



Junos[®] Space

Cross Provisioning Platform Quick Start Guide

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Cross Provisioning Platform Installation Overview

Cross Provisioning Platform (CPP) is an extension of the Network Activate application. It provides a real-time operations support system (OSS) for creating and deploying services across multivendor devices. With Cross Provisioning Platform, you can:

- Provision services between Juniper Networks devices and Nokia devices.
- Provision services across Juniper Networks devices and NEC's iPASOLINK devices.
- Provision services across Juniper Networks devices and Canoga Perkins network interface devices (NIDs).

Cross Provisioning Platform uses the Simple Object Access Protocol (SOAP) APIs to communicate with Nokia 5620 Service Aware Manager (SAM) and Representational State Transfer (REST) APIs to communicate with CanogaView operations support systems (OSS).

Creating services for Cross Provisioning Platform requires the coordination of tasks performed in several areas of expertise including script design, system administration, and service provisioning. When you create a Cross Provisioning Platform service definition, you can attach scripts designed for the service.

This application is built to run on Junos Space Network Management Platform—an open, secure, and scalable software platform that allows customers, partners, and developers to build and deploy simple and smart applications to manage and analyze network element data and optimize network infrastructure and operations management.

This Quick Start Guide describes how you can quickly set up a Junos Space Appliance in a single-node configuration, install CPP, and bring your devices under CPP management.

You can install Cross Provisioning Platform in one of the following hardware configurations:

- A Juniper Networks JA2500 Junos Space Hardware Appliance—For details about setting up a JA2500 appliance for Cross Provisioning Platform, see [“Setting Up a JA2500 Appliance for Cross Provisioning Platform” on page 2](#).
- Junos Space Virtual Appliance—For details about setting up a Junos Space virtual appliance for Cross Provisioning Platform, see [“Setting up a Junos Space Virtual Appliance for Cross Provisioning Platform” on page 2](#).

For information about installing Junos Space virtual appliances on a VMware ESX server, VMware ESXi server, or KVM server, see the [Junos Space Virtual Appliance Installation and Configuration Guide](#).

This document is intended for network operators and administrators who install, configure, and manage the network security infrastructure.

The following sections describe the basic steps to install and configure CPP:

- [Setting Up a JA2500 Appliance for Cross Provisioning Platform on page 2](#)
- [Setting up a Junos Space Virtual Appliance for Cross Provisioning Platform on page 2](#)
- [Upgrading Junos Space Network Management Platform on page 3](#)
- [Installing Cross Provisioning Platform on page 4](#)
- [Upgrading Cross Provisioning Platform on page 4](#)
- [Uploading DMI Schemas on page 7](#)
- [Preparing Devices for Management by Cross Provisioning Platform on page 8](#)
- [Discovering Devices on page 9](#)
- [Exploring Cross Provisioning Platform on page 9](#)

Setting Up a JA2500 Appliance for Cross Provisioning Platform

The Juniper Networks JA2500 Junos Space appliance is a dedicated hardware device that provides the computing power and specific requirements to run Security Director and the Security Director API as applications.

For detailed steps on installing a JA2500 appliance, see [Juniper Networks JA2500 Junos Space Appliance Hardware Guide](#).

Configuring Basic Settings for a JA2500 Appliance

You must set up the JA2500 appliance to run as a Junos Space node. To configure a JA2500 appliance as a Junos Space node, you must configure basic network and system settings to make the appliance accessible on the network. For complete configuration steps, see [Configuring a Junos Space Appliance as a Junos Space Node](#).

Setting up a Junos Space Virtual Appliance for Cross Provisioning Platform

The Junos Space virtual appliance consists of preconfigured Junos Space Network Management Platform software with a built-in operating system and application stack that is easy to deploy, manage, and maintain.

For more information on installing Junos Space virtual appliance, see [Junos Space Virtual Appliance Installation and Configuration Guide](#).

Configuring the Basic Settings for a Junos Space Virtual Appliance

You must set up the Junos Space virtual appliance to run as a Junos Space node. After you deploy a Junos Space virtual appliance, you must enter basic network and machine information to make your Junos Space virtual appliance accessible on the network. For complete configuration steps, see [Configuring a Junos Space Virtual Appliance as a Junos Space Node](#).

Upgrading Junos Space Network Management Platform

Junos Space Cross Provisioning Platform release is supported only on the corresponding Junos Space Network Management Platform release. For example, Cross Provisioning Platform Release 17.1R1 is supported only on Junos Space Network Management Platform Release 17.1R1. If your appliance is running the supported version of Junos Space, you can skip this procedure and begin installation of Cross Provisioning Platform.

If your appliance is running a Junos Space Network Management Platform release that is earlier than the supported release, you need to upgrade Junos Space Network Management Platform before upgrading Cross Provisioning Platform.

To upgrade your Junos Space Network Management Platform:

1. Determine the version of the installed Junos Space Platform:
 - a. Log in to Junos Space Platform by using the default username and password for Junos Space Platform: **super** and **juniper123**.
Junos Space Platform opens the dashboard.
 - b. Click the plus symbol (+) next to Administration to expand the Administration menu.
 - c. Click **Applications** to list all of the applications installed.
 - d. Note the version of the Junos Space Platform or the Network Application Platform. (Some earlier versions of the Junos Space Platform were named Network Application Platform.) If the currently installed release is a supported one, you can skip the rest of this procedure; if not, you must upgrade the Junos Space Platform to a supported release.
2. Upgrade Junos Space Network Management Platform using the procedure at [Upgrading to Junos Space Network Management Platform Release 17.1R1](#).



NOTE: If the Junos Space Platform installation is running a version earlier than Release 16.1, you must first upgrade the installation to Release 16.1R2 and then upgrade to Release 17.1R1. For upgrade details, see [Upgrading to Junos Space Network Management Platform Release 16.1R1](#).



NOTE: For information about application compatibility, see the Knowledge Base article KB27572 at [Junos Space Application Compatibility](#).

Installing Cross Provisioning Platform

Before you begin:

- You cannot install Network Activate on the same system as Cross Provisioning Platform (CPP). Uninstall Network Activate before you install CPP on your system.
- Download CPP software image to the hard disk or an SCP server. Open a new browser page, log in to the Juniper software downloads page and download the required CPP version to either the hard disk or an SCP server. The CPP software images are located at the [Junos Space and Junos Space Cross Provisioning Platform Download](#) page.

To install CPP:

1. Download the CPP image from the [download site](#).
2. Install the CPP application using the procedure at *Adding a Junos Space Application*.

Upgrading Cross Provisioning Platform

Before you start the upgrade, ensure that you have:

- Junos Space running on your appliance. If your appliance is running an unsupported release of Junos Space, you must upgrade Junos Space before installing Cross Provisioning Platform(CPP). For step-by-step instructions on upgrading Junos Space, see “[Upgrading Junos Space Network Management Platform](#)” on page 3.
- Downloaded the CPP software image to the hard disk or to an SCP server. The CPP software image is located at <http://www.juniper.net/support/downloads/space.html>.



CAUTION: If you have installed the Network Activate application, you cannot install the Cross Provisioning Platform application. Likewise, if you have installed the Cross Provisioning Platform application, you cannot install the Network Activate application.

To install Cross Provisioning Platform Release 17.1R1:

1. Install Junos Space Platform Release 17.1R1.
2. Reboot the JBoss server.
3. Install Cross Provisioning Platform Release 17.1R1.
4. Reboot the JBoss server.

To upgrade Cross Provisioning Platform from Release 14.1R2 or Release 14.3R1 or Release 15.1R1, Release 16.1R1 or Release 16.1R2:

1. Upgrade Junos Space Platform to Release 15.1R1.



NOTE: If you are upgrading from Cross Provisioning Platform Release 15.1R1, you can skip this step.

2. Before upgrading to Junos Space Platform 15.2R2, you must uninstall Red Hat Package Manager. You can use the `uninstall_rpm.sh` script to uninstall Red Hat Package Manager. For more information about the script, contact the Juniper Networks Technical Assistance Center.
3. Upgrade Junos Space Platform to 15.2R2.4
4. Before you reboot the JBoss server, you must install Red Hat Package Manager for the Cross Provisioning Platform application. You can use the `install_rpm.sh` script to install the Red Hat Package Managers. For more information about the script, contact the Juniper Networks Technical Assistance Center.
5. Upgrade Junos Space Platform to Release 16.1R1.

To upgrade to Junos Space Platform Release 16.1R1, you must follow the procedure outlined in *Upgrading to Junos Space Network Management Platform Release 16.1R1*.
6. Reboot the JBoss server.
7. Install Junos Space Platform hot patch release 16.1R1-hotpatch-v1. See ["Step-by-Step Procedure" on page 6](#) for instructions on installing Junos Space Platform hot patch release 16.1R1-hotpatch-v1.
8. Reboot the JBoss server.
9. Upgrade Cross Provisioning Platform to Release 16.1R1.



NOTE: You can skip this step if you prefer to install Cross Provisioning Platform Release 16.1R2, directly.

10. Upgrade Cross Provisioning Platform to Release 16.1R2.
11. Upgrade NetworkAppsAPI Release 16.1R2.
12. Upgrade Junos Space Platform to Release 17.1R1.
13. Reboot the JBoss server.
14. Upgrade Cross Provisioning Platform to Release 17.1R1.
15. Upgrade NetworkAppsAPI Release 17.1R1.

To install Junos Space Platform hot patch for Release 16.1R1:

1. Download the Junos Space Platform 16.1R1 Patch v1 (16.1R1-hotpatch-v1.tgz) patch to your local computer from the <https://www.juniper.net/support/downloads/?p=space&rel=1489#sw> location.
2. Log in to the Junos Space active VIP node as the admin user.
3. Create a temporary directory *16.1r1-hotpatch-v1* at *var/tmp/*.

```
mkdir 16.1r1-hotpatch-v1
```

4. Navigate to the location on the node where you stored the patch.
5. Extract the patch by using the following command:

```
tar zxvf 16.1r1-hotpatch-v1.tgz
```

6. On all nodes, you must manually stop all services. Run the following commands:

```
service jmp-watchdog stop
```

```
service jboss stop
```

```
service jboss-dc stop
```

7. To install patch only from VIP node, run the following command:

```
sh patchme.sh
```

To install patch individually on all nodes, run the following command:

```
sh patchme.sh LOCAL
```

8. You are prompted to enter your password. Enter your CLI password.
The JBoss server is rebooted automatically.

Uploading DMI Schemas

Each device type is described by a unique data model (DM) that contains all the configuration data for the device type. The DMI schema lists all the possible fields and attributes for a type of device. The later schemas describe the new features of recent device releases. It is important that you load all your device schemas into Junos Space Network Management Platform; otherwise, only a default schema is applied when you try to edit a device configuration by using the device configuration edit action in the Devices workspace.

In most installations, Junos Space automatically matches DMI schemas to device families. However, there might be certain situations where your network uses a device for which Junos Space does not have the latest or supported schema available. In such instances, you must obtain and upload the requisite schema and set that schema as the default DMI schema for that device family. Set a default DMI schema for each device family to enable Junos Space to apply the appropriate schema to a device family.

For each of the Cross Provisioning Platform (CPP) release, we recommend that you use the corresponding schema. For example, if you are installing Cross Provisioning Platform Release 14.3, you must download Release 14.3 schema. You can download the schema from [Schema Repository](#).

If you cannot find the equivalent schema, use the latest schema from the main release or contact Juniper Support System (JSS).

To install or update a DMI schema on Junos Space:

1. From the Network Application Platform, navigate to **Administration > Manage DMI Schemas > Update Schema**.

The Update Schema page appears.

To add or update a DMI schema, you must have the **.tgz** archive files containing the schema on the machine running the Junos Space GUI. There are several ways of acquiring such files.

You can:

- Download files from Juniper Networks SVN repository
- Obtain files from JSS
- Create your own files

For detailed steps on acquiring and uploading the schema files, see Junos Space Documentation or [Managing DMI Schemas Overview](#).

2. After uploading the schema, select the schema and click **Install**.

The Manage DMI Schemas inventory landing page appears, displaying the newly installed schema. The Manage DMI Schemas page displays data in a table that contains the following columns:

- Device Family—Type of device family
- OS Version—Version of Junos OS
- Device Series—Type of Juniper Networks device
- State—Whether default or not. An empty cell in this column means that the DMI schema in that row is not the default.

In the thumbnail view, this information is displayed on each thumbnail.

3. In the tabular view, select the row that contains the appropriate combination of device family, OS version, and device series, and mouse over the **Actions** menu to select **Set Default Schema**.

In the thumbnail view, select the appropriate thumbnail and perform the same action.

The Set Default DMI Schema dialog box opens, displaying the DMI schema name, device family, and OS version.

4. Click **Set Default**.

If any other schema was previously the default, in the tabular view, the cell in the State column appears empty, and the word *Default* appears in the State column for the selected schema. In the thumbnail view, the default status is indicated by an orange-colored asterisk on the icon for a DMI schema, and the word *Default* below the OS version.

Preparing Devices for Management by Cross Provisioning Platform

To discover and manage devices, Cross Provisioning Platform (CPP) requires the following minimum device configuration as a prerequisite for installation on a device.

Ensure that the device:

- Has a static management IP address that is reachable from the Junos Space server. The IP address can be an in-band address or an out-of-band address.
- Is enabled for SSH v2. Issue the **set system services ssh protocol-version v2** command to enable SSH v2 on ACX Series, EX Series, M Series, MX Series, and PTX Series routers.
- Has a user ID with the superuser class configured. Junos Space and CPP use this user ID to authenticate the SSH connection with the device.
- Is enabled for SNMP with the appropriate read-only V1, V2, and V3 credentials created. You do not need to configure SNMP trap receivers; CPP configures traps by performing a deployment task.

In addition, the following protocol ports must be open for CPP communication:

- Port 22 for SSH connections. If you have changed the SSH port to a port other than port 22 on your Junos Space Platform, you must change the SSH ports on your managed devices to the port that the Junos Space Platform is using.
- Port 10162 for SNMP traps. CPP receives traps from managed devices on this port. (After you install CPP, use CPP to configure SNMP on your devices to send traps to CPP on this port.)
- Port 162 for service-level SNMP traps. CPP uses OpenNMS for SNMP trap collection and correlation.
- Port 21 (TCP) and port 69 (UDP) for uploading the software image and configuration file to the FTP server.

You can verify whether a port is open by logging in to the Junos Space CLI and using the **nmap** command. For example, to determine whether port 8889 is open on a controller, issue the following command:

```
root@space# nmap <IP address of controller> -p 8889
```

Discovering Devices

When you start Cross Provisioning Platform (CPP) for the first time, the Junos Space database does not contain any devices. The first step is to add devices from your network to the Junos Space Platform database. Even with large networks, CPP has made this step relatively easy and straightforward. You add configuration and runtime information about the devices to CPP and the database by using a process called *device discovery*. When a device is discovered, the device's interface is displayed and CPP begins to monitor the device.

For more information about device discovery, see *Prestaging Devices Overview*, *Prestaging Devices Process Overview*, and *Discovering and Assigning All N-PE Devices*.

Exploring Cross Provisioning Platform

After your devices are functional and synchronized with the Junos Space Platform database, several functions in CPP are automatically enabled. However, there are a few additional tasks that you need to perform to use all the features of CPP. We recommend that you do the following:

- Set up users.

After you install CPP, only one username is defined: *super* with the default password, *juniper123*.

You have the ability to set up users with different CPP privileges. New CPP users are set up in Junos Space and are assigned the roles and privileges defined in Junos Space. For more information about setting up users, see *Creating a User-Specific Role to Prevent or Allow Certain Actions on a Service*.

- Learn what you can do with CPP

There are two ways you can become familiar with the functions and features of CPP:

- Read *Junos Space Cross Provisioning Platform Release Notes*. These release notes highlight the primary features of CPP.
- Use the extensive help system that guides you through CPP. Clicking the main Help icon provides a top-down view into the help system; clicking a Help icon on a pane or window provides context-sensitive information. Use the help system to become familiar with CPP and the different modes and panes of the interface.

Getting Started with Cross Provisioning Platform

Based on your network deployment requirements and configuration settings, you may require a service to be applied on devices in your topology. It is essential to discover or add the devices that you want to be administered using Cross Provisioning Platform (CPP) to the Junos Space Platform application database, before you can enable and define the service. The devices must be configured with the basic and mandatory device settings before the devices are discovered for additional modifications, such as the configuration of a service. These settings include routing instances, routing protocols, interfaces, and administrative groups.

The following workflow describes the tasks that you need to perform after the installation of CPP to enable effective and streamlined management, provisioning, and troubleshooting of devices and services configured using CPP.

1. Discover devices using the Cross Provisioning Platform GUI or the Junos Space Platform workspace. For instructions on discovering devices with CPP, see *Discovering and Assigning All N-PE Devices*. For instructions on discovering devices using the Junos Space Platform workspace, see *Discovering Devices* in the *Junos Space Network Application Platform User Guide*.



NOTE: Before you can add a device to the Junos Space Platform database using device discovery, the following conditions must be met:

- SSH v2 is enabled on the device. To enable SSH v2 on a device, issue the following CLI command:


```
set system services ssh protocol-version v2
```
- The NETCONF protocol over SSH is enabled on the device. To enable the NETCONF protocol over SSH on a device, issue the following CLI command:


```
set system services netconf ssh
```
- The device is configured with a static management IP address that is reachable from the Junos Space server. The IP address can be an in-band address or an out-of-band address.
- A user with full administrative privileges is created on the device for the Junos Space administrator.
- If you plan to use SNMP to probe devices as part of device discovery, ensure that SNMP is enabled on the device with appropriate read-only V1, V2C, or V3 credentials.

2. Discover the roles of devices and assign network-provider edge (N-PE) roles as necessary. To prestage devices and assign device roles, see *Discovering Device Roles* and *Discovering and Assigning N-PE Devices with Exceptions*.
3. Create service templates. Templates provide a powerful mechanism to configure advanced service-related options that are not exposed through the service order creation workflow. Templates are attached to a service definition. To work with service templates, see *Service Templates Overview* and *Applying a Service Template to a Service Definition*.
4. Review the predefined service definitions that are available by default and determine whether you want to create a new customized service definition. A service definition specifies the attributes that are common among a group of service orders that have similar service requirements. To work with service definitions, see *Predefined Service Definitions* and *Creating a Cross Provisioning Platform Service Definition*.
5. Create customers that denote the users to be associated with service orders. New customers must be identified to the system before you can provision and activate a service order for customers. To create customers, see *Adding a New Customer*.

6. Create service orders. A service order is an instance of the service definition that completes the definition for a specific customer's use. To work with service orders, see *Creating a Cross Provisioning Platform Service Order*.
7. Deploy service orders to propagate the service configuration to the corresponding devices. To transfer service order configurations to devices and apply the settings on the devices, see *Deploying a Service Order*.
8. Perform audit operations, such as functional and configuration audit, to examine the status of interfaces, neighbor links, and endpoints. You can also identify whether the service configuration on the device has been changed out of band. In addition, you can use op scripts to perform any function available through remote procedure calls (RPCs) supported by either the Junos XML management protocol or the Junos XML API. See *Performing a Functional Audit*, *Performing a Configuration Audit*, and *Troubleshooting N-PE Devices Before Provisioning a Service* for further information.