

# Junos<sup>®</sup> Space Edge Services Director

## Release 1.1 Release Notes

Release 1.1  
25 July 2016

The Junos Space Edge Services Director application enables unified lifecycle management of services, such as stateful firewalls, carrier-grade network address translation (NAT), adaptive delivery controller, and traffic load balancer, and packet filter policies on Juniper Networks MX Series routers that function as service delivery gateways in your network.

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## Edge Services Director Release 1.1 Release Notes

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### Introduction

Junos Space Edge Services Director enables unified management of Layer 3 through Layer 7 services on Juniper Networks MX240, MX480, and MX960 3D Universal Edge routers. Edge Services Director is a cohesive and robust GUI application that you can use on a server that is running the Junos Space Network Management Platform software. The service delivery gateway (SDG) (running on the MX Series router) consolidates a variety of network services onto a single platform to reduce costs and increase network resiliency.

You can use the Edge Services Director application to add SDGs, which are MX Series routers, discover SDGs into the Edge Services Director database, and manage the SDG settings. Stateful firewall, carrier-grade Network Address Translation (CGNAT), and load-balancing services are supported in Edge Services Director Release 1.1.

The software images for Edge Services Director, Junos Space Management Platform, additional scripts, Edge Services Director API reference documentation, and the release notes for Edge Services Director Release 1.1 are available at: [Junos Space and Junos Space Edge Services Director Download](#).

## New Features in Junos Space Edge Services Director

- **Ability to associate multiple VRF instances with a TLB service template**—Starting in Edge Services Director Release 1.1, you can specify multiple client-facing and server-facing virtual routing and forwarding (VRF) instances when you create or modify a TLB service template that is based on Junos OS Release 14.1. By specifying multiple ports on the router for processing client requests, server traffic, or both, the client and server requests that the virtual server receives are efficiently handled. You can select the check boxes beside multiple routing instances in the Create Client Facing and Server Facing dialog boxes that you can open from the Create TLB Service Template window in Gateway View of Build mode. You can also associate multiple client-facing and server-facing VRF instances from the enhanced service edit mode. In enhanced service edit mode, with TLB selected on the View pane and Service Edit selected on the Tasks pane, you can select multiple check boxes beside the Server-Facing and Client-Facing modules in the Select Common Components section to specify multiple VRF instances for a TLB service.
- **Display of the HA switchover reason**—Starting in Edge Services Director Release 1.1, the HA Switchover monitor displays line graphs for the master and standby devices in a high-availability group of devices on the Statistics tab of the Monitoring page displayed in Monitor Mode of Gateway View. The master, standby, and service-wait states are shown on the vertical axis and the time period is shown on the horizontal axis. You can mouse over the line graph that shows the time intervals when a switchover has occurred to view the switchover reason in a tooltip. The reasons for a failover from the master to the standby device might be power supply failure, a switchover initiated manually, or other factors to maintain high availability in a redundancy group. Edge Services Director obtains the reason for switchover from the SNMP traps received from the router and correlates the information with the HA Status KPI in the Edge Services Director database. Knowing the switchover reason enables quick identification of the underlying problem and correcting the failure.
- **Display of service details for AMS interfaces in Chassis View of Monitor mode**—Starting in Edge Services Director Release 1.1, the Service Details table is displayed for aggregated multiservices (AMS) interfaces or the mams- interfaces (that is, services interfaces that are part of AMS) on the Chassis tab of the Monitoring page. The Monitoring page is displayed in Monitor mode of Gateway View for a slot that you select in the pictorial representation of the chassis. In Edge Services Director Release 1.0, services such as CGNAT, SFW, or TLB, configured for AMS interfaces do not account for the services PIC (sp- interfaces) that are part of the AMS bundle. You can also view the service types and service names configured on AMS interfaces, which also accounts for the member interfaces of the AMS bundle, for effective and quick analysis of the handling of traffic. The Services Details table displays the names of different services, such as CGNAT, stateful firewall, ADC, and TLB, configured for the router chassis.
- **Support for configuring the service redundancy daemon (srd)**—Starting in Edge Services Director Release 1.1, you can configure the high availability service or the service redundancy daemon (srd). The srd enables seamless handling of subscriber requests across multiple gateways on MX Series routers with MPCs. You can configure redundancy based on monitored events, including link down events, FPC and PIC reboots, routing protocol process (rpd) aborts and restarts, and peer gateway events.

The srd also enables you to manage stateful-session synchronization across gateways. The actions to be performed when configured redundancy events occur are defined in redundancy policies. A collection of redundancy policies is configured as a redundancy set. Redundancy sets are organized into redundancy groups by redundancy group IDs. Finally, service sets and redundancy sets are associated with each other to create the high availability service or srd. You can configure srd using the Create HA Service option available on the Managed Service Gateways page (by selecting the All Network item on the View pane in Gateway View of Build mode and selecting Managed Gateway from the Tasks pane).

- **Support for monitoring the CGNAT port pool utilization trend**—Starting in Edge Services Director Release 1.1, the CGNAT Pool Utilization widget displays a line graph with time along the x-axis and the percentage of ports allocated from a pool along the y-axis on the CGNAT Service Instance Monitor page. This page is displayed in Monitor mode of Service View, when you select an SDG in the high availability pair of SDGs on the Task pane and a CGNAT service on the View pane. This graph enables you to quickly identify the CGNAT pools that are allocated and released to users at different time periods depending on the logging-in and closure of subscriber sessions. Until Edge Services Director Release 1.0, this widget displayed only the percentage of pools allocated along the y-axis. The following formula is used to compute the percentage of ports used:

$$\text{Port-Utilization \%} = (\text{Port-In-Use} / \text{Port-Available}) * 100$$

The port utilization widget is displayed only for CGNAT service templates that are based on Junos OS Release 14.1 and for CGNAT services that are created on SDG 2.0.

- **Support for monitoring MS-MPCs using KPIs in Chassis View of Monitor mode**—Starting in Edge Services Director Release 1.1, the graphical representation of the chassis is displayed for the master and standby SDG devices on the Chassis tab of the Monitoring page in Monitor mode of Gateway View. The Chassis View enables you to diagnose and rectify problems that affect the health and performance of the devices. Each FPC is shown as a bar, with the different PICs installed on the FPC slots displayed as segments within the bar. In the PIC Details table, performance monitoring key performance indicators (KPIs) have been introduced to measure the performance and the operational status of MS-MPCs. Heap utilization, buffer utilization, CPU utilization, and CPU interrupts are the KPIs that you can view in the PIC Details table. These KPIs are applicable only to the slots in which MS-MPCs are installed and not for other chassis slots.

## Supported Platforms for Junos Space Edge Services Director Release 1.1

Table 1 on page 4 lists the supported platforms for Edge Services Director Release 1.1 and the corresponding qualified Junos OS releases.

**Table 1: Supported Platforms and the Software Versions for Edge Services Director Release 1.1**

Supported Platforms	Qualified Junos OS Releases
MX Series 3D Universal Edge Routers	Junos OS Release 14.1X55-D25 for MX240, MX480, and MX960 routers

## Installation and Upgrade Instructions for Junos Space Edge Services Director Release 1.1

Before you install Edge Services Director Release 1.1, ensure that the Junos Space Network Management Platform is of the required release number with the latest patch installed.



**NOTE:** If you have installed Edge Services Director Release 1.0 on the same Junos Space appliance, then you must uninstall it and restart the JBoss server before you install Edge Services Director Release 1.1.

The software image for Edge Services Director Release 1.1 enables you to install the Edge Services Director GUI application. The Representational State Transfer (REST) APIs for Edge Services Director are installed along with the GUI application.

### Prerequisites for Installation

Before you begin to install Edge Services Director Release 1.1, ensure that:

- Junos Space Platform Release 15.2R2 is running.
- Edge Services Director is supported on a JA2500 Junos Space Appliance or a Junos Space Virtual Appliance that meets the hardware requirements specified in the Junos Space documentation. The Junos Space Appliance that suits your requirement depends on the number of devices you plan to manage by using Junos Space Platform.
- Network Director or Connectivity Services Director is not installed on the same system as Edge Services Director. Uninstall Network Director or Connectivity Services Director before you install Edge Services Director on your system.

### New Installation Instructions

To perform a new installation of Edge Services Director Release 1.1:

1. Install or upgrade to a supported release of Junos Space Platform.
2. Install Edge Services Director Release 1.1.

After the installation is complete, the system includes Edge Services Director in the list of installed applications.

### Prerequisites for Upgrade

Before you start the upgrade, ensure that you have:

- Taken a backup of your database by using the Junos Space backup feature. For more details, see [Backing Up and Restoring the Database Overview](#).
- Junos Space Platform Release 15.2R2 running on your appliance. If your appliance is running an unsupported release of Junos Space, you must upgrade Junos Space before installing Edge Services Director.
- Downloaded the Edge Services Director Release 1.1 software image to the hard disk or to an SCP server. The Edge Services Director software images are located at <http://www.juniper.net/support/downloads/spaceesd.html>.

## Upgrade Instructions

To upgrade from Edge Services Director Release 1.0 to Release 1.1:

1. Ensure that Junos Space Platform Release 15.2R2 is running.
2. Install Edge Services Director Release 1.1.
3. Restart the JBoss server for the monitoring and fault features to work properly in standalone and cluster setups from the Junos Space console.

## Junos Space SDG DMI Schema Requirements for Junos Space Edge Services Director

In most installations, Junos Space automatically matches DMI schemas to device families. But there might be certain situations where your network uses a device for which Junos Space does not have the latest or supported schema available. In such situations, you must obtain and upload the requisite schema and set it as the default DMI schema for each device family. For the service delivery gateways (SDGs), which are running on MX Series routers, you can set a default SDG DMI schema for each device family to enable Junos Space to apply an appropriate schema to a device family.



**NOTE:** See [Setting a Default DMI Schema](#) for detailed steps to set a default schema.

[Table 2 on page 6](#) lists the latest SDG DMI schema that you must obtain and upload in Junos Space before you start working on Edge Services Director Release 1.1.

**Table 2: SDG DMI Schemas**

Device	Name of the SDG DMI Schema	Device Family
MX240 MX480 MX960	JUNOS 14.1X55-D25	junos-mx

## Operational Notes

The following are the operational notes for Edge Services Director Release 1.1:

- The minimum supported screen resolution is 1280 x 1024. If your screen resolution is less than the supported resolution, the Edge Services Director UI might not be displayed properly. For example, icons might not be displayed on the Edge Services Director banner, pages might appear truncated, or scroll bars might not work correctly.
- The supported Web browsers are Google Chrome 17 and later, Mozilla Firefox 14.0 and later, and Microsoft Internet Explorer 9.0 and 10.0. Microsoft Internet Explorer 11.0 is not supported for Edge Services Director.
- If you have been logged in to Edge Services Director for a long period of time, the connection to the server might time out. Monitoring pages might go blank or you might not be able to access tasks. To resolve this, log out of Edge Services Director and then log in again.

- If you receive a Java exception error message when you perform an operation, retry the operation. The error condition is usually temporary and harmless.
- Only user accounts with administrator (admin) privileges can use the Edge Services Director API.
- For Edge Services Director to be able to discover and manage devices, the following protocol ports must be open between the Junos Space Platform server and the devices:
  - Port 22 for SSH connections. If you have changed the SSH port to a port other than port 22 on your Junos Space Platform, you must change the SSH ports on your managed devices to the port that the Junos Space Platform is using.
  - Port 162 for service-level SNMP traps. Edge Services Director uses OpenNMS for SNMP trap collection and correlation.
  - Port 21 (TCP) and port 69 (UDP) for uploading the software image and configuration file to the FTP server.

You can verify that the ports are open to the devices by logging in to the Junos Space Platform CLI and executing the **nmap** command.

- The Edge Services Director API is not supported on a Junos Space cluster-based deployment.

## Known Limitations

This section lists the known limitations in Edge Services Director Release 1.1:

- Edge Services Director supports role-based access control (RBAC) only at the task category level. There is no support for object-level or task-level access control.

## Known Issues in Junos Space Edge Services Director Release 1.1

The following are known issues in Edge Services Director Release 1.1. For each entry, the identifier in the PR Number column of [Table 3 on page 7](#) is the tracking number in the Juniper Networks problem report (PR) tracking system.

**Table 3: Known Issues in Edge Services Director Release 1.1**

PR Number	Problem Description
1116545	<p>When you attempt to delete the SDGs in a bulk operation in Location View of Build mode from Edge Services Director, the SDGs are successfully deleted. However, the job that is created for the bulk deletion displays a Java exception on the View Job Details page of the Job Management workspace of the Junos Space Platform GUI.</p> <p>Workaround: Remove management of the devices and delete five SDGs at a time using Device View.</p>
1172948	<p>In Enhanced Service Edit CGNAT, the View or Modify Service Sets window displays "No records found" if no interfaces are free.</p> <p>Workaround: None at present.</p>

Table 3: Known Issues in Edge Services Director Release 1.1 (*continued*)

PR Number	Problem Description
1176219	In Gateway View of Monitor mode, PICs are not highlighted when you select any instance of the master device.  Workaround: None at present.
1173620	The Edge Services Director application is not displayed in the list of applications after successful Edge Services Director installation.  Workaround: Restart the JBoss server.
1176500	PIC slots are not highlighted SDG 1.0 devices where services are hosted on MS-DPCs.  Workaround: None at present.
1179062	Chassis View is not updated after mastership of devices change.  Workaround: None at present.
1181371	All the slots are displayed incompletely and the scroll bar is missing in Chassis View.  Workaround: Use 1366x768, 1600x900, or 1920x1080 screen resolution to view the slots completely.
1185993	Edge Services Director is not uploaded on the second node of the JBoss server in Junos Space Platform Release 15.2.  Workaround: Copy the <b>id_rsa</b> , <b>id_rsa.pub</b> , and <b>authorized_keys</b> files in the <b>/etc/keys/jmp</b> path from the VIP node to the same path on the fourth node.
1186298	Application creation is not possible in Gateway View of service Edit for both CGNAT and SFW when you create terms for the services.  Workaround: None at present.
1186576	Switchback traps are not reported in ticker messages when you switch mastership in Edge Services Director or directly on the device to change mastership.  Workaround: Restart Open NMS after special node installation.
1195840	The Performance Manager is inconsistent in collecting data from Edge Services Director cluster setups. Data collection also fails when the high availability switchover status of the cluster node is unavailable.  Workaround: Choose one of the following workarounds: <ul style="list-style-type: none"> <li>Manually sync the device with the Edge Services Director configuration for the device.</li> <li>Delete the device from Edge Services Director and discover and manage it again.</li> </ul>
1196927	The cloud infrastructure event purge job is scheduled upon the installation of Edge Services Director.  Workaround: None at present.



Table 3: Known Issues in Edge Services Director Release 1.1 (*continued*)

PR Number	Problem Description
1197035	<p>Configuration mismatch—error message does not provide details in cases of Routing Engine-configuration mismatch between two devices.</p> <p>Workaround: Manually compare configuration details in Gateway View for more information on configuration mismatch.</p>
1198918	<p>Unmanaged devices are not displayed on the Service Gateways—Unmanaged Devices page.</p> <p>Workaround: Refresh the Unmanaged Devices page to see the list of devices.</p>
1199541	<p>During App Logic switchover from one server to the other, device discovery status is not displayed on the UI but happens in the backend. More than one discovery instance is initiated for a single discovery profile and managed devices are not updated on the device inventory page.</p> <p>Workaround: None at present.</p>

- Related Documentation**
- [Edge Services Director](#)
  - [Junos Space](#)

## Junos Space Documentation and Release Notes

For a list of related Junos Space documentation, see <http://www.juniper.net/techpubs/>.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos Space Release Notes*.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books>.

## Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can provide feedback by using either of the following methods:

- Online feedback rating system—On any page of the Juniper Networks TechLibrary site at <http://www.juniper.net/techpubs/index.html>, simply click the stars to rate the content, and use the pop-up form to provide us with information about your experience. Alternately, you can use the online feedback form at <http://www.juniper.net/techpubs/feedback/>.
- E-mail—Send your comments to [techpubs-comments@juniper.net](mailto:techpubs-comments@juniper.net). Include the document or topic name, URL or page number, and software version (if applicable).

## Requesting Technical Support

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Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or Partner Support Service support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

## Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <http://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

## Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html>.

## Revision History

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25 July 2016—Revision 1, Junos Space Edge Services Director, Release 1.1

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