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Junos<sup>®</sup> Space

Network Director Mobile User Guide

Release

1.5



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# About the Documentation

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## Documentation and Release Notes

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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/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

## Documentation Conventions

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Table 1 on page viii defines notice icons used in this guide.

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.

Table 2 on page viii defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
<b>Bold text like this</b>	Represents text that you type.	To enter configuration mode, type the <b>configure</b> command:  <code>user@host&gt; configure</code>
<code>Fixed-width text like this</code>	Represents output that appears on the terminal screen.	<code>user@host&gt; show chassis alarms</code> <code>No alarms currently active</code>
<i>Italic text like this</i>	<ul style="list-style-type: none"> <li>Introduces or emphasizes important new terms.</li> <li>Identifies guide names.</li> <li>Identifies RFC and Internet draft titles.</li> </ul>	<ul style="list-style-type: none"> <li>A policy <i>term</i> is a named structure that defines match conditions and actions.</li> <li><i>Junos OS CLI User Guide</i></li> <li>RFC 1997, <i>BGP Communities Attribute</i></li> </ul>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name:  <code>[edit]</code> <code>root@# set system domain-name <i>domain-name</i></code>
<b>Text like this</b>	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> <li>To configure a stub area, include the <b>stub</b> statement at the <code>[edit protocols ospf area area-id]</code> hierarchy level.</li> <li>The console port is labeled <b>CONSOLE</b>.</li> </ul>
< > (angle brackets)	Enclose optional keywords or variables.	<code>stub &lt;default-metric <i>metric</i>&gt;;</code>



Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	<b>broadcast   multicast</b>  <i>(string1   string2   string3)</i>
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	<b>rsvp { # Required for dynamic MPLS only</b>
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	<b>community name members [ community-ids ]</b>
Indentation and braces ( { } )	Identify a level in the configuration hierarchy.	<b>[edit]</b> <b>routing-options {</b> <b>static {</b> <b>route default {</b> <b>nexthop address;</b> <b>retain;</b> <b>}</b> <b>}</b> <b>}</b>
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
<b>GUI Conventions</b>		
<b>Bold text like this</b>	Represents graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> <li>In the Logical Interfaces box, select <b>All Interfaces</b>.</li> <li>To cancel the configuration, click <b>Cancel</b>.</li> </ul>
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select <b>Protocols&gt;Ospf</b> .

## Documentation Feedback

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

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

# Overview

- [Network Director Mobile Overview on page 3](#)



## CHAPTER 1

# Network Director Mobile Overview

- [Overview of Network Director Mobile on page 3](#)
- [Network Director Mobile System Requirements on page 3](#)
- [Logging Into Network Director Mobile on page 4](#)
- [Understanding the Network Director Mobile User Interface on page 4](#)

## Overview of Network Director Mobile

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Network Director Mobile is a Network Director user interface that is optimized to run in a mobile browser. It enables you to use Network Director monitoring features on a mobile device.

Network Director Mobile provides a Dashboard view that summarizes information about your entire network. It also enables you to drill down into individual devices for detailed information about those devices and the devices and sessions they manage.

### Related Documentation

- [Network Director Mobile System Requirements on page 3](#)
- [Logging Into Network Director Mobile on page 4](#)
- [Understanding the Network Director Mobile User Interface on page 4](#)

## Network Director Mobile System Requirements

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Network Director Mobile runs in a mobile web browser on tablet devices. It has the following system requirements:

- On Apple iPad2, iPad3, and iPad mini devices:
  - Operating system versions 6.1.3 and 7.0.
  - Apple Safari browser versions included with the supported operating system versions.
- On Android tablet devices:
  - Android version 4.1.
  - Google Chrome browser version 29.0.1547.59 and higher.

- Related Documentation**
- [Overview of Network Director Mobile on page 3](#)
  - [Logging Into Network Director Mobile on page 4](#)

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## Logging Into Network Director Mobile

Network Director Mobile runs in a mobile browser. To log in to the Network Director server, navigate to this URL:

**https://<server>/networkdirector/mobile**, where <server> is the IP address or hostname of the Network Director server. Log in using your Network Director username and password.

- Related Documentation**
- [Network Director Mobile System Requirements on page 3](#)

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## Understanding the Network Director Mobile User Interface

Network Director Mobile is a Network Director user interface that is optimized to run in a mobile browser. It enables you to use Network Director monitoring and fault management features on a mobile device.

The user interface has two modes: Dashboard and Devices. Buttons to access the modes are always available at the bottom of the page. When you log in to the server, Dashboard mode is open by default.

On any page that has a Back button, select the **Back** button to return to the previous page.

These sections describe the modes:

- [Dashboard Mode on page 4](#)
- [Devices Mode on page 4](#)

### Dashboard Mode

Dashboard mode contains monitors that show information about your entire network.

### Devices Mode

Devices mode enables you to drill down into individual devices for detailed information about these devices and the devices and sessions they manage.

- Related Documentation**
- [Monitoring Network-Wide Activity Using Network Director Mobile on page 11](#)
  - [Locating a Device and Viewing Device Properties Using Network Director Mobile on page 11](#)
  - [Configuring Network Director Mobile Settings on page 7](#)
  - [Overview of Network Director Mobile on page 3](#)

## PART 2

# Configuration

- [Network Director Mobile Settings on page 7](#)





## CHAPTER 2

# Network Director Mobile Settings

- [Configuring Network Director Mobile Settings on page 7](#)

## Configuring Network Director Mobile Settings

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To configure Network Director Mobile settings:

1. Select the settings button in the main banner.  
A dialog box opens.
2. Select the **General** tab to configure general settings:
  - Refresh Interval—Select how often the application refreshes its data from the Network Director server.
3. Select the **Sessions** tab to configure sessions settings:
  - Session Timeout—Select how long the application will wait before it logs off the session automatically if there is no user activity.

### Related Documentation

- [Overview of Network Director Mobile on page 3](#)
- [Understanding the Network Director Mobile User Interface on page 4](#)



## PART 3

# Administration

- [Monitoring with Network Director Mobile on page 11](#)
- [Dashboard Reference on page 17](#)



## CHAPTER 3

# Monitoring with Network Director Mobile

- [Monitoring Network-Wide Activity Using Network Director Mobile on page 11](#)
- [Locating a Device and Viewing Device Properties Using Network Director Mobile on page 11](#)
- [Monitoring Sessions on a Device Using Network Director Mobile on page 12](#)
- [Monitoring Equipment Status on a Wireless LAN Controller Using Network Director Mobile on page 14](#)

## Monitoring Network-Wide Activity Using Network Director Mobile

Use Dashboard mode to monitor network-wide activity. To open Dashboard mode, select the **Dashboard** button that is always available at the bottom of the page.

### Related Documentation

- [Network Director Mobile Dashboard Reference on page 17](#)

## Locating a Device and Viewing Device Properties Using Network Director Mobile

You can locate a device and view its properties by searching or by browsing.

To locate a device and view its properties:

1. Select the **Devices** button at the bottom of the page to open Devices mode.
2. To locate the device by searching:
  - a. Enter search text in the search box (it contains the text Hostname or IP until you enter text).
  - b. Select the search button.
  - c. Locate the device in the list of search results.
  - d. For information about the device properties shown, see [Table 3 on page 12](#).
3. To locate the device by browsing:
  - a. Select the device type (**Switches**, **Wireless Controllers**, or **Fabric**).
  - b. If you selected Switches or Wireless Controllers, select the device family from the list, then locate the device in the list of devices that opens.

- c. If you selected Fabric:
  - i. Locate the QFabric device in the list.
  - ii. Select the arrow next to the device to browse the list of its components.
  - iii. Select a component type from the list, then locate the device in the list of devices that opens.
- d. For information about the device properties shown, see [Table 3 on page 12](#).

**Table 3: Device Properties Shown in Network Director Mobile Inventory**

Field	Description
Hostname	Configured name of the device.
Device Family	Device family of the device. For example, MSS, EX, or WLC. Shown only on inventory pages created by searching.
Platform	Model number of the device. Shown only on inventory pages created by searching.
Model	Type of the device. Shown only on inventory pages that you browse to, not on search results pages.
Mgmt IP	IP Address of the device.
Mgmt Status	Displays whether the device is directly manageable or not.
Connection Status	Connection status of the device in Network Director: <ul style="list-style-type: none"><li>• UP—Device is connected to Network Director.</li><li>• DOWN—Device is not connected to Network Director.</li><li>• N/A—Device connection status is not available.</li></ul>
Serial Number	Serial number on device chassis.

**Related Documentation**

- [Monitoring Sessions on a Device Using Network Director Mobile on page 12](#)
- [Monitoring Equipment Status on a Wireless LAN Controller Using Network Director Mobile on page 14](#)

## Monitoring Sessions on a Device Using Network Director Mobile

To monitor session activity on a device:

1. Locate the device as described in [“Locating a Device and Viewing Device Properties Using Network Director Mobile” on page 11](#).
2. Select the device from the list.
3. Select **Session Details**.

The Session Details page for the device opens. You can select the **Graph** or **List** buttons to view the information in those formats.

4. To see historical session data, select **Session Trend**.

You can select the time period to view by selecting a time period from the list in the page's title bar.

For a description of the information presented in the list view, see [Table 4 on page 13](#).

5. To see current session data, select **Current Sessions**.

For a description of the information presented in the list view, see [Table 5 on page 13](#).

6. (On wireless LAN controllers only) To see the ten sessions that are using the most bandwidth, select **Top 10 Sessions**.

For a description of the information presented in the list view, see [Table 6 on page 13](#).

**Table 4: Session Trend Details**

Table Column	Description
Time	Time when a poll occurred.
Min Session Count	Minimum session count for the time period.
Avg Session Count	Average session count.
Max Session Count	Maximum session count for the time period.

**Table 5: Current Session Details**

Table Column	Description
Username	Client's user name
MAC Address	Client's MAC address.
Controller IP	IP address of the controller to which the client is connected.
AP ID	Name of the wireless access point to which the client is connected.
SSID	SSID to which a wireless client is connected.
Incremental Data Usage (KBytes)	The session's current incremental data usage.

**Table 6: Top 10 Session Details**

Table Column	Description
Username	Client's user name
MAC Address	Client's MAC address.

Table 6: Top 10 Session Details (*continued*)

Table Column	Description
Time	Time when the session data was polled from the device.
Incremental Data Usage (KBytes)	The session's current incremental data usage.

**Related Documentation**

- [Locating a Device and Viewing Device Properties Using Network Director Mobile on page 11](#)
- [Monitoring Equipment Status on a Wireless LAN Controller Using Network Director Mobile on page 14](#)

## Monitoring Equipment Status on a Wireless LAN Controller Using Network Director Mobile

You can monitor the status and session activity of equipment managed by a wireless LAN controller (including wireless access points and radios).

To monitor equipment status on a wireless LAN controller:

1. Locate the device as described in [“Locating a Device and Viewing Device Properties Using Network Director Mobile” on page 11](#).
2. Select the device in the list.
3. Select **Equipment Status**.

The Equipment Status page for the device opens. This page lists all the wireless access points that the wireless LAN controller manages.

For a description of the information shown, see [Table 7 on page 15](#).

4. Select a wireless access point from the list to view details about it in the lower pane.
5. To see detailed information about the wireless access point:

- a. Select **AP Details**.

For a description of the information shown, see [Table 8 on page 15](#).

- b. To see information about the sessions managed by the selected access point, select any row in the AP Details table, then select **AP Session Details**.
  - c. Select **Top 10 Sessions**, **Session Trend**, or **Current Sessions** to select how to view the session information for the access point.
6. To see information about the wireless access point's radios:
    - a. Select **Radio Status**.
 

For a description of the information shown, see [Table 9 on page 16](#).
    - b. To see information about the sessions managed by the selected radio, select **Radio Session Details**.



Select **Top 10 Sessions**, **Session Trend**, or **Current Sessions** to select how to view the session information for the access point.

- c. To see RF information about the selected radio, select **RF Details**.

Select **Interference Sources** or **RF Neighborhood** to select which RF information to view for the access point.

**Table 7: Wireless LAN Controller Equipment Status in Network Director Mobile**

Table Column	Description
AP Name	Wireless access point's name.
AP Serial ID	Wireless access point's serial number.
AP Model	Wireless access point's model.
AP IP Address	Wireless access point's IP address.
AP Status	Operational status of the wireless access point: <ul style="list-style-type: none"> <li>• Down—The access point is offline.</li> <li>• Up—The access point is online and enabled.</li> <li>• Up Redundant—The access point is online, reporting to this controller as redundant and to another controller as primary.</li> </ul>

**Table 8: Wireless Access Point Details in Network Director Mobile**

Name	Value
AP Up Time	The length of time since the access point last booted.
AP Boot Loader	Wireless access point's boot loader.
Primary AP Manager	Wireless access point's primary manager.
Seconday AP Manager	Wireless access point's secondary manager.
Port1 Speed	Speed of network port 1.
Port2 Speed	Speed of network port 2.
Port1 DuplexMode	Duplex mode setting of network port 1.
Port2 DuplexMode	Duplex mode setting of network port 2.
Port 1 PoeStatus	PoE status of network port 1.
Port 2 PoeStatus	PoE status of network port 2.

**Table 9: Radio Status in Network Director Mobile**

Table Column	Description
AP Serial ID	Wireless access point's serial number.
Type	Radio type.
Channel	Channel the radio is using.
Mac Address	Radio's MAC address.
Status	Radio's status.

**Related  
Documentation**

- [Locating a Device and Viewing Device Properties Using Network Director Mobile on page 11](#)
- [Monitoring Sessions on a Device Using Network Director Mobile on page 12](#)

## CHAPTER 4

# Dashboard Reference

- [Network Director Mobile Dashboard Reference on page 17](#)

## Network Director Mobile Dashboard Reference

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The Dashboard contains monitors that show information about your entire managed network:

- [Network Summary Monitor on page 17](#)
- [Alarms Monitor on page 18](#)
- [Top Sessions Monitor on page 18](#)
- [Ports Monitor on page 19](#)
- [Session Count Monitor on page 19](#)
- [Session Trend Monitor on page 19](#)
- [RF Interferences Monitor on page 19](#)

### Network Summary Monitor

The Network Summary monitor contains these pie charts:

- **Devices By Family**—Shows the distribution of devices based on device family.
- **Connection State**—Shows the distribution of devices based on the status of the device's connection to the Network Director server. The possible connection states are:
  - **UP**—Device is connected to Network Director.
  - **DOWN**—Device is not connected to Network Director.
  - **N/A**—Device connection state is not available.
- **Configuration State**—Shows the distribution of devices based on whether the Network Director configuration is in sync with the device configuration. The possible configuration states for a device depend on its connection state:
  - When connection state is UP, the configuration state can be Out of Sync, Synchronizing, In Sync, or Sync Failed.
  - When connection state is DOWN, the configuration state is N/A.

## Alarms Monitor

The Alarms monitor provides a quick summary of the critical, major, minor, and info alarms currently active in the network.

Select the **Expand** button in the right corner of the title bar to see detailed information about the alarms on the Alarms page.

On the Alarms page, you have the following options:

- Select the **Graph** or **List** buttons to view the information in those formats.  
For a description of the information presented in the list view, see [Table 10 on page 18](#).
- In the graph view, you can select **By Severity**, **By Category**, or **By State** to see the distribution of active alarms by those properties.

Select **Back** to return to the Dashboard.

**Table 10: Network Director Mobile Alarm Details Fields**

Field	Value
Name	The alarm name.
Alarm Severity	<p>The severity of the alarm. Severity levels are:</p> <ul style="list-style-type: none"> <li>• Critical—A critical condition exists; immediate action is necessary.</li> <li>• Major—A major error has occurred; escalate or notify as necessary.</li> <li>• Minor—A minor error has occurred; notify or monitor the condition.</li> <li>• Info—An informational message; no action is necessary.</li> </ul>
Entity ID	The identification of the entity responsible for causing this alarm. The Entity ID is the key for correlating events into an alarm. The Entity ID could be a MAC address of a radio or an IP address of the device.
Assigned to	If the alarm is assigned to an individual, it shows the name of that person; otherwise, it shows System to mark that the alarm is still unassigned.
Last Updated On	The date and time that the information for the alarm was last modified.

## Top Sessions Monitor

The Top Sessions monitor contains a bar chart showing the eight user sessions that are currently using the most bandwidth.

Select the **Expand** button in the top right corner of the title bar to see detailed information on the Top Sessions page. On the Top Sessions page, you have the following options:

- Select **Top Sessions By User** to see sessions that are identified by their user.
- Select **Top Sessions By MAC** to see sessions that are identified by their MAC address.
- Select the **Graph** or **List** buttons to view the information in those formats.

For a description of the information presented in the list view, see [Table 11 on page 19](#).

- Select the time period to display from the list in the title bar.

Select **Back** to return to the Dashboard.

**Table 11: Network Director Mobile Top Session Details**

Table Column	Description
Username	Client's user name.
Total Data Usage (KBytes)	The session's total data usage. Appears when any time period other than Current is selected.
Number of Sessions	Number of sessions.

## Ports Monitor

The Ports monitor shows information about the network's device ports:

- Admin Status—Shows the number of ports that are up and down.
- Free Vs Used—Shows the number of ports that are free and the number that are used.

Select the **Expand** button in the top right corner of the title bar to see detailed information on the Ports page. On the Ports page, you have the option to view ports by admin status or by free versus used status.

Select **Back** to return to the Dashboard.

## Session Count Monitor

The Session Count monitor shows the number of active user sessions on the network.

## Session Trend Monitor

The Session Trend monitor contains a line graph that shows the number of active user sessions on the network over time.

## RF Interferences Monitor

The RF Interferences monitor provides information about radio frequency (RF) interferences that the wireless network has detected. The monitor contains a pie chart showing the distribution of the sources of detected RF interferences.

Select the **Expand** button in the top right corner of the title bar to see detailed information on the RF Interference Sources page. On the RF Interference Sources page, you can select the **Graph** or **List** buttons to view the information in those formats.

For a description of the information presented in the list view, see [Table 12 on page 20](#).

Select **Back** to return to the Dashboard.

Table 12: Network Director Mobile RF Interference Sources Details

Information	Description
Last Seen	Date and time the interference was last detected.
Transmitter Id	If the interference is caused by an object that has a MAC address, the MAC address is displayed. If the object has no MAC address, MSS calculates a MAC address by using the characteristics of the object. This way, you can correlate interference events over time.
Listener Id	MAC address of the access point that detected the interference.
Channel	Channel affected by the interference.
Duty Cycle	Reported fraction of time that the source is emitting RF.
Type	Possible sources of interference include Bluetooth, Continuous Wave, Microwave Oven, Unknown, and Phone FHSS.

**Related Documentation**

- [Monitoring Network-Wide Activity Using Network Director Mobile on page 11](#)