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J-series Services Router Quick Start

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J-series Services Routers provide IP routing, WAN and LAN connectivity, and management services. Available as a J2300 branch office router, a J4300 regional office router, and a J6300 corporate router, these routers typically connect small, branch, or regional offices to a central site, and link Internet service provider (ISP) networks.

Follow these instructions to initially set up a J-series Services Router. You need no previous JUNOS Internet software experience, but must have managed a network and configured other routers. For more information, see the J-series documentation at <http://www.juniper.net/techpubs/>.

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What You Need to Know

CLI Console Access	Services Routers are shipped with a console cable and adapter. To configure a Services Router with the JUNOS command-line interface (CLI) through the console port, you use a terminal emulation program such as Microsoft Windows HyperTerminal. (See “1. Connecting, Logging In, and Starting the CLI” on page 5.)
J-Web Access	The Web interface to the router—called the J-Web interface—is enabled by default. To configure the router with the Web interface, you attach a PC or laptop to the Fast Ethernet LAN PORT 0 on the chassis. (See “1. Connecting, Logging In, and Starting the J-Web Interface” on page 8.)
Required Licenses	<p>To use the following features on a Services Router, you must purchase a license. (See “3. Adding Licenses with the CLI” on page 6 or “3. Adding Licenses with the J-Web Interface” on page 8.)</p> <ul style="list-style-type: none"> ■ Advanced Border Gateway Protocol (BGP) support for route reflectors ■ Data link switching (DLSw) ■ J-Flow traffic analysis
Interfaces and Ports	Interfaces are named by type, slot number, module number (always 0), and port number. Port numbering starts with 0. For example, the built-in Fast Ethernet ports PORT 0 and PORT 1, which are in slot 0, are named fe-0/0/0 and fe-0/0/1. The first port on a T1 module in slot 1 is named t1-1/0/0.
Management IP Address	A Services Router ships from the factory with the IP address 192.168.1.1/24 assigned to LAN PORT 0—internally named fe-0/0/0. Because this address is not part of the configuration, it is deleted when you change the configuration <i>in any way</i> . You must configure an IP address for this LAN port before any other configuration. (See “4. Performing Basic Configuration with the CLI” on page 6 or “4. Performing Basic Configuration with the J-Web Interface” on page 9.)
Remote Access	Although Telnet and SSH are both supported, they are <i>disabled</i> by default.

Installing and Connecting Power

Before installing and connecting a Services Router, read “Safety Warnings Summary” on page 13. Then make sure you have the equipment listed in Table 1.

Table 1: Equipment Required for Services Router Installation

All Models	J2300 Model Only	J4300 and J6300 Models	Management Access
<ul style="list-style-type: none"> ■ Electrostatic discharge (ESD) grounding strap (not provided) ■ For rack or wall installation, a screwdriver appropriate for the screws or anchors (not provided) ■ For AC power, an AC power cord with a plug appropriate for your geographical location (provided) ■ For DC power, 14 AWG DC power cables with appropriate lugs (not provided) ■ 14 AWG grounding cable and lug for the router (not provided) 	<ul style="list-style-type: none"> ■ For desk installation, four rubber feet (provided) ■ For rack installation, four mounting screws appropriate for your rack (not provided) ■ For wall installation, four wall screws or anchors capable of supporting the full weight of the chassis, up to 12 lb (5.4 kg) 	<ul style="list-style-type: none"> ■ For rack installation, eight mounting screws appropriate for your rack (not provided). ■ J6300 routers with redundant power supplies require an AC power cord (provided) or DC power cables (not provided) for each power supply. 	<p>For CLI access:</p> <ul style="list-style-type: none"> ■ Management device, such as a PC or laptop, with a serial port (not provided) ■ RJ-45 console (Ethernet “rollover”) cable, with an RJ-45-to-DB-9 adapter (both provided) <p>For J-Web access:</p> <ul style="list-style-type: none"> ■ Management device, such as a PC or laptop, with an Ethernet port (not provided) ■ Ethernet cable (not provided)



CAUTION: A licensed electrician must attach a cable lug to the grounding and power cables that you supply. A cable with an incorrectly attached lug can damage the router.

Installing a Services Router



WARNING: A DC-powered J2300 Services Router is intended for installation in a dedicated equipment room where it is accessible by trained personnel only. DC-powered J4300 and J6300 Services Routers are intended for installation in a restricted access location.

To install a J2300 Services Router on a desk or wall, attach the rubber feet to the underside of the router. For wall installation, you must attach a mounting bracket to each side of the router chassis and then attach the brackets to the wall. (See the *J-series Services Router Getting Started Guide* for instructions.)

To install a Services Router in a rack:

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to an outside ESD point.
2. Make sure the rack is properly secured to the building in its permanent location.
3. Attach a mounting bracket to each side of the router chassis.

4. Have one person grasp each side of the router, lift the router, and position it in the rack.
5. Have a second person install a mounting screw into each of the bracket holes that are aligned with the threaded holes in the rack.

Connecting AC or DC Power to a Services Router

J2300 and J4300 Services Routers have a fixed power supply. J6300 Services Routers have one or two field-replaceable power supplies.

To connect AC or DC power:

1. Attach the router to earth ground with a 14 AWG grounding cable:
 - a. Connect one end to a proper earth ground point (the rack, for example).
 - b. Remove the screw and washer from the PEM nut on the protective earthing terminal at the rear of the router chassis.
 - c. Secure the other end of the cable to this grounding point with the washer and then with the screw.
2. For an AC power supply only:
 - a. Insert the appliance coupler end of the power cord into the appliance inlet on the router's power supply faceplate.
 - b. Insert the plug into an AC power source receptacle.
3. For a DC power supply only:
 - a. Ensure that the voltage across the DC power source cable leads is 0 volts and that the cable leads cannot become active during installation.
 - b. Remove the clear plastic cover protecting the terminal block.
 - c. Remove the two center screws next to the labels –48 VDC and RTN.
 - d. Secure the positive (+) DC source power cable lug to the RTN terminal.
 - e. Secure the negative (–) DC source power cable lug to the –48 VDC terminal.
 - f. Replace the plastic cover.
4. Repeat Step 2 or Step 3 for the second power supply, if one is installed.

For complete instructions, see the *J-series Services Router Getting Started Guide*.

Basic Connection and Configuration with the CLI

For CLI access, you connect from your management PC or laptop to the Services Router either through the console port. (For information about the CLI, see “JUNOS CLI Basics” on page 10.)

1. Connecting, Logging In, and Starting the CLI

You are prompted for a username and password. The default username is root. Because no password is initially required, press Enter at the password prompt for a first-time login.

To access a Services Router with the JUNOS CLI:

1. Turn off power to the management PC or laptop.
2. Connect one end of the console cable to the serial port adapter; plug the adapter into a serial port on the PC or laptop, and plug the other end of the cable into the console port on the Services Router.
3. Turn on power to the PC or laptop.
4. On the PC or laptop, start the terminal emulation program (such as Microsoft Windows HyperTerminal), select the COM port, and configure the following port settings: 9600 (bits per second), 8 (data bits), none (parity), 1 (stop bits), and none (flow control).
5. Press the POWER button on the router, and verify that the POWER ON LED turns green.
6. Log in as root, and press Enter at the Password prompt.

When you have been authenticated through the CLI, you enter the UNIX shell:

```
routername (ttyd0)

login: root
Password:

JUNOS 7.4R1 2005-09-01 01:59:49 UTC

root@%
```

7. At the % prompt, type the cli command and press Enter. The prompt changes to an angle bracket (>) when you enter CLI operational mode.

```
root@% cli
root>
```

For complete instructions, see the *J-series Services Router Getting Started Guide*.

2. Updating the JUNOS Software with the CLI

After starting up the Services Router, you might want to download the latest version of the JUNOS software from the Juniper Networks Web site and load it onto the router. You can use the CLI, but we recommend the J-Web interface for the download. To update the JUNOS software with the CLI:

1. Go to <http://www.juniper.net/support>, and follow the links to download the JUNOS software for J-series routers to an FTP server.
2. Download the JUNOS software to the router with the CLI or J-Web interface:

```
root> request system software add validate unlink reboot source
```

For complete instructions, see the *J-series Services Router Administration Guide*.

3. Adding Licenses with the CLI

If you purchased one or more licenses, you received an envelope with instructions for obtaining license keys from the Web. To enable each license on the router, you must add the license key. You can add one or more license keys from the CLI. To add a license key and enable a license:

1. Follow the instructions in your license envelope to generate the license key from the Web site.
2. Copy the license key onto the router with the CLI or J-Web interface:
 - a. Type the following command, and press Enter:


```
root> request system license add terminal
```
 - b. When prompted, copy and paste the license key from the Web site at the command line, separating multiple license keys with a blank line.
 - c. To exit license key entry, press Ctrl+ D.

For complete instructions, see the *J-series Services Router Administration Guide*.

4. Performing Basic Configuration with the CLI

In CLI configuration mode, you use the set command to enable features, and the delete command to disable them. The commands you enter do not update the active configuration on the router until you use the commit command.

To configure basic settings with the CLI:

1. From the CLI, enter configuration mode:

```
root> configure
root#
```

2. Set the IP addresses of the built-in ports: the management interface PORT 0 and PORT 1. For example:

```
root# set interfaces fe-0/0/0 unit 0 family inet address 10.1.1.1/24
root# set interfaces fe-0/0/1 unit 0 family inet address 192.168.1.1/24
```

The unit number is the logical interface number. IP addresses are configured on the logical interface. Setting the protocol family to inet specifies the routing table of IPv4 addresses.

3. Set a default route (default gateway) for IPv4 packets. For example:

```
root# set routing-options static route 0.0.0.0/0 next-hop 10.1.1.50
```

4. Configure one or more static routes:

```
root# set routing-options static route destination-prefix next-hop address
```

5. Set the hostname. For example:

```
root# set system host-name Chicago
```

6. Save your configuration settings and activate them on the Services Router:

```
root# commit
```

For complete instructions, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide*.

Basic Connection and Configuration with the J-Web Interface

For J-Web access, you connect from your management PC or laptop to the Services Router through the Ethernet LAN PORT 0. (For information about the J-Web interface, see “J-Web Basics” on page 12.)

1. Connecting, Logging In, and Starting the J-Web Interface

To access a Services Router with the J-Web interface:

1. On the management PC or laptop, configure a static IP address in the 192.168.1.1/24 subnetwork.

Alternatively, if DHCP is enabled on the PC, the router can automatically assign an IP address in the 192.168.1.1/24 subnetwork with a 12-hour lease time.

2. Turn off power to the management PC or laptop.
3. Plug one end of the Ethernet cable into the Ethernet port on the PC or laptop, and connect the other end to Ethernet PORT 0 on the front of the router.
4. Press the POWER button on the router, and verify that the POWER ON LED turns green.
5. Turn on power to the PC or laptop, open a Web browser, and type 192.168.1.1 (the address of PORT 0) in the address field to access the J-Web interface.

For complete instructions, see the *J-series Services Router Getting Started Guide*.

2. Updating the Software with the J-Web Interface

After starting up the Services Router, you might want to download the latest version of the JUNOS software from the Juniper Networks Web site and load it onto the router. To update the JUNOS software:

1. Log in to the J-Web interface, and click **Manage** in the task bar.
2. Click **Software**, and then click **Upload software package**.
3. Click **Browse**, locate the JUNOS software package file on your PC or laptop hard drive, and open the file.
4. Check the box next to Reboot If Required, and click **Upload Package**.

For complete instructions, see the *J-series Services Router Administration Guide*.

3. Adding Licenses with the J-Web Interface

If you purchased one or more licenses, you received an envelope with instructions for obtaining license keys from the Web. To enable each license on the router, you must add the license key. You can add one or more license keys. To add a license key and enable a license:

1. Follow the instructions in your license envelope to generate the license key from the Web site.

2. Copy the license key onto the router with the J-Web interface:
 - a. Click **Manage** in the task bar.
 - b. Click **Licenses**.
 - c. Enter the license key in one of the following ways:
 - In the License File URL box, type the URL for the license key Web site.
 - Copy the license key text, and paste it into the License Key Text box, separating multiple license keys with a blank line.
 - d. Click **OK**.

For complete instructions, see the *J-series Services Router Administration Guide*.

4. Performing Basic Configuration with the J-Web Interface

When you click **OK** or **Apply** on J-Web Quick Configuration pages, the configuration is saved and activated automatically. To configure basic settings with the J-Web interface:

1. From the J-Web interface, click **Configuration** in the task bar.
2. Under Quick Configuration, click **Set Up**.
3. Enter information in the boxes on the Setup Quick Configuration page, and click **OK** or **Apply**.

Host Name (required)	Hostname of the router—for example, Chicago.
Domain Name	Network or subnetwork that the router belongs to.
Root Password (required)	Root password that user “root” can use to log in to the router.
Verify Root Password (required)	Retyped password.
Time Zone	Time zone in which the router is located.
NTP Servers	NTP server to synchronize the system time.
Current System Time	Your current time and date.
DNS Name Servers	DNS server to resolve hostnames into addresses.
Domain Search	Name of each domain to include in a DNS search.
Default Gateway	Default route. The IP address of a default router that the Services Router can use to direct packets addressed to networks not explicitly listed in the routing table.
Loopback Address	Reserved IP address that is always available on the router. By default, this address is set to 127.0.0.1/32.
fe-0/0/0 Address	IP address and prefix length of fe-0/0/0. This address is set to 192.168.1.1/24 at the factory, but you must reset it now—to 10.1.1.1/24, for example.
Allow Telnet Access	Enables remote access to the router with Telnet.
Allow JUNOScript over Clear-Text Access	Allows JUNOScript to send unencrypted text to the router over a TCP connection.
Allow SSH Access	Enables remote SSH access to the router.

4. To configure additional interfaces:
 - a. Under Quick Configuration, click **Interfaces**, and then click the interface you want to configure—for example, fe-0/0/1.
 - b. On the Interfaces page, click **Add** to add a logical interface.

IP addresses are configured on the logical interface.
 - c. In the two boxes provided, type the IP address (for example, 192.168.1.1) and the number of bits in the subnet mask (for example, 24), click **Add**, and then click **OK** or **Apply**.

To edit an existing interface, you click the logical interface.

5. To enable routing protocols, under Quick Configuration click **Routing**.
 - To add static routes, click **Static Routing**.
 - To enable a routing protocol, click the protocol.

When you are finished with a page, click **OK** or **Apply**.

For complete instructions, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide*.

JUNOS CLI Basics

After you start the CLI with the `cli` command, type a question mark (?) to display a list of the available commands:

```
root> ?
Possible completions:
clear          Clear information in the system
configure     Manipulate software configuration information
file          Perform file operations
help          Provide help information
monitor       Show real-time debugging information
mtrace        Trace multicast path from source to receiver
ping          Ping remote target
quit          Exit the management session
request       Make system-level requests
restart       Restart software process
set           Set CLI properties, date/time, craft interface message
show          Show system information
ssh           Start secure shell on another host
start         Start shell
telnet        Telnet to another host
test          Perform diagnostic debugging
traceroute    Trace route to remote host
```

To display the options available for a command, type the command followed by a space and a question mark:

```
root> show ?
Possible completions:
  accounting      Show accounting profiles and records
  aps             Show Automatic Protection Switching information
  arp            Show system Address Resolution Protocol table entries
  as-path        Show table of known autonomous system paths
  bfd            Show Bidirectional Forwarding Detection information
  bgp            Show Border Gateway Protocol information
  chassis        Show chassis information
  class-of-service Show class-of-service (CoS) information
  cli            Show command-line interface settings
  configuration   Show current configuration
  connections     Show circuit cross-connect connections
  dialer         Show dialer information
  dls            Show DLSw information
---(more 93%)---
```

To use command completion, type the first few letters of a command and press the spacebar or the Tab key.

For example, when you type the following letters, the system completes the command show chassis hardware and displays hardware information:

```
root> sh ch h
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis
Routing Engine RevX1.8   710-009989   CORE97133     RE-J.1
FPC 0         RevX1.5   710-009991   CORE96352     FPC
PIC 0
                2x FE, 2x Serial
```

Type the following letters to display the JUNOS software version running on the router:

```
root> sh ver
Hostname: host
Model: j2300
JUNOS Software Release [7.3-20050913.0] (Export edition)
```

To access configuration mode, enter the configure command. The prompt changes to a pound sign (#).

```
root> configure
root#
```

To exit configuration mode, enter the exit command. Use the exit command again to exit the CLI completely.

```
root# exit
root> exit
root%
```

J-Web Basics

The task bar at the top of the J-Web interface identifies the main J-Web functions. You access specific tasks on the left.

- Monitor—Output from common show commands
- Configuration—Quick Configuration wizards and a graphical CLI
- Diagnose—Ping and traceroute
- Manage—Configuration file management and licenses
- Events—System log messages
- Alarms—Active alarms

The first time you connect to a Services Router with the J-Web interface, you bypass the login page and go directly to the Set Up Quick Configuration page. At subsequent logins, you go directly to the System Monitor page.

Click **Monitor** to display information about the system (system serial number, CPU, and memory usage), interfaces, configured routes, and other Services Router functions.

Click **Configuration** to access Quick Configuration “wizard” pages for common configuration tasks such as initial setup, certificate installation, basic routing setup, and creation of firewall filters and IPSec tunnels. Each new release of the JUNOS software adds more Quick Configuration features.

For configuration details and tasks not covered by Quick Configuration, you can access a graphical version of the JUNOS CLI known as the configuration editor. Click **Configuration > View and Edit Configuration > Edit Configuration** to display a list of configurable features—like the list displayed when you enter `set ?` in CLI configuration mode.

When you click **OK** or **Apply** on J-Web Quick Configuration pages, the configuration is saved and activated automatically. In contrast, you must click **Commit** to apply changes on J-Web configuration editor pages.

For complete information about J-Web configuration features, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide*.

Safety Warnings Summary



NOTE: This is a summary of safety warnings. For a complete list of warnings, including translations, see the *J-series Services Router Getting Started Guide* at <http://www.juniper.net/techpubs/>.

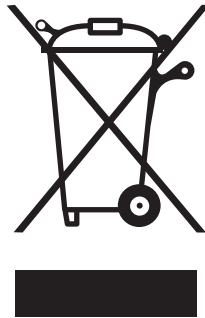
- Permit only trained and qualified personnel to install or replace Services Router components.
- Perform only the procedures described in this quick start or the *J-series Services Router Getting Started Guide*. Other services must be performed by authorized service personnel only.
- Before you connect a Services Router to a power source, read the installation instructions in the *J-series Services Router Getting Started Guide*.
- Before installing the router, read the guidelines about preparing for router installation in the *J-series Services Router Getting Started Guide*, to make sure that the site meets power, environmental, and clearance requirements for the router.
- When installing the Services Router, do not use a ramp inclined at more than 10 degrees.
- We recommend that two people perform Services Router installation. Have one person lift the router into position and a second person secure the mounting screws. To prevent injury, keep your back straight and lift with your legs, not your back.
- Mount the Services Router at the bottom of the rack if it is the only unit in the rack.
- When mounting the Services Router in a partially filled rack, load the rack from the bottom to the top, with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the Services Router in the rack.
- When removing or installing an electrical component, always place it component-side up on a flat antistatic surface or in an electrostatic bag.
- Do not work on the system or connect or disconnect cables during electrical storms.
- Before working on equipment that is connected to power lines, remove jewelry, including rings, necklaces, and watches. Metal objects heat up when connected to power and ground and can cause serious burns or become welded to the terminals.
- Failure to observe these safety warnings can result in serious physical injury.

Product Reclamation and Recycling Program

Juniper Networks is committed to environmentally responsible behavior. As part of this commitment, we work to comply with environmental standards such as the European Union's *Waste Electrical and Electronic Equipment* (WEEE) Directive and *Restriction of Hazardous Substances* (RoHS) Directive.

These directives and other similar regulations from countries outside the European Union regulate electronic waste management and the reduction or elimination of specific hazardous materials in electronic products. The WEEE Directive requires electrical and electronics manufacturers to provide mechanisms for the recycling and reuse of their products. The RoHS Directive restricts the use of certain substances that are commonly found in electronic products today. Restricted substances include heavy metals, including lead, and polybrominated materials. The RoHS Directive, with some exemptions, applies to all electrical and electronic equipment.

In accordance with Article 11(2) of Directive 2002/96/EC (WEEE), products put on the market after 13 August 2005 are marked with the following symbol or include it in their documentation: a crossed-out wheeled waste bin with a bar beneath.



Juniper Networks provides recycling support for our equipment worldwide to comply with the WEEE Directive. For recycling information, send e-mail to recycling@juniper.net indicating the type of Juniper Networks equipment that you wish to dispose of and the country where it is currently located, or contact your Juniper Networks account representative.

Products returned through our reclamation process are recycled, recovered, or disposed of in a responsible manner. Our packaging is designed to be recycled and should be handled in accordance with your local recycling policies.

Requesting Product Support

For technical support, open a support case with the Case Manager link at <http://www.juniper.net/support/> or call 1-888-314-JTAC (from the United States, Canada, or Mexico) or 1-408-745-9500 (from elsewhere).

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