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# Junos<sup>®</sup> Space

## Network Application Platform User Guide

Release

# 1.3



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# Table of Contents

	<b>About the Documentation . . . . .</b>	<b>xxi</b>
	Junos Space Documentation and Release Notes . . . . .	xxi
	Documentation Conventions . . . . .	xxi
	Documentation Feedback . . . . .	xxii
	Requesting Technical Support . . . . .	xxii
	Self-Help Online Tools and Resources . . . . .	xxii
	Opening a Case with JTAC . . . . .	xxiii
<b>Part 1</b>	<b>Junos Space User Interface</b>	
<b>Chapter 1</b>	<b>Getting Started with Junos Space . . . . .</b>	<b>3</b>
	Logging In To the System . . . . .	3
	Changing User Passwords . . . . .	4
	Using the Getting Started Assistants . . . . .	4
	Accessing Help . . . . .	5
	Logging Out From the System . . . . .	6
<b>Chapter 2</b>	<b>User Interface Overview . . . . .</b>	<b>7</b>
	Application Chooser Overview . . . . .	7
	Parts of Application Chooser . . . . .	9
	Application Icons . . . . .	9
	Shortcut Icons . . . . .	10
	Login User Name . . . . .	11
	Actions Toolbar . . . . .	11
	Application Chooser Actions . . . . .	11
	Modifying Application Settings . . . . .	12
	Junos Space User Interface Overview . . . . .	12
	Parts of the System User Interface . . . . .	13
	Banner . . . . .	13
	Application Chooser . . . . .	13
	Application Dashboard . . . . .	14
	Workspace Statistics . . . . .	14
	Inventory Page . . . . .	15
	Navigating the Junos Space User Interface . . . . .	16
	Navigating Applications Using Application Chooser . . . . .	17
	Navigating Applications Using Application Switcher . . . . .	17
	Navigating Application Workspaces and Tasks Using the Navigation Ribbon . . . . .	18
	Navigating to the Dashboard of an Application . . . . .	18
	Navigating to a Workspace from a Task . . . . .	19
	Network Application Platform Overview . . . . .	19

	Platform Dashboard Overview . . . . .	19
	Parts of Platform Dashboard . . . . .	20
	Workspace Navigation Ribbon . . . . .	20
	Dashboard Gadgets . . . . .	21
	Viewing Dashboard Statistics . . . . .	23
	Viewing System Health Statistics . . . . .	23
	Viewing the Job Information . . . . .	25
	Workspace Statistics Pages Overview . . . . .	25
	Inventory Pages Overview . . . . .	28
	Parts of the Inventory Page . . . . .	29
	View Controls (Thumbnail and Tabular) . . . . .	30
	Sorted By Indicator . . . . .	31
	Show or Hide Columns . . . . .	32
	Zoom Slider . . . . .	32
	Search and Filter Field . . . . .	32
	Actions Drawer and Right-Mouse Clicking Objects . . . . .	33
	Paging Controls . . . . .	33
<b>Part 2</b>	<b>Devices</b>	
<b>Chapter 3</b>	<b>Overview . . . . .</b>	<b>37</b>
	Device Management Overview . . . . .	37
	Supported Devices . . . . .	37
	Device Inventory Management Overview . . . . .	38
<b>Chapter 4</b>	<b>Managing Devices . . . . .</b>	<b>39</b>
	Changing Login Credentials for Managed Devices . . . . .	39
	Configuring SRX Device Clusters in Junos Space . . . . .	41
	Configuring a Standalone Device from a Single-node Cluster . . . . .	42
	Configuring a Standalone Device from a Two-node Cluster . . . . .	43
	Configuring a Primary Peer in a Cluster from a Standalone Device . . . . .	45
	Configuring a Secondary Peer in a Cluster from a Standalone Device . . . . .	47
	Deleting Devices . . . . .	49
<b>Chapter 5</b>	<b>Monitoring Devices . . . . .</b>	<b>51</b>
	Viewing Managed Devices . . . . .	51
	Viewing Devices as Graphics . . . . .	51
	Viewing Devices in a Table . . . . .	52
	Viewing Device Statistics . . . . .	55
	Viewing the Number of Devices by Platform . . . . .	56
	Viewing Connection Status for Devices . . . . .	56
	Viewing Devices by Junos OS Release . . . . .	57
<b>Chapter 6</b>	<b>Inventory . . . . .</b>	<b>59</b>
	Viewing Hardware Inventory for Devices . . . . .	59
	Viewing Physical Interfaces for Devices . . . . .	61



<b>Chapter 7</b>	<b>Discovery</b>	<b>63</b>
	Overview	63
	Device Discovery Overview	63
	Understanding How Junos Space Automatically Resynchronizes Managed Devices	64
	Discovering Devices	66
	Discovering Devices	66
	Specifying Device Targets	67
	Specifying Probes	68
	Specifying Credentials	71
	Resynchronizing Managed Devices	74
<b>Chapter 8</b>	<b>Adding Deployed Devices</b>	<b>77</b>
	Add Deployed Devices Overview	77
	Add Deployed Devices Overview	77
	Managing Deployed Devices	78
	Adding Deployed Devices	78
	Managing Deployed Devices	81
	Viewing the Details of a Task Instance	81
	Viewing the Device Status	82
	Deleting a Task Instance	82
	Downloading Management CLIs	82
<b>Chapter 9</b>	<b>Rapid Deployment</b>	<b>85</b>
	Rapid Deployment Overview	85
	Add Devices Overview	85
	Connection Profiles Overview	87
	Managing Devices	88
	Adding Devices	89
	Managing Devices	94
	Viewing the Details of a Deployment Instance	94
	Viewing the Device Status	95
	Deleting a Deployment Instance	95
	Downloading Configlets	96
	Searching for a Deployment Instance	97
	Managing Connection Profiles	98
	Creating Connection Profiles	98
	Managing Connection Profiles	102
	Viewing the details of a Connection Profile	102
	Modifying a Connection Profile	103
	Deleting a Connection Profile	104
	Copying a Connection Profile	105
	Searching for a Connection Profile	105
<b>Chapter 10</b>	<b>Secure Console</b>	<b>107</b>
	Connecting to a Device	107
	Secure Console Overview	107
	Connecting to a Device From Secure Console	107
	Connecting to a Managed Device	108
	Connecting to an Unmanaged Device	109

<b>Chapter 11</b>	<b>Manage Device Adapter</b> . . . . .	<b>113</b>
	Installing . . . . .	113
	Installing the ScreenOS Software Adapter for Managing Non-DMI Security Devices . . . . .	113
	Uploading the SOS Adapter Image . . . . .	113
	Installing the SOS Adapter . . . . .	114
	Verifying the SOS Adapter Installation . . . . .	114
	Adding Screen OS Devices to Junos Space . . . . .	116
	Uploading the Device Management Commands . . . . .	119
<b>Part 3</b>	<b>Topology Visualization</b>	
<b>Chapter 12</b>	<b>Topology</b> . . . . .	<b>123</b>
	Overview of Topology Visualization . . . . .	123
	Topology Discovery Overview . . . . .	123
<b>Chapter 13</b>	<b>Configure</b> . . . . .	<b>127</b>
	Topology Discovery . . . . .	127
	Specifying Device Targets . . . . .	127
	Managing SNMP Probes . . . . .	128
	Specifying SNMP probes . . . . .	131
<b>Chapter 14</b>	<b>View</b> . . . . .	<b>133</b>
	Topology . . . . .	133
	Viewing Discovered Topologies . . . . .	133
	Viewing Discovered Devices . . . . .	135
	Viewing Device Links . . . . .	136
<b>Part 4</b>	<b>Device Images</b>	
<b>Chapter 15</b>	<b>Device Images Overview</b> . . . . .	<b>141</b>
	Device Images Overview . . . . .	141
	Device Images User Roles . . . . .	142
<b>Chapter 16</b>	<b>Administration</b> . . . . .	<b>145</b>
	Managing Device Images . . . . .	145
	Uploading Device Images to Junos Space . . . . .	145
	Staging Device Images . . . . .	146
	Verifying the Checksum . . . . .	147
	Viewing and Deleting MD5 Validation Results . . . . .	148
	Viewing the MD5 Validation Results . . . . .	148
	Deleting the MD5 Validation Results . . . . .	149
	Deploying Device Images . . . . .	149
	Modifying Device Image Details . . . . .	152
<b>Part 5</b>	<b>Job Management</b>	
<b>Chapter 17</b>	<b>Managing Jobs</b> . . . . .	<b>157</b>
	Job Management Overview . . . . .	157
	Canceling a Job . . . . .	159

<b>Chapter 18</b>	<b>Monitoring Jobs</b> . . . . .	<b>161</b>
	Viewing Your Jobs . . . . .	161
	Viewing Statistics for Scheduled Jobs . . . . .	162
	Viewing the Types of Jobs That Are Run . . . . .	163
	Viewing the State of Jobs That Have Run . . . . .	163
	Viewing Average Execution Times for Jobs . . . . .	164
	Viewing Scheduled Jobs . . . . .	164
	Changing the View . . . . .	165
	Viewing Job Types . . . . .	165
	Viewing Job Status Indicators . . . . .	165
	Viewing Job Details, Status, and Results . . . . .	166
	Performing Manage Jobs Commands . . . . .	167
<b>Part 6</b>	<b>Users</b>	
<b>Chapter 19</b>	<b>Role-Based Access Control</b> . . . . .	<b>171</b>
	Role Based Access Control Overview . . . . .	171
	Authentication . . . . .	171
	RBAC Enforcement . . . . .	171
	Enforcement by Workspace . . . . .	171
	RBAC Enforcement Not Supported for Getting Started Panel . . . . .	172
	Understanding How to Configure Users to Manage Objects in Junos Space . . . . .	172
	Predefined Administrator Roles . . . . .	173
<b>Chapter 20</b>	<b>User Administration</b> . . . . .	<b>179</b>
	Creating Users . . . . .	179
	Creating a New User Account . . . . .	179
	Modifying a User . . . . .	181
	Deleting Users . . . . .	182
	Changing User Passwords . . . . .	183
	Viewing User Statistics . . . . .	183
	Viewing the Number of Users Assigned by Role . . . . .	183
	Viewing Users . . . . .	184
	Changing Views . . . . .	185
	Viewing User Details . . . . .	185
	Performing Manage User Commands . . . . .	185
<b>Part 7</b>	<b>Audit Logs</b>	
<b>Chapter 21</b>	<b>Monitoring and Managing Audit Logs</b> . . . . .	<b>189</b>
	Junos Space Audit Logs Overview . . . . .	189
	Viewing Audit Logs . . . . .	190
	Viewing Audit Log Statistics . . . . .	191
	Converting the Audit Log File UTC Timestamp to Local Time in Microsoft Excel . . . . .	193
	Archiving and Purging Audit Logs . . . . .	194
	Archiving Audit Logs To a Local Server and Purging the Database . . . . .	195
	Archiving Audit Logs To a Remote Server and Purging the Database . . . . .	196

<b>Part 8</b>	<b>Administration</b>	
<b>Chapter 22</b>	<b>System Administration</b>	<b>201</b>
	Junos Space Administrators Overview	201
	Maintenance Mode Overview	202
	Maintenance Mode Access and System Locking	203
	Maintenance Mode User Administration	203
<b>Chapter 23</b>	<b>Fabric Management</b>	<b>205</b>
	Understanding Overall System Condition and Fabric Load	205
	System Condition	205
	Fabric Load	206
	Fabric Management Overview	207
	Single Node Functionality	208
	Multinode Functionality	209
	Node Function Availability	211
	Viewing Nodes in the Fabric	211
	Changing Views	211
	Viewing Fabric Node Details	212
	Adding a Fabric Node	214
	Adding a Fabric Node	214
<b>Chapter 24</b>	<b>Database Management</b>	<b>217</b>
	Database Backup and Restore Overview	217
	Backing up a Database	218
	Restoring a Database	218
	Backing Up the Database	219
	Backing Up the Database to a Local Directory	219
	Backing Up the Database to a Remote Host	221
	Restoring a Database in the User Interface	222
	Restoring a Local Database	223
	Restoring a Database from a Remote Host	223
	Restoring a Database in Maintenance Mode	224
	Viewing Database Backup Files	226
	Changing Views	227
	Viewing Database Details	227
	Manage Database Commands	227
	Deleting Database Backup Files	228
<b>Chapter 25</b>	<b>Licensing Management</b>	<b>229</b>
	Generating and Uploading the Junos Space License Key File	229
	Generating the License Key File	229
	Uploading the License Key File Contents	230
	Viewing Licenses	231
	Changing the View	232
	Viewing Manage License Details	232

<b>Chapter 26</b>	<b>Application Management . . . . .</b>	<b>235</b>
	Application Management Overview . . . . .	235
	Managing Junos Space Applications . . . . .	236
	Changing The View . . . . .	237
	Viewing Detailed Application Information . . . . .	237
	Performing Manage Application Actions . . . . .	237
	Modifying Application Settings . . . . .	238
	Adding a Junos Space Application . . . . .	238
	Uninstalling a Junos Space Application . . . . .	239
	Upgrading a Junos Space Application . . . . .	240
	Junos Space Software Upgrade Overview . . . . .	241
	Upgrading Junos Space Software . . . . .	242
	Upgrading from Junos Space Release 1.1 or 1.2 to Release 1.3 . . . . .	242
	Upgrading the Network Application Platform . . . . .	244
<b>Chapter 27</b>	<b>Troubleshooting . . . . .</b>	<b>247</b>
	System Status Log File Overview . . . . .	247
	System Status Log File . . . . .	247
	Customizing Status Log File Content . . . . .	248
	Downloading System Log Files For an Appliance . . . . .	248
	Customizing Log Files To Download . . . . .	248
	Customizing Node System Status Log Checking . . . . .	249
	Customizing Node Log Files To Download . . . . .	250
	Downloading the Troubleshooting Log File from the UI . . . . .	250
	Downloading the Troubleshooting Log File In Maintenance Mode . . . . .	252
	Downloading Troubleshooting System Log Files Using the CLI . . . . .	253
	Downloading a System Log File Using a USB Device . . . . .	253
	Downloading System Log File Using SCP . . . . .	254
<b>Chapter 28</b>	<b>Managing Tags . . . . .</b>	<b>257</b>
	Managing and Viewing Tags . . . . .	257
	Creating and Using User-Defined Tags . . . . .	258
	Renaming Tags . . . . .	259
	Deleting Tags . . . . .	260
<b>Part 9</b>	<b>Index</b>	
	Index . . . . .	263



# List of Figures

<b>Part 2</b>	<b>Devices</b>	
<b>Chapter 8</b>	<b>Adding Deployed Devices</b>	<b>77</b>
	Figure 1: Add Devices Window	78
	Figure 2: Selecting a CSV File to Upload	79
<b>Chapter 9</b>	<b>Rapid Deployment</b>	<b>85</b>
	Figure 3: Deploy Devices Inventory Panel	89
	Figure 4: Device Details Window	89
	Figure 5: Selecting a CSV File to Upload	90
	Figure 6: Specifying Device Details	90
	Figure 7: Specifying Connectivity Details	91
	Figure 8: Specifying Configlet Options	93
	Figure 9: Deployment Instance Details Window	95
	Figure 10: Delete Deployment Instance Window	96
	Figure 11: Download Configlets Window	97
	Figure 12: Searching for a Configlet	98
	Figure 13: Connection Profiles Inventory Panel	98
	Figure 14: Creating a Connection Profile	99
	Figure 15: PPPoA Connection Settings	100
	Figure 16: PPPoE Connection Settings	101
	Figure 17: Viewing the details of a Connection Profile	103
	Figure 18: Modifying a Connection Profile	104
	Figure 19: Searching for a Connection Profile	106
<b>Part 3</b>	<b>Topology Visualization</b>	
<b>Chapter 12</b>	<b>Topology</b>	<b>123</b>
	Figure 20: Discover Topology	124
	Figure 21: Discovery Job Details Dialog Box	125
<b>Chapter 13</b>	<b>Configure</b>	<b>127</b>
	Figure 22: Specify Device Targets	127
	Figure 23: Add SNMP V1/V2C Settings Dialog Box	128
	Figure 24: Add SNMP V3 Settings Dialog Box	129
	Figure 25: Specify SNMP Probes	131
<b>Chapter 14</b>	<b>View</b>	<b>133</b>
	Figure 26: Topology Map of Discovered Network Elements	133
	Figure 27: Zoomed in Topology Map Display	134
	Figure 28: View Selector Panel	134
	Figure 29: View Selector Panel in Topology Map View	135

	Figure 30: View Devices Table . . . . .	135
	Figure 31: View Selector Panel in Tabular View . . . . .	136
	Figure 32: View Links Table . . . . .	137
	Figure 33: View Selector Panel in Tabular View . . . . .	137
<b>Part 4</b>	<b>Device Images</b>	
<b>Chapter 15</b>	<b>Device Images Overview . . . . .</b>	<b>141</b>
	Figure 34: Manage Images Page . . . . .	142
<b>Chapter 16</b>	<b>Administration . . . . .</b>	<b>145</b>
	Figure 35: Validation Results Page . . . . .	148



# List of Tables

	<b>About the Documentation</b> . . . . .	<b>xxi</b>
	Table 1: Notice Icons . . . . .	xxi
<b>Part 1</b>	<b>Junos Space User Interface</b>	
<b>Chapter 2</b>	<b>User Interface Overview</b> . . . . .	<b>7</b>
	Table 2: Junos Space Applications . . . . .	9
	Table 3: Application Chooser Toolbar Buttons . . . . .	11
	Table 4: Banner Global Actions . . . . .	13
	Table 5: Workspace Icons . . . . .	20
	Table 6: Gadget Mouse-Over and Double-Click Operations . . . . .	22
	Table 7: Table Paging and Refreshing Controls . . . . .	33
<b>Part 2</b>	<b>Devices</b>	
<b>Chapter 5</b>	<b>Monitoring Devices</b> . . . . .	<b>51</b>
	Table 8: Device Connection Status Icon . . . . .	51
	Table 9: Fields in the Manage Devices Table . . . . .	53
<b>Chapter 6</b>	<b>Inventory</b> . . . . .	<b>59</b>
	Table 10: Device Inventory Fields . . . . .	60
	Table 11: Physical Interfaces Columns . . . . .	61
<b>Chapter 8</b>	<b>Adding Deployed Devices</b> . . . . .	<b>77</b>
	Table 12: Icons to View/Download Management CLIs . . . . .	80
<b>Chapter 9</b>	<b>Rapid Deployment</b> . . . . .	<b>85</b>
	Table 13: Fields Manually Entered in the Rapid Deployment Window . . . . .	91
	Table 14: Icons in the Rapid Deployment Window . . . . .	92
<b>Part 3</b>	<b>Topology Visualization</b>	
<b>Chapter 12</b>	<b>Topology</b> . . . . .	<b>123</b>
	Table 15: Discover Topology Landing Page Field Name and Descriptions . . . . .	124
	Table 16: Discovery Job Details Field Names and Descriptions . . . . .	125
<b>Chapter 14</b>	<b>View</b> . . . . .	<b>133</b>
	Table 17: View Device Column Descriptions . . . . .	136
	Table 18: View Links Column Descriptions . . . . .	137
<b>Part 4</b>	<b>Device Images</b>	
<b>Chapter 15</b>	<b>Device Images Overview</b> . . . . .	<b>141</b>

	Table 19: Device Images User Roles . . . . .	143
<b>Chapter 16</b>	<b>Administration . . . . .</b>	<b>145</b>
	Table 20: Validation Results Page Field Descriptions . . . . .	148
	Table 21: Manage Images Page Fields Descriptions . . . . .	151
	Table 22: Deployment Options Description . . . . .	151
<b>Part 5</b>	<b>Job Management</b>	
<b>Chapter 17</b>	<b>Managing Jobs . . . . .</b>	<b>157</b>
	Table 23: Junos Space Job Types Per Application . . . . .	158
<b>Chapter 18</b>	<b>Monitoring Jobs . . . . .</b>	<b>161</b>
	Table 24: Job Icon Status Indicators . . . . .	165
	Table 25: Job Details and Columns in the Manage Jobs Table . . . . .	166
<b>Part 6</b>	<b>Users</b>	
<b>Chapter 19</b>	<b>Role-Based Access Control . . . . .</b>	<b>171</b>
	Table 26: Predefined Roles for the Network Application Platform . . . . .	173
	Table 27: Predefined Roles for Network Activate Application . . . . .	175
	Table 28: Predefined Roles for Service Now Application . . . . .	176
	Table 29: Predefined Roles for Ethernet Design Application . . . . .	177
<b>Chapter 20</b>	<b>User Administration . . . . .</b>	<b>179</b>
	Table 30: User Detailed Information and Columns in the Manage Users Table . . . . .	185
<b>Part 7</b>	<b>Audit Logs</b>	
<b>Chapter 21</b>	<b>Monitoring and Managing Audit Logs . . . . .</b>	<b>189</b>
	Table 31: Detailed Audit Logs Information and View Audit Log Table Columns . . . . .	190
<b>Part 8</b>	<b>Administration</b>	
<b>Chapter 22</b>	<b>System Administration . . . . .</b>	<b>201</b>
	Table 32: Junos Space Administrators . . . . .	201
<b>Chapter 23</b>	<b>Fabric Management . . . . .</b>	<b>205</b>
	Table 33: Fields for the Fabric Monitoring Inventory Panel . . . . .	212
<b>Chapter 24</b>	<b>Database Management . . . . .</b>	<b>217</b>
	Table 34: Fields in the Manage Databases Table . . . . .	227
<b>Chapter 25</b>	<b>Licensing Management . . . . .</b>	<b>229</b>
	Table 35: Manage Licenses Details . . . . .	232
<b>Chapter 26</b>	<b>Application Management . . . . .</b>	<b>235</b>
	Table 36: Application Information . . . . .	237
	Table 37: Junos Space Software and Application Names and File Names . . . . .	241
<b>Chapter 27</b>	<b>Troubleshooting . . . . .</b>	<b>247</b>

Table 38: Log Files included in the troubleshoot File . . . . .	248
Table 39: Data and Log Files in troubleshoot.zip File . . . . .	251



# About the Documentation

- Junos Space Documentation and Release Notes on page xxi
- Documentation Conventions on page xxi
- Documentation Feedback on page xxii
- Requesting Technical Support on page xxii

## Junos Space Documentation and Release Notes

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For a list of related Junos Space documentation, see  
[http://www.juniper.net/techpubs/en\\_US/junos-space1.3/information-products/index-junos-space.html](http://www.juniper.net/techpubs/en_US/junos-space1.3/information-products/index-junos-space.html).

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/>.

## Documentation Conventions

---

Table 1 on page xxi defines notice icons used in this documentation.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

## Documentation Feedback

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We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to [techpubs-comments@juniper.net](mailto:techpubs-comments@juniper.net), or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release 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 JNASC 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: <https://www.juniper.net/alerts/>

- 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> .





## PART 1

# Junos Space User Interface

- Getting Started with Junos Space on page 3
- User Interface Overview on page 7



## CHAPTER 1

# Getting Started with Junos Space

- Logging In To the System on page 3
- Changing User Passwords on page 4
- Using the Getting Started Assistants on page 4
- Accessing Help on page 5
- Logging Out From the System on page 6

### Logging In To the System

---

You connect to Junos Space from your Web browser. Internet Explorer version 7 or later and Mozilla Firefox version 3.0 through 3.6 Web browsers are supported.



**NOTE:** Before you can log into the system, your browser must have the Flash 10 plug-in installed.

To access and log in to Junos Space, follow these steps:

1. In the address field of your browser window, type:

`https://<1.1.1.1>/mainui/`

Where <1.1.1.1> is the Web IP address for Web access to Junos Space.

2. Press Enter or click Search. The system log in screen appears.

3. Type your username and password. The default username is **super**; the password is **juniper123**. See “Changing User Passwords” on page 4 for information about how to change your user password. For information about how to change your username, see the system administrator.
4. Click Log In. The Junos Space Application Chooser appears, see “Application Chooser Overview” on page 7.

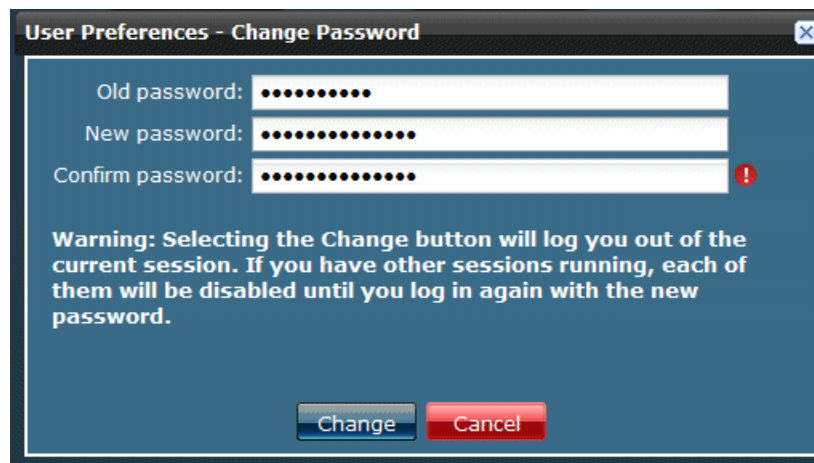
- Related Topics**
- Logging Out From the System on page 6
  - Changing User Passwords on page 4
  - Application Chooser Overview on page 7
  - Junos Space User Interface Overview on page 12

---

## Changing User Passwords

Any logged in user can change their account password using the User Preferences icon in the Junos Space banner. You do not have to have any user roles configured to change your password.

To change your user password, follow these steps:

A screenshot of a web-based dialog box titled "User Preferences - Change Password". It features three input fields: "Old password:", "New password:", and "Confirm password:", each filled with black dots. A red exclamation mark icon is positioned to the right of the "Confirm password:" field. Below the fields, a warning message reads: "Warning: Selecting the Change button will log you out of the current session. If you have other sessions running, each of them will be disabled until you log in again with the new password." At the bottom, there are two buttons: "Change" (blue) and "Cancel" (red).

1. Click the User Preferences icon in the Junos Space banner. The User Preferences – Change Password dialog box appears.
2. Type your old password.
3. Type your new password. The password must be 6 to 31 characters long, including 2 numbers or symbols.
4. Retype your password again to confirm it.
5. Click Change. You are logged out of the system. You have to log in again using your new password. Any open sessions are disabled until you log in again.

- Related Topics**
- Creating Users on page 179
  - Logging In To the System on page 3

---

## Using the Getting Started Assistants

The Getting Started assistants display steps and help on how to complete common tasks. Getting Started is a section in the sidebar that appears when you log in to the

system if the **Show Getting Started on Startup** check box is selected. The Getting Started topics are context sensitive per application. Getting Started displays all the steps in a task. From a step in a task, you can jump that point in the user interface to actually complete it.

To use a Getting Started assistant, follow these steps:

1. In Application Chooser, select an application.
2. Click the Help icon. The sidebar appears.
3. In the sidebar, expand **Getting Started**.  
A main Getting Started topic link appears in the sidebar.
4. Select the main topic. For example in the Network Activate application, click **Provision a Service**. A list of required steps appears in the sidebar. Each step contains a task link and a link to the help.
5. To perform a specific step, click that link. You jump to that point in the user interface. The assistant remains visible in the sidebar to aid navigation to subsequent tasks.
6. To access Help for a specific step, click the **Help** icon next to that step.

- Related Topics**
- Accessing Help on page 5
  - Application Chooser Overview on page 7

---

## Accessing Help

Junos Space provides complete documentation in a Help system that is context-sensitive per workspace. The Help system provides information on each element in the system, including workspaces, dashboards, tasks, inventory pages, actions, and etc. The Help system also provides frequently asked questions (FAQs) and the entire system documentation. Help topics appear as links in the sidebar.

To access online help, follow these steps:

1. Click the workspace within which you want to work.
2. Click the **Help** icon. The sidebar appears, if it is not already displayed, with the Help section open listing specific topics for that workspace and tasks.
3. Click a topic link to view its contents. The Help topic appears in a separate window.
4. To hide the Help sidebar, click the button at the top right.

- Related Topics**
- Using the Getting Started Assistants on page 4
  - Application Chooser Overview on page 7
  - Platform Dashboard Overview on page 19

## Logging Out From the System

---

When you complete your administrative tasks in the Junos Space user interface, log out to prevent unauthorized users from intruding.

To log out from the system:

1. Click the **Log Out** icon in the banner. The Logout page appears.

To log in the system again, click the **Click here to log in again** link.

- Related Topics**
- Logging In To the System on page 3
  - Changing User Passwords on page 4
  - Application Chooser Overview on page 7
  - Junos Space User Interface Overview on page 12

## CHAPTER 2

# User Interface Overview

- Application Chooser Overview on page 7
- Modifying Application Settings on page 12
- Junos Space User Interface Overview on page 12
- Navigating the Junos Space User Interface on page 16
- Network Application Platform Overview on page 19
- Platform Dashboard Overview on page 19
- Viewing Dashboard Statistics on page 23
- Workspace Statistics Pages Overview on page 25
- Inventory Pages Overview on page 28

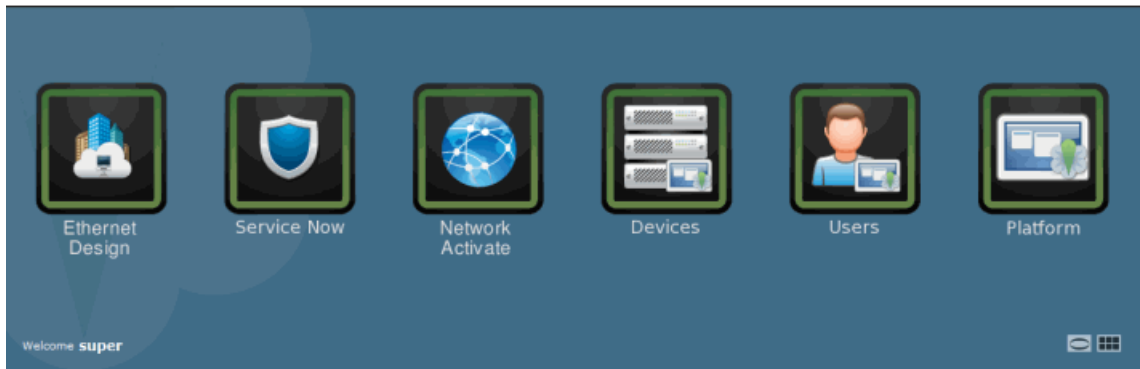
### Application Chooser Overview

---

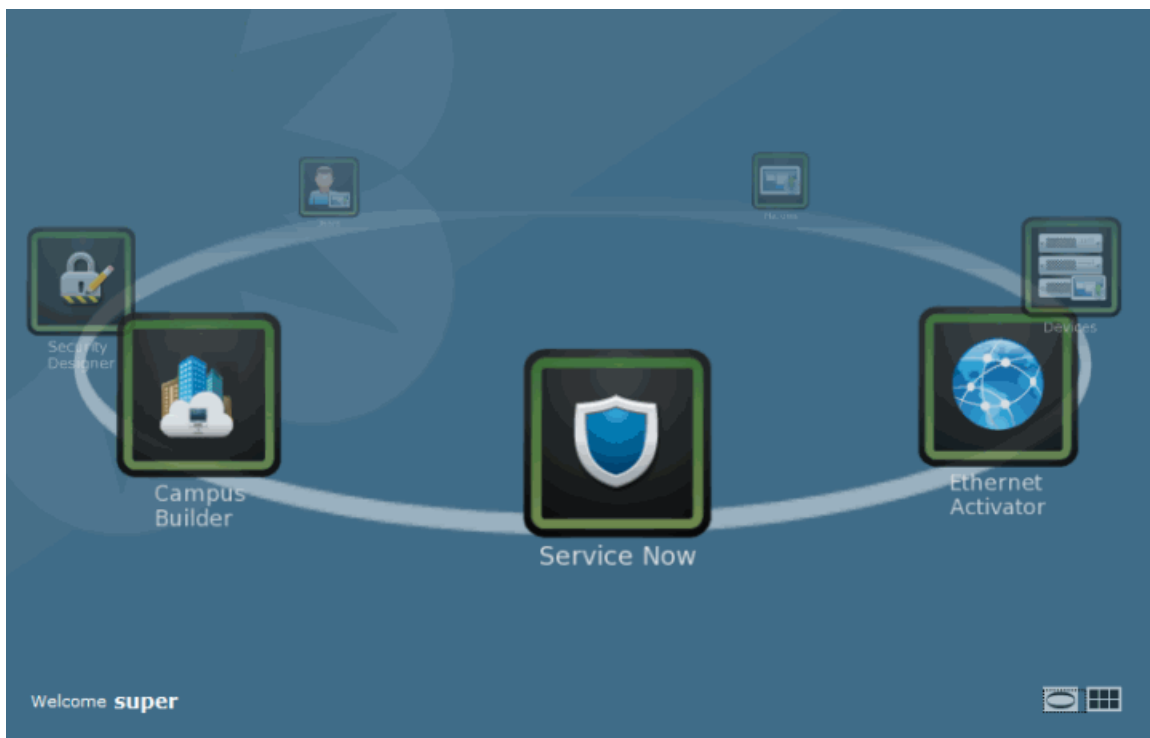
The Application Chooser provides a user interface within which you can view and manage installed applications in Junos Space. Application Chooser appears when you first log in to the system.

Application Chooser also contains shortcuts to frequently used workspaces. For example from Application Chooser, you can jump directly to the devices and users workspaces without having to click the Network Application Platform icon and the Devices or Users workspace icons in the navigation ribbon.

Applications are represented as icons that display in two views: thumbnail and carousel. In the default thumbnail view, application icons are arranged in a tiled format in the workspace.



In carousel view, the icons rotate three-dimensionally in a circular manner.

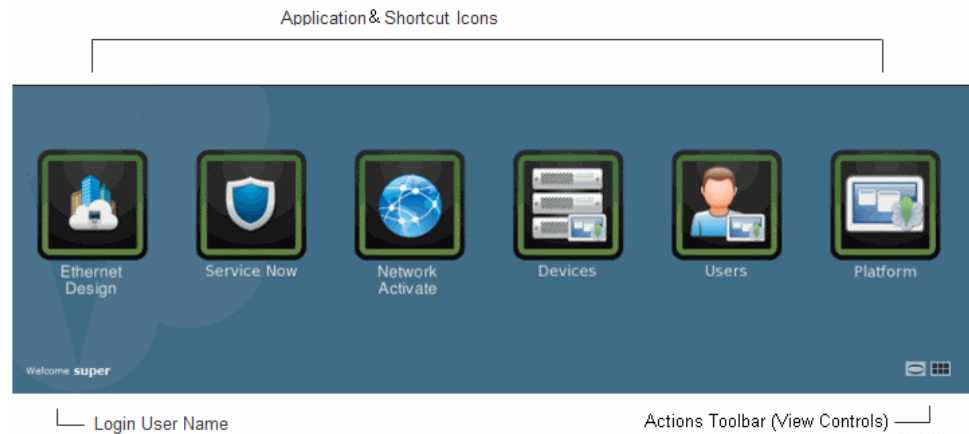


New applications will be added in subsequent software releases.

Mouse over an application to view its title and description. Double-click an application icon to launch it and navigate to its dashboard.

The parts of the Application Chooser user interface in thumbnail view are shown as follows.





The following sections describe the parts of Application Chooser.

### Parts of Application Chooser

- Application Icons on page 9
- Shortcut Icons on page 10
- Login User Name on page 11
- Actions Toolbar on page 11

#### Application Icons

Junos Space applications appear as icons in the Application Chooser in thumbnail or carousel views. Mouse over an application to view its name. Double-click an application to navigate to it and open its workspace. Switch to a different application using the Application Switcher global action in the application banner. The Application Switcher displays the last five applications you use.

The Application Chooser includes the Junos Space base applications, as listed in Table 2 on page 9. You can install other applications using the Administration > Manage Applications workspace (see “Application Management Overview” on page 235).

**Table 2: Junos Space Applications**


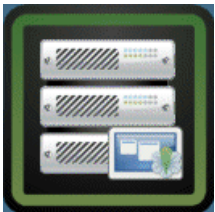
Application Icon/Name	For more information
	See “Platform Dashboard Overview” on page 19.

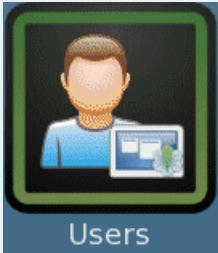
Table 2: Junos Space Applications (*continued*)

Application Icon/Name	For more information
 Network Activate	See Network Activate Dashboard Overview.
 Service Now	See Service Now Overview.
 Ethernet Design	See Ethernet Design Overview.

### Shortcut Icons

The shortcuts appear as icons in the Application Chooser. Shortcuts allow you to jump directly to a workspace without user interface navigation. For example, use the Devices shortcut to jump directly to the Devices workspace, see .

Shortcut Icon/Name	For more information
 Devices	See "Viewing Managed Devices" on page 51.

Shortcut Icon/Name	For more information
 Users	See "Viewing Users" on page 184.



### Login User Name

Displays the username of the person currently logged into the system.

### Actions Toolbar

(Bottom-Right) Use the toolbar at the bottom right of the workspace to change the application icons from thumbnail to carousel views. Table 3 on page 11 defines the toolbar buttons.

**Table 3: Application Chooser Toolbar Buttons**

Application Toolbar Button	Name	Description
	Carousel View	Displays the application icons so that they rotate in a circular manner in the workspace
	Thumbnail View	Displays the application icons tiled in the workspace as thumbnails.

### Application Chooser Actions

The Application Chooser provides the following user actions:

- Change Application Chooser Views—To change the Application Chooser view, click either Thumbnail or Carousel icons in the bottom-right actions toolbar.
- Open Applications—To open an application, double-click its icon. You can also use the Application Switcher global action at the right in the banner to navigate to up to the last applications five you used.
- Switch to Other Applications—To switch to other applications from Application Chooser, select an application name in the Application Switcher drop-down menu. The Application Switcher is a global action to the right in the banner. The Application Switcher drop-down menu displays up to the last five applications you used. You must confirm whether you want to switch to that application.

### Related Topics

- Junos Space User Interface Overview on page 12
- Platform Dashboard Overview on page 19
- Modifying Application Settings on page 12

## Modifying Application Settings

---

The administrator can modify the Junos Space Network Application Platform application to optimize its performance. Modify application settings from the Platform > Administration > Manage Applications inventory page.

To modify the Platform application settings:

1. Navigate to Platform > Administration > Manage Applications. The Manage Application inventory page appears.
2. Select the Network Application Platform application.
3. Open the Actions drawer and select Modify Application Settings. The Modify Application Settings dialog box appears. Mouse over the Actions drawer to open it. You can also right-mouse-click the Platform application to perform the action from the pop-up menu. The Modify Application Settings dialog box appears.
4. Change the following settings if necessary:
  - Auto resync device check box—Ensures that configuration changes on a connected Juniper Networks device is synchronized or imported to the application database.
  - Max auto resync waiting time (secs)—Specifies the time within which device configuration changes are synchronized to the database. 20 seconds is the default waiting time. You can specify any number of seconds. There is no specific range.

- Related Topics**
- Application Management Overview on page 235
  - Managing Junos Space Applications on page 236
  - Uninstalling a Junos Space Application on page 239
  - Upgrading a Junos Space Application on page 240
  - Upgrading the Network Application Platform on page 244
  - Creating and Using User-Defined Tags on page 258
  - Managing and Viewing Tags on page 257

## Junos Space User Interface Overview

---

The Junos Space application design allows multiple users concurrent access to its user interface. Each user accesses the system using a Web browser.

Each user has access to the same system wide database, which ensures that each user sees current information. User access to tasks and objects is controlled by permissions assigned to the user. For example, a service provisioner will have full access to the tasks in the Service Provisioning workspace, but might not have access to Service Design tasks.

The Junos Space user interface is consistent across the Network Application Platform and other installed applications. The examples shown in this topic are from the Network

Application Platform user interface. Other applications may have certain user interface design variations to fit the workflow.

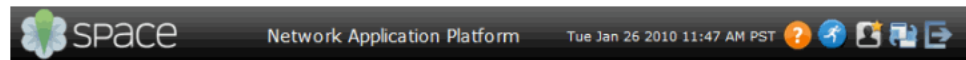
## Parts of the System User Interface

The sections that follow describe the major parts of the system user interface.

- Banner on page 13
- Application Chooser on page 13
- Application Dashboard on page 14
- Workspace Statistics on page 14
- Inventory Page on page 15






### Banner

The banner displays the Junos Space application logo and name, the date and server time in the active time zone, and the global actions icons.



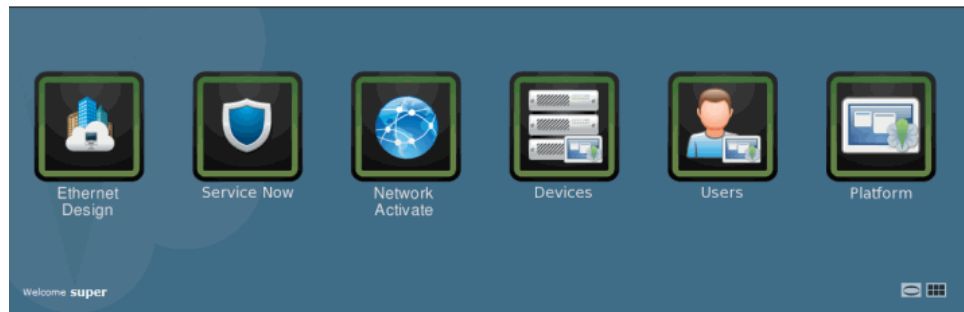
The Junos Space application banner appears throughout each user interface page in the system. Table 4 on page 13 describes the global action icons at the right in the banner.

**Table 4: Banner Global Actions**

Banner Global Action Icon	Description
	Displays the application Help. To access workspace context-sensitive help, click the Help icon after navigating to that workspace. See "Accessing Help" on page 5.
	Displays the My Jobs dialog box from which you can view the progress and status of current managed jobs. See "Viewing Your Jobs" on page 161.
	Displays the User Preferences dialog box from which you can change user preferences, such as the password. See "Changing User Passwords" on page 4.
	Displays the Application Switcher drop-down menu to switch between up to the last five applications used. See "Application Chooser Overview" on page 7.
	Logs you out of the system. See "Logging Out From the System" on page 6.

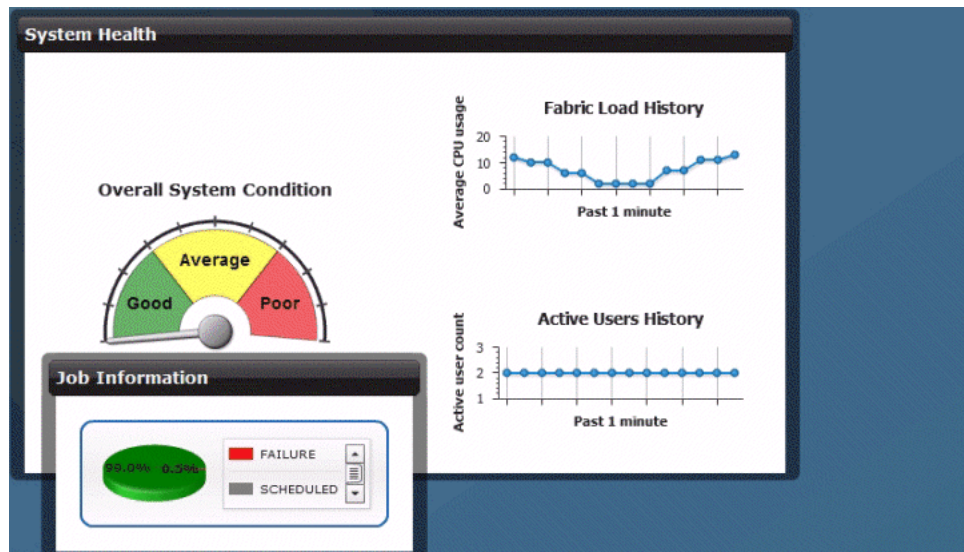
### Application Chooser

When you log in to the system, you see the Application Chooser that displays the available applications and shortcuts as shown here. For more information about the Application chooser, see "Application Chooser Overview" on page 7.



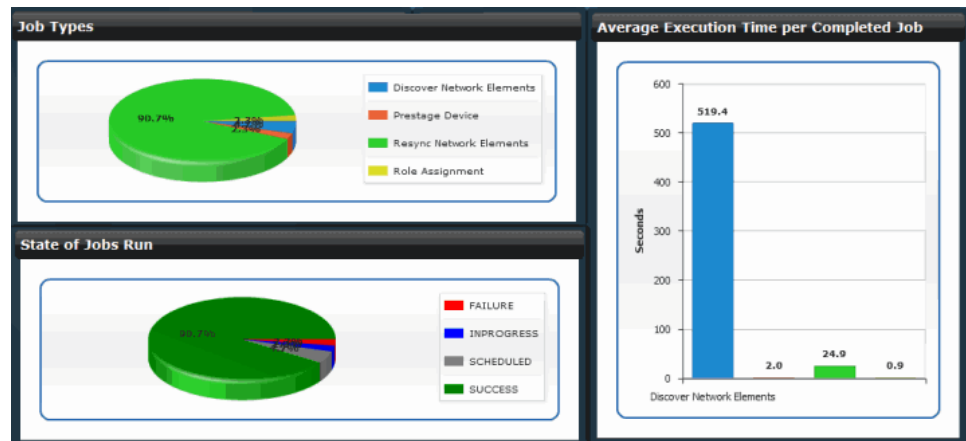
### Application Dashboard

In Application Chooser, click an application icon to view its dashboard that displays graphical data about devices, jobs, users, administration, and etc. For example, the Platform dashboard is shown here. For more information about the application dashboard, see “Platform Dashboard Overview” on page 19.



### Workspace Statistics

In the application dashboard, click a workspace icon in the task ribbon to view its statistics page. For example, the Job Management statistics page is shown here. The statistics view displays charts, graphics, and sub-tasks. For more information about the workspace statistics page, see “Workspace Statistics Pages Overview” on page 25.



### Inventory Page

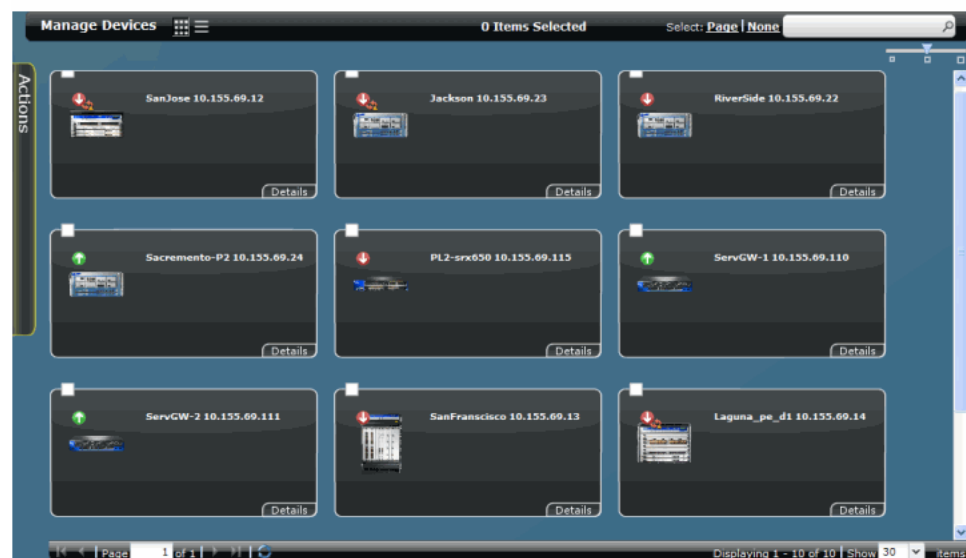
Click a sub-task in the workspace task ribbon to view its inventory page. For more information about inventory pages, see “Inventory Pages Overview” on page 28. Inventory pages display managed items in two views: thumbnail and tabular.

For more information about inventory thumbnail and tabular views, see “Inventory Pages Overview” on page 28.

- Inventory Page Thumbnail View on page 15
- Inventory Page Tabular View on page 16

### Inventory Page Thumbnail View

The Platform > Job Management > Manage Jobs inventory page in thumbnail view is shown here.



### Inventory Page Tabular View

The Platform > Job Management > Manage Jobs inventory page in tabular view is shown here.

Name	Interfaces	OS Version	Platform	IP Address	Connection Status	Managed Status
SanJose	View	10.1R1.8	MX240	10.155.69.12	down	Sync Failed
Jackson	View	10.2R1.6	M10I	10.155.69.23	down	Sync Failed
RiverSide	View	10.2R1.6	M10I	10.155.69.22	down	Connecting
Sacramento-P2	View	10.1R1.8	M10I	10.155.69.24	up	In Sync
PL2-srx650	View	10.2R1.2	SRX650	10.155.69.115	down	Connecting
ServGW-1	View	10.0R1.8	SRX240-HM	10.155.69.110	up	In Sync
ServGW-2	View	10.0R1.8	SRX240-HM	10.155.69.111	up	In Sync
SanFrancisco	View	10.1R1.8	MX960	10.155.69.13	down	Out Of Sync
Laguna_pe_d1	View	10.1R1.8	MX480	10.155.69.14	down	Sync Failed
PL2-SRX100	View	10.0R1.8	SRX100-HM	10.155.77.153	up	In Sync

- Related Topics**
- Application Chooser Overview on page 7
  - Platform Dashboard Overview on page 19
  - Workspace Statistics Pages Overview on page 25
  - Inventory Pages Overview on page 28

## Navigating the Junos Space User Interface

The Junos Space software consists of applications that you can start from within Application Chooser.

The Application Switcher global icon at the top right in the Junos Space banner displays a menu that lets you navigate to the last five applications you started, including the Application Chooser from another application. You can also navigate to workspace shortcuts.

Applications consist of one or more workspaces that include one or more tasks. The application navigation ribbon lets you navigate between workspaces, tasks, and subtasks.

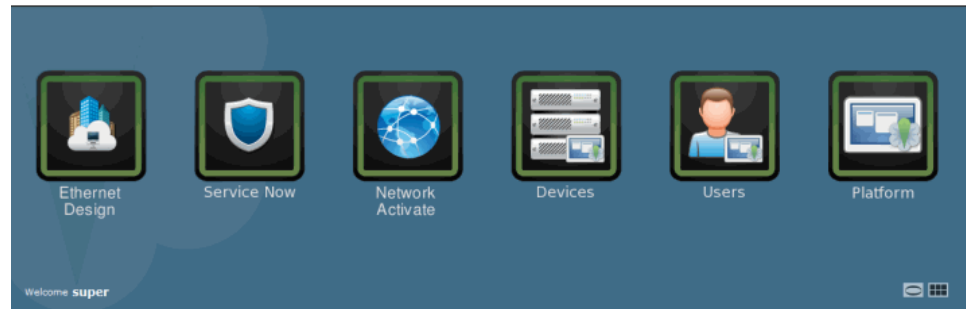
The following topics describe how to navigate the Junos Space user interface:

- Navigating Applications Using Application Chooser on page 17
- Navigating Applications Using Application Switcher on page 17
- Navigating Application Workspaces and Tasks Using the Navigation Ribbon on page 18
- Navigating to the Dashboard of an Application on page 18
- Navigating to a Workspace from a Task on page 19



## Navigating Applications Using Application Chooser

When you log into Junos Space, the Application Chooser appears. The Application Chooser displays all of the installed applications and workspace shortcuts, such as Devices and Users.



To navigate to an application in Application Chooser:

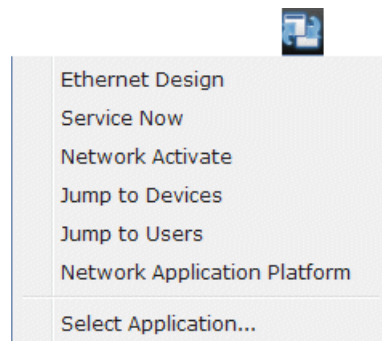
- Click an application icon. The application dashboard appears. For more information about using Application Chooser, see “Application Chooser Overview” on page 7.

## Navigating Applications Using Application Switcher

The Application Switcher global icon in the top-right of the Junos Space banner lets you navigate to the last five applications you started and to workspace shortcuts. For more information about the Application Switcher, see “Junos Space User Interface Overview” on page 12.

To navigate to an application or workspace shortcut using Application Switcher:

1. In the Junos Space banner, click the Application Switcher global icon. The Application Switcher menu appears.



2. Select an application or workspace shortcut. The application dashboard or workspace statistics page appears.

## Navigating Application Workspaces and Tasks Using the Navigation Ribbon

Use the navigation ribbon to navigate application workspaces and tasks. When you start an application, all of the workspaces are displayed at the workspace level of the navigation ribbon.

To navigate using the application navigation ribbon:

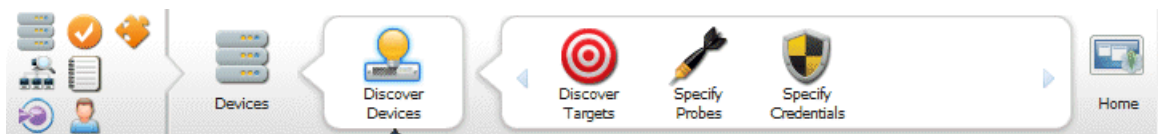
1. In Application Chooser, click an application icon. You can also start an application by selecting its name in the Application Switcher global icon menu. The application dashboard appears. All of the application workspaces are displayed in the navigation ribbon.



2. In the navigation ribbon, click a workspace. All of the tasks are displayed in the navigation ribbon. The workspaces bank to the left in the navigation ribbon. The selected workspace is highlighted and appears to the right of the banked workspaces. The workspace tasks are displayed to the right of the workspace. Home appears rightmost in the navigation ribbon. Clicking Home takes you to the top level of the navigation ribbon where all workspaces are displayed.



3. In the navigation ribbon, click a task. The inventory page containing objects on which to perform tasks appears. If a task has subtasks, the selected task is circled, and an arrow points to that task. The subtasks appear to the right of the selected task.



4. In the navigation ribbon, click a subtask. The page for that subtask appears. An arrow points to the selected subtask.

## Navigating to the Dashboard of an Application

To quickly navigate to the dashboard of an application where all workspaces appear:

- Click Home at the right in the navigation ribbon.

## Navigating to a Workspace from a Task

To navigate to a workspace from a task or subtask:

- Click the workspace icon banked at the left in the navigation ribbon. The workspace statistics page is displayed.

- Related Topics**
- Application Chooser Overview on page 7
  - Junos Space User Interface Overview on page 12

## Network Application Platform Overview

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The Junos Space Network Application Platform (Platform) provides effective tools the network administrator needs for automating network operations, including device discovery and management, job operation management, audit logging, and network administration. Network administration tasks include managing the Junos Space fabric which comprises one or more IP-connected nodes, database, software upgrades, licenses, installed applications, and troubleshooting.

The Platform application icon appears in Application Chooser.



Mousing over the Platform application icon displays a brief description. Clicking the icon displays the Platform dashboard that displays the available workspaces from which the administrator can perform tasks. For more information about the Platform Dashboard, see "Platform Dashboard Overview" on page 19.

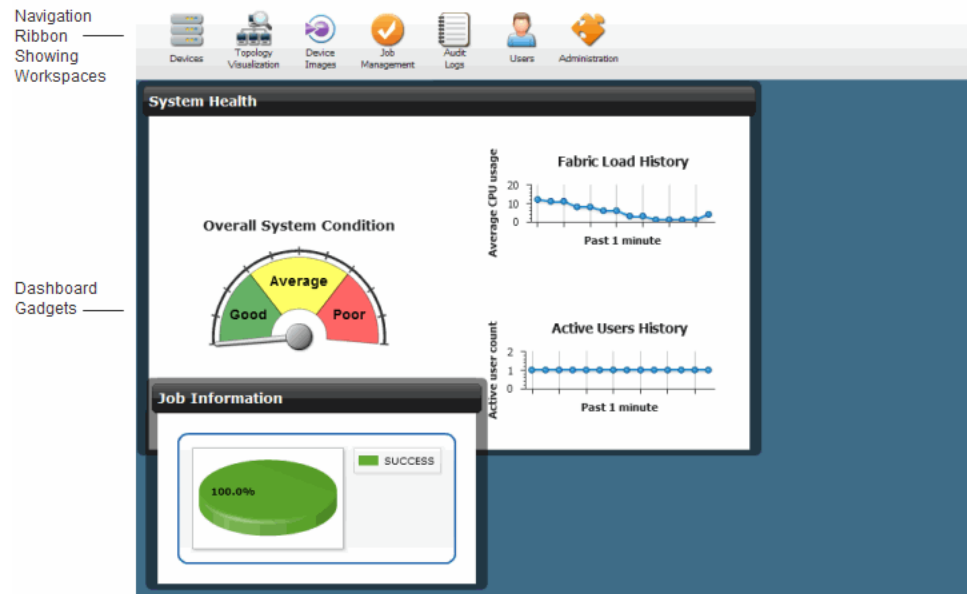
- Related Topics**
- Application Chooser Overview on page 7
  - Platform Dashboard Overview on page 19
  - Network Activate Dashboard Overview
  - Service Now Overview
  - Ethernet Design Overview

## Platform Dashboard Overview

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The Platform dashboard provides a single page snapshot of the current status of your network. The Platform provides the standard tools or workspaces the Junos Space

administrator uses to manage the basic network components and operations—devices, jobs, logs, users, and administration. The Platform dashboard appears when you click the Platform application icon from Application Chooser or switch to it from the Application Switcher. An example of the Platform dashboard is shown here.



The sections that follow describe the parts of the Platform Dashboard.

## Parts of Platform Dashboard

- Workspace Navigation Ribbon on page 20
- Dashboard Gadgets on page 21

### Workspace Navigation Ribbon

Each Junos Space application has a navigation ribbon. The navigation ribbon contains the workspaces that provide network management tasks for an application. To view a workspace click its icon. The tasks for that workspace appear in the task ribbon.

When you want to leave a workspace, clicking Home navigates you all of the Platform workspaces. When you want to leave the Platform workspaces, clicking an application in the global Application Switcher pop-up menu navigates you to that application.

Table Table 5 on page 20 describes each Platform workspace.

**Table 5: Workspace Icons**








Icon	Workspace Name	Task
	Devices	Manage devices, including adding, discovering, importing, and updating them. See "Device Management Overview" on page 37.

Table 5: Workspace Icons (*continued*)

Icon	Workspace Name	Task
	Topology Visualization	Discover information about network elements and their interconnections based on the hostname or IP addresses of both Juniper-managed and non Juniper-managed devices. See “Overview of Topology Visualization” on page 123.
	Device Images	Download a device image from the Juniper Networks Software download site to your local file system, upload it into Junos Space, and deploy it on one or more devices at once. See “Device Images Overview” on page 141.
	Job Management	Monitor the progress of ongoing jobs. See “Job Management Overview” on page 157.
	Audit Logs	View and filter system audit logs. See “Junos Space Audit Logs Overview” on page 189.
	Users	Add, manage, and delete users. See “Understanding How to Configure Users to Manage Objects in Junos Space” on page 172.
	Administration	Add network nodes, backup your database, or troubleshoot. See “Adding a Fabric Node” on page 214, “Database Backup and Restore Overview” on page 217, “Downloading the Troubleshooting Log File from the UI” on page 250, “Downloading the Troubleshooting Log File In Maintenance Mode” on page 252, “Application Management Overview” on page 235, “Managing and Viewing Tags” on page 257.

### Dashboard Gadgets

The Platform dashboard contains gadgets, such as graphs and charts, that display statistics that depict the overall health and functionality of that application. For example, the Platform dashboard gadgets provide an at-a-glance view of the system health, which includes the a gauge for the overall system condition and graphs that display the fabric load and active user history. For an explanation of the data shown in these gadgets, see “Understanding Overall System Condition and Fabric Load” on page 205.

All dashboard gadgets are visible for all users.

Gadget information is updated automatically and immediately.

You can move gadgets on the dashboard or change the size of them. Changes in location or size of dashboard gadgets persist on returning to the dashboard, even after logging back into the system.

Click a gadget or gadget elements to drill down to more detailed information. Typically, clicking a gadget element takes you either to the statistics page of the associated workspace, or to an inventory page. Some gadgets let you filter information by selecting a specific segment or bar from a chart, or a specific line of a table. For example, if you select the red segment on the Status of Tasks run gadget, you navigate to the manage tasks inventory page that displays only failed tasks.



**NOTE:** If you do not have user privileges to view certain application data, you will not be able to view more detailed information if you double-click a gadget.

Table 6 on page 22 describes the mouse-over and double-click operations you can perform on dashboard gadgets.

**Table 6: Gadget Mouse-Over and Double-Click Operations**

Gadget	Mouse-Over Information	Double-Click Navigation
Overall System Condition gauge	N/A	Double-click a graph data point to display the Administration workspace Manage Fabric > Fabric Monitoring page. Click Home to return to the Platform dashboard. For more information about fabric monitoring, see “Viewing Nodes in the Fabric” on page 211.
Fabric Load History graph	Mouse over a graph data point to view the CPU Usage (average usage percentage)	Double-click a graph data point to display the Administration workspace Manage Fabric > Fabric Monitoring page. Click Home to return to the Platform dashboard. For more information about fabric monitoring, see “Viewing Nodes in the Fabric” on page 211.
Active User History graph	Mouse over a graph data point to view the Active user (total count)	Double-click the graph data point display the Users workspace statistics page used to view the Number of Users by Assigned Role bar chart. Click Home to return to the Platform dashboard. For more information about the Users workspace, see “Viewing User Statistics” on page 183.
Job information pie chart	Mouse over the pie chart to view the number of successful jobs.	Double-click the pie chart to display the Job Management Manage Jobs inventory page. Click Home to return to the Platform dashboard. For more information about the Job Management Manage Users inventory page, see “Viewing Scheduled Jobs” on page 164.

#### Related Topics

- Viewing Dashboard Statistics on page 23
- Application Chooser Overview on page 7
- Junos Space User Interface Overview on page 12
- Understanding Overall System Condition and Fabric Load on page 205
- Viewing Nodes in the Fabric on page 211
- Viewing User Statistics on page 183
- Viewing Scheduled Jobs on page 164

## Viewing Dashboard Statistics

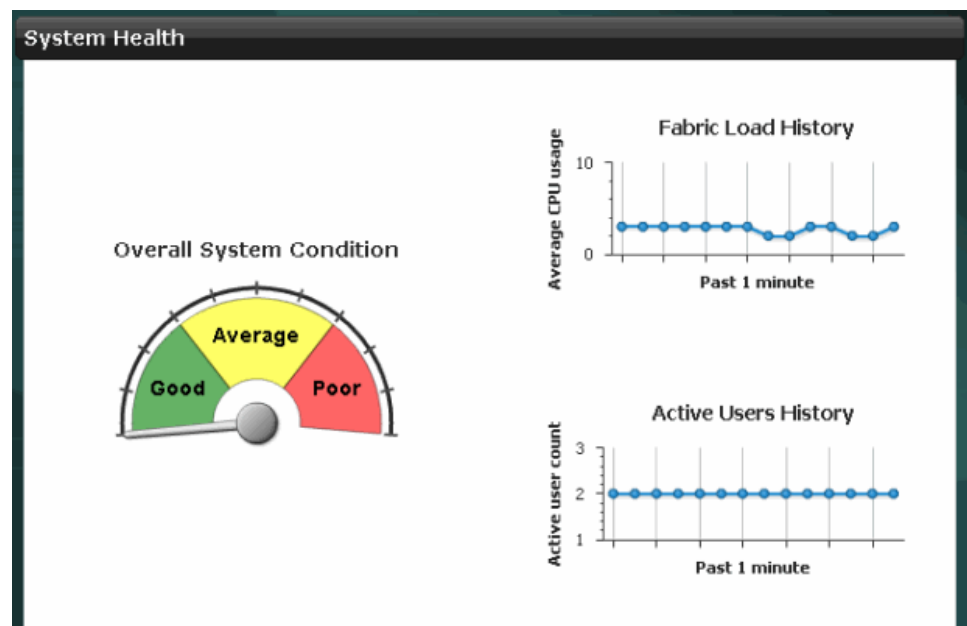
The dashboard appears when you select an application from Application Chooser. It contains graphs and charts known as gadgets that provide high-level monitoring information for the system.

The following topics describe how to use and interpret dashboard gadgets:

- Viewing System Health Statistics on page 23
- Viewing the Job Information on page 25

## Viewing System Health Statistics

The Network Application Platform dashboard system Health gadget displays real-time information about the overall health of the Junos Space system. It includes an overall system condition gauge, and graphs that report the system load and number of users as shown.

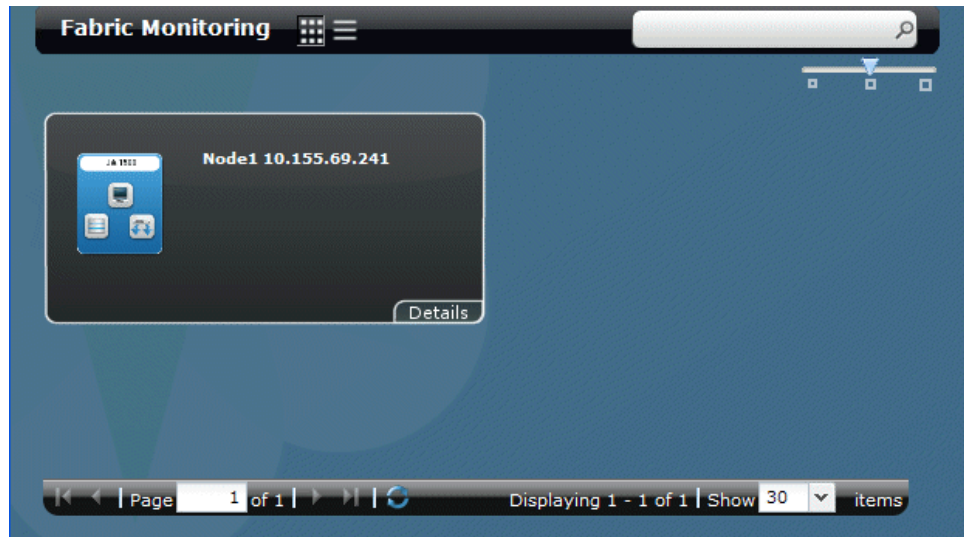


The Overall System Condition gauge represents a combination of the health of the database, the application, and load balancing software. If all these components are functional on all processors in the fabric, then the overall system condition is reported as good.

The Fabric Load History graph shows the trend of the average load of all CPUs in the fabric over the last minute. The Y axis shows the percentage of CPU use and scales dynamically so that useful information can be obtained at low loads. A new reading appears every five seconds.

To view the average CPU use at a specific data point, drag the mouse over the data point of interest. The fabric load is shown in parentheses in a tooltip.

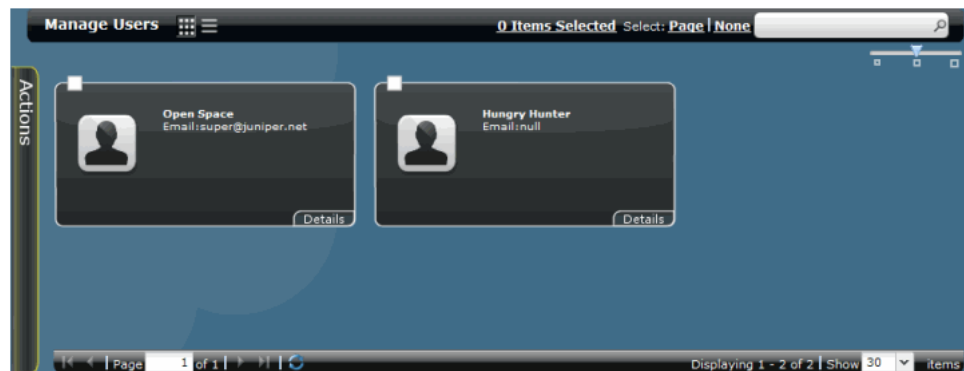
To obtain more details about the status of the fabric, click any data point in the graph. The Fabric Monitoring page appears and shows detailed status of each node in the fabric as shown. (See “Viewing Nodes in the Fabric” on page 211.



The Active Users History graph shows a history of the number of active users on the system for the previous minute.

To view the number of active users at a specific data point, drag the mouse over the data point of interest. The fabric load is shown in parentheses in a tooltip.

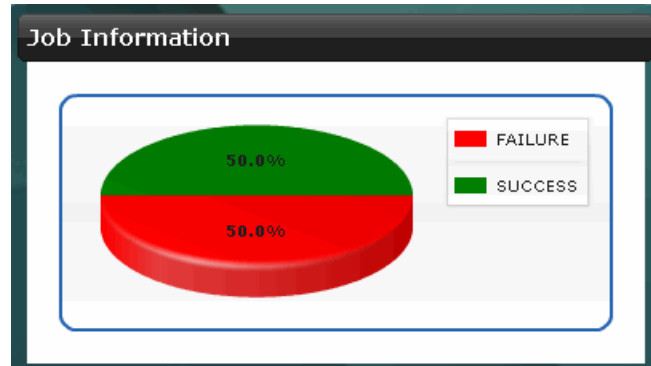
To obtain more details about active users, click any data point in the graph. The Manage Users inventory page appears filtered by the active users. (See “Viewing Users” on page 184





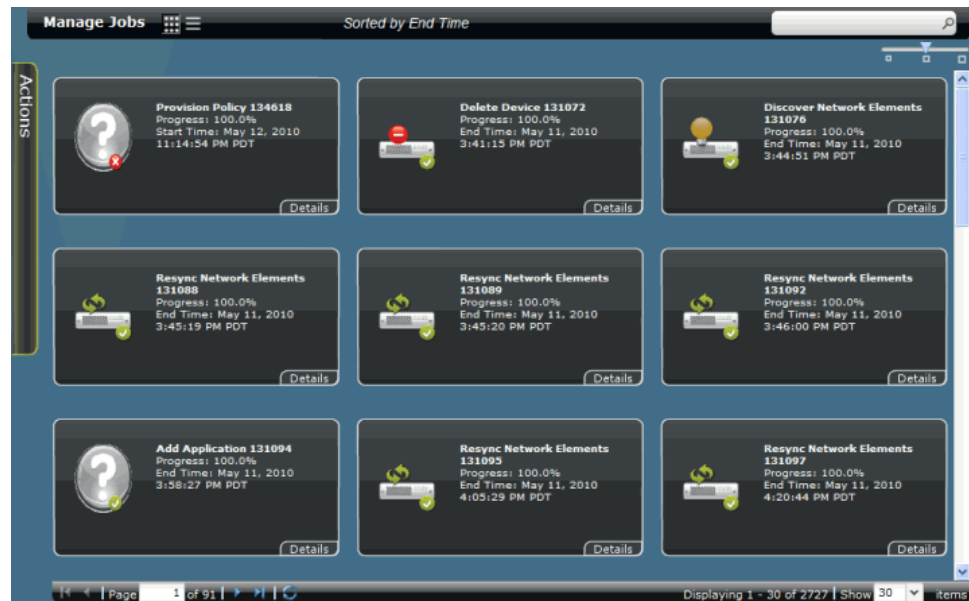
## Viewing the Job Information

The Job Information gadget on the system dashboard provides real-time information about the proportion of tasks successfully completed, failed, or in some other state during in the logged-on user's current work session as shown.



To view the number of jobs in a specific state rather than the percentage, drag the mouse over the segment in the chart. The number of jobs appears in parentheses in a tooltip.

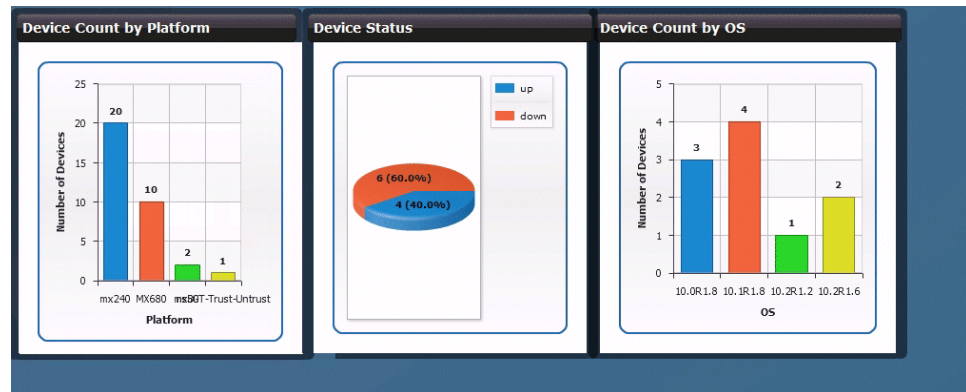
To view details about the jobs represented in the chart, click on the segment of interest. For example, click on the red segment to view details about failed jobs. The Manage Jobs page appears filtered by the job types selected. (See “Viewing Scheduled Jobs” on page 164)



## Workspace Statistics Pages Overview

When you select a workspace from the application dashboard task ribbon, Junos Space typically displays high-level statistics representing the status of managed objects in that

workspace. The example shows the Platform > Devices workspace statistics page showing the Device Count by Platform, Device Status, Device Count by Junos OS.



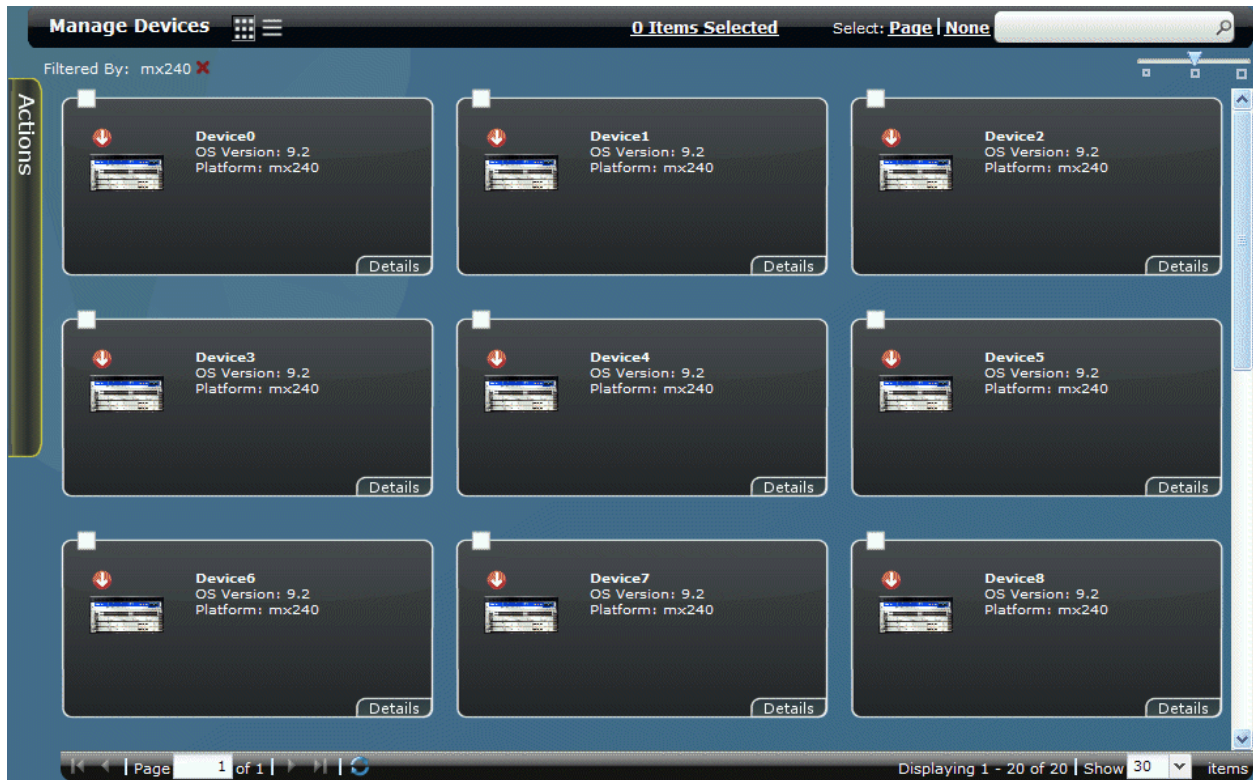
The devices administrator can right click each statistics gadget (bar chart or pie chart) to print or save the statistics as an image in PNG file format.

You can move charts and graphs on the screen or resize them. Changes in location or size of charts and graphs persist on returning to the statistics page, even after logging back into the system.

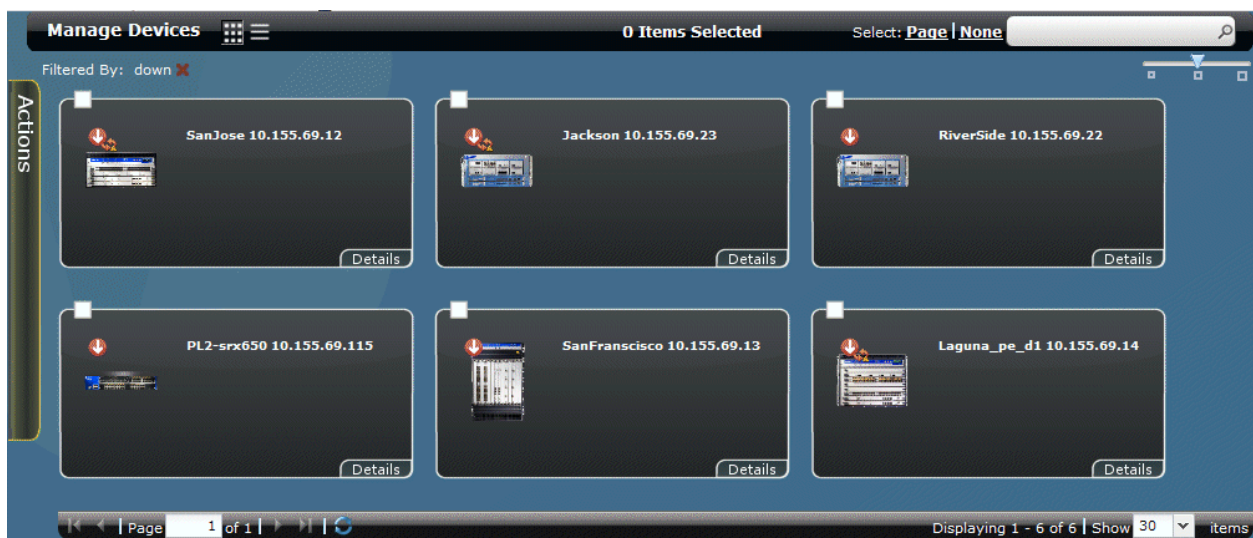
If a chart has more data points than can be viewed clearly at once, a scroll bar appears at the bottom of the chart for access to the remaining data.

Active links within the graphs and charts provide access to more details. For example, if you click on a bar or pie-chart segment, you navigate to the corresponding inventory page filtered according to the bar or segment you selected. For example, if the you click the MX240 devices bar in the Device Count by Juniper Networks device platform bar chart,

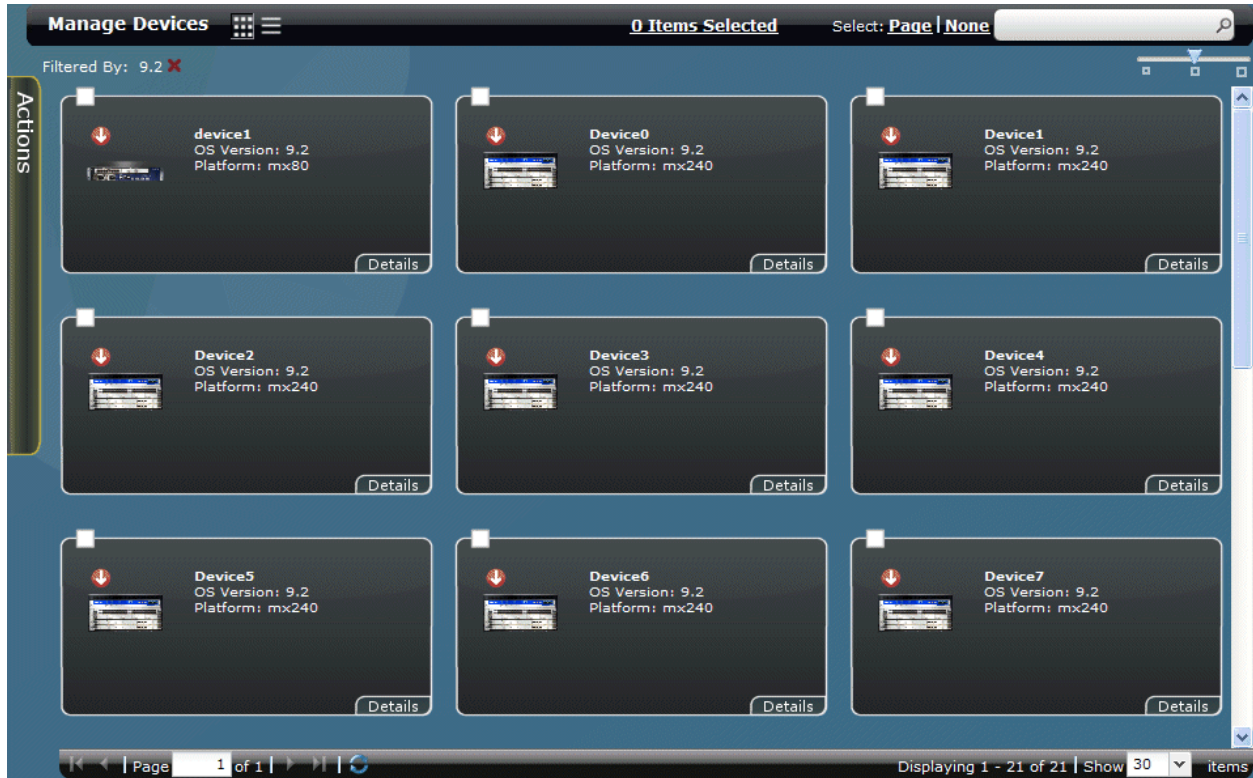
you navigate to the Platform > Devices > Manage Devices inventory page that displays all the MX240 devices on the network that are discovered and managed by Junos Space.



For example, if you click the slice in the Device Status pie chart that represents the number of devices that are down. You navigate to the Manage Devices inventory page that displays all of the devices on the network that are down.



For example, if you click a bar in the Device by OS Count, you navigate to the Manage Devices inventory page that displays all of the devices that are running the Junos OS release that you selected.



For more information about using the Devices workspace, see “Device Management Overview” on page 37.

**Related Topics** • Junos Space User Interface Overview on page 12

## Inventory Pages Overview

Application workspace inventory pages allow you to view and manipulate managed objects individually or collectively, including devices, logs, users, jobs, clients, software, licenses, and so forth. You can browse, zoom, filter, tag, and sort objects. You can select one, several, or all objects and perform actions on them using the actions in the Actions drawer or by right-mouse-clicking actions.

Throughout the Junos Space user interface, you navigate to an inventory page by selecting an application from Application Chooser, selecting an application workspace in the navigation ribbon, then selecting a managing task, such as Manage Devices, Manage Users, or Manage Jobs. For example, to view the Manage Devices inventory page, select Platform > Devices > Manage Devices.

On the inventory page, managed objects are represented by unique icons. Object status is represented by superimposed icons with colors. You can mouse over objects to view the name.

Each managed object stored in the Junos Space database includes specific data. For example, devices are stored in the database according to device name, interfaces, OS version, platform, IP address, connection, managed status, and serial number.

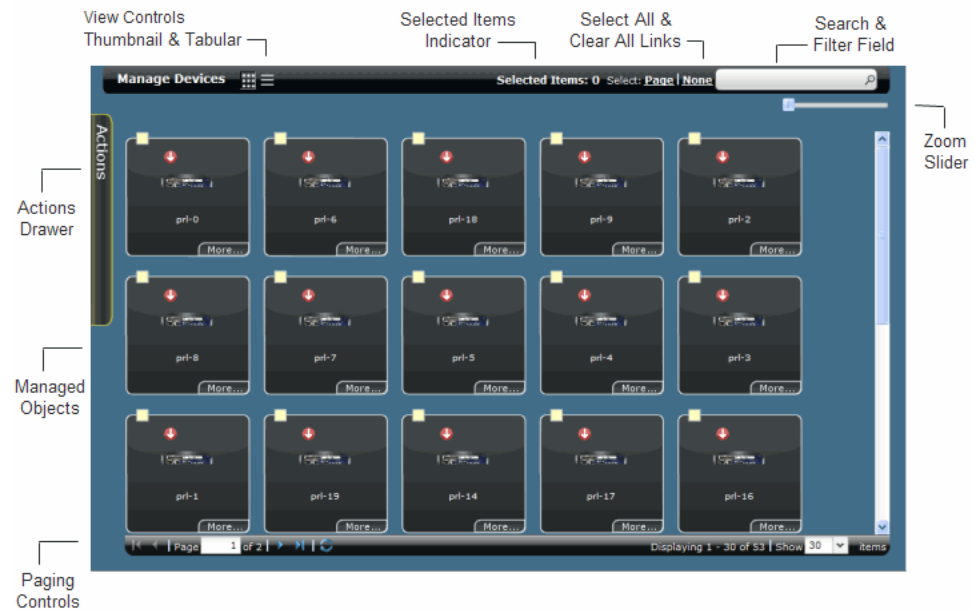
By default, inventory pages appear in thumbnail view. You can also display them in tabular.



**NOTE:** The function and implementation of individual inventory pages in both thumbnail and tabular views depend on the Junos Space application design.

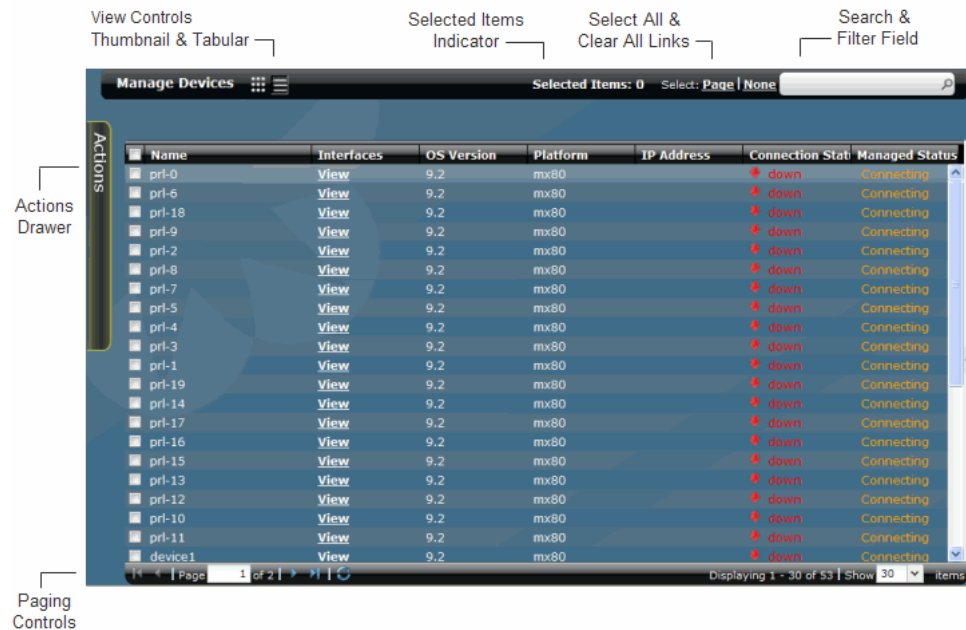
## Parts of the Inventory Page

The following example shows the parts of the Manage Devices inventory page user interface in thumbnail view.





The following example shows the parts of the Manage Devices inventory page user interface in tabular view.



The sections that follow describe the parts of the inventory page user interface in more detail.

- View Controls (Thumbnail and Tabular) on page 30
- Sorted By Indicator on page 31
- Show or Hide Columns on page 32
- Zoom Slider on page 32
- Search and Filter Field on page 32
- Actions Drawer and Right-Mouse Clicking Objects on page 33
- Paging Controls on page 33

### View Controls (Thumbnail and Tabular)

The view controls in the inventory page banner display managed items in either thumbnail (default) or tabular view. The inventory view controls are located in the inventory page banner to the right of the title.

- Thumbnail View on page 30
- Tabular View on page 31

### Thumbnail View

The default inventory page view—thumbnail view—displays icons of managed objects. Icons also include visual elements that display item status, type, operation, and so forth. For example in the Platform > Devices > Manage Devices inventory page, the green up arrow indicates the device is up; a red arrow indicates the device is down. In the Manage Service Definitions inventory page, a visual element in the object icon indicates whether a service definition is standard or custom.

Each object includes a title. You can also mouse over an object to see its title.

You must select an object to perform an action on it. Select objects by clicking the selection check box. You can select objects in a sequence or randomly. The Use the Select Page or None links to select all or clear the selection of all objects at once.

Double-clicking an object in thumbnail view provides more detailed information. You can use the zoom slider to the right most position to see more detailed information. The zoom slider provides three levels of information.

### Tabular View

Tabular view displays managed objects on an inventory page as rows in a table. Data about each managed object is displayed in the table columns.

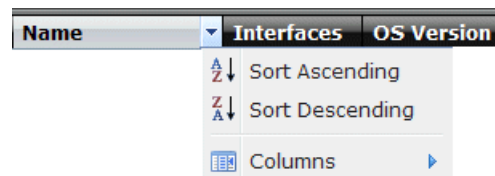
You must select an object to perform an action on it. Select objects by clicking the row check box. You can select objects in a sequence or randomly. The Use the Select Page or None links to select all or clear the selection of all objects at once.

You can manipulate objects in tables by changing the width of columns, sorting columns, and hiding columns.

### Sorted By Indicator

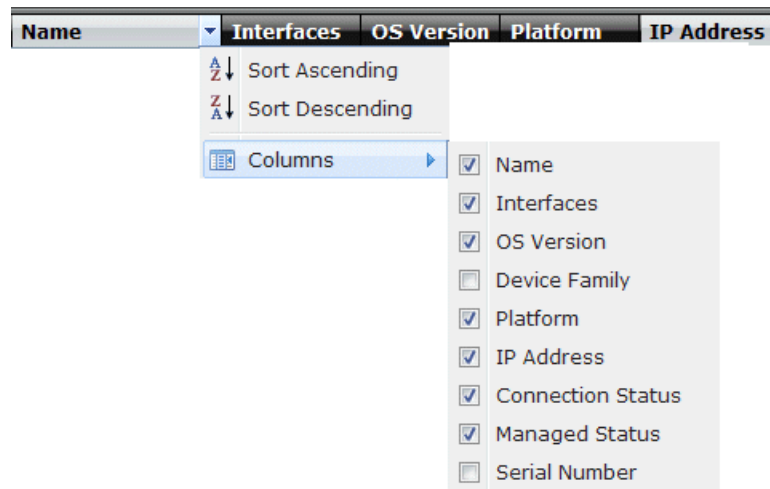
The Sorted by indicator in the inventory page banner displays how the objects are sorted in the tabular view. The Sorted by indicator is displayed in both the thumbnail and tabular views after you have sorted a column.

In tabular view, you can sort inventory data using the Sort Ascending and Sort Descending commands in the column header drop-down menu. Click the down arrow on a table header to view the sort menu. In the following example, the device inventory is currently sorted by the Name column.



### Show or Hide Columns

Hide table columns by deselecting the column name in the Columns Cascading menu, as shown. Only selected column names appear in the inventory table.



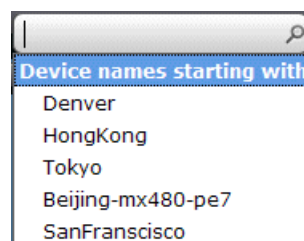
### Zoom Slider

The zoom slider determines the size of the icons displayed on the screen and the amount of detailed information that appears. The zoom slider is displayed only in thumbnail view. The zoom slider provides three levels of zoom. The leftmost, first level of zoom Displays objects smaller on the inventory page that reduces the amount of paging. The middle, second level of zoom is the default. The rightmost, third level of zoom provides detailed information about an object. The size of objects is persistent between work sessions.

### Search and Filter Field

Use the Search and Filter text field on the right of the inventory page banner enables you to search for specific objects to display on the inventory page. Typing the first letter of an object displays the available names that start with that letter.

Clicking the magnifying glass at the right in the search field displays a drop-down list with the names of inventory objects. When you select a search option in the drop-down list, inventory items specific to that search option only are displayed on the page.



You can create tags to categorize objects. For more information about tagging objects to select similar objects, see "Creating and Using User-Defined Tags" on page 258.

Clearing the contents in the Search field and pressing Enter, displays all the inventory objects on the page again.



## Actions Drawer and Right-Mouse Clicking Objects

You can perform actions on one or more selected items on an inventory page by using the Actions drawer or right-clicking items. To use the actions in the Actions drawer, select one or more objects, mouse over the Actions drawer to open it, select an action. The drawer opens and the actions that can be performed are displayed as shown. For example, to delete a device from the inventory, select that device in the Manage Devices inventory page, mouse over the Actions drawer, then click the Delete link. Move the cursor from the drawer to close it.

You can also select one or more items, then right click. The right-click menu appears, which has the same action as the Actions drawer.



**NOTE:** If you are using Mozilla Firefox, the Advanced JavaScript Settings may prevent the right-mouse menu from being displayed.

To ensure that the right-mouse menu appears, the Disable or replace context menus option must be turned on by following these steps:

1. In Mozilla Firefox, choose Tools > Options. The Options dialog box appears.
2. In the Options dialog box, click the Content tab.
3. Click Advanced. The Advanced JavaScript Settings dialog box appears.
4. Click the Disable or replace context menus option.
5. Click OK in the Advanced JavaScript Settings dialog box.
6. Click OK in the Options dialog box.

## Paging Controls

Paging controls at the bottom of the inventory panel allow you to navigate the inventory when the inventory is too large to fit on one page. Using these controls, you can go to a specific page, navigate to the next or previous page, navigate to the first or last page of the inventory, or refresh the inventory view.

The Page field lets you jump to a specific page of managed objects. Type the page number in the Page field and press Enter to jump to that field.

Other table controls are described in Table 7 on page 33.

**Table 7: Table Paging and Refreshing Controls**






Table Control	Operation
	Advances to the next page of the table.
	Returns to the previous page of the table.
	Displays the last page of the table.

Table 7: Table Paging and Refreshing Controls (*continued*)

Table Control	Operation
	Displays the first page of the table.
	Refreshes the table content.

The displaying information field identifies how many objects are being managed and how many appear on one page.



- Related Topics**
- Junos Space User Interface Overview on page 12
  - Creating and Using User-Defined Tags on page 258

## PART 2

# Devices

- Overview on page 37
- Managing Devices on page 39
- Monitoring Devices on page 51
- Inventory on page 59
- Discovery on page 63
- Adding Deployed Devices on page 77
- Rapid Deployment on page 85
- Secure Console on page 107
- Manage Device Adapter on page 113



## CHAPTER 3

# Overview

- Device Management Overview on page 37
- Device Inventory Management Overview on page 38

### Device Management Overview

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You can use Junos Space to simplify management of the devices running Junos software on your network.

From the Devices workspace, you use device discovery to discover devices and synchronize device configurations with the Junos Space database. You can use device discovery to discover one or many devices at a time. After Junos Space discovers your network devices, you can perform the following tasks to monitor and configure devices from Junos Space:

- View statistics about the managed devices in your network, including the number of devices by platform and the number of Junos family devices by release.
- View connection status and configuration status for managed devices.
- View operational and administrator status of the physical interfaces on which devices are running.
- View hardware inventory for a selected device, such as information about power supplies, chassis cards, fans, FPCs, and available PIC slots.
- Resynchronize a managed device to resynchronize the device configuration in the Junos Space database with the physical device.
- Deploy service orders to activate a service on your network devices.

### Supported Devices

Junos Space supports the following platforms running Junos Software:

- EX Series Switches
- J Series Routers
- M Series Routers
- MX Series Routers

- SRX Series Services Gateways
- T Series Routers

- Related Topics**
- Device Discovery Overview on page 63
  - Device Inventory Management Overview on page 38
  - Discovering Devices on page 66
  - Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64
  - Viewing Managed Devices on page 51

---

## Device Inventory Management Overview

You use the device inventory to view information about the hardware and software components of each device that Junos Space manages. You can also view the operational and administrator status for the physical interfaces on which devices are run.

The device inventory in the Junos Space database is generated when the device is first discovered and synchronized in Junos Space. After a device is synchronized, the device inventory in the Junos Space database matches the inventory on the device itself.

If either the physical (hardware) or logical (config) inventory on the device is changed, then the inventory on the device is no longer synchronized with the Junos Space database. However, Junos Space automatically triggers a re-sync job when a configuration change request commit or out-of-band CLI commit occurs on a managed device.

You can also manually resynchronize the Junos Space database with the physical device by using the **Resynchronize with Network** command from the Devices workspace in the Junos Space user interface.

- Related Topics**
- Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64
  - Resynchronizing Managed Devices on page 74
  - Viewing Hardware Inventory for Devices on page 59
  - Device Management Overview on page 37
  - Device Discovery Overview on page 63

## CHAPTER 4

# Managing Devices

- Changing Login Credentials for Managed Devices on page 39
- Configuring SRX Device Clusters in Junos Space on page 41
- Deleting Devices on page 49

### Changing Login Credentials for Managed Devices

---

You can change the login credentials for any device that Junos Space manages. Changing the credentials for a managed device updates the credentials in Junos Space but not on the device itself. To change credentials on a device, you must access the device directly from the CLI.

Juniper recommends that you bring down the managed device connection before you change the login credentials.

To change the login credentials for devices that Junos Space manages:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, click the **Manage Devices** icon.

The Manage Devices inventory panel displays the devices managed in Junos Space.

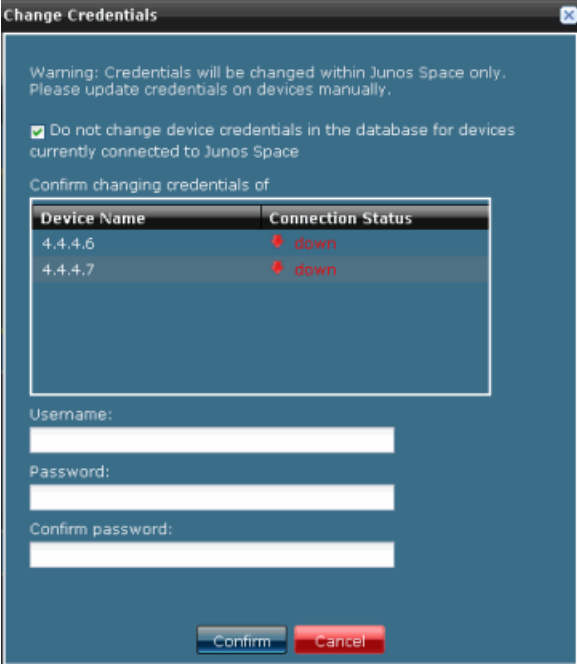


**NOTE:** You can select one or more devices and apply the same login credentials to the selected devices.

---

3. To change credentials for one or more managed devices for which the connection status is down:
  - a. Select the device or devices for which you want to change login credentials.
  - b. Select **Change Credentials** from the Actions drawer.

The Change Credentials dialog box appears, as shown in the following example:



The dialog box titled "Change Credentials" contains a warning message, a checked checkbox, a table of device names and connection statuses, and three input fields for credentials.

Warning: Credentials will be changed within Junos Space only. Please update credentials on devices manually.

☒ Do not change device credentials in the database for devices currently connected to Junos Space

Confirm changing credentials of

Device Name	Connection Status
4.4.4.6	down
4.4.4.7	down

Username:

Password:

Confirm password:

- c. Enter a user name and password, and reenter the password.
  - d. Click **Confirm**.

The new login credentials for the selected devices are updated in the Junos Space database.

To change credentials for one or more managed devices for which the connection status is up:

- a. Select one or more devices for which you want to change the login credentials.
- b. Select **Change Credentials** from the Actions drawer.

The Change Credentials dialog box appears.

- c. Clear the checkbox **Do not change device credentials in the database for devices currently connected to Junos Space**.

The Change Credentials dialog box displays the selected devices that are connected to Junos Space, as shown in the following example:



Warning: Credentials will be changed within Junos Space only. Please update credentials on devices manually.

☐ Do not change device credentials in the database for devices currently connected to Junos Space

Confirm changing credentials of

Device Name	Connection Status
Laguna_pe_d1	up

Username:

Password:

Confirm password:

- d. Enter a user name and password, and reenter the password.
- e. Click **Confirm**.

The new login credentials for the selected devices are updated in the Junos Space database.

**Related Topics** • [Connecting to a Device From Secure Console on page 107](#)

## Configuring SRX Device Clusters in Junos Space

You can create a cluster of two SRX-series devices that are combined to act as a single system, or create a single-device cluster and then add a second device to the cluster later. You can also configure a standalone device from an existing cluster device.



**NOTE:** You can discover and manage SRX device clusters in Junos Space.

This topic includes the following tasks:

- [Configuring a Standalone Device from a Single-node Cluster on page 42](#)
- [Configuring a Standalone Device from a Two-node Cluster on page 43](#)
- [Configuring a Primary Peer in a Cluster from a Standalone Device on page 45](#)
- [Configuring a Secondary Peer in a Cluster from a Standalone Device on page 47](#)

## Configuring a Standalone Device from a Single-node Cluster

You can configure a standalone device from device that is currently configured as a single-node cluster.

To configure a single-node cluster as a standalone device:

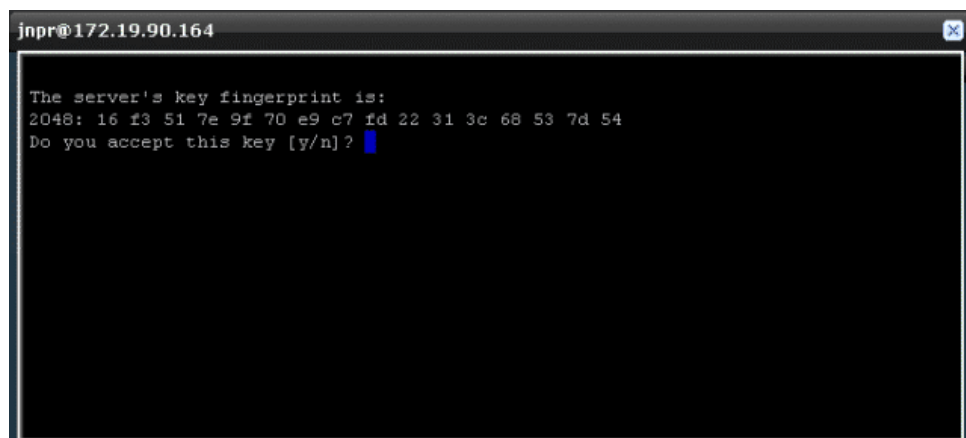
1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Secure Console** icon.  
The Secure Console dialog box is displayed.
3. Specify the IP address of the single-node cluster device.



**NOTE:** A device in a single-node cluster is always the primary member.

4. To establish an SSH connection for the device, specify the administrator user name and password. The name and password must match the name and password configured on the device.
5. Click **Connect**.

The device key fingerprint window is displayed, as shown in the following example.



6. Verify that the fingerprint is for the device you want to connect to, then type **y** and press Enter to validate the Server's key fingerprint.

A terminal window opens in a non-modal popup with an SSH connection opened on the selected device.

7. Enter the set chassis command to remove the cluster configuration:

```
set chassis cluster cluster-id 0 node 0
```

8. Reboot the device, by entering the command:

```
request system reboot
```

9. Copy the outbound-ssh configuration from group node to system level, for example:

```
set system services outbound-ssh client 00089BBC494A device-id 6CFF68
```

```
set system services outbound-ssh client 00089BBC494A secret
"$9$-zbgoDikf5zDju01ISyW8Xxbs"
```

```
set system services outbound-ssh client 00089BBC494A services netconf
```

```
set system services outbound-ssh client 00089BBC494A 10.155.70.252 port
7804
```

10. Copy the syslog configuration from group node to system level:

```
set system syslog file default-log-messages any any
```

```
set system syslog file default-log-messages structured-data
```

11. Copy the fxp0 interface setting from group node to system level, for example:

```
set interfaces fxp0 unit 0 family inet address 10.155.70.223/19
```

12. Delete the outbound-ssh configuration from the group node, for example:

```
delete groups node0 system services outbound-ssh
```

13. Delete the syslog configuration from the group node, for example:

```
delete groups node0 system syslog file default-log-messages any any
```

```
delete groups node0 system syslog file default-log-messages structured-data
```

14. Delete the interfaces configuration from the group node, for example:

```
delete groups node0 interfaces fxp0 unit 0 family inet address
10.155.70.223/19
```

15. Commit the configuration changes on the device:

```
commit
```

In the Junos Space user interface, the device connection status will go down and then up again. After the device connection is back up, you can verify that the device you configured displays as a standalone device.

16. To terminate the SSH session, type **exit** from the terminal window prompt, and press Enter.
17. Click in the top right corner of the terminal window to close the window.

## Configuring a Standalone Device from a Two-node Cluster

You can configure a standalone device from the secondary peer device in a cluster.



**NOTE:** You cannot use the primary peer in a two-node cluster to configure a standalone device.

To configure a secondary peer device in a cluster as a standalone device:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Secure Console** icon.

The Secure Console dialog box is displayed.

3. Specify the IP address of the secondary peer device.
4. To establish an SSH connection for the device, specify the administrator user name and password. The name and password must match the name and password configured on the device.
5. Click **Connect**.

The device key fingerprint window is displayed, as shown in the following example.

6. Verify that the fingerprint is for the device you want to connect to, then type **y** and press Enter to validate the Server's key fingerprint.

A terminal window opens in a non-modal popup with an SSH connection opened on the selected device.

7. Disconnect the HA cable from the device that you want to configure as a standalone device.
8. Enter the set chassis command for the peer device, for example:

```
set chassis cluster cluster-id 0 node 1
```

9. Reboot the device, by entering the command:

```
request system reboot
```

10. Copy the outbound-ssh configuration from group level to system level, for example:

```
set system services outbound-ssh client 00089BBC494A device-id 6CFF68
```

```
set system services outbound-ssh client 00089BBC494A secret  
"$9$-zbgoDikf5zDju01ISyW8Xxbs"
```

```
set system services outbound-ssh client 00089BBC494A services netconf
```

```
set system services outbound-ssh client 00089BBC494A 10.155.70.252 port  
7804
```

11. Copy the syslog configuration from group level to system level:

```
set system syslog file default-log-messages any any
```

```
set system syslog file default-log-messages structured-data
```

12. Copy the fxp0 interface setting from group level to system level, for example:

```
set interfaces fxp0 unit 0 family inet address 10.155.70.223/19
```

13. Delete the outbound-ssh configuration from the group level, for example:

```
delete groups node1 system services outbound-ssh
```

14. Delete the syslog configuration from the group level, for example:

```
delete groups node1 system syslog file default-log-messages any any
```

```
delete groups node1 system syslog file default-log-messages structured-data
```

15. Delete the interfaces configuration from the group level, for example:

```
delete groups node1 interfaces fxp0 unit 0 family inet address
10.155.70.223/19
```

16. Commit the configuration changes on the device:

```
commit
```

In the Junos Space user interface, the device connection status will go down and then up again. After the device connection is back up, you can verify that the device you configured displays as a standalone device.

After the device connections are up, verify the following changes in the Manage Devices inventory landing page:

- The device you configured now displays as a standalone device.
  - The cluster that formerly included a primary and secondary peer device now displays the primary peer device only.
17. To terminate the SSH session, type **exit** from the terminal window prompt, and press Enter.
  18. Click in the top right corner of the terminal window to close the window.

## Configuring a Primary Peer in a Cluster from a Standalone Device

You can create a device cluster from two standalone devices. Use the following procedure to configure a standalone device as the primary peer in a cluster.

To configure a primary peer in a cluster from a standalone device:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Secure Console** icon.  
The Secure Console dialog box is displayed.
3. Specify the IP address of the standalone device that you want to configure as the primary peer in the cluster.
4. To establish an SSH connection for the device, specify the administrator user name and password. The name and password must match the name and password configured on the device.
5. Click **Connect**.  
The device key fingerprint window is displayed.
6. Verify that the fingerprint is for the device you want to connect to, and type **y** and press Enter to validate the Server's key fingerprint.  
A terminal window opens in a non-modal popup with an SSH connection opened on the selected device.
7. For the standalone device, enter the command:  

```
set chassis cluster cluster-id 1 node 0
```
8. Reboot the device, by entering the command:

**request system reboot**

9. Copy the outbound-ssh configuration from the system level to the group level, for example:

```
set groups node0 system services outbound-ssh client 00089BBC494A device-id 6CFF68
```

```
set groups node0 system services outbound-ssh client 00089BBC494A secret "$9$-zbgoDikf5zDju01ISyW8Xxbs"
```

```
set groups node0 system services outbound-ssh client 00089BBC494A services netconf
```

```
set groups node0 system services outbound-ssh client 00089BBC494A 10.155.70.252 port 7804
```

10. Copy the fxp0 interface configuration from the system level to the group level, for example:

```
set groups node0 interfaces fxp0 unit 0 family inet address 10.155.70.223/19
```

11. Copy the syslog configuration from system level to group level:

```
set groups node0 system syslog file default-log-messages any any
```

```
set groups node0 system syslog file default-log-messages structured-data
```

12. Delete the outbound-ssh configuration from the system level, for example:

```
delete system services outbound-ssh
```

13. Delete the syslog configuration from the system level, for example:

```
delete system syslog file default-log-messages any any
```

```
delete system syslog file default-log-messages structured-data
```

14. Delete the interfaces configuration from the system level, for example:

```
delete interfaces fxp0 unit 0 family inet address 10.155.70.223/19
```

15. Commit the configuration changes on the device again:

```
commit
```

After the device connection is up, verify the following changes:

- In the Manage Devices inventory landing page:
  - The cluster icon is displayed for the device.
  - The new cluster device is displayed as the primary device.
- In the physical inventory landing page, Junos Space displays chassis information for the primary device cluster.

16. To terminate the SSH session, type **exit** from the terminal window prompt, and press Enter.
17. Click in the top right corner of the terminal window to close the window.

## Configuring a Secondary Peer in a Cluster from a Standalone Device

If a device cluster contains only a primary peer, you can configure a standalone device to function as a secondary peer in the cluster. Use the following procedure to ensure that Junos Space is able to manage both devices.

To add a standalone device to a cluster:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Secure Console** icon.  
The Secure Console dialog box is displayed.
3. Specify the IP address of the standalone device that you want to configure as a secondary peer in a cluster.
4. To establish an SSH connection for the device, specify the administrator user name and password. The name and password must match the name and password configured on the device.

5. Click **Connect**.

The device key fingerprint window is displayed.

6. Verify that the fingerprint is for the device you want to connect to, and type **y** and press Enter to validate the Server's key fingerprint.

A terminal window opens in a non-modal popup with an SSH connection opened on the selected device.

From the terminal window prompt, you can enter CLI commands to create a standalone device from the device cluster.

7. For the standalone device, enter the command:

```
set chassis cluster cluster-id 1 node 1
```

8. Enter the command:

```
request system reboot
```

9. Copy the outbound-ssh configuration from the system level to the group level, for example:

```
set groups node1 system services outbound-ssh client 00089BBC494A device-id 6CFF68
```

```
set groups node1 system services outbound-ssh client 00089BBC494A secret "$9$-zbgoDikf5zDju01ISyW8Xxbs"
```

```
set groups node1 system services outbound-ssh client 00089BBC494A services netconf
```

```
set groups node1 system services outbound-ssh client 00089BBC494A
10.155.70.252 port 7804
```

10. Copy the fxp0 interface configuration from the system level to the group level, for example:

```
set groups node1 interfaces fxp0 unit 0 family inet address
10.155.70.223/19
```

11. Copy the syslog configuration from system level to group level:

```
set groups node1 system syslog file default-log-messages any any

set groups node1 system syslog file default-log-messages structured-data
```

12. Delete the outbound-ssh configuration from the system level, for example:

```
delete system services outbound-ssh
```

13. Delete the syslog configuration from the system level, for example:

```
delete system syslog file default-log-messages any any

delete system syslog file default-log-messages structured-data
```

14. Delete the interfaces configuration from the system level, for example:

```
delete interfaces fxp0 unit 0 family inet address 10.155.70.223/19
```

15. Commit the configuration changes on the device again:

```
commit
```

16. Connect the HA cable to each device in the cluster.
17. Establish an SSH connection to the primary device in the cluster.
18. On the primary device, make some trivial change to the device, for example, add a description, and commit the change:

```
commit
```

After the device connections are up for both devices in the cluster, verify the following changes:

- In the Manage Devices inventory landing page:
    - Each peer device displays the other cluster member.
    - The cluster icon is displayed for each member device.
    - One device is displayed as the primary device and the other as the secondary device in the cluster.
  - In the physical inventory landing page, chassis information is displayed for each peer device in the cluster.
19. To terminate the SSH sessions, type **exit** from the terminal window prompt, and press Enter.
20. Click in the top right corner of the terminal window to close the window.



## Deleting Devices

You can delete devices from Junos Space. Deleting a device removes all device configuration and device inventory information from the Junos Space database.

To delete a device from Junos Space:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, click the **Manage Devices** icon.

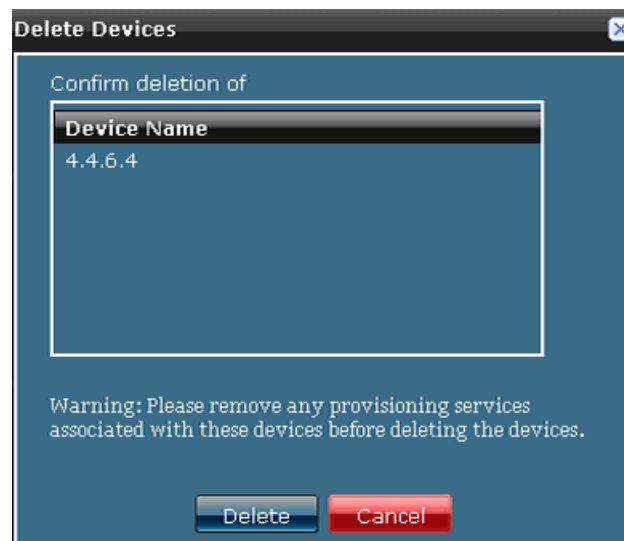
The Manage Devices inventory panel displays thumbnails of the devices managed in Junos Space.

3. Optional: To view summary information for a device before deleting, select on the device and move the scroll bar to the far right.

Junos Space displays basic device information, including name, OS version, platform, IP address, and connection status.

4. From the Manage Devices inventory panel, select one or more devices to delete.
5. If provisioning services are associated with a device that you want to delete, you must remove the provisioning services before deleting the device. For information about deleting service orders, see [Deleting a Service Order](#).
6. Select **Delete** from the Actions drawer.

Junos Space displays the Delete Devices confirmation window.



7. Select **Delete** to delete the selected devices.

Junos Space deletes all device configuration and inventory information for the selected devices from the Junos Space database.

**Related Topics** • [Viewing Managed Devices on page 51](#)

- Viewing Hardware Inventory for Devices on page 59
- Viewing Physical Interfaces for Devices on page 61
- Discovering Devices on page 66

## CHAPTER 5

# Monitoring Devices

- Viewing Managed Devices on page 51
- Viewing Device Statistics on page 55

### Viewing Managed Devices

---

You can view operating system, platform, IP-address, and connection status information for all the managed devices in your network. Device information can be viewed graphically or in a table. By default, Junos Space displays thumbnail representations of devices.

- Viewing Devices as Graphics on page 51
- Viewing Devices in a Table on page 52

### Viewing Devices as Graphics

You can view thumbnails, summary information, and detailed information about the devices managed by Junos Space.

To view the managed devices:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Manage Devices** icon.

The inventory panel displays thumbnails of managed devices by name and IP address.

Above each thumbnail, an icon indicates whether the device is connected (up) or down. Table 8 on page 51 describes the connection status icons.

**Table 8: Device Connection Status Icon**



Icon	Description
	Connection is up—The device is connected to Junos Space and is running properly.  NOTE: Before you can update a device from Junos Space (deploy service orders), the device connection must be up.
	Out Of Sync—The device is connected to Junos Space but the device configuration in the Junos Space database is Out Of Sync with the physical device.

Table 8: Device Connection Status Icon (*continued*)

Connection is down—Device is not currently connected to Junos Space or an event has occurred, either manually by an administrator or automatically by the flow of a type of traffic, that has stopped the device from running.

3. You can use the following options to view information about devices:

- To restrict the display of devices, enter a search criterion of one or more characters in the Search bar and press Enter.

All devices that match the search criterion are shown in the main display area.

- To view summary information for a device, select the device in the inventory panel and drag the zoom slider to the rightmost position.

Junos Space displays information about the selected device, including OS version, platform, IP address, connection status, and managed status.

For SRX devices that are configured as cluster devices, Junos Space displays a cluster icon and indicates whether the device is the primary or secondary cluster device, as shown in the following example.



- To view hardware inventory information for a device, double-click on the thumbnail, or select the device, and click **View Physical Inventory** from the Actions drawer.

## Viewing Devices in a Table

To view configuration and run-time information for devices in a table:

- From the task ribbon, select the **Devices** workspace.
- Click the table icon in the filter bar, as shown in the following example.



Junos Space displays a table of devices in the inventory panel.

Name	Interfaces	OS Version	Platform	IP Address	Connection Status	Managed Status
SanFrancisco	<a href="#">View</a>	10.1R1.1	MX960	10.155.69.13	up	In Sync
SanJose	<a href="#">View</a>	10.1R1.7	MX240	10.155.69.12	up	In Sync
coyotes	<a href="#">View</a>	9.6R3.2	J6350	10.155.77.217	up	In Sync

Table 9 on page 53 describes the fields displayed in the inventory window.

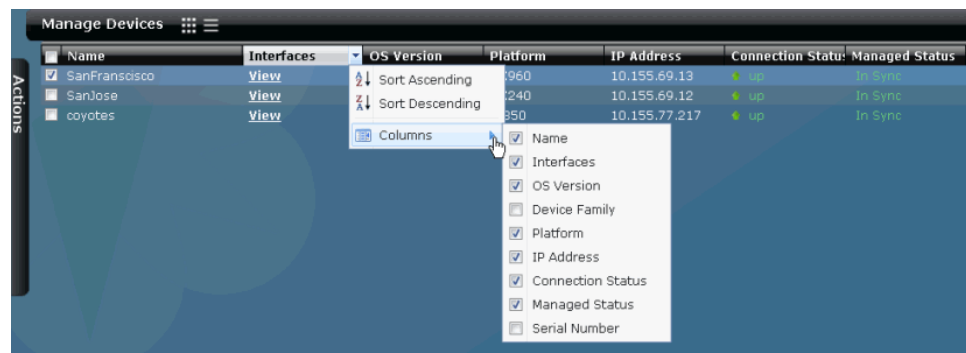
**Table 9: Fields in the Manage Devices Table**

Field	Description
Connection Status	<p>Connection status of the device in Junos Space.</p> <ul style="list-style-type: none"> <li>up—Device is connected to Junos Space. When connection status is up, the Managed status is Out of Sync, Synchronizing, In Sync, or Sync Failed.</li> <li>down—Device is not connected to Junos Space. When Connection status is down, the Managed status can be None or Connecting.</li> </ul>
Device Family (not displayed by default)	Device family of the selected device.
Interfaces	Link to the view of physical interfaces for the device.
IP Address	IP address of the device.
Managed Status	<p>Current status of the managed device in Junos Space:</p> <ul style="list-style-type: none"> <li>Connecting—Junos Space has sent connection RPC and is waiting for first connection from device.</li> <li>In Sync—Sync operation has completed successfully, and Junos Space and the device are synchronized.</li> <li>None—Device is discovered, but Junos Space has not yet sent connection RPC.</li> <li>Out of Sync—Device has connected to Junos Space, but the sync operation has not been initiated, or an out-of-band configuration change on the device was detected and auto-resync is disabled or has not yet started.</li> <li>Synchronizing—Sync operation has started because of device discovery, a manual re-sync operation, or an automatic re-sync operation.</li> <li>Sync Failed—Sync operation failed.</li> </ul>
Name (not displayed by default)	The device configuration name for the device.
OS Version	Operating system firmware version running on the device.

Table 9: Fields in the Manage Devices Table (*continued*)

Platform	Model number of the device.
Serial Number (not displayed by default)	Serial number of the device chassis.

3. To display columns not shown in the default table view or to hide columns:
  - a. Mouse over any column header and click the down arrow. The Device List pull-down menu is displayed.
  - b. Select **Columns** from the pull-down menu, as shown in the following example.



- c. Select the check box for columns that you want to view. Clear the check box for columns that you want to hide.
4. You can use the following options to view information about devices:
  - To restrict the display of devices, enter a search criterion of one or more characters in the Search bar and press Enter.  
All devices that match the search criterion are shown in the main display area.
  - To view hardware inventory information for a device, double-click on the table row for the device, or select the row for the device, and click **View Physical Inventory** from the Actions drawer.
  - To view the physical interfaces for a device, select the row for the device, and click **View Interfaces** from the Actions drawer.

**Related Topics**

- Viewing Device Statistics on page 55
- Viewing Hardware Inventory for Devices on page 59
- Viewing Physical Interfaces for Devices on page 61
- Discovering Devices on page 66

## Viewing Device Statistics

---

The Devices statistics page provides the device manager three types of data for managed devices:

- Device Count by Platform—the number of Juniper Networks devices organized by type.
- Device Status—the connection status of managed devices on the network.
- Device Count by OS—the number of devices running a particular Junos OS release

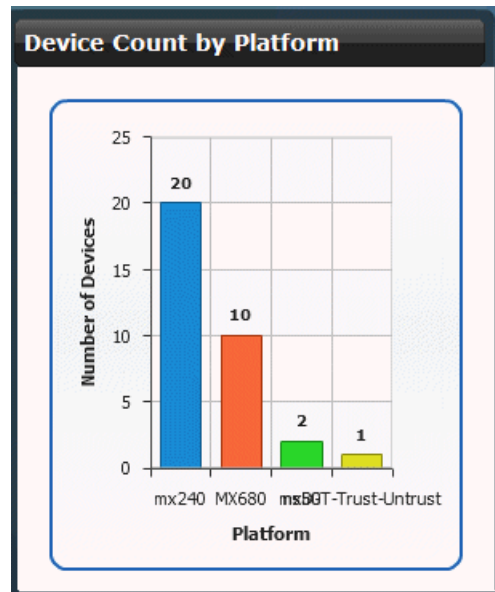
To view device statistics, navigate to the Platform > Devices workspace.

This topic includes the following tasks:

- Viewing the Number of Devices by Platform on page 56
- Viewing Connection Status for Devices on page 56
- Viewing Devices by Junos OS Release on page 57

## Viewing the Number of Devices by Platform

The Device Count by Platform bar chart shows the number of Juniper Networks devices on the y axis discovered by platform type on the x axis. Each vertical bar in the chart displays the number of managed devices for a platform.



To view more detailed information about devices per platform:

- Click a bar in the bar graph. The Manage Devices inventory page appears filtered by the device type you selected. For more details about the Manage Devices inventory page, see "Viewing Managed Devices" on page 51.

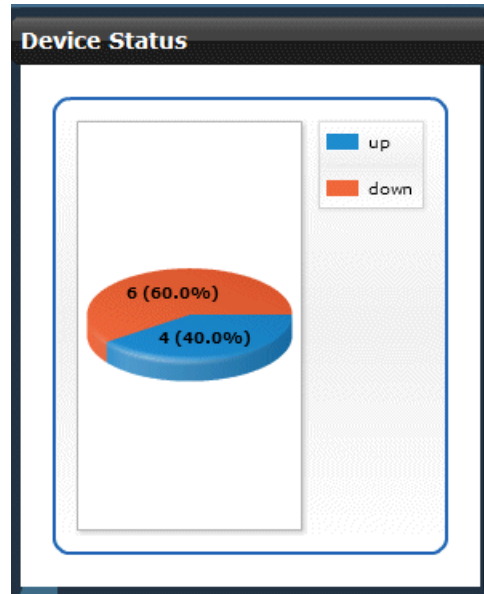
To save the bar chart as an image or to print for presentations or reporting:

- Right click the bar chart. The popup menu appears.

## Viewing Connection Status for Devices



The Device Status pie chart displays the percentage and number of devices that are connected and disconnect on the network. The up or down status is expressed as a percentage of the total number of devices.



To view more detailed device status information:

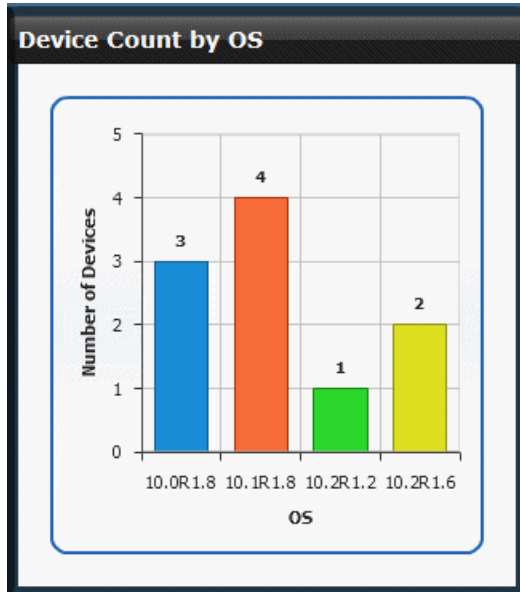
- Click a slice in the pie chart. The Manage Devices inventory page appears filtered by the devices that are up or down. For more details about the Manage Devices inventory page, see "Viewing Managed Devices" on page 51.

To save the pie chart as an image or to print for presentations or reporting:

- Right click the bar chart. The popup menu appears.

## Viewing Devices by Junos OS Release

The Devices Count by OS bar chart shows the number of Juniper Networks devices on the network (the y axis) categorized by running a certain Junos OS release (the x axis).



To view more detailed information about devices running a particular Junos OS release:

- Click a bar in the chart. The Manage Devices inventory page appears. For more details about the Manage Devices inventory page, see “Viewing Managed Devices” on page 51.

To save the pie chart as an image or to print for presentations or reporting:

- Right-click the bar chart. The popup menu appears.

#### Related Topics

- Viewing Managed Devices on page 51
- Viewing Hardware Inventory for Devices on page 59
- Discovering Devices on page 66

## CHAPTER 6

# Inventory

- Viewing Hardware Inventory for Devices on page 59
- Viewing Physical Interfaces for Devices on page 61

### Viewing Hardware Inventory for Devices

---

Hardware inventory information shows the slots that are available for a device and provides information about power supplies, chassis cards, fans, part numbers, and so forth. Junos Space displays hardware inventory by device name, based on data that Junos Space retrieves from the device during discovery and resync operations, and from data stored in the hardware catalog. For each managed device, the Junos Space hardware catalog provides descriptions for field replaceable units (FRUs), part numbers, model numbers, and the pluggable locations from which empty slots are determined.

Sorting is disabled for the hardware inventory view to preserve the natural slot order of the devices.

To view hardware inventory for devices that Junos Space manages:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select **Manage Devices** icon.

The Manage Devices inventory view displays the devices managed in Junos Space.

3. Double-click on a device, or select a device and click **View Physical Inventory** in the Actions drawer.

The device inventory panel displays the chassis components and FRUs and inventory detail for the selected device, as shown in the following example.

Return to Inventory View

Item	Model Number	Part Number	Serial Number	Description
San Francisco - MX960				
Chassis	CHAS-BP-MX960-S RE	710-013698	JN1118EBEAF8	MX960
FPM Board	CRAFT-MX960-S	710-014974 (REV 03)	XE1330	Front Panel Display
PDM		740-013110 (REV 03)	QCS1243504A	Power Distribution Module
PEM 0		740-013682 (REV 04)	QCS1239402A	PS 1.7kW; 200-240VAC in
PEM 2		740-013682 (REV 04)	QCS123340EM	PS 1.7kW; 200-240VAC in
PEM 3		740-013682 (REV 04)	QCS123340F2	PS 1.7kW; 200-240VAC in
Routing Engine 0	RE-S-1300-2048-S	740-015113 (REV 07)	9009009811	RE-S-1300
Routing Engine 1	RE-S-1300-2048-S	740-015113 (REV 07)	9009009266	RE-S-1300
CB 0	SCB-MX960-S	710-021523 (REV 03)	XA5623	MX SCB
CB 1	SCB-MX960-S	710-021523 (REV 03)	XC0534	MX SCB
CB 2	SCB-MX960-S	710-021523 (REV 03)	XA5805	MX SCB
FPC 0	DPCE-R-40GE-SFP	750-021679 (REV 13)	XA6865	DPCE 40x 1GE R
CPU		710-022351 (REV 03)	XA1540	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0		740-013111 (REV 01)	7351693	SFP-T
Xcvr 1		740-013111 (REV 01)	7351258	SFP-T
Xcvr 2		740-013111 (REV 01)	7351312	SFP-T
Xcvr 3		740-013111 (REV 01)	7351640	SFP-T
Xcvr 4		740-013111 (REV 01)	7351358	SFP-T
Xcvr 5		740-013111 (REV 01)	7351448	SFP-T
Xcvr 6		740-013111 (REV 01)	7351265	SFP-T
Xcvr 7		740-013111 (REV 01)	7351369	SFP-T
Xcvr 8		740-013111 (REV 02)	9012993	SFP-T
Xcvr 9		740-013111 (REV 01)	7351299	SFP-T

For cluster devices, Junos Space displays chassis information for each node (primary and secondary) in the cluster, as shown in the following example.

Return to Inventory View

Item	Model Number	Part Number	Serial Number	Description
Cluster				
srx3400-bottom - SRX3400			AA2808AD0015	
Chassis (node1)	SRX3400-CHAS	710-015748	AA2808AD0015	SRX 3400
srx3400-top - SRX3400			AA2808AD0013	
Chassis (node0)	SRX3400-CHAS	710-015748	AA2808AD0013	SRX 3400

Table 10 on page 60 describes the information displayed in the device inventory panel.

**Table 10: Device Inventory Fields**

Field	Description
Item	Chassis component. Depending on the device type, can include the midplane, backplane, power supplies, fan trays, Routing Engine, front panel module board, PDM, CIP, PEM, SCG, CB, FPCs, and PICs.
Model Number	Model number for the chassis component.
Part Number	Part number and revision level of the component (FRU).  "BUILTIN" indicates the component is not a FRU.
Serial Number	Serial number of the component (FRU).  "BUILTIN" indicates the component is not a FRU.

Table 10: Device Inventory Fields (*continued*)

Description	Description of the component or FRU.
-------------	--------------------------------------

- To return to the device inventory view, click **Return to Inventory View** at the top of the inventory panel.

- Related Topics**
- Viewing Managed Devices on page 51
  - Viewing Physical Interfaces for Devices on page 61
  - Resynchronizing Managed Devices on page 74
  - Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64

## Viewing Physical Interfaces for Devices

Junos Space displays physical interfaces by device name, based on the device information Junos Space has in its database. You can view the operational status and admin status of physical interfaces for one or more devices to troubleshoot problems.

Sorting is disabled for the physical interfaces view to preserve the natural slot order of the devices.

If the interface status changes on the managed device, the data is not updated in Junos Space until the device is resynchronized with the Junos Space database.

To view the physical interfaces for devices:

- From the task ribbon, select the **Devices** workspace.
- From the task ribbon, select the **Manage Devices** icon.
- In the Manage Device inventory view, select the device for which you want to view the physical interfaces.
- In the Actions drawer, click **View Interfaces**.

Junos Space displays the status of the physical interfaces for a device.

Return to Inventory View										
Device Name	Interface Name	Ip Address	MAC Address	Operational Sta	Admin Status	Encapsulation	Link type	Speed (Mbps)	MTU	
SanFrancisco	lo0	192.168.1.40		up	up					
SanFrancisco	ge-0/0/0	10.1.10.30	00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/1		00:22:83:d9:d8:1	down	down	Ethernet		1000	1514	
SanFrancisco	ge-0/0/2		00:22:83:d9:d8:1	up	up	52	full-duplex	1000	1522	
SanFrancisco	ge-0/0/3		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/4		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/5		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/6		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/7		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	
SanFrancisco	ge-0/0/8		00:22:83:d9:d8:1	up	up	Ethernet-VPLS	full-duplex	1000	1522	
SanFrancisco	ge-0/0/9		00:22:83:d9:d8:1	up	up	Ethernet-VPLS	full-duplex	1000	1522	
SanFrancisco	ge-0/1/0		00:22:83:d9:d8:1	up	up	Ethernet	full-duplex	1000	1514	

Table 11 on page 61 describes the information displayed for the physical Interfaces.

Table 11: Physical Interfaces Columns

Field	Description
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Table 11: Physical Interfaces Columns (*continued*)

Admin Status	Admin status of the interface: up or down.
Device Name	Device configuration name.
Encapsulation	Encapsulation used on the physical interface.
Interface Name	Standard information about the interface, in the format <b>type-/fpc/pic/port</b> where <b>type</b> is the media type that identifies the network device; for example, ge-0/0/6.
IP Address	IP address for the interface.
Link Type	Physical interface link type: full duplex or half duplex.
MTU	Maximum transmission unit size on the physical interface.
Operational Status	Operational status of the interface: up or down.
Speed (Mbps)	Speed at which the interface is running.

5. To return to the device inventory, click **Return to Inventory View** at the top of the inventory panel.

- Related Topics**
- Viewing Managed Devices on page 51
  - Viewing Hardware Inventory for Devices on page 59

## CHAPTER 7

# Discovery

- Overview on page 63
- Discovering Devices on page 66

### Overview

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- Device Discovery Overview on page 63
- Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64

### Device Discovery Overview

You use device discovery to add devices to Junos Space. *Discovery* is the process of finding a device and then synchronizing the device's inventory and configuration with the Junos Space database. To use device discovery, Junos Space must be able to connect to the device.

To discover network devices, Junos Space uses the SSH and SNMP protocols. Device authentication is handled through administrator login SSH v2 credentials and SNMP v1/v2c or v3 settings, which are part of the device discovery configuration. You can specify a single IP address, a DNS hostname, an IP range, or an IP subnet to discover devices on a network. During discovery, Junos Space connects to the physical device and retrieves running configuration and status information of the device. To connect with and configure devices, Junos Space uses Juniper Network's Device Management Interface (DMI), which is an extension to the NETCONF network management protocol.

When discovery succeeds, Junos Space creates an object in the Junos Space database to represent the physical device and maintains a connection between the object and the physical device so their information is linked.

When configuration changes are made in Junos Space, for example, when you deploy service orders to activate a service on your network devices, the configuration is pushed to the physical device.

When configuration changes are made on the physical device, (out-of-band CLI commits and change-request updates), Junos Space automatically resynchronizes with the device, so that the device inventory information in the Junos Space database matches the current device inventory and configuration information.

The following device inventory and configuration data is captured and stored in relational tables in the Junos Space database:

- Devices: hostname, IP address, credentials
- Physical Inventory: chassis, FPM board, PEM, Routing Engine, CB, FPCs, CPU, PICs, Xcvrs, fan trays

Junos Space displays the model number, part number, serial number, and description for each inventory component, when applicable.

- Logical Inventory: sub-interfaces, encapsulation (link-level), type, speed, MTU, VLAN ID
- Loopback interface

Other device configuration data is stored in the Junos Space database as Binary Large Objects, and is only available to NBI users.

- Related Topics**
- [Discovering Devices on page 66](#)
  - [Viewing Managed Devices on page 51](#)
  - [Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64](#)
  - [Resynchronizing Managed Devices on page 74](#)
  - [Device Management Overview on page 37](#)
  - [Device Inventory Management Overview on page 38](#)

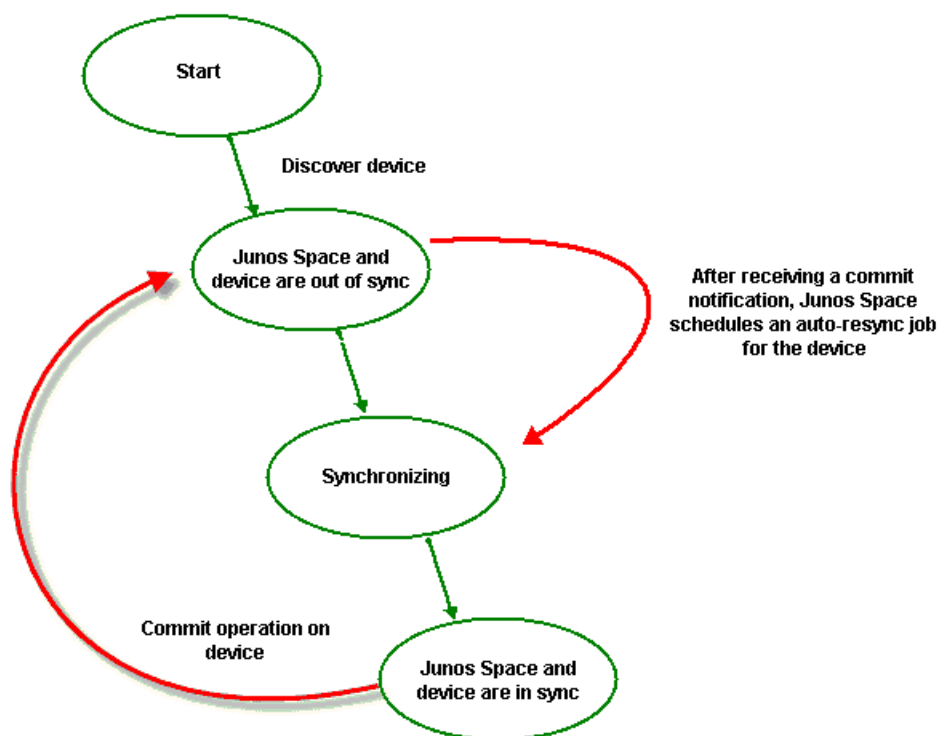
## Understanding How Junos Space Automatically Resynchronizes Managed Devices

When configuration changes are made on a physical device that Junos Space manages, Junos Space automatically resynchronizes with the device, so that the device inventory information in the Junos Space database matches the current configuration information on the device.

After Junos Space discovers and imports a device, Junos Space enables the auto-resync feature on the physical device by initiating a commit operation.

After auto-resynchronization is enabled, any configuration changes made on the physical device, including out-of-band CLI commits and change-request updates, automatically trigger resynchronization on the device. The following diagram shows how a commit operation on the device triggers resynchronization.





When a commit operation is performed on a managed device, Junos Space schedules a re-sync job to run 20 seconds after the commit notification is received. However, by default, if Junos Space receives another commit notification from the device within 25 seconds of the previous commit notification, no additional re-sync jobs are scheduled, but Junos Space will resynchronize both commit operations in one job. This damping feature of automatic resynchronization provides a window of time during which multiple commit operations can be executed on the device, but only one or a few re-sync jobs are required to resynchronize the Junos Space database after multiple configuration changes are executed on the device.

When Junos Space receives the device commit notification, the device status is “Out of Sync”. When the re-sync job begins on the device, the Managed Status for the device displays “Synchronizing” and then “In Sync” after the re-sync job has completed, unless a pending device commit operation causes the device to display “Out of Sync” while it was synchronizing.

When a resync job is scheduled to run but another resync job on the same device is in progress, Junos Space delays the scheduled resync job. The time delay is determined by the damper interval that you can set from the application workspace. By default, the time delay is 20 seconds. The scheduled job is delayed as long as the other resync job to the same device is in progress. When the currently running job finishes the scheduled resync job starts.

You can disable the auto-resync feature in the **Application** workspace. When auto-resync is turned off, the server continues to receive notifications and will go into the out of sync

state; however the auto-resync will not run on the device. To resynchronize a device when the auto-resync feature is disabled, you can use the resync feature to manually resync the device.

For information about setting the damper interval to change the resync time delay and information about disabling the auto-resync feature, see “Modifying Application Settings” on page 12.

- Related Topics**
- Resynchronizing Managed Devices on page 74
  - Device Discovery Overview on page 63
  - Device Inventory Management Overview on page 38
  - Viewing Managed Devices on page 51

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## Discovering Devices

- Discovering Devices on page 66
- Resynchronizing Managed Devices on page 74

### Discovering Devices

You use device discovery to automatically discover and synchronize Junos devices in Junos Space. Device discovery is a three step process in which you specify target devices, a probe method (Ping and/or SNMP), and credentials to connect to each device.



**NOTE:** The values that you enter to specify the targets, probe method, and credentials are persistent from one discovery operation to the next, so you do not have to reenter information that is the same from one operation to the next.

To add a device using device discovery, the following conditions must be met:

- The device is configured with a static management IP address that is reachable from the Junos Space server.
- A user with full administrative privileges is created on the device for the Junos Space administrator.
- If you plan to use SNMP to probe devices as part of device discovery, SNMP should be enabled on the device with appropriate read-only V1/V2C/V3 credentials.



**NOTE:** To perform discovery on a device with dual Routing Engines, always specify the IP address of the current master RE. When the current master IP address is specified, Junos Space will manage the device and will manage the redundancy as well. If the master RE fails, the backup RE takes over and Junos Space manages the transition automatically without bringing down the device.



**NOTE:** When you initiate discovery on a device, Junos Space automatically enables SSH and the NETCONF protocol over SSH by pushing the following commands to the device:

```
set system services ssh protocol-version v2
set system services netconf ssh
```

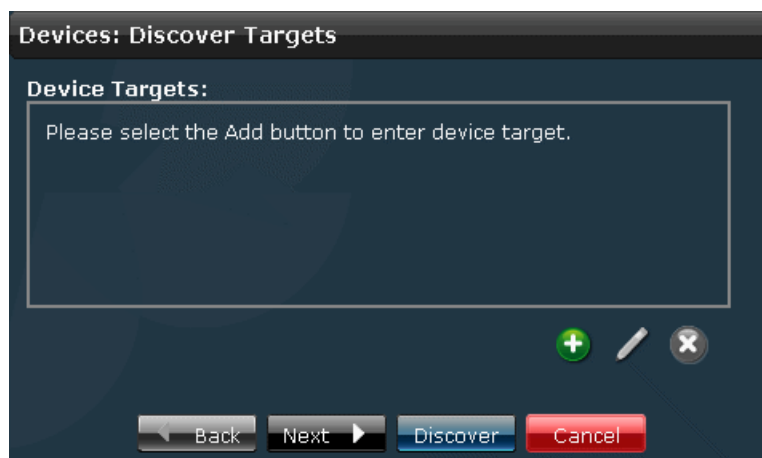
To discover and synchronize devices, complete the following tasks:

1. Specifying Device Targets on page 67
2. Specifying Probes on page 68
3. Specifying Credentials on page 71

### Specifying Device Targets

To specify the device targets that you want Junos Space to discover:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, click the **Discover Devices** icon.  
Junos Space displays discovery status for discovery targets that are already processed.
3. From the task ribbon, click the **Discover Targets** icon.  
Junos Space displays the Discover Targets window.



4. Click the Add icon.  
The Add Device Target dialog box is displayed.

Choose one of the following options to specify device targets:

- Select the **IP** radio button and enter the IP address of the device.
- Select the **IP Range** radio button and enter a range of IP addresses for the devices.



**NOTE:** The maximum number of IP addresses for an IP range target is 1024.

- Select the **IP Subnet** radio button and enter an IP subnet for the devices.
  - Select the **Host Name** radio button and enter the host name of the device.
5. Click **Add** to save the target devices that you specified, or click **Add More** to add additional device targets. When you have added all device targets that you want Junos Space to discover, click **Add**.

The Discover Targets window displays the addresses of the configured device targets.

6. Click **Discover** from the Discover Targets window.

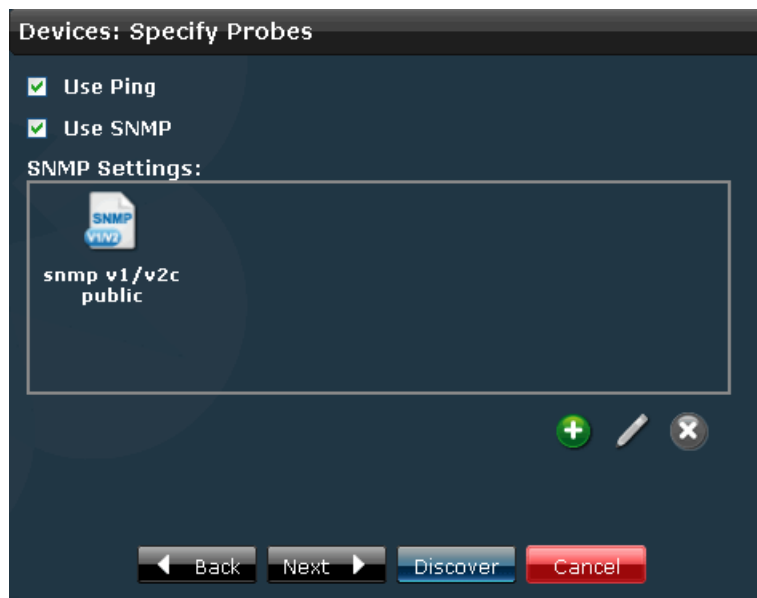
In the next task, you specify a probe method to connect to and discover the device targets.

### Specifying Probes

To configure the method Junos Space will use to discover the device targets:

1. From the task ribbon, select the **Devices** workspace, and then click the **Discover Devices** icon.
2. From the task ribbon, click the **Specify Probes** icon.

The Specify Probes window is displayed.



3. Select a probe method (or SSH) to discover target devices:
  - If SNMP is configured for the device, select **Use SNMP** , and clear the check box **Use Ping**.

Junos Space will use the SNMP GET command to discover target devices.
  - If SNMP is not configured for the device, select the check box **Use Ping** , and clear the check box **Use SNMP**.

Junos Space will use Juniper Network's Device Management Interface (DMI) to directly connect to and discover devices. DMI is an extension to the NETCONF network management protocol.
  - When both the **Use Ping** and **Use SNMP** check boxes are selected (the default), Junos Space can more quickly discover the target device, if the device is pingable and SNMP is enabled on the device.
4. Click the Add icon (+).

The Add SNMP Settings dialog box is displayed.

The dialog box titled "Add SNMP Settings" has a close button (X) in the top right corner. It contains two radio buttons: "SNMP V1/V2C" (selected) and "SNMP V3". Below the radio buttons is a text field labeled "Community:". At the bottom are three buttons: "Add", "Add More", and "Cancel".

5. For SNMPv1 or SNMPv2:
  - a. Select **SNMP V1/V2C** (the default).
  - b. In the community field, specify the community string, which can be "public", "private", or a predefined string.
  - c. Click **Add** to save the SNMP settings, or click **Add More** to specify another community string. When you have finished adding community strings, click **Add**.

The Specify Probes window displays the configured SNMP settings.

6. For SNMPv3:

- a. Select **SNMP V3**.

The SNMP V3 dialog box is displayed.

The dialog box titled "Add SNMP Settings" has a close button (X) in the top right corner. It contains two radio buttons: "SNMP V1/V2C" and "SNMP V3" (selected). Below the radio buttons are five fields: "Username:" (text field), "Privacy type:" (dropdown menu with "Please select ..." text), "Privacy password:" (text field), "Authentication type:" (dropdown menu with "Please select ..." text), and "Authentication password:" (text field). At the bottom are three buttons: "Add", "Add More", and "Cancel".

- b. Enter the username.
    - c. Select the privacy type (AES 128, DES, or none)
    - d. Enter the privacy password (if AES 128 or DES). If you specify 'none' for the privacy type, the privacy function is disabled.
    - e. Select the authentication type (MD5, SHA, or none).

- f. Enter the authentication password (if MD5 or SHA). If you specify 'none' for the authentication type, the authentication function is disabled.
- g. Click **Add** to save the SNMP V3 settings, or click **Add More** to specify additional SNMP settings. When you have finished adding SNMP settings, click **Add**.

The Specify Probes window displays the configured SNMP settings.

7. Click **Discover** in the Specify Probes window.

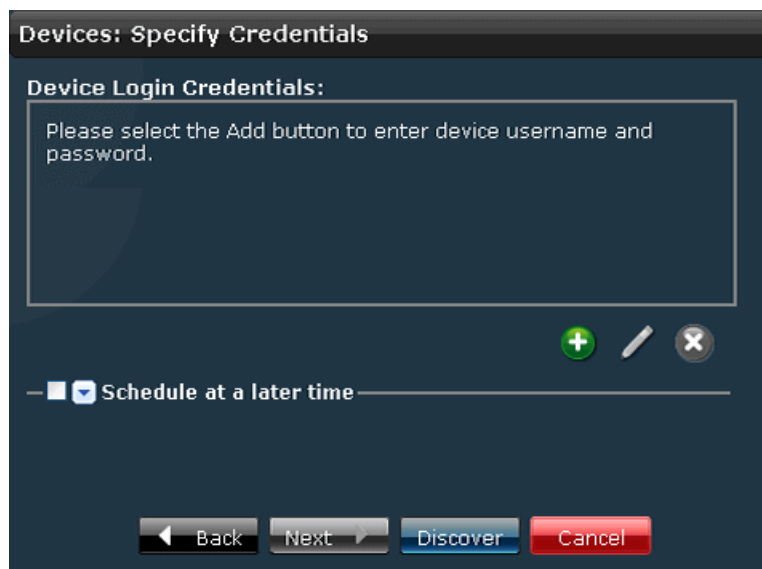
In the next task, you specify credentials to establish the SSH connection for the target devices.

### Specifying Credentials

Specify an administrator name and password to establish the SSH connection for each target device that you configured:

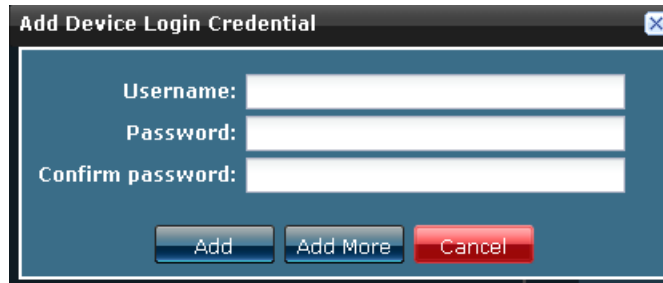
1. From the task ribbon, select the **Devices** workspace, and then click the **Discover Devices** icon.
2. From the task ribbon, select the **Specify Credentials** icon.

The Specify Credentials window is displayed.



3. Click the Add icon.

The Add Device Login Credential dialog box is displayed.

A screenshot of a web-based dialog box titled "Add Device Login Credential". The dialog has a blue header bar with a close button (X) in the top right corner. The main area is white and contains three input fields: "Username:", "Password:", and "Confirm password:". Below the input fields are three buttons: "Add" (blue), "Add More" (blue), and "Cancel" (red).

4. Specify the administrator user name and password, and confirm the password. The name and password must match the name and password configured on the device
5. To save the user name and password that you specified, click **Add** or click **Add More** to add another user name and password. When you have finished adding login credentials, click **Add**.

The Credential window displays the administrator user names that you configured.

6. Schedule the device discovery operation:
  - Clear the **Schedule at a later time** check box (the default) to initiate the discovery operation when you complete Step 7 in this procedure.
  - Select the **Schedule at a later time** check box to specify a later start date and time for the discovery operation.



**NOTE:** The selected time in the scheduler corresponds to Junos Space server time but is mapped to the local time zone of the client computer.

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7. In the Specify Credentials window, click **Discover** to discover and synchronize the device targets in Junos Space.
- 

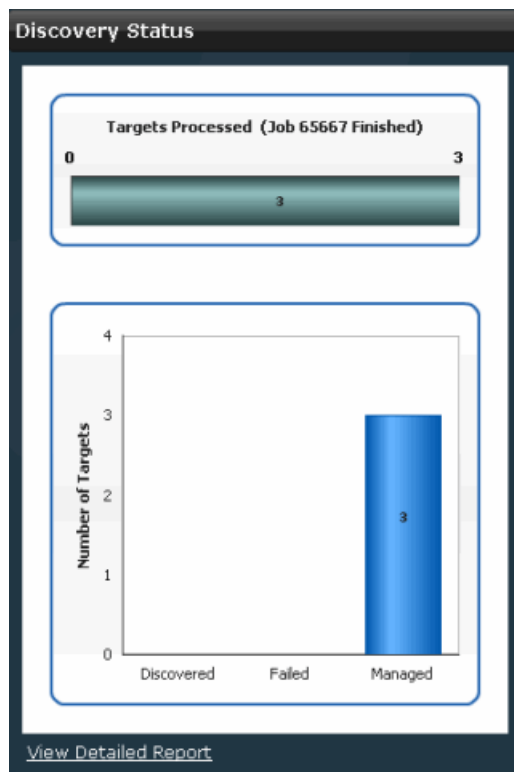


**NOTE:**

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The Discovery Status window, shown in the following illustration, displays the progress of discovery in real-time. Click on any bar in the chart to view information about devices currently managed, discovered, or for which discovery failed.





8. For information about device discovery results you can view the Detailed Reports and view job status from the **Jobs** workspace:

- To view device discovery details, click **View Detailed Report** in the Discovery Status window.

The Detailed Report displays the IP address, host name, and discovery status for discovered devices, as shown in the following example.

Devices			
IP Address	Hostname	Status	Description
10.155.69.22	Tokyo	Device Managed	
10.155.69.23	HongKong	Device Managed	
10.155.69.24	Denver	Device Managed	

Page 1 of 1 | Displaying 1 - 3 of 3



**NOTE:** If the discovery operation fails, the Description field in the Detailed Report table indicates the cause of failure.

- To view device discovery from the **Jobs** workspace:
  - From the task ribbon, select the **Jobs** workspace.
  - From the task ribbon, select the **Manage Jobs** icon.

- c. From the Job Manager inventory panel, enter “Discover Network Elements” in the search field to view only device discovery jobs. The following example shows a table view of Discover Network Elements jobs.



Percent	State	Job Type	ID	Summary	Scheduled Start Time
100.0	SUCCESS	Discover Network Elements	13107	Number of scanned IP: 1 Number of Discovery succeeded: 1 Number of Add Device failed: 0 Number of Already Managed: 0 Number of Skipped: 0 Number of Device Managed: 1	Mar 6, 2010 12:07:22 AM PST
100.0	SUCCESS	Discover Network Elements	65536	Number of scanned IP: 1 Number of Already Managed: 0 Number of Skipped: 0 Number of Discovery succeeded: 1 Number of Device Managed: 1 Number of Juniper Device but Add device failed: 0	Mar 5, 2010 6:03:56 PM PST

- Related Topics**
- Viewing Managed Devices on page 51
  - Viewing Scheduled Jobs on page 164
  - Resynchronizing Managed Devices on page 74
  - Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64
  - Viewing Hardware Inventory for Devices on page 59
  - Viewing Physical Interfaces for Devices on page 61

## Resynchronizing Managed Devices

You can resynchronize a managed device at any time. For example, when a managed device is updated by a device administrator from the device's native GUI or CLI, you can resynchronize the device configuration in the Junos Space database with the physical device.

To resynchronize a device:

1. From the task ribbon, select the **Devices** workspace icon.
2. From the task ribbon, select the **Manage Devices** icon.

The Manage Devices inventory panel displays the list of managed devices by name and IP address.

3. From the Manage Devices inventory panel, select one or more devices to resynchronize:

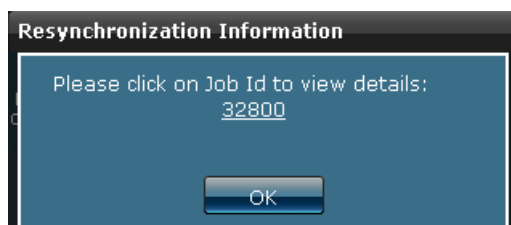
4. From the Actions drawer, click **Resynchronize with Network** to reimport the devices in Junos Space.

Junos Space displays the Resynchronize Devices window, as shown in the following example.



5. Click **Confirm**.

Junos Space starts resynchronizing the device and displays the Resynchronization Information window, as shown in the example.



6. Click on the Job ID to view details about the device resynchronization, or click **OK** to close the window.

When a resync job is scheduled to run but another resync job on the same device is in progress, Junos Space delays the scheduled resync job. The time delay is determined by the damper interval that you can set from the application workspace. By default the time delay is 20 seconds. The scheduled job is delayed as long as the other resync job to the same device is in progress. When the job that is currently running finishes, the scheduled resync job starts.

For information about setting the damper interval to change the time delay for resync, see "Modifying Application Settings" on page 12.

#### Related Topics

- Understanding How Junos Space Automatically Resynchronizes Managed Devices on page 64
- Device Inventory Management Overview on page 38

- [Viewing Managed Devices on page 51](#)
- [Viewing Hardware Inventory for Devices on page 59](#)
- [Viewing Physical Interfaces for Devices on page 61](#)

## CHAPTER 8

# Adding Deployed Devices

- Add Deployed Devices Overview on page 77
- Managing Deployed Devices on page 78

### Add Deployed Devices Overview

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- Add Deployed Devices Overview on page 77

### Add Deployed Devices Overview

Network devices deployed on the network can be easily managed by Junos Space using the Discover Devices task. However in case of security devices, SSH and Ping are disabled on the device interface for any incoming traffic. Hence security devices will not be able to communicate with Junos Space. In such instances, you can use the Add Deployed Devices Wizard to enable communication between security devices and Junos Space. This creates a Task Instance which you can use to obtain management CLIs related to these devices. These CLIs can be pasted on the device console, enabling the device to connect to Junos Space for further management.

You can create Task Instances either manually or by uploading a comma-separated values (CSV) file. You need to specify the following details to create a Task Instance:

- Device name
- Device platform
- OS version
- Device count
- Authentication details

You can store the management CLIs obtained from a Task instance and paste it on the device console or on a command line session on the device. To know more about pasting management CLIs on the device console, see the Uploading the Device Management Commands section in “Installing the ScreenOS Software Adapter for Managing Non-DMI Security Devices” on page 113.



**NOTE:** If you are using Internet Explorer to download the management CLIs, you need to customize the browser settings to be able to download them. Perform the following steps to customize the Internet Explorer settings:

1. Open Internet Explorer and navigate to **Tools > Internet Options**.
2. Click the **Security** tab and select the **Custom Level** tab.
3. In the **Automatic prompting for file downloads** section click the **Enable** radio button.

- Related Topics**
- Adding Deployed Devices on page 78
  - Managing Deployed Devices on page 81

## Managing Deployed Devices

- Adding Deployed Devices on page 78
- Managing Deployed Devices on page 81

## Adding Deployed Devices

To create a new Task Instance, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel displays icons for all the Task Instances.
2. From the task ribbon, select the **Add Device** icon. You can use this to add branch ScreenOS devices. The **Add Devices** window is displayed, as shown in Figure 1 on page 78.

**Figure 1: Add Devices Window**

3. In the **Name** field, enter a name for the new Task Instance.
4. In the **Description** field, enter a description for the new Task Instance.
5. You can add a new Task Instance either manually or by importing a CSV file.

To add a new Task Instance by importing a CSV file:

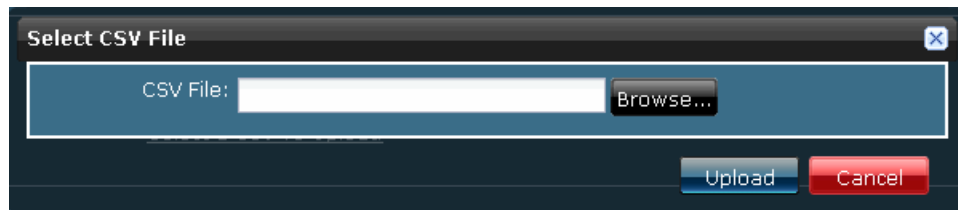
- a. Select the **Import to CSV** radio button.
- b. To view a sample of the CSV file that should be uploaded, select the **View Sample CSV** link in the **Import** section.
- c. Save the sample CSV file to your storage location.
- d. Make necessary changes in this CSV file and rename it with an appropriate name.



**NOTE:** Do not add or delete any columns in the CSV file. You will not be able upload the CSV file successfully if you add or delete any columns.

- e. Select the **Select a CSV To Upload** link in the Import section. The **Select CSV File** window is displayed, as shown in the Figure 2 on page 79.

**Figure 2: Selecting a CSV File to Upload**



- f. Click **Browse** and upload the CSV file from your storage location.
- g. If the CSV file is successfully uploaded, a Green mark appears next to the **Select a CSV To Upload** link. The **Upload** window is displayed.
- h. Click **OK**.

To add a new Task Instance manually:



- a. Select the **Add Manually** radio button.
- b. Enter the following details in the **Device Details** section:
  - From the **Platform** drop down menu, select an appropriate platform.
  - From the **OS Version** drop down menu, select an appropriate OS version.
  - In the **Number of devices** field, enter the number of devices with the same platform and OS version.



**NOTE:** If you add multiple devices, a unique numerical identifier is appended at the end of each device name.

- c. In the **Authentication Details** section:
  - In the **Username** field, choose an appropriate user name.
  - In the **Password** field, enter a password.
  - In the **Re-enter Password** field, re-enter the password.
6. Click **Next**. This table lists all management CLIs associated with the Task Instance. The icons used to view or download management CLIs are listed in Table 12 on page 80

**Table 12: Icons to View/Download Management CLIs**

Icon	Description
	Used to view the details of the management CLIs
	Used to download the management CLIs

7. You can view or download the management CLIs in this table.
 

To view the management CLIs:

  - a. Select the check boxes to the left of the rows you want to view.
  - b. Click the View icon. A new pop-up displays the details of the management CLIs you want to view.

To download the management CLIs:

  - a. Select the check boxes to the left of the rows corresponding to the management CLIs you want to download.
  - b. Click the Download icon.



**NOTE:** If you are using Internet Explorer to download management CLIs, you need to customize the browser settings to be able to download them. Perform the following steps to customize the Internet Explorer settings:

1. Open Internet Explorer and navigate to **Tools > Internet Options**.
2. Click the **Security** tab and select the **Custom Level** tab.
3. In the **Automatic prompting for file downloads** section click the **Enable** radio button.

To sort the rows displayed in the table by a specific field:



- a. Select the down arrow to the right of the column header and select either **Sort Ascending** or **Sort Descending** from the menu.

The table re-appears with the rows sorted by the selected column. The changes in the sort order persist on return to the same screen.

To hide columns displayed in the table:

- a. Select the down arrow to the right of the column header and select **Columns**.
  - b. In the submenu that appears, clear the check boxes for the columns you want to hide. The deselected columns are hidden.
8. Click **Finish**. The new Task Instance you have added is displayed in the **Add Deployed Devices** inventory panel. A new job is created and the job ID is displayed in the **Job Information** dialog box.
  9. Click the job ID to view more information about the job created. This action will direct you to the **Job Management** work space.

- Related Topics**
- Add Deployed Devices Overview on page 77
  - Managing Deployed Devices on page 81

## Managing Deployed Devices

You can view or download the management CLIs associated with the Task Instances listed in the **Add Deployed Devices** inventory panel. You can also view the device instance status or delete the Task Instances listed in the **Add Deployed Devices** inventory panel. To open the **Add Deployed Devices** inventory panel:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel is displayed. All Task Instances created is listed by default, in the graphical view.

The tasks that can be performed on the Task Instances and management CLIs include:

1. Viewing the Details of a Task Instance on page 81
2. Viewing the Device Status on page 82
3. Deleting a Task Instance on page 82
4. Downloading Management CLIs on page 82

### Viewing the Details of a Task Instance

To view the details of a Task Instance, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel is displayed.
2. Double-click the icon for the Task Instance whose details you intend to view. The details of the Task Instance are displayed in the **Add Instance Details** window.
3. Click **Close** to close the **Add Instance Details** window.

### Viewing the Device Status

To view the device status, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel is displayed.
2. Select the Task Instance you intend to view the device status for and click the **View Device Status** link from the **Actions** panel in the left hand top corner of the inventory panel. A new window displays the connection status and managed status of the devices.
3. Click **Back** on the left corner to return to the inventory panel.



NOTE: You can view the device status for a Task Instance using a right-click. To do so, right-click on the Task Instance and select the **View Device Status** link from the contextual menu.

### Deleting a Task Instance

To delete a Task Instance you have created, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel is displayed.
2. Select the Task Instance you intend to delete and click the **Delete** link from the **Actions** panel in the left corner of the inventory panel. The **Delete Instance** confirmation window is displayed.
3. Select the Task Instance you want to delete and click **Delete**.



NOTE: You can delete a Task Instance using a right-click. To do so, right-click on the Task Instance and select the **Delete** link from the contextual menu.

### Downloading Management CLIs

To download management CLIs from the Task Instance you have created, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Add Deployed Devices**. The **Add Deployed Devices** inventory panel is displayed.
2. Select the Task Instance containing the management CLI you intend to download and click the **Download Management CLIs** link from the **Actions** panel in the left corner of the inventory panel. The **Download Management CLIs** window is displayed.
3. Select the **Download Management CLIs** link from the **Download Management CLIs** window.
4. Save the .zip file in your storage location.

**Related Topics** • Add Deployed Devices Overview on page 77

- Adding Deployed Devices on page 78



## CHAPTER 9

# Rapid Deployment

- Rapid Deployment Overview on page 85
- Managing Devices on page 88
- Managing Connection Profiles on page 98

### Rapid Deployment Overview

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- Add Devices Overview on page 85
- Connection Profiles Overview on page 87

### Add Devices Overview

You can use the Add Device Wizard to create deployment instances that are used to deploy SRX devices. Deployment instances can be created either manually or by uploading a comma-separated values (CSV) file. A deployment instance contains the configlets used to deploy branch SRX series devices which are currently using the factory default settings.

A configlet is a small subset of a configuration used by a device to obtain an IP address and connect back to management station for further management. Configlet contains information about the device series, device platform, OS version, and the connection details used to bootstrap the device. It can be used to deploy devices from an external storage device such as a USB stick.

You need to specify the following details to create a configlet:

- Device name
- Device series
- Device platform
- OS version
- Device count
- Connectivity type
- Interface
- Connection profile
- Encryption password

You can store this configlet in an external USB stick and plug it into the SRX device to boot it. The device count and encryption option determine the subsequent steps in booting the SRX device using the configlet.

The following parameters determine the steps in booting the SRX device using the configlet:

1. Plain text configlet: If you save the configlet as a plain text file, the device will not prompt you to enter a password during the bootup process.
2. Encrypted configlet using AES encryption with a custom key: If you encrypt the configlet with a custom key, the device will prompt you to enter a password. You are required to enter the 16 character password specified during the creation of the configlet. You can also save a text file named `key.txt` in the USB stick which you are using to boot the device. This file contains the password; the device will automatically use the password specified in this file.



**NOTE:** You can also refer the respective device User Guide for more information.

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3. Device count value is 1: If you create an individual configlet for each device with a Device Count column value of 1, the configlet contains the host name. The device will not prompt you to enter the host name during boot-up.
4. Device count value greater than 1: You can boot devices with similar network connection parameters (for example, obtaining IP address via DHCP) using an individual configlet. This is done by specifying the number of devices that can be booted with the same configlet in the Device Count column. If you create such a configlet, the devices prompts for a host name during boot-up. You are required to enter a unique host name for each of the devices that are used to bootup using this configlet. You can also save a text file named `hostname.txt` in the USB stick which you are using to boot the device. This file contains the hostnames for all devices that are booted using the configlet.



**NOTE:** You can also refer the respective device User Guide for more information.

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**NOTE:** By default, the configlet that you download is named `Configlets.zip`. This zip file is unzipped to obtain the configlet files. You should not rename the configlet files. Renaming the configlet files may not complete the device bootstrap process.

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NOTE: If you are using Internet Explorer to download the configlets, you need to customize the browser settings to be able to download them. Perform the following steps to customize the Internet Explorer settings:

1. Open Internet Explorer and navigate to Tools > Internet Options.
2. Click the Security tab and select the Custom Level tab.
3. In the Automatic prompting for file downloads section click the Enable radio button.

#### Related Topics

- Adding Devices on page 89
- Managing Devices on page 94

## Connection Profiles Overview

You can use the Connection Profile Wizard to create connection profiles that are used as part of rapid deployment to generate startup configlets. A connection profile is a network connection template that can be shared across multiple configlets.

You can configure the following parameters for a connection profile:

- SSH credentials - SSH username, SSH password
- NAT parameters - NAT IP and/or port number, if your Junos Space server is behind a NAT
- DHCP parameters
- PPPoA parameters
- PPPoE parameters

If you choose to configure a DHCP-based connection profile, you need to provide the following details:

- Retransmission parameters
- Lease time
- DHCP Server Address

If you choose to configure a PPPoA-based connection profile, you need to provide the following details:

- Authentication protocol used – either CHAP or PAP
- PPPoA username and password
- Access profile username and password (optional)
- Virtual Path Identifier (VPI) and Virtual Connection Identifier (VCI) values
- Encapsulation type – either LLC or VP-MUX based

If you choose to configure a PPPoE-based connection profile, you need to provide the following details:

- Authentication protocol used – either CHAP or PAP
- PPPoE username and password
- Access profile username and password (optional)
- Concentrator name (optional)
- Service name (optional)
- Time interval for auto-connect (optional)
- Time interval before an idle connection disconnects (optional)

When a connection profile is created, Junos Space creates an object in the Junos Space database to represent the connection profile. You can use this object to create configlets during rapid deployment of devices.



**NOTE:** VCI and VPI values used for the connection profile may differ based on the service provider. Ensure that you enter appropriate VCI and VPI values provided by your service provider.

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#### **Related Topics**

- [Creating Connection Profiles on page 98](#)
- [Managing Connection Profiles on page 102](#)

## **Managing Devices**

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- [Adding Devices on page 89](#)
- [Managing Devices on page 94](#)

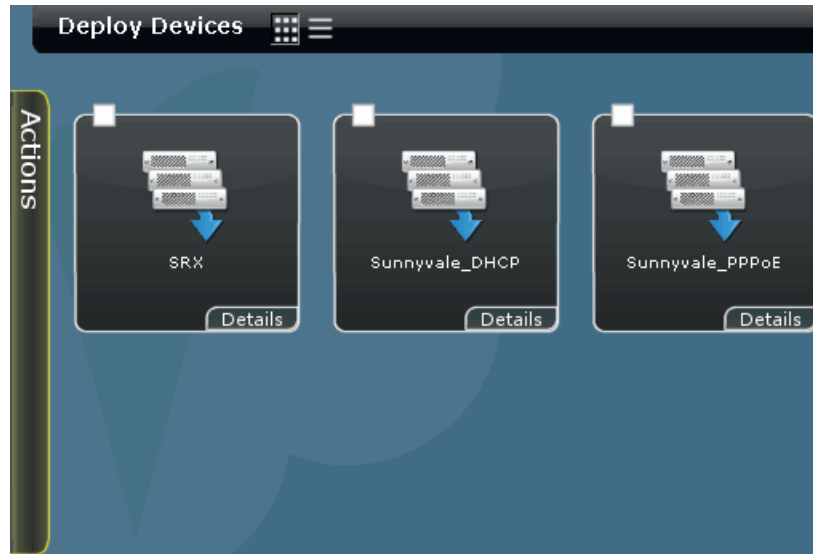


## Adding Devices

To create a new deployment instance, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel displays icons for all the deployment instances, as shown in Figure 3 on page 89.

Figure 3: Deploy Devices Inventory Panel



2. From the task ribbon, select the **Add Devices** icon. The **Rapid Deployment** window is displayed, as shown in Figure 4 on page 89.

Figure 4: Device Details Window

3. In the **Name** field, enter a name for the new deployment instance.

4. In the **Description** field, enter a description for the new deployment instance.
5. You can add a new deployment instance either manually or by importing a CSV file.

To add a new deployment instance by importing a CSV file:

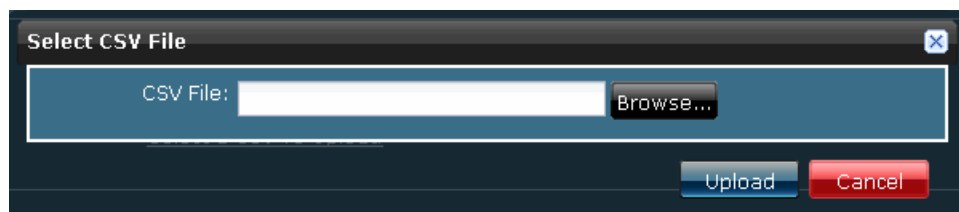
- a. Select the **Import to CSV** radio button.
- b. To view a sample of the CSV file that should be uploaded, select the **View Sample CSV** link in the **Import** section.
- c. Save the sample CSV file to your storage location.
- d. Make necessary changes in this CSV file and rename it with an appropriate name.



**NOTE:** Do not add or delete any columns in the CSV file. You will not be able upload the CSV file successfully if you add or delete any columns.

- e. Select the **Select a CSV To Upload** link in the Import section. The **Select CSV File** window is displayed, as shown in the Figure 5 on page 90.

**Figure 5: Selecting a CSV File to Upload**



- f. Click **Browse** and upload the CSV file from your storage location.
- g. If the CSV file is successfully uploaded, a Green mark appears next to the **Select a CSV To Upload** link. The **Upload** window is displayed.
- h. Click **OK**.

To add a new deployment instance manually:

- a. Select the **Add Manually** radio button.
- b. Enter the following details in the **Device Details** section:
  - From the **Platform** drop down menu, select an appropriate platform, as shown in Figure 6 on page 90.

**Figure 6: Specifying Device Details**



- From the **OS Version** drop-down menu, select an appropriate OS version.
  - In the **Number of devices** field, enter the number of devices with the same connection details. These devices will use a common connection profile.
- c. In the **Connectivity Details** section:
- In the **Connection** field, choose an appropriate radio button to specify the connection type, as shown in Figure 7 on page 91.

Figure 7: Specifying Connectivity Details

**Connectivity Details**

Interface Type: ☒ Ethernet ☐ ADSL

Interface:

IP Assignment via:

Connection Profile:

- The **Interface** field displays the default interface in the untrust zone, depending on the connection type chosen. Make appropriate changes to this field if you intend to do so.
  - From the **IP Assignment via** field, select an appropriate IP assignment type.
  - From the **Connection Profile** field, select an appropriate connection profile.
  - To create a new connection profile, click **Create**. For more information on creating a connection profile, click “Creating Connection Profiles” on page 98.
6. Click **Next**. The **Rapid Deployment** window is displayed in a table format. This window displays the deployment instance which you have added manually or uploaded using a CSV file. Each record in this table can be used to generate a configlet. Some fields which you need to add manually in this table are listed in Table 13 on page 91.






Table 13: Fields Manually Entered in the Rapid Deployment Window

Field	Description
Device Count	This field specifies the number of devices that can be deployed using this configlet
Interface IP	This field specifies the IP address of the interface
Gateway	This field specifies the IP address of the gateway

7. You can clone, delete, sort the rows and hide the columns in the **Rapid Deployment** window. You can also view and download the configlet in this window.

The icons that are used to perform these tasks are listed in Table 14 on page 92.

**Table 14: Icons in the Rapid Deployment Window**

Icon	Description
	Used to view the details of a configlet
	Used to download configlets
	Used to create a connection profile
	Used to delete a row from the deployment instance table
	Used to clone a row from the deployment instance table

To clone the rows:

- Select the check boxes to the left of the rows you want to clone.
- Specify the number of clones in the **Clone Times** field and click the Clone icon.
- Click the **Clone** tab. The new rows will appear at the end of the table.

To delete the rows:

- Select the check box to the left of the row you want to delete. You can also select multiple rows to delete them at one go.
- Click the Delete icon.

To view a configlet:

- Select the check box to the left of the row corresponding to the configlet you want to view.
- Click the View Configlet icon.

To download the configlets:

- Select the check boxes to the left of the rows corresponding to the configlets you want to download.
- Click the Download Configlet icon.



NOTE: If you are using Internet Explorer to download the configlets, you need to customize the browser settings to be able to download them. Perform the following steps to customize the Internet Explorer settings:

1. Open Internet Explorer and navigate to **Tools > Internet Options**.
2. Click the **Security** tab and select the **Custom Level** tab.
3. In the **Automatic prompting for file downloads** section click the **Enable** radio button.

To sort the rows displayed in the table by a specific field:

- a. Select the down arrow to the right of the column header and select either **Sort Ascending** or **Sort Descending** from the menu.

The table re-appears with the rows sorted by the selected column. The changes in the sort order persist on return to the same screen.

To hide columns displayed in the table:

- a. Select the down arrow to the right of the column header and select **Columns**.
- b. In the submenu that appears, clear the check boxes for the columns you want to hide. The de-selected columns are hidden.

8. You can encrypt, save, or FTP the configlet.
  - To encrypt the configlet, select the type of encryption you want to use in the **Encryption** section.
    - a. Select the **AES** radio button if you want to use AES encryption, as shown in Figure 8 on page 93.

Figure 8: Specifying Configlet Options

- b. Enter a password with 16 characters in the corresponding field.



NOTE: You will need to provide this password when you deploy devices using this configlet.

- c. Select the **Plain Text** radio button to save the configlet in a plain text format.
  - To save the configlet to a disk drive:

- a. Click the **Click Here** link next to the **Save to Disk** field in the **Save** section.
- To save the configlet to an FTP location:
  - a. Select the radio button corresponding to the file transfer method you want to use.
  - b. Enter the user ID, password, server address and folder details in the appropriate fields.
9. Click **Finish**. The new deployment instance you have added is displayed in the **Device Details** inventory panel. A new job is created and the job ID is displayed in the **Job Information** dialog box.
10. Click the job ID to view more information about the job created. This action will direct you to the **Job Management** work space.



**NOTE:** In case of large number of devices, it is recommended to wait for the Job to complete before downloading the configlets.

#### Related Topics

- Add Devices Overview on page 85
- Managing Devices on page 94

## Managing Devices

You can view, delete and search for specific deployment instances listed in the **Deploy Devices** inventory panel. You can also download configlets from a specific deployment instance. To open the **Deploy Devices** inventory panel:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed. All deployment instances created are listed by default, in the graphical view.

The tasks that can be performed on the deployment instances and configlets include:

1. Viewing the Details of a Deployment Instance on page 94
2. Viewing the Device Status on page 95
3. Deleting a Deployment Instance on page 95
4. Downloading Configlets on page 96
5. Searching for a Deployment Instance on page 97

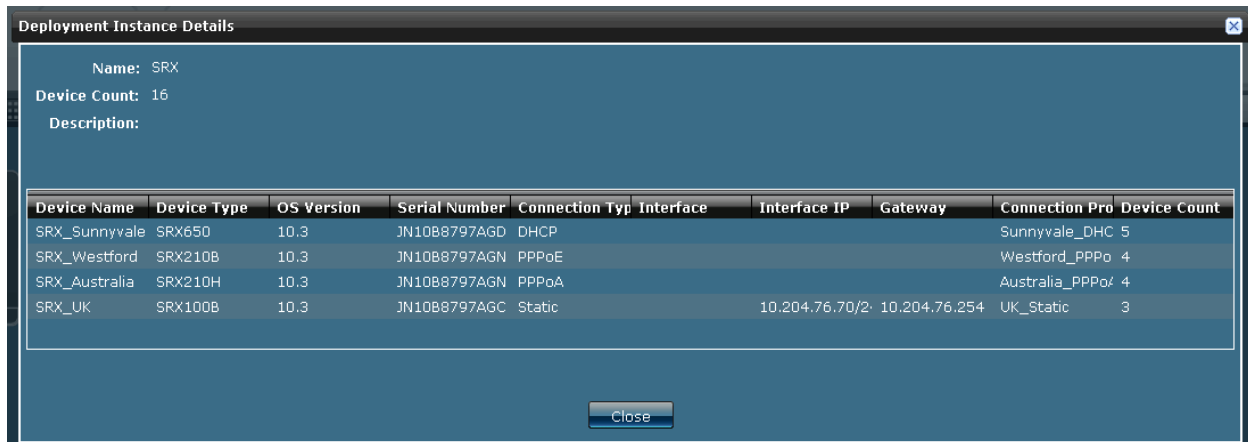
### Viewing the Details of a Deployment Instance

To view the details of a deployment instance, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed.

2. Select the icon for the deployment instance whose details you intend to view and double-click. The details of the deployment instance is displayed in the **Deployment Instance Details** window as shown in the Figure 9 on page 95.

Figure 9: Deployment Instance Details Window



3. Click **Close** to close the **Deployment Instance Details** window.

### Viewing the Device Status

To view the device status, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed.
2. Select the deployment instance you intend to view the device status for and click the **View Device Status** link from the **Actions** panel in the left corner of the inventory panel. A new window displays the connection status of the devices.
3. Click **Back** on the left corner of this window to return to the inventory panel.



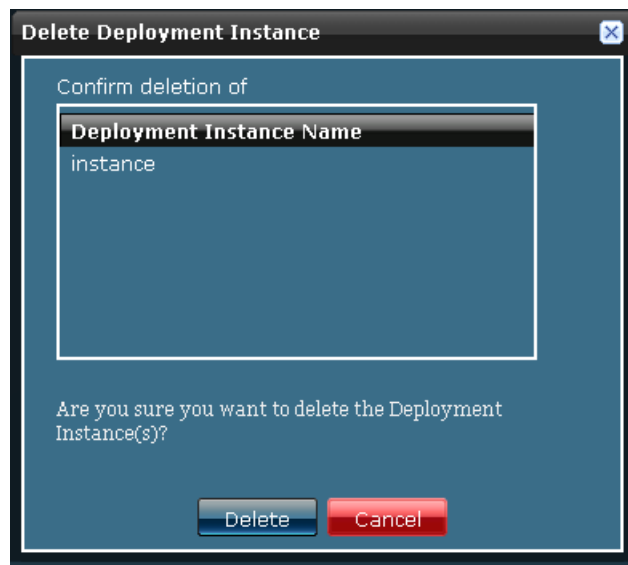
**NOTE:** You can view the device status for a deployment instance using a right-click. To do so, right-click on the deployment instance and select the **View Device Status** link from the contextual menu.

### Deleting a Deployment Instance

To delete a deployment instance you have created, perform the following steps:

1. From the **Network Application** task ribbon, select the **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed.
2. Select the deployment instance you intend to delete and click the **Delete** link from the **Actions** panel in the left corner of the inventory panel. The **Delete Deployment Instance** confirmation window is displayed, as shown in the Figure 10 on page 96.

Figure 10: Delete Deployment Instance Window



3. Select the deployment instance you want to delete and click **Delete**.



NOTE: You can delete a deployment instance using a right-click. To do so, right-click on the deployment instance and select the **Delete** link from the contextual menu.

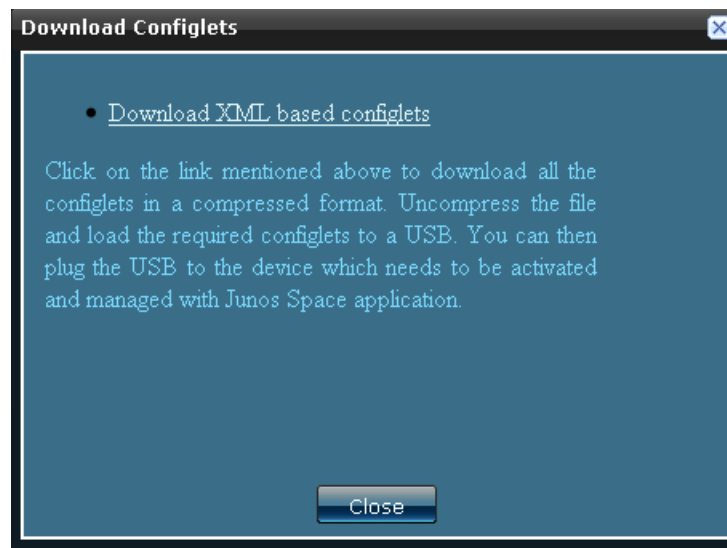
### Downloading Configlets

To download the configlet you have created, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed.
2. Select the deployment instance containing the configlet you intend to download and click the **Download Configlets** link from the **Actions** panel in the left corner of the inventory panel. The **Download Configlets** window is displayed.
3. Select the **Download XML based Configlets** link in the **Download Configlets** window, as shown in Figure 11 on page 97.



Figure 11: Download Configlets Window



4. Save the .zip file in your storage location.



NOTE: You can also download the configlets when you are creating a deployment instance. However, for large number of devices it is recommended to download the configlets from the inventory panel. For more information, see “Adding Devices” on page 89.



NOTE: You can download all configlets that are a part of a deployment instance using a right-click. To do so, right-click on the deployment instance and select the **Download Configlets** link from the contextual menu.



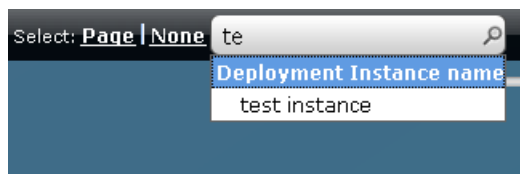
NOTE: You will not be able to download the configlets associated with a deployment instance if a job related to that deployment instance is in progress. The **Download Configlets** action be disabled till the job is completed.

### Searching for a Deployment Instance

To search for a deployment instance you have created, perform the following steps:

1. From the **Network Application** task ribbon, select **Devices > Deploy Devices**. The **Deploy Devices** inventory panel is displayed.
2. Enter the name of deployment instance you want to search, in the **Search** field as shown in the Figure 12 on page 98.

Figure 12: Searching for a Configlet



3. Click the magnifying glass icon next to **Search** field. The **Deploy Devices** inventory panel is populated with the deployment instances matching your search criterion.

- Related Topics**
- Add Devices Overview on page 85
  - Adding Devices on page 89

## Managing Connection Profiles

- Creating Connection Profiles on page 98
- Managing Connection Profiles on page 102

### Creating Connection Profiles

To create a new connection profile, perform the following steps:

1. From the **Network Application Platform** task ribbon, select **Devices** > **Deploy Devices** > **Connection Profiles**. The **Connection Profiles** inventory panel is displayed with icons for all the connection profiles, as shown in Figure 13 on page 98.

Figure 13: Connection Profiles Inventory Panel



2. From the task ribbon, select the **Create** icon. The **Create Connection Profile** window is displayed as shown in Figure 14 on page 99.

Figure 14: Creating a Connection Profile

Name:

Description:

**SSH Credentials**

SSH Username:

SSH Password:

Re-enter Password:

**NAT**

**IP Assignment Type:**

☒ DHCP ☐ PPPoA ☐ PPPoE ☐ Static

3. In the **Name** field, enter a name for the new connection profile.
4. In the **Description** field, enter a description for the new connection profile.
5. Enter the following details in the **SSH Credentials** section:
  - a. In the **SSH Username** field, enter a username.
  - b. In the **SSH Password** field, enter a password.
  - c. In the **Re—enter Password** field, enter the password you specified in the **SSH Password** field.
6. Enter the following details in the **NAT** section:
  - a. In the **IP** field, enter an IP address used by the NAT configuration.
  - b. In the **Port** field, enter a port number used by the NAT configuration.
7. From the **IP Assignment Type** panel, specify the type of IP assignment. You can specify the following IP assignment types in the **IP Assignment Type** panel:
  - a. DHCP: To choose DHCP as the IP assignment type:
    1. Select the **DHCP** radio button. The **IP Assignment Type** panel refreshes to display the DHCP connection parameters.
    2. In the **Attempts** field in the **Retransmission Parameters** section, enter the number of attempts that a DHCP client will make to get a DHCP address.
    3. In the **Interval (in sec)** field in the **Retransmission Parameters** section, enter the duration between successive retransmission attempts.
    4. In the **Server Address** field enter the IP address of the DHCP server.

5. Select the **Update Server** check box to ensure that the DHCP server is updated.
6. In the **Lease Time** section, specify how the DHCP server assigns and manages the leases. Leases can be assigned and managed in three ways:
  - a. Check the **Default** radio button if you want to specify a default lease time.
  - b. Check the **Lease Never Expires** radio button to assign a permanent lease to DHCP clients.
  - c. Check the **Lease Time** radio button to specify a custom lease time. In the **Lease Time (in sec)** field, enter the lease time before which the DHCP server must renew the lease for the client or the client must obtain a new lease.
- b. PPPoA: To choose PPPoA as the IP assignment type:
  1. Select the **PPPoA** radio button. The **IP Assignment Type** panel refreshes to display the PPPoA connection parameters, as shown in Figure 15 on page 100.

Figure 15: PPPoA Connection Settings

**IP Assignment Type:**

☐ DHCP
 ☒ PPPoA
 ☐ PPPoE
 ☐ Static

Authentication Protocol: CHAP

User name:

Password:

Re-enter Password:

☒ Access Profile (To Authenticate B-RAS)

VPI:

VCI:

Encapsulation Type: atm-ppp-vc-mux

2. From the **Authentication Protocol** drop-down menu, select an authentication protocol.
3. In the **Username** field, enter a user name.
4. In the **Password** field, enter a password.
5. In the **Re—enter Password** field, enter the password you specified in the **Password** field.
6. In the **Username** field in the **Access Profile** section, enter a user name.
7. In the **Password** field in the **Access Profile** section, enter a password.

8. In the **Re—enter Password** field in the **Access Profile** section, enter the password you specified in the **Password** field.
  9. In the **VPI** field, enter a value for the virtual path used for this connection.
  10. In the **VCI** field, enter a value for the virtual circuit used for this connection.
  11. From the **Encapsulation Type** drop down menu, select the type of encapsulation you intend to use for this connection.
- c. PPPoE: To choose PPPoE as the IP assignment type:
1. Select the **PPPoE** radio button. The **IP Assignment Type** panel refreshes to display the PPPoE connection parameters, as shown in Figure 16 on page 101.

Figure 16: PPPoE Connection Settings



**IP Assignment Type:**

☐ DHCP
 ☐ PPPoA
 ☒ PPPoE
 ☐ Static

Authentication Protocol: CHAP

User name:

Password:

Re-enter Password:

**Access Profile (To Authenticate B-RAS)**

Concentrator Name:

Service Name:

Auto connect time interval: (in sec)

Idle period before disconnect: (in sec)

2. From the **Authentication Protocol** drop-down menu, select an authentication protocol.
3. In the **Username** field, enter a user name.
4. In the **Password** field, enter a password.
5. In the **Re—enter Password** field, enter the password you specified in the **Password** field.
6. In the **Username** field in the **Access Profile** section, enter a user name.
7. In the **Password** field in the **Access Profile** section, enter a password.
8. In the **Re—enter Password** field in the **Access Profile** section, enter the password you specified in the **Password** field.
9. In the **Concentrator Name** field, enter the name of the concentrator for this connection.

10. In the **Service Name** field, enter a name for the service this connection uses.
  11. In the **Auto connect time interval (in sec)** field, enter a value in seconds.
  12. In the **Idle period before disconnect (in sec)** field, enter a value in seconds.
- d. Static: To choose Static as a IP assignment type:
1. Select the **Static** radio button. This option is used to share the SSH credentials and NAT settings.
8. Click **Create** to create a new connection profile.

- Related Topics**
- Connection Profiles Overview on page 87
  - Managing Connection Profiles on page 102

## Managing Connection Profiles

You can view, modify, delete, or copy the connection profiles listed in the **Connection Profiles** inventory panel. To open the **Connection Profiles** inventory panel:

- From the **Network Application Platform** task ribbon, select **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed. All connection profiles created are listed by default, in the graphical view.

The tasks that can be performed in the **Connection Profiles** space to manage the connection profiles include:

1. Viewing the details of a Connection Profile on page 102
2. Modifying a Connection Profile on page 103
3. Deleting a Connection Profile on page 104
4. Copying a Connection Profile on page 105
5. Searching for a Connection Profile on page 105

### Viewing the details of a Connection Profile

To view the details of a connection profile, perform the following steps:

1. From the **Network Application Platform** task ribbon, select the **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed.
2. Select the icon for the connection profile whose details you intend to view and double-click. The details of the connection profile are displayed in the **Connection Profile Detail Summary** window, as shown, in the Figure 17 on page 103. The **Connection Profile Detail Summary** window lists the SSH credentials and connection settings used for this connection profile.

Figure 17: Viewing the details of a Connection Profile

**Connection Profile Detail Summary**

**Name:** Australia\_PPPOA

**Description:** Includes parameters for activating devices in Australia via PPPoA

**SSH Credentials**

**SSH Username:** root

**SSH Password:** ••••••

**Connection Settings**

**Connection Type:** PPPoA

**Authentication Protocol:** CHAP

**User Name:** hkp@verizon.au.com

**Password:** ••••••••••••••••

**Access Profile User Name:** root

**Access Profile Password:** ••••••

**VPI:** 8

**VCI:** 35

**Encapsulation Type:** atm-ppp-vc-mux

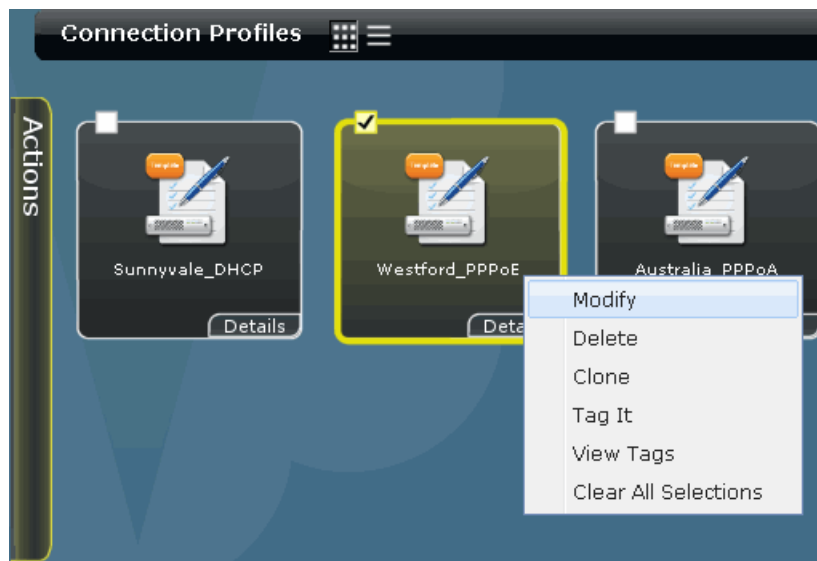
3. Click **Close**.

### Modifying a Connection Profile

To modify a connection profile you have created, perform the following steps:

1. From the **Network Application Platform** task ribbon, select the **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed.
2. Right click the connection profile you wish to modify and click the **Modify** link from the contextual menu, as shown in Figure 18 on page 104.

Figure 18: Modifying a Connection Profile



3. Enter a new name in the **Name** field.
4. Enter a new description in the **Description** field.
5. Make necessary changes to the fields in the **SSH Credentials** section.
6. Make necessary changes in the **IP Assignment Type** panel.
7. Click **Modify** to save the changes.



**NOTE:** You can also choose to modify a connection profile using the **Actions Panel**. To do so:

1. Select the check box on the left corner of the connection profile you want to modify.
2. Click the **Actions Panel** on the left corner of the inventory panel and select **Modify**.
3. Make necessary changes and click **Modify** to save the changes.

### Deleting a Connection Profile

To delete a connection profile you have created, perform the following steps:

1. From the **Network Application Platform** task ribbon, select **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed.
2. Right click the connection profile you wish to delete and click the **Delete** link from the contextual menu. The **Delete Connection Profile** confirmation window is displayed.
3. Click **Delete**.





NOTE: You can also choose to delete a connection profile using the **Actions Panel**. To do so:

1. Select the check box on the left corner of the connection profile you want to delete.
2. Click the **Actions Panel** on the left corner of the inventory panel and select **Delete**.
3. Click **Delete**

---

### Copying a Connection Profile

To copy a connection profile you have created, perform the following steps:

1. From the **Network Application Platform** task ribbon, select **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed.
2. Right click a connection profile you want to copy and click the **Clone** link from the contextual menu. This window displays the parameters of the connection profile you have copied, with the **Name** field left blank.
3. In the **Name** field, enter a name for the new connection profile.
4. Edit the other fields of the connection profile if you intend to do so.
5. Click **Create** to create a connection profile. The connection profile you have created is displayed in the **Connection Profiles** inventory panel.



NOTE: You can also choose to copy a connection profile using the **Actions Panel**. To do so:

1. Select the check box on the left corner of the connection profile you want to copy.
2. Click the **Actions Panel** on the left corner of the inventory panel and select **Clone**.
3. In the **Name** field, enter a name for the new connection profile.
4. Edit the other fields of the connection profile if you intend to do so.
5. Click **Create** to create a connection profile.

---

### Searching for a Connection Profile

To search for a connection profile you have created, perform the following steps:

1. From the **Network Application Platform** task ribbon, select **Devices > Deploy Devices > Connection Profiles**. The **Connection Profiles** inventory panel is displayed.
2. Enter the name of connection profile you want to search, in the **Search** field, as shown in the Figure 19 on page 106.

Figure 19: Searching for a Connection Profile



3. Click the magnifying glass icon next to **Search** field. The **Connection Profiles** inventory panel is populated with the connection profiles matching your search criterion.

- Related Topics**
- Connection Profiles Overview on page 87
  - Creating Connection Profiles on page 98

## CHAPTER 10

# Secure Console

- [Connecting to a Device on page 107](#)

### Connecting to a Device

---

- [Secure Console Overview on page 107](#)
- [Connecting to a Device From Secure Console on page 107](#)

### Secure Console Overview

From the Junos Space user interface, you can use the Secure Console feature to open an SSH session to connect to a Junos space managed device or unmanaged device. The Secure Console is a terminal window embedded in Junos Space that eliminates the need for a third party SSH client.

Secure Console initiates the SSH session from the Junos Space server (rather than from your browser) to provide a secure and reliable connection for both managed and unmanaged devices.

You can use Secure Console to connect to any managed device in Junos Space by using the credentials previously stored for the device. To connect to devices that are not managed by Junos Space, you must provide device credentials before connecting to the device.

You can establish multiple SSH connections to connect to different devices simultaneously, with each SSH connection in a different window.

You must have Super Administrator or Device Manager privileges to open an SSH session to a device in Junos Space.

- Related Topics**
- [Connecting to a Device From Secure Console on page 107](#)

### Connecting to a Device From Secure Console

You can use Secure Console to establish a connection to a device directly from the Junos Space user interface. Secure Console uses the SSH protocol to provide a secure remote access connection to a device. After you connect to a device, you can enter CLI commands from the terminal window to monitor or troubleshoot the device. You can use Secure

Console to establish a connection to a managed device or unmanaged device. An unmanaged device is a device that has not been discovered in Junos Space.

This topic includes the following tasks:

- Connecting to a Managed Device on page 108
- Connecting to an Unmanaged Device on page 109

### Connecting to a Managed Device

To open an SSH session to connect to a managed device, the following conditions must be met:

- You must have Super Administrator or Device Manager privileges in Junos Space.
- The status of the managed device must be “UP”

You can use Secure Console to establish a connection to a Junos Space managed device. Secure Console uses the SSH protocol to provide a secure remote access connection to your managed devices.

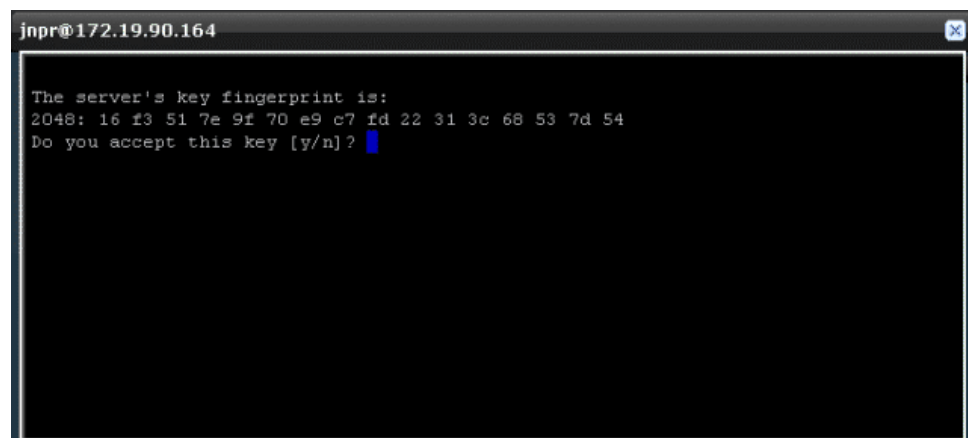
To connect to the managed device:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Manage Devices** icon.

The Manage Devices inventory panel displays managed devices by name and IP address.

3. Select a device by clicking on the thumbnail image for the device or selecting the table row for the device.
4. In the Actions drawer, click **Secure Console**.

A window is displayed that prompts you to validate the device key fingerprint, as shown in the following illustration.



5. Verify that the fingerprint is for the device you want to connect to, and type **y** and press Enter to validate the Server's key fingerprint.

A terminal window opens in a non-modal popup with the SSH connection opened on the selected device, as shown in the following example.

```

jnpr@172.19.90.164
The server's key fingerprint is:
2048: 16 f3 51 7e 9f 70 e9 c7 fd 22 31 3c 68 53 7d 54
Do you accept this key [y/n]? y

--- JUNOS 9.6R2.11 built 2009-10-06 20:
56:00 UTC
(master)
jnpr@Artemis-MX480-PE0>

```



**NOTE:** You might encounter the error messages “Unable to Connect”, “Authentication Error”, or “Connection Lost or Terminated”, which are displayed as standard text in terminal window. When an error occurs, all other functionality in the terminal window is stopped. When you encounter such an error, you can close the terminal window and open a new SSH session.

6. From the terminal window prompt, you can enter CLI commands to monitor or troubleshoot the device.

Secure Console supports the following terminal control characters:

- **CRTL + A**—moves cursor to start of the command line
  - **CRTL + E**—moves cursor to end of the command line
  - (up arrow key)—repeats the last command
  - **TAB**—completes a partially typed command
7. To terminate the SSH session, type **exit** from the terminal window prompt and press Enter.
  8. Click in the top right corner of the terminal window to close the window.

### Connecting to an Unmanaged Device

You can use Secure Console to establish a connection to an unmanaged device.

To open an SSH session to connect to an unmanaged device, the following conditions must be met:

- You must have Super Administrator or Device Manager privileges in Junos Space.
- The device is configured with a static management IP address that is reachable from the Junos Space appliance.
- SSH v2 is enabled on the device. To enable SSH v2 on a device, issue the following CLI command:

```
set system services ssh protocol-version v2
```

- The status of the device must be “UP”
- A valid user name and password is created on the device.

To connect to an unmanaged device:

1. From the task ribbon, select the **Devices** workspace.
2. From the task ribbon, select the **Secure Console** icon.

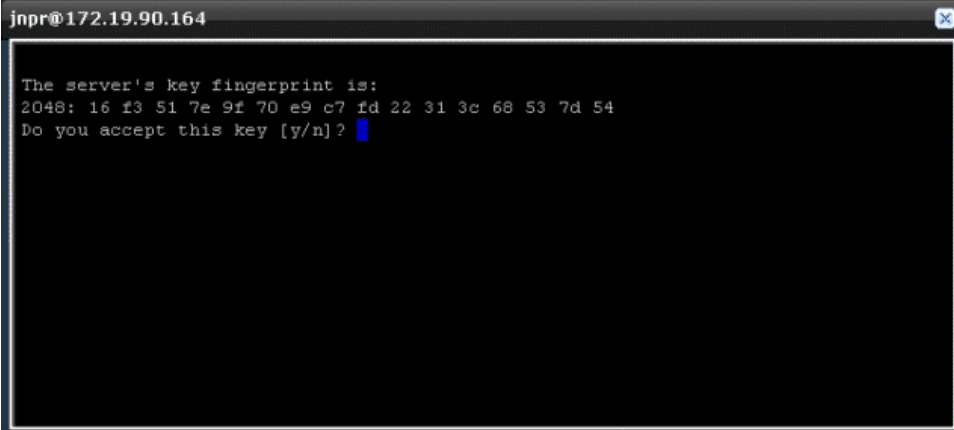
The Secure Console dialog box is displayed, as shown in the following illustration.

3. Specify the IP address of the device.
4. To establish an SSH connection for the device, specify the administrator user name and password.

The name and password must match the name and password configured on the device.

5. Click **Connect**.

The device key fingerprint window is displayed, as shown in the following example.



```

jnpr@172.19.90.164

The server's key fingerprint is:
2048: 16 f3 51 7e 9f 70 e9 c7 fd 22 31 3c 68 53 7d 54
Do you accept this key [y/n]?

```

6. Verify that the fingerprint is for the device you want to connect to, and type **y** and press Enter to validate the Server's key fingerprint.

A terminal window opens in a non-modal popup with an SSH connection opened on the selected device, as shown in the following example.



```

jnpr@172.19.90.164

The server's key fingerprint is:
2048: 16 f3 51 7e 9f 70 e9 c7 fd 22 31 3c 68 53 7d 54
Do you accept this key [y/n]? y

--- JUNOS 9.6R2.11 built 2009-10-06 20:
56:00 UTC
(master)
jnpr@Artemis-MX480-PE0>

```



**NOTE:** You might encounter the error messages “Unable to Connect”, “Authentication Error”, or “Connection Lost or Terminated”, which are displayed as standard text in terminal window. When an error occurs, all other functionality in the terminal window is stopped. If you encounter such an error, you can close the terminal window and open a new SSH session.

7. From the terminal window prompt, you can enter CLI commands to monitor or troubleshoot the device.

Secure Console supports the following terminal control characters:

- **CRTL + A**—moves cursor to start of the command line
  - **CRTL + E**—moves cursor to end of the command line
  - (up arrow key)—repeats the last command
  - **TAB**—completes a partially typed command
8. To terminate the SSH session, type **exit** from the terminal window prompt, and press Enter.
  9. Click in the top right corner of the terminal window to close the window.

**Related Topics**    • Secure Console Overview on page 107



## CHAPTER 11

# Manage Device Adapter

- Installing on page 113

## Installing

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- Installing the ScreenOS Software Adapter for Managing Non-DMI Security Devices on page 113

### Installing the ScreenOS Software Adapter for Managing Non-DMI Security Devices

This document describes the process for installing the ScreenOS Software Adapter. The ScreenOS software Adapter allows you to manage Juniper Networks non-DMI security devices through Junos Space.

This multi-task process includes instructions for

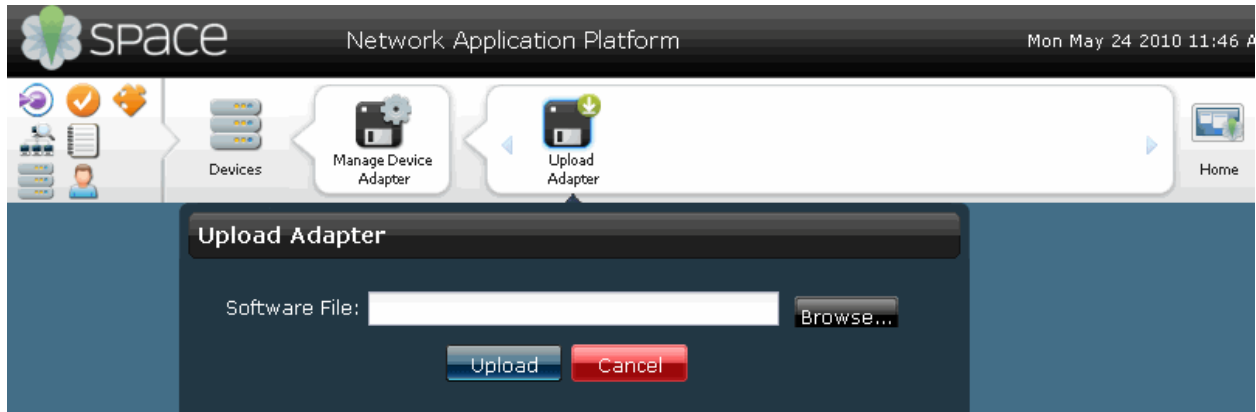
1. Uploading the SOS Adapter Image on page 113
2. Installing the SOS Adapter on page 114
3. Verifying the SOS Adapter Installation on page 114
4. Adding Screen OS Devices to Junos Space on page 116
5. Uploading the Device Management Commands on page 119

#### Uploading the SOS Adapter Image

Before you can install the SOS Adapter, you need to upload the image. Navigate to the Upload screen on the Devices task page.

1. Navigate to **Network Application Platform > Devices > Manage Device Adapter > Upload Adapter**
2. Browse to the adapter image file and select the filename so that the full path appears in the Software File field.

3. Click Upload to bring the image into Junos Space. A pop-up window shows the progress of the image upload.



### Installing the SOS Adapter

Once you install the SOS Adapter, you will be able to add devices supported by Screen OS so that they can be monitored and managed through the Devices workspace.

To install the SOS Adapter from the image you just uploaded, follow these steps:

1. Navigate to **Network Application Platform > Devices > Manage Device Adapter**. The Manage Software window appears with the SOS Adapter showing in the list of manageable devices.
2. Select the SOS Adapter and open the Action drawer to see the list of tasks that you can perform.



3. Click Install Software from the action list. The adapter starts automatically when it is installed.

### Verifying the SOS Adapter Installation

Before you add any devices, verify that the installation was successful. This procedure shows how to verify the installation, as well as stop and start the adapter as needed.

To verify that the installation was successful, look at the device console on the Space server.

1. On the server, change directories to verify that the SOS Adapter directory has been created.

```
cd /home/jmp/
```

**sosadapter**

2. To verify that the SOS Adapter is running, enter the following command on the Space server:

```
Router > service sosadapter status  
sosadapter running
```

If the SOS Adapter is not active, you will see the status as

```
sosadapter stopped
```

Use the following commands to either start or stop the SOS Adapter:

```
service adapter start to start the adapter  
service adapter stop to stop the adapter
```

3. To see the SOS Adapter logs, change directories to the adapter directory.

```
cd /home/jmp/sosadapter/var/errorlog  
sosadapterserver.0
```

To view the contents of the error log file, open it with any standard text editor.

## Adding Screen OS Devices to Junos Space

You can register supported devices with Junos Space so that they can be managed through the Manage Devices task. You can add one or more devices by uploading a comma-separated values (.CSV) file that contains the device definitions, or you can manually add one device at a time by entering the device information.

To add ScreenOS devices, navigate to **Network Application Platform > Devices > Add Deployed Devices > Add Device**

### Adding Devices Manually

This procedure describes how to add devices manually, one at a time.

1. From the list of devices displayed in the device wizard, select the newly uploaded adapter.

### Adding Devices Using a .CSV File

This procedure describes how to add a group of devices by uploading a .CSV file.



**NOTE:** You must create the .CSV file before you begin this procedure.

In the .CSV file you define each device by providing the following information for each device:

- Device name
- Platform
- Screen OS Version

To see a sample .CSV file, click [View Sample .CSV](#). The following figure illustrates the format to use for the .CSV file.

	A	B	C	D	E
1	#Rows which start with # are treated as a commented row				
2	#Explanation for the Column Names				
3	#Device Name - The name of the device to be created in SPACE.				
4	#				
5	#Platform - The SSG20-WLAN)				
6	#				
7	#OS Version - The ScreenOS version of the box				
8	#				
9	#Device Name	Platform	OS Version		
10	Seattle_ISG	nsISG1000	6		
11	Toronto_SSG	SSG550	6.1		
12	Auckland_SSG	SSG350	6.1		
13	UK_SSG	SSG20-WLAN	6.1		
14					

To upload the .CSV file, follow these steps:

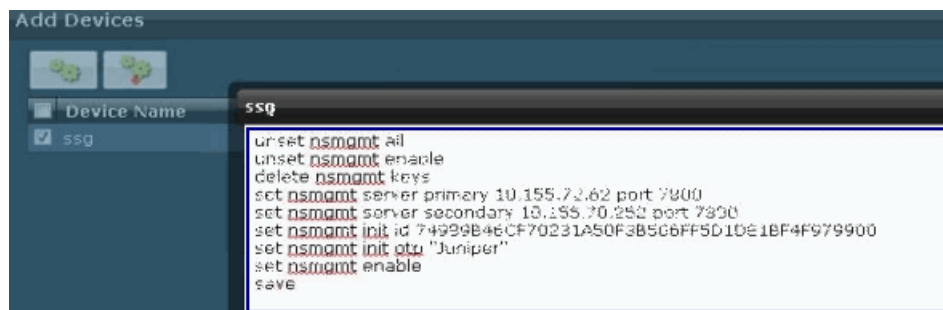
1. Click the .CSV radio button to open the File Upload window.
2. Browse to the .CSV file that you have created and select it so that the full path appears in the .CSV File field.



3. Click Upload.

### Uploading the Device Management Commands

A set of management commands is created automatically for each device you add. The following figure shows the set of commands you will see for the SOS Adapter.



You must copy the entire set of commands for each device into the device console. You must repeat this procedure for each device you add. To retrieve the device management commands, perform the following steps:

1. Navigate to **Network Application Platform > Devices > Manage Devices > View Management CLI**
2. Select the device you have added to display the management commands for that device.
3. Copy the entire set of commands.
4. Past the copied commands into the device console.
5. Click Finish to complete the installation.





## PART 3

# Topology Visualization

- [Topology on page 123](#)
- [Configure on page 127](#)
- [View on page 133](#)



## CHAPTER 12

# Topology

- Overview of Topology Visualization on page 123
- Topology Discovery Overview on page 123

### Overview of Topology Visualization

---

You can use Junos Space to discover topologies and monitor the status and configurations of the discovered devices and their interconnections.

From the Topology Visualization workspace, you can use Discover Topology to discover topologies based on the hostnames or IP addresses of seed devices and subnets, and to create objects in the Junos Space database that represent the discovered devices and their interconnections.

After Junos Space discovers the topology, you can use the View Topology to perform the following tasks from Junos Space:

- View a graphical representation of the discovered network devices and their interconnections.
- View source and destination information for the device interconnections that exist within the discovered topologies.

In order to access and work in the Junos Space Topology Visualization workspace, you need to assign the **Topology Manager** role to your user account. For more information on assigning a role to your user account, see “Modifying a User” on page 181.

- Related Topics**
- Topology Discovery Overview on page 123
  - Viewing Discovered Topologies on page 133

### Topology Discovery Overview

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Topology discovery is the process of discovering information about network devices and their interconnections. A topology map, which is the result of a topology discovery, displays all the devices and links in the discovered network. Topology maps are primarily used to monitor the current configuration of network devices and to ensure that the network is functioning effectively. You can use a topology map to identify infrastructure vulnerabilities

such as bottlenecks and failures within a network to isolate problem areas when troubleshooting network problems.

Junos Space provides you with an interface where you can discover a network topology based on the hostnames or the IP addresses of seed devices or subnets. Using the Topology Discovery feature, you can discover information about both Juniper Networks devices and non Juniper Networks devices, as well as information about the links that connect these devices.

From the application chooser page, you can navigate to the **Discover Topology** page by clicking **Platform > Topology Visualization > Discover Topology**.

Topology Discovery consists of two main steps:

1. Specifying the device target
2. Specifying the SNMP probes

The Discover Topology landing page displays details of the last topology discovery job that was carried out.

**Figure 20: Discover Topology**

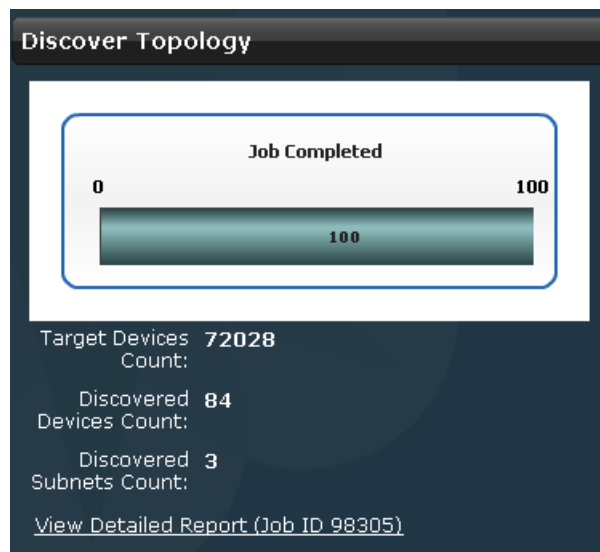


Table 15 on page 124 describes the job details that are displayed on the landing page.

**Table 15: Discover Topology Landing Page Field Name and Descriptions**

Field Name	Description
Job Completion bar	Displays how much of the job is completed.
Target Devices Count	Displays the number of target devices that were specified for the job.
Discovered Devices Count	Displays the number of devices that were discovered.

Table 15: Discover Topology Landing Page Field Name and Descriptions (*continued*)

Field Name	Description
Discovered Subnets Count	Displays the number of subnets that were discovered.
View Detail Report	Displays the link to the <b>Discovery Job Details</b> dialog box that displays more information about the discovery job.

The **Discovery Job Details** dialog box (Figure 21 on page 125) displays more information about the discovery job. Table 16 on page 125 describes the field names displayed in the **Discovery Job Details** dialog box.

Figure 21: Discovery Job Details Dialog Box

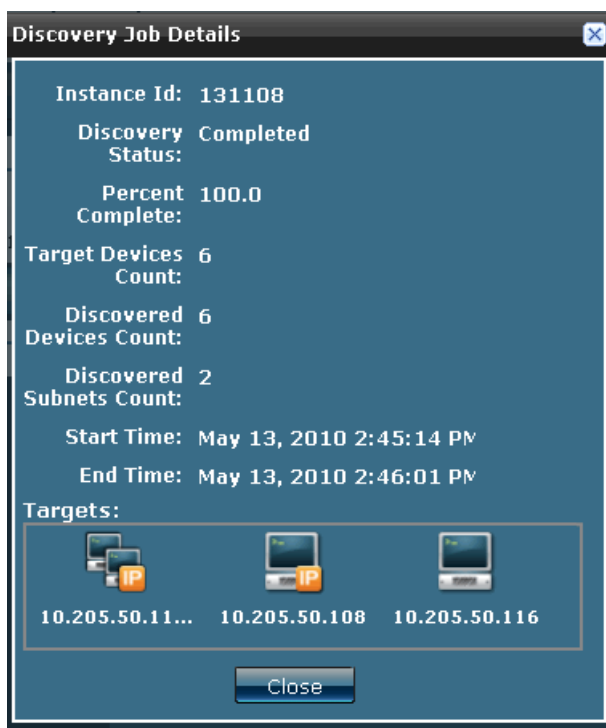


Table 16: Discovery Job Details Field Names and Descriptions

Field Name	Description
Instance ID	Displays the unique identification number of the topology discovery job
Discovery status	Displays the job status. The status can be <b>Starting</b> , <b>In Progress</b> , <b>Stopped</b> , <b>Completed</b> , or <b>Fail</b> .
Percent Complete	Displays how much of the job was completed. The value ranges from 0.0 to 100.0.
Target Devices Count	Displays the number of target devices that were specified for the job.
Discovered Devices Count	Displays the number of devices that were discovered.

Table 16: Discovery Job Details Field Names and Descriptions (*continued*)

Field Name	Description
Discovered Subnets Count	Displays the number of subnets that were discovered.
Start Time	Displays the starting date and time of the job.
End Time	Displays the date and time when job was completed.
Targets	Displays the targets and corresponding IP addresses that were specified for the discovery job.

For Junos Space to discover a device, the device must meet the following conditions.

- SNMP credentials must be configured on all the targeted devices in the network.
- Either LLDP or xSTP protocols must be enabled on all the devices in the network.

You can monitor all tasks performed from the **Topology Visualization** user interface by navigating to the **View Audit Logs** workspace (**Audit Logs > View Audit Logs**). These audit logs list information about the task, such as task name, result, description, and job ID. For more information about audit logs, see “Junos Space Audit Logs Overview” on page 189.

- Related Topics**
- Specifying Device Targets on page 127
  - Specifying SNMP probes on page 131
  - Viewing Discovered Topologies on page 133

## CHAPTER 13

# Configure

- Topology Discovery on page 127

### Topology Discovery

---

- Specifying Device Targets on page 127
- Managing SNMP Probes on page 128
- Specifying SNMP probes on page 131

### Specifying Device Targets

To discover a topology using Junos Space Topology Discovery, you must first specify a device target. This device acts as a seed device in initiating a topology discovery. You can also begin a topology discovery by using subnets as targets or seeds.

To specify device targets:

1. From the task ribbon, select **Topology Visualization > Discover Topology > Specify Target**. The **Topology Visualization Workspace: Specify Target** page appears (Figure 22 on page 127).

Figure 22: Specify Device Targets



2. Here you can perform one or more of the following actions:
  - Select the **Include Managed Devices as Targets** checkbox if you want Junos Space to use Junos managed devices as the target devices for topology discovery.
  - Add, edit, or delete device targets. For more information, see [Managing Device Targets](#).

- Related Topics**
- [Topology Discovery Overview](#) on page 123
  - [Specifying SNMP probes](#) on page 131
  - [Viewing Discovered Topologies](#) on page 133

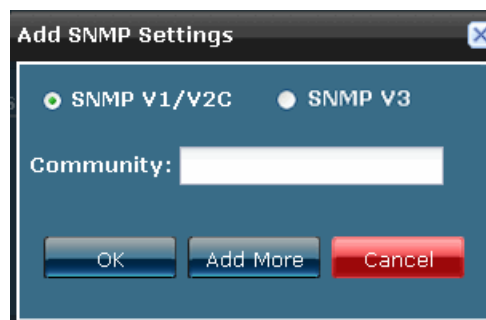
## Managing SNMP Probes

You can specify an SNMP probe to connect to and discover the devices in a network.

To add an SNMP probe.

1. From the task ribbon, select **Topology Visualization > Discover Topology > Specify SNMP Probes**. The **Topology Visualization Workspace: SNMP Probes** dialog box appears.
2. Click the **+** button to open the **Add SNMP Settings** dialog box.
3. Select one of the following options and enter the appropriate value in the field provided.
  - Select **SNMP V1/V2C** and specify the community string in the **Community** field. The SNMP v1/v2c community string “public” is available by default. The SNMP v1/v2c community string is based on the community string configured on the devices in your network.

**Figure 23: Add SNMP V1/V2C Settings Dialog Box**





- Select **SNMP V3** and enter the information in the fields provided as displayed in Figure 24 on page 129.

Figure 24: Add SNMP V3 Settings Dialog Box

The image shows a dialog box titled "Add SNMP Settings". At the top, there are two radio buttons: "SNMP V1/V2C" (which is unselected) and "SNMP V3" (which is selected). Below the radio buttons, there are five input fields: "Username:" (a text box), "Privacy type:" (a dropdown menu showing "Please select ..."), "Privacy password:" (a text box), "Authentication type:" (a dropdown menu showing "Please select ..."), and "Authentication password:" (a text box). At the bottom of the dialog box, there are three buttons: "OK", "Add More", and "Cancel".

- Enter the SNMP V3 username in the **Username** field.
  - Select the privacy protocol (the encryption standard for the SNMP user) from the **Privacy Type** drop down list. The available options are **AES128**, **DES**, and **None**. By default, the privacy type for SNMP version 3 is set to **None**.
  - Enter the password used to generate the key used for encryption, in the **Privacy Password** field. The password must be at least eight characters long. You can include all character classes in a password ( alphabetic, numeric, and special characters) except control characters.
  - Select the authentication type for the SNMP user, from the **Privacy Type** drop down list. The available options are **MD5**, **SHA1**, and **none**. By default, the authentication type for SNMP version 3 is set to **none**.
  - Enter the password used to generate the key used for authentication, in the **Authentication password** field. The password must be at least eight characters long. You can include all character classes in a password (alphabetic, numeric, and special characters) except control characters.
- Click **OK** to close the **Add SNMP Settings** dialog box and add the SNMP probe to the **SNMP Settings** list. The **Specify Probes** window displays the configured SNMP settings.  
Alternatively, you can click **Add More** to add the device target to the list while keeping the **Add SNMP Settings** dialog box open to add more SNMP probes.  
You can also click **Cancel** to close the **Add SNMP Settings** dialog box without adding any SNMP probes.

To edit an SNMP probe.

1. From the task ribbon, select **Topology Visualization > Discover Topology > Specify SNMP Probes**. The **Topology Visualization Workspace: SNMP Probes** dialog box appears.
2. Select the SNMP probe that you want to edit and click the **Edit** button to open the **Edit SNMP Settings** dialog box.
3. Select one of the following options and enter the appropriate value in the field provided.

You can choose to edit the existing values in the selected SNMP version, or you can select a different SNMP version and enter the desired values.

- Select **SNMP V1/V2C** and specify the community string in the **Community** field. You can enter “public”, “private”, or a predefined string.
  - Select **SNMP V3** and enter the information in the fields provided as displayed in the following figure.
    - a. Enter the SNMP version 3 username in the **Username** field.
    - b. Select the privacy protocol, i.e. the encryption standard for the SNMP user, from the **Privacy Type** drop down list. The available options are **AES128**, **DES**, and **None**. By default, the privacy type for SNMP version 3 is set to **None**.
    - c. Enter the password used to generate the key used for encryption, in the **Privacy Password** field. The password must be at least eight characters long. You can include all character classes in a password (i.e. alphabetic, numeric, and special characters) except control characters.
    - d. Select the authentication type for the SNMP user, from the **Privacy Type** drop down list. The available options are **MD5**, **SHA1**, and **none**. By default, the authentication type for SNMP version 3 is set to **none**.
    - e. Enter the password used to generate the key used for authentication, in the **Authentication password** field. The password must be at least eight characters long. You can include all character classes in a password (i.e. alphabetic, numeric, and special characters) except control characters.
4. Click **OK** to save your changes and close the **Edit SNMP Settings** dialog box. The **Specify Probes** window displays the configured SNMP settings. Alternatively you can click **Cancel** to close the **Edit SNMP Settings** dialog box without editing any SNMP probes.

To delete an SNMP probe.

1. From the task ribbon, select **Topology Visualization > Discover Topology > Specify SNMP Probes**. The **Topology Visualization Workspace: SNMP Probes** dialog box appears.
2. Select the SNMP probe that you want to delete and click **Delete** to open the **Delete SNMP Settings** dialog box.

3. Click **OK** to delete the probe and remove it from the **SNMP Settings** list. The **Specify Probes** window displays the configured SNMP settings.

Click **Cancel** to close the **Delete SNMP Settings** dialog box without deleting the probe.

**Related Topics** • Specifying SNMP probes on page 131

## Specifying SNMP probes

Junos Space uses SNMP to discover network elements that are connected to the specified seed devices and subnets. The Junos Space server contacts the targeted devices in the specified subnets and gets the relevant management information base (MIB) information that is needed for computing the topology. You can also specify a hop count to limit the number of routers from the seed device that you want Junos Space to discover. If the hop count is 1, the Junos Space server takes the IP addresses present in the IP routing tables of all the initially targeted devices and considers them for further discovery. This process is repeated based on the hop count value that you specified. For example, if a device X is targeted for discovery with hop count as 1, then all the IP addresses present in the routing table of device X are targeted for discovery. If the hop count is 2, then all the IP addresses present in the routing tables of the devices whose IP addresses were in the routing table of device X are also targeted for discovery.

To use SNMP to probe devices as part of topology discovery, make sure that SNMP is enabled on the devices in the network with appropriate read-only version 1, version 2, or version 3 credentials.

To configure SNMP settings.

1. From the task ribbon, select **Topology Visualization > Discover Topology > Specify SNMP Probes**. The **Topology Visualization Workspace: SNMP Probes** page appears (Figure 25 on page 131).

**Figure 25: Specify SNMP Probes**

2. Here, you can perform one or more of the following actions:
  - Add, edit, or delete SNMP probes that specify how Junos Space discovers the network. For more information, see “Managing SNMP Probes” on page 128.
  - Specify a hop count to limit the number of routers from the target that Junos Space tries to discover. Select the **Network Discovery Settings** checkbox and select the number of hops from the **Number of Hops** drop down list.

- Related Topics**
- Topology Discovery Overview on page 123
  - Specifying Device Targets on page 127
  - Viewing Discovered Topologies on page 133

## CHAPTER 14

# View

- Topology on page 133

### Topology

---

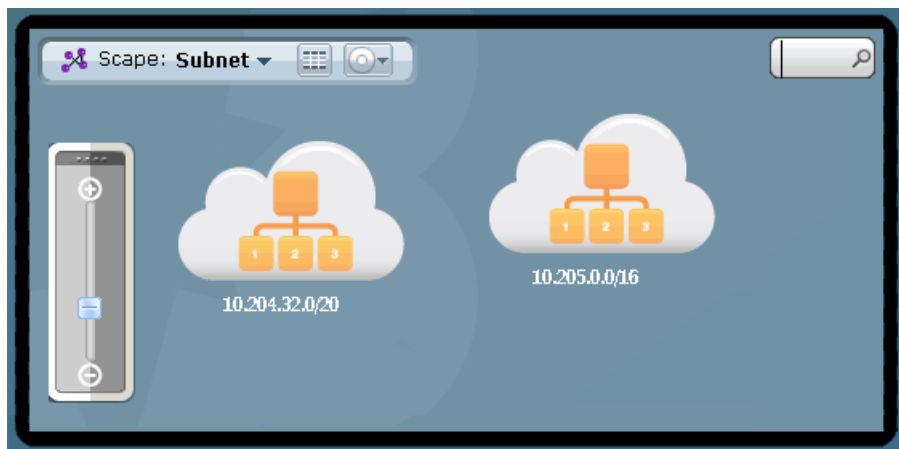
- Viewing Discovered Topologies on page 133

#### Viewing Discovered Topologies

After you have discovered a topology, you can use Junos Space to view the details of the network devices within the discovered topology.

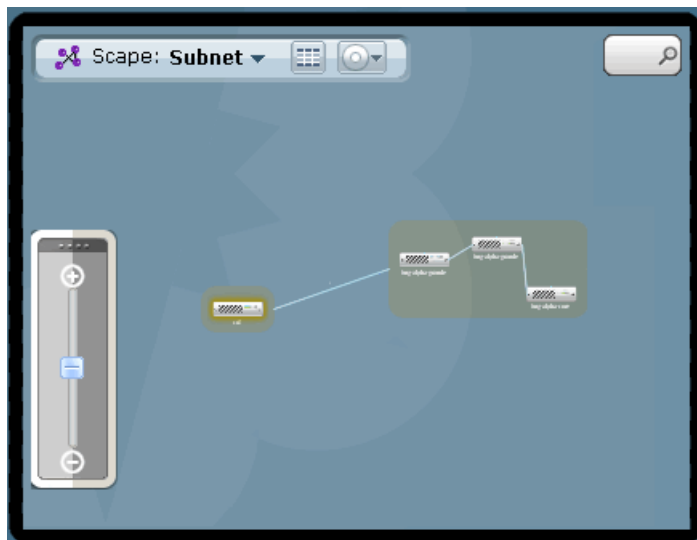
To view discovered topologies, select **Topology Visualization** from the task ribbon and click **View Topology**. The **View Topology** page appears (Figure 26 on page 133), displaying a topology map of the network elements grouped according to subnets.

Figure 26: Topology Map of Discovered Network Elements



Junos Space provides you with a semantic zoom facility so that you can zoom into the displayed map and increase the display size of the groups. After a certain zoom level, you can zoom in further to expand each of these groups and view individual network devices and their interconnections, as shown in Figure 27 on page 134.

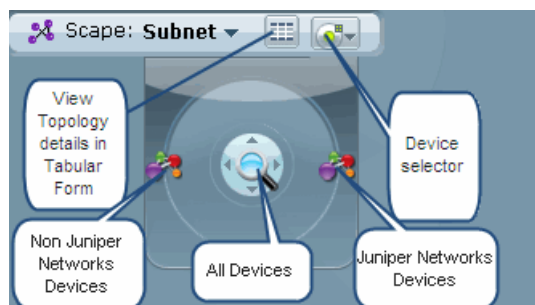
Figure 27: Zoomed in Topology Map Display



You can use the **Search** field to search for devices or subnets based on device or subnet name, MAC address, or IP address. The network element that you searched for is highlighted in the displayed topology map.

By default, Junos Space displays all the devices that exist within a discovered network. However, you can use the view selector panel to view only Juniper Networks devices within the network. Alternatively, you can choose to view only the non Juniper Networks devices in the discovered network. To view only Juniper Networks devices, only non Juniper Networks devices, or all devices, click the view selector panel (Figure 28 on page 134) and select the Juniper Networks managed devices, non Juniper Networks managed devices, or all devices icons, respectively.

Figure 28: View Selector Panel



From the Junos Space View Topology user interface, you can also do one or more of the following actions:

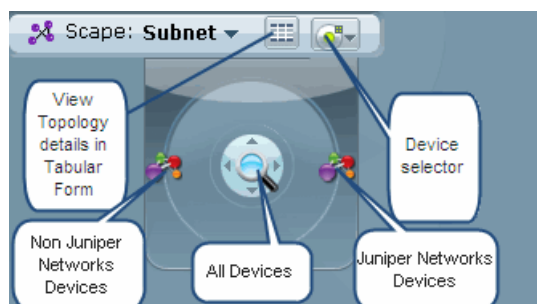
- Viewing Discovered Devices on page 135
- Viewing Device Links on page 136

## Viewing Discovered Devices

In Junos Space, you can view a table of device information such as the operating system, IP address, and managed status for all the discovered devices. This table does not include information about end point devices such as PCs, servers, and so forth.

From the task ribbon, select **Topology Visualization > View Topology**. The **View Topology** page opens. Click the tabular view icon on the view selector panel (Figure 29 on page 135) to view information about the network devices and their interconnections in tabular form.

Figure 29: View Selector Panel in Topology Map View



The **View Devices** table (Figure 30 on page 135) displays device information as described in Table 17 on page 136.

Figure 30: View Devices Table

View Devices						
Name	IP Address	Phys Address	Vendor Name	Product Model	OS Version	Managed Status
NS-IDP-250	10.205.61.25	00:30:48:5f:cf:1	Juniper Networks			Unmanaged
bng-tsunami8	10.204.98.57	2c:6b:f5:38:db:0	Juniper Networks	EX4500	JUNOS Base OS Software Suite [10.2I20100511,	Unmanaged
10.204.97.17	10.204.97.17	00:1f:12:36:8d:0	Juniper Networks	EX4200	JUNOS Base OS Software Suite [10.4I20100506,	Unmanaged

Page 1 of 4 | Displaying 1 - 30 of 96 | Show 30 items

To go back to the topology map view, click the grid icon. See Figure 31 on page 136 for more information about the view selector panel.

Figure 31: View Selector Panel in Tabular View

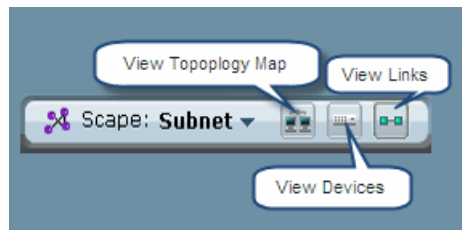


Table 17: View Device Column Descriptions

Column Name	Description
Name	Displays the device hostname that the user configured.
IP Address	Displays the management IP address of the discovered device.
Phys Address	Displays the MAC address of the discovered device.
Vendor Name	Displays the device vendor name
Product Model	Displays the model number of the discovered device. For example, EX 3200-24p.
OS Version	Displays the version of the Junos operating system that is running on the discovered device.
Managed Status	<p>Displays whether the devices are managed in Junos Space or not. The possible options and their definitions are:</p> <ul style="list-style-type: none"> <li>Managed—The device is managed by Junos Space.</li> <li>Unmanaged—The device is not managed by Junos Space</li> </ul>

## Viewing Device Links

Using Junos Space Topology Visualization, you can view information such as IP and MAC addresses, port names, and link speed for all the links (including edge links) connecting the discovered devices. Edge link information includes information such as the links between a switch and an IP phone or PC.

From the task ribbon, select **Topology Visualization > View Topology**. The **View Topology** page opens. Click the tabular view icon on the view selector panel to view information about the network devices and their interconnections in tabular form. The **View Devices** table appears after you click the tabular view icon. Click the **View Links** icon to open the **View Links** table. The **View Links** table (Figure 32 on page 137) displays information about the links between the devices in the discovered network, as described in Table 18 on page 137.



Figure 32: View Links Table

Source Device	Source IP	Source Phys	Source Port	Destination	Destination	Destination	Destination	Link Speed
htest-ssw7	10.204.32.8	00:1f:12:36:	ge-0/0/27	02:00:1f:12:	02:00:1f:12:	-	-	1G
e48p2-nmsft	10.204.97.6	00:1f:12:32:	ge-0/0/2	00:17:cb:70	00:17:cb:70	-	-	100M

Page 1 of 17 | Displaying 1 - 30 of 481 | Show 30 items

To go back to the topology map view, click the grid icon. See Figure 33 on page 137 for more information about the view selector panel.

Figure 33: View Selector Panel in Tabular View

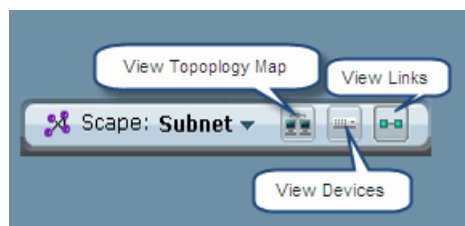


Table 18: View Links Column Descriptions

Column Name	Description
Source IP Address	Displays the management IP address of the source device.
Source Physical Address	Displays the MAC address of the source device.
Source Port Name	Displays the name of the port on the source device through which the source device connects to the destination device.  If no name is configured for the port, Junos Space displays the port number.
Destination IP Address	Displays the management IP address of the destination device.
Destination Physical Address	Displays the MAC address of the destination device.
Destination Port Name	Displays the name of the port on the destination device through which the destination device connects to the source device.  If no name is configured for the port, Junos Space displays the port number.
Link Speed	Displays the speed of the link between the source and destination devices.

**Related Topics** • Topology Discovery Overview on page 123



## PART 4

# Device Images

- Device Images Overview on page 141
- Administration on page 145



## CHAPTER 15

# Device Images Overview

- Device Images Overview on page 141
- Device Images User Roles on page 142

### Device Images Overview

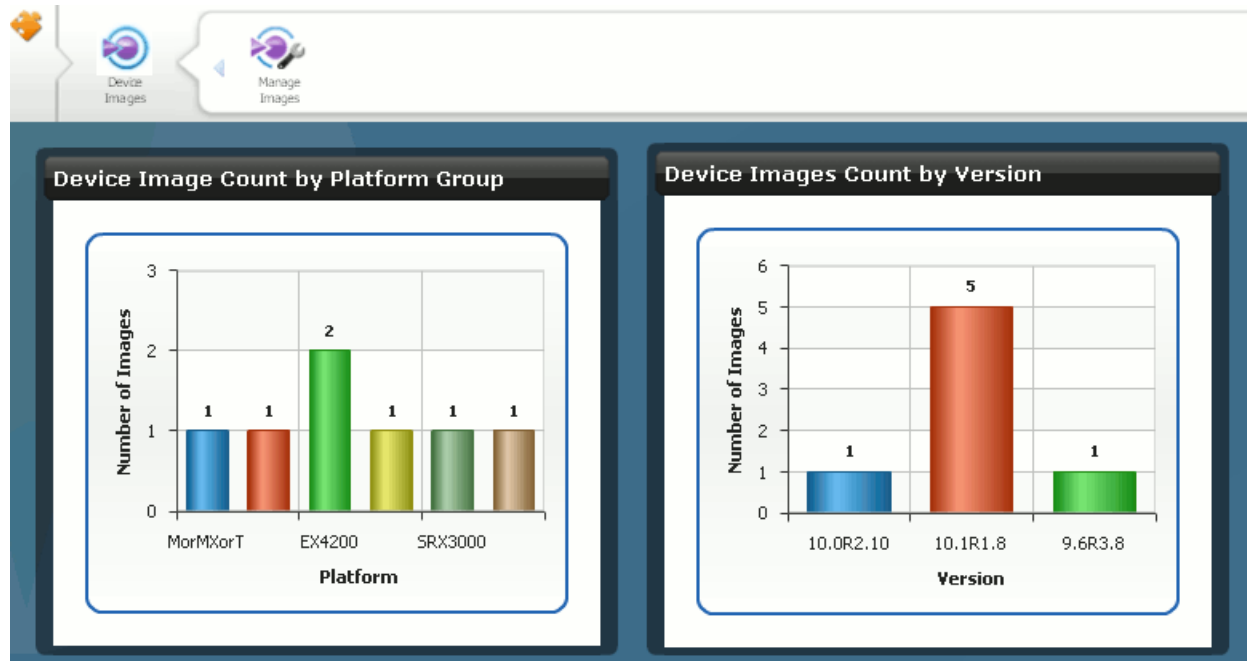
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In Junos Space, a device image is a software installation package that enables you to upgrade or downgrade from one JUNOS release to another. You can download these device images from

<https://www.juniper.net/customers/support/>. For more information on downloading the device image, see the *Downloading Software* section of the *JUNOS Software Installation and Upgrade Guide*.

Junos Space facilitates management of images for JUNOS devices by enabling you to upload device images from your local file system, and deploy these device images onto a device or onto multiple devices of the same device family at once. You can modify the platforms supported by the device image and the description of the device image. After uploading device images, you can stage a device image on a device, verify the checksum, and deploy the staged image whenever required. You can also schedule the staging, deployment, and validation of device images.

The Device Images dashboard graphically displays platforms, device types, and the number of images installed. Clicking the bars within the graph takes you to the **Manage Images** page where only the device images installed on the selected platform are displayed. For example, in the **Device Image Count by Platform Group** graph (Figure 34 on page 142), clicking the green bar of the graph that represents EX4200 takes you to the **Manage Images** page that displays two device image installed on the EX4200 platform devices.



You can perform the following tasks from the **Manage Device Images** page:

- Stage an image on devices
- Verify the checksum
- Deploy device images
- Delete device images
- Modify device images

#### Related Topics

- Deploying Device Images on page 149
- Staging Device Images on page 146
- Modifying Device Image Details on page 152
- Uploading Device Images to Junos Space on page 145

## Device Images User Roles

The Junos Space User Administrator creates users and assigns roles (permissions) so that you can access and perform different tasks. You cannot view the tasks that you do not have access to.

You can create users and manage them on the **Manage Users** page, if you have User Administrator permissions. To create and manage these users, navigate to **Application Switcher > Network Application Platform > Users > Manage Users**. The **Manage Users** page lists the existing users. Use this page to create and assign roles to the Device Images users.

You can also navigate to the **Manage Users** page by selecting **Application Switcher > Jump to Users**.

Table 19 on page 143 describes the Device Images tasks that different users have access to, based on the roles assigned to them.

Table 19: Device Images User Roles

User Role	Permitted Tasks
Device Image Manager	Viewing, uploading, modifying, deleting, staging, verifying the checksum of, and deploying device images.
Device Image Read Only User	Viewing <b>Device Images</b> and <b>Manage Images</b> pages.

- Related Topics
- Deploying Device Images on page 149
  - Staging Device Images on page 146





## CHAPTER 16

# Administration

- Managing Device Images on page 145

### Managing Device Images

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- Uploading Device Images to Junos Space on page 145
- Staging Device Images on page 146
- Verifying the Checksum on page 147
- Viewing and Deleting MD5 Validation Results on page 148
- Deploying Device Images on page 149
- Modifying Device Image Details on page 152

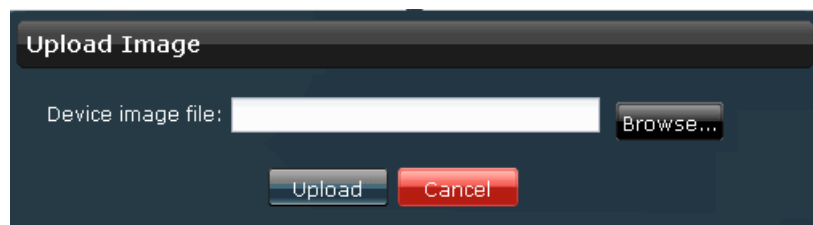
### Uploading Device Images to Junos Space

To deploy a device image using Junos Space, you must first download the device image from the Juniper Networks Support Web page <http://www.juniper.net/customers/support/>. Download the device image to the local file system of your workstation or client, and then upload it into the JUNOS Space server. Once uploaded, you can stage a device image, verify the checksum, deploy the device image on one or more devices, modify the description and supported platforms, and also delete the device image from Junos Space.

To upload device images:

1. From the task ribbon select **Device Images > Manage Images > Upload Image**.

The **Upload Image** page is displayed.

The image shows a screenshot of a web-based 'Upload Image' dialog box. The dialog has a dark header with the title 'Upload Image'. Below the header, there is a text input field labeled 'Device image file:'. To the right of this field is a 'Browse...' button. At the bottom of the dialog, there are two buttons: 'Upload' and 'Cancel'.

2. Click **Browse**.

The **File Upload** dialog box displays the directories and folders on your local file system.

3. Navigate to the device image file and click **Open**.

The image filename is displayed within the Device Image File field.

4. Click **Upload**.

The time taken to upload the file depends on the size of the device image and the connection speed between the local machine and the JUNOS Space server. Once the file is uploaded, into the platform, it is listed on the **Manage Images** page.

## Related Topics

- Device Images Overview on page 141
- Deploying Device Images on page 149
- Staging Device Images on page 146

## Staging Device Images

Junos Space enables you to stage an image on one device or on multiple devices of the same device family at once. Staging an image ahead of time eliminates the time taken to load the image, and helps you directly deploy the device image whenever required. At any given time, you can stage only a single device image. Staging images repeatedly on a device merely replaces the staged device image. After you stage a device image you can verify the checksum to ensure that the device image was transferred completely.

To stage an image on devices:

1. From the task ribbon select **Device Images** > **Manage Images**.

The **Manage Images** page is displayed.

2. Select the image that you want to stage on one or more devices.

The selected image is highlighted.

3. Right click the selected device image or go to the Actions panel. Click **Stage Image on Device**.

The **Stage Image On Device(s)** dialog box displays a list of the Junos Space devices.

Stage Image On Device(s)

Image name: jinstall-ex-4200-9.6R3.8-domestic-signed.tgz

Select Devices

<input type="checkbox"/> Host Name	IP Address	Platform	Serial Number	Software Version
<input checked="" type="checkbox"/> dev2	10.204.97.13	EX4200-24T	BM0208267003	10.21

◀◀ | Page 1 of 1 | ▶▶

↻

Displaying 1 - 1 of

☐ ☒ Schedule at a later time

Stage Image

Cancel

4. Select the device or devices on which you want to stage the device image. By default, 25 devices are displayed. Use the navigation arrows to select devices across multiple pages.
5. To schedule a time for staging the device image, check the **Schedule a later time** checkbox and use the drop-down menus to specify the date and time.
6. Click **Stage Image**.  
The image is staged on the selected device or devices and a **Jobs** dialog box displays the job ID.
7. To verify the status of this job, click the job ID link or navigate to the **Manage Jobs** page and view the status of the job. When there is a failure in the staging of the device image, you can view the reason for failure within the job description.

To verify the checksum of the staged device image, see “Verifying the Checksum” on page 147.

- Related Topics**
- Device Images Overview on page 141
  - Deploying Device Images on page 149

## Verifying the Checksum

When you stage an image on a device using Junos Space, sometimes the device image might not get completely transferred to the device. Verifying the checksum helps validate the completeness of the staged device image.

To verify the checksum:

1. From the task ribbon select **Device Images > Manage Images**.  
The **Manage Images** page is displayed.
2. Select the image whose checksum you want to verify.
3. Right click the selected device image, and select **Verify Checksum**.  
The **Manage Images** dialog box is displayed.  
You can also select the **Verify Checksum** link from the Actions panel.
4. Select the devices that have the device image staged on them.
5. To schedule a time for verifying the checksum, check the **Schedule a later time** checkbox and use the drop-down menus to specify the date and time.
6. Click **Verify**.  
The selected image is verified and a **Jobs** dialog box displays the job ID.
7. To check the status of verification you can click on the job ID link or navigate to the **Manage Jobs** page and view the job status.

- Related Topics**
- Device Images Overview on page 141
  - Deploying Device Images on page 149

## Viewing and Deleting MD5 Validation Results

Using Junos Space, you can validate completeness of a device image that is staged on devices. See “Verifying the Checksum” on page 147. The result of this validation is displayed on the **Validation Results** page. From this page you can view and delete the validation results.

- Viewing the MD5 Validation Results on page 148
- Deleting the MD5 Validation Results on page 149

### Viewing the MD5 Validation Results

The MD5 validation results indicate whether the device image that is staged on a device is completely transferred to the device or not. The result also indicates whether the device image is not present on the selected devices.

To view the MD5 validation results:

1. From the task ribbon select **Device Images > Manage Images**.  
The **Manage Images** page displays the list of device images.
2. Select a device image.
3. Right click your selection or use the **Actions** panel and select **MD5 Validation Result**. As shown in Figure 35 on page 148, the **Validation Results** page displays the results of all verification tasks.

Device image name	Device name	Action	Checksum Result	Remarks	Verification Time
jinstall-ex-3200-10.0R2.10-domestic-signed.tgz	e48t2-nmsft	Verify	Success		May 7, 2010 1:44:22 PM IST
jinstall-ex-3200-10.0R2.10-domestic-signed.tgz	e48p2-nmsft	Verify	Failed	Error from device md5: /var/tmp/jinstall-ex-3200-10.0R2.10-domestic-signed.tgz: No such file or directory	May 7, 2010 1:44:02 PM IST
jinstall-ex-3200-10.0R2.10-domestic-signed.tgz	e123	Verify	Failed	Error from device md5: /var/tmp/jinstall-ex-3200-10.0R2.10-domestic-signed.tgz: No	May 7, 2010 1:44:00 PM IST

For a description of the fields on the **Validation Results** page, see Table 20 on page 148. You can also view these results on the **Manage Jobs** page in Junos Space.

**Table 20: Validation Results Page Field Descriptions**

Field Name	Description
Device Image Name	Name of the device image selected for verifying the checksum.
Device Name	Name of the selected devices on which the device images are verified.
Action	Name of the action performed.
Checksum Result	Result of the verification

Table 20: Validation Results Page Field Descriptions (*continued*)

Field Name	Description
Remarks	Observations made during the verification.
Verification Time	Time at which the verification was initiated.

### Deleting the MD5 Validation Results

To delete the MD5 validation results:

1. From the task ribbon select **Device Images > Manage Images**.  
The **Manage Images** page is displayed.
2. Select a device image.
3. Right click your selection or use the **Actions** panel and select **MD5 Validation Result**.  
The **Validation Results** page displays the results of all verification tasks.
4. Select the result that you want to delete.
5. Right click your selection or go to the Actions panel and select **Delete Validation Results**.  
The **Delete Validation Results** dialog box displays the selected results.
6. Click **Delete** to confirm.  
The selected results are removed from Junos Space.

- Related Topics**
- Device Images Overview on page 141
  - Staging Device Images on page 146
  - Verifying the Checksum on page 147

## Deploying Device Images

Junos Space enables you to deploy device images onto a device or on multiple devices of the same device family at once. During deployment a device image is installed on the device. After you deploy an image onto a device, you can reboot the device, delete the device image from the device, check the device image's compatibility with the current configuration of the device, and load the image when even a single statement is valid. Using an image that is already staged on a device eliminates the time taken to load the device image on a device and directly jumps to the installation process (See “Staging Device Images” on page 146.) Junos Space also enables you to schedule a time when you want the image to be deployed.

You can deploy a device image only onto devices or platforms supported by that device image. When you select an image for deployment, the list of devices that are displayed contains only those devices that are supported by the selected device image.



NOTE: When you deploy a device image on a dual routing engines (RE), the image is first deployed on the backup RE followed by Master RE. If deployment fails on the backup RE, the device image is not deployed on the master RE.



NOTE: In Junos Space an SRX cluster is represented as two individual devices with cluster peer information. When you deploy a device image on an SRX cluster, the installation is done on both the cluster nodes.

To deploy device images:

1. From the task ribbon select **Device Images > Manage Images**.

The **Manage Images** page is displayed.

2. Select the image that you want to deploy.

The selected image is highlighted.

3. Right click the selected device image or go to the Actions panel.

4. Click **Deploy Device Image** Images from the **Actions** panel.

The **Deploy image on device(s)** page displays the devices that are supported by the selected device image. For a description of the fields on this page see Table 21 on page 151.

**Deploy image on device(s)**

Image name: jinstall-ex-4200-9.6R3.8-domestic-signed.tgz

Select Devices

Host Name	IP Address	Platform	Serial Number	Software Version
dev2	10.204.97.13	EX4200-24T	BM0208267003	10.2I

Page 1 of 1 | Displaying 1 - 1 of 1

Select Deployment Options

- ☐ Use image already downloaded to device
- ☐ Archive data (Snapshot)
- ☐ Check compatibility with current configuration
- ☐ Load succeeds if at least one statement is valid
- ☐ Remove the package after successful installation
- ☐ Reboot device after successful installation

☐ Schedule at a later time

Deploy Cancel

5. Select the devices on which you want to deploy the device image.

6. To specify different deployment options, check one or more of the **Select Deployment Options** checkboxes.

See Table 22 on page 151 for a description of the deployment options.

7. To schedule a time for deployment, check the **Schedule a later time** checkbox and use the drop-down menus to specify the date and time.
8. Click **Deploy**.

The selected image is deployed on the specified devices with the deployment options that you specify.

9. To verify, navigate to the **Manage Jobs** page where the status of the deployment job is displayed. When there is a failure in deployment, the job description displays the reason for failure.

Table 21 on page 151 describes the **Deploy image on device(s)** page fields.

**Table 21: Manage Images Page Fields Descriptions**

Field	Description
Image Name	Name of the device image.
Hostname	Identifier used for network communication between Junos Space and the JUNOS device.
IP Address	IP address of the device.
Platform	Model number of the device.
Serial Number	Serial number of the device chassis.
Software Version	Operating system firmware version running on the device.

Table 22 on page 151 describes the different deployment options.

**Table 22: Deployment Options Description**

Deployment Options	Description
Use image already downloaded to device	Use the device image that is staged on the device for deployment.
Archive Data (Snapshot)	Collect and save device data and executable areas.
Check compatibility with current configuration	Verify device image compatibility with the current configuration of the device.
Load succeeds if at least one statement is valid	Ensure that the device image is loaded successfully if even if only one of the statements is valid.
Remove the package after successful installation	Delete the device image from the device after successful installation.

Table 22: Deployment Options Description (*continued*)

Deployment Options	Description
Reboot device after successful installation	Reboot the device after the deployment is successful.

- Related Topics**
- Device Images Overview on page 141
  - Uploading Device Images to Junos Space on page 145
  - Staging Device Images on page 146

## Modifying Device Image Details

Junos Space enables you to add your description to a device image and also to modify the series that it supports.

To modify the parameters of a device image:

1. From the task ribbon select **Device Images > Manage Images**.  
The **Manage Images** page is displayed.
2. Select the image that you want to modify. The selected image is highlighted.
3. Right click the selected device image or go to the **Actions** panel.
4. Select **Modify Device Image Details**.

The **Modify Device Image Details** dialog box is displayed.

**Modify Device Image Details**

**Image name:** jinstall-ex-4200-9.6R3.8-domestic-signed.tgz

**Version:** 9.6R3.8

**Series:** EX4200

**Platforms:** EX4200-24T, EX4200-24P, EX4200-48T, EX4200-48P, EX4200-24F

**Description:**

Modify Cancel

5. To modify the series, use the **Series** drop-down menu and specify the series that the selected device image supports. The platforms that are supported by the selected series are automatically displayed in the **Platforms** field and cannot be modified.



To add or modify the description, you can use a maximum of 256 characters within the **Description** field.

6. Click **Modify**.

Your changes are saved. These changes can be viewed on the device image detail and summary view.

- Related Topics**
- [Device Images Overview on page 141](#)
  - [Deploying Device Images on page 149](#)
  - [Deleting Device Images](#)



## PART 5

# Job Management

- Managing Jobs on page 157
- Monitoring Jobs on page 161



# Managing Jobs

- Job Management Overview on page 157
- Canceling a Job on page 159

## Job Management Overview

---

The Job Management workspace lets you monitor the status of all jobs that have been run in all Junos Space applications. A job is a user-initiated action that is performed on a Junos Space object, such as a device, service, or customer. All scheduled jobs can be monitored.

Typical jobs in Junos Space include device discovery, deploying services, prestaging devices, and performing functional and configuration audits. Jobs can be scheduled to occur immediately or in the future. For all jobs scheduled in Junos Space, you can view job status from the **Jobs** workspace. Junos Space maintains a history of job status for all scheduled jobs. When a job is scheduled from a workspace, Junos Space assigns a job ID that serves to identify the job (along with the job type) in the Manage Jobs inventory panel.

You can perform the following tasks from the **Jobs** workspace:

- View status of all scheduled, running, canceled, and completed jobs
- Retrieve details about the execution of a specific job
- View statistics about average execution times for jobs, types of jobs that are run, and success rate
- Cancel a scheduled job or in-progress job (when the job has stalled and is preventing other jobs from starting)

Junos Space supports the following job types:



**NOTE:** The job types listed here may not represent the job types you are able to manage in your Junos Space software release. Job types are subject to change based on the licensed application in your Junos Space software release.

---

Table 23: Junos Space Job Types Per Application

Junos Space Application	Supported Job Types
Platform	Add Node
	Discover Network Elements
	Update Device
	Delete Device
	Resync Network Element
	Role Assignment
	Audit Log Archive and Purge
Network Activate	Deploy Service
	Prestage Device
	Role Assignment
	Service Deployment
	Service Decommission
	Functional Audit
	Configuration Audit
Service Now	Install AI-Scripts
	Uninstall AI-Scripts
Ethernet Design	Provision Device Profile
	Provision Port Profile
Security Design	Provisioning Security
	Policy Provisioning IPSec VPN
	Importing Address/Domain in Security Topology
QoS Design	Discover Domain
	Create QoS Profile

**Related Topics** • Viewing Scheduled Jobs on page 164

- Viewing Statistics for Scheduled Jobs on page 162
- Canceling a Job on page 159

## Canceling a Job

---

From the Platform Job Management inventory page you can cancel jobs that:

- Are scheduled, but that you don't want to run.
- Are in progress that are hanging or incapable of completing, and are preventing other jobs from starting.



NOTE: If Junos Space determines that the job operation is non-interruptible, the job runs to completion; otherwise the job is cancelled.



NOTE: Junos Space performs no cleanup on cancelled jobs.

To cancel a job:

1. From the task ribbon, navigate to Platform > Job Management > Manage Jobs. The Manage Jobs inventory page appears.
2. Select the job that you want to cancel.
3. Mouse over the Actions drawer to open it.
4. Select **Cancel Job**. When the Cancel Job operation completes, the inventory view displays the Job State CANCELLED. If a job is in a state that you can not cancel, The Cancel Job command is disabled in the Action drawer menu.

### Related Topics

- Viewing Statistics for Scheduled Jobs on page 162
- Job Management Overview on page 157
- Viewing Scheduled Jobs on page 164
- Inventory Pages Overview on page 28
- Viewing Your Jobs on page 161





## CHAPTER 18

# Monitoring Jobs

- Viewing Your Jobs on page 161
- Viewing Statistics for Scheduled Jobs on page 162
- Viewing Scheduled Jobs on page 164

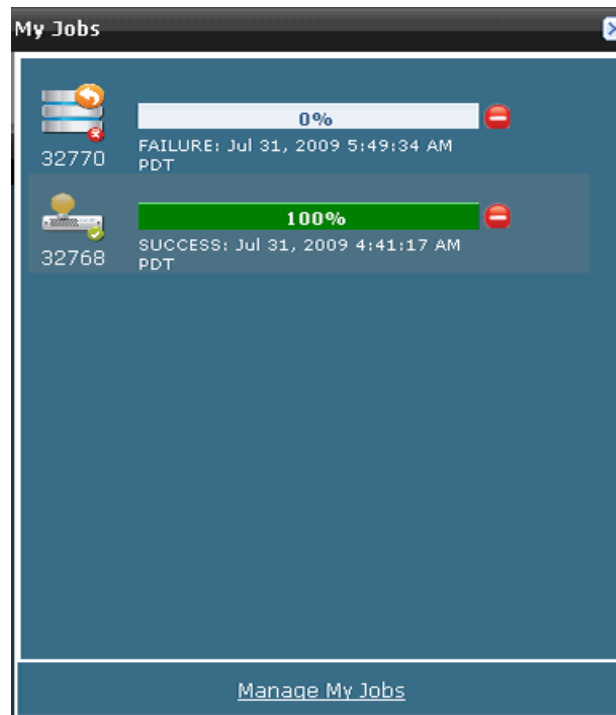
### Viewing Your Jobs

---

You can view all your completed, in-progress, and scheduled jobs in Junos Space. You can quickly access summary and detailed information about all your jobs, from any work space and from any task you are currently performing. You can also clear jobs from your list when jobs are no longer of interest to you.

To view the jobs that you have initiated:

1. In the banner of the Junos Space user interface, click the **My Jobs** icon.  
The My Jobs window is displayed, as shown in the following example.



NOTE: The My Jobs window displays your 25 most recent jobs.

2. To view jobs details, select one or more jobs in the My Jobs window and click **Manage My Jobs**.

The Manage Jobs inventory panel displays a listing of all jobs that you initiated.

3. To remove jobs from the My Jobs window:
  - To remove a job, click on the **Clear job** icon that is displayed to the right of the job.



NOTE: Clearing a job from the My Jobs window does not affect the job itself, but only updates the My Jobs view.

#### Related Topics

- Viewing Statistics for Scheduled Jobs on page 162
- Canceling a Job on page 159
- Job Management Overview on page 157

## Viewing Statistics for Scheduled Jobs

The Platform Job Management workspace statistics page displays the following graphical data:

- Job Types pie chart
- State of Jobs Run pie chart
- Average Execution Time per Completed Job bar chart

This topic includes the following tasks:

- Viewing the Types of Jobs That Are Run on page 163
- Viewing the State of Jobs That Have Run on page 163
- Viewing Average Execution Times for Jobs on page 164

## Viewing the Types of Jobs That Are Run

**Viewing Job Types**—The Job Types pie chart displays the percentage of all Junos Space jobs that run of a particular type. Each slice in the pie chart represents a job type and the percentage of time a job type was run. The job type legend appears to the right identifying the job type titles according to colors. Scroll down the list to see all of the job types. The number of jobs that appear in the job types legend depend on the number of jobs that have run in all Junos Space applications. Mousing over a slice in the pie chart displays the job type title and the number of jobs that have run.

**Viewing Job Types Details**—Clicking a job type in the Job Types pie chart displays only those job types filtered on the Manage Jobs inventory landing page. For more information about the Manage Jobs page, see “Viewing Scheduled Jobs” on page 164. The selected job types display in thumbnail view. Click **More** in the thumbnail displays that job’s status by device name, IP address, job status, and description. Move the details slider at the top right of the Manage Jobs page to the far right or change to tabular view to see the job details data fields: percentage complete, state, job type, job ID summary selected start time, and user name.

To view all the data fields available for a job in Manage Jobs in tabular view:

1. Select the down arrow in a table column. The drop-down sort and column menu appears.
2. Select **Columns**. The Columns cascading menu appears. You see all of the possible job data fields to show or hide. Checked jobs columns appear on the Manage Jobs table. Job columns that are not checked are hidden and do not appear in the table.

## Viewing the State of Jobs That Have Run

**Viewing the Job State**—The State of Jobs Run pie chart graphically displays the percentage of jobs that have either succeeded or failed. Mouse over the pie chart to see the number of jobs that have succeeded or failed.

**Viewing Job State Details**—Clicking a slice in the State of Jobs Run pie chart displays only those jobs that have either succeeded or failed filtered on the Manage Jobs page in thumbnail view. For more information about the Manage Jobs page, see “Viewing Scheduled Jobs” on page 164. The selected job types display in thumbnail view. Click **More** in the thumbnail displays that job’s status by device name, IP address, job status, and description. Move the details slider at the top right of the Manage Jobs page to the far

right or change to tabular view to see the job details data fields: percentage complete, state, job type, job ID summary selected start time, and user name.

To view all the data fields available for a job in Manage Jobs in tabular view:

1. Select the down arrow in a table column. The drop-down sort and column menu appears.
2. Select **Columns**. The Columns cascading menu appears. You see all of the possible job data fields to show or hide. Checked jobs columns appear on the Manage Jobs table. Job columns that are not checked are hidden and do not appear in the table.

## Viewing Average Execution Times for Jobs

**Viewing the Average Execution Time per Completed Job**—Each bar in the Average Execution Time per Completed Job bar chart represents a job type and the average execution time in seconds. Depending on the size of the Average Execution Time per Completed Job bar chart is on the Job Management statistics page, the name of the job type displays at the bottom of each bar.

**Viewing Completed Job Details**—Clicking a bar in the Average Execution Time per Completed Job bar chart displays only those jobs that have been executed on the Manage Jobs inventory page in thumbnail view. For more information about the Manage Jobs page, see “Viewing Scheduled Jobs” on page 164. The selected job types display in thumbnail view. Click **More** in the thumbnail displays that job’s status by device name, IP address, job status, and description. Move the details slider at the top right of the Manage Jobs page to the far right or change to tabular view to see the job details data fields: percentage complete, state, job type, job ID summary selected start time, and user name.

To view all the data fields available for a job in Manage Jobs in tabular view:

1. Select the down arrow in a table column. The drop-down sort and column menu appears.
2. Select **Columns**. The Columns cascading menu appears. You see all of the possible job data fields to show or hide. Checked jobs columns appear on the Manage Jobs table. Job columns that are not checked are hidden and do not appear in the table.

- Related Topics**
- Viewing Scheduled Jobs on page 164
  - Job Management Overview on page 157
  - Inventory Pages Overview on page 28

## Viewing Scheduled Jobs

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The Manage Jobs inventory page displays all jobs that have been scheduled to run or have run from each Junos Space application.

- Changing the View on page 165
- Viewing Job Types on page 165

- Viewing Job Status Indicators on page 165
- Viewing Job Details, Status, and Results on page 166
- Performing Manage Jobs Commands on page 167

## Changing the View

You can display jobs in two views: thumbnail and tabular. By default, Jobs appear on the page in thumbnail view.

In thumbnail view, jobs appear as icons listed in descending order by job ID. Each job has a title and job ID. To see more detailed job information, status, or results, double-click a job icon or move the zoom slider to the far right. The default zoom slider position is in the middle.

In tabular view, jobs appear in a table sorted by scheduled start time by default. Each job is a row in the Manage Jobs table.

To change views:

- Click a view indicator at the right in the Manage Jobs page title bar.

## Viewing Job Types

Job types tell you what tasks or operations have been performed throughout Junos Space applications. Each Junos Space application supports certain job types. You can search for a particular job type. You can also sort by job type in tabular view. For more information about how to manipulate inventory page data, see “Inventory Pages Overview” on page 28.

To view job types:

- In thumbnail view, see the job icon and the job title. You can also mouse over a job icon to see its title.
- In tabular view, the job type appears as a column in the table. You can sort by

## Viewing Job Status Indicators

Each job icon on the Manage Jobs inventory page in thumbnail view has a job status indicator. Table 24 on page 165 defines each job status indicator.

**Table 24: Job Icon Status Indicators**






Job Status Indicator	Description
	The job completed successfully.
	The job failed.

Table 24: Job Icon Status Indicators (*continued*)

	The job was canceled by a user.
	The job is scheduled.
	The job is in progress. You can only cancel jobs that are in progress from the Actions drawer.

## Viewing Job Details, Status, and Results

Job details display all of the information that is stored about a job. You can also view job status and results.

To view job status, results, or details:

- Double-click a job icon in thumbnail view or double-click a row in the table in tabular view.
- Move the zoom slider to the far right in thumbnail view.

Table 25 on page 166 defines job information. Job details appear as job details or columns in the Manage Jobs table.

Table 25: Job Details and Columns in the Manage Jobs Table

Field	Description
Name	For most jobs, the name is the Job Type with the timestamp (in milliseconds) appended. However, for service-related jobs (Deploy Service, Decommision, Configuration Audit, and Functional Audit) jobs, the job name is supplied by the user as part of the workflow.
Percent	Percentage of job that has completed.
State	State of job execution: <ul style="list-style-type: none"> <li>• SUCCESS—Job completed successfully</li> <li>• FAILURE—Job failed and was terminated.</li> <li>• IN PROGRESS—Job is in progress..</li> <li>• CANCELED—Job was canceled by a user.</li> </ul>
Job Type	The supported job types. Job types depend on the installed Junos Space applications.
ID	The numerical ID of the job.
Summary	The operations executed for the job.
Scheduled Start Time	The scheduled start time for the job (specified by a Junos Space user).
User	The log in username.

Table 25: Job Details and Columns in the Manage Jobs Table (*continued*)

Actual Start Time (not displayed in default view)	Time when Junos Space begins execution of the job. In most cases, actual start time should be the same as the scheduled start time.
End Time (not displayed in default view)	Time that the job completed or was terminated, if job execution failed.

Performing Manage Jobs Commands

You can perform the following commands from the Manage Jobs Actions drawer:

- Cancel Job—See “Canceling a Job” on page 159

- Related Topics**
- Viewing Statistics for Scheduled Jobs on page 162
  - Job Management Overview on page 157
  - Canceling a Job on page 159





## PART 6

# Users

- Role-Based Access Control on page 171
- User Administration on page 179



## CHAPTER 19

# Role-Based Access Control

- Role Based Access Control Overview on page 171
- Understanding How to Configure Users to Manage Objects in Junos Space on page 172
- Predefined Administrator Roles on page 173

## Role Based Access Control Overview

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Junos Space supports authentication and authorization. A Junos Space super administrator or user administrator creates users and assigns roles (permissions) that allow users to access and manage the users, nodes, devices, services, and customers in Junos Space.

To access and manage Junos Space, a user must be assigned one or more roles, which are validated during authorization. The roles that an administrator assigns to a user controls the workspace or workspaces the user can access and the tasks that can be performed on the objects that are managed within a workspace. A user with no role assignments cannot access any Junos Space workspace and is unable to perform tasks.

## Authentication

Through authentication, Junos Space validates users based on password and other security services. Junos Space supports local user authentication only. Each user password is saved in the Junos Space database and is used to validate a user during login.

## RBAC Enforcement

With RBAC enforcement, a Junos Space super administrator or user administrator controls the workspaces a user can access, the system resources users can view and manage, and the tasks available to a user within a workspace. RBAC is enforced in the Junos Space user interface navigation hierarchy by workspace, task group, and task. A user can only access those portions of the navigation hierarchy that are explicitly granted through access privileges. The following sections describe RBAC enforcement behavior at each level of the user interface navigation hierarchy.

### Enforcement by Workspace

The Junos Space user interface provides a task-oriented environment in which a collection of related user tasks are organized by workspace. For example, the **Users** workspace defines the group of tasks related to managing users and roles. Tasks include creating, modifying, and deleting users, and assigning roles. Enforcement by *workspace* ensures that a user can view only those workspaces that contain the tasks that the user has

permissions to execute. For example, a user that is assigned the Device Manager role, which grants access privileges to all tasks in the **Devices** workspace, can access only the **Devices** workspace. No other workspaces are visible to this user unless other roles are assigned to this user.

### RBAC Enforcement Not Supported for Getting Started Panel

RBAC enforcement is not enabled for the contents of the Getting Started panel. Consequently, a user who does not have certain access privileges can still view the steps displayed in the Getting Started panel. For example, a user without privileges to manage devices will still see the Discover Devices step. However, when the user clicks on the step, Junos Space displays an error to indicate that the user might not have permission to access the workspace or tasks to which the step is linked.

- Related Topics**
- Understanding How to Configure Users to Manage Objects in Junos Space on page 172
  - Predefined Administrator Roles on page 173
  - Creating Users on page 179
  - Viewing User Statistics on page 183
  - Viewing Users on page 184

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## Understanding How to Configure Users to Manage Objects in Junos Space

Junos Space is shipped with a super administrator that has full access to the Junos Space system. When you first log on to Junos Space with the default super administrator, you can perform all tasks and access all Junos Space system resources. The super administrator can create new users and assign roles to those users to specify which workspaces and system resources users can access and manage, and which tasks users can perform within each workspace.

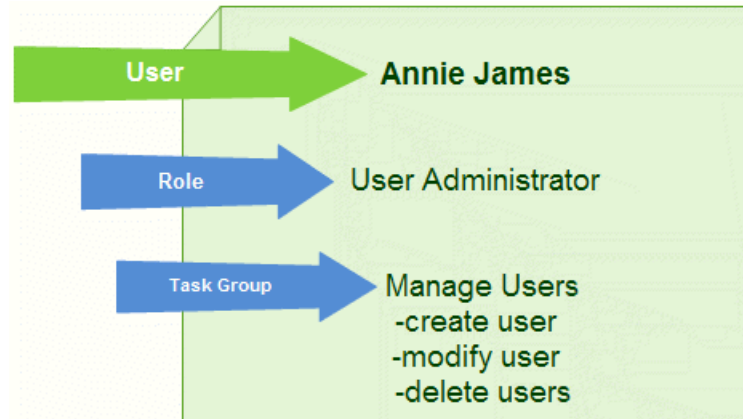
After you first setup Junos Space, you can disable the super administrator, if necessary. However, before disabling the default super administrator, you should first create another user with super administrator privileges.

To access and manage Junos Space system resources, a user must be assigned at least one role. A *role* defines the tasks (create, modify, delete) that can be performed on the objects (devices, users, roles, services, customers) that Junos Space manages. For complete information on the predefined roles, see “Predefined Administrator Roles” on page 173.

Users receive permission to perform tasks only through the roles that they are assigned. In most cases, a single role assignment enables a user to view and perform tasks on the objects within a workspace. For example, a user assigned the Device Manager role can discover devices, resynchronize devices, view the physical inventory and interfaces for devices, and delete managed devices. A user that is assigned the user administrator role can create, modify, and delete other users in Junos Space, and assign and remove roles.

Typically a role contains one or more task groups. A *task group* provides a mechanism for grouping a set of related tasks that can be performed on a specific object. The following

illustration shows the task group and associated tasks that are available to a user that is assigned the User Administrator role.



**NOTE:** You can assign multiple roles to a single user, and multiple users can be assigned the same role.

- Related Topics**
- Role Based Access Control Overview on page 171
  - Creating Users on page 179
  - Viewing Users on page 184
  - Viewing User Statistics on page 183

## Predefined Administrator Roles

Junos Space provides predefined roles that you can assign to users to define administrative responsibilities and specify the management tasks that a user can perform within applications and workspaces.

To assign roles to other users in Junos Space, a user must be a Super Administrator or User Administrator.

Each predefined role defines a set of tasks for a single workspace, except the super administrator role, which defines all tasks for all workspaces. By default, Junos Space provides Read privileges on all objects associated with the task groups defined in a predefined role.

Table 26 on page 173 shows the Junos Space predefined roles for the Network Application Platform.

**Table 26: Predefined Roles for the Network Application Platform**

Predefined Role	Task Group and Tasks	Workspace
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Table 26: Predefined Roles for the Network Application Platform (*continued*)

User Administrator	<ul style="list-style-type: none"> <li>• Manage Users               <ul style="list-style-type: none"> <li>• Create User</li> <li>• Modify User</li> <li>• Delete Users</li> </ul> </li> </ul>	Users
Job Manager	<ul style="list-style-type: none"> <li>• Manage Jobs               <ul style="list-style-type: none"> <li>• Cancel Job</li> </ul> </li> </ul>	Job Management
System Administrator	<ul style="list-style-type: none"> <li>• Manage Fabric               <ul style="list-style-type: none"> <li>• Add Fabric Node</li> </ul> </li> <li>• Manage Databases               <ul style="list-style-type: none"> <li>• Backup Database</li> <li>• Delete Database Backup</li> <li>• Restore Database</li> </ul> </li> <li>• Manage Software               <ul style="list-style-type: none"> <li>• Upload Software</li> <li>• Install Software</li> <li>• Delete Software</li> </ul> </li> <li>• Troubleshoot Space</li> <li>• Manage Applications               <ul style="list-style-type: none"> <li>• Modify Application Settings</li> </ul> </li> <li>• Manage Licenses               <ul style="list-style-type: none"> <li>• Upload License</li> </ul> </li> </ul>	Administration
Audit Log Administrator	<ul style="list-style-type: none"> <li>• View Audit Logs               <ul style="list-style-type: none"> <li>• Archive/Purge</li> </ul> </li> </ul>	Audit Logs
Super Administrator	All Junos Space task groups and tasks (See Platform > Users > Create Users user interface for the current roles.)	All Junos Space workspaces (See Platform > Users > Create Users user interface for the current roles.)
Device Manager	<ul style="list-style-type: none"> <li>• Discover Devices               <ul style="list-style-type: none"> <li>• Discover Targets</li> <li>• Specify Probes</li> <li>• Specify Credentials</li> </ul> </li> <li>• Manage Devices               <ul style="list-style-type: none"> <li>• Delete Devices</li> <li>• View Physical Inventory</li> <li>• View Interfaces</li> <li>• Resynchronize with Network</li> <li>• SSH to Device</li> </ul> </li> <li>• Secure Console</li> </ul>	Devices

Table 27 on page 175 shows the Junos Space predefined roles for the Network Activate application.

Table 27: Predefined Roles for Network Activate Application

Predefined Role	Task Group and Tasks	Workspace
Service Designer	<ul style="list-style-type: none"> <li>• Manage Service Definitions               <ul style="list-style-type: none"> <li>• Create P2P Service Definition</li> <li>• Custom Service Definition</li> <li>• Create VPLS Service Definition</li> <li>• Publish Service Definition</li> <li>• Unpublish Service Definition</li> </ul> </li> </ul>	Service Design
Service Manager	<ul style="list-style-type: none"> <li>• Manage Device Roles               <ul style="list-style-type: none"> <li>• Rules</li> <li>• Discovery Roles</li> <li>• Unassign NPE Role</li> <li>• Manage Device UNIs</li> <li>• Delete UNI</li> <li>• Add Device UNIs</li> <li>• Assign UNI</li> <li>• Assign Roles</li> <li>• Modify Loopback Address</li> <li>• Manage Device UNIs</li> <li>• Exclude from UNI Role</li> <li>• Exclude from NPE Role</li> <li>• Assign NPE Role</li> </ul> </li> </ul>	Prestage Devices
Service Activator	<ul style="list-style-type: none"> <li>• Manage Customers               <ul style="list-style-type: none"> <li>• Create Customer</li> <li>• Modify Customer</li> <li>• Delete Customers</li> </ul> </li> <li>• Manage Service Orders               <ul style="list-style-type: none"> <li>• Create P2P Service Order</li> <li>• Deploy Service Order</li> <li>• Delete Service Order</li> <li>• Create VPLS Service Order</li> </ul> </li> <li>• Manage Services               <ul style="list-style-type: none"> <li>• Modify Service</li> <li>• Decommission Service</li> <li>• View Configuration Audit Results</li> <li>• Perform Configuration Audit</li> <li>• View Functional Audit Results</li> <li>• Perform Functional Audit</li> <li>• View Service Configuration</li> </ul> </li> </ul>	Service Provisioning

Table 28 on page 176 shows the Junos Space predefined roles for the Service Now application.

Table 28: Predefined Roles for Service Now Application

Predefined Role	Task Group and Tasks	Workspace
Service Now Administrator	<ul style="list-style-type: none"> <li>Administration               <ul style="list-style-type: none"> <li>Service Now Devices                   <ul style="list-style-type: none"> <li>Add Devices</li> </ul> </li> <li>Script Bundles                   <ul style="list-style-type: none"> <li>Add Script Bundle</li> </ul> </li> <li>Organizations                   <ul style="list-style-type: none"> <li>Add Add Organization</li> </ul> </li> <li>Global Settings                   <ul style="list-style-type: none"> <li>SNMP Configuration</li> <li>Proxy Server Configuration</li> </ul> </li> <li>Service Contract</li> <li>Device Groups                   <ul style="list-style-type: none"> <li>Create Device Group</li> </ul> </li> </ul> </li> <li>Service Central               <ul style="list-style-type: none"> <li>Incidents                   <ul style="list-style-type: none"> <li>View Tech Support Cases</li> </ul> </li> <li>JMB Errors</li> <li>Information                   <ul style="list-style-type: none"> <li>Messages</li> <li>Device Snapshots</li> </ul> </li> <li>Notifications                   <ul style="list-style-type: none"> <li>Create Notifications</li> </ul> </li> </ul> </li> </ul>	All workspaces
Service Now Unrestricted User	<ul style="list-style-type: none"> <li>Administration               <ul style="list-style-type: none"> <li>Service Now Devices</li> </ul> </li> <li>Service Central               <ul style="list-style-type: none"> <li>Incidents                   <ul style="list-style-type: none"> <li>View Tech Support Cases</li> </ul> </li> <li>JMB Errors</li> <li>Information                   <ul style="list-style-type: none"> <li>Messages</li> <li>Device Snapshots</li> </ul> </li> </ul> </li> <li>Notifications               <ul style="list-style-type: none"> <li>Create Notifications</li> </ul> </li> </ul>	Administration  Service Central



Table 28: Predefined Roles for Service Now Application (*continued*)

Service Now Read Only User	• Administration	Administration
	• Service Now Devices	Service Central
	• Service Control	
	• Incidents	
	• View Tech Support Cases	
	• JMB Errors	
	• Information	
	• Messages	
	• Device Snapshots	
	• Notifications	

Table 29 on page 177 shows the Junos Space predefined roles for the Ethernet Design application.

Table 29: Predefined Roles for Ethernet Design Application

Predefined Role	Task Group and Tasks	Workspace
Network Engineer	<ul style="list-style-type: none"> <li>• Port Profiles</li> <li>• Create Port Profile</li> <li>• Provision Port Profile</li> </ul>	EZ Campus Design

- Related Topics**
- Role Based Access Control Overview on page 171
  - Understanding How to Configure Users to Manage Objects in Junos Space on page 172
  - Creating Users on page 179
  - Viewing Users on page 184
  - Viewing User Statistics on page 183



## CHAPTER 20

# User Administration

- Creating Users on page 179
- Modifying a User on page 181
- Deleting Users on page 182
- Changing User Passwords on page 183
- Viewing User Statistics on page 183
- Viewing Users on page 184

### Creating Users

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The Create User task allows the administrator to create Junos Space user accounts that specify the credentials and predefined roles allowing users to log in and use Junos Space applications, workspaces, and tasks. Each user account must include a login ID, password, first name, and last name..

For each user, you can assign roles that define the tasks and objects (devices, users, services, and so forth) that the user can access and manage. You can assign multiple roles to a single user and assign the same role to multiple users.

The Use Same Roles Assigned To option, allows you to quickly create multiple user accounts without having to reselect the same predefined roles. To see the available predefined user roles, open the Create User dialog box by navigating to Platform > Users > Manage Users > Create User task.



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**NOTE:** A user can access all the objects within the workspace that the assigned role controls.

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- Creating a New User Account on page 179

### Creating a New User Account

To create a new user account:

1. Navigate to Platform > Administration > Users > Create User task. The Create User dialog box appears.
2. In the Login ID field, enter a login ID for the new Junos Space user account.

The login ID cannot exceed 32 characters. Allowable characters include dash (-), underscore (\_), letters, and numbers.

3. In the Password field, enter a password for the user account.

The password must include at least two numbers or symbols and must be from 6 to 31 characters.



**NOTE:** All passwords in Junos Space are case-sensitive.

4. In the Confirm Password field, reenter the password you entered.
5. In the First Name field, enter the user's first name. The name cannot exceed 32 characters.
6. In the Last Name field, enter the user's last name. The name cannot exceed 32 characters.
7. In the Email field, enter the user's e-mail address.
8. In the Image File field, upload the user's photo ID:

- a. Use the **Browse** button to locate the user's photo ID file.

You can upload BMP, GIF, JPG, and PNG image file formats.

- b. Click **Upload**.

Junos Space uploads and saves the photo ID file for the user account.



**NOTE:** If you not want to assign the user roles at this point, you can click **Create** to create the user account without assigning any roles. You can use the **Platform > Users > Manage Users** workspace later to modify the user account and assign roles. If you want to assign user roles now, proceed to the next step.

9. To assign roles to the new user, do one of the following:
  - Select one or more roles from the Available Roles list box and click the right arrow to move the roles to the Selected Roles column. You can also double-click a role to select it. You see the details of the selected role(s) appear to the right in the dialog box.
  - Select the **Use Same Roles Assigned to** check box and the select the name of an existing user whose roles to use to assign to the new user.



**TIP:** Enter one or more characters of the existing user's name in the **Use Same Roles Assigned to** drop-down list box text field to open the drop-down list box and select a user's name. The assigned roles appear in the Selected roles list box. You can modify

the new user's role assignments by adding or removing roles from the **Selected Roles** column.

10. Click **Create** to create the user account with the assigned roles.

The new user account is created in the Junos Space database. You see the new user account on the Manage Users inventory page.

- Related Topics**
- Understanding How to Configure Users to Manage Objects in Junos Space on page 172
  - Predefined Administrator Roles on page 173
  - Changing User Passwords on page 4
  - Modifying a User on page 181
  - Deleting Users on page 182
  - Viewing Users on page 184

## Modifying a User

A Super Administrator or User Administrator can modify any user account in Junos Space. You can add or remove roles and modify any user settings except the Login ID.

Each user account can have multiple roles and a role can be associated with multiple users.

To modify an existing user account:

1. Navigate to Platform > Users > Manage Users. The Manage Users inventory page appears.
2. From the inventory panel, select the user account that you want to modify.



**NOTE:** You can modify only one user account at a time.

3. From the Actions drawer, select **Modify User**. The Manage Users dialog box appears filled in with the existing user account information.
4. You can change the password, first name, last name, e-mail address, photo ID, and the selected roles.
  - To change the password, you must include at least two numbers or symbols in the new password and the password must be from 6 to 31 characters. All passwords in Junos Space are case-sensitive.
  - To change the user name, enter a new name in the First Name and/or Last Name fields.
  - To change the e-mail account, enter a new e-mail address in the Email field.

- To upload another image file:
    - a. Use the **Browse** button to locate the new user photo ID file.  
You can upload BMP, GIF, JPG, and PNG image file formats.
    - b. Click the **Upload** button.  
Junos Space updates the photo ID file for the user account.
  - To add or remove role assignments:
    - To add role assignments, select one or more roles from the Available Roles column and click the right arrow to move the roles to the Selected Roles column.
    - To remove role assignments, select one or more roles from the Selected Roles and click the left arrow to move the roles to the Available Roles column.
5. Click **Modify** to save your changes to the user account.  
Junos Space updates the user account with the changes you specified.

- Related Topics**
- Understanding How to Configure Users to Manage Objects in Junos Space on page 172
  - Creating Users on page 179
  - Deleting Users on page 182
  - Viewing Users on page 184

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## Deleting Users

When a Junos Space user leaves your organization or no longer needs access to the system, the administrator should delete the existing user account.

To delete one or more users:

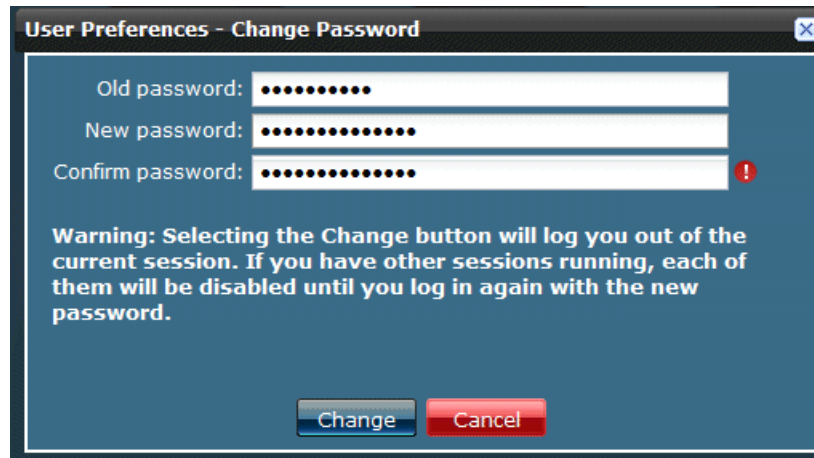
1. Navigate to Platform > Users > Manage Users. The Manage Users inventory page appears displaying all user accounts.
2. Select one or more users to delete.
3. In the Actions drawer, click **Delete Users**. The Delete Users confirmation window appears.
4. Verify the list of users that you want to delete, and click **Delete**. All selected user accounts are removed from the Junos Space database and the Manage Users inventory page.

- Related Topics**
- Creating Users on page 179
  - Modifying a User on page 181
  - Viewing Users on page 184

## Changing User Passwords

Any logged in user can change their account password using the User Preferences icon in the Junos Space banner. You do not have to have any user roles configured to change your password.

To change your user password, follow these steps:

A screenshot of a web-based dialog box titled "User Preferences - Change Password". It features three input fields: "Old password:", "New password:", and "Confirm password:", each followed by a series of dots representing masked text. A red exclamation mark icon is positioned to the right of the "Confirm password:" field. Below the input fields, a warning message is displayed: "Warning: Selecting the Change button will log you out of the current session. If you have other sessions running, each of them will be disabled until you log in again with the new password." At the bottom of the dialog, there are two buttons: "Change" (blue) and "Cancel" (red).

1. Click the User Preferences icon in the Junos Space banner. The User Preferences – Change Password dialog box appears.
2. Type your old password.
3. Type your new password. The password must be 6 to 31 characters long, including 2 numbers or symbols.
4. Retype your password again to confirm it.
5. Click Change. You are logged out of the system. You have to log in again using your new password. Any open sessions are disabled until you log in again.

- Related Topics**
- Creating Users on page 179
  - Logging In To the System on page 3

## Viewing User Statistics

You can view the percentage and the number of Junos Space users that have been assigned to a role.

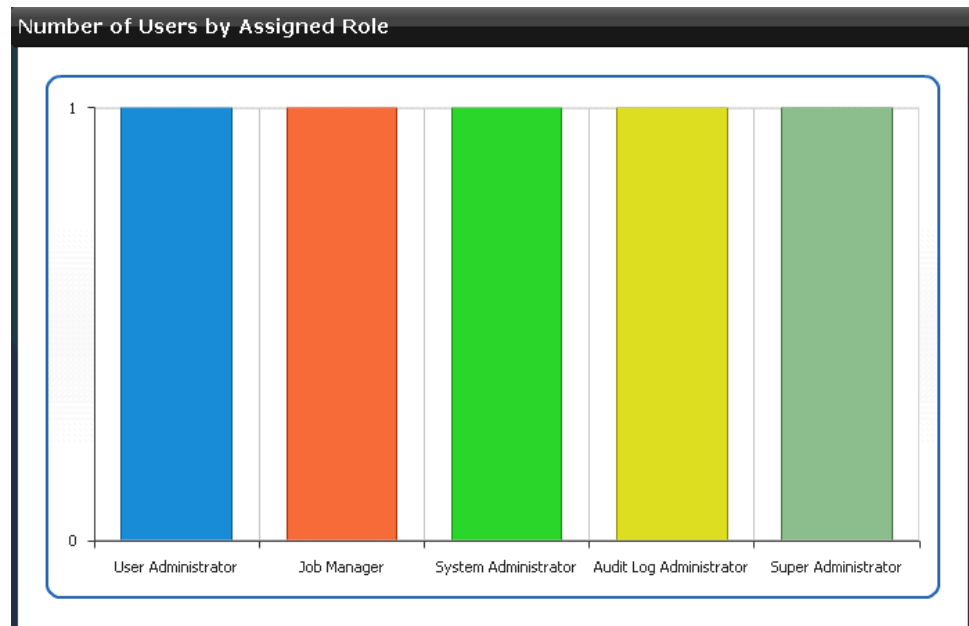
- Viewing the Number of Users Assigned by Role on page 183

### Viewing the Number of Users Assigned by Role

To view the percentage of total users that have been assigned to a predefined role:

1. From the task ribbon, select the **Users** workspace.

Junos Space displays a bar chart showing users by assigned role.



The bar chart displays the number of users assigned to each role that has one or more assigned users.

2. To view the number of users assigned to a specific role, mouse over the role in the chart.
3. To display an inventory view of users assigned to a specific role, click on the segment of the chart that represents the role.

- Related Topics**
- Role Based Access Control Overview on page 171
  - Viewing Users on page 184
  - Creating Users on page 179
  - Deleting Users on page 182

## Viewing Users

The Manage Users inventory page displays all of the Junos Space users who have accounts. To add new users, you must have administrator privileges. Use Platform > Users > Manage Users > Create User to add a new user (see “Creating Users” on page 179). Users have Junos Space access based on predefined user roles (see “Predefined Administrator Roles” on page 173). For more information about how to manipulate inventory page data, see “Inventory Pages Overview” on page 28.

- Changing Views on page 185
- Viewing User Details on page 185
- Performing Manage User Commands on page 185



## Changing Views

You can display user in two views: thumbnail and tabular. By default, users appear on the page in thumbnail view.

In thumbnail view, users appear as icons listed in descending order alphabetically by user name. Each user has name.

In tabular view, users appear in a table sorted by username. Each user is a row in the Manage Users table.

To change views:

1. Navigate to Platform > Users > Manage Users. The Manage Users page appears.
2. Click a view indicator at the right of the Manage Users page title bar.

## Viewing User Details

To view more detailed user information

- Double-click a user icon in thumbnail view or double-click a row in the table in tabular view.
- Move the zoom slider to the far right. The default zoom slider position is in the middle.

Table 30 on page 185

**Table 30: User Detailed Information and Columns in the Manage Users Table**

Data	Description
Login ID	The login username.
First Name	The user first name.
Last Name	The user last name.
E-mail Address	The user e-mail account.
Assigned Roles	The pre-defined user role(s) assigned to user.
Role Summary	The workspaces and tasks a user can perform based on the predefined user role(s).

## Performing Manage User Commands

You can perform the following commands from the Manage Users Actions drawer:

- Modify User—See “Modifying a User” on page 181
- Delete User—See “Deleting Users” on page 182
- Tag It—“Creating and Using User-Defined Tags” on page 258

- View Tags—"Managing and Viewing Tags" on page 257
- Clear All Selections—Clears all selections that you selected using Select Page. You can also clear all selections by clicking Select None.

- Related Topics**
- Understanding How to Configure Users to Manage Objects in Junos Space on page 172
  - Creating Users on page 179
  - Deleting Users on page 182
  - Modifying a User on page 181
  - Viewing User Statistics on page 183
  - Creating and Using User-Defined Tags on page 258
  - Managing and Viewing Tags on page 257

## PART 7

# Audit Logs

- [Monitoring and Managing Audit Logs on page 189](#)



# Monitoring and Managing Audit Logs

- Junos Space Audit Logs Overview on page 189
- Viewing Audit Logs on page 190
- Viewing Audit Log Statistics on page 191
- Converting the Audit Log File UTC Timestamp to Local Time in Microsoft Excel on page 193
- Archiving and Purging Audit Logs on page 194

## Junos Space Audit Logs Overview

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Audit logs provide a record of Junos Space login history and user-initiated tasks that are performed from the user interface. From the Audit Logs workspace, you can monitor user login/logout activity over time, track device management tasks, view services that were provisioned on devices, and so forth. Junos Space audit logging does not record non-user initiated activities, such as device driven activities, and is not designed for debugging purposes. User-initiated changes made from the Junos Space CLI are logged but are not recorded as audit logs.

To use the audit log service to monitor user requests and track changes initiated by users, you must have Audit Log Administrator.



**NOTE:** Audit Logging is not currently supported for Ethernet Design and Service Now.

Over time, the Audit Log administrator will archive a large volume of Junos Space log entries. Such log entries might or might not be reviewed, but they must be retained for a period of time. The Archive Purge feature helps you manage your Junos Space log volume, allowing you to archive log files and then purge those log files from the Junos Space database. For each Archive Purge operation, the archived log files are saved in a single file, in CSV format. The audit logs can be saved to a local server (the server that functions as the active node in the Junos Space fabric) or a remote network host or media. When you archive data to a local server, the archived log files are saved to the default directory `/var/lib/mysql/archive`.

- Related Topics**
- Archiving and Purging Audit Logs on page 194
  - Viewing Audit Logs on page 190

## Viewing Audit Logs

Audit logs are generated for login activity and tasks that are initiated from the Network Application Platform and Network Activate. The View Audit Logs page displays all tasks.

To view audit logs, a user must have Audit Log Administrator privileges.



**NOTE:** Audit Logging is not currently supported by the Ethernet Design and Service Now applications.

You view audit logs in Junos Space only in tabular view. For more information about how to manipulate inventory page data, see “Inventory Pages Overview” on page 28.

### Viewing Audit Log Details

The Audit Log Details window displays information about the task that was logged, including information about the objects affected by the task.

To view detailed audit log information:

- If an audit log entry does not include a job ID, double-click a table row for the audit log entry. The Audit Log Details window displays information about the task that was logged, including information about the objects affected by the task. Click **OK** to close the Audit Log Detail Window.
- If an audit log entry includes a Job ID, click the Job ID link in the audit log row. The Job Manager inventory view displays information about the job. Click **Return to Audit Logs** to close the Job Manager inventory view and return to the audit logs table.

The fields displayed in the Audit Logs table are described in Table 31 on page 190.

**Table 31: Detailed Audit Logs Information and View Audit Log Table Columns**

Field	Description
User Name	The login ID of the user that initiated the task.
User IP	The IP address of the client computer from which the user initiated the task.
Task	The name of the task that triggered the audit log.
Timestamp	Time is UTC time in database that is mapped to the local time zone of client computer.
Result	<p>The execution result of the task that triggered the audit log:</p> <ul style="list-style-type: none"> <li>• Success—Job completed successfully</li> <li>• Failure—Job failed and was terminated.</li> <li>• Job Scheduled—Job is scheduled but has not yet started.</li> </ul>
Job ID	For each job-based task, the audit log includes the job ID.

Table 31: Detailed Audit Logs Information and View Audit Log Table Columns (*continued*)

Description	A description of the audit log.
<b>Related Topics</b>	<ul style="list-style-type: none"> <li>• Viewing Audit Log Statistics on page 191</li> <li>• Junos Space Audit Logs Overview on page 189</li> <li>• Archiving and Purging Audit Logs on page 194</li> <li>• Inventory Pages Overview on page 28</li> </ul>

## Viewing Audit Log Statistics

The Audit log workspace statistics page provides two graphs: Audit Log Statistical Graph pie chart and the Top 10 Active Users in 24 Hours for the audit log administrator to monitor Junos Space tasks.

The Audit Log Statistical Graph pie chart displays all tasks that have been performed and logged in all Junos Space applications over a specific period of time. You can view Audit Log statistics by task type, user, workspace, and application.



**NOTE:** Audit Logging is not currently supported by the Ethernet Design and Service Now applications.

The Top 10 Active Users in 24 hours graph displays the top 10 Junos Space users who have performed the most tasks over 24 hours. The graph X axis represents the activities performed by a single user. Each active session for that user is represented by a bubble on the X axis. The graph Y axis represents hours. For example, if a single user performed six active sessions during the last 24 hours, the chart displays six bubbles on the X axis according to the hours on the Y axis.

## Viewing the Dynamic Audit Log Statistical Graph

The Audit Log Statistical Graph is an interactive graph that allows the audit log administrator to view audit logs by selecting both category and time frame. The category determines the statistical graph that displays—task, user, workarea, or application. Each slice in the pie graph represents a task type and its percentage of the whole. The tasks types also appear in a list box at the right of the pie chart. Mousing over a section of the pie displays the number of records in that task type. The time frame specifies the period of time within which to show audit log data.

To view the Audit Log Statistical Graph:

1. Select a graph category:
  - Task—shows all tasks that have been performed. Click on each task slice to go to the next level chart showing the users who performed the selected task.

The graph path displays the path to show where you are located in the UI. Click Overview to go back to the top level chart. The task name in the path indicates the currently selected path.

Tasks display in terms of user name or IP address.
  - User names display all users by name. Click a user to go to the inventory page filtered by task, user, and selected time frame.
  - IP address displays all IP address where users performed tasks. Click an IP address to go to the inventory page filtered by task, IP address, and selected time frame.
  - Users displays all users using the system within the time frame. 10 users display per chart. Click Others to go to the next page. Click the previous page link to go back.
  - Workspace displays all workspaces used in the time frame. Click on a workspace slice to go to the inventory page filtered by workspaces.
  - Application displays all applications used. Click a pie slice to go to the inventory page filtered by application and selected time frame.
2. Select a time frame in days, weeks, or months to display audit log data in the pie chart. The default is Days. A time selection description displays just below the time frame area.
  - Days—Days mode displays the past seven days to the selected date. Select single or multiple days. Select multiple days by dragging the mouse
  - Weeks—Weeks mode displays the past five weeks, from past to most current on the right.
  - Months—Months mode displays the past 12 month, from past to most current on the right.

The current day, week, or month is highlighted.



3. Click a slice in the pie chart to view more detailed information. Tasks appear in tabular view by user name, user IP, task, timestamp, results, description, job ID, and level 2 description.

See “Inventory Pages Overview” on page 28 for more information about manipulating the table data.

4. On the inventory page, click an audit log to view more detailed information. For a job-related log entry, there is a column for job-id, by clicking this link you will be led to a new table showing the corresponding Job info.

In the audit log detail view, if there are multiple affected objects for the log entry, the affected object detail always shows the first object detail. Clicking on any object in the list changes the object detail accordingly. If there is no affected object for this log entry, the affected object list is hidden and the object detail part is shown none.

5. Click Return to Audit Logs to go back to Audit Log View.

### Viewing the Top 10 Active Users In 24 Hours Statistics

To view the Top 10 Active Users in 24 Hours graph:

1. In the Top 10 Active Users in 24 Hours graph, double-click a user’s bubble for a particular hour. The View Audit Log page appears with the jobs performed by that user.

Tasks appear by user name, user IP, task, timestamp, results, description, job ID, and level 2 description in tabular view. See “Inventory Pages Overview” on page 28 for more information about manipulating the table data.

- Related Topics**
- Viewing Audit Logs on page 190
  - Junos Space Audit Logs Overview on page 189
  - Inventory Pages Overview on page 28
  - Archiving and Purging Audit Logs on page 194

## Converting the Audit Log File UTC Timestamp to Local Time in Microsoft Excel

You can unzip an audit log \*.gz file. You can open the extracted \*.csv file as a spreadsheet in Microsoft Excel. In Microsoft Excel, you can convert the Coordinated Universal Time (UTC) timestamp column entries to local time.

To convert the UTC time to local time:

1. Retrieve the JunosSpaceAuditLog\_date\_time\_id.csv.gz audit log file from where you archived it. If you archived the file locally, the file is located in /var/lib/mysql/archive.
  - Where *date* specifies the year, month, and day, in yyyy-mm-dd format
  - Where *time* specifies military, 24-hour time in hour, minutes, and seconds (hh-mm-ss) format

- Where *id* is an auto-generated, 13-character random number that uniquely identifies each audit log archive file

For example, JunosSpaceAuditLog\_2010-03-04-00-00-00\_xx...x.csv.gz.

- Unzip the audit log \*.csv file.
- Open the audit log \*.csv file in Microsoft Excel.
- To the left of the **UTC Time** column, insert a new column.
- Label the column header **Local Time**.
- Click the first cell of the new column.
- Insert the following function:  $=XX/86400000 + 25569 - X/24$ 
  - Where *XX* is the cell letter and row number where you want to insert the local time conversion function.
  - Where *X* represents the hours difference between your local time and the UTC time; divided by 24 hours.
- Click Enter. The calculated local time appears.
- Format the local time. Right-click the cell and select **Format Cells**. The Format Cells dialog box appears.
- In the Category list box, select **Date**.
- In the Type list box, select a date format that you want.
- Click OK. The local time and date appears.
- Copy or apply the cell function and formatting to the rest of the rows in the **Local Time** column. The rest of the local times appear as shown.

	A	B	C	D	E	F	G	H	I	J
1	ID	Version	Timestamp	Local Time	UTC Time	User IP	Application	Task	Result	Correlation Tag
2	1900817	0	1.26971E+12	3/27/10 12:58	40264.70696	10.150.113.211	Network Application Platform	Archive/Purge	Job Scheduled	81E07BEDEF597C8CA5ECCEB14347FA29
3	1900821	0	1.26971E+12	3/27/10 13:14	40264.71815	10.150.113.211	Network Application Platform	Logout	Success	\N
4	1966342	0	1.26971E+12	3/27/10 13:24	40264.72546	10.150.113.211	Network Application Platform	Login	Success	\N
5										

- If you want to keep the original audit log file, save it as a different filename.

**Related Topics** • Archiving and Purging Audit Logs on page 194

## Archiving and Purging Audit Logs

The administrator can archive and then purge all audit logs files up to a specified data and time from the Junos Space database. The administrator can archive audit logs to the local server or a remote server location.

The archive file is stored in the The Junos Space archive file uses the following naming conventions:

JunosSpaceAuditLog\_date\_time\_id.csv.gz, where *date* specifies the year, month, and day, in the format *yyyy-mm-dd*, *time* specifies hours, minutes, and seconds, in the format

*hh-mm-ss*, and *id* is a 13 character random number that uniquely identifies each audit log archive file.

This topic includes the following tasks:

- Archiving Audit Logs To a Local Server and Purging the Database on page 195
- Archiving Audit Logs To a Remote Server and Purging the Database on page 196

## Archiving Audit Logs To a Local Server and Purging the Database

You can archive audit logs to the local server. The local server is the server that functions as the active node in the Junos Space fabric.

To archive Junos Space audit log files to the local server and then purge the audit logs from the database:

1. Navigate to Platform > View Audit Logs > Archive Purge. The Archive/Purge dialog box appears.
2. In the Archive Logs Before field, specify the date and time up which to archived and purged audit logs from the Junos Space database. You can only specify a date and time in the past.



**NOTE:** If you do not specify a date and time in the Archive Logs Before field, Junos Space archives then purges from the database all logs generated up to the time that you initiated the operation.

3. In the Archive Mode field, select **local** from the drop-down menu.
4. Schedule the Junos Space Archive/Purge operation:
  - Clear the **Schedule at a later time** check box (the default) to initiate the Archive/Purge operation when you complete this procedure.
  - Select the **Schedule at a later time** check box to specify a later start date and time for the Archive/Purge operation.



**NOTE:** The selected time in the scheduler corresponds to Junos Space server time but using the local time zone of the client computer.

5. Click **Submit**.

The Audit Log Archive and Purge confirmation window displays the audit log file name and the location where it will be saved.

6. Click **Continue** to archive and purge the audit logs.
7. To view job details for the Audit Log Archive/Purge operation, click on the Job Id in the Job Information window; otherwise, click **OK** to close the window.

## Archiving Audit Logs To a Remote Server and Purging the Database

You can archive audit logs to remote network hosts or media.

To back up the Junos Space database to a remote host and then purge those logs from the Junos Space database:

1. Navigate to Platform > View Audit Logs > Archive Purge. The Archive/Purge dialog box appears.
2. In the Archive Logs Before field, select a date and time to specify the date *up to which* all audit logs are to be archived and then purged from the Junos Space database. You can only specify date and time in the past.



**NOTE:** If you do not specify a date and time in the Archive Logs Before field, Junos Space will archive and then purge from the database all logs generated up to the time that you initiated the operation.

3. In the Archive Mode field, select **Remote** from the drop-down menu.
4. Enter a valid user name to access the remote host server.
5. Enter a valid password to access the remote host server.
6. Reenter the password you entered in the previous step.
7. Enter the IP address of the remote host server.
8. Enter a directory path on the remote host server for the archived log files.



**NOTE:** The directory path must already exist on the remote host server.

9. Schedule the Junos Space archive and purge operation:
  - Clear the **Schedule at a later time** check box (the default) to initiate the Archive/Purge operation when you complete this procedure.
  - Select the **Schedule at a later time** check box to specify a later start date and time for the Archive/Purge operation.



**NOTE:** The selected time in the scheduler corresponds to Junos Space server time but using the local time zone of the client computer.

10. Click **Submit**.

The Audit Log Archive and Purge window displays the audit log file location and name and the remote server to which the files copy.

11. Click **Continue** to archive and purge the audit logs.

Junos Space displays the Audit Log Archive and Purge Job Information window.

12. To view job details for the Archive/Purge operation, click the Job Id link.
13. Click **OK** to close the window.

- Related Topics**
- Junos Space Audit Logs Overview on page 189
  - Viewing Audit Logs on page 190



## PART 8

# Administration

- System Administration on page 201
- Fabric Management on page 205
- Database Management on page 217
- Licensing Management on page 229
- Application Management on page 235
- Troubleshooting on page 247
- Managing Tags on page 257





## CHAPTER 22

# System Administration

- Junos Space Administrators Overview on page 201
- Maintenance Mode Overview on page 202

### Junos Space Administrators Overview

Junos Space administrators can serve different functional roles. A CLI administrator installs and configures Junos Space appliances. A maintenance-mode administrator performs system-level tasks, such as troubleshooting and database restore operations. After appliances are installed and configured, users are created from the Junos Space user interface to access workspaces and manage applications, users, devices, services, customers, and so forth.

Table 32 on page 201 shows the Junos Space administrators and the tasks that can be performed.

**Table 32: Junos Space Administrators**

Junos Space Administrator Function	Description	Tasks
CLI administrator	<p>An administrator responsible for setting up and managing system settings for Junos Space appliances from the serial console.</p> <p>The CLI administrator name is “admin”.</p> <p>The CLI administrator password can be changed from the console system settings menu.</p>	<ul style="list-style-type: none"><li>• Install and configure basic settings for Junos Space appliances.</li><li>• Change network and system settings for appliances, for example:<ul style="list-style-type: none"><li>• Change CLI administrator password.</li><li>• Set routing</li><li>• Set DNS servers</li><li>• Change time options</li><li>• Expand VM drive size (Junos Space Virtual Appliances only)</li><li>• Retrieve log files for troubleshooting</li></ul></li></ul>

Table 32: Junos Space Administrators (*continued*)

Maintenance mode administrator	<p>An administrator responsible for performing system-level maintenance on Junos Space.</p> <p>The maintenance mode administrator name is "maintenance".</p> <p>The maintenance mode password is configured from the serial console when you first configure a Junos Space appliance.</p>	<ul style="list-style-type: none"> <li>• Restore Junos Space to previous state by using a database backup file.</li> <li>• Shut down Junos Space nodes by entering maintenance mode.</li> <li>• Retrieve log files for troubleshooting.</li> <li>• Exit Maintenance mode and explicitly start up Junos Space system.</li> </ul>
Junos Space user interface users	<p>A Junos Space user that is assigned one or more predefined roles. Each role assigned to a user provides specific access and management privileges on the objects (applications, devices, users, jobs, services, customers) available from a workspace in the Junos Space user interface.</p>	<p>For complete information about the predefined roles that can be assigned to a Junos Space user, see "Predefined Administrator Roles" on page 173.</p>

- Related Topics**
- Maintenance Mode Overview on page 202
  - Role Based Access Control Overview on page 171
  - Understanding How to Configure Users to Manage Objects in Junos Space on page 172

## Maintenance Mode Overview

In Junos Space, Maintenance mode is a special mode that the administrator uses to perform database restore or debugging tasks while all nodes in the fabric are shutdown and the Junos Space web proxy is running.

The Junos Space system goes into Maintenance mode in the following cases:

- Junos Space goes down.
 

The system will go into Maintenance mode when Junos Space is down on all nodes in the fabric. Users attempting to log in when the system is in Maintenance mode are redirected to the maintenance mode log in screen. Users who logged in to Junos Space before the shutdown and attempt to perform an action in the user interface are also redirected to the maintenance mode log in screen.
- An authorized Junos Space administrator initiates a **Restore Database from Backup** action.

When a user initiates a Restore database action, Junos Space prompts the user for user name and password to enter maintenance mode, as shown in Authentication Required window. After the user is authenticated, Junos Space initiates the restore database operation and the system remains in Maintenance mode until the database is restored and the user exits maintenance mode.

- A Junos Space administrator connects to an appliance in maintenance mode using the URL `https://ip-address/maintenance`, where *ip-address* is the Web access IP address for the appliance.

When a user is authenticated to access Junos Space in maintenance mode, the Maintenance Mode Actions menu displays the tasks a user can perform in Maintenance Mode.

- [Restore Database from Backup](#)  
This action leads user to select a database backup file and overwrite the current database
- [Download Troubleshooting Data and Logs](#)  
This action allows user to download Space logs for troubleshooting
- [Log Out and Remain in Maintenance Mode](#)  
This action logs out the current user so that another administrator can login and manage in maintenance mode
- [Log Out and Exit from Maintenance Mode](#)  
This action returns Space to normal operational mode

When a user exits maintenance mode, Junos Space is restarted. After several minutes, the system returns to normal operational mode, and Junos Space users can log in to the user interface.

## Maintenance Mode Access and System Locking

Only one Maintenance mode administrator can access Maintenance mode at a time. When an administrator logs in to Maintenance mode, Junos Space locks the page. When a second administrator attempts to log in to Maintenance mode while the first administrator is logged in, Junos Space displays a message indicating that another administrator is currently logged in to the system and that Maintenance Mode is locked. The Maintenance mode lock releases when the first administrator logs out or the lock times out. If the logged-in administrator is inactive, the maintenance mode lock is released after 5 minutes at which time another administrator can log in.

## Maintenance Mode User Administration

The user name for the maintenance mode administrator is “maintenance”.

The password for the maintenance mode administrator is set from the Junos Space system console during the initial installation/configuration of a Junos Space appliance or virtual appliance.

- Related Topics**
- Restoring a Database in the User Interface on page 222
  - Restoring a Database in Maintenance Mode on page 224
  - Backing Up the Database on page 219
  - Database Backup and Restore Overview on page 217



## CHAPTER 23

# Fabric Management

- Understanding Overall System Condition and Fabric Load on page 205
- Fabric Management Overview on page 207
- Viewing Nodes in the Fabric on page 211
- Adding a Fabric Node on page 214

### Understanding Overall System Condition and Fabric Load

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You can view the overall Junos Space system condition and fabric load from the platform application dashboard or from the Administration workspace landing page.

#### System Condition

To calculate the overall system condition, Junos Space uses an algorithm based on cluster health and node-function health:

- Cluster health indicates the percentage of nodes in the fabric that are currently running.  
For example, if only three nodes are reachable in a four-node fabric, cluster health is 75%.
- Load-balancer health indicates the percentage of nodes (enabled for load balancing) that are running the load balancing process.  
For example, if two nodes are enabled for load balancing and the load-balancing process is running on only one node, the load-balancing health is 50%.
- Database health indicates the percentage of nodes (enabled for database requests) that are running the database process.  
For example, if two nodes are enabled as database server and the database process is running on only one node, then database health is 50%.
- Application-logic health indicates the percentage of nodes (enabled for application logic (DML and business logic)) that are running the application-logic process.  
For example, if three nodes are enabled for application logic and the application-logic process is running on only two nodes, then application-logic health is 67%.

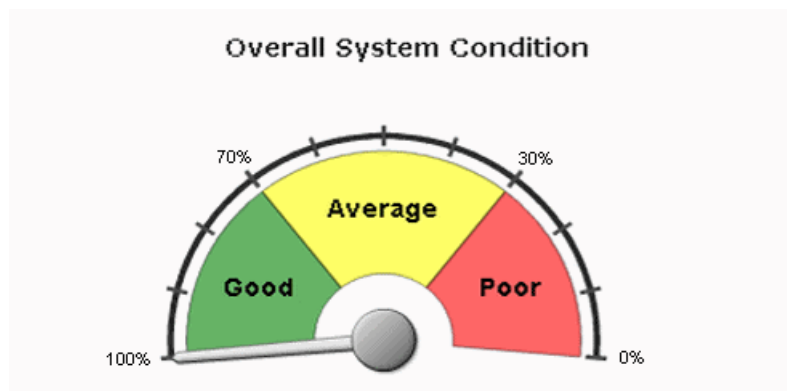
Junos Space retrieves data on the nodes and the node functions running, and then applies the following algorithm to determine the overall system condition:

overall system condition = [ (number of nodes running) / (number of nodes in fabric) ] \* [ (number of nodes running load balancing process) / (number of nodes enabled for load balancing) ] \* [ (number of nodes running database server process) / (number of nodes enabled as database server) ] \* [ (number of nodes running application logic process) / (number of nodes enabled for application logic) ]

Using the preceding examples for cluster health and node-function health, the overall system condition is expressed as a percentage:

overall system condition = 75% \* 50% \* 50% \* 67% = 12.5%

The Overall System Condition window indicates Poor (0–30%), Average (30–70%), or Good (70–100%), based on the value the algorithm returns.

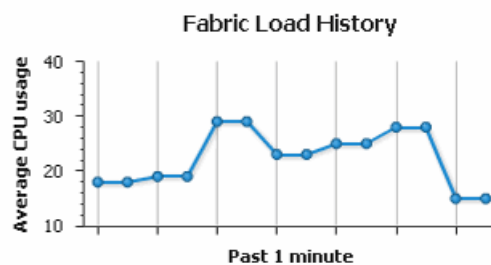


The overall system health indicates 0% (Poor) when any one of the following conditions is detected:

- No nodes in the fabric are running.
- No nodes enabled for load balancing are running the load balancing process.
- No nodes enabled for database requests are running the database process.
- No nodes enabled for application logic are running the application logic process.

## Fabric Load

The Fabric Load chart displays the average CPU usage across all nodes that are running in the fabric.



Junos Space uses the following algorithm to determine the fabric load:

$\text{fabric load} = [ \text{total CPU usage for all nodes running} ] / [ \text{number of nodes running} ]$

For example, given a fabric with three nodes running and CPU usage of 80%, 30%, and 10%, respectively, the fabric load is 40%. The following example illustrates how the fabric load is calculated.

$\text{fabric load} = [ 80\% + 30\% + 10\% ] / 3$   
 $\text{fabric load} = 120\% / 3$   
 $\text{fabric load} = 40\%$

To view the average CPU use at a specific data point, drag the mouse over the data point of interest.

To obtain details about the status of the fabric, click any data point in the graph. The Fabric Monitoring window is displayed and shows detailed status for each node in the fabric. Status information includes CPU, disk, and memory usage and indicates up or down status for each node function enabled on the node.

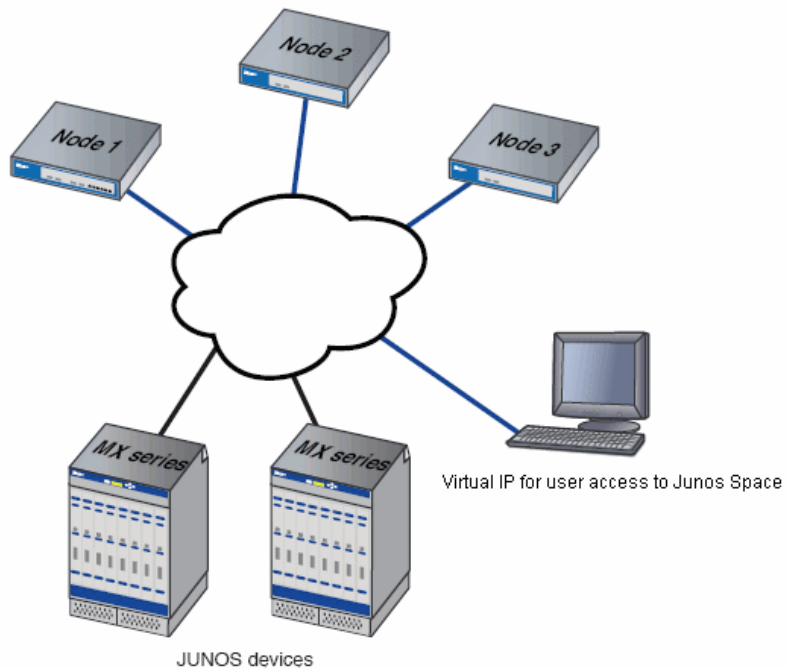
- Related Topics**
- Fabric Management Overview on page 207
  - Junos Space User Interface Overview on page 12

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## Fabric Management Overview

You can deploy Junos Space appliances to create a fabric that provides the scalability and availability that your managed network requires as you add more devices, services, and users.

A Junos Space fabric comprises one or more IP-connected nodes. A *node* is a logical object that represents a single JA1500 Junos Space Appliance or Junos Space Virtual Appliance, its operating system, and the Junos Space software that runs on the operating system. Each Junos Space appliance or virtual appliance that you install and configure is represented as a single node in the fabric. You can add nodes without disrupting the services that are running on the fabric. When you add nodes to the fabric, you can manage and monitor the nodes from the Administration workspace. To add, manage, and monitor nodes in the fabric, a fabric administrator connects to a single virtual IP address, as shown in the illustration.



NOTE: All appliances (nodes) in a fabric must be from same Junos Space release. For example, a fabric comprises Junos Space Release 1.1 appliances or Junos Space Release 1.2 appliances, but not both.

## Single Node Functionality

When the fabric comprises a single appliance, all devices in the managed network connect to the appliance. When you install and configure the first appliance, Junos Space automatically creates a fabric with one node. By default, a fabric that consists of a single node provides complete Junos Space management functionality, with the following *node functions* enabled for the node:

- Load Balancer— for processing HTTP requests from remote browsers and NBI clients
- Database— for processing database requests (create, read, update, and delete operations)
- Application Logic— for processing back-end business logic (Junos Space service requests) and DML workload (device connectivity, device events, and logging)



NOTE: A fabric that comprises a single node provides no workload balancing and no backup if the appliance goes down.



## Multinode Functionality

As your network expands with new devices, services, and users, you can add Junos Space appliances to handle the increased workload. When you install and configure the first appliance, Junos Space automatically creates a fabric with one node. For each additional appliance you install and configure, you must add a node to logically represent the appliance in the fabric. Each node that you add to the fabric increases the resource pool for the node functions to meet the scalability and availability requirements of your network. By default, Junos Space automatically enables node functionality across the nodes in the fabric to distribute workload. The nodes in the fabric work together to provide a virtualized resource pool for each of the node functions: load balancer, database, and application logic.

The Junos Space node functions distribute workload across operating nodes according to the following load-distribution rules:

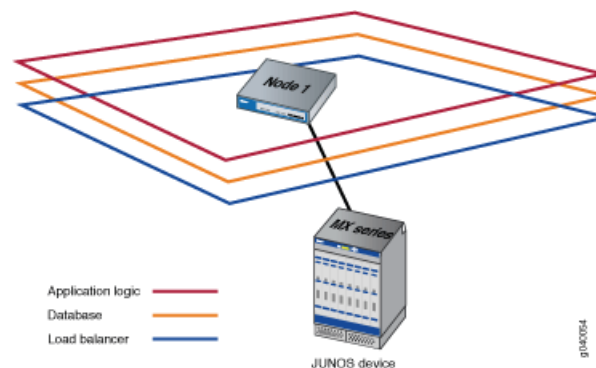
- **Load Balancer**— When a node that functions as the active load balancer server is down, all HTTP requests are automatically routed to the standby load balancer server that is running on a separate node.
- **Database**— When a node that functions as the active database server is down, all database requests (create, read, update, and delete) are routed to the node that functions as the standby database server.
- **Application Logic (DML and business logic)**— Device connections and user requests are distributed among the nodes, and device-related operations are routed to the node to which the device is connected.

Junos Space uses the following algorithm to ensure that the number of devices connected to a node does not exceed the threshold limit for each node:

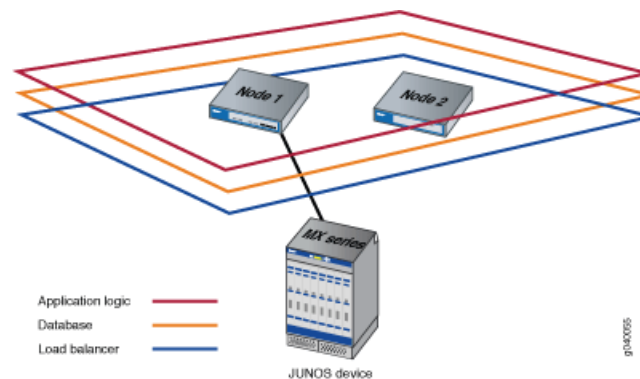
$$\text{Threshold Limit} = [ (\text{number of devices in database}) / (\text{number of nodes running}) ] + 2$$

The following workflow describes how the node functions are enabled across the fabric as nodes are added:

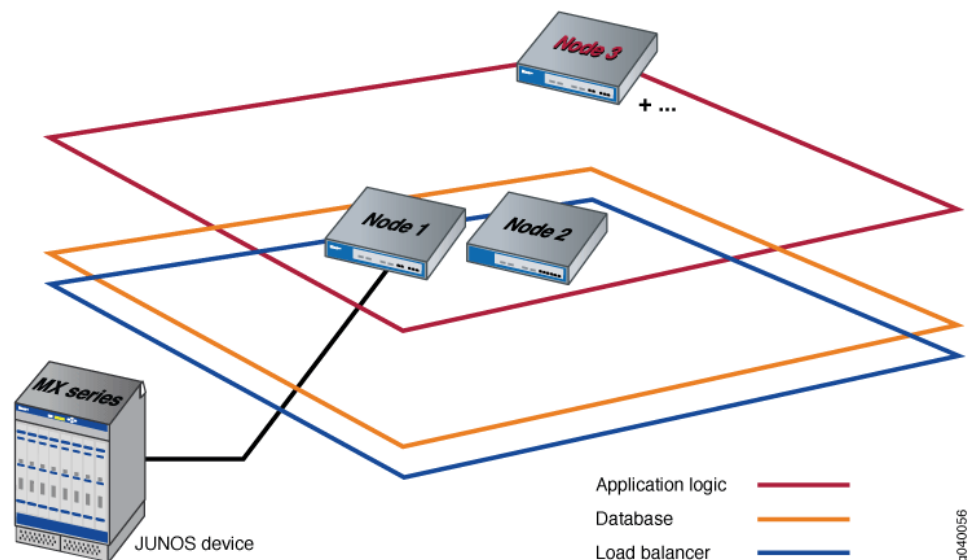
- **First node up:** The load balancer, database, and application logic functions are enabled on the node. Each node function provides both scalability and high availability. The following illustration shows all functions enabled on fabric comprising one node.



- Add second node: When a second node is added to the fabric, the first node functions as the active load balancer server and active database server, and the second node functions as the standby load balancer server and standby database server. The load balancer and application logic node functions provide scalability and high availability. The database node function on the second node provides high availability only. The following illustration shows the functions enabled on a fabric comprising two nodes.



- Add third node: Only the application logic functionality is enabled on the third node to provide equal distribution of device connections and user requests across all nodes, and route device-related operations to the node to which the device is connected. The application logic functionality provides both scalability and high availability. The following illustration shows the functions enabled on a fabric comprising three nodes.



**NOTE:** For the third node and each subsequent node added to the fabric, only the application logic functionality is enabled.

## Node Function Availability

In a fabric comprising two or more nodes, Junos Space provides failover when a node functioning as the active server (load balancer server or database server) goes down. By default, Junos Space marks a particular node down and routes failover requests to the node that Junos Space designates as standby server. Junos Space uses a heartbeat mechanism to check whether the nodes in the fabric are running. When a node functioning as the active server fails (the appliance physically crashes or stops sending heartbeats), the node functioning as the standby server takes over all resources that were managed by the node functioning as active server.

- Related Topics**
- Adding a Fabric Node on page 214
  - Viewing Nodes in the Fabric on page 211

## Viewing Nodes in the Fabric

The Fabric Monitoring inventory page allows the administrator to view configuration and runtime information for each node in the Junos Space fabric. You can also monitor the status of the database, load balancer, and application logic functions running on each node, and identify nodes that are overloaded or down. The Fabric Monitoring inventory page refreshes every 10 seconds, by default.

For information about adding a fabric node, see [Adding a Node to an Existing Fabric](#).

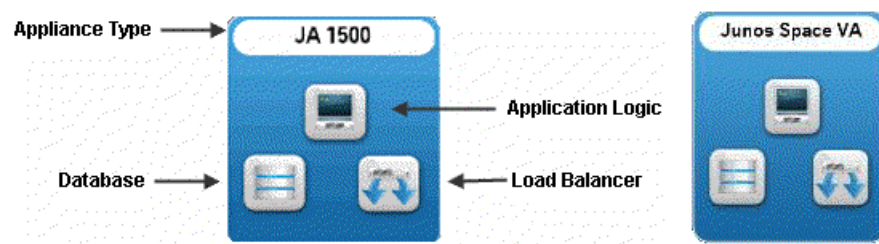
- Changing Views on page 211
- Viewing Fabric Node Details on page 212

## Changing Views

You can display fabric monitoring in two views: thumbnail and tabular. By default, fabric monitoring objects appear in thumbnail view.

In thumbnail view, fabric monitoring appears as icons listed in descending order alphabetically by node name. Each fabric has a node name.

Each node in the fabric is represented by a thumbnail, which indicates whether the node is a JA1500 Junos Space Appliance (JA1500) or a Junos Space Virtual Appliance (Junos Space VA), and the node functions (database, load balancer, or application logic) that run (whether up or down) on the appliance. For example, icons for the JA1500 Junos Space appliance and virtual appliance are shown.



In tabular view, fabric nodes appear in a table sorted by node name. Each fabric is a row in the Fabric Monitoring table.

To change views:

1. Navigate to Platform > Administrator > Manage Fabric. The Manage Fabric page appears.
2. Click a view indicator at the right of the Manage Fabric page title bar.

## Viewing Fabric Node Details

To view detailed runtime and status information for a node:

- Double-click a node in either thumbnail or tabular views. The View Node Details page appears.
- In Fabric Monitoring thumbnail view, move the zoom slider to the far right.

Table 33 on page 212 describes the node information displayed in each column in the table and from the detailed view.

**Table 33: Fields for the Fabric Monitoring Inventory Panel**

Field	Description
Node Name	<p>The logical name assigned to the node.</p> <p>NOTE: For the first node, Junos Space uses the node name that the user specifies during the initial configuration of the Junos Space appliance (physical or virtual). For each subsequent node, the user must specify a node name when adding the node to the fabric.</p>
Management IP	The IP address for the node.
Status	<p>Connection status for the node.</p> <ul style="list-style-type: none"> <li>• UP—Node is connected to the fabric.</li> <li>• DOWN—Node is disconnected from the fabric.</li> </ul>
% CPU	<p>The percentage of CPU resource utilized by the node.</p> <ul style="list-style-type: none"> <li>• Unknown—The percentage of CPU utilized is unknown, for example, because the node is not connected.</li> </ul>
% RAM	<p>The percentage of memory resource utilized by the node.</p> <ul style="list-style-type: none"> <li>• Unknown—The percentage of memory utilized is unknown, for example, because the node is not connected.</li> </ul>
% Disk	<p>The percentage of the /var directory utilized by the node.</p> <ul style="list-style-type: none"> <li>• Unknown—The percentage of the /var directory utilized by the node is unknown, for example, because the node is not connected.</li> </ul>

Table 33: Fields for the Fabric Monitoring Inventory Panel (*continued*)

Field	Description
App Logic	<p>Application Logic function status for the node.</p> <ul style="list-style-type: none"> <li>UP— Application Logic function is running on node.</li> <li>DOWN—Application Logic function enabled on the node but is not running.</li> <li>Unknown—Status for the application logic function is unknown, for example, because the node is not connected.</li> <li>N/A— Application Logic function is not configured to run on the node.</li> </ul>
Database	<p>Database function status for the node.</p> <ul style="list-style-type: none"> <li>UP—Database function is running on node.</li> <li>DOWN—Database function that is enabled on the node but is not running.</li> <li>Unknown—Status for the Database function is unknown, for example, because the node is not connected.</li> <li>N/A—Database function is not configured to run on the node.</li> </ul> <p>NOTE: By default, the Database function is enabled on no more than two nodes in the fabric.</p>
Hardware Model	<p>Model of Junos Space Appliance.</p> <p>NOTE: Hardware model is displayed when you double-click a thumbnail or table row for a detailed view of the node.</p> <p>NOTE: Hardware model only applies for a Junos Space physical appliance.</p>
Load Balancer	<p>Load Balancer function for the node.</p> <ul style="list-style-type: none"> <li>UP – Load Balancer function is running on the node.</li> <li>DOWN – Load Balancer function that is enabled on the node is not running.</li> <li>Unknown – Status for the Load Balancer function is unknown, for example, because the node might not be connected.</li> <li>N/A – Load Balancer function is not running because it is not configured to run on the node.</li> </ul> <p>NOTE: By default, the Load Balancer function is enabled on no more than two nodes in the fabric.</p>
Serial Number	<p>Serial Number for the Junos Space appliance.</p> <p>NOTE: Serial number is displayed when you double-click a thumbnail or table row for a detailed view of the node.</p>
Software Version	<p>Junos Space Release Version.</p> <p>NOTE: Software version is displayed when you double-click a thumbnail or table row for a detailed view of the node.</p>

For more information about manipulating data on the Fabric Monitoring inventory page, see “Inventory Pages Overview” on page 28

**Related Topics**

- Adding a Fabric Node on page 214
- Understanding Overall System Condition and Fabric Load on page 205
- Fabric Management Overview on page 207

- Adding a Node to an Existing Fabric
- Inventory Pages Overview on page 28

## Adding a Fabric Node

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You can install one or more Junos Space appliances to create a scalable fabric. A Junos Space *appliance* can be either a JA1500 Junos Space Appliance or a Junos Space Virtual Appliance. Each Junos Space appliance that you install is represented as a single node in the fabric. As the number of devices on your network expands, you can add nodes to the fabric to manage the increased workload. By default, the Junos Space fabric contains a single node that provides complete Junos Space management functionality. When you install and configure the first appliance, Junos Space automatically adds the first node to the fabric and uses the logical node name that you assign to the appliance when you configure the appliance in the command line interface. For each additional appliance that you install and configure, you must add the node in Junos Space to represent the appliance in the fabric.

- Adding a Fabric Node on page 214

## Adding a Fabric Node

You can add one or more nodes to the existing Junos Space fabric, but you can add only one node at a time.

To add a fabric node:

1. Navigate to Platform > Administration ? Manage Fabric > Add Fabric Node. The Add Fabric Node dialog box appears.



**NOTE:** Before you add a node to the Junos Space fabric, make sure that no jobs are pending. No new jobs will be scheduled to run until the add node job has completed.

2. In the Name field, enter a name for the node.
3. In the IP address field, enter the IP address of the JA1500 Junos Space appliance or Junos Space Virtual appliance.
4. In the Schedule at a later time area of the Add Fabric Node dialog box, schedule when you want to add a fabric node:
  - Clear the **Schedule at a later time** check box (the default) to initiate the add node operation when you complete this procedure.
  - Select the **Schedule at a later time** check box to specify a later start date and time for the add node operation.



NOTE: The selected time in the scheduler corresponds to Junos Space server time but is mapped to the local time zone of the client computer.

5. Click **Add** to add the node to the fabric.

The node is added to the fabric and is displayed in the Junos Space user interface and database. When you add a node, the node functions are automatically assigned by Junos Space. By default, the first and second nodes added to a fabric perform all the following functions:

- Database— for processing database requests (create, read, update, and delete operations)
- Load Balancer— for processing HTTP requests from remote browsers and NBI clients
- Application Logic— for processing back-end business logic (Junos Space service requests), and DML workload (device connectivity, device events, and logging)

The third node (and all subsequent nodes) added to a fabric perform only the Application Logic function.

- Related Topics**
- Fabric Management Overview on page 207
  - Viewing Nodes in the Fabric on page 211
  - Understanding Overall System Condition and Fabric Load on page 205





## CHAPTER 24

# Database Management

- Database Backup and Restore Overview on page 217
- Backing Up the Database on page 219
- Restoring a Database in the User Interface on page 222
- Restoring a Database in Maintenance Mode on page 224
- Viewing Database Backup Files on page 226
- Deleting Database Backup Files on page 228

### Database Backup and Restore Overview

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The system administrator can perform Junos Space database backup, restore, and delete operations from the Platform > Administration > Manage Databases workspace. The administrator can initiate a database backup operation from either the Manage Databases > Backup Database task or from Junos Space Maintenance Mode. In both cases, the backup database operation occurs in Maintenance Mode.

The backup database operation can be performed both locally or remotely.

By default, Junos Space does not automatically backup the database. However, the administrator can schedule a backup to run at anytime and perform either local or remote backups. All jobs that completed prior to the time the backup operation starts are captured in the database backup file.

To perform database backup or restore operations, a Junos Space user must be assigned the system administrator role.

Restore the Junos Space database if any of the following conditions occur:

- Junos Space data is corrupted, and you need to replace it with uncorrupted data.
- The Junos Space software becomes corrupted, and you reinstalled the Junos Space software.
- You upgrade to a new version of Junos Space and need to populate the Junos Space database with existing data.

## Backing up a Database

The system administrator can back up a Junos Space database from the Platform > Administration > Manage Databases > Backup Database task. During a backup, Junos Space archives data files and the logical logs that record database transactions, such as the users, nodes, devices, and added or deleted services in Junos Space. The administrator can perform a local or remote database backup. When the administrator performs a local backup, Junos Space backs up all database data and log files to a local default directory `/var/lib/mysql/backup`. You cannot specify a different database backup file location for a local backup. When the administrator performs a remote database backup, Junos Space backs all data and log files to a remote location on a network hosts or media.

For a remote backup, you must specify a remote host that is configured to run the Linux Secure Copy (SCP) command. You must also specify a valid user ID and password for the remote host. To ensure that you are using a valid directory, check the destination directory before you initiate a database backup to the remote system.

For more information about backing up a database, see “Backing Up the Database” on page 219.

## Restoring a Database

When the system administrator performs a restore database operation, data from a previous database backup is used to restore the Junos Space database to a previous state. The administrator can restore the database from the Junos Space user interface (Platform > Administration > Manage Databases workspace) (see “Restoring a Database in the User Interface” on page 222), or directly from the Maintenance Mode Actions window (if Junos Space goes down and you cannot access the user interface) (see “Restoring a Database in Maintenance Mode” on page 224).

When a user initiates a restore database operation from the user interface, Junos Space prompts the user for the user name and password to enter maintenance mode. When the user is authenticated, Junos Space initiates the restore database operation and Junos Space remains in maintenance mode until the database is restored. When Junos Space is in maintenance mode, Junos Space is down on all nodes in the fabric and only the web proxy is running. During this time, all Junos Space users, except the maintenance mode administrator, are locked out of the Junos Space system. When the restore operation completes and the administrator exits maintenance mode, Junos Space is restarted on all nodes, and users can again access the system through the Junos Space user interface.

- Related Topics**
- Restoring a Database in the User Interface on page 222
  - Restoring a Database in Maintenance Mode on page 224
  - Backing Up the Database on page 219
  - Maintenance Mode Overview on page 202

## Backing Up the Database

The system administrator can make a backup copy of the Junos Space database and, at a later time, use the backup file to restore the Junos Space database to a previous state. The database backup file contains configuration data for managed nodes, managed devices, deployed services, scheduled jobs, Junos Space users, and so forth.

The administrator can perform local and remote backup and restore operations. You perform a local backup to copy the backup file to the default directory `/var/lib/mysql/backup`. You perform a remote backup to copy the backup file to remote network hosts or media.

This topic includes the following tasks:

- Backing Up the Database to a Local Directory on page 219
- Backing Up the Database to a Remote Host on page 221

### Backing Up the Database to a Local Directory

To back up the Junos Space database to a local directory:

1. Navigate to the Platform > Administration > Manage Databases > Backup Database task. The Backup Database dialog box appears.

2. In the Mode field, select **local** to back up the Junos Space database to the default directory `/var/lib/mysql/backup`.



NOTE: When you select the local mode option, the Username, Password, Confirm password, Machine IP, and Directory texts fields in the Backup Database dialog box are disabled.

3. Optional: In the Comment field, add a comment to describe or otherwise identify the backup operation.
4. Optional: Schedule the database backup to occur at a later time. Click the Schedule at a later time drop-down arrow to expand the schedule area of the Backup Database dialog box. Specify a back up database start date and time. Clear the date and time if you want the operation to occur after you click Backup.



NOTE: The selected time in the scheduler corresponds to Junos Space server time but using the local time zone of the client computer.

5. Click **Backup**.

The database is backed up. The Order Information window appears.

6. Optional: Click the Job ID in the Order Information dialog box to view the database backup job details in the View Job Details window.

7. Click **OK**.

The Junos Space database backup is displayed in the Manage Databases inventory panel.

## Backing Up the Database to a Remote Host

To back up the Junos Space database to a remote host:

1. Navigate to the Platform > Administration > Manage Databases > Backup Database task. The Backup Database dialog box appears.

2. In the Mode field, select **remote** from the drop-down menu.
3. Enter a valid user name to access the remote host server.
4. Enter a valid password to access the remote host server.
5. Reenter the password you entered in the previous step.
6. Enter the IP address of the remote host server.
7. Enter a directory path on the remote host server for the database backup file.



**NOTE:** The directory path must already exist on the remote host server.

8. Optional: Add a comment to describe or otherwise identify the backup operation.
9. Optional: Schedule the Junos Space database backup operation to occur at a later time. Click the down-arrow to expand the schedule area of the dialog box.
  - Clear the **Schedule at a later time** check box (the default) to initiate the database backup when you click Backup.
  - Select the **Schedule at a later time** check box to specify a later start date and time for the database backup.



**NOTE:** The selected time in the scheduler corresponds to Junos Space server time but using the local time zone of the client computer.

10. Click **Backup**. The database back up occurs.

The Order Information window appears.

11. Optional: Click the Job ID in the Order Information dialog box to view job details for the database backup. The View Job Details window appears.
12. Click **OK** to close the View Job Details window.

When the backup operation finishes, the Junos Space database backup file appears in the Manage Databases inventory panel.

#### Related Topics

- Restoring a Database in the User Interface on page 222
- Restoring a Database in Maintenance Mode on page 224
- Viewing Database Backup Files on page 226
- Deleting Database Backup Files on page 228
- Database Backup and Restore Overview on page 217

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## Restoring a Database in the User Interface

You can restore any archived Junos Space database to restore your Junos Space system to a previous state. When you initiate a restore database operation, Junos Space is shutdown on all nodes in the fabric and the system goes into maintenance mode, during which time only one maintenance mode administrator can log in to the system at a time. Once the restore database operation is complete, Junos Space is restarted and users can access the Junos Space user interface.

To restore a database, you must have System Administrator privileges and be a Maintenance Mode administrator.



**NOTE:** Before you restore a database, wait until all jobs currently running have completed.

To view information about the available database backup files before you select a database to restore, see “Viewing Database Backup Files” on page 226.

Junos Space supports both local and remote backup and restore operations.

- Restoring a Local Database on page 223
- Restoring a Database from a Remote Host on page 223

## Restoring a Local Database

To restore the Junos Space database to a previous state:

1. Navigate to Platform > Administration > Manage Databases workspace. The Manage Databases inventory page appears displaying the previous database back ups.
2. Select the database backup file you want to restore.

In the thumbnail view, slide the slider to the far right position. You see the database back up file detailed information for the selected database backup.

3. Open the Actions drawer and select **Restore Database**.

The Restore Database confirmation window appears.



**WARNING:** You must log in to Junos Space Maintenance mode. Junos Space shuts down to restore the database. All data generated after the selected backup will be lost. Junos Space users will not be able to log in to Junos Space during the restore database operation.

4. Click **Continue** in the Restore Database window.

Junos Space prompts you enter a user name and password to enter maintenance mode.

5. Enter the maintenance mode user name and password.
6. Click **OK**.

Junos Space is shut down and other users will be unable to access the system during the restore database operation.

The Restore Database Status window displays the status for the restore database operation.

7. In the Restore Database Status window, click **Return to Maintenance Menu**.

The Maintenance Mode Actions window appears.

8. In the Maintenance Mode Actions window, click **Log Out and Exit from Maintenance Mode**. This action exits maintenance mode, starts up Junos Space, and returns to normal operational mode.

The process of exiting maintenance mode and restarting Junos Space takes several minutes.

## Restoring a Database from a Remote Host

To restore the Junos Space database to a previous state:

1. Navigate to Platform > Administration > Manage Databases workspace. The Manage Databases inventory page appears displaying the previous database back ups.
2. Select the database backup file you want to restore.

3. In thumbnail view, slide the slider to the far right to view the database backup detailed information. In tabular view the database backup detailed information appears in the table columns.

4. Open the Actions drawer and select **Restore Database**.

The Restore Database confirmation window appears.



**WARNING:** You must log in to Junos Space Maintenance mode. Junos Space shuts down to restore the database. All data generated after the selected backup will be lost. Junos Space users will not be able to log in to Junos Space during the restore database operation.

5. Click **Continue** in the Restore Database window.

Junos Space prompts you enter a user name and password to log in to Maintenance mode.

6. Enter the maintenance mode user name and password.

7. Click **OK**.

Junos Space is shut down and other users will be unable to access the system during the restore database operation.

The Restore Database Status window displays the status for the restore database operation.

8. In the Restore Database Status window, click **Return to Maintenance Menu**.

The Maintenance Mode Actions window appears.

9. In the Maintenance Mode Actions window, click **Log Out and Exit from Maintenance Mode**. This action exits maintenance mode, starts up Junos Space, and returns to normal operational mode.

The process of exiting maintenance mode and restarting Junos Space takes several minutes.

- Related Topics**
- Backing Up the Database on page 219
  - Viewing Database Backup Files on page 226
  - Deleting Database Backup Files on page 228
  - Maintenance Mode Overview on page 202
  - Restoring a Database in Maintenance Mode on page 224

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## Restoring a Database in Maintenance Mode

In Junos Space, maintenance mode is a special mode that an administrator can use to restore the database when Junos Space is down on all nodes in the fabric and the Web proxy is running.

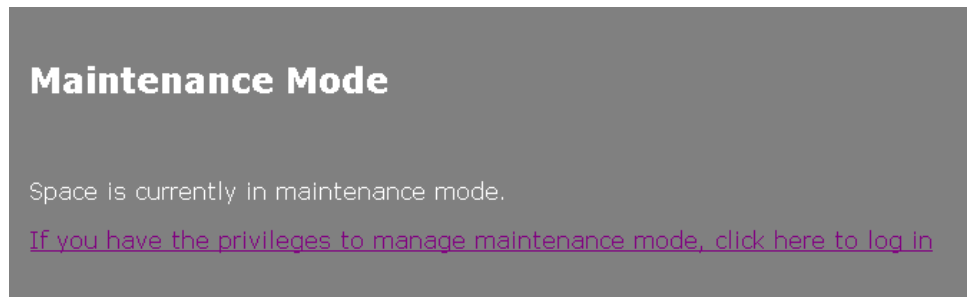


To restore a database in maintenance mode:

1. Connect to a Junos Space appliance in maintenance mode using the following URL, where *ip-address* is the Web access IP address for the appliance:

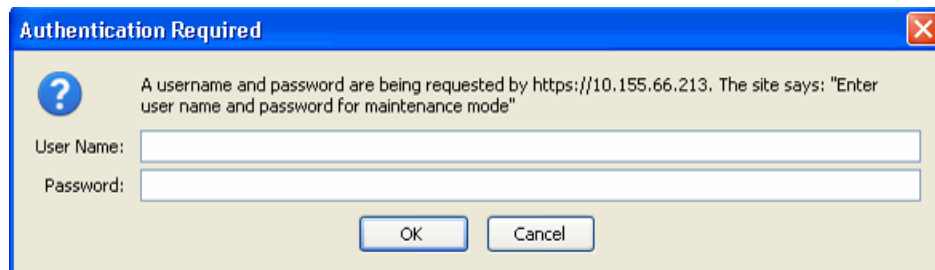
`https://ip-address/maintenance`

The Maintenance Mode window is displayed.



2. Click on the link to log in.

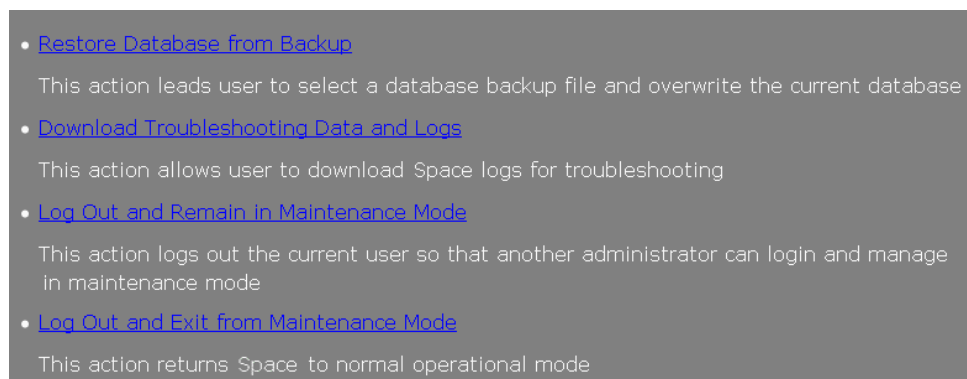
The Authentication Required dialog box is displayed.



3. Enter the user name and password for maintenance mode access.

4. Click OK.

The Maintenance Mode Actions window is displayed.



5. Click on the link **Restore Database from Backup** in the Maintenance Mode Actions window.

Junos Space displays the available database backup files, as shown in the following example.

Choose a backup database to restore

☒ db\_1255398948.gz (test1) created at Mon Oct 12 18:55:49 2009

[Return to Maintenance Menu](#)

6. From the available database backup files, select a database backup file to overwrite the current database.

7. Click **Submit**.

The database is restored from the backup copy you selected.

Space database is being restored from a backup copy : db\_1255650255.gz

Restore database success!

[Return to Maintenance Menu](#)

8. Click **Return to Maintenance Menu**.

The Maintenance Mode Actions window is displayed.

9. Click **Log Out and Exit from Maintenance Mode**.

Junos Space returns to normal operational mode.

- Related Topics**
- Maintenance Mode Overview on page 202
  - Database Backup and Restore Overview on page 217
  - Backing Up the Database on page 219
  - Restoring a Database in the User Interface on page 222

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## Viewing Database Backup Files

The Manage Databases inventory page displays information about Junos Space database backups, including the date and time of the backup, the backup file name and location, and the IP address of the Junos Space appliance that was backed up. From the Manage Databases inventory page, the administrator can restore a database or delete a database backup.

- Changing Views on page 227
- Viewing Database Details on page 227
- Manage Database Commands on page 227

## Changing Views

You can view database backup information in thumbnail or tabular views. By default, Manage Database data displays in thumbnail view. In thumbnail view databases are represented by an icon has a database backup name and the date the back occurred. In tabular view, each database backup is represented by a row in the table,

To change views:

1. Navigate to Platform > Administrator > Manage Databases. The Manage Databases page appears.
2. Click a view indicator at the right of the Manage Databases page title bar.

## Viewing Database Details

To view detailed database backup information:

- Double-click a database in either thumbnail or tabular views. The Database Backup Details page appears.
- In thumbnail view, move the zoom slider to the far right to display detailed informaton.

Table 34 on page 227 defines the database backup detailed information.

**Table 34: Fields in the Manage Databases Table**

Field	Description
Name	The name of the database backup file. Junos Space automatically assigns a name to the backup file.
Backup Date	Date and time of the database backup.
Comment	Information a Junos Space user optionally provides in the Comments field of the Backup Database dialog box when scheduling database backup.
Machine	IP address of the appliance on which the database backup was performed.
File Path	File path for the database backup.

## Manage Database Commands

From the Manage Database inventory page, you can perform the following actions:

- Delete Database Backup—“Deleting Database Backup Files” on page 228
- Restore Database—“Restoring a Database in the User Interface” on page 222
- Tag It—“Creating and Using User-Defined Tags” on page 258
- View Tags—“Creating and Using User-Defined Tags” on page 258
- Clear All Selections—Clears all selections you made using the Select Page link. You can also clear all selections by clicking the Select None link.

## Deleting Database Backup Files

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The system administrator can delete archived database backup files that are no longer useful for restore operations.



**NOTE:** When you delete a database backup file from the Manage Databases inventory panel, the backup file is permanently deleted from Junos Space and cannot be retrieved or restored.

To delete a Junos Space database backup file:

1. Navigate to the Platform > Administration > Manage Databases workspace. The Manage Databases inventory page appears listing the previously database backed up files by file name.
2. From the Manage Databases inventory panel (thumbnails or table view), select one or more database backup files that you want to delete.
3. Optional: View the database backup file detailed information before deleting the file. In thumbnail view the slider to the far right. In tabular view, detailed database backup file information appears as columns in the table.
4. From the Actions drawer, select **Delete Database Backup**. You can also right-click the database backup files you want to delete.

Junos Space deletes the selected Junos Space database backup files. The deleted backup files are no longer displayed in the inventory panel and are deleted from the `/var/lib/mysql/backup` directory.

- Related Topics**
- Backing Up the Database on page 219
  - Restoring a Database in the User Interface on page 222
  - Restoring a Database in Maintenance Mode on page 224
  - Viewing Database Backup Files on page 226

## CHAPTER 25

# Licensing Management

- Generating and Uploading the Junos Space License Key File on page 229
- Viewing Licenses on page 231

### Generating and Uploading the Junos Space License Key File

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The Junos Space software provides a default, 60-day trial license. After 60 days, the use of the Junos Space software expires except for the Upload License command. The administrator must activate the software with the Juniper Networks License Key to regain use of the Junos Space software. Within two weeks of the license expiration date, a license expiration warning is displayed when users log into Junos Space and from the About Junos Space page.

Junos Space license management involves a two-step process:

1. Generating the license key file. Juniper Networks uses a license management system (LMS) to manage the deployment of the Junos Space product—appliances, connection points, connections, and applications. When you order Junos Space, Juniper Networks LMS sends an e-mail with an authorization code or serial number and instructions on how to obtain a license key.
2. Uploading the license key using the Junos Space Administration workspace user interface. The system administrator must upload a license key file in the Administration Manage Licenses user interface to license the Junos Space product and activate the configuration ordered.

This procedure includes the following topics:

1. Generating the License Key File on page 229
2. Uploading the License Key File Contents on page 230

### Generating the License Key File

If you order Junos Space, Juniper Networks sends an e-mail with an authorization code that includes a resource guide describing how to obtain a license key.

If you order a Junos Space virtual appliance, you also receive an e-mail with a serial number and instructions on how to go to the Juniper Networks license management system to apply that serial number.

## Uploading the License Key File Contents

To upload the license key file, follow these steps:

1. Open the Juniper Networks Authorization Codes e-mail you received and follow the directions.
2. Open the license key text file attached to the e-mail and copy all the contents.
3. In Junos Space Application Chooser, click the Network Application Platform application icon.
4. In the task ribbon, click the **Administration** workspace icon. The Administration dashboard appears.
5. In the task ribbon, click the **Manage Licenses** task icon. The Manage Licenses inventory page appears.
6. In the task ribbon, click the **Upload License** icon. The Upload License page appears.
7. Paste the contents of the license key text file in the License Data text field using the Web browser Edit > Paste command.

**Administration: Upload License**

Please paste your license data to space below:

License Data: Juniper Networks FT-NM License File (v1)  
Junos Space Platform  
Generated on 2009-10-15T19:21:35Z  
No expiration set

This license file is for the deployment using:

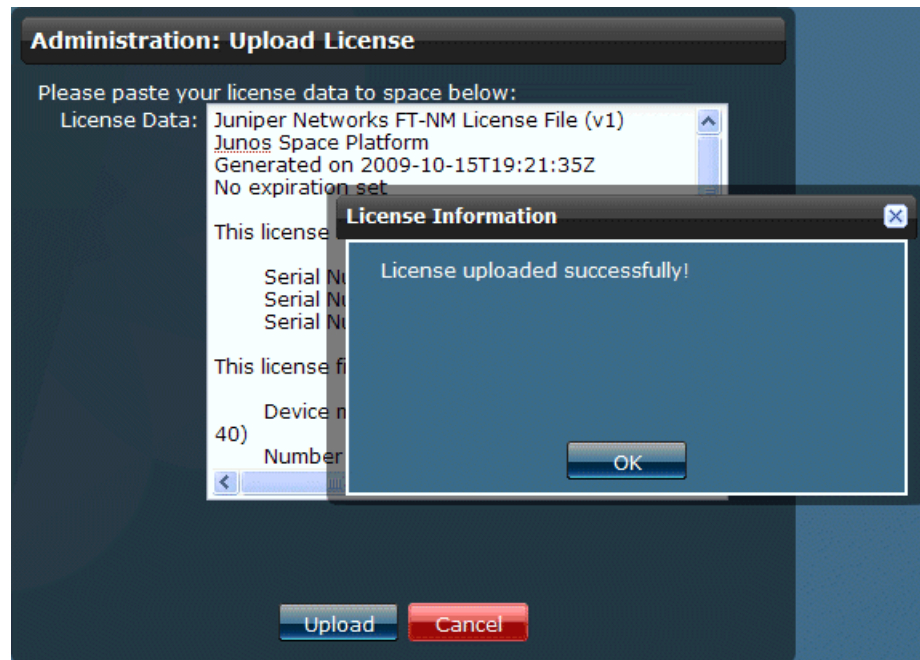
Serial Number: SPC-VA-BSE05  
Serial Number: SPC-VA-BSE06  
Serial Number: SPC-VA-BSE07

This license file enables the following:

Device management points (Capacity: 40)  
Number connections (Capacity: 1000)

Upload Cancel

8. Click **Upload**. The license key data is uploaded in Junos Space database. The license uploaded successfully message appears.



9. Click OK. The license appears on the Manage Licenses inventory page.



**Related Topics** • Viewing Licenses on page 231

## Viewing Licenses

The Manage Licenses inventory page displays the Junos Space license that the administrator has uploaded. For more information about obtaining and uploading the Junos Space licence, see “Generating and Uploading the Junos Space License Key File” on page 229. You can view licenses in Junos Space as graphics or as tables. By default,

Junos Space displays thumbnail representations of licenses. Licenses might include Junos Space licenses as well as licenses for VAR applications that run on Junos Space.

- Changing the View on page 232
- Viewing Manage License Details on page 232

## Changing the View

The Manage Licenses page is blank until the administrator uploads a license key file. By default the Manage License inventory page appears in thumbnail view. In thumbnail view the uploaded license is represented by an icon. In tabular view, the software image is represented by a row in the Manage Software table. In tabular view, the uploaded license is displayed by name.

To change the Manage Licenses inventory page view:

- Click a view indicator to the right of the Manage Software name in the page title bar to switch between thumbnail and tabular view.

## Viewing Manage License Details

You can view more detailed information about the Junos Space license changing to tabular view or by . For more information about manipulating license detailed information, see “Inventory Pages Overview” on page 28

To view more detailed information about the Junos Space License

- Double-click the Junos Space license icon or row in the table in tabular view.
- Slide the zoom slider at the top left of the page to the right.
- View the Junos Space license in tabular view.

Table 35 on page 232 defines the license details.

**Table 35: Manage Licenses Details**

Field	Description
Name	Name of the license file
Creation Date	Date and Time that the license is generated.
Expiration Date	Specifies the number of days the license is valid, starting from the Creation date.
File Path	The directory location of the license file.
Node	The IP address of the node that is displaying the license information.
Serial Number	The serial number of the appliance/node.  Each JA1500 Junos Space Appliance and Junos Space Virtual Appliance is represented as a unique node in the Junos Space fabric, and each appliance has a unique serial number.



- Related Topics**
- [Generating and Uploading the Junos Space License Key File on page 229](#)
  - [Inventory Pages Overview on page 28](#)



## CHAPTER 26

# Application Management

- Application Management Overview on page 235
- Managing Junos Space Applications on page 236
- Modifying Application Settings on page 238
- Adding a Junos Space Application on page 238
- Uninstalling a Junos Space Application on page 239
- Upgrading a Junos Space Application on page 240
- Junos Space Software Upgrade Overview on page 241
- Upgrading Junos Space Software on page 242
- Upgrading the Network Application Platform on page 244

### Application Management Overview

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From the Platform > Administration > Manage Applications task, the administrator can manage the Junos Space applications by performing the following tasks:



**NOTE:** The administrator must first download application files from the Juniper Networks Web site to the local client file system. The application file must be uploaded to Junos Space. From Junos Space Manage Applications, the application can be installed or upgraded.

- Upgrade the Junos Space software using the Platform > Administration > Manage Applications > Add Application task, see “Adding a Junos Space Application” on page 238.
- Install new Junos Space proprietary, OEM, and third-party application using the Platform > Administration > Manage Applications > Add Application task, see “Adding a Junos Space Application” on page 238
- Upgrade the Platform using the Platform > Manage Applications > Upgrade Platform > Upgrade Platform Action, see “Upgrading the Network Application Platform” on page 244. The Platform provides the running environment for all Junos Space applications, so upgrading it causes operation interruption.
- Upgrade a Junos Space application while Junos Space is still running using the Platform > Administration > Manage Applications > Upgrade Application action, see “Upgrading a Junos Space Application” on page 240.

- Uninstall a Junos Space application while Junos Space is still running using the Platform > Administration > Manage Applications > Uninstall Application action, see “Uninstalling a Junos Space Application” on page 239.
- Modify the Platform application settings using the Platform > Administration > Manage Applications > Modify Application Settings action, see “Modifying Application Settings” on page 12.
- Tag applications to categorize them for filtering and performing Manage Applications actions using the Platform > Administration > Manage Applications > Tag It action, see “Creating and Using User-Defined Tags” on page 258.
- View Tags that you have already created on a selected application using the Platform > Administration > Manage Applications > View Tags action, see “Managing and Viewing Tags” on page 257.

**Related Topics**

- Managing Junos Space Applications on page 236
- Modifying Application Settings on page 12
- Uninstalling a Junos Space Application on page 239
- Upgrading a Junos Space Application on page 240
- Upgrading the Network Application Platform on page 244
- Creating and Using User-Defined Tags on page 258
- Managing and Viewing Tags on page 257

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## Managing Junos Space Applications

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Manage Junos Space applications from the Platform > Administration > Manage Applications task. From Junos Space 1.3 and above, the Manage Applications inventory page allows the administrator to manage Junos Space applications, including install, upgrade, and uninstall while Junos Space is running. Since the Platform provides the runtime environment for all Junos Space applications, upgrading it causes an interruption of Junos Space operation. The Platform upgrade takes place in Maintenance mode.

The administrator must download a new Junos Space application from the software download site, copy it to the local file system, then upload it to Junos Space using Platform > Administration > Add Application. Once the application uploads, the administrator installs or upgrades it. Once an application is installed or upgraded, it appears on the Manage Applications inventory page. The new or upgraded application appears in Application Chooser and the Application Switcher pop-up menu.

The administrator can also modify Platform settings and tag applications to categorize and filter them to perform specific actions on multiple applications at once.

- Changing The View on page 237
- Viewing Detailed Application Information on page 237
- Performing Manage Application Actions on page 237

## Changing The View

Installed Junos Space applications appear in two views: thumbnail and tabular. The default is thumbnail view.

In thumbnail view, applications appear as icons listed in descending order by application title. Each application has a title, description, version, and build. To see more detailed information about an application move the zoom slider to the far right. The default zoom slider position is in the middle. Click an application to select it before performing an action.

In tabular view, applications appear in a table sorted by application title. Each application is a row in the Manage Applications table. Click a row in the table to select it before performing a command.

To change views:

- Click a view indicator at the right in the Manage Applications page title bar.

## Viewing Detailed Application Information

Table 36 on page 237

**Table 36: Application Information**

Application Information	Description
Title	Name of the Junos Space application.
Description	Brief description of the Junos Space application.
Version	The release level of the Junos Space application,
Build	The particular build level of the Junos Space application.

## Performing Manage Application Actions

You can perform the following actions on applications from the Manage Applications Actions drawer. You must first select an application before you can perform an action on it from the Actions drawer. You can also right-click an application to perform these actions.

- **Modify Application Settings**—See “Modifying Application Settings” on page 12. This action is available for the Platform only.
- **Uninstall Application**—See “Uninstalling a Junos Space Application” on page 239.
- **Upgrade Application**—See “Upgrading a Junos Space Application” on page 240.
- **Upgrade Platform**—See “Upgrading the Network Application Platform” on page 244. This action is available for the Platform only.
- **Tag It**—See “Creating and Using User-Defined Tags” on page 258.
- **View Tags**—See “Managing and Viewing Tags” on page 257.

## Modifying Application Settings

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The administrator can modify the Junos Space Network Application Platform application to optimize its performance. Modify application settings from the Platform > Administration > Manage Applications inventory page.

To modify the Platform application settings:

1. Navigate to Platform > Administration > Manage Applications. The Manage Application inventory page appears.
2. Select the Network Application Platform application.
3. Open the Actions drawer and select Modify Application Settings. The Modify Application Settings dialog box appears. Mouse over the Actions drawer to open it. You can also right-mouse-click the Platform application to perform the action from the pop-up menu. The Modify Application Settings dialog box appears.
4. Change the following settings if necessary:
  - Auto resync device check box—Ensures that configuration changes on a connected Juniper Networks device is synchronized or imported to the application database.
  - Max auto resync waiting time (secs)—Specifies the time within which device configuration changes are synchronized to the database. 20 seconds is the default waiting time. You can specify any number of seconds. There is no specific range.

### Related Topics

- Application Management Overview on page 235
- Managing Junos Space Applications on page 236
- Uninstalling a Junos Space Application on page 239
- Upgrading a Junos Space Application on page 240
- Upgrading the Network Application Platform on page 244
- Creating and Using User-Defined Tags on page 258
- Managing and Viewing Tags on page 257

## Adding a Junos Space Application

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The administrator can add a new Junos Space application while Junos Space is still running.

To upgrade an existing Junos Space applications, see “Upgrading the Network Application Platform” on page 244.

To add a Junos Space application:

1. Ensure that the Junos Space application you want to add is downloaded to the client local file system.
2. Navigate to Platform > Administration > Manage Applications > Add Application. The Add Application page appears. If you have not uploaded any applications, the page is blank.
3. Click Upload. The File Upload dialog box appears.
4. Type the name of the application file or click Browse to navigate to where the new application file is located on the local file system.
5. Click Upload. The new application is uploaded from the local file system into Junos Space. You see the new application file on the Add Application page.
6. On the Add Application page, select the new uploaded application.
7. Click Install. The application is installed.
8. Without logging out of Junos Space, navigate to Application Chooser. Click the Application Switcher global icon at the top-right in the Junos Space application banner. The popup menu appears. Click Select Application. Application Chooser appears with an icon for the new application.
9. Click the new application icon to view or begin using its workspaces and tasks.

**Related Topics**

- Application Management Overview on page 235
- Managing Junos Space Applications on page 236
- Modifying Application Settings on page 12
- Uninstalling a Junos Space Application on page 239
- Upgrading a Junos Space Application on page 240
- Creating and Using User-Defined Tags on page 258
- Managing and Viewing Tags on page 257

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## Uninstalling a Junos Space Application

The Uninstall application action allows the administrator to remove a Junos Space application independently while the system is still running. Uninstall a Junos Space application from the Manage Applications inventory page.

To uninstall a Junos Space application:

1. Navigate to Platform > Administration > Manage Applications. The Manage Applications inventory page appears.
2. Right-click the application you want to uninstall and select Uninstall Application. You can also select Uninstall Application from the Actions drawer. The Uninstall Application window appears.

3. Select the application to confirm that you want to uninstall it.
4. Click Uninstall. The application uninstall process begins and the Junos Space application is removed from Junos Space.

- Related Topics**
- Application Management Overview on page 235
  - Managing Junos Space Applications on page 236
  - Modifying Application Settings on page 12
  - Upgrading a Junos Space Application on page 240
  - Upgrading the Network Application Platform on page 244
  - Creating and Using User-Defined Tags on page 258
  - Managing and Viewing Tags on page 257

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## Upgrading a Junos Space Application

The Upgrade Application action allows the administrator to upgrade an existing Junos Space application independently while the system is still running. Once the application is upgraded successfully, you can launch it from Application Chooser.

If you want to install a new Junos Space application, use the Platform > Administration > Add Application action, see “Upgrading a Junos Space Application” on page 240.

To upgrade an existing Junos Space application:

1. Ensure that the application to which you want to upgrade is downloaded to the local client file system.
2. Navigate to Platforms > Administration > Manage Applications. The Manage Applications inventory page appears.
3. Right-click the application that you want to upgrade and select Upgrade Application. You can also select the application and select Upgrade Application from the Actions drawer. The Upgrade Application dialog box appears displaying all previously uploaded versions of that application.
4. You can do one of the following:
  - If the application to which you want to upgrade is listed in the Upgrade Application dialog box, click Upgrade. The application upgrade process begins.
  - If the application to which you want to upgrade is not listed in the Upgrade Application dialog box, click Upload. The Software File dialog box appears.
    - a. Click Browse and navigate to where the software file to which you want to upgrade is located on the local file system.

Junos Space software and application image filenames are described in Table 37 on page 241.



Table 37: Junos Space Software and Application Names and File Names

Junos Space Software/Application Name	Filename
Platform	<i>build-number.img</i> (for example 1.3R1.5.img)
NOTE: Upgrade the Platform using the Upgrade Platform action.	
Ethernet Design	Ethernet-Design. <i>build-number.img</i> (for example, Ethernet-Design.1.3R1.152399.img)
SOS Adapter	sosAdapter. <i>build-number.img</i> (for example, sosAdapter.1.3R1.152399.img)
QoS Design	QoS-Design. <i>build-number.img</i> (for example, QoS-Design.1.3R1.152399.img)

- b. Click Upload. The software file is uploaded into Junos Space. You see the application in the Upgrade Applications dialog box.
  - c. Click Upgrade. The application upgrade process begins.
5. Navigate to Application Chooser and launch the application you upgraded.

**Related Topics**

- Application Management Overview on page 235
- Managing Junos Space Applications on page 236
- Modifying Application Settings on page 12
- Uninstalling a Junos Space Application on page 239
- Upgrading the Network Application Platform on page 244
- Creating and Using User-Defined Tags on page 258
- Managing and Viewing Tags on page 257

## Junos Space Software Upgrade Overview

To upgrade software for the Junos Space Virtual Appliance, you upload the Junos Space image file to your existing fabric and perform the software upgrade in the Junos Space user interface. When you perform an upgrade, all appliances (nodes) in the fabric are upgraded with the new software.

To ensure a successful upgrade of your Junos Space appliances, complete the following tasks.

- Back up all your Junos Space data files before you begin the upgrade process.
- Download the Junos Space software image from the Juniper Networks software download Web site.

- Complete the steps to upgrade your current Junos Space software to the latest software version.



NOTE: To perform a Junos Space upgrade, you must have super administrator or system administrator access privileges.

- Validate that the software is successfully installed by logging in to the user interface.  
To view the version of the installed Junos Space software, select the Help icon in the user interface banner, and click on the **About** panel.
- Upload the License Key that was sent to you when you purchased the Junos Space software upgrade.

#### Related Topics

- Viewing Uploaded Software
- Upgrading Junos Space Software on page 242

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## Upgrading Junos Space Software

To upgrade software for the Junos Space Virtual Appliance, you upload the Junos Space image file to your existing fabric and perform the software upgrade in the Junos Space user interface. When you perform an upgrade, all appliances (nodes) in the fabric are upgraded with the new software.



NOTE: Upgrading to Junos Space 1.3 clears existing user preferences.



NOTE: Junos Space software supports upgrading to no more than two consecutive release numbers. Therefore, the Junos Space administrator can not upgrade release 1.0 to 1.3. Instead, the administrator must upgrade from release 1.0 to either 1.1 or 1.2, then upgrade to 1.3.

- Upgrading from Junos Space Release 1.1 or 1.2 to Release 1.3 on page 242

### Upgrading from Junos Space Release 1.1 or 1.2 to Release 1.3

This procedure describes how to upgrade Junos Space Release 1.1 or 1.2 to the current release.

Juniper Networks recommends that you back up the Junos Space database before you begin the upgrade process. See also .

It is also recommended that you clear the Web browser cache before logging in to the upgraded Junos Space software.

You must log in as the default super administrator or system administrator to upgrade Junos Space.

To add or upgrade software:

1. Download the latest Junos Space software file from the Juniper Networks software download Web site to the local appliance.
2. In the current version of the Junos Space software, navigate to **Platform > Administration > Manage Applications > Add Application**. The Add Application window appears.
3. In the Add Application window, click **Upload**.
4. In the dialog box, use the **Browse** button to navigate to the latest Junos Software release file.
5. Click **Upload** to upload the software image. Wait until the software uploading is complete.
6. Navigate to **Platform > Administration > Manage Applications**. The Manage Applications inventory page appears, displaying the Junos Space application file that you uploaded.
7. Select the Junos Space application file.
8. In the Actions drawer, select **Upgrade Application** to upgrade an application, or select **Upgrade Platform** to upgrade the Network Application Platform.

The Upgrade Application or Upgrade Platform confirmation window appears.

9. Select the file, and click **Upgrade**.

Junos Space prompts you to enter a user name and password to enter maintenance mode. The user name is **maintenance**; the password is one that the administrator created during the initial installation process.

10. Enter the maintenance mode user name and password in the text field.
11. Click **OK**.

Junos Space displays a status window during the software upgrade process.

12. When the software upgrade completes, click the **Return to Maintenance Menu** link.

The Maintenance Mode Actions window appears.

13. Click the **Log Out and Exit from Maintenance Mode** link.

The installation progress window appears.



**NOTE:** The software upgrade takes approximately a couple of minutes to complete.

When the installation is complete, the Junos Space login prompt is displayed.



**NOTE:** If a blank page is displayed instead of the login prompt, click **Refresh**. The login prompt is then displayed.



NOTE: Juniper Networks recommends that you clear the Web browser cache before logging in to the upgraded software. After clearing the cache, close the Web browser and reopen it.



NOTE: Juniper recommends that you perform a functional audit on all deployed services after upgrading to Junos Space 1.3.

You can now log in to begin using the upgraded Junos Space software.

- Related Topics**
- Junos Space Software Upgrade Overview on page 241
  - Viewing Uploaded Software

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## Upgrading the Network Application Platform

The Network Application Platform (Platform) provides the running environment for all Junos Space applications, so upgrading causes operation interruption. The Upgrade Network Application Platform action allows the administrator to upgrade the Network Application Platform independently from one version to another without installing other Junos Space applications.

To upgrade the Junos Space Platform:

1. Ensure that the platform image to which you want to upgrade is downloaded to the local client file system.
2. Navigate to Platforms > Administration > Manage Applications. The Manage Applications inventory page appears.
3. Right-click the Network Application Platform that you want to upgrade and select the Upgrade Platform action. You can also select the platform and select Upgrade Platform from the Actions drawer. The Upgrade Application dialog box appears displaying all previously uploaded versions of the Platform.
4. You can do one of the following:
  - If the platform to which you want to upgrade is listed in the Upgrade Application dialog box, click Upgrade. The application upgrade process begins. (Go to the next step.)
  - If the application to which you want to upgrade is not listed in the Upgrade Application dialog box, click Upload. The Software File dialog box appears.
    - a. Click Browse and navigate to where the software file to which you want to upgrade is located on the local file system.
    - b. Click Upload. The software file is uploaded into Junos Space. You see the application in the Upgrade Applications dialog box.

- c. Click Upgrade. The application upgrade process begins.
5. You enter maintenance mode. Junos Space prompts you to enter a user name and password to enter maintenance mode. The user name is **maintenance**; the password is one that the administrator created during the initial installation process.
6. Enter the maintenance mode user name and password in the text field.
7. Click **OK**.  
Junos Space displays a status window during the platform upgrade process.
8. When the platform upgrade completes, click the **Return to Maintenance Menu** link.  
The Maintenance Mode Actions window appears.
9. Click the **Log Out and Exit from Maintenance Mode** link.  
The installation progress window appears.



**NOTE:** The platform upgrade process takes approximately a couple of minutes to complete.

When the installation is complete, the Junos Space login prompt is displayed.



**NOTE:** If a blank page is displayed instead of the login prompt, click Refresh. The login prompt is then displayed.



**NOTE:** Juniper Networks recommends that you clear the Web browser cache before logging in to the upgraded software.



**NOTE:** Juniper recommends that you perform a functional audit on all deployed services after upgrading to Junos Space 1.3.

You can now log in to begin using the upgraded Junos Space software.

#### Related Topics

- Application Management Overview on page 235
- Managing Junos Space Applications on page 236
- Modifying Application Settings on page 12
- Uninstalling a Junos Space Application on page 239
- Upgrading a Junos Space Application on page 240
- Creating and Using User-Defined Tags on page 258
- Managing and Viewing Tags on page 257



## CHAPTER 27

# Troubleshooting

- System Status Log File Overview on page 247
- Customizing Node System Status Log Checking on page 249
- Customizing Node Log Files To Download on page 250
- Downloading the Troubleshooting Log File from the UI on page 250
- Downloading the Troubleshooting Log File In Maintenance Mode on page 252
- Downloading Troubleshooting System Log Files Using the CLI on page 253

### System Status Log File Overview

---

The system writes a system log file for each fabric node to provide troubleshooting and monitoring information. See “System Status Log File” on page 247.

The system administrator can customize the information that is collected in the system log file. See “Customizing Node System Status Log Checking” on page 249.

The system administrator can download the latest log files for each fabric node when logged into an appliance. See “Downloading System Log Files For an Appliance” on page 248.

In each operating mode, the system administrator can customize the default log files that are download from an appliance. See “Customizing Node Log Files To Download” on page 250.

### System Status Log File

Approximately once a minute, the system checks and writes a status log file **SystemStatusLog** for each fabric node by default. Each log file consists of system status, such as the disk, CPU, and memory usage information, as shown. Junos Space writes each system status log file to **/var/log/SystemStatusLog**.

```
2009-08-10 11:51:48,673 DEBUG [net.juniper.jmp.cmp.nma.NMAResponse] (Thread-110:)
Node IP: 1.1.1.1Filesystem    1K-blocks  Used Available Use% Mounted on
/dev/mapper/VolGroup00-LogVol00
79162184 15234764 59841252 21% /
Cpu(s): 8.7%us, 1.1%sy, 0.0%ni, 90.0%id, 0.1%wa, 0.0%hi, 0.0%si, 0.0%st
```

Mem: 3866536k total, 2624680k used, 1241856k free, 35368k buffers  
 Swap: 2031608k total, 941312k used, 1090296k free, 439704k cached

### Customizing Status Log File Content

The system administrator can customize the information that is written in a fabric node system status log file. For more information, see “Customizing Node System Status Log Checking” on page 249.

## Downloading System Log Files For an Appliance

The system administrator can download the latest log files for each fabric node when logged into an appliance. The system status log file and all other third party log files are collected and compressed in a troubleshooting file.

Table 38 on page 248 lists the files included in the **troubleshoot** file.

**Table 38: Log Files included in the troubleshoot File**

Description	Location
System status log file	/var/logSystemStatusLog
Jboss log files	/var/log/jboss/*
Service Provisioning data files	/var/tmp/jboss/debug/*
MYSQL error log	/var/log/mysqld.log
Log files for Apache, NMA, Webproxy	/var/log/httpd/*
Watchdog log file	/var/log/watchdog/*
Linux system messages	/var/log/messages/*

The system administrator can download log files in each operation mode as follow:

- Server Mode (See “Downloading the Troubleshooting Log File from the UI” on page 250.)
- Maintenance Mode (See “Downloading the Troubleshooting Log File In Maintenance Mode” on page 252.)
- CLI mode (See “Downloading Troubleshooting System Log Files Using the CLI” on page 253.)

### Customizing Log Files To Download

The system administrator can also customize the log files to be downloaded for specific fabric nodes. For more information, see “Customizing Node Log Files To Download” on page 250.

#### Related Topics

- Maintenance Mode Overview on page 202
- System Status Log File Overview on page 247
- Customizing Node System Status Log Checking on page 249



- Customizing Node Log Files To Download on page 250
- Downloading the Troubleshooting Log File from the UI on page 250
- Downloading the Troubleshooting Log File In Maintenance Mode on page 252
- Downloading Troubleshooting System Log Files Using the CLI on page 253

## Customizing Node System Status Log Checking

The system administrator can customize the system checking for a fabric node so that the necessary information is written to `/var/log/SystemStatusLog`. The administrator must modify the fabric node Perl script in `/usr/nma/bin/writeLogCronJob`.

To customize system status checking for an appliance, modify the `writeSystemStatusLogFile` sub-function in `writeLogCronJob` as shown:

```
sub writeSystemStatusLogFile{
    my $err = 0;
    my $logfile = $_[0];
    $err = system("date >> $logfile");
    $err = system("df /var >> $logfile");
    $err = system("top -n 1 -b | grep Cpu >> $logfile");
    $err = system("top -n 1 -b | grep Mem: >> $logfile");
    $err = system("top -n 1 -b | grep Swap: >> $logfile");

    ***<Add additional system command here that you want to print out in the
    SystemStatusLog file>***

    if ($err == 0 ) {          print "write log to $logfile successfully\n";
    } else {                   print "cannot write log to $logfile\n";
    }
    return $err;
}
```

- Related Topics**
- Maintenance Mode Overview on page 202
  - System Status Log File Overview on page 247
  - Customizing Node Log Files To Download on page 250
  - Downloading the Troubleshooting Log File from the UI on page 250
  - Downloading the Troubleshooting Log File In Maintenance Mode on page 252
  - Downloading Troubleshooting System Log Files Using the CLI on page 253

## Customizing Node Log Files To Download

---

The system administrator can customize the log files that are downloaded for each fabric node by modifying the Perl script in `/var/www/cgi-bin/getLogFiles`.

To customize the log files that are downloaded for each fabric node, modify the `getLogFiles` Perl script zip command as shown:

```
...
system("zip -r $logFileName /var/log/jboss/* /var/tmp/jboss/debug/
/var/log/mysqld.log /var/log/httpd/* /var/log/watchdog /var/log/messages
/var/log/SystemStatusLog > /dev/null");
...
```

- Related Topics**
- Maintenance Mode Overview on page 202
  - System Status Log File Overview on page 247
  - Customizing Node System Status Log Checking on page 249
  - Downloading the Troubleshooting Log File from the UI on page 250
  - Downloading the Troubleshooting Log File In Maintenance Mode on page 252
  - Downloading Troubleshooting System Log Files Using the CLI on page 253

## Downloading the Troubleshooting Log File from the UI

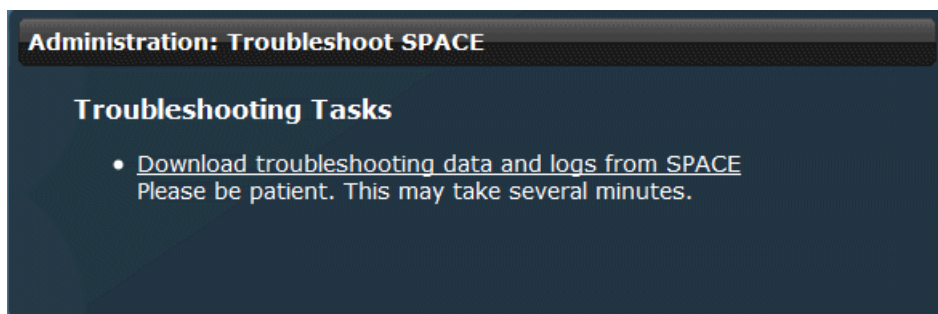
---

From the Administration workspace, the system administrator can download a troubleshooting file `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` that contains useful information for managing and monitoring the nodes in the system. The troubleshoot zip file includes the server Coordinated Universal Time (UTC) date and time. For example, `troubleshoot_2010-04-01_11-25-12.zip`.

To retrieve troubleshooting data and log files, follow these steps:

1. From the task ribbon, select the Administration workspace icon.
2. From the task ribbon, select the **Troubleshoot SPACE** task.

The Troubleshoot SPACE page appears.



3. Click the **Download troubleshooting data and logs from SPACE** link to access the `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` file in your browser.
  - If you are using Mozilla Firefox: In the Opening troubleshoot zip dialog box, select **Save file** and click **OK** to save the zip file to your computer using the Firefox Downloads window.
  - If you are using Internet Explorer: From the File Download screen, select **Save** and select a directory on your computer where you want to save the `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` file.
4. When you contact the Juniper Technical Assistance Center, describe the problem you encountered and provide the JTAC representative with the `troubleshoot.zip` file.

Table 39 on page 251 lists the files included in the `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` file.

**Table 39: Data and Log Files in troubleshoot.zip File**

Description	Location
Jboss log files	<code>/var/log/jboss/*</code>
Service Provisioning data files	<code>/var/tmp/jboss/debug/*</code>
MYSQL error log	<code>/var/log/mysqld.log</code>
Log files for Apache, NMA, Webproxy	<code>/var/log/httpd/*</code>
Watchdog log file	<code>/var/log/watchdog/*</code>
Linux system messages	<code>/var/log/messages/*</code>
CPU/RAM/Disk statistics (during past 24 hours)	Not applicable

- Related Topics**
- Maintenance Mode Overview on page 202
  - System Status Log File Overview on page 247
  - Customizing Node System Status Log Checking on page 249
  - Customizing Node Log Files To Download on page 250
  - Downloading the Troubleshooting Log File In Maintenance Mode on page 252
  - Downloading Troubleshooting System Log Files Using the CLI on page 253

## Downloading the Troubleshooting Log File In Maintenance Mode

---

Maintenance Mode is a special mode that an administrator can use to perform system recovery or debugging tasks while all nodes in the fabric are shutdown and the web proxy is running.

The administrator can download the `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` file from Maintenance Mode. The troubleshoot zip file includes the server Coordinated Universal Time (UTC) date and time. For example, `troubleshoot_2010-04-01_11-25-12.zip`.

To download the troubleshooting log file in maintenance mode, follow these steps:

1. Connect to an appliance in maintenance mode using the following URL.

<https://<ipaddress>/maintenance>

Where *ipaddress* is the address of the Juniper Networks appliance. The maintenance mode page appears.

### Maintenance Mode

Space is currently in maintenance mode.

[If you have the privileges to manage maintenance mode, click here to log in](#)

2. Click the **click here to log in** link. The login dialog box appears.
3. Log in to maintenance mode using the authorized login name and password.
4. Click OK. The Maintenance Mode Actions menu appears.
5. Click **Download Troubleshooting Data and Logs**. The file download dialog box appears.
6. Click Save to download the `troubleshoot_yyyy-mm-dd_hh-mm-ss.zip` file to the connected computer.
7. Click Log Out and Exit from Maintenance Mode.

#### Related Topics

- Maintenance Mode Overview on page 202
- System Status Log File Overview on page 247
- Customizing Node System Status Log Checking on page 249
- Customizing Node Log Files To Download on page 250
- Downloading the Troubleshooting Log File from the UI on page 250
- Downloading Troubleshooting System Log Files Using the CLI on page 253

## Downloading Troubleshooting System Log Files Using the CLI

If Junos Space is operating, the administrator can log into an appliance console and download system status logs for each fabric node using the CLI Network Settings Utility > SecureCoPy (SCP) command. If the system is not operating, the Administrator can download system status logs using the CLI USB command.

The Network Settings Utility, for both commands, collects all system log files in the `/var/log` subdirectory and creates a `*TAR` file to download. For more information on the log files that are written, see "System Status Log File Overview" on page 247.

This procedure includes the following tasks:

- Downloading a System Log File Using a USB Device on page 253
- Downloading System Log File Using SCP on page 254

### Downloading a System Log File Using a USB Device

Using the Networks Settings Utility Retrieve Logs > USB command, the administrator can download system status logs to a connected USB device if the network is down.

1. Using a console utility, such as SSH or Telnet, connect to the appliance. The Junos Space Settings Menu appears.

Junos Space Settings Menu

```
1> Change Password
2> Set Routing
3> Set DNS Servers
4> Change Time Options
5> Retrieve Logs
6> Security
7> (Debug) run shell
```

Q> Quit

R> Redraw Menu

Choice [1-7,QR]:

2. Type option **5> Retrieve Logs**. The Retrieve Logs submenu appears.

Choice [1-7,QR]: 5

```
1> Save to USB
2> Send via SCP
```

M> Return to Main Menu

R> Redraw Menu

Choice [1-2,MR]:

3. Select **1> Save to USB**. The USB device must be connected to an appliance.
4. Indicate whether you want to continue. Enter **y** for yes; **n** to abort.

5. The Save to USB process downloads the log files from all cluster members and combines them into a **.tar** file. Once the file is created, the process copies the file onto a USB device. You see the following:

Copying 20090827-1511-logs.tar to USB drive

## Downloading System Log File Using SCP

Using the Networks Settings Utility Retrieve Logs > SCP command, the administrator can download system status logs to a specific location.

To download system status logs using SCP, follow these steps:

1. Using a console utility, such as SSH or Telnet, connect to an appliance. The Junos Space Settings Menu appears.

Junos Space Settings Menu

```
1> Change Password
2> Set Routing
3> Set DNS Servers
4> Change Time Options
5> Retrieve Logs
6> Security
7> (Debug) run shell
```

```
Q> Quit
R> Redraw Menu
```

Choice [1-7,QR]:

2. Type option **5> Retrieve Logs**. The Retrieve Logs submenu appears.

Choice [1-7,QR]: 5

```
1> Save to USB
2> Send via SCP
```

```
M> Return to Main Menu
R> Redraw Menu
```

Choice [1-2,MR]:

3. Select **2> Send via SCP**. The process retrieves the log files on all cluster members and combines them into a **.TAR** file.
4. Indicate whether you want to continue. Enter **y** for yes; **n** to abort.
5. Specify the SCP server IP address to which to transfer the file.
6. Enter the remote SCP user. For example, **root**
7. Enter the remote SCP file location. For example, **/root/tmplogs**. You see the following:

```
Remote scp IP: 123.123.123.123
Remote scp user: root
Remote scp path: /root/tmplogs
```

```

Is this correct? [y/n]
The authenticity of host '123.123.123.123 (123.123.123.123)' can't be established.
RSA key fingerprint is 01:70:4c:47:9e:1e:84:fc:69:3c:65:99:6d:e6:88:87.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '123.123.123.123' (RSA) to the list of known hosts.
Warning-Please dont use this system
/etc/selinux/strict/contexts/files/file_contexts: Multiple same specifications for
/usr/local/lost\+found/*:
/etc/selinux/strict/contexts/files/file_contexts: Multiple same specifications for
/usr/local/\.journal.
/etc/selinux/strict/contexts/files/file_contexts: Multiple same specifications for
/usr/local/lost\+found.
123.123.123.123 password:
20090827-1517-logs.tar
100% 18MB 17.6MB/s 00:01

```

8. Indicate whether the SCP server information is correct. Enter **y** for yes; **n** if incorrect.
9. Indicate whether you want to continue. Enter **y** for yes; **n** for no.

#### Related Topics

- [Maintenance Mode Overview on page 202](#)
- [System Status Log File Overview on page 247](#)
- [Customizing Node System Status Log Checking on page 249](#)
- [Customizing Node Log Files To Download on page 250](#)
- [Downloading the Troubleshooting Log File from the UI on page 250](#)
- [Downloading the Troubleshooting Log File In Maintenance Mode on page 252](#)





## CHAPTER 28

# Managing Tags

- Managing and Viewing Tags on page 257
- Creating and Using User-Defined Tags on page 258
- Renaming Tags on page 259
- Deleting Tags on page 260

### Managing and Viewing Tags

---

You can use tags to label and categorize objects in your network, such as subnets, devices, services, users, customers, and so forth so you can filter, monitor, or perform batch actions on them without having to select each object separately. The View Tags inventory page allows you to manage and manipulate personal tags you created. The View Tags page is blank until you create one or more tags using the Tag It action from other Junos Space application workspace inventory pages. Your personal tags are only visible to you. Tags created by other users are only visible to them and not you. You can rename tags or delete them from the View Tags page.

#### Viewing Tags

To view tags:

- Navigate to Platforms > Administration > Manage Tags. The View Tags inventory page appears with the tags you created.

Tags appear on the View Tags page in tabular view listed alphabetically by tag name.

#### Viewing Tag Information

Tag data includes the tag name, domain name, and the number of objects tagged in other inventory pages. The Domain Name field is the login ID of the user who created the tag.

You can sort and hide columns using the column drop-down menus. For more information about manipulating tables in tabular view, see “Inventory Pages Overview” on page 28.

#### Performing Actions on Tags

To perform an action on one or more tags:

1. Select one or more tags in the table. Click a tag to select it. Click the check box at the top of the table to select all tags at once. You can also select the Page link to select all tags
2. Mouse over the Actions drawer to open it and select a Tag command. You can rename, delete, or deselect all selected tags. To deselect all tags, you can also click the None link.

### Using the View Tags Command

The View Tags command from Junos Space application inventory pages allows you to see all of the tags that you have assigned a managed object on your network. You must first tag a managed object to see its tags.

To view tags on a managed object:

1. Navigate to a workspace inventory page.
2. Select the object for which you want to view tags.
3. Select View Tags from the

- Related Topics**
- [Creating and Using User-Defined Tags on page 258](#)
  - [Renaming Tags on page 259](#)
  - [Deleting Tags on page 260](#)
  - [Inventory Pages Overview on page 28](#)

---

## Creating and Using User-Defined Tags

You can create user-defined tags in an application workspace inventory page to easily categorize and organize managed objects. Subsequently, you can view and use these tags to easily search for multiple objects to view status or perform a bulk action on them without having to select each individually.

### Creating a Tag

To create a user-defined tag:

1. Navigate to an application workspace manage inventory page. For example, in the Platform, navigate to Devices > Manage Devices.
2. Select the object(s) you want to tag.
3. Open the Actions drawer and select Tag It. The Apply Tag dialog box appears.
4. Type the tag name in the text field.

Use the text field drop-down list arrow to open a list box of existing tag names. Select an existing tag name to tag the selected object(s) or create a new one.

If you have existing tags, start to type a tag name in the name field. Existing tags appear in the text box drop-down list box.

5. Click Apply Tag. This action tags the object and stores the tag the database.

### Viewing Existing Tags

To view existing tags:

1. Navigate to an application workspace manage inventory page. For example, in the Platform, navigate to Devices > Manage Devices.
2. Select the object(s) you want to tag.
3. Mouse over the Actions drawer and select View Tags. The View Tags dialog box appears with tags listed.

### Filtering Objects Using Tags

To filter managed inventory objects:

1. Navigate to an application workspace manage inventory page. For example, in the Platform, navigate to Devices > Manage Devices.

Start typing an existing tag name in the Search text field, the existing tag name(s) appear. You can also click the search drop-down listbox. The tag names appear after the object types list.

2. Select a tag name. Only the managed objects with that tag name appear in the inventory page.

### Related Topics

- Managing and Viewing Tags on page 257
- Renaming Tags on page 259
- Deleting Tags on page 260
- Inventory Pages Overview on page 28
- Junos Space User Interface Overview on page 12

---

## Renaming Tags

The Rename Tag command provides you flexibility to reorganize or re-categorize managed objects according to your changing needs.

To rename a tag:

1. Navigate to the Platform >Administration > Manage Tags inventory page. The View Tags page appears.
2. In the View Tags table, select the tag you want to rename.
3. Open the Actions drawer and select Rename Tag. Mouse over the Actions drawer to open it. The Rename Tag dialog box appears.

4. Type a tag name in the New Name text field.
5. Click Rename. The old tag is renamed and saved in the database. You see the renamed tag in the View Tags table.

When you navigate to the manage inventory page from which you created the tag, you will see the renamed tag name in the Actions > View Tags dialog box and in the Search field drop-down names list.

- Related Topics**
- Creating and Using User-Defined Tags on page 258
  - Managing and Viewing Tags on page 257
  - Deleting Tags on page 260

---

## Deleting Tags

---

Use the Delete Tags action to remove managed object tags you no longer need.

To delete a tag:

1. Navigate to the Platform >Administration > Manage Tags inventory page. The View Tags page appears.
2. In the View Tags table, select the tag you want to delete.
3. Open the Actions drawer and select Delete Tag. Mouse over the Actions drawer to open it. The Delete Tags dialog box appears to confirm that you want to delete the tag.
4. Click Delete. The tag is removed from the database and no longer appears in the View Tags table.

- Related Topics**
- Creating and Using User-Defined Tags on page 258
  - Managing and Viewing Tags on page 257
  - Renaming Tags on page 259

## PART 9

# Index

- Index on page 263



# Index

## A

actions drawer, inventory page.....	33
active user history graph.....	23
adding Junos Space application.....	238
administrators	
CLI.....	201
maintenance mode.....	202
overview.....	201
user interface See user administration	
application	
adding.....	238
Platform, adding.....	244
uninstalling.....	239
upgrading.....	240
Application Chooser.....	13
icon.....	13
overview.....	7
starting.....	13
application dashboard.....	14
applications	
managing.....	235
settings, modifying.....	12, 238
switching between.....	7
audit log	
UTC to local timestamp, converting.....	193
audit logs	
archive file, naming conventions.....	194
archiving and purging.....	194
archiving to local server.....	195
archiving to remote server.....	196
default directory.....	189
overview.....	189
table view.....	190
user privileges.....	190
viewing	
most active users in last 24 hours.....	193
statistics.....	191
audit logs table	
description.....	190
job ID.....	190

task results.....	190
timestamp.....	190
automatic resynchronization	
disabling.....	65

## B

backup and restore See database

## C

Checksum verification.....	147
CLI administrator	
changing password.....	201
name.....	201
tasks.....	201
connection status, for managed devices.....	53
conventions	
notice icons.....	xxi
customer support.....	xxii
contacting JTAC.....	xxii

## D

dashboard.....	14
overview.....	19
statistics, viewing.....	23
database	
backup and restore, overview.....	217
device configuration data.....	64
device inventory data.....	64
database backup	
default directory.....	219
deleting files.....	228
local.....	219
overview.....	218
remote host.....	221
viewing files.....	226
database restore	
local.....	222, 223
overview.....	218
remote host.....	223
Deploying a Device Image .....	149
device configuration data.....	64

device connection status.....	53	documentation	
device discovery		comments on.....	xxii
authentication.....	63	<b>E</b>	
Device Management Interface (DMI).....	63	error messages	
inventory and configuration data.....	64	SSH session.....	109
overview.....	63	<b>F</b>	
specifying a probe method.....	68	fabric	
specifying credentials.....	71	adding a node.....	214
specifying device targets.....	67	connection status.....	212
viewing detailed reports.....	73	CPU resource.....	212
viewing status.....	72	disk space.....	212
Device Images		load history.....	206
Overview.....	141	management IP address.....	212
User Roles.....	142	memory resource.....	212
device inventory		monitoring node status	
data.....	64	application logic.....	211
overview.....	38	database.....	211
device management		load balancer.....	211
overview.....	37	node functions	
devices		availability.....	211
auto-resynchronization, understanding.....	64	multinode.....	209
changing resync time delay.....	65	single node.....	208
connecting to managed devices.....	108	node name.....	212
connecting to unmanaged devices.....	109	node serial number.....	213
connection status icons.....	51	node threshold limit.....	209
deleting from Junos Space.....	49	overview.....	207
disabling auto-resync.....	65	system health.....	205
discovering.....	66	fabric load history graph.....	23
discovery, overview.....	63	<b>G</b>	
logical inventory .....	64	getting started assistants, using.....	4
management, overview.....	37	See also help, accessing	
physical interfaces, viewing.....	61	global action icons.....	13
physical inventory .....	64	Application Chooser.....	13
removing provisioning services before deleting		Help.....	13
from Junos Space.....	49	Log Out.....	13
resynchronizing managed devices.....	74	My Jobs.....	13
SSH connection.....	107	User Preferences.....	13
supported platforms.....	37	<b>H</b>	
viewing		Help icon.....	13
connection status.....	51	help, accessing.....	5, 13
hardware inventory.....	51	See also getting started assistants, using	
interfaces.....	51	hiding table columns, inventory page, tabular	
IP address.....	51	view.....	32
operating system version.....	51		
platform.....	51		
statistics, by connection status.....	56		
statistics, by Junos OS release.....	57		
statistics, by platform.....	56		
discovery See device discovery			



**I**

## icons

Application Chooser.....	13
help.....	13
job status.....	164
log out.....	13
my jobs.....	13
user preferences.....	13

inventory page.....	15
actions drawer.....	33
objects, tagging.....	258
overview.....	28
paging controls.....	33
right-mouse menu.....	33
search and filter field.....	32
sorting data in tabular view.....	31
table columns, hiding.....	32
tabular view.....	16, 31
tabular view, parts of.....	29
thumbnail view.....	15, 30
thumbnail view, parts of.....	29
zoom slider.....	32

**J**

job information pie chart.....	25
job status icons.....	164
jobs.....	164
canceling.....	159
management overview.....	157
types.....	157
viewing	
scheduled jobs.....	164
your jobs.....	161
viewing statistics	
by execution time.....	164
by state.....	163
by type.....	163
Junos OS release See devices categorized by	
Junos Space license, managing.....	231

**L**

## license

60-day trial.....	229
generating.....	229
Junos Space, managing.....	231
key file	
generating.....	229
uploading.....	230

Log Out icon.....	13
-------------------	----

logging in, to Junos Space.....	3
See also logging out, from Junos Space	
logging out from Junos Space.....	13
logging out, from Junos Space.....	6
See also logging in, from Junos Space	

**M**

## maintenance mode

actions menu.....	203
administrator name.....	202
administrator password.....	202
administrator tasks.....	202
connecting to Junos Space appliance.....	203
lock time out.....	203
log in screen.....	202
overview.....	202
system locking.....	203
user administration.....	203

manage applications overview.....	235
-----------------------------------	-----

## Manage Applications workspace

application, adding.....	238
application, uninstalling.....	239
application, upgrading.....	240
Platform, upgrading.....	244

managing Junos Space license.....	231
-----------------------------------	-----

## manuals

comments on.....	xxii
------------------	------

## MD5 Validation Results

Viewing	
Deleting.....	148

modifying application settings.....	12, 238
-------------------------------------	---------

Modifying Device Image Details.....	152
-------------------------------------	-----

My Jobs feature.....	161
----------------------	-----

My Jobs icon.....	13
-------------------	----

**N**

Network Application Platform, overview.....	19
---	----

## node

adding to fabric.....	214
definition.....	207
threshold limit for devices.....	209

## node functions

application logic.....	209
database.....	209
load balancer.....	209

notice icons.....	xxi
-------------------	-----

## O

object tagging	
managing.....	257
overall system condition gauge.....	23

## P

paging controls, inventory page.....	33
password, user, changing.....	13
physical interfaces	
viewing.....	61
Platform	
active user history graph.....	23
dashboard overview.....	19
dashboard statistics, viewing.....	23
fabric load history graph.....	23
overall system health.....	23
overview.....	19
<i>See also</i> Platform dashboard overview	

## R

remote host	
database backup.....	221, 226
database restore.....	223
restoring a database	
overview.....	218
Resynchronize with Network command.....	38
resynchronizing <i>See</i> devices	
right-mouse menu, inventory page.....	33
role-based administration.....	171
authentication.....	171
enforcement by workspace.....	171
overview.....	171
RBAC enforcement.....	171
RBAC enforcement, limitations.....	172
<i>See also</i> user administration	
roles <i>See</i> user administration	
predefined.....	173

## S

search and filter field, inventory page.....	32
Secure Console	
connecting to devices.....	107
overview.....	107
terminal control characters.....	112
user privileges.....	107
Secure Copy (SCP) command	
database backup.....	218

software, Junos Space, upgrading.....	241, 242
1.1 to 1.3 release.....	242
1.2 to 1.3 release.....	242
sorting data, inventory page, tabular view.....	31
SSH session	
connecting to managed devices.....	108
connecting to unmanaged devices.....	109
error messages.....	109
overview.....	107
Staging a Device Image .....	146
statistics	
audit logs.....	191
dashboard, viewing.....	23
devices.....	55
jobs.....	163
users.....	183
workspace, overview.....	25
super administrator.....	172
privileges.....	172
<i>See also</i> user administration	
support, technical <i>See</i> technical support	
switching applications.....	7
icon.....	13
system	
connecting to appliance in maintenance	
mode.....	203
database restore.....	202
debugging.....	202
shutdown.....	202
system health statistics, viewing.....	23
system locking <i>See</i> maintenance mode	
system status log file.....	247
checking, customize.....	249
downloading.....	248
downloading using SCP.....	254
downloading using USB device.....	253
files to download, customize.....	250

## T

table columns, hiding in inventory page tabular	
view.....	32
tabular view, inventory page.....	16, 31
tagging managed objects.....	258
tags	
creating.....	258
deleting.....	260
managing.....	257
renaming.....	259

technical support	
contacting JTAC.....	xxii
terminal control characters	
for Secure Console.....	112
thumbnail view, inventory page.....	15, 30
Topology discovery	
device targets, specifying.....	127
overview.....	123
SNMP probes, managing.....	128
SNMP probes, specifying.....	131
Topology visualization, overview.....	123
troubleshoot zip file	
contents .....	248, 250
download from Junos Space Platform UI.....	250
download in maintenance mode.....	252

## U

uninstalling Junos Space application.....	239
upgrading Junos Space application.....	240
upgrading Junos Space Platform.....	244
upgrading Junos Space software.....	241, 242
1.1 to 1.3 release.....	242
1.2 to 1.3 release.....	242
Uploading a Device Image .....	145
user administration.....	171
default super administrator.....	172
role assignment, understanding.....	172
roles	
definition.....	172
predefined.....	172, 173
task group.....	172
viewing statistics.....	183
viewing user account information.....	184
<i>See also</i> role-based administration	
user interface	
banner.....	13
global action icons.....	13
parts of.....	13
user interface, Junos Space, overview.....	12
user password, changing.....	13
User Preferences icon.....	13

## V

Viewing topologies.....	133
-------------------------	-----

## W

workspace	
Administration.....	207
administrator access.....	171

Audit Logs.....	189
Devices.....	37
enforcement.....	171
Jobs.....	157
Users.....	171
workspace statistics.....	14
workspace statistics, overview.....	25

## Z

zoom slider, inventory page.....	32
----------------------------------	----

