sends usage information over the internet via a proxy server. Any off-the-shelf proxy will work.

Step 4   Click **Save** to save the transport settings.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, set up the transport type for Smart Licensing using the **license smart transport [callhome | smart]** command.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart transport [callhome | smart]
```

Then

- If you are using the **callhome** transport setting, specify the URL using the following command:

  ```
  nrcmd-R [smartlic]> call-home destination address http url
  ```

- If you are using the **smart** transport setting, specify the URL using the following command:

  ```
  nrcmd-R [smartlic]> license smart url [default | url]
  ```

Register Cisco Prime Network Registrar with CSSM or the Smart Software Manager Satellite

To register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite, you must obtain a token from CSSM or the Smart Software Manager satellite, and enter it in the Cisco Prime Network Registrar web UI or CLI. This is a one-time requirement.

Regional Advanced Web UI

Follow these steps to register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite.

Before you begin

- Ensure that you have a Smart Account with Cisco Systems. If you do not have a Smart Account, then go to Smart Account Request and follow the instructions on the website.
- Ensure that you have connectivity to the URL specified in the Transport Settings page.

Step 1	Log in to your Smart Account in CSSM or the Smart Software Manager satellite.
Step 2	Navigate to the Virtual Account containing the licenses to be used by this product instance.
Step 3	Generate a Product Instance Registration Token, which identifies your Smart Account, and then copy or save it.
Step 4	From the main menu of the Cisco Prime Network Registrar UI, choose **Administration** > **User Access** > **Smart Licenses**. The Smart Software Licensing page opens.
Step 5	Click **Register** to open the Smart Software Licensing Product Registration page.
Step 6	Paste the Product Instance Registration Token you generated in Step 3.
Step 7	Click **Register**.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite using the **license smart register idtoken** *token* command, where *token* is the Product Instance Registration Token generated from CSSM or the Smart Software Manager satellite.

```
nrcmd-R> smart

nrcmd-R [smartlic]> license smart register idtoken token
```

Re-register Cisco Prime Network Registrar with CSSM or the Smart Software Manager Satellite

If the registration fails due to communication failure between Cisco Prime Network Registrar and CSSM or the Smart Software Manager satellite, you may attempt to register the product again.

Regional Advanced Web UI

Follow these steps to re-register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite.

Before you begin

Ensure that you have obtained the Product Instance Registration Token from CSSM or the Smart Software Manager satellite.

Step 1   From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2   Click **Actions** > **ReRegister**.

Step 3   Paste the Product Instance Registration Token you generated from CSSM or the Smart Software Manager satellite.

Step 4   Click **ReRegister**.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, re-register Cisco Prime Network Register using the **license smart register idtoken** *token* [**force**] command, where *token* is the Product Instance Registration Token generated from CSSM or the Smart Software Manager satellite.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart register idtoken token force
```

View Smart License Usage

When Smart Licensing is enabled, Cisco Prime Network Registrar does not display the information about the licensed number of leases (for DHCP), number of RRs (for Authoritative DNS), and number of Caching DNS servers. You must refer CSSM or the Smart Software Manager satellite for the actual license count. However, you can use Cisco Prime Network Registrar web UI or CLI to view the license counts that are currently in use.

Regional Advanced Web UI

To view the current license usage, from the main menu, choose **Administration** > **User Access** > **Smart Licenses**. The Smart License usage details are displayed in the **Smart License Usage** section at the bottom of the page.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, use the **show license summary** command to display the license authorization state and the licenses that are currently used in the system.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> show license summary
```

Renew License Authorization

After registration, when the Smart Agent receives a successful response to an Entitlement Authorization Request sent to CSSM or the Smart Software Manager satellite, it enters the Authorized state. The Smart Licensing system automatically renews authorization periods every 30 days, as long as the license remains in the Authorized state. The Authorization Expired state starts when the authorization period expires after 90 days.

Regional Advanced Web UI

Follow these steps to manually renew the authorization to avoid waiting for the 30-day renewal cycle.

Step 1 From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2 Click **Actions** > **Renew Authorization Now**.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, renew the authorization manually using the **license smart renew auth** command.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart renew auth
```

Renew ID Certificate

Once Cisco Prime Network Registrar is registered, it receives an ID certificate which will be used for future communication with the Cisco licensing authority. This ID certificate is valid for one year. After six months, the agent tries to renew the certificate. If the agent cannot communicate with CSSM, it continues to try and renew the ID certificate until the expiration date (one year). At the end of one year, the agent will move to the Unidentified state and will try to enable the Evaluation period. CSSM will remove the product instance from its database.

Regional Advanced Web UI

Follow these steps to manually renew the ID certificate.

Step 1 From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2 Click **Actions** > **Renew Registration Now**.

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, renew the ID certificate manually using the **license smart renew ID** command.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart renew ID
```

Deregister Cisco Prime Network Registrar

Regional Advanced Web UI

Follow these steps to cancel the registration of the Cisco Prime Network Registrar regional server.

Step 1 From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2   Click **Actions** > **DeRegister**.

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CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, cancel the registration of the Cisco Prime Network Registrar regional server using the **license smart deregister** command.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart deregister
```

After deregistering, the product will be moved to Evaluation mode and the product instance will be removed from CSSM.

Disable Smart Licensing

In Cisco Prime Network Registrar, Smart Licensing is enabled by default.

Regional Advanced Web UI

Follow these steps to disable Smart Licensing for any reason (for example, in case you want to use traditional licensing).

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Step 1   From the main menu, choose **Administration** > **User Access** > **Smart Licenses**.

The Smart Software Licensing page opens.

Step 2   Click **Actions** > **Disable Smart Software Licensing**.

___

CLI Commands

Enable the Smart License configuration mode using the **smart** command. Then, disable Smart Licensing using the **no license smart enable** command.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> no license smart enable
```

Smart License Reservation

The Smart License Reservation mode allows you to reserve a pool of licenses against a regional server. You can reserve Smart Licenses by providing a Reservation Request Code in CSSM. In this method, you can deploy a software license on a product instance without communicating the usage information to CSSM. It is useful in highly secure networks.

There are two types of Smart License Reservation.

- **Permanent License Reservation (PLR)**—PLR is a set of capabilities that is designed for highly secure environments, where communication with outside environment is impossible. Permanent licenses do not require periodic access to the License Authority. Like PAK licenses, you can purchase a license and install the license key for Cisco Prime Network Registrar.

- **Specific License Reservation (SLR)**—SLR is an enforced licensing model that is similar to node locked licensing. The main difference between PLR and SLR is, SLR allows you to select only the required licenses, whereas with PLR it is a single license

that activates all the functionalities of the product. Anyone with a Smart Account can use the SLR feature if they have the product instances that support it.

Note

Cisco Prime Network Registrar supports the configuration of Smart License Reservation only via CLI.

Enable License Reservation

Follow these steps to enable Smart License reservation in Cisco Prime Network Registrar.

Step 1 Use the following commands to enable Smart License Reservation in the Cisco Prime Network Registrar regional server:

```
nrcmd-R> smart

nrcmd-R [smartlic]> license smart reservation
```

Step 2 Use the following command to generate the Reservation Request Code. Copy this code or save it as a file.

```
nrcmd-R [smartlic]> license smart reservation request [local | all]
```

Note It is recommended to use the **local** option to generate a Reservation Request Code.

Step 3 Enter the Reservation Request Code in CSSM.
   a) Log in to your Smart Account in CSSM.
   b) Click **License Reservation** to open the Smart License Reservation page.
   c) Paste the Reservation Request Code in the **Reservation Request Code** field or use the **Browse** option to add it as a file.
   d) Click **Next**.

Step 4 Select the type of license (**PNR-PLR** or **Reserve a specific license**) that you want to reserve. If you select the specific license option, then select the required number of licenses from the list. Click **Next**.

Step 5 Review and confirm the information you entered in the previous step, and click **Generate Authorization Code**. Either copy this Authorization Code to a clipboard, or download it as a file and save it in the Cisco Prime Network Registrar server.

Step 6 Enter the Authorization Code in the Cisco Prime Network Registrar regional server using either of the following commands:

   • If you have copied the Authorization Code in the previous step, then use the following command. Ensure that you enclose the Authorization Code in double quotes.

```
nrcmd-R [smartlic]> license smart reservation install "auth-code"
```

   • If you have downloaded the Authorization Code as a file in the previous step, then use the following command:

```
nrcmd-R [smartlic]> license smart reservation install file file-path
```

Note Since Authorization Code can be a long string, the install file option is recommended while installing SLR.

Update Reserved Licenses

Follow these steps to update the reserved license counts in CSSM.

Step 1 Log in to your Smart Account in CSSM.

Step 2 Navigate to the required product instance under the **Product Instance** tab and click **Actions** > **Update Reserved Licenses**. The Update License Reservation page opens.

Step 3 Select the **Reserve a specific license** option and then, update the reservation counts as required. Click **Next**.

Step 4 Click **Generate Authorization Code**. Either copy this Authorization Code to a clipboard, or download it as a file and save it in the Cisco Prime Network Registrar server.

Step 5 Enter the Authorization Code in the Cisco Prime Network Registrar regional server using either of the following commands. This command generates a Confirmation Code.

- If you have copied the Authorization Code in the previous step, then use the following command. Ensure that you enclose the Authorization Code in double quotes.

  ```
  nrcmd-R [smartlic]> license smart reservation install "auth-code"
  ```

- If you have downloaded the Authorization Code as a file in the previous step, then use the following command:

  ```
  nrcmd-R [smartlic]> license smart reservation install file file-path
  ```

> **Note** Since Authorization Code can be a long string, the install file option is recommended while installing SLR.

Step 6 Enter the Confirmation Code in CSSM.

a) Go to the Update License Reservation page in CSSM and click **Enter Confirmation Code**.

b) Paste the Confirmation Code in the **Reservation Confirmation Code** field or use the **Browse** option to add it as a file.

c) Click **Ok**.

Remove Product Instance

Follow these steps to remove the product instance from the License Reservation.

Step 1 Generate the Return Code using the following commands and copy this Return Code.

```
nrcmd-R> smart
```

```
nrcmd-R [smartlic]> license smart reservation return [local | all]
```

> **Note** It is recommended to use the **local** option to generate the Return Code.

Step 2 Log in to your Smart Account in CSSM.

Step 3 Navigate to the required product instance under the **Product Instance** tab and click **Actions** > **Remove**. The Remove Product Instance page opens.

Step 4 Paste the Return Code in the **Reservation Return Code** field.

Step 5 Click **Remove Product Instance**.

Step 6 In the Cisco Prime Network Registrar regional server, disable the Smart License Reservation using the following commands:

```
nrcmd-R> smart

nrcmd-R [smartlic]> no license smart reservation
```

Smart Product Registration and License Authorization Statuses

Product Registration Status

The License Registration Status reflects whether the product is properly registered with Cisco Smart Software Licensing on Cisco.com.

License Registration Status	Description
Unconfigured/Onboarding	Smart Licensing is initialized but not enabled yet. The Cisco Prime Network Registrar server enter into this state if Smart Licensing is disabled.
Unregistered/Unidentified	Smart Licensing is enabled in Cisco Prime Network Registrar but Cisco Prime Network Registrar is not registered with CSSM or the Smart Software Manager satellite yet. In this state, the licensed features can be used freely during a 90-day evaluation period.
Registered	Cisco Prime Network Registrar is registered with CSSM or the Smart Software Manager satellite. Cisco Prime Network Registrar has received an ID certificate that will be used for future communication with the Cisco licensing authority. The certificate is valid for one year and will be renewed automatically after six months to ensure continuous operation.
Registration Expired	Cisco Prime Network Registrar failed to renew its registration before the expiration date and has been removed from CSSM or the Smart Software Manager satellite. Once the registration expires, a new registration ID token is required to register with CSSM or the Smart Software Manager satellite.

License Authorization Status

The License Authorization status reflects license usage against purchased licenses, and whether you are in compliance with Cisco Smart Licensing. If you exceed the number of purchased licenses, the product's status will be **Out of Compliance**.

License Authorization Status	Description
Evaluation Mode	Cisco Prime Network Registrar is running in evaluation mode (with a 90-day expiration period).
Authorized (In Compliance)	Cisco Prime Network Registrar has a valid Smart Account and is registered. All licenses requested by the product are authorized for use.
Out of Compliance	Cisco Prime Network Registrar has exceeded the number of licenses that were purchased. Specifically, the Virtual Account for the product instance has a shortage of one or more licenses types.

License Authorization Status	Description
Evaluation Expired	The evaluation period has expired and Cisco Prime Network Registrar is in the unlicensed state.
Authorization Expired	Cisco Prime Network Registrar failed to renew its license authorization before the authorization expiration date. CSSM or the Smart Software Manager satellite returns all in-use licenses for this server back to the pool since it has not had any communication for 90 days.

Traditional Licensing Overview

Traditional licenses involve acquiring a perpetual license for a specific version of the software. After registering the software, the license files are delivered via email. You must copy the license file to an accessible location before starting the installation. During the installation process, you will be prompted to provide the location of the license file.

These licenses are valid until the server is upgraded to a newer major version. At that point, you need to purchase new licenses, and the cycle repeats. This approach requires you to manage and update license files whenever the server is upgraded or a new server is purchased.

Traditional Licensing in Cisco Prime Network Registrar

Cisco Prime Network Registrar administers traditional licenses using the FlexLM system.

Whenever you log in to a regional or local cluster, the overall licensing status of the system is checked. If there is no valid system license, the login will be rejected. If there are any violations, you will be notified of the violation and the details. This notification is provided only once per user session. In addition, you will be able to see a message on each page indicating the violation.

In the Cisco Prime Network Registrar web UI, the **Right To Use** and **In Use** counts are displayed for each licensed service. The Right To Use value is the aggregation of the counts across all added licenses for that service. The total In Use value is the aggregation of the latest utilization numbers obtained from all the local clusters. Only the services with a positive Right To Use or In Use count are listed in this section. If the In Use count exceeds the Right To Use count, the "License exceed count" error message appears.

Add Traditional Licenses

Regional Web UI

Before you begin

- Keep the license files you received via email from Cisco after registering the Cisco Prime Network Registrar PAK on the website, in an accessible location. For details on obtaining a traditional license file, see Obtain Traditional License Files, on page 16.

- Disable Smart Licensing. For details, see Disable Smart Licensing, on page 7.

Note

If a license file fails to load, verify that it is a properly formatted text file without any unnecessary characters. Extracting the file from an email and moving it between systems can sometimes result in these problems.

Follow these steps to add traditional licenses.

Step 1	From the main menu, choose **Administration** > **User Access** > **Licenses**.
	The List/Add Product Licenses page opens.
Step 2	Click **Choose file** under the **Add Product License** section.
Step 3	Choose the license file and click **Open**.
	If the license ID in the file is valid, the license key appears in the list of licenses with the message "Successfully added license file *filename*". The Key, Type, Count, and Expiration date details appear, along with an indication of whether it is an evaluation key. If the ID is not valid, the License field shows the contents of the file, and the error message "Object is invalid" appears.
	The License Utilization section at the top of the page lists the type of license, the number of nodes allowed for the license, and the actual number of nodes used. You can expand the section by clicking the plus (+) sign. The license utilization for each licensed service is listed separately in this section.
Step 4	(Optional) To add additional licenses, repeat the above steps.

CLI Commands

- Use the **license** *file* **create** command to register licenses that are stored in a file. The file referenced should include its absolute path or path relative to where you execute the commands. For example:

```
nrcmd-R> license "C:\licenses\product.licenses" create
```

- Use the **license list** command to list the properties of all the created licenses (identified by key).

- Use the **license listnames** command to list only the license keys.

- Use the **license** *key* **show** command to show the properties of a specific license key.

📄 **Note**

If Cisco Prime Network Registrar is installed as a distributed system, the license management is done from the regional cluster. You will not have the option of adding licenses in the local cluster.

License Utilization Calculation

The regional CCM server periodically collects license utilization information from the local clusters and updates the local clusters about whether licensing is in compliance based on the collected usage and registered licenses. The regional CCM server maintains the license utilization history for a predetermined time period. The services on each local cluster will be restricted based on the services for which licenses are present.

This table describes how license utilization is calculated for different services.

Table 1: License Utilization for Different Services

Service	License Utilization Description	License Utilization Calculation Mechanism
DHCP	Total number of "active" DHCP leases (including v4 and v6) Active leases include the number of leases in use by a client (and thus not available to another client) which also includes reservations and leases in transition.	The count of active leases is obtained by summing the DHCPv4 and DHCPv6 lease counts. • The DHCPv4 count is calculated from the DHCP server's **server** category *active-leases + reserved-leases – reserved-active-leases* statistics. • The DHCPv6 count is calculated from the DHCP server's **dhcpv6** category *active-leases + reserved-leases – reserved-active-leases* statistics.
Authoritative DNS	Total number of DNS resource records (all RR types)	The count is from the DNS server's **server** category *total-rrs* statistic.
Caching DNS	Total number of Caching DNS servers being run in the Cisco Prime Network Registrar system	The count is 1 if Caching DNS has been licensed on the cluster.

Considerations for Failover and HA Configurations

Note these points when configuring DHCP failover and HA:

- For failover-pairs and HA-DNS pairs, only one of the clusters is contacted, typically the main one if it is reachable. If the regional does not have valid failover-pair and HA-DNS information, it may calculate incorrect license utilization for DHCP and DNS.

- When you configure DHCP failover, only simple failover is operational and supported.

- Ensure that the replica data is up to date for the clusters, and then pull the address space and/or zone data.

CLI Command

Use the **license showUtilization** [**-rescan**] command to view the number of utilized IP nodes against the RTUs. If the **-rescan** option is specified on the regional, a licensing scan of the local clusters is initiated to update the licensing usage.

View License Utilization History

The License History page enables you to view the licenses utilized within a specified time frame. You can view the license history in the form of a chart, which displays the license utilization history for various services over a period of time. The data is displayed in reverse chronological order, with the most recent data displayed at the top. Based on usage and the services configured, the chart's Y-axis may vary.

Regional Web UI

Follow these steps to view the license history.

Step 1 From the main menu, choose **Administration** > **User Access** > **License History**.

The View License Utilization History page opens.

Step 2 Specify the filter settings in the **Set License History Filter** section. Enable the **Down-sample results** check box to down-sample the dataset that matches the filter options to fit within the specified number of time buckets.

Step 3 Click **Apply Filter** to view the license history for the specified time frame.

The details appear in the form of a chart under the **License History Charts** tab.

Step 4 (Optional) In the **License History Charts** tab, change the chart type by using the **Chart Type** icon below the chart. The different types of chart available are: Column Chart, Line Chart, Area Chart, and Scatter Chart. Click the **Table View** icon below the chart to view the chart data in the form of table.

Step 5 (Optional) Click the **License Table** tab to view the license history details in the form of table.

CLI Command

Use the following command to display the license utilization history for all or the selected services over time.

```
license showUtilHistory [-start start-time] [-end end-time] [-service cdns | dns | dhcp |...| all]
```

License Files

The Cisco Prime Network Registrar 11.x license file contains two sets of licenses:

- **Permanent**—These licenses are similar to those issued for 8.x, 9.x, and 10.x versions. They continue to use the mappings established for Cisco Prime Network Registrar 9.0 and later.

- **Subscription (SIA license)**—You must purchase SIA licenses for future upgrades. The initial subscription is three years, with one year extension for renewals. You can add additional service based licenses in the regional server after logging in.

In case of traditional licenses (FlexLM), you purchase a perpetual license for a version and use it until Cisco Prime Network Registrar servers are upgraded to a newer major version.

Licensing Guidelines

Note these guidelines when using Cisco Prime Network Registrar license files:

- You should have at least one base license for a server to enable the service.

- Cisco Prime Network Registrar 10.x or earlier licenses are not valid for Cisco Prime Network Registrar 11.x. You must obtain a new license for Cisco Prime Network Registrar 11.x. For the 11.x regional server, if there are 10.x Caching DNS clusters, the 10.x Caching DNS licenses must be added on the regional server. The 10.x Caching DNS clusters will use 10.x licenses, and 11.x Caching DNS clusters will use 11.x licenses.

- Do not delete the individual licenses loaded from the file. If required, you may delete the older versions of DNS and DHCP licenses after the upgrade. Retain older versions of Caching DNS licenses if the servers are not upgraded.

- SIA licenses, if provided, should be installed to assure upgrades to future releases.

Available Smart License Files

This table lists the types of smart licenses available for Cisco Prime Network Registrar. For each permanent license, a corresponding SIA license is issued. The expiration date for each SIA license is set to the subscription period.

Table 2: Permanent and SIA License Types

Permanent License	SIA License	Description
PNR-System	PNR-System SIA	Licenses the CCM services. This license is mandatory if you want to run Cisco Prime Network Registrar.
PNR-DHCP	PNR-DHCP SIA	Licenses DHCP/TFTP services and, optionally, an initial count of leases.
PNR-DNS	PNR-DNS SIA	Licenses the authoritative DNS services and, optionally, an initial count of RRs.
PNR-Caching DNS	PNR-Caching DNS SIA	Licenses Caching DNS services and, optionally, an initial count of servers.
PNR-PLR		Licenses Permanent License Reservation for all services.
PNR-DHCP Container	PNR-DHCP Container SIA	Licenses DHCP services on containers.
PNR-DNS Container	PNR-DNS Container SIA	Licenses authoritative DNS services on containers.
PNR-Caching DNS Container	PNR-Caching DNS Container SIA	Licenses Caching DNS services on containers.

Available Traditional License Files

This table lists the types of traditional licenses available for Cisco Prime Network Registrar. For each permanent license, a corresponding SIA license is issued. The expiration date for each subscription license is set to the subscription period.

Table 3: Permanent and SIA License Types

Permanent License	SIA License	Description
base-system	sub-system	Licenses the CCM services. This license is mandatory if you want to run Cisco Prime Network Registrar.
base-dhcp	sub-dhcp	Licenses DHCP/TFTP services and, optionally, an initial count of leases.
base-dns	sub-dns	Licenses the authoritative DNS services and, optionally, an initial count of RRs.
base-cdns	sub-cdns	Licenses Caching DNS services and, optionally, an initial count of servers.
count-dhcp	sub-count-dhcp	Licenses an incremental number of active leases.

Permanent License	SIA License	Description
count-dns	sub-count-dns	Licenses an incremental number of RRs.
count-cdns	sub-count-cdns	Licenses an incremental number of caching server instances.

Obtain Cisco Prime Network Registrar License Files

Obtain Smart License Files

When you purchase Cisco Prime Network Registrar with Smart License, the licenses get deposited to your Smart Account in CSSM or the Smart Software Manager satellite. You must register Cisco Prime Network Registrar with CSSM or the Smart Software Manager satellite using web UI or CLI to use these licenses. For details, see Smart Licensing in Cisco Prime Network Registrar, on page 1.

Obtain Traditional License Files

Follow these steps to obtain a traditional license file after you purchase Cisco Prime Network Registrar.

Step 1   Read the Software License Claim Certificate document packaged with the software.

Step 2   Note the PAK number printed on the certificate.

Step 3   Log in to one of the websites described on the certificate, and follow the registration instructions. The PAK number is required for the registration process.

You will receive the license file through email within one hour of registration.

A typical license file might look like:

```
INCREMENT base-system cisco 11.2 permanent uncounted \

 VENDOR_STRING=<Count>1</Count> HOSTID=ANY \

 NOTICE="<LicFileID>20110919130037832</LicFileID><LicLineID>4</LicLineID> \

 <PAK></PAK><CompanyName></CompanyName>" SIGN=521EA9F0925C
```

Register a Local Cluster that is Behind a NAT

License management is done from the Cisco Prime Network Registrar regional cluster. You must install the regional cluster first, and load all licenses in the regional cluster. A local cluster can then register with a regional cluster. However, if the local cluster is behind a NAT instance, then the registration may fail because the initial request does not reach the regional cluster.

You can register a local cluster that is behind a NAT instance by initiating the registration from the local cluster, selecting the services and resynchronizing the data.

Local Web UI

Follow these steps to register a local cluster that is behind a NAT.

Before you begin

Ensure that Cisco Prime Network Registrar is installed on both the regional and local clusters.

Step 1 From the main menu, choose **Administration** > **User Access** > **Licenses**.

The List Licenses page appears.

Step 2 Add the details of the regional cluster.
   a) Enter the IP address (IPv4 and/or IPv6) of the regional cluster.
   b) Enter the SCP port of the regional cluster (1244 is the preset value).
   c) Select the IP address (IPv4 and/or IPv6) of the local cluster that you want to register.
   d) Select the component services that you want to register for the local cluster.

Step 3 (Optional) Check the **Generate new host identifier** check box to generate a new UUID.

Step 4 Click **Register**.

> **Note** The regional CCM server maintains the license utilization history for all the local clusters in the Cisco Prime Network Registrar system for all counted services (DHCP, Authoritative DNS, and Caching DNS).

CLI Commands

Register or re-register a local cluster using the following commands:

```
nrcmd> license register [cdns|dns|dhcp[,...]] [<regional-ip>|<regional-ipv6>] [<regional-port>] [-new-uuid]
```

```
nrcmd> license register cdns|dns|dhcp[,...] <regional-ip> <regional-ipv6> [<regional-port>] [-new-uuid]
```