

Juniper Licensing User Guide

Published
2024-04-22

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Software License Model Overview

SUMMARY

In this topic, you'll learn in detail about the software license model.

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Software License Model Overview

The Software License Model is a framework, set of policies, and tools that help unify and thereby simplify Juniper product-driven licensing and packaging.

Software License Model

The major components of the framework are:

- A focus on customer segments (enterprise, service provider, and cloud) and use cases for Juniper Networks hardware and software products.
- The introduction of subscription licenses and subscription portability for all Juniper Networks products including Junos OS, Contrail, and Juniper cloud-based services.
- The introduction of a common, three-tiered model (standard, advanced, and premium) for all Juniper Networks software products.

Three-Tier Software License Model

As a customer ordering a Juniper Networks product under the Software License Model that includes hardware, you order:

- The hardware platform that includes the standard license.
- The customer support package that fits your needs.
- The advanced or premium subscription licenses, according to your use case. These subscription licenses include embedded customer support.

As a customer ordering a Juniper Networks software product, you order:

- The standard, advanced, or premium subscription license, according to your use case. These subscription licenses include embedded customer support.

Three-Tier Model

As new hardware platforms become available under the Software License Model, you can customize your purchase using one of the following three models:

- **Standard License**

The standard license includes the hardware platform and a license to use the software with the standard feature set. Standard Return Material Authorization (RMA) policies apply with no changes in case of hardware failure. Customer support is ordered separately as you select your preferred hardware support policy and support for the standard software features. For more information about support policy, see [Contact Support](#). The hardware platform does not require a separate license, and the software right-to-use (RTU) license is perpetual for the licensed features.

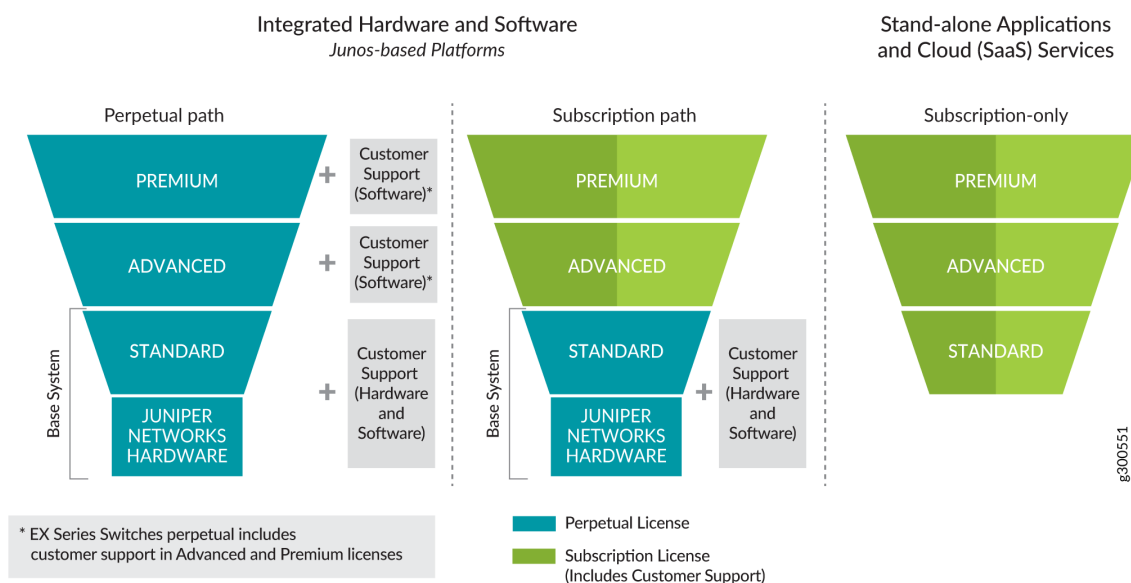
- **Advanced License**

The advanced license includes the subscription-based license to use the advanced software features. The license term is 1 year, 3 years, or 5 years. Customer support for the software features is included. These features differ by use case and platform. For example, to view the list of features for the QFX devices, see [QFX device class and SKUs](#).

- **Premium License**

The premium license includes the subscription-based license to use the Junos OS software features. The license term is 1 year, 3 years, or 5 years. Customer support for the software features is included. These features differ by use case and platform. The premium license is a superset and includes all the features from the advanced license and additional features. For example, to view the list of features for the QFX devices, see [QFX device class and SKUs](#).

Figure 1: Three-Tier Model for the Software License Model



Understanding Perpetual Licenses

All advanced and premium licenses are offered as perpetual licenses under the Software License Model.

Perpetual licenses include the following attributes:

- The perpetual licenses are locked to the chassis on which it is activated.
- Perpetual licenses are not portable.
- You must purchase support separately.
- Premium licenses include all the features in the premium and advanced licenses.
- Perpetual licenses are available in full bandwidth and pay as you grow model (PAYG).
- In case of RMA, you can exchange the perpetual license keys to the RMA device. You must contact Juniper Customer Care to exchange the license keys for RMA devices.

Understanding Subscription Licenses

All advanced and premium licenses are offered as subscriptions under the Software License Model. Subscription licenses are available in 1-year, 3-year, or 5-year terms. After the order fulfilment, the subscription period begins after the completion of a 30-day grace period.

Table 1 describes the subscription terms for purchase and number of months to use the license.

Table 1: Subscription Terms Details

Subscription Terms	Number of Months for the License
1-year	13 months
3-year	37 months
5-year	61 months

Software Subscription licenses include the following attributes:

- Specific products might offer a subset of these licenses. At the end of the term, you have three options:
 - You can renew the subscription, to continue to use the features and scale granted under the license.
 - You can order a replacement subscription.

Upgrading and downgrading the subscription models is supported. In both cases, subscription models are processed as a new order, and you might use the features and scale granted under the new license. For example, you have a 5-year subscription, and you want to downgrade to a 3-year subscription or the other way around.

- You might decline to renew or purchase a replacement subscription. In this case, you may no longer use the features and scale granted under the expired subscription. You can continue to use the hardware and any software features which are granted under the perpetual license.
- Alternatively, when an advanced subscription term expires, your needs may require an upgrade to the premium subscription term.
- Subscription licenses include Juniper customer support for software features as part of the subscription license, unless customer support is provided by a Juniper partner directly. There is no need to order a separate customer support policy for the advanced and premium licenses.
- Premium licenses include all the features in the premium and advanced licenses.
- Subscriptions may be ordered at any time.
- New software features may be available over time with new software versions.
- Subscription licenses are portable for similar devices.

- Subscriptions are cancelable at the end of the term.
- Renewals are not automatic.

License Portability

Subscription licenses are portable. This means that if you buy a new similar hardware platform, then you can port the subscription license. You can stop using the license on one hardware platform and move it to another hardware platform. This portability allows you to balance features across hardware platforms in the network without having to buy extra feature licenses.

Licenses for Juniper Software

In this topic, you can view the licensing information for Juniper products.

License information for Juniper products is as follows:

- [Software Licenses for ACX Series](#)
- [Software Licenses for ATP Appliance](#)
- [Software Licenses for Contrail Service Orchestration](#)
- [Software Licenses for cRPD](#)
- [Software Licenses for cSRX](#)
- [Software Licenses for EX Series Switches](#)
- [Software Licenses for Juniper Apstra](#)
- [Software Licenses for Juniper Coherent Optics](#)
- [Software Licenses for Juniper Secure Connect](#)
- [Software Licenses for Juniper Security Director Cloud](#)
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- [Software Licenses for MX Series Routers and MPC Service Cards](#)
- [Software Licenses for NFX Series](#)
- [Software Licenses for Northstar Controller](#)

- [Software Licenses for Northstar Planner](#)
- [Software Licenses for Paragon Automation](#)
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- [Software Licenses for PTX Series Routers](#)
- [Software Licenses for QFX Series Switches](#)
- [Software Licenses for SRX Series Firewalls](#)
- [Software Licenses for vSRX Virtual Firewall](#)

Software Licenses for ACX Series

ACX Series Routers support subscription and perpetual licenses.

Go through the following tables:

- [ACX Series SKUs Definition on page 7](#)
- [ACX Series Software Licenses Use Case and Scale Information on page 7](#)
- [ACX Series Software Licenses for Metro on page 8](#)
- [ACX Series Software Licenses for Data Center on page 10](#)
- [ACX Series License SKUs on page 13](#)
- [Legacy ACX Series License SKUs on page 14](#)

Table 2: ACX Series SKUs Definition

SKU	SKU Character Description
S-ACX-100GE/400GE-A/A1/P/P1-P/1/3/5 S-EACX-400G/100G-A/A1/P/P1-1/3/5/P	<p>S—Software</p> <p>ACX—Product name: ACX</p> <p>400G/100G—Bandwidth</p> <p>100GE/400GE—Bandwidth</p> <p>A/A1—Advanced license Model</p> <p>P/P1—Premium license Model</p> <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p> <p>P—Perpetual</p>

Table 3: ACX Series Software Licenses Use Case and Scale Information

ACX Series	Use Case	Scale
Premium	Metro and Service Edge	32+ VRFs and 2+ million FIBs
Advanced	Metro Service over MPLS or SR	32 VRFs and up to 2 million FIBs
Standard	Basic Layer 2 only. Layer 3 (with IGP only) for management connectivity	Default Layer 2 scale and 8 queues per port

Table 4: ACX Series Software Licenses for Metro (Continued)

Features with License	ACX710	ACX5448, ACX5448-D/M	ACX7100-32 C/48L	ACX7024, ACX7024X	ACX7509	ACX7348
Segment Routing	Advanced	Advanced	Advanced	Advanced	Advanced	Advanced
SR-TE	Advanced	Advanced	Advanced	Advanced	Advanced	Advanced
SRv6	Advanced	Advanced	Advanced	Advanced	Advanced	Advanced
Layer 2 (basic VLAN)	Standard	Standard	Standard	Standard	Standard	Standard
Perpetual						
MACsec (100-Gigabit MACsec, 400-Gigabit MACsec)	Not supported	Not supported	Perpetual Support only on ACX7100-32 C	Not supported	Perpetual	Perpetual

Software License for ACX Series Routers for Data Center

Table 5: ACX Series Software Licenses for Data Center

Features with License	ACX7100 Series
Use Case for Premium (includes Advanced 2 features): DCI and DC edge	
Data packet time stamping	Premium
Layer 2 circuit	Premium
Layer 3 VPN	Premium

Table 5: ACX Series Software Licenses for Data Center (Continued)

Features with License	ACX7100 Series
LDP	Premium
RSVP	Premium
Segment Routing (SR)	Premium
SR-TE	Premium
Use Case for Advanced 2 (includes Advanced 1 features): Data Center EVPN-VXLAN fabric	
CFM	Advanced 2
EVPN-VXLAN	Advanced 2
Layer 3 multicast	Advanced 2
OAM	Advanced 2
PTP	Advanced 2
Q-in-Q	Advanced 2
Virtual Chassis	Advanced 2
Use Case for Advanced 1 (includes Standard features): Data Center IP fabric	
BGP	Advanced 1
FBF	Advanced 1

Table 5: ACX Series Software Licenses for Data Center *(Continued)*

Features with License	ACX7100 Series
GRE	Advanced 1
IS-IS	Advanced 1
JTI	Advanced 1
OSFP	Advanced 1
ROCEv2	Advanced 1
sFlow	Advanced 1
VRF	Advanced 1
VRRP	Advanced 1
Use Case for Standard: Basic Layer 2 switching or basic Layer 3 forwarding	
BFD	Standard
Layer 2 (xSTP, 802.1Q, LAG)	Standard
Layer 2 and Layer 3 filters	Standard
Layer 2 and Layer 3 QoS	Standard
Layer 3 static	Standard
MC-LAG	Standard
SNMP	Standard

Table 6: ACX Series License SKUs

ACX Series Device	Standard	Advanced	Premium	MACsec Licenses
ACX710	ACX710DC	S-ACX-100GE-A1-P/A-1*3/5	S-ACX-100GE-P1-P, P-1*/3/5	NA
ACX5448, ACX5448- D, ACX5448-M	ACX5448-AC-AFI, AFO, DC-AFI, AFO ACX5448-D-AC- AFO, DC-AFO, AC- AFI, DC-AFI ACX5448-M-AC- AFO, DC-AFO, AC- AFI, DC-AFI	S-ACX-400GE-A1-P, A-1*/3/5	S-ACX-400GE-P1-P, P-1*/3/5	NA
ACX7100-32C	ACX7100-32C-AC-AO, DC-AO	S-EACX-400G-A-1/3/5, A1-P S-EACX-100G-A-1 /3/5, A1-P Data Center - Advanced 1 S-ACXCLDDC32C-A1-1/3/5/P Data Center - Advanced 2 S-ACXCLDDC32C-A2-1/3/5/P	S-EACX-400G-P-1/3/5, P1-P S-EACX-100G-P-1/3/5, P1-P	S-ACXEVO100GMSEC-P S-ACXEVO400GMSEC-P

Table 6: ACX Series License SKUs (Continued)

ACX Series Device	Standard	Advanced	Premium	MACsec Licenses
ACX7100-48L ACX7024 ACX7348	ACX7100-48L-AC-AI, AC-AO, DC-AI, DC- AO	S-EACX-400G-A-1/3/5, A1-P S-EACX-100G-A-1/3/5, A1-P Data Center - Advanced 1 S-ACXCLDDC48L-A1-1/3/5/P Data Center - Advanced 2 S-ACXCLDDC48L-A2-1/3/5/P	S-EACX-400G-P-1/3/5, P1-P S-EACX-100G-P-1/3/5, P1-P	NA

*1 year subscription term is for renewal only.

Legacy Licensing for ACX Series Routers

Table 7: Legacy ACX Series License SKUs

Features with License	ACX5448-D and ACX5448-M	Scale	SKUs
IP, MPLS, timing, CoS, E-OAM, telemetry, RFC2544	Advanced	32 Layer 3 VPN and 8 NG- MVPN	S-ACX-400G-A-1/3/5
All advanced software subscription license features with full-scale.	Premium	Full-scale	S-ACX-400G-P-1/3/5

Software Licenses for ATP Appliance

ATP Appliance supports subscription licenses.

Go through the following tables:

- [ATP Appliance SKU Definition on page 15](#)
- [ATP Appliance Software Licenses on page 16](#)
- [ATP Appliance Software Licenses SKUs on page 16](#)

Table 8: ATP Appliance SKU Definition

SKU	SKU Character Description
S-JATP-100M/500M/1G/5G/10G-S1/S2/A1/A2-1/3/5	<p>S—Software</p> <p>JATP—Product name: ATP Appliance</p> <p>100M—100 Mbps</p> <p>500M—500 Mbps</p> <p>1G—1 Gbps</p> <p>5G—5 Gbps</p> <p>10G—10 Gbps</p> <p>S1—Standard 1</p> <p>S2—Standard 2</p> <p>A1—Advanced 1</p> <p>A2—Advanced 2</p> <p>1/3/5—Subscription term 1, 3, or 5 years</p>

Table 9: ATP Appliance Software Licenses

Features with Licenses	ATP Appliance	Use Case
Threat analytics and threat mitigation using third-party products	Advanced 2 (includes standard 2 features)	ATP Appliance as an on-premises appliance with third-party integrations, ATP Appliance Core with an SRX Series Firewall, ATP Appliance collectors, analytics, and threat mitigation
Threat analytics and threat mitigation using third-party products	Advanced 1 (includes standard 1 features)	ATP Appliance as an on-premises appliance with third-party integrations, ATP Appliance Core with an SRX Series Firewall, ATP Appliance collectors, analytics, and threat mitigation
Malware analysis, SecIntel, and McAfee antivirus	Standard 2	ATP Appliance as an on-premises appliance with ATP Appliance Core and an SRX Series Firewall device as the collector
Malware analysis, SecIntel, and Avira antivirus	Standard 1	ATP Appliance as an on-premises appliance with ATP Appliance Core and an SRX Series Firewall device as the collector

Table 10: ATP Appliance Software Licenses SKUs

ATP Appliance	SKUs
Advanced 2	S-JATP-100M/500M/1G/5G/10G-A2-1/3/5
Advanced 1	S-JATP-100M/500M/1G/5G/10G-A1-1/3/5
Standard 2	S-JATP-100M/500M/1G/5G/10G-S2-1/3/5
Standard 1	S-JATP-100M/500M/1G/5G/10G-S1-1/3/5

License stacking is allowed. You can combine individual or bundled licenses to combine features or increase the total throughput. For example, you can combine a 5-Gbps license and another 5-Gbps license to supply 10-Gbps throughput to the ATP Appliance.

Supported bandwidth are 100 Mbps, 500 Mbps, 1 Gbps, 5 Gbps, and 10 Gbps.

Software Licenses for Contrail Service Orchestration

Contrail Service Orchestration supports subscription licenses.

Go through the following tables:

- [CSO Software Licenses on page 17](#)
- [CSO Supported Devices on page 19](#)
- ["Legacy Licenses for Contrail Service Orchestration" on page 21](#)

Table 11: CSO Software Licenses

Features with License	Advanced: A, B, and C class devices	Standard: A, B, and C class devices	Standard: D and E class devices
Use Case	Hybrid WAN, next-generation firewall management, and SD-WAN	Hybrid WAN, next-generation firewall management, and SD-LAN	Hybrid WAN, next-generation firewall management, and SD-LAN
Authentication for VPNs	Supported	Supported	Not Supported
Firewall	Supported	Supported	Not Supported
Hybrid WAN-dual WAN links (active/backup)	Supported	Supported	Not Supported
NAT	Supported	Supported	Not Supported
Security event logs and reporting	Supported	Supported	Not Supported

Table 11: CSO Software Licenses (Continued)

Features with License	Advanced: A, B, and C class devices	Standard: A, B, and C class devices	Standard: D and E class devices
Single-WAN link-managed CPE	Supported	Supported	Not Supported
User firewall	Supported	Supported	Not Supported
Content Security	Supported	Supported	Not Supported
Zero-touch provisioning (ZTP) for CPE devices	Supported	Supported	Not Supported
Automated switch deployment through ZTP	Not Supported	Not Supported	Supported
LAN configuration and monitoring	Not Supported	Not Supported	Supported
Mist Wi-Fi integration	Not Supported	Not Supported	Supported
Switch management	Not Supported	Not Supported	Supported
Virtual chassis (VC)	Not Supported	Not Supported	Supported
APBR	Supported	Not Supported	Not Supported
AppQoS	Supported	Not Supported	Not Supported
AWS cloud endpoint	Supported	Not Supported	Not Supported
Bandwidth-optimized SLA (RPM)	Supported	Not Supported	Not Supported
Dual CPE	Supported	Not Supported	Not Supported

Table 11: CSO Software Licenses (Continued)

Features with License	Advanced: A, B, and C class devices	Standard: A, B, and C class devices	Standard: D and E class devices
Full mesh or dynamic VPN	Supported	Not Supported	Not Supported
Hub multihoming	Supported	Not Supported	Not Supported
Internet Zscaler breakout	Supported	Not Supported	Not Supported
Network segmentation	Supported	Not Supported	Not Supported
Real-time-optimized SLA (AppQoE)	Supported	Not Supported	Not Supported
SD-WAN up to four WAN links (active/active)	Supported	Not Supported	Not Supported
SLA-based dynamic path selection	Supported	Not Supported	Not Supported

For more information on device categories, see [Table 12 on page 19](#) CSO supported Device Classification.

Table 12: CSO Supported Devices

Device Class	Supported Devices	
A	SD-WAN Supported Devices	Next-Generation Firewall
	CPE/Spoke (<250) SRX300 line of devices with Junos Software Enhanced (JSE) NFX150 vSRX (2 vCPUs)	Next-Generation Firewall Devices Next-Generation Firewall services with Junos Software Enhanced (JSE) SRX300 line of devices vSRX (2 vCPUs)

Table 12: CSO Supported Devices (*Continued*)

Device Class	Supported Devices	
B	<p>CPE/Spoke (<1Gbps)</p> <p>NFX250</p> <p>SRX550 with Junos Software Enhanced (JSE)</p> <p>vSRX (5 vCPUs)</p> <p>Enterprise Hub Devices (Gateway) (<1Gbps)</p> <p>SRX1500 (CSO release 5.0x onwards)</p> <p>Services gateways with Junos Software Enhanced (JSE)</p> <p>Cloud Hub Devices (<1Gbps)</p> <p>SRX1500</p> <p>Services gateways with Junos Software Enhanced (JSE)</p>	<p>Next-Generation Firewall Devices</p> <p>Next-Generation Firewall services with Junos Software Enhanced (JSE)</p> <p>vSRX (5 vCPUs)</p>
C	<p>Enterprise Hub Devices (Gateway) (>1Gbps)</p> <p>SRX4100 and SRX4200</p> <p>Services gateways with Junos Software Enhanced (JSE)</p> <p>Cloud Hub Devices (>1Gbps)</p> <p>Services gateways with Junos Software Enhanced (JSE)</p> <p>SRX4100 and SRX4200</p> <p>vSRX (7 or 19 vCPUs)</p>	<p>Next-Generation Firewall Devices</p> <p>Next-Generation Firewall services with Junos Software Enhanced (JSE)</p> <p>vSRX (7 or 19 vCPUs)</p>

Table 12: CSO Supported Devices (Continued)

Device Class	Supported Devices	
D	Class D does not support any SD-WAN devices	SD-LAN Devices EX2300, EX3400, and EX4300 switches
E	Class E does not support any SD-WAN devices	SD-LAN Devices EX4600 and EX4650 switches

Legacy Licenses for Contrail Service Orchestration

To access this page, click **Administration > Licenses > Device Licenses**.

You can use the Device License Files page to upload licenses for devices and virtual network services from your local file system. Each device license file should contain only one license key. A license key is required to enable various features including virtual network services such as application-based routing, application monitoring, and vSRX Virtual Firewall security features.

Tasks You Can Perform

You can perform the following tasks from this page:

- Add device license files. See [Uploading a License File](#).
- Edit and delete device license entries.
- Push licenses to devices.
- View details of a device license. Click the details icon that appears when you mouse over the row for each license file or click **More > Details**. See [Viewing Object Details](#).
- Show or hide columns about the device license files.
- Sort the device license files. See [Sorting Objects](#).
- Search an object about the device license files. See [Searching for Text in an Object Data Table](#).

Field Descriptions

describes the fields on the License Files page.

Table 13: Fields on the License Files Page

Field	Description
File Name	Displays the filename of the license. Example: license_Image_v1.txt
Description	Displays the description of the license. Example: License file for application routing.
Tenant	Displays the name of the tenant if the license is associated with a tenant. Example: Tenant 1
Uploaded By	Displays the administrator who uploaded the license. Example: test_admin
Uploaded	Displays the date and time when the license was uploaded. Example: Jun 5, 2018, 12:41:08 PM
Devices	Displays the number of devices to which the license is pushed. Click the number to view the devices to which the license is pushed.

Uploading a Device License File

To upload a device license file:

1. Click **Administration > Licenses > Device Licenses**.

The Device License Files page appears.

2. Click the plus icon (+).

The Add Device Licenses page appears.

3. In the Device License File field, specify the location of the license file that you want to upload. Alternatively, you can click Browse to navigate to the file location and select the file.

NOTE: Each license file should contain only one license key.

4. (Optional) From the Tenants list, select the tenant to which you want to associate the license file.

If you associate a license with a tenant, you can apply that license only to devices that belong to that tenant. If a tenant has licenses associated with the tenant, when a device is activated during ZTP, a matching license from the licenses associated with the tenant is downloaded to the device.

You can apply a license that is not associated with a tenant to any device of any of the tenants. During ZTP, when a device is activated for a tenant that does not have any license associated with it, a matching license from the licenses that are not associated with any tenant is downloaded to the device.

5. In the Description field, enter a description for the license that you want to upload.
6. Click **OK** to upload the license.

You are returned to the Device License Files page.

Editing a Device License Entry

You can edit a device license entry to modify the description for the license file.

1. Click **Administration > Licenses > Device Licenses**.

The Device License Files page appears.

2. Select the device license for which you want to modify the description and click the Edit icon.

The Update Device License page appears.

3. Update the description.
4. Click **OK** to save the changes. To discard the changes, click **Cancel**.

If you click **Cancel**, a confirmation message appears. Click **Yes** to confirm that you want to cancel the update.

Deleting a Device License

To delete a device license:

1. Click **Administration > Licenses > Device Licenses**.

The Device License Files page appears.

2. Select the device license that you want to delete and click the delete icon.

3. In the confirmation message, click **Yes** to delete the device license.

To cancel the delete operation, click **No**.

Pushing a License to Devices

You can push licenses on to devices from the Licenses page of the Administration portal. If a license is associated with a tenant, you can push that license only to devices associated with that tenant. However, if no tenant is associated with a license, you can apply the license to any device that belongs to any tenant.

When a license is applied to a device, the license information is added to the device object. When the same license is pushed to the device again, a device-level error message is created. Similarly, if a pushed license does not match a device, the device generates an error message.

To push a license to a device:

1. Click **Administration > Licenses > Device Licenses**.

The License Files page appears.

2. Select the license that you want to push to a device.

The **Push License** button is enabled.

3. Click the **Push License** button.

The Push License page appears.

4. From the Tenants list, select the tenant associated with the site and devices to which you want to apply the license.

NOTE: If the license has already been associated with a tenant, you cannot select a different tenant. You can apply the license only to the sites and devices associated with the tenant.

Sites and devices associated with the selected tenant appear.

5. Select the sites and devices to which you want to apply the license and click **Push Licenses**.

CSO applies the license to the selected devices.

About the CSO Licenses Page

To access this page, click **Administration > Licenses > CSO Licenses**.

Users with the OpCo Administrator role can use the CSO Licenses page to view information about the CSO licenses issued by the SP administrator, assign the licenses to one or more tenants, and update or unassign license assignments.

Tasks You Can Perform

You can perform the following tasks from this page:

- Assign CSO licenses to one or more tenants.
- View the tenants previously assigned to a CSO license—Click *assigned-number* corresponding to a license. The View Assigned page appears displaying the tenants and quantity assigned to each tenant.
- Update or unassign CSO license assignments.
- Search for CSO licenses by using keywords—Click the search icon and enter the search term in the text box and press Enter. The search results are displayed on the same page.

You can search using license SKU, sales order, type, tier, or device class.

- Sort CSO licenses—Click a column name to sort based on the column name.

NOTE: Sorting is applicable only to some fields.

- Show or hide columns—Click the **Show Hide Columns** icon at the top right corner of the page and select the columns that you want displayed on the CSO Licenses page.

Field Descriptions

Table 14: Fields on the CSO Licenses Page

Field	Description
License SKU	Displays the license SKU name; for example, S-CSO-C-S1-A-3.
Sales Order	Sales order number; for example, 15563238.
Type	Type of site—on-premise or cloud.
Tier	Support tier associated with the license; for example, Standard.

Table 14: Fields on the CSO Licenses Page (Continued)

Field	Description
Device Class	Class of the Juniper device associated with the license; for example, B-class.
SSRN	Software support reference number, which is necessary to identify your purchase order when you contact Juniper Networks for support
Start Date	Date (in MMM DD, YYYY format) from which the license is valid; for example, Aug 29, 2019.
End Date	Date (in MMM DD, YYYY format) up to which the license is valid. CSO calculates the end date based on the validity of the license SKU.
Device Quantity	Total number of devices (that the tenant can add) that you can assign for a license.
Available	Available number of devices (that the tenant can add) that you can assign to tenants.
Assigned	<p>Number of devices (that the tenant can add) that are already assigned to one or more tenants:</p> <ul style="list-style-type: none"> • Click <i>assigned-number</i> to view the tenants and quantity assigned for each tenant. The View Assigned page appears displaying the tenants and quantity assigned to each tenant. • If the CSO license is not assigned to any tenants, click Assign to assign the license to one or more tenants.

Assign CSO Licenses, and Update or Unassign CSO License Assignments

Users with the Operating Company (OpCo) Administrator role can:

- Assign a CSO license to one or more tenants.

- Update the assignment of a CSO license that was previously assigned to one or more tenants.
- Unassign a CSO license that was previously assigned to a tenant.

Assign CSO Licenses to Tenants

To assign a CSO license that is not yet assigned to a tenant:

1. Select Administration > Licenses > CSO Licenses.

The CSO Licenses page appears.

2. Click the Assign link corresponding to the license that you want to assign (in the Assigned column).

The Assign CSO License page appears.

3. Configure the fields according to the guidelines.

4. Click Assign.

CSO validates the quantities that you assigned against the total quantity for the license:

- If the sum of assigned quantities is greater than the total quantity, an error message is displayed. You must then modify the assigned quantities to proceed.
- If the sum of assigned quantities is less than or equal to the total quantity, a job is triggered. You are returned to the CSO Licenses, and a confirmation message is displayed on the top of the page. After the job completes successfully, the CSO Licenses page displays the updated information in the Available and Assigned columns.

Table 15: Fields on the Assign CSO License Page

Field	Description
License Information	Displays the following information for the license: <ul style="list-style-type: none"> • Sales Order • License SKU • Start Date
<i>License Assignment</i>	
Device Quantity	Displays the total quantity that can be assigned to tenants.

Table 15: Fields on the Assign CSO License Page (Continued)

Field	Description
Available	Displays the available quantity that can be allocated to tenants.
Tenants List	<p>To assign the license to one or more tenants:</p> <ol style="list-style-type: none"> Click the + icon. A row is added to the grid and selected. In the Tenant column, select the tenant to which you want to assign the license. In the Device Quantity column, enter the quantity that you want to assign to the tenant. Click ✓ (check mark) to save your changes. (Optional) Click the pencil icon to modify the tenant name or the quantity and click ✓ (check mark) to save your changes. (Optional) Repeat the steps if you want to assign the license to additional tenants.

Update or Unassign CSO License Assignments

For a CSO license that is already assigned to one or more tenants, to update or unassign the license assignment:

- Select **Administration > Licenses > CSO Licenses**.

The CSO Licenses page appears.

- Select the license for which you want to update or unassign the license assignment and click the **Update Assignment** button.

The Assign CSO License page appears.

- From the list of tenants displayed in the grid, select the tenant (row) and do one of the following:
 - To update the license assignment:
 - Click the edit (pencil) icon.
 - In the **Device Quantity** column, modify the device quantity.
 - Click ✓ (check mark) to save your changes.

The modification that you made is displayed in the grid.

- To unassign the license assignment:

- a. Click the delete (trash can) icon.

A popup appears asking you to confirm the unassign operation.

- b. Click **Yes**.

The license is unassigned from the tenant that you selected, and the tenant is removed from the grid.

4. (Optional) If the available quantity is non-zero, you can assign the license to additional tenants.

5. Click **Assign**.

CSO validates the modifications against the total device quantity for the license:

- If the sum of assigned quantities is greater than the total quantity, an error message is displayed. You must then modify the assigned quantities to proceed.
- If the sum of assigned quantities is less than or equal to the total quantity, a job is triggered, and you are returned to the CSO Licenses page. A confirmation message is displayed on the top of the page.

After the job completes successfully, the CSO Licenses page displays the updated information in the Available and Assigned columns.

Software Licenses for cRPD

cRPD supports subscription licenses.

Starting in Junos OS Release 23.2R1, cRPD uses a different licensing management system from earlier releases. You must regenerate your license keys before you upgrade cRPD to Junos OS Release 23.2R1 or later. License keys generated through the older licensing management system will not work. See [Activate Junos OS Licenses](#) for instructions to generate your new license keys.

Go through the following tables:

- [cRPD SKU Definition on page 30](#)
- [Routing Stack for Host and Route Reflector Software Licenses on page 31](#)
- [cRPD License SKUs on page 31](#)

Table 16: cRPD SKU Definition

SKU	SKU Character Description
S-CRPD-AAA-B-CC-D	<p>S—Software</p> <p>CRPD—Product name cRPD</p> <p>AAA—Bundle of 10/25/50/100 licenses</p> <p>A—Advanced Software features</p> <p>S—Standard Software features</p> <p>CC—HR - Host Routing</p> <p>D—Subscription term 1, 3, or 5 years</p>
S-CRPD-AAA-BB-CC-D	<p>S—Software</p> <p>CRPD—Product name cRPD</p> <p>AAA—4M/10M/NL - Routing Table Capacity</p> <p>A—Advanced Software features</p> <p>CC—RR - Route Reflector</p> <p>D—Subscription term 1, 3, or 5 years</p>
S-CRPD-AAA- B -CC-D	<p>S—Software</p> <p>CRPD—Product name cRPD</p> <p>AAA—100/1K/10K - Software Bundle Licenses</p> <p>A—Advanced Software features</p> <p>S—Standard Software features</p> <p>CC—HR - Host Routing</p> <p>D—Subscription term 1, 3, or 5 years</p>

Table 17: Routing Stack for Host and Route Reflector Software Licenses

Features with Licenses	cRPD Routing Stack for Host	cRPD Route Reflector
BGP sharding	Advanced	Advanced
Enhanced MPLS	Advanced	Advanced
Automation	Not Supported	Advanced
Programmability	Standard	Advanced
BGP	Standard	Advanced
IS-IS	Standard	Advanced
OSPF	Standard	Advanced
Telemetry	Standard	Advanced
Automation with limited BGP peers	Standard	Not Supported
Equal-cost multipath (ECMP)	Standard	Not Supported

Table 18: cRPD License SKUs

cPRD	Use Case	SKUs	Scale
Routing Stack Host Advanced	Layer 3 deployments with MPLS or SR starting at the host	S-CRPD-A-HR-1/3/5 S-CRPD-100/1K/10K-A- HR-1/3/5	Without scale restrictions on BGP peers and RIB
Routing Stack Host Standard	Layer 3 to the IP host	S-CRPD-S-HR-1/3/5 S-CRPD-100/1K/10K-S- HR-1/3/5	16 BGP Peers and 4M RIB

Table 18: cRPD License SKUs (Continued)

cPRD	Use Case	SKUs	Scale
Route Reflector Advanced	Route Reflector	S-CRPD-4M/10M/NL-A-RR-1/3/5	4M/10M/No limit RIB No FIB

To add, delete, and managing licenses, refer [Software License Model Overview](#) and [Managing Licenses](#).

Software Licenses for cSRX

cSRX supports subscription licenses.

Go through the following tables:

- [cSRX SKU Definition on page 32](#)
- [cSRX Software Licenses on page 33](#)
- [cSRX License SKUs on page 34](#)

Table 19: cSRX SKU Definition

SKU	SKU Character Description
S-CSRX-S/A1/A2-1/3/5	<p>S—Software</p> <p>CSRX—Product name cSRX</p> <p>S—Standard software subscription</p> <p>A1—Advanced 1 software subscription</p> <p>A2—Advanced 2 software subscription</p> <p>1/3/5—Subscription term 1, 3, or 5 years</p>

Table 20: cSRX Software Licenses

Features with Licenses	cSRX
Use Case for Advanced 2 (includes standard features): Next-generation firewall with cloud-based antivirus	
IPS, Application Security, cloud-based antivirus, and URL filtering	Advanced 2
Use Case for Advanced 1 (includes standard features): Data center security	
IPS and Application Security	Advanced 1
Use Case for Standard: Standard firewall	
Firewall	Standard
ALG	Standard
Screens	Standard
User firewall	Standard
NAT	Standard
Static routing	Standard
Logging	Standard
Management	Standard

Table 21: cSRX License SKUs

cSRX	SKU
Advanced 2	S-CSRX-A2-1/3/5
Advanced 1	S-CSRX-A1-1/3/5
Standard	S-CSRX-S-1/3/5

Software Licenses for EX Series Switches

EX Series Switches support subscription and perpetual licenses.

Go through the following tables:

- [EX Series Switches SKUs Definition on page 35](#)
- [EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses on page 35](#)
- [EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches License SKUs on page 40](#)
- [Legacy Feature Licenses for EX2300, EX3400, EX4300, and EX4600 Series Switches on page 42](#)
- [Legacy Feature Licenses for EX4650 Switch on page 44](#)
- [Legacy Feature Licenses for EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9208, EX9214, and EX9250 Switches on page 47](#)
- [Legacy License SKUs for EX2300, EX3200, EX3400, EX4200, EX4300, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9214, EX9208, and EX9250 Switches on page 49](#)

Table 22: EX Series Switches SKUs Definition

SKU	SKU Character Description
S-EX-A/P-C1/C2/C3-1/3/5	<p>S—Software</p> <p>EX-Product name EX Series Switches</p> <p>C1/C2/C3 - Device class</p> <p>A—Advanced</p> <p>P—Premium</p> <p>1/3/5—Subscription term 1, 3, or 5 years</p>

Licenses are offered in standard, advanced, and premium tiers. Read this table to understand the license offering suitable for your deployment.

Table 23: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses

Features with Licenses	EX2300	EX3400	EX4100 and EX4100-F	EX4300	EX4400
Use Case for Premium: Campus and Access Layer 3					
BGP and multiprotocol BGP (MBGP)	Not supported	Premium	Premium	Premium	Premium
IS-IS	Not supported	Premium	Premium	Premium	Premium
EVPN-VXLAN (requires BGP)	Not supported	Not supported	Premium	Premium on EX4300-48MP	Premium
Juniper Mist Wired Assurance and VNA or Marvis subscriptions	Premium (Subscription License only)	Premium (Subscription License only)	Premium (Subscription License only)	Premium (Subscription License only)	Premium (Subscription License only)

Table 23: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses
(Continued)

Features with Licenses	EX2300	EX3400	EX4100 and EX4100-F	EX4300	EX4400
Use Case for Advanced: Campus and Access Layer 2 or Layer 3					
Bidirectional Forwarding Detection (BFD)	Advanced	Advanced	Advanced	Advanced	Advanced
EZ-LAG (Single EVPN Peer)	Not supported	Not supported	Not supported	Not supported	Advanced
IEEE 802.1ag	Advanced	Advanced	Advanced	Advanced	Advanced
IGMP version 1, IGMP version 2, and IGMP version 3	Advanced	Advanced	Advanced	Advanced	Advanced
IPv6 routing protocols: MLD version 1 and MLD version 2	Advanced	Advanced	Advanced	Not supported	Advanced
Juniper Mist Wired Assurance and VNA or Marvis subscriptions	Advanced (Subscription license only)	Advanced (Subscription license only)	Advanced (Subscription license only)	Advanced (Subscription license only)	Advanced (Subscription license only)
PIM multicast	Advanced	Advanced	Advanced	Not supported	Advanced
VRRP version 3	Advanced	Advanced	Advanced	Advanced	Advanced

Table 23: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses
(Continued)

Features with Licenses	EX2300	EX3400	EX4100 and EX4100-F	EX4300	EX4400
Multicast Source Discovery protocol (MSDP)	Advanced	Advanced	Advanced	Advanced	Advanced
Virtual router support for Unicast	Not supported	Advanced	Advanced	Not supported	Advanced
Filter-based forwarding (FBF)	Not supported	Advanced	Advanced	Advanced	Advanced
OAM and Maintenance CFM	Advanced	Advanced	Advanced	Advanced	Advanced
OSPF version 2 or OSPF version 3	Advanced	Advanced	Advanced	Advanced	Advanced
Protocol Independent Multicast (PIM) dense mode	Advanced	Advanced	Advanced	Advanced	Advanced
PIM source-specific mode	Advanced	Advanced	Advanced	Advanced	Advanced
PIM sparse mode	Advanced	Advanced	Advanced	Advanced	Advanced

Table 23: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses
(Continued)

Features with Licenses	EX2300	EX3400	EX4100 and EX4100-F	EX4300	EX4400
Real-time performance monitoring (RPM)	Advanced	Advanced	Advanced	Advanced	Advanced
RIIPv6 (RIPng)	Advanced	Advanced	Advanced	Advanced	Advanced
Unicast reverse-path forwarding (unicast RPF)	Not supported	Advanced	Advanced	Advanced	Advanced
Virtual Router	Not supported	Advanced	Advanced	Advanced	Advanced
VRRP	Advanced	Advanced	Advanced	Advanced	Advanced
Use Case for Standard: Campus and Access Layer 2 or Layer 3					
Layer 2 and Layer 3 filters	Standard	Standard	Standard	Standard	Standard
Layer 2 (xSTP, 802.1Q, and LAG)	Standard	Standard	Standard	Standard	Standard
Layer 2 and Layer 3 QoS	Standard	Standard	Standard	Standard	Standard
Layer 3 (static)	Standard	Standard	Standard	Standard	Standard
IGMP snooping	Standard	Standard	Standard	Standard	Standard

Table 23: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches Software Licenses
(Continued)

Features with Licenses	EX2300	EX3400	EX4100 and EX4100-F	EX4300	EX4400
MLD snooping	Standard	Standard	Standard	Standard	Standard
OAM link fault management (LFM)	Standard	Standard	Standard	Standard	Standard
Q-in-Q	Standard	Standard	Standard	Standard	Standard
sFlow	Standard	Standard	Standard	Standard	Standard
SNMP	Standard	Standard	Standard	Standard	Standard
Junos telemetry interface (JTI)	Standard	Standard	Standard	Standard	Standard
Virtual Chassis*	Standard	Standard	Standard	Standard	Standard

Virtual Chassis*—We've included Virtual Chassis license in the Standard license model on EX2300-C 12-port Switches. However, we don't include the Virtual Chassis license on EX2300 24-port and 48-port Switch Models. You need to purchase the license separately. Every VC member requires a subscription feature license or perpetual feature license.

On EX3400, EX4100, and EX4400 Switches, the flow-based telemetry and MACsec features are supported. A separate license is required to use these features.

- On EX4400 Switch, use the S-EX-FBT-P license SKU for flow-based telemetry feature.
- On EX4100 and EX4100-F Switches, use the S-EX4100-FBT-P license SKU for flow-based telemetry feature.
- Use the S-EX-MACSEC-C2-P and S-EX-MACSEC-C3-P for MACsec feature.

Table 24: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches License SKUs

EX Device Models	Subscription SKUs with SVC CORE or Next Day or Same Day hardware customer support	Subscription SKUs without customer support	Perpetual SKU
Class 1: 12 Ports			
EX2300-C-12P/T (TAA/VC)	S-EX-A-C1-1/3/5 (COR/ND/SD)	S-EX-A-C1-1/3/5	S-EX-A-C1-P
EX4100-F-12P/T	S-EX-A-C1-1/3/5 (COR/ND/SD) S-EX-P-C1-1/3/5 (COR/ND/SD)	S-EX-A-C1-1/3/5 S-EX-P-C1-1/3/5	S-EX-A-C1-P S-EX-P-C1-P
Class 2: 24 Ports			
EX2300-24MP/P/T (TAA/VC/DC)	S-EX-A-C2-1/3/5 (COR/ND/SD)	S-EX-A-C2-1/3/5	S-EX-A-C2-P
EX3400-24P/T (TAA/DC)	S-EX-A-C2-1/3/5 (COR/ND/SD)	S-EX-A-C2-1/3/5 S-EX-P-C2-1/3/5	S-EX-A-C2-P S-EX-P-C2-P
EX4100-24P/T (DC), EX4100-F-24P/T	S-EX-P-C2-1/3/5 (COR/ND)		
EX4300-24P/T			
EX4400- 24P/T/MP/X (TAA/AFI-TAA/DC/DC- AFI/DC-TAA)			
Class 3: 32 Ports or 48 Ports			
EX2300-48MP/P/T (TAA/VC)	S-EX-A-C3-1/3/5 (COR/ND/SD)	S-EX-A-C3-1/3/5	S-EX-A-C3-P

Table 24: EX2300, EX3400, EX4100, EX4100-F, EX4300, and EX4400 Switches License SKUs
(Continued)

EX Device Models	Subscription SKUs with SVC CORE or Next Day or Same Day hardware customer support	Subscription SKUs without customer support	Perpetual SKU
EX2300-48MP/P/T (TAA/VC)	S-EX-A-C3-1/3/5 (COR/ND/SD)	S-EX-A-C3-1/3/5	S-EX-A-C3-P
EX3400-48P/T (TAA/AFI/AFI-TAA)	S-EX-P-C3-1/3/5 (COR/ND/SD)	S-EX-P-C3-1/3/5	S-EX-P-C3-P
EX4100-48P/T (AFI/DC), EX4100-F-48P/T			
EX4300-32F, EX4300-48MP/P/T (TAA/AFI/DC)			
EX4400-48MP/F/P/T (AFI/AFI-TAA/DC/DC-AFI/DC-TAA/TAA)			

Legacy Licensing for EX Series Switches

Legacy Feature Licenses for EX2300, EX3400, EX4300, and EX4600 Series Switches

EX2300, EX3400, EX4300 Series Switches support the new software license model as well as the legacy licenses.

Licenses are offered in Enhanced feature license (EFL) and Advanced feature license (AFL) modes. Read this table to understand the license offerings suitable for your deployment.

Table 25: Legacy Feature Licenses for EX2300, EX3400, EX4300, and EX4600 Series Switches

Features with Licenses	EX2300	EX3400	EX4300	EX4600
Bidirectional Forwarding Detection (BFD)	EFL	EFL	EFL	Not supported
Border Gateway Protocol (BGP) and multiprotocol BGP (MBGP)	Not supported	AFL	AFL	Advanced
Connectivity fault management (IEEE 802.1ag)	Not supported	Not supported	EFL	Not supported
Ethernet VPN (EVPN) with Virtual Extensible LAN (VXLAN)	Not supported	Not supported	AFL EX4300-48MP only	Not supported
Filter-based forwarding (FBF)	EFL	EFL	EFL	Not supported
IGMP (Internet Group Management Protocol) version 1 (IGMPv1), IGMPv2, and IGMPv3	EFL	EFL	EFL	Not supported
Intermediate System-to-Intermediate System (IS-IS)	Not supported	AFL	AFL	Advanced
Multiprotocol Label Switching (MPLS)	Not supported	Not supported	Not supported	Advanced

Table 25: Legacy Feature Licenses for EX2300, EX3400, EX4300, and EX4600 Series Switches
(Continued)

Features with Licenses	EX2300	EX3400	EX4300	EX4600
OSPFv2/v3	EFL	EFL	EFL	Not supported
Protocol Independent Multicast (PIM) dense mode, PIM source- specific mode, PIM sparse mode	EFL	EFL	EFL	Not supported
Real-time performance monitoring (RPM)	Not supported	EFL	EFL	Not supported
RIPng (RIPng is for RIP IPv6)	EFL	EFL	EFL	Not supported
IPv6 routing protocols: Multicast Listener Discovery version 1 and 2 (MLD v1/v2), OSPFv3, PIM multicast, VRRPv3, virtual router support for unicast	EFL	EFL	Not supported	Not supported
Multicast Source Discovery protocol (MSDP)	EFL	EFL	EFL	Not supported

Table 25: Legacy Feature Licenses for EX2300, EX3400, EX4300, and EX4600 Series Switches
(Continued)

Features with Licenses	EX2300	EX3400	EX4300	EX4600
Operations Administration Management (OAM) (Connectivity Fault Management (CFM))	EFL	EFL	EFL	Not supported
Unicast reverse-path forwarding (RPF)	Not supported	EFL	EFL	Not supported
Virtual Router	Not supported	EFL	EFL	Not supported
Virtual routing and forwarding (VRF) BGP	Not supported	Not supported	EFL	Not supported
Virtual Router Redundancy Protocol (VRRP)	EFL	EFL	Not supported	Not supported
VXLAN	Not supported	Not supported	Not supported	Advanced

Licenses for EX4650 Switch are offered in premium and advanced license modes. Read this table to understand the license offerings suitable for your deployment.

Table 26: Legacy Feature Licenses for EX4650 Switch

Features with Licenses	EX4650-PFL	EX4650-AFL
BGP and MBGP	Premium	Premium
Ethernet VPN	Premium	Premium

Table 26: Legacy Feature Licenses for EX4650 Switch (Continued)

Features with Licenses	EX4650-PFL	EX4650-AFL
IPv6 for BGP or MGBP	Premium	Premium
IS-IS or IPv4 and IPv6	Premium	Premium
VRF	Premium	Premium
VXLAN	Premium	Premium
MPLS	Advanced	Advanced
MPLS based Circuit cross-connect (CCC)	Advanced	Advanced
Resource Reservation Protocol (RSVP) label- switched path (LSP)	Advanced	Advanced
Segment Routing MACsec is not supported on EX4650 Switch	Advanced	Advanced
Basic IPv6	Base	Base
BFD	Base	Base
CFM (IEEE 802.1ag)	Base	Base
Class of service (COS)/ Policing/ Shaping/Marking	Base	Base
EZ-LAG (Single EVPN Peer)	Base	Base

Table 26: Legacy Feature Licenses for EX4650 Switch (Continued)

Features with Licenses	EX4650-PFL	EX4650-AFL
Filtering	Base	Base
IGMPv1/v2/v3 (includes IGMP Snooping)	Base	Base
Junos Telemetry Interface	Base	Base
MC-LAG	Base	Base
MLDv1/v2 and MSDP	Base	Base
OSPFv2 and OSPFv3	Base	Base
PIM-DM/SM/SSM and PIMv6	Base	Base
Q-in-Q tunneling (IEEE 802.1ad)	Base	Base
RIPng and RPM	Base	Base
Timing –Boundary Clock and Timing - Transparent Clock	Base	Base
Unicast reverse-path forwarding (RPF)	Base	Base
Virtual Chassis	Base	Base
Virtual Router	Base	Base
VRRP, VRRPv6	Base	Base

Table 27: Legacy Feature Licenses for EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9208, EX9214, and EX9250 Switches (Continued)

Features with Licenses	EX3200	EX4200	EX4500	EX4550	EX6200	EX8200	EX9200, EX9204, EX9208, and EX9214	EX9250
IPv6 routing protocols: IS-IS for IPv6, IPv6 BGP, IPv6 for MBGP	AFL	AFL	AFL	AFL	AFL	AFL	AFL	AFL
Logical systems	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	AFL	Not supported
MPLS with RSVP-based label-switched paths (LSPs)*	AFL	AFL	AFL	AFL	AFL	AFL	AFL	AFL
MPLS-based circuit cross-connects (CCCs)	Not supported	AFL	Not supported	AFL	Not supported	Not supported	Not supported	Not supported
Open vSwitch Database (OVSDB)	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	AFL	Not supported

Table 27: Legacy Feature Licenses for EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9208, EX9214, and EX9250 Switches (Continued)

Features with Licenses	EX3200	EX4200	EX4500	EX4550	EX6200	EX8200	EX9200, EX9204, EX9208, and EX9214	EX9250
Virtual Extensible LAN (VXLAN)	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	AFL	AFL

*Starting with Junos OS Release 17.3R1, you can enable up to 200 RSVP-TE sessions in the EX9200 advanced feature license (AFL).

Table 28: Legacy License SKUs for EX2300, EX3200, EX3400, EX4200, EX4300, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9214, EX9208, and EX9250 Switches

EX Series Switch Models	SKU
EX2300-C-12P, T On purchasing the EFL license, then additional EX2300- VC license purchase is not required	EX-12-EFL Includes the EX2300-VC (Virtual Chassis feature license)
EX2300-24T, 24P, 24MP	EX-24-EFL
EX2300-48T, 48P, 48MP	EX-48-EFL
EX2300-24T,24P, 24MP, EX2300-48T, 48P, 48MP do not include the EX2300-VC (Virtual Chassis feature). To use Virtual Chassis feature, purchase a separate EX2300-VC license for each EX2300 Switch	
EX3400-24T, 24P	EX-24-EFL
EX3400-48P, 48T, 48T-AFI EX3400-48T-DC, DC-AFI	EX-48-EFL

Table 28: Legacy License SKUs for EX2300, EX3200, EX3400, EX4200, EX4300, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9214, EX9208, and EX9250 Switches (Continued)

EX Series Switch Models	SKU
EX3400-24T EX3400-24P	EX-24-AFL
EX3400-48P,48T, 48T-AFI, 48T-DC, DC-AFI	EX-48-AFL
EX3400	EX-QFX-MACSEC-ACC
EX4300-24T,24P	EX4300-24-EFL
EX4300-48MP, 48P, 48T EX4300-48T-AFI, DC, DC-AFI	EX4300-48-EFL
EX4300-32F EX4300-32F-DC	EX4300-32F-EFL
EX4300-24T, 24P	EX4300-24-AFL
EX4300-48MP,48P EX4300-48T, 48T-AFI, 48T-DC EX4300-48T-DC-AFI	EX4300-48-AFL
EX4300-32F, DC	EX4300-32F-AFL
EX4300	EX-QFX-MACSEC-ACC
EX4600	EX4600-AFL
EX4600-40F	

Table 28: Legacy License SKUs for EX2300, EX3200, EX3400, EX4200, EX4300, EX4500, EX4550, EX6200, EX8200, EX9200, EX9204, EX9214, EX9208, and EX9250 Switches (Continued)

EX Series Switch Models	SKU
EX4600-40F	EX-QFX-MACSEC-AGG
EX4650-48Y-AFI/AFO EX4650-48Y-DC-AFI/AFO	EX4650-PFL (Premium) EX4650-AFL (Advanced)
EX3200-24P/T EX4200-24F/P/PX/T	EX-24-AFL
EX3200-48P/T EX4200-48F/P/PX/T	EX-48-AFL
EX4500-40F-BF/BF-C EX4500-40F-FB/FB-C	EX-48-AFL
EX4550	EX4550-AFL
EX9204	EX9204-AFL
EX9208	EX9208-AFL
EX9214	EX9214-AFL

Software Licenses for Juniper Apstra

Juniper Apstra supports subscription licenses.

Go through the following tables:

- [Juniper Apstra SKUs Definition on page 52](#)
- [Juniper Apstra Software Licenses on page 52](#)
- [Juniper Apstra License SKUs on page 54](#)

You can see the detailed list of features supported on Juniper Apstra at [Juniper Apstra Datasheet](#).

Table 29: Juniper Apstra SKUs Definition

SKU	SKU Character Description
S-APSTRA-VM-S-1/3/5	S—Software APSTRA—Product name VM—VMware S—Standard 1/3/5—Subscription term 1, 3, or 5 years
S-APSTRA-S/A/P-1 /3/5	S—Software APSTRA—Product name S—Standard A—Advanced P—Premium 1/3/5—Subscription term 1, 3, or 5 years

Table 30: Juniper Apstra Software Licenses

Features with Licenses	Juniper Apstra
Use Case for Premium (includes advanced features): Large scale, multi-vendor, and policy control	
More than 3 blueprints	Premium
Third party vendor fabrics*	Premium
Policy assurance	Premium

Table 30: Juniper Apstra Software Licenses (Continued)

Features with Licenses	Juniper Apstra
Flow Data	Premium
Use Case for Advanced (includes standard features): Full operation, assurance, and intent-based analytics	
Up to 3 blueprints per instance	Advanced
Advanced Intent Based Analytics (IBA)	Advanced
Apstra telemetry streaming	Advanced
Custom Telemetry Collection	Advanced
Root cause identification and analysis (RCI/RCA)	Advanced
Data Center Interconnect (over-the-top (OTT) Data Center Interconnect (DCI))	Advanced
Use Case for Standard: Basic configuration and operations	
1 blueprint per instance	Standard
Basic Telemetry or Intent Based Analytics (IBA)	Standard
3 or 5 stage IP Clos fabric	Standard
Collapsed fabric	Standard
Device management	Standard
Freeform	Standard

Table 30: Juniper Apstra Software Licenses (Continued)

Features with Licenses	Juniper Apstra
Platform management	Standard
Juniper Apstra Connector for VMware	
50 server hosts per license pack	Standard
VMware vCenter	Standard
VMware NSX-T	Standard

- *Third party vendor fabrics—Fabrics with non-juniper devices requires Premium license.
- The Standard license includes six months of Advanced trial license with Standard license purchase.

You need additional licenses to use the connector for VMware on Juniper Apstra for integrations with VMware vCenter and NSX-T.

Table 31: Juniper Apstra License SKUs

Juniper Apstra	SKUs
Premium	S-APSTRA-P-1 /3/5
Advanced	S-APSTRA-A-1/3/5
Standard	S-APSTRA-S-1/3/5
Standard (Connector for VMware)	S-APSTRA-VM-S-1/3/5

Software Licenses for Juniper Coherent Optics

Juniper Coherent Optics support bundle and perpetual licenses. License bundle includes a set of software features defined for a use case.

Go through the following tables:

- [Juniper Coherent Optics SKUs Definition on page 55](#)
- [Juniper Coherent Optics and Third-party Coherent Optics Software Licenses on page 55](#)

You'll require a license to use coherent optics 400ZR and 400G OpenZR+ on a Juniper Networks device port.

Table 32: Juniper Coherent Optics SKUs Definition

SKU	SKU Character Description
QDD-4C-ZR/ZRM-HP-P-B	QDD —Generic Qualified Juniper Product
JCO-4C-ZR/ZRM-P-B	JCO —Juniper Coherent Optics-Co-Developed
	4C —Speed 400 GBPS
	ZR —OIF 400ZR Implementation Agreement (IA)
	ZRM/ZR-M —OpenZR+ MSA
	HP —High Power (0dBm)
	P —Perpetual
	B —Bundle

Right to use license purchase does not include customer support. See [KB69868](#).

Table 33: Juniper Coherent Optics and Third-party Coherent Optics Software Licenses

Optics	Juniper Orderable SKUs	License Bundle
OIF 400ZR	QDD-4C-ZR-P-B	QDD-400G-ZR (Generic Qualified) S-JCO-400-A1-ZR-P (400ZR license)

Table 33: Juniper Coherent Optics and Third-party Coherent Optics Software Licenses (Continued)

Optics	Juniper Orderable SKUs	License Bundle
	JCO-4C-ZR-P-B	JCO400-QDD-ZR (Juniper Co-Developed) S-JCO-400-A1-ZR-P (400ZR license)
400G OpenZR+	QDD-4C-ZRM-P-B	QDD-400G-ZR-M (Generic Qualified) S-JCO-400-A1-ZRM-P (OpenZR+ license)
	JCO-4C-ZRM-P-B	JCO400-QDD-ZR-M (Juniper Co-Developed) S-JCO-400-A1-ZRM-P (OpenZR+ license)
400G OpenZR+ (0dBm)	QDD-4C-ZRM-HP-P-B	QDD-400G-ZR-M-HP (Generic Qualified) S-JCO-400-A1-ZRM-P (OpenZR+ license)

To use a third-party 400G coherent optics, you must purchase the third-party coherent right to use license through the S-JCO-4C-RTU-DCO-P SKU.

Software Licenses for Juniper Secure Connect

Juniper Secure Connect supports subscription licenses.

Go through the following tables:

- [Juniper Secure Connect SKUs Definition on page 57](#)
- [Juniper Secure Connect Software Licenses on page 57](#)

Table 34: Juniper Secure Connect SKUs Definition

License SKU	SKU Character Description
S-RA3-SRX3XX-S-1/3/5	<p>S—Subscription</p> <p>RA3—Juniper Secure Connect</p> <p>SRX3XX—SRX300 line of devices (only supported on SRX300 line of devices)</p> <p>XCCU—X is the number of total connected concurrent users (supported on SRX Series Firewalls and vSRX Virtual Firewall)</p> <p>S—Standard software subscription</p> <p>1/3/5—Subscription term 1 or 3 or 5 years</p>

Table 35: Juniper Secure Connect Software Licenses

Supported Devices	License SKUs	Description
SRX300	S-RA3-SRX300-S-1/3/5	25 concurrent users with software support
SRX320	S-RA3-SRX320-S-1/3/5	50 concurrent users with software support
SRX340	S-RA3-SRX340-S-1/3/5	150 concurrent users with software support

Table 35: Juniper Secure Connect Software Licenses (Continued)

Supported Devices	License SKUs	Description
SRX345	S-RA3-SRX345-S-1/3/5	250 concurrent users with software support
SRX380	S-RA3-SRX380-S-1/3/5	500 concurrent users with software support
SRX300, SRX320, SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-5CCU-S-1/3/5	5 concurrent users with software support
SRX300, SRX320, SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-25CCU-S-1/3/5	25 concurrent users with software support
SRX320, SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-50CCU-S-1/3/5	50 concurrent users with software support
SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-100CCU-S-1/3/5	100 concurrent users with software support

Table 35: Juniper Secure Connect Software Licenses (Continued)

Supported Devices	License SKUs	Description
SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-250CC U-S-1/3/5	250 concurrent users with software support
SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800, and vSRX Virtual Firewall	S-RA3-500CC U-S-1/3/5	500 concurrent users with software support
SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800	S-RA3-1KCCU -S-1/3/5	1000 concurrent users with software support
SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800	S-RA3-5KCCU -S-1/3/5	5000 concurrent users with software support

SRX Series Firewalls and vSRX Virtual Firewall include two built-in concurrent user/devices licenses. You need new license keys to activate additional concurrent user/devices than the two built-in concurrent user licenses on SRX Series Firewalls and vSRX Virtual Firewall. Contact your Juniper Account Team or Juniper Partner for purchasing additional license.

Software Licenses for Juniper Security Director Cloud

Juniper Security Director Cloud supports subscription licenses.

Go through the following tables:

- [Juniper Security Director Cloud SKUs Definition on page 60](#)
- [Juniper Security Director Cloud Licenses on page 60](#)

Table 36: Juniper Security Director Cloud SKUs Definition

SKU	SKU Character Description
S-SDC-SRX-S-C-1/3/5	<p>S—Software</p> <p>SDC-SRX—SRX Series Firewall on Juniper Security Director Cloud</p> <p>S—Standard</p> <p>C—Customer Support</p> <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p>
S-SD-LOG-1TB-C-1/3/5	<p>S—Software</p> <p>SD-LOG—Juniper Security Director Log</p> <p>1TB—Storage space of 1 TB</p> <p>C—Customer Support</p> <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p>

Table 37: Juniper Security Director Cloud Licenses

Features with Licenses	SKU
Logging and reporting application	S-SDC-SRX-S-C-1/3/5
Log storage	S-SD-LOG-1TB-C-1/3/5

Software Licenses for Juniper Security Director On-Premises

Juniper Security Director On-Premises supports perpetual licenses.

Go through the following tables:

- [Juniper Security Director On-Premises SKUs Definition on page 61](#)
- [Juniper Security Director On-Premises Licenses on page 62](#)

Table 38: Juniper Security Director On-Premises SKUs Definition

SKU	SKU Character Description
S-JSPLT-S2-P	<p>S—Software</p> <p>JSPLT—Junos Space Platform</p> <p>S2—Multinode</p> <p>P—Perpetual</p>
JS-SECDIR-5/10/100	<p>JS—Junos Space</p> <p>SECDIR—Juniper Security Director</p> <p>5/10/100—Number of devices</p>
JS-LOGDIRECTOR-500/1K/5K/10K	<p>JS—Junos Space</p> <p>LOGDIRECTOR—Junos Space Log Director</p> <p>500/1K/5K/10K—Events per second</p>
SDSN-PE-ADD-ON-5/50/100/500/1K	<p>SDSN-PE—Software-Defined Secure Networks Policy Enforcer</p> <p>ADD-ON—Add-on for users with Juniper Security Director</p> <p>5/50/100/500/1K—Number of devices</p>

Table 38: Juniper Security Director On-Premises SKUs Definition (Continued)

SKU	SKU Character Description
SDSN-PE-5/50/100/500/1K	SDSN-PE —Software-Defined Secure Networks Policy Enforcer 5/50/100/500/1K —Number of devices

Table 39: Juniper Security Director On-Premises Licenses

Product with Licenses	SKU
Junos Space Platform	S-JSPLT-S2-P
Junos Space Security Director for SRX Series Firewall	JS-SECDIR-5/10/100
Junos Space Log Director	JS-LOGDIRECTOR-500/1K/5K/10K
Policy Enforcer with existing Security Director	SDSN-PE-ADD-ON-5/50/100/500/1K SDSN-PE-5/50/100/500/1K

Software Licenses for MX Series Routers and MPC Service Cards

MX Series Routers support subscription and perpetual licenses.

Go through the following tables:

- [MX Series SKU Definition on page 63](#)
- [MX Series Routers Software Licenses on page 63](#)
- [MX-SPC3 Software Licenses on page 66](#)
- [MX Series Routers and MX-SPC3 License SKUs on page 68](#)

Table 40: MX Series SKU Definition

SKU	SKU Character Description
S-MXSPC3-A1/A2/A3/P1/P2/P3-1/3/5/P S-MXSPC3-1/2-IPSEC-1/3/5/P	<p>S—Software</p> <p>MXSPC3— Product name: MXSPC3 line card</p> <p>A1/A2/A3—Advanced 1 or advanced 2 or advanced 3 software features</p> <p>P1/P2/P3—Premium 1 or premium 2 or premium 3 software features</p> <p>1/2-IPSEC—Supported IPsec VPN features list</p> <p>1/3/5—Subscription term 1 or 3 or 5 years</p> <p>P—Perpetual license</p>

Table 41: MX Series Routers Software Licenses

Features with Licenses	MX Series Routers
<p>Use Case for Premium (includes Advanced features): Services</p> <p>Scale: 32+IP VPNs and 8+multicast VPNs</p>	
Highscale IP-VPNs	Premium
IP fabrics (SRv6 and SRm6)	Premium
PWHT for Layer 3 VPNs or BNG	Premium
Inline NAT and inline MDI	Premium
1:1 inline J-Flow	Premium
<p>Use Case for Advanced (includes Standard features): Transport</p> <p>Scale: 32 IP VPNs – all address families and 8 next-generation MVPN</p>	

Table 41: MX Series Routers Software Licenses (*Continued*)

Features with Licenses	MX Series Routers
IP routing	Advanced
IGP (OSFP and IS-IS)	Advanced
IP-FRR	Advanced
PIM variants	Advanced
IGMP	Advanced
Internet eBGP peering	Advanced
BGP multihoming (add path and multi-path)	Advanced
EPE	Advanced
BGP PIC	Advanced
BGP flow specification	Advanced
All Layer 2 services—E-LINE (Layer 2 VPNs, Layer 2 circuit, EVPN VPWS, EVPN FXC), E-LAN (bridging, H-VPLS, EVPN, and IRB), E-TREE (H-VPLS, EVPN, and IRB), Layer 2 multicast (snooping included)	Advanced
All MPLS transport—LDP, RSVP-TE, SR, SR-TE, and MPLS-FRR (including TI-LFA)	Advanced
IP fabrics (GRE, MPLSoUDP, VxLAN, and IPinIP)	Advanced
Streaming telemetry	Advanced

Table 41: MX Series Routers Software Licenses (Continued)

Features with Licenses	MX Series Routers
SNMP	Advanced
Policers	Advanced
ACLs	Advanced
J-Flow (sampled)	Advanced
sFlow	Advanced
Port mirroring	Advanced
VLAN queuing	Advanced
Timing (all variants)	Advanced
OAM—BFD	Advanced
Ethernet CFM or LFM	Advanced
MPLS or SR (ping and traceroute)	Advanced
Services OAM	Advanced
RPM	Advanced
TWAMP	Advanced
HQoS	Advanced

Table 41: MX Series Routers Software Licenses (Continued)

Features with Licenses	MX Series Routers
Logical Systems	Advanced
Use Case for Standard: Basic Layer 2 features	
Bridging with port and single level VLAN (dot1Q)	Standard
LAG	Standard

The Junos Fusion Technology feature requires an additional license in addition to Advanced license.

The subscriber management (BNG or CUPS) feature requires an additional license in addition to Premium license.

Features that are not explicitly listed in Premium license are included in Advanced license, except for the following:

- Junos Fusion Technology requires an additional license in addition to Advanced or Premium license.
- Premium software tier is a prerequisite for running subscriber services (BNG (PL), BNG CUPS, MX Mobile User Plane (SAEGW-U, 5G AGF or UPF)).

Table 42: MX-SPC3 Software Licenses

Features with Licenses	MX-SPC3
Use Case for Premium 3: Advanced threat intelligence	
DNS sinkhole, IDS, and URL filtering	Premium 3
Use Case for Premium 2: Service provider edge; Gi firewall for mobile operators; enterprise edge and data center	
CGNAT, DNS sinkhole, IDS, stateful firewall, and URL filtering	Premium 2
Use Case for Premium 1: Enterprise data center and edge; service provider edge	

Table 42: MX-SPC3 Software Licenses (Continued)

Features with Licenses	MX-SPC3
CGNAT, DNS sinkhole, IDS, stateful firewall, and URL filtering	Premium 1
Use Case for Advanced 3: Advanced threat intelligence	
Intrusion detection system (IDS)	Advanced 3
Use Case for Advanced 2: Advanced threat intelligence	
Stateful firewall	Advanced 2
Use Case for Advanced 1: Enterprise data center and edge; service provider edge	
Carrier-grade NAT (CGNAT)	Advanced 1
Use Case for Standard: Enterprise data center; service provider edge and data center	
Traffic Load Balancer (TLB)	Standard

IPsec- Full card for Site-to-Site VPN, Dynamic Endpoint, and AutoVPN, use S-MXSPC3-2-IPSEC-1/3/5/P.

IPsec- Half card for Site-to-Site VPN, Dynamic Endpoint, and AutoVPN, use S-MXSPC3-1-IPSEC-1/3/5/P.

IPsec* - Group VPN, Intra HA, policy-based VPN, passive mode, IPsec tunnel trace route are not supported.

Table 43: MX Series Routers and MX-SPC3 License SKUs

MX Series Routers and MX-SPC3	Subscription	Perpetual
MX304	MX304-BASE/PREM MX304-LMIC16-BASE S-MX-1C/16C-A1/P1-C1-3/5/1*	MX304-BASE/PREM MX304-LMIC16-BASE S-MX-1C/16C-A1/P1-C1-P
MX204	MX204-HW-BASE S-MX-4C-A1/P1-C1-3/5/1*	MX204-HW-BASE S-MX-4C-A1/P1-C1-P
MX10K3-L2103 Supported on MX10003 device	MX10K3-L2103-BASE S-MX-12C-A1/P1-C1-3/5/1*	MX10K3-L2103-BASE S-MX-12C-A1/P1-C1-P
MPC5E Supported on MX240, MX480, MX960, MX2008, MX2010, and MX2020	MPC5E/Q-40G10G/100G10G S-MX-2C4-A1/P1-3/5/1*	MPC5E/Q-40G10G/100G10G S-MX-2C4-A1/P1-P
MPC7E-10G Supported on MX240, MX480, MX960, MX2008, MX2010, and MX2020	MPC7E-10G S-MX-4C-A1/P1-3/5/1*	MPC7E-10G S-MX-4C-A1/P1-P
MPC7E-MRATE Supported on MX240, MX480, MX960, MX2008, MX2010, and MX2020	MPC7E-MRATE S-MX-4C8-A1/P1-3/5/1*	MPC7E-MRATE S-MX-4C8-A1/P1-P
MPC10E-10C Supported on MX240, MX480, and MX960 devices	MPC10E-10C-P-BASE S-MX-10C-A1/P1-3/5/1*	MPC10E-10C-P-BASE S-MX-1C/10C-A1/P1-P

Table 43: MX Series Routers and MX-SPC3 License SKUs (Continued)

MX Series Routers and MX-SPC3	Subscription	Perpetual
MPC10E-15C Supported on MX240, MX480, and MX960 devices	MPC10E-15C-P-BASE S-MX-15C-A1/P1-3/5/1*	MPC10E-15C-P-BASE S-MX-15C-A1/P1-P
MX2K-MPC6E Supported on MX2008, MX2010, and MX2020 devices	MX2K-MPC6E S-MX-2C/2C4/4C-A1/P1-3/5/1*	MX2K-MPC6E S-MX-2C/2C4/4C-A1/P1-P
MX2K-MPC8E Supported on MX2008, MX2010, and MX2020 devices	MX2K-MPC8E S-MX-4C8/8C-A1/P1-3/5/1*	MX2K-MPC8E S-MX-4C8/8C-A1/P1-P
MX2K-MPC9E Supported on MX2008, MX2010, and MX2020 devices	MX2K-MPC9E S-MX-8C-A1/P1-3/5/1*	MX2K-MPC9E S-MX-8C-A1/P1-P
MX10K-LC2101 Supported on MX10008 and MX10016 devices	MX10K-LC2101-BASE S-MX-24C-A1/P1-3/5/1*	MX10K-LC2101-BASE S-MX-24C-A1/P1-P
MX10K-LC480 Supported on MX10008 and MX10016 devices	MX10K-LC2101-BASE S-MX-24C-A1/P1-3/5/1*	MX10K-LC2101-BASE S-MX-24C-A1/P1-P
MX10K-LC480 Supported on MX10008 and MX10016	MX10K-LC480-BASE S-MX-4C8-A1-3/5/1*	MX10K-LC480-BASE S-MX-4C8-A1-P
MX10K-LC9600 Supported on MX10008	MX10K-LC9600-BASE S-MX-96C-A1/P1-3/5/1*	MX10K-LC9600-BASE S-MX-96C-A1/P1-P

Table 43: MX Series Routers and MX-SPC3 License SKUs (Continued)

MX Series Routers and MX-SPC3	Subscription	Perpetual
MX2K-MPC11E Supported on MX2010 and MX2020 devices	MX2K-MPC11E-BASE S-MX-40C-A1/P1-3/5/1*	MX2K-MPC11E-BASE S-MX-40C-A1/P1-P
MX-SPC3	MX-SPC3 S-MXSPC3-A1/A2/A3/P1/P2/P3-1/3/5 S-MXSPC3-1/2-IPSEC-1/3/5	MX-SPC3 S-MXSPC3-A1/A2/A3/P1/P2/P3-P S-MXSPC3-1/2-IPSEC-P

*1 year subscription term is for renewal only.

MPC10E-10C and MPC10E-15C line cards are supported on MX240, MX480, and MX960 devices.

MX2K-MPC11E line cards are supported on MX2010 and MX2020 devices.

MX10K3-L2103 line card is supported on MX10003 device.

MX10K-LC2101, MX10K-LC480, MX10K-LC9600 line cards are supported on MX10008 and MX10016 devices.

The [show system macsec license](#) command displays the total MACsec bandwidth used by the line cards.

The MACsec feature is supported on MX204, MX240, MX304, MX480, MX960, MX2008, MX2010, MX2020, MX10003, MX10004, MX10008, and MX10016 device. These licenses are perpetual.

The minimum number of MACsec bandwidth licenses installed must be greater than or equal to the configured bandwidth of MACsec enabled ports.

The MACsec feature licenses are available in the following variants:

- S-MX-1C-MSEC-P - 100-Gigabit Ethernet MACsec bandwidth license
- S-MX-4C-MSEC-P - 400-Gigabit Ethernet MACsec bandwidth license
- S-MX-4C8-MSEC-P - 480-Gigabit Ethernet MACsec bandwidth license
- There will be no alarms or syslog messages for the following line cards if the license is not installed. However, the MACsec bandwidth usage on these line cards will be tracked.
 - MX10K-LC2101

- MPC5E-100G10G
 - MPC5EQ100G10G
 - MPC5E-40G10G
 - MPC5EQ-40G10G
 - MX2K-MPC6E
 - MPC7E-10G
 - MPC7E-MRATE
 - MX2K-MPC8E
 - MX2K-MPC9E
- The following line cards require MACsec bandwidth license. Junos OS displays a warning when you commit the configuration and generates alarms, if the MACsec bandwidth license is not installed or the MACsec bandwidth usage is more than the installed value.
- MPC10E-10C
 - MPC10E-15C
 - MX2K-MPC11E
 - MX10KM-LC9600-BASE
 - MX10KM-LC480-BASE

Software Licenses for NFX Series

NFX Series support subscription and perpetual licenses.

Go through the following tables:

- [NFX Series SKU Definition on page 72](#)
- [NFX Series Software Licenses on page 72](#)
- [NFX Series Software License SKUs on page 74](#)

Table 44: NFX Series SKU Definition

SKU	SKU Character Description
NFX150/250/350-C/S-ATP/CS-BUN/ATP-BUN/IPS/THRTFEED/W-EWF-1/3/5	<p>NFX150/250/350—Product name: NFX150, NFX250, and NFX350</p> <p>ATP/CS-BUN/ATP-BUN/IPS/THRTFEED/W-EWF</p> <ul style="list-style-type: none"> • ATP—Advanced Threat Prevention • CS-BUN—Content Security bundle • ATP-BUN—Advanced Threat Prevention bundle • IPS—Intrusion Prevention Signature • THRTFEED—Threat Intelligence Feeds • W-EWF—Enhanced Web Filtering <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p>

Table 45: NFX Series Software Licenses

Features with Licenses	NFX	Use Case
IPS, Application Security, URL filtering, on-box antivirus, and ATP Cloud	Premium 3	Data center security or SD-WAN + Cloud ATP
IPS, Application Security, URL filtering, Sophos antivirus and antispam, and ATP Cloud	Premium 2	Next-generation firewall + Cloud ATP
IPS, Application Security, and ATP Cloud	Premium 1	Data center security or SD-WAN + Cloud ATP
IPS, Application Security, URL filtering, and on-box antivirus	Advanced 3	Next-generation firewall with Avira

Table 45: NFX Series Software Licenses *(Continued)*

Features with Licenses	NFX	Use Case
IPS, Application Security, URL filtering, and Sophos antivirus and antispam	Advanced 2	Next-generation firewall with Sophos
IPS and Application Security	Advanced 1	Data center security + SD-WAN
Junos Base JSB (routing, firewall, switching, NAT, VPN, and MPLS)	Standard (includes hardware)	Basic firewall and secure branch routers

Table 46: NFX Series Software License SKUs

NFX Series	NFX150	NFX250	NFX350
SKUs	NFX150-C-CS-BUN-1/3/5 NFX150-C-ATP-BUN-1/3/5 NFX150C-THRTFEED-1/3/5 NFX150-C-W-EWF-1/3/5 NFX150-C-ATP-1/3/5 NFX150-C-IPS-1/3/5 NFX150-S-CS-BUN-1/3/5 NFX150-S-ATP-BUN-1/3/5 NFX150S-THRTFEED-1/3/5 NFX150-S-W-EWF-1/3/5 NFX150-S-ATP-1/3/5 NFX150-S-IPS-1/3/5 NFX150C-THRTFEED-1/3/5	NFX250-S-ATP-1/3/5 NFX250-S-ATP-BUN-1/3/5 NFX250-S-CS-BUN-1/3/5 NFX250-S-IPS-1/3/5 NFX250S-THRTFEED-1/3/5 NFX250-S-W-EWF-1/3/5	S-NFX350S1/S2/S3-A1-1/3/5 S-NFX350S1/S2/S3-A2-1/3/5 S-NFX350S1/S2/S3-A3-1/3/5 S-NFX350S1/S2/S3-P1-1/3/5 S-NFX350S1/S2/S3-P2-1/3/5 S-NFX350S1/S2/S3-P3-1/3/5

Software Licenses for Northstar Controller

Northstar Controller supports subscription licenses.

Go through the following tables:

- [Northstar Controller SKU Definition on page 75](#)
- [NorthStar Controller Software Licenses on page 75](#)
- [NorthStar Controller License SKUs on page 77](#)

Table 47: Northstar Controller SKU Definition

SKU	SKU Character Description
S-NSC-1/10/100-S1/A1/P1-C1/C2/C3/C4-1/3/5	<p>S—Software</p> <p>NSC—Product name: NorthStar Controller</p> <p>1/10/100—Licenses metrics for 1, 10, or 100 devices</p> <p>S1/A1/P1—Standard 1, Advanced 1, or Premium 1 software subscription</p> <p>C1/C2/C3/C4—Device class</p> <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p>

Table 48: NorthStar Controller Software Licenses

Features with Licenses	Northstar Controller
Use Case for Premium (includes advanced features): Advanced transport engineering	
Egress peering engineering	Premium
Ingress peering engineering	Premium
Multilayer packet-optical support	Premium
Network slicing management	Premium
Use Case for Advanced (includes standard features): LSP provisioning	
Auto-bandwidth LSPs (NorthStar managed)	Advanced

Table 48: NorthStar Controller Software Licenses (Continued)

Features with Licenses	Northstar Controller
Diverse LSPs	Advanced
High availability	Advanced
LSP optimization (bandwidth and delay)	Advanced
LSP provisioning (RSVP and SR)	Advanced
LSP templates	Advanced
Maintenance events	Advanced
P2MP LSP provisioning	Advanced
Standby and secondary LSPs	Advanced
Symmetric pair groups	Advanced
TE++ LSPs	Advanced
Time-based LSP scheduling	Advanced
Use Case for Standard: Network visualization and monitoring	
Collection using Paragon Insights	Standard
cRPD support	Standard
Delay visualization	Standard

Table 48: NorthStar Controller Software Licenses (Continued)

Features with Licenses	Northstar Controller
Demand visualization (LDP FEC and flow based)	Standard
Dynamic topology acquisition	Standard
Flow collection	Standard
Interface statistics visualization	Standard
JTI telemetry collection	Standard
LSP reporting, statistics visualization (RSVP and SR)	Standard
P2MP LSP visualization	Standard
SNMP based collection	Standard
Topology visualization	Standard

Table 49: NorthStar Controller License SKUs

Northstar Controller	SKU
Premium	S-NSC-100-P1-C1-1/3/5 S-NSC-10-P1-C2-1/3/5 S-NSC-1-P1-C3-1/3/5 S-NSC-1-P1-C4-1/3/5

Table 49: NorthStar Controller License SKUs (Continued)

Northstar Controller	SKU
Advanced	S-NSC-100-A1-C1-1/3/5 S-NSC-10-A1-C2-1/3/5 S-NSC-1-A1-C3-1/3/5 S-NSC-1-A1-C4-1/3/5
Standard	S-NSC-100-S1-C1-1/3/5 S-NSC-10-S1-C2-1/3/5 S-NSC-1-S1-C3-1/3/5 S-NSC-1-S1-C4-1/3/5

Software Licenses for Northstar Planner

Northstar Planner supports subscription licenses.

Go through the following tables:

- [Northstar Planner SKUs Definition on page 79](#)
- [NorthStar Planner Software Licenses on page 79](#)
- [Northstar Planner License SKUs on page 81](#)
- [NorthStar Controller and NorthStar Planner Devices Support on page 81](#)

Table 50: Northstar Planner SKUs Definition

SKU	SKU Character Description
S-NSP-1/10/100-S1/A1-C1/C2/C3/C4-1/3/5	<p>S—Software</p> <p>NSP—Product name: NorthStar Planner</p> <p>1/10/100—Licenses metrics for 1, 10, or 100 devices</p> <p>S1/A1—Standard 1, or Advanced 1 software subscription</p> <p>C1/C2/C3/C4—Device class</p> <p>1/3/5—Subscription term: 1 year, 3 years, or 5 years</p>

Table 51: NorthStar Planner Software Licenses

Features with Licenses	Northstar Planner
Use Case for Advanced (includes standard features): Advanced capacity planning	
Compliance assessment	Advanced
Cost based design	Advanced
Fast reroute planning	Advanced
GRE tunnels	Advanced
Hardware inventory and reports	Advanced
Integrity check and reports	Advanced
Multicast planning	Advanced
Network slicing planning	Advanced

Table 51: NorthStar Planner Software Licenses (*Continued*)

Features with Licenses	Northstar Planner
P2MP planning	Advanced
Traffic matrix solver	Advanced
VPN analysis and planning	Advanced
Use Case for Standard: Basic network planning	
BGP analysis	Standard
Capacity planning	Standard
CoS analysis and planning	Standard
Data collection from Northstar Controller	Standard
Detailed reporting	Standard
ECMP analysis	Standard
Failure simulation	Standard
File based data insertion (configuration, operational, tunnels, delays, and demands)	Standard
Path assignments	Standard
Policy based routes	Standard
Routing protocols	Standard

Table 51: NorthStar Planner Software Licenses (Continued)

Features with Licenses	Northstar Planner
Static routes	Standard

Table 52: Northstar Planner License SKUs

Northstar Planner	SKU
Advanced	S-NSP-100-A1-C1-1/3/5 S-NSP-10-A1-C2-1/3/5 S-NSP-1-A1-C3-1/3/5 S-NSP-1-A1-C4-1/3/5
Standard	S-NSP-100-S1-C1-1/3/5 S-NSP-10-S1-C2-1/3/5 S-NSP-1-S1-C3-1/3/5 S-NSP-1-S1-C4-1/3/5

Table 53: NorthStar Controller and NorthStar Planner Devices Support

Device Class	Description	Supported Devices
C1	Extra-small devices such as mobile backhaul access devices, and small or remote CPE devices	ACX500, ACX710, ACX1000, ACX1100, ACX2100, ACX2200, cSRX, EX2300, and SRX300

Table 53: NorthStar Controller and NorthStar Planner Devices Support *(Continued)*

Device Class	Description	Supported Devices
C2	Small devices such as compact, fixed-form-factor switches, metro access switches, and top-of-rack switches	ACX4000, ACX5048, ACX5096, ACX5448, ACX6160, ACX6360, EX4300, EX4600, EX4650, EX9250, MX5, MX10, MX40, MX80, MX104, MX150, MX204, vMX, PTX1000, PTX10001, QFX5110, QFX5120, QFX5200, QFX5210, QFX5220, QFX10002, SRX550, SRX1500, SRX4100, SRX4200, and vSRX
C3	Small chassis-based switches, routers, and firewalls (chassis with less than or equal to six slots)	EX9204, M Series, MX Series GNFs, MX240, MX480, MX10003, PTX10002, PTX10003, SRX3400, SRX3600, SRX4600, and SRX5400
C4	Large chassis-based systems (chassis with more than six slots)	EX9208, EX9214, MX960, MX2008, MX2010, MX2020, MX10008, MX10016, PTX3000, PTX5000, PTX10008, PTX10016, QFX10008, QFX10016, SRX5600, SRX5800, and T Series

Software Licenses for Paragon Automation

Paragon Automation supports subscription licenses.

Go through the following tables:

- [Paragon Automation SKU Definition on page 83](#)
- [Paragon Automation Software Licenses on page 83](#)
- [Paragon Automation License SKUs on page 86](#)

Table 54: Paragon Automation SKU Definition

SKU	SKU Character Description
S-PA-PLATFORM-S-1/3/5	S —Software
S-PA-BASE/ORCH/ASSR-100/400-S-1/3/5	S —Subscription
S-PA-LAB-S-1	PA —Paragon Automation
	PLATFORM —On-Premises platform
	BASE/ORCH/ASSR —Base, Orchestration, or Assurance
	LAB —Lab for non-production
	100/400 —License capacity 100 Gbps or 400 Gbps
	1/3/5 —Subscription term 1, 3 or 5 years

Table 55: Paragon Automation Software Licenses

Features with Licenses	Paragon Automation
Service Orchestration	
Customizable service designs	Service Orchestration
Customer management	Service Orchestration
Service management	Service Orchestration
Order management	Service Orchestration
Resource management	Service Orchestration
Layer 2 and Layer 3 VPN model	Service Orchestration
Assurance part of workflows	Service Orchestration
Active Assurance	

Table 55: Paragon Automation Software Licenses (Continued)

Features with Licenses	Paragon Automation
Test and monitors	Active Assurance
Test agents (list and drill-in)	Active Assurance
Results (list and drill-in)	Active Assurance
Template builder	Active Assurance
Alerts	Active Assurance
Test agent on ACX and as a container	Active Assurance
Dashboard	Active Assurance
RPM support	Active Assurance
Test agent appliance	Active Assurance
Base	
Trust score	Trust
Compliance	Trust
Vulnerability - SIRT	Trust
Integrity - Software EOL	Trust
Integrity - Hardware EOL	Trust
Up to 71 KPIs monitored	Observability
Graphing and drill-in	Observability
AI or ML (dynamic thresholding, device health, and bad cable detection)	Observability

Table 55: Paragon Automation Software Licenses (Continued)

Features with Licenses	Paragon Automation
Alert	Observability
Notification (webhook and email)	Observability
Inventory management	Device Management
Intent based LCM	Device Management
Software management	Device Management
Configuration management	Device Management
Backup and restore	Device Management
License management	Device Management
Alarms	Device Management
Onboarding workflow	Device Onboarding
Intent plans	Device Onboarding
Device profiles	Device Onboarding
Interface profiles	Device Onboarding
Guided workflow for field technician	Device Onboarding
Configuration, device, and network	Device Onboarding
Assurance (Trust, Active Assurance tests, and device health)	Device Onboarding

Table 56: Paragon Automation License SKUs

Paragon Automation	SKUs
On-premises platform license	S-PA-PLATFORM-S-1/3/5
Base	S-PA-BASE-100/400-S-1/3/5
Service Orchestration	S-PA-ORCH-100/400-S-1/3/5
Active Assurance	S-PA-ASSR-100/400-S-1/3/5
Lab	S-PA-LAB-S-1

Software Licenses for Paragon Insights

Paragon Insights supports subscription licenses. Licenses can be deployed in standalone mode.

Go through the following tables:

- [Paragon Insights SKUs Definition on page 87](#)
- [Paragon Insights Software Licenses on page 87](#)
- [Paragon Insights Software License SKUs on page 89](#)
- [Paragon Insights Devices on page 89](#)

Table 57: Paragon Insights SKUs Definition

SKU	SKU Character Description
S-PIN-S1/A1-1/-3/-5	S—Software
S-PIN-1/10/100-S1/A1-C1/C2/C3/C4-1/-3/-5	PIN—Product name: Paragon Insights
S-PIN-1-S1/A1-C3/C4-1/3/5	S1—Standard
	A1—Advanced
	C1/C2/C3/C4—Device class
	1/3/5—Subscription term: 1 year, 3 years, or 5 years

Table 58: Paragon Insights Software Licenses

Detailed Features	Paragon Insights Standard	Paragon Insights Advanced	Paragon Insights Lab
Application high availability and elastic scale	Supported	Supported	Supported
External Kafka data publishing	Supported	Supported	Supported
Generating notifications	Not Supported	Supported	Supported
Generating reports	Not Supported	Supported	Supported
GUI and API data access	Supported	Supported	Supported
Multivendor telemetry data collection	Supported	Supported	Supported
Number of devices allowed is based on the device licenses purchased	Supported	Supported	Supported

Table 58: Paragon Insights Software Licenses (Continued)

Detailed Features	Paragon Insights Standard	Paragon Insights Advanced	Paragon Insights Lab
Subscription licenses with included support	Supported	Supported	Supported
Unlimited standard default and custom rules	Supported	Supported	Supported
Default and custom rules with user-defined functions.	Not Supported	Supported	Supported
Default and custom rules with machine learning features such as dynamic thresholds, outlier detection, median prediction, and microburst.	Not Supported	Supported	Supported
Time Inspector for advanced troubleshooting	Not Supported	Supported	Supported
Time Series Database (TSDB) data redundancy	Not Supported	Supported	Supported
Unlimited custom playbooks	Supported	Supported	Supported

Table 59: Paragon Insights Software License SKUs

Use Case	SKUs
Paragon Insights Standard	<ul style="list-style-type: none"> • S-PIN-S1-1/3/5 • S-PIN-1/10/100-S1-C1-1/3/5 • S-PIN-1-S1-C3-1/3/5 • S-PIN-1-S1-C4-1/3/5
Paragon Insights Advanced	<ul style="list-style-type: none"> • S-PIN-A1-1/3/5 • S-PIN-1/10/100-A1-C1-1/-3/-5 • S-PIN-1-A1-C3-1/3/5 • S-PIN-1-A1-C4-1/3/5
Paragon Insights Lab Bundle also includes access to 50 device licenses. Non-production use only.	S-PIN-NONPROD-BB-1/3/5

Standalone mode allows you to activate a license on a software instance and can be used only by the instance on which it is activated. You cannot share a license with multiple instances.

*For information about Paragon Insights product options or to obtain a trial license, contact your local sales representative.

Enforcement of device license counts is based on the total number of all C1-C4 licenses installed minus the total number of licenses used. This enforcement model might change in future releases of Paragon Automation.

Table 60: Paragon Insights Devices

Device Feature Name	Description
C1	Extra small devices such as small remote CPEs, small branch SRX Series Firewalls and small ACX Series

Table 60: Paragon Insights Devices (Continued)

Device Feature Name	Description
C2	Small switches such as fixed form factor EX Series, ACX Series, and QFX Series
C3	Small chassis-based switches, routers, and firewalls such as MX10003 router and PTX10K3 router
C4	Large chassis-based systems like the MX10000 router, PTX Series, and large SRX Series Firewalls

Software Licenses for PTX Series Routers

PTX Series Routers support subscription and perpetual licenses.

Starting in 22.4R3 and 23.4R1 Junos OS Evolved releases, the license counts only the Resource Reservation Protocol-Traffic Engineering (RSVP-TE) and Segment Routing Traffic Engineering (SR-TE) LSPs. Prior to the 22.4R3 and 23.4R1 Junos OS Evolved releases, license counts all Traffic Engineering (TE) such as RSVP-TE and SR-TE and non-TE such as LDP, BGP-LU, L-ISIS, L-OSPF LSPs.

Go through the following tables:

- [PTX Series Routers SKU Definition on page 91](#)
- [PTX Series Routers Software Licenses on page 91](#)
- [PTX Series Scale Information on page 94](#)
- [PTX Series Routers License SKUs on page 95](#)
- [MACsec Feature License SKUs on page 96](#)

Table 61: PTX Series Routers SKU Definition

SKU	SKU Character Description
S-PTX10K-144C/108C-A1/A2/P1/P2-P	S —Software
S-PTX10K-144C/108C-A1/A2/P1/P2-3/5	PTX10K —Product name: PTX10000 line of routers
S-PARPTX10K144CA1/A2/P1/P2/3/5	144C —14.4 Tbps
S-PAR-PT10K108CA1/A2/P1/P2/3/5	108C —10.8 Tbps
	PAR —Partner
	A1/A2 —Advanced 1 or advanced 2 software features
	P1/P2 —Premium 1 or premium 2 software features
	3/5 —Subscription term 3 or 5 years
S-PTX10K3-16T/8T-A1/A2/P1/P2-P/3/5	S —Software
	PTX10K3 —Product name: PTX10003 line of routers
	16T —16 Tbps
	8T —8 Tbps
	A1/A2 —Advanced 1 or advanced 2 software features
	P1/P2 —Premium 1 or premium 2 software features
	P —Perpetual license
	3/5 —Subscription term 3 or 5 years

Table 62: PTX Series Routers Software Licenses

Features with Licenses	PTX Series Routers
Premium 2 (includes Premium 1 features)	
H-QoS	Premium 2
Premium 1 (includes Advanced 2 features)	

Table 62: PTX Series Routers Software Licenses (Continued)

Features with Licenses	PTX Series Routers
EVPN-MPLS	Premium 1
Layer 2 circuit	Premium 1
Layer 3 VPN/VRF(MPLS/SR)	Premium 1
LDP	Premium 1
MPLS	Premium 1
RSVP	Premium 1
Segment routing	Premium 1
Layer 3 Multicast	Premium 1
PCEP	Premium 1
PIM	Premium 1
SR-TE	Premium 1
Advanced 2 (includes Advanced 1 features)	
Connectivity fault management (CFM)	Advanced 2
EVPN-VXLAN	Advanced 2
Layer 3 VPN/VRF(VXLAN)	Advanced 2

Table 62: PTX Series Routers Software Licenses (Continued)

Features with Licenses	PTX Series Routers
VXLAN	Advanced 2
VRF/Layer 3 VPN (VXLAN)	Advanced 2
Q-in-Q	Advanced 2
ESI-LAG	Advanced 2
Precision Time Protocol (PTP)	Advanced 2
PTP-BC	Advanced 2
Synchronous Ethernet	Advanced 2
Advanced 1 (includes Standard features)	
BGP	Advanced 1
FBF	Advanced 1
GRE	Advanced 1
IS-IS	Advanced 1
Junos telemetry interface (JTI)	Advanced 1
OSPF	Advanced 1
VR	Advanced 1
VRRP	Advanced 1

Table 62: PTX Series Routers Software Licenses (Continued)

Features with Licenses	PTX Series Routers
Standard	
Filters (Layer 2 and Layer 3)	Standard
Layer 2 (xSTP, 802.1Q, LAG)	Standard
Layer 3 (static)	Standard
Quality of Service or QoS (Layer 2 and Layer 3)	Standard
SNMP	Standard
VLAN	Standard

In addition, you can install additional port bandwidth usage license to increase the port bandwidth usage.

Table 63: PTX Series Scale Information

PTX Series Routers	Scale (Maximum Allowed)
Premium 2	4 million FIBs, IP tunnels are up to the device capacity, 80 million RIBs, 128,000+ LSPs, 4000 BGP peers, 1000+ VRFs (VXLAN), 4000 VRFs (MPLS Layer 3 VPN), 100,000 PIMs, 64,000 firewall filters and terms
Premium 1	2 million FIBs, 6 million RIBs, 32,000 LSPs, 2000 BGP peers, 5000 IP tunnels, 1000 VRFs (VXLAN), 32 Layer 3 VPN/VRF(MPLS/SR), 32,000 PIMs, 16,000 firewall filters, and 64,000 firewall terms
Advanced 2	256,000 FIBs, 3 million RIBs, 1000 LSPs, 1000 BGP peers, 3000 IP tunnels, 1000 Layer 3 VPN/VRF(VXLAN), 32,000 PIMs, 16,000 firewall filters, and 64,000 firewall terms

Table 63: PTX Series Scale Information (Continued)

PTX Series Routers	Scale (Maximum Allowed)
Advanced 1	256,000 FIBs, 3 million RIBs, 1000 BGP peers, 1000 IP tunnels, 16,000 PIMs, 4000 firewall filters, and 16,000 firewall terms
Standard	64,000 forwarding information bases (FIBs) and 64,000 routing information bases (RIBs), 1000 firewall filters, and 4000 firewall terms

Table 64: PTX Series Routers License SKUs

PTX Series Routers	Perpetual SKUs with customer support	Perpetual SKUs without customer support	Subscription SKUs with customer support	Partner SKUs with customer support
PTX10000	PTX10K-LC1201-36CD PTX10K-LC1202-36MR	S-PTX10K-144C-A1/A2-P S-PTX10K-144C-P1/P2-P	S-PTX10K-144C-A1/A2-3/5 S-PTX10K-144C-P1/P2-3/5	S-PARPTX10K144CA13/15/23/25 S-PARPTX10K144CP13/15/23/25
PTX10001-36MR	PTX10001-36MR-AC PTX10001-36MR-DC	S-PTX10K-108C-A1/A2-P S-PTX10K-108C-P1/P2-P	S-PTX10K-108C-A1/A2-3/5 S-PTX10K-108C-P1/P2-3/5	S-PAR-PT10K108CA13/15/23/25 S-PAR-PT10K108CP13/15/23/25
PTX10003	PTX10003-160C-AC PTX10003-160C-DC PTX10003-80C-AC PTX10003-80C-DC	S-PTX10K3-16T-A1/A2-P S-PTX10K3-16T-P1/P2-P S-PTX10K3-8T-A1/A2-P S-PTX10K3-8T-P1/P2-P	S-PTX10K3-16T-A1/A2-3/5 S-PTX10K3-16T-P1/P2-3/5 S-PTX10K3-8T-A1/A2-3/5 S-PTX10K3-8T-P1/P2-3/5	Not Supported

The PTX10001-36MR, PTX10003, PTX10004, PTX10008 and PTX10016 supports MACsec, but you must purchase a license to use the MACsec feature. MACsec licenses are perpetual. The licenses are available in two variants, see [Table 65 on page 96](#).

Table 65: MACsec Feature License SKUs

MACsec License SKU	Description
S-PTX10K100GMSEC-P	100-Gigabit Ethernet MACsec license; can be applied to one 100-Gigabit Ethernet port or two 40-Gigabit Ethernet ports
S-PTX10K400GMSEC-P	400-Gigabit Ethernet MACsec license; can be applied to one 400-Gigabit Ethernet port or four 100-Gigabit Ethernet ports

The installed MACsec licenses must be equal to the configured bandwidth of MACsec enabled ports. If you enable MACsec on two 400G ports, then two S-PTX10K400GMSEC-P licenses or eight S-PTX10K100GMSEC-P must be installed.

Software Licenses for QFX Series Switches

QFX Series Switches support subscription and perpetual licenses.

Go through the following tables:

- [QFX Series Software Licenses on page 97](#)
- [QFX Series Devices Class and SKUs on page 100](#)
- [Legacy Feature Licenses for QFX5100, QFX5110-48S-AFI/AFO \(DC\), QFX5110-32Q-AFI/AFO \(DC\), QFX5120, QFX5210-64C and QFX10000 Line of Switches on page 102](#)
- [Legacy Feature Licenses for QFX5200-48Y and QFX5200-32C-L switches on page 104](#)
- [Legacy Feature Licenses Scale and License SKUs on page 106](#)
- [Junos Fusion License Model Numbers for Satellite Devices on page 108](#)
- [Legacy Feature Licenses for Disaggregated QFX5200-32C Switch and License SKUs on page 109](#)
- [Legacy Feature Licenses for QFX5200-32C Switch on page 110](#)

Table 66: QFX Series Software Licenses

Features with Licenses	QFX Series Switches
Use Case for Premium (includes Advanced 2 features): Data Center Edge	
Data packet timestamping	Premium
Layer 2 circuit	Premium
Layer 3 VPN	Premium
LDP	Premium
MPLS	Premium
RSVP	Premium
Segment Routing (SR)**	Premium
SR-TE	Premium
Use Case for Advanced 2 (includes Advanced 1 features): Cloud fabric	
dot1Q-tunneling	Advanced 2
ESI-LAG	Advanced 2
Ethernet OAM	Advanced 2
EVPN-VXLAN	Advanced 2
IGMP	Advanced 2
Layer 3 multicast	Advanced 2
PCEP	Advanced 2

Table 66: QFX Series Software Licenses (Continued)

Features with Licenses	QFX Series Switches
PTP	Advanced 2
Q-in-Q*	Advanced 2
Static MPLS	Advanced 2
Static unicast VXLAN**	Advanced 2
Timing	Advanced 2
Use Case for Advanced 1 (includes Standard features): Cloud fabric	
BGP	Advanced 1
EZ-LAG	Advanced 1
FBF	Advanced 1
GRE tunnel	Advanced 1
IGMP multicast	Advanced 1
IS-IS	Advanced 1
JTI	Advanced 1
OSPF	Advanced 1
PIM	Advanced 1
RIFT	Advanced 1

Table 66: QFX Series Software Licenses (Continued)

Features with Licenses	QFX Series Switches
RIP	Advanced 1
ROCEv2	Advanced 1
sFlow	Advanced 1
Type-5 VRF*	Advanced 1
VRF	Advanced 1
VRF lite	Advanced 1
VRRP	Advanced 1
Virtual Chassis*	Advanced 1
Use Case for Standard: Base	
BFD	Standard
Filters (Layer 2 and Layer 3)	Standard
Layer 2 (xSTP, 802.1Q, 802.1AD, LAG)	Standard
Layer 3 (static)	Standard
QoS (Layer 2 and Layer 3)	Standard
MC-LAG	Standard
IGMP snooping	Standard

Table 66: QFX Series Software Licenses (Continued)

Features with Licenses	QFX Series Switches
SNMP	Standard

Virtual Chassis* – Virtual Chassis is available in Advanced 1 for all software versions from Junos OS Release 20.3 onwards. The Virtual Chassis feature is supported on QFX5120-48T, QFX5120-48Y, and QFX5120-32C up to 2 members, QFX5200-32C up to 3 members, QFX5120-48YM up to 4 members.

Advanced Telemetry Features such as ATF and Inband Flow Analyzer are supported on QFX5120 platforms.

For more information about the feature support on your QFX Series devices, see [Feature Explorer](#) and [Product Information](#).

Starting in Junos OS Release 22.3R1, the MC-LAG feature moved to the standard tier.

On QFX5120-48YM and QFX5700 switches, MACsec feature is hard-enforced. You'll need a license to use this feature on these switches.

Table 67: QFX Series Devices Class and SKUs

QFX Series Switches	SKUs
Class 1: 32 Ports and 48 Ports	
QFX5110-32Q/48S/48S-D (AFO2/AFI2/AFI-T2/AFO-T2)	S-QFX5K-C1-A1-3/5/P S-QFX5K-C1-A2-3/5/P S-QFX5K-C1-P1-3/5/P
QFX5120-48Y/YM/T (AFO2/AFI2/AFO/DC-AO/DC-AI/AFO/AFI/DC-AFO/DC-AFI)	S-QFX5K-C1-MACSEC-3/5/P S-QFX5K-C1-ATF-P S-QFX5K-C1-A1-3/5/P S-QFX5K-C1-A2-3/5/P S-QFX5K-C1-P1-3/5/P
Class 2: 32 Ports	

Table 67: QFX Series Devices Class and SKUs (Continued)

QFX Series Switches	SKUs
QFX5120-32C (AFO/AFI/AFI-T/AFO-T/DC-AFO/DC-AFI) QFX5200-32C (AFO2/AFI2/D-AFO2/D-AFI2/AFO-T2/AFI-T2)	S-QFX5K-C2-A1-3/5/P S-QFX5K-C2-A2-3/5/P S-QFX5K-C2-P1-3/5/P S-QFX5K-C2-ATF-P
Class 3: 32 Ports, 36 Ports, 64 Ports, 72 Ports, and 128 Ports; QFX5700 Line Cards (16C,4CD,20Y)	
QFX5130-32CD (AFI/AFO/D-AFI/D-AFO) 32CD-AFO QFX5130-48C (AFO/AFI/D-AFO/D-AFI) QFX5220-32CD-AFO QFX5210-64C (AFO2/AFI2/D-AFO2/D-AFI2/AFO-T2/AFI-T2) QFX5220-32CD/128C (AFO/AFI/D-AFO/D-AFI)	S-QFX5K-C3-A1-3/5/P S-QFX5K-C3-A2-3/5/P S-QFX5K-C3-P1-3/5/P
QFX5700-BASE-AC/DC QFX5K-FPC-16C/4CD/20Y	S-QFX5K-C3-MACSEC-3/5/P
QFX10002-36Q	S-QFX10K2-36Q-A2-3/5/P S-QFX10K2-36Q-P1-3/5/P
QFX10002-60C	S-QFX10K2-60C-A2-3/5/P S-QFX10K2-60C-P1-3/5/P
QFX10002-72Q	S-QFX10K2-72Q-A2-3/5/P S-QFX10K2-72Q-P1-3/5/P
QFX10008	S-QFX10K8-A2-3/5/P S-QFX10K8-P1-3/5/P

Table 67: QFX Series Devices Class and SKUs (Continued)

QFX Series Switches	SKUs
QFX10016	S-QFX10K16-A2-3/5/P S-QFX10K16-P1-3/5/P
Class 4: 64 Ports	
QFX5230-64CD-(AFI/AFO/D-AFI/D-AFO)	S-QFX5K-C4-A1/-3/5/P S-QFX5K-C4-A2-3/5/P S-QFX5K-C4-P1-3/5/P
Class 5: 64 Ports	
QFX5240-64QD/64OD-AO	S-QFX5K-C5-A1/-3/5/P S-QFX5K-C5-A2-3/5/P S-QFX5K-C5-P1-3/5/P

Legacy Licenses for QFX Series

The standard Junos OS software shipped on the hardware platform for QFX Series switches except the QFX5200-32C, includes a perpetual base license. This license is valid for the life of the hardware platform.

Table 68: Legacy Feature Licenses for QFX5100, QFX5110-48S-AFI/AFO (DC), QFX5110-32Q-AFI/AFO (DC), QFX5120, QFX5210-64C and QFX10000 Line of Switches

Base Features	Premium Features	Advanced Features
Basic IPv6	BGP	MPLS
BFD	Ethernet VPN	MPLS-based CCC
CFM (IEEE 802.1ag)	IPv6 for BGP/MBGP	RSVP-based LSP

Table 68: Legacy Feature Licenses for QFX5100, QFX5110-48S-AFI/AFO (DC), QFX5110-32Q-AFI/AFO (DC), QFX5120, QFX5210-64C and QFX10000 Line of Switches (Continued)

Base Features	Premium Features	Advanced Features
Class of service (COS)/Policing/Shaping/Marking	IS-IS	Segment Routing
Filtering	IS-IS for IPv6	
IGMPv1/v2/v3 (includes IGMP Snooping)	MBGP	
Junos Telemetry Interface	OVSDB	
MC-LAG	VRF(BGP)	
MLDv1/v2	VXLAN	
OSPFv2		
OSPFv3		
PIM-DM/SM/SSM		
PIMv6		
Q-in-Q tunneling (IEEE 802.1ad)		
RIPng		
RPM		
PTP – Boundary Clock		
PTP – Transparent Clock		

Table 68: Legacy Feature Licenses for QFX5100, QFX5110-48S-AFI/AFO (DC), QFX5110-32Q-AFI/AFO (DC), QFX5120, QFX5210-64C and QFX10000 Line of Switches (Continued)

Base Features	Premium Features	Advanced Features
Unicast reverse-path forwarding (RPF)		
Virtual Chassis (VC) Applicable also for QFX5200-48Y switches.		
Virtual Router		
VRRP		
VRRPv6		
Zero Touch Provisioning (ZTP)		

Table 69: Legacy Feature Licenses for QFX5200-48Y and QFX5200-32C-L switches

Base Features	Premium Features	Advanced Features
Basic IPv6	BGP	MPLS
BFD	Ethernet VPN	MPLS-based CCC
CFM (IEEE 802.1ag)	IPv6 for BGP/MBGP	RSVP-based LSP
Class of service (COS)/Policing/Shaping/Marking	IS-IS	Segment Routing
Filtering	IS-IS for IPv6	
IGMPv1/v2/v3 (includes IGMP Snooping)	MBGP	
Junos Telemetry Interface	OVSDB	

Table 69: Legacy Feature Licenses for QFX5200-48Y and QFX5200-32C-L switches (Continued)

Base Features	Premium Features	Advanced Features
MLDv1/v2	MC-LAG	
OSPFv2	VXLAN	
OSPFv3	Virtual Chassis (VC) Except for QFX5200-48Y switches.	
PIM-DM/SM/SSM		
PIMv6		
Q-in-Q tunneling (IEEE 802.1ad)		
RIPng		
RPM		
PTP – Boundary Clock		
PTP – Transparent Clock		
Unicast reverse-path forwarding (RPF)		
Virtual Router		
VRRP		
VRRPv6		
Zero Touch Provisioning (ZTP)		

- If you try to configure a feature that is not licensed, you will receive syslog messages saying that you are using a feature that is licensable and that you do not possess a license for the feature. If you try to commit configuration changes for a feature that is not licensed, you will receive a commit warning saying that you have exceeded the allowed license limit for the feature. The feature will commit and be usable, but this action violates EULA agreement.
- On QFX5100 and QFX5110, there is no separate license for Virtual Chassis like there is for Virtual Chassis Fabric.
- Premium Feature Licenses (PFL) include the Base License Features. Advanced Feature Licenses (AFL) include the Base and Premium License Features.

Table 70: Legacy Feature Licenses Scale and License SKUs

License	Description	Number of Licenses Required	QFX Devices Supported
Base	Features included with the switch - No License required	-	-
QFX-JSL-EDGE-ADV1	QFX Series Edge Advanced Feature License	One per switch, two per Virtual Chassis, and two per Virtual Chassis Fabric	QFX3500, QFX3600, QFX5100-48S, QFX5100-48T
QFX5100-HDNSE-LIC	QFX5100-24Q and QFX5100-96S Advanced Feature License	One per switch, two per Virtual Chassis, and two per Virtual Chassis Fabric	QFX5100-24Q, QFX5100-96S
QFX5K-C2-PFL	QFX5000 Class 2 Premium Feature License	One per switch	QFX5210-64C
QFX5K-C2-AFL	QFX5000 Class 2 Advanced Feature License	One per switch	QFX5210-64C
QFX-JSL-EDGE-FC	QFX Series Edge feature license for Fibre Channel	One per switch on which fibre channel ports are configured	QFX3500

Table 70: Legacy Feature Licenses Scale and License SKUs (Continued)

License	Description	Number of Licenses Required	QFX Devices Supported
EX-QFX-MACSEC-AGG	QFX and EX Series feature license for enabling Media Access Control security (MACsec).	One per switch, two per Virtual Chassis	QFX switches that support MACsec
QFX10000-30C-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per line card	QFX10000-30C, QFX10000-30C-M line cards
QFX10000-36Q-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per line card	QFX10000-36Q, QFX10K-12C-DWDM line cards
QFX10000-60S-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per line card	QFX10000-60S-6Q line card
QFX10002-36Q-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per switch	QFX10002 36-port 40GbE QSFP+/12-port 100GbE QSFP28 switch
QFX10002-60C-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per switch	QFX10002-60C
QFX10002-72Q-LFIB	1 million (v4 or v6) Forwarding Information Base (FIB) entries license	One per switch	QFX10002-72Q

Understanding Junos Fusion Licenses

New deployments for Multichassis link aggregation groups (MC-LAG) or Ethernet VPN (EVPN) based Junos Fusion Data Center are not recommended.

Starting with Junos OS Release 17.2R1, you need to install a Junos Fusion license in addition to any other feature licenses that you install to track and activate certain QFX5100-48SH and QFX5100-48TH models that are shipped with satellite software. These models can only be used as satellite devices. For

these models, you need to install a Junos Fusion license in addition to any other feature licenses that you install. See [Table 71 on page 108](#) for a list of satellite devices that require Junos Fusion licenses.

You do not need Junos Fusion licenses for satellite device models that were purchased as Junos OS-based top-of-rack switches.

Install the Junos Fusion licenses on the aggregation device because the aggregation device is the single point of management in a Junos Fusion. If your Junos Fusion is operating in a topology with multiple aggregation devices, you only need to install the licenses on one aggregation device because the license keys are synchronized between the two aggregation devices.

You can install a single-pack license to activate one satellite device, or you can install multi-pack licenses, which can activate up to 128 satellite devices. If the number of satellite devices in a Junos Fusion exceeds the number of Junos Fusion licenses you have installed, the satellite devices are provisioned, but the system will issue a warning saying that there is a license limit violation. If the satellite device does not have a corresponding Junos Fusion license installed, the satellite device is provisioned, but the system will issue a warning.

[Table 71 on page 108](#) lists the supported aggregation and satellite devices as well as the model numbers of the Junos Fusion license packs.

For information about how to purchase a software license, contact your Juniper Networks sales representative. For information on standard Junos OS feature licenses, see [Table 68 on page 102](#).

Table 71: Junos Fusion License Model Numbers for Satellite Devices

Aggregation Devices Supported	Satellite Devices Requiring Licenses	Model Numbers of License Packs
QFX10002, QFX10008 and QFX10016 switches	• QFX5100-48SH-AFO	QFX10K-C1-JFS-1
	• QFX5100-48SH-AFI	QFX10K-C1-JFS-4
	• QFX5100-48TH-AFO	QFX10K-C1-JFS-8
	• QFX5100-48TH-AFI	QFX10K-C1-JFS-16
		QFX10K-C1-JFS-32
		QFX10K-C1-JFS-64

Disaggregated Software Feature Licenses on QFX5200 Switches

The disaggregated software feature licenses are only applicable for QFX5200-32C devices. For QFX5200-48Y devices, the base software features are included with the device. Additional licenses are required only for premium and advanced features.

The Junos OS software is disaggregated from the hardware. With disaggregated Junos OS, you can purchase the following feature licenses, which are available on a perpetual basis:

- Junos Base Software (JBS) license:

Includes basic layer 2 switching, basic layer 3 routing, multicast, automation, programmability, Zero Touch Provisioning (ZTP) and basic monitoring.

You must purchase the JBS license to use basic functions, but you do not need to install the license key in Junos OS Release 15.1X53-D30. JBS basic functions work with this release without installing the license key. However, you will need to install the license key in a future release of Junos OS to be determined, so make sure to retain the authorization code you received from the license portal to generate a license key for the JBS license. If the license is not installed, the system triggers the log messages.

- Junos Advanced Software (JAS) license:

Includes features supported in JBS license and Border Gateway Protocol (BGP), Intermediate System-to-Intermediate System (IS-IS), and Virtual Extensible Local Area Network (VXLAN). You need to install the license key to use these features.

- Junos Premium Software (JPS) license:

Includes features supported in JAS license and Multi-protocol Label Switching (MPLS) feature set. You need to install the license key to use these features.

For information about how to purchase a software feature license, contact your Juniper Networks sales representative.

Table 72: Legacy Feature Licenses for Disaggregated QFX5200-32C Switch and License SKUs

License SKU	Description	Number of Licenses Required	QFX Devices Supported
QFX5000-35-JBS	Junos base software (JBS) license	One per switch	QFX5200-32C

Software Features That Require Licenses on the QFX5200-32C Switch

The standard Junos OS software shipped on the hardware platform for QFX5200-32C switch does not include a perpetual base license.

You must purchase the perpetual base license on the disaggregated Junos OS feature licenses on the QFX5200-32C. This license is valid for the life of the hardware platform.

For information about how to purchase any software license, contact your Juniper Networks sales representative, or an approved [Juniper Partner](#).

Table 73 on page 110 lists the Junos OS features which require licenses on QFX5200-32C switch.

Table 73: Legacy Feature Licenses for QFX5200-32C Switch

Junos base software (JBS) license	Junos advanced software (JAS) license	Junos premium software (JPS) license
Basic IPv6	BGP	MPLS
BFD	Ethernet VPN	MPLS-based CCC
CFM (IEEE 802.1ag)	IPv6 for BGP/MBGP	RSVP-based LSP
Class of service (COS)/Policing/Shaping/Marking	IS-IS	Segment Routing
Filtering	IS-IS for IPv6	
IGMPv1/v2/v3 (includes IGMP Snooping)	MBGP	
Junos Telemetry Interface	OVSDB	
MC-LAG	VRF(BGP)	
MLDv1/v2	VXLAN	
OSPFv2		
OSPFv3		
PIM-DM/SM/SSM		
PIMv6		
Q-in-Q tunneling (IEEE 802.1ad)		

Table 73: Legacy Feature Licenses for QFX5200-32C Switch (Continued)

Junos base software (JBS) license	Junos advanced software (JAS) license	Junos premium software (JPS) license
RIPng		
RPM		
PTP – Boundary Clock		
PTP – Transparent Clock		
Unicast reverse-path forwarding (RPF)		
Virtual Chassis (VC)		
Virtual Router		
VRRP		
VRRPv6		
Zero Touch Provisioning (ZTP)		

If you try to configure a feature that is not licensed, you will receive syslog messages saying that you are using a feature that is licensable and that you do not possess a license for the feature. If you try to commit configuration changes for a feature that is not licensed, you will receive a commit warning saying that you have exceeded the allowed license limit for the feature. The feature will commit and be usable, but this action violates EULA agreement.

Premium Feature Licenses (PFL) include the Base License Features. Advanced Feature Licenses (AFL) include the Base and Premium License Features.

Use the QFX5000-35-JBS SKU for Junos base software (JBS) licenses.

Generating License Keys

Before generating the license keys for a device:

- Purchase the required licenses for the device. See [Table 68 on page 102](#) and [Licenses for QFX5200-32C Switch](#).
- Note down the authorization code in the e-mail you received from Juniper Networks when you purchased the license. Determine the serial number of the device. For instructions, see [Download and Activate Your Software](#)

When you purchase a Junos OS software feature license for a device, you receive an e-mail containing an authorization code for the feature license from Juniper Networks. You can use the authorization code to generate a unique license key (a combination of the authorization code and the device's serial number) for the device, and then add the license key on the device.

To generate the license keys for a device:

This procedure shows you how to generate license keys on a QFX Series device, but you can follow the same procedure for any device.

1. In a browser, log in to the Juniper Networks License Management System.

The Manage Product Licenses page appears.

To access the licensing site, you must have a service contract with Juniper Networks and an access account. If you need help obtaining an account, complete the registration form at the Juniper Networks website <https://www.juniper.net/registration/Register.jsp>.

2. On the Generate Licenses tab, select **QFX Series Product** from the drop-down list, and click **Go**.

The Generate Licenses - QFX Series Product page appears.

3. In the **Device Serial Number** field, enter the serial number for the device.
4. In the **Authorization Code** field, enter the authorization code in the e-mail you received from Juniper Networks when you purchased the license.
5. (Optional) If you want to enter another authorization code for the same device, click **Enter More Authorization Codes** to display a new authorization code field. Enter the authorization code in this field.
6. Click **Confirm**.

The Confirm License Information page appears, displaying a summary of the information you submitted to the License Management System.

7. Review the information to ensure everything is correct and then click **Generate License**.

The Generate Licenses - QFX Series Product Devices page appears, displaying a summary of your license keys, including a link that displays the details of your new license keys.

8. Select the file format in which you want to obtain your new license keys.

9. Select the delivery method you want to use to obtain your new license keys.

To download the license keys:

- Select the **Download to this computer** option button and click **OK**.

To e-mail the license keys:

- Select the **Send e-mail to *e-mail ID*** option button and click **OK**.

Generating the License Keys for a QFabric System

Before generating the license keys for a QFabric system:

- Purchase the required licenses for the QFabric system. See [Table 68 on page 102](#).
- Note down the authorization code in the e-mail you received from Juniper Networks when you purchased the license.
- Perform the initial setup of the QFabric system on the Director group.
- Log in to the QFabric system, issue the `show version` command, and note down the software serial number and QFabric system ID for the QFabric system.

```
user@qfabric> show version
Hostname: qfabric
Model: qfx3000-g
Serial Number: qfsn-0123456789
QFabric System ID: f158527a-f99e-11e0-9fbd-00e081c57cda
JUNOS Base Version [12.2I20111018_0215_dc-builder]
```

When you purchase a Junos OS software feature license for a QFabric system, you receive an e-mail containing an authorization code for the feature license from Juniper Networks. You can use the authorization code to generate a unique license key (a combination of the authorization code and the QFabric system ID) for the QFabric system, and then add the license key on the QFabric system.

To generate the license keys for a QFabric system:

1. In a browser, log in to the license portal.

The Manage Product Licenses page appears.

To access the licensing site, you must have a service contract with Juniper Networks and an access account. If you need help obtaining an account, complete the registration form at the Juniper Networks website <https://www.juniper.net/registration/Register.jsp>.

2. On the Generate Licenses tab, select **QFX Series Product** from the drop-down list, and click **Go**.
The Generate Licenses - QFX Series Product page appears.
3. Select the **QFX Series Product Fabric** option button and then click **Continue**.
The Generate Licenses - QFX Series Product Fabrics page appears.
4. In the **Software Serial No** field, enter the software serial number for the QFabric system.
5. In the **QFabric System ID** field, enter the QFabric system ID for the QFabric system.
6. In the **Authorization Code** field, enter the authorization code in the e-mail you received from Juniper Networks when you purchased the license.
7. (Optional) If you want to enter another authorization code for the same device, click **Enter More Authorization Codes** to display a new authorization code field. Enter the authorization code in this field.
8. Click **Confirm**.
The Confirm License Information page appears, displaying a summary of the information you submitted to the license portal.
9. Review the information to ensure everything is correct and then click **Generate License**.
The Generate Licenses - QFX Series Product Fabrics page appears, displaying a summary of your license keys, including a link that displays the details of your new license keys.
10. Select the file format in which you want to obtain your new license keys.
11. Select the delivery method you want to use to obtain your new license keys.
To download the license keys:
 - Select the **Download to this computer** option button and click **OK**.To e-mail the license keys:
 - Select the **Send e-mail to e-mail ID** option button and click **OK**.

Software Licenses for SRX Series Firewalls

SRX Series Firewalls support subscription and perpetual licenses.

Go through the following tables:

- [SRX Series Firewalls SKU Definition on page 115](#)
- [SRX300, SRX320, SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800 Software Licenses on page 116](#)
- [SRX1600 and SRX2300 Software Licenses on page 117](#)
- [Subscription Licenses for SRX Series Firewalls on page 118](#)
- [SRX Series Firewall Software License SKUs on page 118](#)
- [Legacy Feature Licenses for SRX Series Firewalls on page 120](#)
- [Legacy Feature Licenses for Content Security Features on page 123](#)

Table 74: SRX Series Firewalls SKU Definition

SKU	SKU Character Description
S-SRX3XX/SRX1500/SRX1600DP/EP/ SRX2300DP/EP/SRX4XXX/SRX5XXX- A1/A2/A3/P1/P2/P3-1/3/5	S—Software SRX3XX/SRX1500/SRX1600/SRX2300/SRX4XXX/ SRX5XXX—Product name DP—Data center protection security EP—Enterprise edge protection security A1—Advanced 1 A2—Advanced 2 A3—Advanced 3 P1—Premium 1 P2—Premium 2 P3—Premium 3 1/3/5—Subscription term 1, 3, or 5 years

Table 75: SRX300, SRX320, SRX340, SRX345, SRX380, SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800 Software Licenses

Features Bundle Licenses	SRX Series Firewalls	Use Case
IDP, Application Security*, URL filtering, On-box antivirus, and ATP Cloud	Premium 3	Next-generation firewall or ATP Cloud with SecIntel
IDP, Application Security*, URL filtering, Cloud antivirus and antispam, and ATP Cloud	Premium 2	Next-generation firewall or ATP Cloud with SecIntel
IDP, Application Security*, and ATP Cloud	Premium 1	Data center security or SD-WAN or ATP Cloud with SecIntel
SecIntel, IDP, Application Security*, URL filtering, On-box antivirus and antispam	Advanced 3	Next-generation firewall with On-box antivirus
SecIntel, IDP, Application Security*, URL filtering, Cloud antivirus and antispam	Advanced 2	Next-generation firewall with Cloud based antivirus and antispam
SecIntel, IDP, and Application Security*	Advanced 1	Data center security or SD- WAN
Junos Base JSB (routing, firewall, switching, NAT, VPN, and MPLS)	Standard (includes hardware)	Basic firewall and secure branch routers

Table 76: SRX1600 and SRX2300 Software Licenses

Features Bundle Licenses	SRX1600 and SRX2300	Use Case
Application Security*, IPS, AI-Predictive Threat Prevention, SecIntel, URL Filtering, ATP Cloud, DNS security, Encrypted Traffic Insights, Threat Profiling, and Security Director Cloud	Premium 2	Enterprise edge protection security and ATP Cloud
Application Security*, IPS, AI-Predictive Threat Prevention, SecIntel, ATP Cloud, DNS Security, Encrypted Traffic Insights, Threat Profiling, and Security Director Cloud	Premium 1	Data center protection security and ATP Cloud
Application Security*, IPS, AI-Predictive Threat Prevention, SecIntel, URL Filtering and Security Director Cloud	Advanced 2	Enterprise edge protection security
Application Security*, IPS, AI-Predictive Threat Prevention, SecIntel, and Security Director Cloud	Advanced 1	Data center protection security
Junos Base JSB (routing, firewall, switching, NAT, VPN, and MPLS)	Standard (includes hardware)	Basic firewall and secure branch routers

*Application Security includes application visibility and control through unified policy for next-gen firewall capabilities as well as enables SD-WAN capabilities with Advanced policy-based routing (APBR) and Application Quality of Experience (AppQoE).

SD-WAN Software Subscription license includes features supported in Junos OS.

Table 77: Subscription Licenses for SRX Series Firewalls

SRX Series Firewalls	Premium 1	Premium 2	Premium 3	Advanced 1	Advanced 2	Advanced 3	Standard
SRX300, SRX320	Supported	Not Supported	Not Supported	Supported	Supported	Not Supported	Supported
SRX340, SRX345, SRX380	Supported	Supported	Not Supported	Supported	Supported	Not Supported	Supported
SRX1600 and SRX2300	Supported	Supported	Not Applicable	Supported	Supported	Not Applicable	Supported
SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, SRX5800	Supported	Supported	Supported	Supported	Supported	Supported	Supported

Table 78: SRX Series Firewall Software License SKUs

Subscription Licenses	SRX300, SRX320, SRX340, SRX345, and SRX380	SRX1500	SRX1600 and SRX2300	SRX4100, SRX4200, and SRX4600	SRX5400, SRX5600, and SRX5800
Premium 3	Not Applicable	S-SRX1500-P3-1/3/5	Not Applicable	S-SRX4XXX-P3-1/3/5	S-SRX5XXX-P3-1/3/5
Premium 2	S-SRX3XX-P2-1/3/5	S-SRX1500-P2-1/3/5	S-SRX1600EP/SRX2300EP-P2-1/3/5	S-SRX4XXX-P2-1/3/5	S-SRX5XXX-P2-1/3/5

Table 78: SRX Series Firewall Software License SKUs (Continued)

Subscription Licenses	SRX300, SRX320, SRX340, SRX345, and SRX380	SRX1500	SRX1600 and SRX2300	SRX4100, SRX4200, and SRX4600	SRX5400, SRX5600, and SRX5800
Premium 1	S-SRX3XX-P1-1/3/5	S-SRX1500-P1-1/3/5	S-SRX1600DP/SRX2300DP-P1-1/3/5	S-SRX4XXX-P1-1/3/5	S-SRX5XXX-P1-1/3/5
Advanced 3	Not Applicable	S-SRX1500-A3-1/3/5	Not Applicable	S-SR4XXX-A3-1/3/5	S-SR5XXX-A3-1/3/5
Advanced 2	S-SRX3XX-A2-1/3/5	S-SRX1500-A2-1/3/5	S-SRX1600EP/SRX2300EP-A2-1/3/5	S-SRX4XXX-A2-1/3/5	S-SRX5XXX-A2-1/3/5
Advanced 1	S-SRX3XX-A1-1/3/5	S-SRX1500-A1-1/3/5	S-SRX1600DP/SRX2300DP-A1-1/3/5	S-SRX4XXX-A1-1/3/5	S-SRX5XXX-A1-1/3/5

Legacy Software Licenses for SRX Series Firewalls

Each feature license is tied to exactly one software feature, and the license is valid for one device. You can use the license to activate the specified advanced software features on a single device. Platform support depends on the Junos OS release in your installation.

NOTE: To understand more about Junos OS Software Licensing, see the [Juniper Licensing Guide](#). Please refer to the product [Data Sheets](#) accessible from [Products & Services](#) for details, or contact your Juniper Account Team or Juniper Partner.

ATP Cloud, SecIntel, and Enhanced Web Filtering individual license are available. This is not a complete list of licenses. For the most up-to-date license models available, contact your Juniper Networks representative for license information.

Table 79: Legacy Feature Licenses for SRX Series Firewalls

Features with Licenses	SRX300	SRX320	SRX340	SRX345	SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800
Enhanced Web Filtering	Supported	Supported	Supported	Supported	Supported
Intrusion Detection and Prevention	Supported	Supported	Supported	Supported	Supported on SRX5400, SRX5600, and SRX5800
Intrusion Prevention Signature	Not supported	Not supported	Not supported	Not supported	Supported on SRX1500, SRX4100, SRX4200, and SRX4600
Juniper Advanced Threat Prevention Cloud	Not supported	Not supported	Supported	Supported	Supported
SecIntel	Not supported	Not supported	Supported	Supported	Supported
Remote Access (5, 10, 25, 50, 100, 150, 250, 500, 1000, 2000, 5000, and 10K Concurrent users, NCP)	Not supported	Not supported	Not supported	Not supported	Supported

Table 79: Legacy Feature Licenses for SRX Series Firewalls (Continued)

Features with Licenses	SRX300	SRX320	SRX340	SRX345	SRX1500, SRX4100, SRX4200, SRX4600, SRX5400, SRX5600, and SRX5800
Logical System License (1, 5, and 25 Incremental)	Not supported	Not supported	Not supported	Not supported	Supported

SRX4100 support enhanced performance (upgrade to firewall IMIX performance up to 20G IMIX to the base 20G IMIX firewall throughput supported and application security)

Understanding Chassis Cluster Licensing Requirements

There is no separate license required for chassis cluster. However, some Junos OS software features require a license to activate the feature. To configure and use the licensed feature in a chassis cluster setup, you must purchase one license per feature per device and the license needs to be installed on both nodes of the chassis cluster. Both devices (which are going to form a chassis cluster) must have valid, identical features licenses installed on them. If both devices do not have an identical set of licenses, then after a failover, a particular feature (that is, a feature that is not licensed on both devices) might not work or the configuration might not synchronize in chassis cluster formation. Licensing is usually ordered when the device is purchased, and this information is bound to the chassis serial number. For example, Intrusion Detection and Prevention (IDP) is a licensed feature and the license for this specific feature is tied to the serial number of the device.

For information about how to purchase software licenses, contact your Juniper Networks sales representative at <https://www.juniper.net/in/en/contact-us/>.

Understanding Licenses for Logical Systems and Tenant Systems on SRX Series Firewall Devices

This topic provides licensing information for SRX Series Firewalls running logical systems and tenant systems.

Starting in Junos OS Releases 20.3R3, 20.4R2, 21.1R2, and 21.2R1, you can use the features for logical systems and tenant systems without a license.

Starting in Junos OS Release 18.3R1, an SRX Series Firewall running logical systems or tenant systems includes three licenses by default. One license for a primary logical system and the other two licenses for user-defined logical system or tenant system. The system does not allow you to configure additional logical systems or tenant systems if the number of logical systems and tenant systems exceeds the number of available licenses. In the earlier releases, the system allowed you to configure an additional logical system even if the number of logical systems exceeds the number of available licenses, but with a warning message of non-licensed logical-systems do not pass traffic. You can purchase licenses for additional logical systems and tenant systems that you intend to create. If you intend to configure an interconnect logical system or interconnect tenant system to use as a switch, it also requires separate licenses.

We enforce that you do not configure more logical systems or tenant systems than the number of licenses you have purchased. If the number of logical systems or tenant systems that you attempt to configure exceeds the number of licenses that you have purchased, then the system displays an error message similar to the following:

```
user@host# commit
error: 2 more multitenancy license(s) are needed!
error: configuration check-out failed
```

You can use the **show system license status all-logical-systems-tenants** or **show system license usage** commands to view the active logical systems and tenant systems on the device.

```
user@host> show system license status all-logical-systems-tenants
logical system name  license status
root-logical-system  enabled
LSYS2                enabled
LSYS0                enabled
LSYS11              enabled
LSYS12              enabled
LSYS23              enabled
TSYS1                enabled
TSYS2                enabled
TSYS3                enabled
```

```
user@host> show system license usage
```

Feature name	Licenses used	Licenses installed	Licenses needed	Expiry
logical-system	9	11	0	2019-05-18 08:00:00 CST

When you use SRX Series Firewalls running logical systems or tenant systems in a *chassis cluster*, you must purchase and install the same number of licenses for each node in the chassis cluster. Logical systems or tenant systems licenses pertain to a single chassis, or node, within a chassis cluster and not to the cluster collectively.

Understanding Content Security Licensing

The majority of Content Security features function as a subscription service requiring a license. You can redeem this license once you have purchased your subscription license SKUs. You redeem your license by entering your authorization code and chassis serial number into the Customer Service license portal interface. Once your entitlement is generated, you can use the CLI from your device to send a license update request to the license portal. The license portal then sends your subscription license directly to the device.

NOTE: Content Security requires 1 GB of memory.

Table 80: Legacy Feature Licenses for Content Security Features

Content Security Feature	Requires License
Antispam	Yes
Antivirus: sophos	Yes
Content Filtering	No
Web Filtering: integrated	Yes
Web Filtering: redirect	No
Web Filtering: local	No
Web Filtering: enhanced	Yes

NOTE: License enforcement is supported on all SRX Series Firewalls. Licensed features including anti-virus or Enhanced Web Filtering will not function until a license has been installed. The license must be installed after installing or upgrading to a new Junos OS Release version. Unlicensed features such as Content Security blocklists and allowlists will continue to function without a license.

Installing and Verifying Licenses for an Application Signature Package

The Junos OS application signature package update is a separately licensed subscription service. You must install the application signature package update license key on your device to download and install the signature database updates provided by Juniper Networks. If your license key expires, you can continue to use the locally stored application signature package content.

Licensing is usually ordered when the device is purchased, and this information is bound to the chassis serial number. These instructions assume that you already have the license. If you did not order the license during the purchase of the device, contact your account team or Juniper customer care for assistance. For more information, refer to the Knowledge Base article KB9731 at <https://kb.juniper.net/InfoCenter/index?page=home>.

Junos Software Base (JSB) package does not include application signatures. Please refer to the product Data Sheets at [SRX Series Services Gateways](#) for details, or contact your Juniper Account Team or Juniper Partner.

You can install the license on the SRX Series Firewall devices using either the automatic method or manual method as follows:

- Install your license automatically on the device.

To install or update your license automatically, your device must be connected to the Internet.

```
user@host> request system license update
```

```
Trying to update license keys from https://ae1.juniper.net, use 'show system license' to check status.
```


- Install the licenses manually on the device.

```
user@host> request system license add terminal
```

[Type ^D at a new line to end input,
enter blank line between each license key]

Paste the license key and press Enter to continue.

- Verify the license is installed on your device.

Use the **show system license** command to view license usage, as shown in the following example:

```
License usage:

```

Feature name	Licenses used	Licenses installed	Licenses needed	Expiry
logical-system	4	1	3	permanent

```

License identifier: JUNOSXXXXXX
License version: 2
Valid for device: AA4XXX005
Features:
  appid-sig      - APPID Signature
    date-based, 2014-02-17 08:00:00 GMT-8 - 2015-02-11 08:00:00 GMT-8

```

The output sample is truncated to display only license usage details.

Software Licenses for vSRX Virtual Firewall

vSRX Virtual Firewall supports subscription licenses.

Go through the following tables:

- [vSRX Virtual Firewall SKU Definition on page 126](#)
- [vSRX Virtual Firewall with 2, 5, 9, 17, or 32 virtual CPUs \(vCPUs\) Software Licenses on page 127](#)
- [vSRX Virtual Firewall License SKUs on page 129](#)

- [Legacy Software Features for vSRX Virtual Firewall on page 130](#)
- [Legacy Software Features for vSRX Virtual Firewall on Contrail, KVM, Microsoft Hyper-V, and VMware on page 132](#)
- [Legacy Software Features for Remote Access on vSRX Virtual Firewall on page 134](#)

Table 81: vSRX Virtual Firewall SKU Definition

SKU	SKU Character Description
S-VSRX-2C/5C/9C/17C-S/A1/A2/A3/P1/P2/P3-1/3/5	<p>S—Software</p> <p>VSRX—Product name vSRX Virtual Firewall</p> <p>2C/5C/9C/17C—Number of vCPUs</p> <p>S/A1/A2/A3/P1/P2/P3</p> <ul style="list-style-type: none"> • S = Standard • A1 = Advanced 1 • A2 = Advanced 2 • A3 = Advanced 3 • P1 = Premium 1 • P2 = Premium 2 • P3 = Premium 3 <p>1/3/5—Subscription term 1, 3, or 5 years</p>

For public cloud, vSRX Virtual Firewall software license supports—Pay-As-You-Go (PAYG) and Bring Your Own License (BYOL) license model. Pricing is based on the number of vCPU cores, with a minimum of 2 vCPU cores.

NOTE: Advanced 3 and Premium 3 licenses are supported only on vSRX3.0.

Table 82: vSRX Virtual Firewall with 2, 5, 9, 17, or 32 virtual CPUs (vCPUs) Software Licenses

Features with Licenses	vSRX Virtual Firewall
Use Case for Premium 3 (includes Advanced 3 features): Next-generation firewall and Juniper ATP Cloud	
Juniper ATP Cloud	Premium 3
Use Case for Premium 2 (includes Advanced 2 features): Next-generation firewall and Juniper ATP Cloud	
Juniper ATP Cloud	Premium 2
Use Case for Premium 1 (includes Advanced 1 features): Data center security and Juniper ATP Cloud	
Juniper ATP Cloud	Premium 1
Use Case for Advanced 3 (includes Standard features): Next-generation firewall with on-box antivirus	
Avira antivirus, Web filtering, antispam, and content filtering	Advanced 3
Use Case for Advanced 2 (includes Standard features): Next-generation firewall with cloud-based antivirus	
Sophos antivirus, Web filtering, antispam, and content filtering	Advanced 2
Use Case for Advanced 1 (includes Standard features): Data center security	
IPS and Application Security	Advanced 1
Use Case for Standard: Standard firewall and secure branch routers	
Application Layer Gateways (ALGs)	Standard
BGP	Standard

Table 82: vSRX Virtual Firewall with 2, 5, 9, 17, or 32 virtual CPUs (vCPUs) Software Licenses
(Continued)

Features with Licenses	vSRX Virtual Firewall
Class of service (CoS)	Standard
DHCP	Standard
Diagnostics	Standard
Firewall	Standard
GRE	Standard
IP tunneling	Standard
IPv4 and IPv6	Standard
J-Flow	Standard
Management (J-Web, CLI, and NETCONF)	Standard
MPLS	Standard
Multicast	Standard
NAT	Standard
On-box logging	Standard
OSPF	Standard
Screens	Standard
Site-to-site VPN	Standard
Static routing	Standard

Table 82: vSRX Virtual Firewall with 2, 5, 9, 17, or 32 virtual CPUs (vCPUs) Software Licenses
(Continued)

Features with Licenses	vSRX Virtual Firewall
User firewall	Standard

Table 83: vSRX Virtual Firewall License SKUs

vSRX	SKUs
Premium 3	S-VSRX-2C/5C/9C/17C-P3-1/3/5
Premium 2	S-VSRX-2C/5C/9C/17C-P2-1/3/5
Premium 1	S-VSRX-2C/5C/9C/17C-P1-1/3/5
Advanced 3	S-VSRX-2C/5C/9C/17C-A1-1/3/5
Advanced 2	S-VSRX-2C/5C/9C/17C-A2-1/3/5
Advanced 1	S-VSRX-2C/5C/9C/17C-A3-1/3/5
Standard	S-VSRX-2C/5C/9C/17C-S-1/3/5

Oracle Cloud Infrastructure (OCI) supports Bring Your Own License (BYOL) licensing model. The BYOL license model allows you to customize your license, subscription and support to fit your needs. You can purchase BYOL from Juniper Networks or Juniper Networks authorized reseller.

Legacy vSRX Virtual Firewall Licenses

The licenses used by all Juniper Networks instances are based on SKUs, which represent lists of features. Each license includes a list of features that the license enables along with information about those features.

For information about purchasing software licenses, contact your Juniper Networks sales representative at <https://www.juniper.net/in/en/contact-us/>.

vSRX Virtual Firewall licenses are based on application packages and processing capacity.

vSRX Virtual Firewall provides bandwidth in the following capacities (throughput per instance): 1 Gbps, 2 Gbps, and 4 Gbps. Each of these bandwidth tiers is offered with three different packages.

Table 84: Legacy Software Features for vSRX Virtual Firewall

License Type	Description	SKUs
STD	Includes the following features: <ul style="list-style-type: none"> • Core security—firewall, ALG, screens, user firewall • IPsec VPN (site-to-site VPN) • NAT • CoS • Routing services—BGP, OSPF, DHCP, J-Flow, IPv4 • Foundation—Static routing, management (J-Web, CLI, and NETCONF), on-box logging, diagnostics 	VSRX-1G/2G/4G-STD-CLD-1/3
ASCB	Includes all STD features bundled with IPS and AppSecure signatures, along with the following features: <ul style="list-style-type: none"> • AppID • AppFW • AppQoS • AppTrack 	VSRX-1G/2G/4G-ASB-CLD-1/3
CSB	Includes all STD features, along with the features bundled with ASCB, including the addition of the following Content Security features: <ul style="list-style-type: none"> • Antivirus • Content filtering • Web filtering 	VSRX-1G/2G/4G-CSB-CLD-1/3

Table 84: Legacy Software Features for vSRX Virtual Firewall (Continued)

License Type	Description	SKUs
ATP-B	vSRX-1G-ATP-B bundle includes: <ul style="list-style-type: none"> • Juniper ATP Cloud + • Content Security + • ASEC (IDP + AppFW) + • STD 	VSRX-1G-ATP-B-1

License stacking is allowed. So, for example, to license 3 Gbps of throughput for the standard (STD) feature set for 1 year, use a VSRX-1G-STD-CLD-1 license and a VSRX-2G-STD-CLD-1.

Legacy vSRX Virtual Firewall Licenses for Contrail, KVM, Microsoft Hyper-V, and VMware

The licenses used by all Juniper Networks instances are based on SKUs, which represent lists of features. Each license includes a list of features that the license enables along with information about those features.

For information about purchasing software licenses, contact your Juniper Networks sales representative at <https://www.juniper.net/in/en/contact-us/>.

vSRX Virtual Firewall licenses are based on application packages and processing capacity.

Bandwidth (throughput) licenses allow you to use a single instance of the software for up to the maximum throughput specified in the license entitlement. Throughput licenses can be combined on a single instance of the software so that the maximum throughput for that instance is the aggregate of all the throughput licenses assigned to that instance. A throughput license cannot be split across multiple instances. Throughput licenses are identified in the license entitlement in megabits per second (Mbps), or gigabits per second (Gbps).

vSRX Virtual Firewall provides bandwidth in the following capacities (throughput per instance): 100 Mbps, 1 Gbps, 2 Gbps, 4 Gbps, 10 Gbps, and 20 Gbps. Each of these bandwidth tiers is offered with four different packages along with bandwidth based, a la carte, advanced Layer 7 security services SKUs.

Table 85: Legacy Software Features for vSRX Virtual Firewall on Contrail, KVM, Microsoft Hyper-V, and VMware

License Type	Description	Bandwidth	SKUs
STD	<p>Includes the following features:</p> <ul style="list-style-type: none"> • Core security – firewall, ALG, screens, user firewall • IPsec VPN (site-to-site VPN) • NAT • CoS • Multicast services – IP Multicast (PIM, IGMP) • Routing services – BGP, OSPF, DHCP, J-Flow, IPv4, and IPv6 • High availability • Foundation – Static routing, management (J-Web, CLI, and NETCONF), on-box logging, diagnostics • Software platform – KVM, Openstack, ESXi 6.0, Contrail 	100M/1G/2G/4G/10G/20G throughput—vSRX Virtual Firewall standard package (1 year, 3 years, and perpetual)	VSRX-100M/1G/2G/4G/10G/20G-STD-1/3
ASCB and ASECB	<p>Includes all STD features bundled with the following additional AppSecure features:</p> <ul style="list-style-type: none"> • AppID • AppFW • AppQoS • AppTrack 	100M/1G/2G/4G/10G/20G throughput—vSRX Virtual Firewall AppSecure package includes all features in the STD package with IPS and AppSecure (1-year or 3-year subscription)	<p>VSRX-100M-ASCB-1/3</p> <p>VSRX-1G/2G/4G/10G/20G-ASECB-1/3</p> <p>VSRX-100M/1G/2G/4G/10G/20G-ASEC-1/3</p>

Table 85: Legacy Software Features for vSRX Virtual Firewall on Contrail, KVM, Microsoft Hyper-V, and VMware (Continued)

License Type	Description	Bandwidth	SKUs
CS-B	Includes all STD features bundled with ASEC features and the addition of Content Security capabilities: <ul style="list-style-type: none"> • Antispam • Antivirus • Content filtering • Web filtering 	100M/1G/2G/4G/10G/20G throughput—vSRX Virtual Firewall CS package includes all features in STD, IPS, and AppSecure, enhanced Web filtering, Sophos antivirus, antispam, content filtering, (1-year or 3-year subscription).	VSRX-100M/1G/2G/4G/10G/20G-CS-B-1/3
ATP-B	vSRX-1G-ATP-B bundle includes: <ul style="list-style-type: none"> • ATP Cloud + • Content Security + • ASEC (IDP + AppFW) + • STD 	1G Throughput, 1 year Subscription License for vSRX Virtual Firewall ATP package, including features in Content Security (CS) package, and ATP Cloud. This license is not supported for Contrail deployments.	vSRX-1G-ATP-B-1
Individual (a la carte) Advanced Security Services (ASEC, S-AV, W-EWF, CS)	Individual (a la carte) Layer 7 security services licenses including: <ul style="list-style-type: none"> • Sophos antivirus • Websense enhanced Web filtering • AppSecure and IPS • Content Security (CS) 	100M/1G/2G/4G/10G/20G throughput—vSRX Virtual Firewall S-AV license (1-year or 3-year subscription). 100M/1G/2G/4G/10G/20G throughput—vSRX W-EWF license (1-year or 3-year subscription).	VSRX-100M/1G/2G/4G/10G/20G-CS-1/3 VSRX-100M/1G/2G/4G/10G/20G-S-AV-1/3 VSRX-100M/1G/2G/4G/10G/20G-WEWF-1/3

License stacking is allowed. For example, to license 3 Gbps of throughput for the standard (STD) feature set for 1 year, use a VSRX-1G-STD-1 license and a VSRX-2G-STD-1.

Table 86: Legacy Software Features for Remote Access on vSRX Virtual Firewall

Remote Access Licenses	SKUs
Remote Access (5 Concurrent users, NCP)	VSRX-RA1-5
Remote Access (10 Concurrent users, NCP)	VSRX-RA1-10
Remote Access (25 Concurrent users, NCP)	VSRX-RA1-25
Remote Access (50 Concurrent users, NCP)	VSRX-RA1-50
Remote Access (100 Concurrent users, NCP)	VSRX-RA1-100
Remote Access (150 Concurrent users, NCP)	VSRX-RA1-150
Remote Access (250 Concurrent users, NCP)	VSRX-RA1-250
Remote Access (500 Concurrent users, NCP)	VSRX-RA1-500

Juniper Agile Licensing for License Management

SUMMARY

Learn about Juniper Agile Licensing, an improved license management system to activate, install, manage, and monitor licenses on Juniper Networks devices.

IN THIS SECTION

- [Juniper Agile Licensing Overview | 135](#)
- [Juniper Agile Licensing Workflow for Procuring and Managing Licenses | 137](#)
- [Juniper Agile Licensing Videos | 138](#)

Juniper Agile Licensing Overview

IN THIS SECTION

- [Benefits of Juniper Agile Licensing | 135](#)
- [Understand Juniper Agile Licensing | 135](#)
- [Components of Juniper Agile Licensing | 136](#)

Benefits of Juniper Agile Licensing

- Provides an intuitive user experience and simplified operational processes.
- Provides seamless lifecycle management of licenses.
- Offers flexible license administration and deployment.
- Enables monitoring of software usage through centralized administrator and reporting.
- Allows users to proactively adjust usage based on real-time reporting.
- Provides consistent license management workflow for all Juniper products.

Understand Juniper Agile Licensing

Juniper Networks introduced the Juniper Agile Licensing solution to provide an efficient way for customers and partners to manage licenses for hardware and software features. To use a licensed feature, you need to purchase and activate a license that corresponds to that feature and deploy that license so that it can be utilized by the software during normal operation. You can administer and manage the licenses through the [Juniper Agile Licensing Portal](#). The portal provides an intuitive task-based user interface that provides full lifecycle management of licenses.

Juniper Agile Licensing ensures that features are used in compliance with Juniper's End User License Agreement.

- Standalone mode allows you to activate a license on a single hardware device or software instance. Such a license can only be used by the instance on which it is activated. Sharing a license with multiple instances is not permissible.

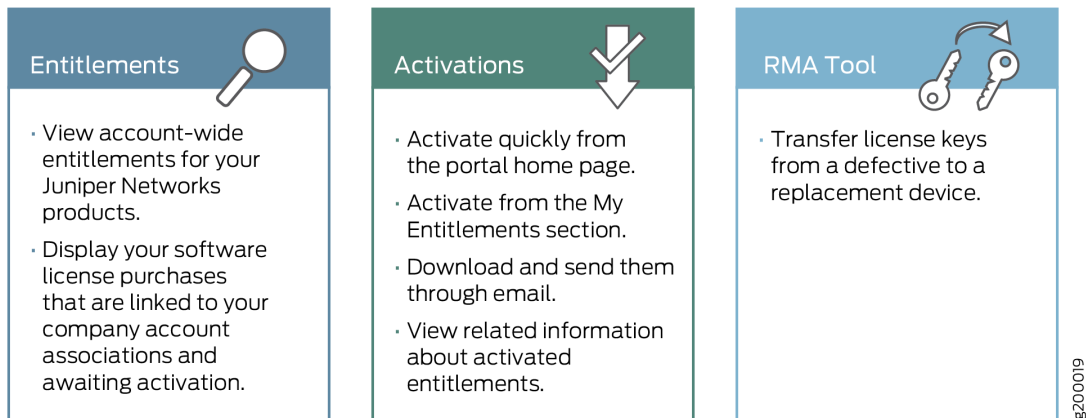
Support for each deployment mode varies by product. Both deployment modes enable efficient management of both subscription and perpetual licenses and may enable combinations of features and capacity depending on the specific license purchased.

Components of Juniper Agile Licensing

1. Juniper Agile Licensing Portal

The Juniper Agile Licensing Portal provides the features shown in [Figure 2 on page 136](#).

Figure 2: Juniper Agile Licensing Portal Features



You use the [Juniper Agile Licensing Portal](#) to activate and deliver the required license keys for products you have purchased.

Depending on the type of license, the fulfillment e-mail you receive from Juniper after purchase of a license indicates whether your device can be used without installing license keys. If you need to install license keys, you can view and activate the purchased entitlements in the Agile Licensing Portal.

NOTE: In some cases, the fulfillment e-mail might include a license key, in which case it is not necessary to manage the entitlement through the Agile Licensing Portal.

2. Juniper Entitlement Management System

The Juniper Agile Entitlement Management System is a repository of all your entitlements. It simplifies the licensing life cycle by providing a centralized license management interface that you can access using the Agile Licensing Portal.

Juniper Agile Licensing Workflow for Procuring and Managing Licenses

IN THIS SECTION

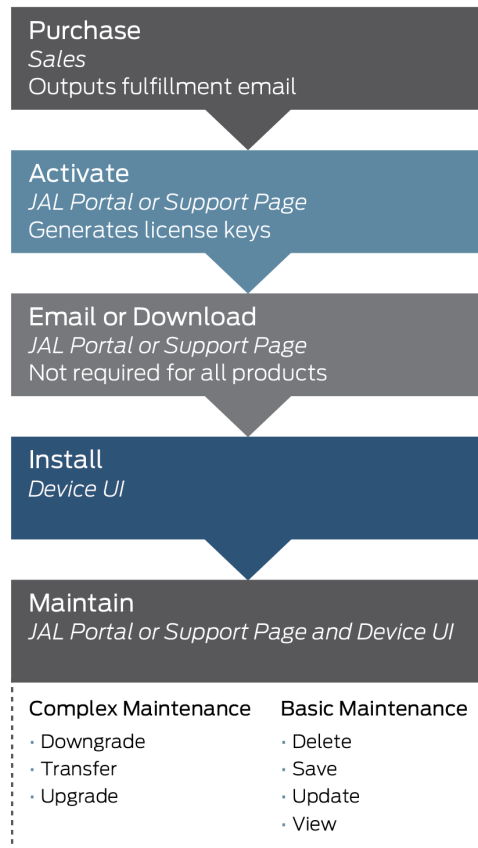
- Procuring and Managing Licenses | 137

Procuring and Managing Licenses

For procuring and managing licenses, Juniper Agile Licensing comprises the following phases:

The phases of the licensing life cycle are shown in [Figure 3 on page 137](#).

Figure 3: Licensing Phases



Purchase Licenses from Juniper Networks

Licenses to use Juniper software are purchased through Juniper's standard sales order process. After meeting with your Sales Representative or Juniper Partner, submit a sales order to Juniper. License sales order lines will send you an e-mail that includes your activation code and Software Support Reference Number (SSRN) relating to your entitlements. The system creates entitlements associated with your user account (e-mail ID) that you can subsequently manage through the Juniper Agile Licensing Portal.

Depending on the type of license, access the Agile Licensing Portal to activate license keys or send the keys by e-mail to yourself.

NOTE: Keep a record of your SSRN, which is used as a proof of purchase and for support entitlement purposes.

Manage Entitlements using the Agile Licensing Portal

You use the information from the fulfillment e-mail to activate your entitlements. This process generates software license activation keys (license keys) that you can install on devices directly, or automatically synchronize to previously installed licenses.

NOTE: Some software licenses can be only activated, and do not generate or require a license activation key to be installed on the device. Refer to the fulfillment e-mail that you receive after purchase for this information.

Juniper Agile Licensing Videos

See the following videos to learn about the JAL portal, single license activation, bulk licenses activation, revoking license key, and so on.

- See [JAL Overview](#) video to learn about the JAL portal features.
- See [Revoking a License Key](#) video to learn about how to revoke the license key.
- See [RTU Licenses](#) video to learn about how to activate RTU licenses.
- See [Bulk License Key Activation](#) video to learn how to activate bulk licenses.
- See [Hardware and Software License Activation](#) video to learn about hardware and software license activation.

- See [RMA Overview](#) video to learn about Return Materials Authorization.
- See [Multiple Entitlement Quantities in a Single Activation](#) video to learn how to activate multiple licenses.

Activate Your Licenses

SUMMARY

In this topic, we describe how to activate license on different Juniper Networks products.

IN THIS SECTION

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- [Activate Junos OS Licenses | 141](#)
- [Activate Contrail Insights Licenses | 142](#)
- [Activate CSO and Juniper Sky Enterprise Licenses | 143](#)
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- [Monitor Your Licenses | 150](#)
- [Example: Content Security License Activation Video | 173](#)

You're now set to activate the purchased license.

Activate Licenses

To activate license, perform the following steps:

1. Log in to the [Juniper Agile Licensing Portal](#).
2. Navigate to the **My Entitlements** section on the landing page.

If you are unable to view your entitlements in the JAL Portal, contact [Juniper Customer Care](#).

3. Click the **Activate**.
4. In the Product Activation screen, select the Software Version and the quantity to activate. You can add any useful information in the Notes field.
5. Click **Activate**. Once complete, the screen will display as shown below:

The screenshot shows the Juniper Networks licensing portal. At the top left is the Juniper Networks logo. On the right, there are navigation links: Licensing Home, Original LMS, Portal FAQ, and a welcome message for MARK JORDAN. Below the navigation is a header section with fields for Company, Activation Code, and Entitlement Expiration (N/A). The main content area features a large blue heading 'Activation Complete' and a table with the following data:

Product Name	Activated	Expiry Date
VBNG-PREF-10K	100	N/A

At the bottom right of the activation screen is a blue button labeled 'I'm Done'.

To add license, perform the following steps:

1. Issue the `set system license keys key ID` statement.
2. The `ID` parameter includes the license ID and the license key. For example:

```
[edit]
user@device# set system license keys key "JUNOS_TEST_LIC_FEAT xxxxxx xxxxxx xxxxxx xxxxxx
xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx"
```

To add multiple license keys in the Junos OS CLI, issue the `set system license keys key name` statement for each license key to add. For example:

```
[edit]
user@device# set system license keys key "key_1"
set system license keys key "key_2"
set system license keys key "key_2"
set system license keys key "key_4"
```


3. Issue the `commit` command.

```
[edit]
user@device# commit
commit complete
```

4. Verify that the added license key.

For example:

```
user@device# run show system license
```

```
License usage:

```

	Licenses used	Licenses installed	Licenses needed	Expiry
Feature name				
sdk-test-feat1	0	1	0	permanent

```

Licenses installed:
License identifier: JUNOS_TEST_LIC_FEAT
License version: 2
Features:
  sdk-test-feat1  - JUNOS SDK Test Feature 1
  permanent

```

Alternatively, you can issue the `show system license` command from operational mode.

Reboot the device after adding license on the SRX300, SRX320, SRX320-POE, SRX340, SRX345, SRX380, SRX550, and SRX550-M devices. Rebooting the device sets system resources to support session capacity of the license.

Activate Junos OS Licenses

In case of Junos OS upgrade, you might need the new license keys. See the ["Step 2" on page 142](#) to generate license keys. If you have any problem in generating license keys, contact Juniper Customer Care.

1. Gather your activation codes.

Activation Code: The 17-digit alphanumeric activation code is sent through email in response to your order and is used to generate license capacity / feature activation keys for your Juniper Networks software. The activation code is used to generate your license activation key—it is not the license activation key itself.

2. Generate license keys and activation keys.

Upon initial setup, a base activation key might be required to activate the software. If further capacity or feature(s) were purchased and are being added to the software, each capacity increment and feature needs to be added via another activation key. Generate license activation keys using the [Juniper Agile Licensing Portal](#). At the top of the portal, enter your activation code, and click Activate. Then follow the instructions on screen. Juniper provides license activation keys in one of two ways:

- Download: You can download activation keys from the [Juniper Agile Licensing Portal](#).
- Email: You receive an email that contains the license activation keys.

3. Add license.

To add and manage licenses, see [Managing Licenses](#).

Activate Contrail Insights Licenses

This topic describes how to obtain the appropriate product keys and software required for your Juniper® Contrail® Insights product.

1. Create a user account.

To download your software, you need an approved user account with Juniper Networks. If you do not already have one, you can create an account through the [User Registration Portal](#).

2. Forward your fulfillment e-mail to the Juniper account activation team.

Locate the fulfillment e-mail(s) that you received and forward it to <mailto:appformix-key-request@juniper.net>. (These e-mails verify that you purchased the product.) Identify the subject as “AppFormix Product Keys Needed.” Add the following information to the e-mail:

- Company name
- Primary contact name
- Full company address
- Contact e-mail address
- Contact phone number

You will receive an e-mail confirmation acknowledging your activation request. The Juniper product activation team will complete the activation request within two business days.

3. Retrieve your software serial number.

The software serial number is a unique 14-digit number that Juniper uses to identify your Juniper Networks software installation (or purchased capacity). You can find this number in the Software Serial Number Certificate attached to the e-mail sent when you ordered your Juniper Networks Service. Store the Software Serial Number in a safe place, as it will be necessary to identify your installation when engaging Juniper for support.

4. Download your Software.

Find your product software on the [Juniper Software Downloads page](#). You will need to sign in with your Juniper user account and provide your Software Serial Number.

5. Install your Software.

Install your software according to the instructions in the software documentation at [Contrail Insights](#). Make sure to enter the license key as instructed during installation.

Need Help?

For additional assistance, you may contact Juniper Networks by opening a case online through the Juniper Customer Support Center (CSC) [Service Request Manager](#).

Activate CSO and Juniper Sky Enterprise Licenses

This topic describes how to activate Juniper Contrail Service Orchestration and Juniper Sky Enterprise.

Note: These instructions are written for the customer who will be using the product. If you are a partner, reseller, or distributor who is setting up Contrail Service Orchestration and Juniper Sky Enterprise for an end customer, please fill in the details about the customer.

1. Create a user account.

If you don't already have a Juniper user account, go to the [User Registration Portal](#) to create one. (For detailed instructions, see [KB 9946: Create a New User Login Account with Juniper Networks](#).)

Important: When creating your account, do not select *Guest User Access* or *Use your Cloud Marketplace or Cloud Service Provider credentials*. If you choose either of these options, you will not be able to use the resulting user account to activate your licenses in the next step.

2. Locate your license certificate.

When you purchased your Juniper product, you should have received an e-mail containing information about your software license. Locate that e-mail and the attached certificate, which contains details you need to activate your product.

3. Enter your activation code.

Sign into the [Juniper Agile Licensing Portal](#). At the top of the screen, enter the activation code (also sometimes called an authorization code) located in your license certificate, and click **Activate**.

4. Activate your licenses.

Choose one of the following options in the Product Activation screen:

- **Add devices to an existing account instance:** Select this option if you are simply adding additional licenses to an existing Contrail Service Orchestration or Juniper Sky Enterprise account. Then, select your preexisting account.
- **Register a new account instance:** Select this option if you are activating Contrail Service Orchestration or Juniper Sky Enterprise for the first time. Then, provide relevant account details.

Note: When creating an account, you will be asked to select an account type (Enterprise or Service Provider). If you are a partner, distributor, or reseller filling in this form for a customer, specify your customer's business type, not your own.

5. Complete your request.

Juniper will complete the request and e-mail you the details you need to activate your new product within two (2) business days.

Need Help?

For additional assistance, you may contact Juniper Networks by opening a case online through the Juniper Customer Support Center (CSC) [Service Request Manager](#).

Activate Juniper ATP Appliance Licenses

This topic describes how to obtain the appropriate license keys and software required for your Juniper Networks Advanced Threat Prevention Appliance.

1. Create a user account.

To download your software, you need an approved user account with Juniper Networks. If you do not already have one, you can create an account through the [User Registration Portal](#).

Note: Compliance approval typically takes two hours following the creation of a new Juniper User Account.

2. Retrieve your software serial number.

The software serial number is a unique 14-digit number that Juniper uses to identify your Juniper Networks software installation (or purchased capacity). You can find this number in the Software Serial Number Certificate attached to the e-mail sent when you ordered your Juniper Networks Service. Store the Software Serial Number in a safe place, as it will be needed to identify your installation when engaging Juniper for support. Note that this number is different than the license key described in Step 3.

3. Request your license key.

Open an admin service request (case) using our [Service Request Manager](#) on the Juniper Customer Support Center (CSC) and enter the following information to facilitate your request. You may also call Customer Care via telephone if you prefer:

- Subject Line: Juniper ATPA Software License Request
- Description:
 - Sales order number
 - Software product SKU
 - UUID (for assistance finding your UUID, see [kb.juniper.net\kb32301](http://kb.juniper.net/kb32301))
 - Serial Number/SSRN (enter the software serial number provided in your license fulfillment e-mail). If available, please attach the software serial number certificate (PDF) to the admin service request.

Once your service request is processed, your license key will be sent to you.

4. Download your software.

If you need to download your software, you can find it on the [Juniper Software Downloads page](#). You will need to sign in with your Juniper user account and provide your Software Serial Number.

Note: If you receive an account privileges error, please contact Customer Care to have your account upgraded. Be prepared to provide your Software Serial Number as proof of purchase.

5. Install your software.

Install your software according to the instructions in the software documentation at [JATP400 Advanced Threat Prevention Appliance](#) and [JATP700 Advanced Threat Prevention Appliance](#). Make sure to enter the license key as instructed during installation.

Need Help?

For additional assistance, you may contact Juniper Networks by opening a case online through the Juniper Customer Support Center (CSC) [Service Request Manager](#).

Activate Juniper Cloud Workload Protection Licenses

This topic describes how to obtain the appropriate license keys and software required for your Juniper Networks Cloud Workload Protection software.

1. Create a user account.

To access your software, you need an approved user account with Juniper Networks. If you do not already have one, you can create an account through the [User Registration Portal](#).

Note: Compliance approval typically takes two hours following the creation of a new Juniper User Account.

2. Retrieve your software serial number.

The software serial number is a unique 14-digit number that Juniper uses to identify your Juniper Networks software installation (or purchased capacity). You can find this number in the Software Serial Number Certificate attached to the e-mail sent when you ordered your Juniper Networks Service. Store the Software Serial Number in a safe place, as you'll need it later to identify your installation when engaging Juniper for support.

3. Request your licensed software.

Open an admin case by going to support on <https://www.juniper.net/> and then selecting [Juniper Support Portal](#). Under cases, you can now open a case and enter the following information to facilitate your request. You may also call Customer Care via telephone if you prefer:

- Subject Line: Juniper Cloud Workload Protection Software Request
- Description:
 - Sales order number
 - Software product SKU
 - Serial Number/SSRN (enter the software serial number provided in your license fulfillment e-mail). If available, please attach the software serial number certificate (PDF) to the admin service request.
 - Email address for the master admin account – this can be the same as the Juniper user account or a different email address if preferred. Ensure that the incoming email from outside your organization is allowed.

Temporary login details are emailed automatically once your account is set up. Once your service request is processed, you'll receive an email with your account information. Your product is automatically licensed.

4. Access Juniper Cloud Workload Protection portal.

1. Go to [Juniper Cloud Workload Protection](#).

NOTE: If you have purchased the on-prem version of the software, you'll still need to login initially to the SaaS portal in order to download the full software.

2. Enter your log in details. Use the log in information you received in the email to sign into your account for the first time.

Click **Login** to continue. Upon successful authentication, you'll be directed to the Juniper Cloud Workload Protection dashboard.

5. Navigate to the Installation tab.

6. Use Agent installation option for both the SaaS and on-prem options. The Portal installation option is only accessible if you purchase on-prem option. Follow the instructions on the screen to download and install agents.

Generate Voucher Certificate

IN THIS SECTION

- [Generate Voucher Certificate for One Device | 148](#)
- [Generate Voucher Certificates for Multiple Devices | 149](#)

The Juniper Agile Licensing (JAL) Portal generates voucher certificate for your network device. This voucher certificate validates that a device with serial number belongs to the correct owner.

Generate Voucher Certificate for One Device

Let's generate voucher certificate for your network device using the JAL Portal.

1. To onboard a device, open a Web browser and log in to [JAL Portal](#).
2. Click **My Entitlements**, find the **S-ALL-S-DV-P** SKU, and click **Activate**.
3. On the **Product Activation** page, fill the following details:
 - a. Select the **Software Version**.
 - b. Enter the **Device Serial Number**. Use the device serial number mentioned in your purchase order or sale order. To find the device serial number, see [Locating my Product Serial Number or Software Support Reference Number \(SSRN\)](#).
 - c. Select the **Voucher Certificate** expiration date.
 - d. Enter the **Email ID** to which you want to receive the confirmation mail.
 - e. Upload the Pinned Domain Certificate or select the previously uploaded Pinned Domain. On your device, generate an X509 standard based certificate with certificate authority flag. Use the generated certificate as Pinned Domain certificate.
 - f. Read the agreement and select **I Agree with Terms and Conditions**.
 - a. Click **Activate**.

4. On the **Activation Complete** page, you can download or email the activation code using the **Download** and **E-Mail** options. Click **I'm Done** to activate the SKU.
Use the downloaded voucher in Secure ZTP bootstrap response messages.
5. You have successfully onboarded your device. You can see the activated SKU in **My Activations** section.

Generate Voucher Certificates for Multiple Devices

Let's generate voucher certificates for multiple network devices using the JAL Portal.

1. To onboard multiple devices, open a Web browser and log in to [JAL Portal](#).
2. Click **Bulk Tool**.
3. On the **Bulk License Activation Tools** page click **Bulk Activation Tool**.
4. On the **Bulk Voucher Certificate Entitlement Activation** page, click **Download Excel File**. A voucher certificate template file gets downloaded.
5. Open the voucher certificate template file and enter the activation code, serial number, software version, and expiration date.
 - a. To find the activate code, navigate to **My Entitlements** and find the **S-ALL-S-DV-P** SKU.
 - b. Use the device serial number mentioned in your purchase order or sale order. To find the device serial number, see [Locating my Product Serial Number or Software Support Reference Number \(SSRN\)](#).
 - c. You can choose a date up to when you want the Secure ZTP to be active.
6. Save the voucher certificate template.
7. Upload the saved voucher certificate template file.
8. Upload the Pinned Domain Certificate or select the previously uploaded Pinned Domain. On your device, generate an X509 standard based certificate with certificate authority flag. Use the generated certificate as Pinned Domain certificate.
9. Enter the **Email ID** to which you want to receive the confirmation mail.
10. Read the agreement and select **I Agree with Terms and Conditions**.
11. Click **Upload File**.
12. After the voucher certificate template file is uploaded, you receive two mails.
 - a. First mail informs about the submission of SKUs for activation.
 - a. Second mail to confirm the activation of the SKUs, you can find the activation code in the attached file.
13. You have successfully onboarded your device. You can see the activated SKU in **My Activations** section.

Monitor Your Licenses

SUMMARY

This topic helps you to manage your licenses.

IN THIS SECTION

- [Overview | 150](#)
- [View License | 150](#)
- [Save License | 153](#)
- [Delete License | 154](#)
- [System Log for License | 157](#)
- [request system license add | 157](#)
- [request system license autoupdate | 159](#)
- [request system license delete | 161](#)
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- [Viewing Licenses with Network Director | 164](#)
- [Install VCF Software Licenses | 165](#)
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- [Exporting the License Inventory | 167](#)
- [Juniper Connected Security for VMware NSX Licensing | 170](#)
- [License Duration | 172](#)
- [License Procurement and Installation | 172](#)

Overview

After you activate and add the license, you can view, save, and delete the licenses.

View License

IN THIS SECTION

- [View Installed Licenses | 151](#)
- [View License Usage | 152](#)

To verify Junos OS license management, perform the following tasks:

View Installed Licenses

IN THIS SECTION

- Purpose | 151
- Action | 151
- Meaning | 152

Purpose

Verify that the expected licenses are installed and active on the device.

Action

From the CLI, enter the `show system license` command.

Sample Output

command-name

```

user@host> show system license
License usage:

```

Feature name	Licenses used	Licenses installed	Licenses needed	Expiry
subscriber-acct	0	1	0	permanent
subscriber-auth	0	1	0	permanent
subscriber-addr	0	1	0	permanent
subscriber-vlan	0	1	0	permanent
subscriber-ip	0	1	0	permanent
scale-subscriber	0	1000	0	permanent
scale-l2tp	0	1000	0	permanent
scale-mobile-ip	0	1000	0	permanent

```

Licenses installed:
License identifier: E000185416
License version: 2

```

Features:

```
subscriber-acct - Per Subscriber Radius Accounting
  permanent
subscriber-auth - Per Subscriber Radius Authentication
  permanent
subscriber-addr - Address Pool Assignment
  permanent
subscriber-vlan - Dynamic Auto-sensed Vlan
  permanent
subscriber-ip   - Dynamic and Static IP
  permanent
```

Meaning

The output shows a list of the license usage and a list of the licenses installed on the device. Verify the following information:

- Each license is present. Licenses are listed in ascending alphanumeric order by license ID.
- The state of each license is permanent.

A state of `invalid` indicates that the license key is not a valid license key. Either it was entered incorrectly, or it is not valid for the specific device.

- The feature for each license is the expected feature. The features enabled are listed by license. An all-inclusive license has all the features listed.
- All configured features have the required licenses installed. The Licenses needed column must show that no licenses are required.

View License Usage**IN THIS SECTION**

- [Purpose | 153](#)
- [Action | 153](#)
- [Meaning | 153](#)

Purpose

Verify that the licenses fully cover the feature configuration on the device.

Action

From the CLI, enter the `show system license usage` command.

Sample Output**command-name**

```

user@host> show system license usage
      Licenses   Licenses   Licenses   Expiry
Feature name   used    installed   needed
subscriber-addr      1         0         1   29 days
scale-subscriber      0       1000         0 permanent
scale-l2tp            0       1000         0 permanent
scale-mobile-ip      0       1000         0 permanent

```

Meaning

The output shows any licenses installed on the device and how they are used. Verify the following information:

- Any configured licenses appear in the output. The output lists features in ascending alphabetical order by license name. The number of licenses appears in the third column. Verify that you have installed the appropriate number of licenses.
- The number of licenses used matches the number of configured features. If a licensed feature is configured, the feature is considered used. The sample output shows that the subscriber address pooling feature is configured.
- A license is installed on the device for each configured feature. For every feature configured that does not have a license, one license is needed.

For example, the sample output shows that the subscriber address feature is configured but that the license for the feature has not yet been installed. The license must be installed within the remaining grace period to comply.

Save License

To save the licenses installed on a device:

From operational mode, do one of the following tasks.

- To save the installed license keys to a file or URL, enter the following command:

```
user@host> request system license save filename | url
```

For example, the following command saves the installed license keys to a file named **license.config**:

```
user@host> request system license save license.config
```

- To output installed license keys to the terminal, enter the following command:

```
user@host> request system license save terminal
```

Delete License

IN THIS SECTION

- [Using the Operational Command to Delete Licenses | 154](#)
- [Using a Configuration Command to Delete Licenses | 155](#)

Before deleting a license, ensure that the features enabled by the license will not be needed.

You can use the `request system license delete operational` command, or the `delete` or `deactivate` configuration command to delete a license:

Using the Operational Command to Delete Licenses

To delete licenses using the `request system license delete` command:

1. Display the licenses available to be deleted.

```
user@host> request system license delete license-identifier-list?  
Possible completions:  
E00468XXX4      License key identifier  
JUNOS10XXX1     License key identifier  
JUNOS10XXX2     License key identifier
```

JUNOS10XXX3	License key identifier
JUNOS10XXX4	License key identifier
[Open a set of values

2. To delete a license key or keys from a device using the CLI operational mode, select one of the following methods:

- Delete a single license by specifying the license ID. Using this option, you can delete only one license at a time.

```
user@host> request system license delete license-identifier
```

- Delete all license keys from the device.

```
user@host> request system license delete all
```

- Delete multiple license keys from the device. Specify the license identifier for each key and enclose the list of identifiers in brackets.

```
user@host> request system license delete license-identifier-list [JUNOS10XXX1 JUNOS10XXX3  
JUNOS10XXX4 ...]
```

```
Delete license(s) ?  
[yes,no] (no) yes
```

3. Verify the license was deleted by entering the `show system license` command.

Using a Configuration Command to Delete Licenses

Starting in Junos OS Release 16.1, to remove licenses from the configuration, you can use either the `delete` or `deactivate` configuration command. The `delete` command deletes a statement or identifier, and all subordinate statements and identifiers contained within the specified statement path are deleted with it. The `deactivate` command adds the `inactive:` tag to a statement, effectively commenting out the statement or identifier from the configuration. Statements or identifiers marked as `inactive` do not take effect when you issue the `commit` command. To remove the `inactive:` tag from a statement, issue the `activate` command. Statements or identifiers that have been activated take effect when you next issue the `commit` command.

The following procedure uses the `delete` command, but you could use the `deactivate` command as well.

To delete one or all licenses using the `delete` command:

You can use the deactivate command instead of the delete command in this procedure.

1. Display the licenses available to be deleted.

Issue the `run request system license delete license-identifier-list?` command from the configuration mode of the CLI.

```
[edit]
user@host# run request system license delete license-identifier-list?
```

A list of licenses on the device is displayed:

```
Possible completions:
E00468XXX4      License key identifier
JUNOS10XXX1     License key identifier
JUNOS10XXX2     License key identifier
JUNOS10XXX3     License key identifier
JUNOS10XXX4     License key identifier
[               Open a set of values
```

2. Delete the license or licenses you want.

- To delete a single license, for example:

```
[edit]
user@host# delete system license keys key [License key]
```

- To delete all licenses, for example:

```
[edit]
user@host# delete system license keys
```

3. Commit the configuration by entering the `commit` command.

4. Verify the license was deleted by entering the `show system license` command.

System Log for License

NOTE: After you add or delete a license, the system might take up to one minute to synchronize license between master and backup. You must allow one minute interval before performing any actions such as switchover or reboot.

Junos OS generates alarms for capacity (scale) features such as bandwidth to indicate the license requirement if the feature usage on a device exceeds the added license. The alarm detail shows the current feature usage information.

You can see the list of alarms at [System Log Explorer](#).

For example, see the below scenarios where alarms are generated for license requirement:

- Scenario 1

If a device is configured with a 100G bandwidth license and current usage is 200G bandwidth, the Junos OS generates an alarm as the bandwidth usage exceeded the added license.

The alarm specifies that the current usage of 200G bandwidth requires a license.

- Scenario 2

If a device is configured with a 128K RIB license and uses 130K RIB, the Junos OS generates an alarm as the RIB feature scale exceeded the added licenses.

The alarm specifies 130K RIB requires a license.

request system license add

IN THIS SECTION

- [Syntax | 158](#)
- [Description | 158](#)
- [Options | 158](#)
- [Additional Information | 158](#)
- [Required Privilege Level | 159](#)
- [Output Fields | 159](#)
- [Sample Output | 159](#)
- [Release Information | 159](#)

Syntax

```
request system license add (filename | terminal)
```

Description

Adding a license key to the Junos OS devices to activate the feature.

Starting in Junos OS Release 18.3R1, the `display xml rpc` CLI option is supported for `request system license add` and `request system license save` commands while installing licenses on Juniper Networks devices.

Options

filename License key from a file or URL. Specify the filename or the URL where the key is located.

terminal License key from the terminal.

Additional Information

The `| display xml rpc` filter returns “xml rpc equivalent of this command is not available,” the following RPC is supported for license installation:

The following RPC is supported for license installation:

```
<rpc>
<request-license-add>
<key-data> key </key-data>
</request-license-add>
</rpc>
```

Where *key-data* is the license key data.

```
<rpc>
<request-license-add>
<filename> key-file </filename>
</request-license-add>
</rpc>
```

Where *source* is the URL of the source license key file.

Required Privilege Level

maintenance

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system license add

```
user@host> request system license add terminal
XXXXXXXXXX xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
          xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
          xxxxxx xxxxxx xxx
XXXXXXXXXX: successfully added
add license complete (no errors)
```

Release Information

Command introduced before Junos OS Release 7.4.

Added additional information section on XML RPC in Junos OS Release 17.4.

request system license autoupdate

IN THIS SECTION

- [Syntax | 160](#)
- [Description | 160](#)
- [Required Privilege Level | 161](#)
- [Output Fields | 161](#)
- [Release Information | 161](#)

Syntax

```
set system license autoupdate url <URL>
```

Description

Before autoupdate licenses, complete the following tasks:

- Purchase the required licenses.
- Establish basic network connectivity with the router or switch. For instructions on establishing basic connectivity, see the *Getting Started Guide* or *Quick Start Guide* for your device.

To autoupdate licenses using a configuration command:

- From the CLI configuration mode, enter the following CLI command:

```
set system license autoupdate url <URL>
```

- You must commit the configuration using the `commit` command.

You can autoupdate the license using the proxy server available in the private network to be able to connect to the EMS server and download the license updates. The devices in the private network connect to the proxy server to download the license or license updates.

```
set system proxy server IP address  
set system proxy port port number  
set system proxy username user name  
set system proxy password password
```

The license-check process reads the URL from the above configuration and validates it.

- For hardware products, the URL query uses the device chassis serial number to fetch the required license key. The physical products support first time license fetching and license renewal.
- For virtual software products, you need to do the first-time installation. Subsequent fetching and renewal of the license key from the EMS portal can be done based on Software Serial Number (SSN).

By default, the autoupdate command sets renew before-expiration day as 60 days and renew time interval as 24 hours. The last devices are allowed to contact the EMS server 60 days before the current license expiry and check for an automatic update every 24 hours.

Required Privilege Level

maintenance

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Release Information

Command introduced in Junos OS Release 21.4R1.

request system license delete

IN THIS SECTION

- [Syntax | 161](#)
- [Description | 161](#)
- [Options | 161](#)
- [Required Privilege Level | 162](#)
- [Output Fields | 162](#)
- [Sample Output | 162](#)
- [Release Information | 162](#)

Syntax

```
request system license delete (all | license-identifier-list)
```

Description

Delete a license key from the Junos OS device.

Options

all Deletes all the licenses from Junos OS device.

license-identifier-list Deletes the license identifier feature from Junos OS device.

Required Privilege Level

maintenance

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system license delete

```
user@host> request system license delete license-identifier-list?
Possible completions:
E00468XXX4      License key identifier
JUNOS10XXX1     License key identifier
JUNOS10XXX2     License key identifier
JUNOS10XXX3     License key identifier
JUNOS10XXX4     License key identifier
[               Open a set of values
```

Release Information

Command introduced before Junos OS Release 7.4.

request license renew

IN THIS SECTION

- [Syntax | 163](#)
- [Description | 163](#)
- [Options | 163](#)
- [Required Privilege Level | 163](#)
- [Release Information | 163](#)

Syntax

```
set system license renew
{
  before-expiration days
  interval hours
}
```

Description

Before renewing licenses, complete the following tasks:

- Purchase the required licenses.
- Establish basic network connectivity with the router or switch. For instructions on establishing basic connectivity, see the *Getting Started Guide* or *Quick Start Guide* for your device.

To renew licenses using a configuration command:

- From the CLI configuration mode, enter the following CLI command:

```
set system license renew before-expiration days
```

```
set system license renew interval hours
```

- You must commit the configuration using the `commit` command.

Options

`before-expiration days`

`interval hours`

Required Privilege Level

maintenance

Release Information

Command introduced in Junos OS Release 21.4R1.

Viewing Licenses with Network Director

To view the license for a Juniper Networks device on your network:

1. Select the **Build** icon in the Network Director banner.
2. In the View pane, select wired device.
3. In the Tasks pane, select **View License Information**.

Table 87: Viewing Licenses with Network Director

Field	Description
Feature Name	Name of the licensed SKU or feature. It can be used to look up the license with Juniper Networks. Not all devices support this.
License Count	Number of times an item has been licensed. This value can have contributions from more than one licensed SKU or feature. Alternatively, it can be 1, no matter how many times it has been licensed.
Used Count	Number of times the feature is used. For some types of licenses, the license count will be 1, no matter how many times it is used. For capacity-based licensable items, if infringement is supported, the license count can exceed the given count, which has a corresponding effect on the need count.
Need Count	Number of times the feature is used without a license. Not all devices can provide this information.
Given Count	Number of instances of the feature that are provided by default.

If a device does not have a license, a blank page is displayed with the message, No license is installed on this device. If you are sure the device has a license, try resynchronizing the device before displaying the license again.

4. Optionally, expand the license information by feature name to view the feature SKU information.

Table 88: Additional Licensing Information

Field	Description
Validity Type	Validity type can be Databased (license expires on end date), Permanent, Countdown (license expires when time remaining is zero), or Trial. If the validity type is either Databased or Countdown, more information is displayed—License Name, License Version, License State, and Time Remaining. Additional information can be added in the details grid based on the SKU type (SKU or Feature)—Start Date, End Date, or Original Time Allowed.
License Name	If the validity type is either Databased or Countdown, the identifier associated with a license key is displayed.
License Version	If the validity type is either Databased or Countdown, the version of a license is displayed. The version indicates how the license is validated, the type of signature, and the signer of the license key.
License State	If the validity type is either Databased or Countdown, the state of the license is displayed—Valid, Invalid, or Expired.
Time Remaining	If the validity type is either Databased or Countdown, the remaining time left on the license is displayed. For a trial license, the number of days remaining after you installed the device is displayed. For a commercial license, the time remaining is unlimited.
Start Date	Based on the SKU type, the start date of the license can be displayed in the details grid.
End Date	Based on the SKU type, the end date of the license can be displayed in the details grid.
Original Time Allowed	Based on the SKU type, the original license timeframe can be displayed here.

Install VCF Software Licenses

To install a VCF software license:

1. Purchase two VCF software license keys (QFX-VCF-LIC) from your [Juniper Networks sales representative](#).

The sales representative will provide you with the feature license files and license keys. You will be asked to supply the chassis serial number of your switch; you can obtain the serial number by issuing the `show virtual-chassis` command.

2. Install the first software license on one device in the VCF (for example, the device acting in the primary role):

```
user@device> request system license add (filename | url)
```

3. Install the second software license on a second device in the VCF (for example, the device acting in the backup role):

```
user@device> request system license add (filename | url)
```

Junos Space License Installation

Junos Space Network Management Platform comes with a 60-day full-featured trial license. You must procure and install a valid license during this period to ensure continued operation beyond the trial period.

If you fail to upload a valid license during the 60-day trial period, the Junos Space user interface displays an error message when you log in indicating that the license has expired. Your access is limited to the Licenses page (**Administration > Licenses**) from where you can execute the **Import License** task to enter a valid license.

For Junos Space Platform licensing details, see [Generating and Uploading the Junos Space License Key File](#) and [Viewing Junos Space Licenses](#).

You can use either of the following options to install a valid license for Junos Space Platform:

- If you plan to use the Junos Space Platform with only the Support Automation applications (Service Now and Service Insight), you can navigate to the **Add Organization** page (**Service Now > Administration > Organizations > Add Organization**) in the Service Now user interface to activate these applications. However, to activate these applications, you must have a valid support contract for your Juniper Networks devices and valid credentials to access the Juniper Support System (JSS) back end.

If you choose this option and if you want to use other Junos Space applications beyond the trial period, you must purchase a license for Junos Space Platform (as explained in the bulleted item that follows).

- If you want to use Junos Space applications other than Service Now and Service Insight, or if you do not have a valid support contract for your Juniper Networks devices, you must purchase a license for Junos Space Platform. After you obtain the license file, you can install the license from the **Import License** page (**Administration > Licenses > Import License**). For more information about installing a valid license for Junos Space Platform, see the [Generating and Uploading the Junos Space License Key File](#) topic (in the *Junos Space Network Management Platform Workspaces Feature Guide*).

Exporting the License Inventory

The Device License Inventory feature enables you to display the currently installed license inventory information for all DMI schema-based devices under Junos Space Network Management Platform management.

The license inventory is generated when the device is first discovered and synchronized in Junos Space Network Management Platform.

The licenses used by all Juniper Networks devices are based on SKUs, which represent lists of features. Each license includes a list of features that the license enables and information about those features. Sometimes the license information also includes the inventory keys of hardware or software elements upon which the license can be installed.

To view the license(s) for Junos Space Network Management Platform itself, see [Viewing Junos Space Licenses](#).

This topic also covers:

- Absence of license
- Trial information
- Count-down information
- Date-based information

DMI enables each device family to maintain its own license catalog in the DMI Update Repository. The license catalog is a flat list of all the licenses used by a device family. The key for a license element is its SKU name. Each license element in the catalog includes a list of features that the license enables and information about each feature (that is, its name and value). Optionally, the license element can also list the inventory keys of hardware or software elements and where it can be installed.

If the license inventory on the device is changed, the result depends on whether the network is the system of record or Junos Space Network Management Platform is the system of record. See [Systems of Record in Junos Space Overview](#).

If the network is a system of record, Junos Space Network Management Platform automatically synchronizes with the managed device. You can also manually resynchronize the Junos Space Network

Management Platform license database with the device by using the Resynchronize with Network action. See [Resynchronizing Managed Devices with the Network](#).

If Junos Space Network Management Platform is the system of record, neither automatic nor manual resynchronization is available.

Viewing device license inventory does not include pushing license keys to devices. You can, however, push licenses with the Configuration Editor to any device that has license keys in its configuration. You can export device license inventory information to a CSV file for use in other applications.

License inventory information shows individually installed licenses as well as a license usage summary, with statistics for various features.

To export the license inventory for a device:

1. On the Network Management Platform user interface, select **Devices > Device Management**.

The Device Management page displays the devices managed in Junos Space Network Management Platform.

2. Select **Device Inventory > View License Inventory** from the Actions menu.

Need Counts in red indicate violations. In other words, entries in red indicate that you are using features that you are not licensed to use. You may also encounter the message that you have no licenses installed.

3. (Optional) View the list of licensed features for the selected license by double-clicking a license usage summary or clicking on the forward action icon to the left of a license usage summary.

4. (Optional) Click **Return to Inventory View** at the top of the inventory page.

5. (Optional) Click **Export** at the top of the inventory page, to export the license inventory information.

The Export Device License Information dialog box appears, displaying a link: Download license file for selected device (CSV format).

6. (Optional) Click the download link.

The Opening Device License-xxxxxxCSV dialog box appears, where xxxxxx represents a number.

7. Open the file with an application of your choice or download the file by clicking **Save**.

Exporting device license information generates an audit log entry.

Table 89: License Usage Summary Fields

Field	Description
Feature name	Name of the licensed SKU or feature. It can be used to look up the license with Juniper Networks. Not all devices support this.
License count	Number of times an item has been licensed. This value may have contributions from more than one licensed SKU or feature. Alternatively, it may be 1, no matter how many times it has been licensed.
Used count	Number of times the feature is used. For some types of licenses, the license count will be 1, no matter how many times it is used. For capacity-based licensable items, if infringement is supported, the license count may exceed the given count, which has a corresponding effect on the need count.
Need count	Number of times the feature is used without a license. Not all devices can provide this information.
Given count	Number of instances of the feature that are provided by default.

Table 90: License Feature or SKU Fields

Field	Description
Feature Name	Name of the licensed SKU or feature. It can be used to look up the license with Juniper Networks. Not all devices support this.
Validity Type	The SKU or feature is considered permanent if it is not trial, count-down, or data-based.

Table 91: Additional Fields in CSV Files

Field	Description
State	Status of the license: valid, invalid, or expired. Only licenses marked as valid are considered when calculating the license count.

Table 91: Additional Fields in CSV Files (Continued)

Field	Description
Version	Version of the license.
Type	Permanent, trial, and so on.
Start Date	Licensed feature starting date.
End Date	Licensed feature ending date.
Time Remaining	Licensed feature time remaining.

Juniper Connected Security for VMware NSX Licensing

VMware NSX is VMware's network virtualization platform for the Software Defined Data Center (SDDC). You can add the vSRX Virtual Firewall Virtual Services Gateway as a partner security service in the VMware NSX environment. The vSRX Virtual Firewall security service is managed by the Junos Space Security Director and VMware NSX Manager to deliver a complete and integrated virtual security solution for your SDDC environment. The vSRX Virtual Firewall provides advanced security services (Layer 7 services), including intrusion detection and prevention (IDP), and application control and visibility services through AppSecure.

The Juniper Connected Security for VMware NSX licensing includes support for Juniper's virtual firewall (vSRX Virtual Firewall), Network Security services (AppSecure, IDP) and the Juniper Connected Security and Security Management solutions (Policy Enforcer and Security Director) for VMware NSX-based private cloud advanced security.

Juniper Connected Security for VMware NSX Advanced Security Licenses

The Juniper Connected Security for NSX Advanced Security (ADS) licenses that are available from Juniper Networks provide entitlement for protection of one physical CPU socket, with one vSRX Virtual Firewall instance key provided for each license. Typically, a VMware ESXi server has multiple CPU sockets, and each CPU socket has multiple cores.

All Juniper Connected Security for NSX ADS licenses have an associated time duration; you purchase licenses as subscription based for a 1-year, 3-year, or 5-year duration.

A Juniper Connected Security for NSX ADS license cannot be purchased as a perpetual (never expire) license. Each license is only available on a subscription basis.

Each license includes support for the following:

- Juniper vSRX Virtual Firewall Series Virtual Services Gateway, including:
 - Stateful L3-L4 firewall
 - Advanced Application Security (ASEC) features (such as AppID, AppFW, AppQoS, and AppTrack)
 - Intrusion Detection and Prevention (IDP)
- Juniper Security Management solutions, including:
 - Junos Space Security Director
 - Juniper Connected Security Policy Enforcer

The licenses available in the Juniper Connected Security for VMware NSX ADS licensing model are based on SKUs which represent the terms of subscription and the supported features.

Table 92: Juniper Connected Security for VMware NSX ADS Licensing Packages

License Model Number	Description
JNSX-ADS-1-1Y	<p>Juniper Connected Security for NSX Advanced Security with vSRX Virtual Firewall for 1 physical CPU socket - 1 Year Subscription</p> <p>The 1-year subscription license includes support for Security Director, Policy Enforcer, 1 vSRX Virtual Firewall entitlement for 1 physical CPU socket protection with AppSecure and IDP feature support</p>
JNSX-ADS-1-3Y	<p>Juniper Connected Security for NSX Advanced Security with vSRX Virtual Firewall for 1 physical CPU socket - 3-year Subscription</p> <p>The 3-year subscription license includes support for Security Director, Policy Enforcer, 1 vSRX Virtual Firewall entitlement for 1 physical CPU socket protection with AppSecure and IDP feature support</p>
JNSX-ADS-1-5Y	<p>Juniper Connected Security for NSX Advanced Security with vSRX Virtual Firewall for 1 physical CPU socket - 5 Year Subscription</p> <p>The 5-year subscription license includes support for Security Director, Policy Enforcer, 1 vSRX Virtual Firewall entitlement for 1 physical CPU socket protection with AppSecure and IDP feature support</p>

License Duration

The Juniper Connected Security for NSX ADS license model is subscription based. A subscription license is an annual license that allows you to use the licensed software for the matching duration. Subscriptions might involve periodic downloads of content (such as for IDP threat signature files). At the end of the license period, you need to renew the license to continue using it.

Subscription licenses start when you retrieve the license key or 30 days after purchase if you have not retrieved the license key. All subscription licenses are renewable.

License Procurement and Installation

To enable a Juniper Connected Security for NSX ADS license, you must purchase, install, and manage the license key that corresponds to the specific terms of each license. The presence of the appropriate software unlocking key on your virtual instance allows you to configure and use that license.

Licenses are usually ordered when the software application is purchased, and this information is bound to a customer ID. If you did not order the licenses when you purchased your software application, contact your account team or [Juniper Networks Customer Care](#) for assistance. Licenses can be procured from the [Juniper Networks License Management System \(LMS\)](#).

From the Junos Space Security Director, you discover the NSX Manager and perform service registration of the vSRX Virtual Firewall VM with the NSX Manager. The NSX Manager is added as a device in Security Director and its inventory is synchronized with Security Director. Discovering the NSX Manager and registering vSRX Virtual Firewall as a security service in Security Director are described in detail in [Deploying the vSRX as an Advanced Security Service in a VMware NSX Environment](#).

As part of the service registration procedure, in the Service Manager Registration section of the Add NSX Manager page, you enter the license key.

Figure 4: Service Manager Registration: Entering the License Key

The screenshot shows the 'Add NSX Manager' wizard with three steps: NSX Manager, Service Manager Registration (current), and vCenter Server. Under 'Security Service Registration', there are three input fields: 'SO Username' with 'super', 'SO Password' with masked characters, and 'License Key *' with a multi-line alphanumeric key. The key is: JUNV08332805 jw6qjc beascl f6f64m bhh0u3 y6nsao 6f6f0do aw6dyk n6tazp 6f6f6r ad6a34 f6f64m f640r o46t6c j6az6f omns6c v6y6tkm. At the bottom, there are 'Cancel', 'Back', and 'Next' buttons.

Example: Content Security License Activation Video

Use the [License Activation](#) video for a walkthrough of license activation and basic management using the J-Web.

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