



# Cisco ASR 920-10SZ-PD and Cisco ASR-920-8S4Z-PD Routers Initial Configuration

This chapter guides you through a basic router configuration, which is sufficient for you to access your network. Complex configuration procedures are beyond the scope of this publication and can be found in the modular configuration and modular command reference publications in the Cisco IOS-XE software configuration documentation set that corresponds to the software release installed on your Cisco hardware.

To configure Cisco ASR 920-10SZ-PD and Cisco ASR-920-8S4Z-PD Routers from a console, connect a terminal to the router console port.

This chapter contains the following sections:

- [Checking Conditions Prior to System Startup](#), on page 1
- [Powering Up the Router](#), on page 1
- [Configuring the Router at Startup](#), on page 6
- [Safely Powering Off the Router](#), on page 9

## Checking Conditions Prior to System Startup

Ensure that the following conditions are addressed before starting up the router:

- The optional Gigabit Ethernet Management port cable is installed.
- The chassis is securely mounted and grounded.
- The power and interface cables are connected.
- Your PC with terminal emulation program (HyperTerminal or equivalent) is connected to the console port and powered up.
- Your PC terminal emulation program is configured for 9600 baud, 8 data bits, 1 stop-bit, no parity, and no flow control is set to none.
- You have selected passwords for access control.
- You have determined the IP addresses for the Ethernet and serial interfaces.

## Powering Up the Router

After installing your router and connecting cables, start the router and follow these steps:

## Procedure

**Step 1** Switch on the power supply.

**Caution** Do not press any keys on the keyboard until the messages stop and the PWR LED is solid green. Any keys pressed during this time are interpreted as the first command typed when the messages stop, which might cause the router to power off and start over. It takes a few minutes for the messages to stop.

**Step 2** Observe the initialization process. When the system boot is complete (the process takes a few seconds), the router begins to initialize.

### Example:

#### Loading the Default System Boot Image

```

System Bootstrap, Version 15.4(3r)S4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2014 by cisco Systems, Inc.
Compiled Fri 20-Jun-14 17:24 by alnguyen
Boot ROM1
Last reset cause: PowerOn
UEA platform with 3670016 Kbytes of main memory

rommon 1 > boot tftp://tftpboot/master/asr920-universalk9_npe.2014-05-24_13.14_gurathi.bin

IP_ADDRESS: 7.43.18.118
IP_SUBNET_MASK: 255.255.0.0
DEFAULT_GATEWAY: 7.43.0.1
TFTP_SERVER: 202.153.144.25
TFTP_FILE: /tftpboot/master//asr920-universalk9_npe.2014-05-24_13.14_gurathi.bin
TFTP_MACADDR: 00:00:00:aa:bb:cc
TFTP_VERBOSE: Progress
TFTP_RETRY_COUNT: 18
TFTP_TIMEOUT: 7200
TFTP_CHECKSUM: No
ETHER_PORT: 2
ETHER_SPEED_MODE: Auto Detect
link up 100Mbps/FD.....
TFTP error 1 received (File not found).
TFTP: Operation terminated.
boot: netboot failed
rommon 2 > boot tftp://tftpboot/master/asr920-universalk9_npe.2014-05-24_13.14_gurathi.bin

IP_ADDRESS: 7.43.18.118
IP_SUBNET_MASK: 255.255.0.0
DEFAULT_GATEWAY: 7.43.0.1
TFTP_SERVER: 202.153.144.25
TFTP_FILE: /tftpboot/master/asr920-universalk9_npe.2014-05-24_13.14_gurathi.bin
TFTP_MACADDR: 00:00:00:aa:bb:cc
TFTP_VERBOSE: Progress
TFTP_RETRY_COUNT: 18
TFTP_TIMEOUT: 7200
TFTP_CHECKSUM: No
ETHER_PORT: 2
ETHER_SPEED_MODE: Auto Detect
link up 100Mbps/FD.....
Receiving /tftpboot/master/asr920-universalk9_npe.2014-05-24_13.14_gurathi.bin from
202.153.144.25
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
File reception completed.

```

```
Boot image size = 257997384 (0xf60ba48) bytes

Package header rev 0 structure detected
Calculating SHA-1 hash...done
validate_package: SHA-1 hash:
calculated ec733062:920bcf8a:84672876:3efde19d:4776fa0b
expected ec733062:920bcf8a:84672876:3efde19d:4776fa0b
Image validated
Passing control to the main image..
%IOSXEBOOT-4-DEBUG_CONF: (rp/0): Using DEBUG_CONF file /bootflash/debug.conf
%IOSXEBOOT-4-WATCHDOG_DISABLED: (rp/0): Hardware watchdog timer disabled: disabled by
BOOT_PARAM
Jul 15 20:21:13.690 R0/0: %PMAN-3-PROCFAIL_IGNORE: All process exits and failures are being
ignored due to debug settings. Normal router functionality will be affected. Critical
router functions like RP switchover, router reload, FRU resets, etc. may not function
properly.

Restricted Rights Legend

Use, duplication, or disclosure by the Government is
subject to restrictions as set forth in subparagraph
(c) of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.

cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco IOS Software, ASR920 Software (PPC_LINUX_IOSD-UNIVERSALK9_NPE-M), Experimental Version
 15.5(20140522:163448) [mcp_dev-gurathi-SFPP_ios 120]
Copyright (c) 1986-2014 by Cisco Systems, Inc.
Compiled Sat 24-May-14 13:07 by gurathi

Cisco IOS-XE software, Copyright (c) 2005-2014 by cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0. The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

cisco ASR-920 (Freescale P2020) processor (revision 1.0 GHz) with 706041K/6147K bytes of
memory.
```

```
Processor board ID CAT1740U01B
12 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
2097152K bytes of physical memory.
1328927K bytes of SD flash at bootflash:.
```

Warning: When Cisco determines that a fault or defect can be traced to the use of third-party transceivers installed by a customer or reseller, then, at Cisco's discretion, Cisco may withhold support under warranty or a Cisco support program. In the course of providing support for a Cisco networking product Cisco may require that the end user install Cisco transceivers if Cisco determines that removing third-party parts will assist Cisco in diagnosing the cause of a support issue.

Press RETURN to get started!

```
*Jul 15 20:22:08.531: %SMART_LIC-6-AGENT_READY: Smart Agent for Licensing is initialized
*Jul 15 20:22:08.564: %SMART_LIC-6-AGENT_ENABLED: Smart Agent for Licensing is enabled
Redundancy license not released

*Jul 15 20:22:24.239: dev_pluggable_optics_selftest attribute table internally inconsistent
@ 0x129

*Jul 15 20:22:24.821: pak_debug_init: Successfully initialized pak debug trace buffer
*Jul 15 20:22:25.466: %SPANNTREE-5-EXTENDED_SYSID: Extended SysId enabled for type vlanCannot
Get the number of ports in MAC notification

*Jul 15 20:22:29.043: %LINK-3-UPDOWN: Interface Lsmpi0, changed state to up
*Jul 15 20:22:29.044: %LINK-3-UPDOWN: Interface EOBC0, changed state to up
*Jul 15 20:22:29.045: %LINEPROTO-5-UPDOWN: Line protocol on Interface LI-Null0, changed
state to up
*Jul 15 20:22:29.045: %LINK-5-CHANGED: Interface GigabitEthernet0, changed state to
administratively down
*Jul 15 20:22:29.046: %LINK-3-UPDOWN: Interface LIIN0, changed state to up
*Jul 15 20:22:29.793: %LINEPROTO-5-UPDOWN: Line protocol on Interface Lsmpi0, changed state
to up
*Jul 15 20:22:29.794: %LINEPROTO-5-UPDOWN: Line protocol on Interface EOBC0, changed state
to up
*Jul 15 20:22:29.794: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0,
changed state to down
*Jul 15 20:22:29.795: %LINEPROTO-5-UPDOWN: Line protocol on Interface LIIN0, changed state
to up
*Jul 15 20:22:33.724: Bulk port license Activated

*Jul 15 20:22:34.194: %SYS-5-CONFIG_I: Configured from memory by console
*Jul 15 20:22:34.333: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 0/0, interfaces disabled
*Jul 15 20:22:34.479: %SPA_OIR-6-OFFLINECARD: SPA (12xGE-2x10GE-FIXED) offline in subslot
0/0
*Jul 15 20:22:34.495: %IOSXE_OIR-6-INSCARD: Card (fp) inserted in slot F0
*Jul 15 20:22:34.495: %IOSXE_OIR-6-ONLINECARD: Card (fp) online in slot F0
*Jul 15 20:22:34.496: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 0
*Jul 15 20:22:34.497: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 0
*Jul 15 20:22:34.563: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 0/0
*Jul 15 20:22:34.847: %SYS-5-RESTART: System restarted --
Cisco IOS Software, ASR920 Software (PPC_LINUX_IOSD-UNIVERSALK9_NPE-M), Experimental Version
15.5(20140522:163448) [mcp_dev-gurathi-SFPP_ios 120]
Copyright (c) 1986-2014 by Cisco Systems, Inc.
Compiled Sat 24-May-14 13:07 by gurathi
Authentication passed

*Jul 15 20:22:46.780: %SYS-6-BOOTTIME: Time taken to reboot after reload = 868 seconds
*Jul 15 20:22:51.205: %CALL_HOME-6-CALL_HOME_ENABLED: Call-home is enabled by Smart Agent
for Licensing.
```

```
*Jul 15 20:22:51.209: %PKI-4-NOCONFIGAUTOSAVE: Configuration was modified. Issue "write
memory" to save new IOS PKI configuration
*Jul 15 20:23:18.504: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/0
*Jul 15 20:23:18.517: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/1
*Jul 15 20:23:18.536: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/4
*Jul 15 20:23:18.542: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/5
*Jul 15 20:23:18.548: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/6
*Jul 15 20:23:18.554: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
GigabitEthernet0/0/7
*Jul 15 20:23:18.586: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
TenGigabitEthernet0/0/12
*Jul 15 20:23:18.593: %TRANSCEIVER-6-INSERTED:iomd: transceiver module inserted in
TenGigabitEthernet0/0/13
*Jul 15 20:23:20.525: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/1, changed state to down
*Jul 15 20:23:20.525: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/2, changed state to down
*Jul 15 20:23:20.525: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/3, changed state to down
*Jul 15 20:23:20.573: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/4, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/5, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/6, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/7, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/8, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/9, changed state to down
*Jul 15 20:23:20.574: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/10, changed state to
down
*Jul 15 20:23:20.623: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/11, changed state to
down
*Jul 15 20:23:20.623: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/12, changed state to
down
*Jul 15 20:23:20.623: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/13, changed state to
down
*Jul 15 20:23:22.318: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/0, changed state to
down[OK]
*Jul 15 20:23:28.733: %SPA_OIR-6-ONLINECARD: SPA (12xGE-2x10GE-FIXED) online in subslot 0/0
*Jul 15 20:23:42.197: %TRANSCEIVER-3-NOT_COMPATIBLE:iomd: Detected for transceiver module
in GigabitEthernet0/0/6, module disabled
*Jul 15 20:23:42.212: %TRANSCEIVER-3-NOT_COMPATIBLE:iomd: Detected for transceiver module
in GigabitEthernet0/0/7, module disabled
*Jul 15 20:23:43.983: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/12, changed state to
up
*Jul 15 20:23:45.106: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/13, changed state to
up
*Jul 15 20:23:45.367: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/0, changed state to up
*Jul 15 20:23:45.392: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/1, changed state to up
*Jul 15 20:23:45.804: %LINEPROTO-5-UPDOWN: Line protocol on Interface
TenGigabitEthernet0/0/13, changed state to up
*Jul 15 20:23:46.067: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0,
changed state to up
*Jul 15 20:23:46.089: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1,
changed state to up
*Jul 15 20:23:46.736: %LINEPROTO-5-UPDOWN: Line protocol on Interface
TenGigabitEthernet0/0/12, changed state to up
*Jul 15 20:23:46.829: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/4, changed state to up
*Jul 15 20:23:46.837: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/5, changed state to up
*Jul 15 20:23:47.528: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/4,
changed state to up
*Jul 15 20:23:47.537: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/5,
changed state to up
```

During the boot process, observe the system LEDs. After the router has booted, the green STAT LED comes on and stays on.

## Verifying the Front Panel LEDs

The front-panel indicator LEDs provide power, activity, and status information useful during bootup. For more detailed information about the LEDs, see the *LED Indicators* section.

## Verifying the Hardware Configuration

To display and verify the hardware features, enter the following commands:

- **show version**—Displays the system hardware version, the installed software version, the names and sources of configuration files, the boot images, and the amount of installed DRAM, NVRAM, and flash memory.
- **show diag slot R0 eeprom** —Displays the IDPROM information for the assemblies in the chassis.

## Checking Hardware and Software Compatibility

To check the minimum software requirements of Cisco IOS software with the hardware installed on your router, Cisco maintains the Software Research tool on Cisco.com. The tool provides the minimum Cisco IOS-XE requirements for individual hardware modules and components.



**Note** To access this tool, you must have a Cisco.com login account.

To access the Software Research tool:

1. Go to <http://software.cisco.com/selection/research.html>
2. In the **Search by Product** tab, type *Cisco ASR-920-10SZ-PD Router or Cisco ASR-920-8S4Z-PD*.
3. The Cisco Suggested Release(s) are displayed.

## Configuring the Router at Startup

This section explains how to create a basic running configuration for your router.



**Note** You must acquire the correct network addresses from your system administrator or consult your network plan to determine the correct addresses before you can complete the router configuration.

Before continuing the configuration process, check the current state of the router by entering the **show version** command. This command displays the release of Cisco IOS software that is available on the router.

For information on modifying the configuration after you create it, see the [Cisco IOS configuration and Cisco IOS Master Command List, All Releases guides](#).

To configure a router from the console, you must connect a terminal or terminal server to the console port on the router. To configure the router using the management Ethernet port, you must have the router's IP address.

## Accessing the CLI Using the Console

To access the command line interface using the console, follow these steps:

### Procedure

---

- Step 1** When your system is booting, type No at the prompt.
- ```
--- System Configuration Dialog ---  
Would you like to enter the initial configuration dialog? [yes/no]: no
```
- Step 2** Press Return to enter the user EXEC mode.
- The following prompt is displayed:
- ```
Router>
```
- Step 3** From the user EXEC mode, enter the enable command, as shown in the following example:
- ```
Router>
```
- Step 4** At the password prompt, enter your system password, as shown in the following example. If an enable password has not been set on your system, you can skip this step.
- ```
Password: enablepass
```
- When your password is accepted, the privileged EXEC mode prompt is displayed:
- ```
Router>
```
- You now have access to the CLI in the privileged EXEC mode. You can enter the necessary commands to complete the required tasks.
- Step 5** To exit the console session, enter the quit command, as shown in the following example:
- ```
Router# quit
```
- 

## Configuring Global Parameters

When you first start the setup program, configure the global parameters. These parameters are used for controlling system-wide settings. Perform the following steps to enter the global parameters:

### Procedure

---

- Step 1** Connect a console terminal to the console port, and then boot the router. For more information on connecting a console terminal, see *Connecting Console Cables* section.
- Note** The following is only an example of the output display; prompts may vary.

When you see this information, it means that you have successfully booted your router:

Restricted Rights Legend

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c) of the Commercial Computer Software - Restricted Rights clause at FAR sec. 52.227-19 and subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS sec. 252.227-7013.

cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, California 95134-1706

.  
.  
.

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: **yes**

Press RETURN to get started!

**Step 2** The first sections of the configuration script appear only at an initial system startup. On subsequent uses of the setup facility, the script begins with a System Configuration Dialog as shown below: When you are prompted about whether you want to enter the initial configuration dialog, enter **yes**.

Would you like to enter the initial configuration dialog? [yes/no] **yes**

At any point you may enter a question mark '?' for help.  
Use ctrl-c to abort configuration dialog at any prompt.  
Default settings are in square brackets '['].

Basic management setup configures only enough connectivity for management of the system, extended setup will ask you to configure each interface on the system.

Basic management setup configures enough connectivity for managing the system; extended setup will ask you to configure each interface on the system.

---

## Bringing Up the Management Interface

To bring up the management interface (required for configuring upload or download):

### Procedure

---

- Step 1** Router(conf)# boot ios
- Step 2** Router(conf)# interface gig0
- Step 3** Router(conf)# ip tftp source-interface gig0
- Step 4** Router(config)# ip route vrf mgmt-intf 0.0.0.0 0.0.0.0 <gateway\_ip >



**Step 5** Router# ping vrf Mgmt-intf <tftp\_server\_ip >

---

## Checking the Running Configuration Settings

To check the value of the settings you have entered, enter the `show running-config` command at the Router# prompt:

```
Router# show running-config
```

To review the changes you have made to the configuration use the `show startup-config` command in the user EXEC mode to see the changes and copy run-start stored in the NVRAM.

## Saving the Running Configuration to NVRAM

To store the configuration or changes to your startup configuration in NVRAM, enter the `copy running-config startup-config` command at the prompt:

```
Router# copy running-config startup-config
```

Using this command saves the configuration settings that you created in the router using the configuration mode and the setup facility. If you fail to do this, your configuration will be lost, and will not be available when you reload the router next.

## Safely Powering Off the Router

This section explains how to shut down the router. We recommend that before turning off all power to the chassis, you issue the `reload` command. This ensures that the operating system cleans up all the file systems. After the reload operation is complete, the router can be powered off safely.

To power off the router safely:

### Procedure

---

**Step 1** Slip on the ESD-preventive wrist strap included in the accessory kit.

**Step 2** Enter the `reload` command.

**Step 3** Confirm the reload command.

```
Rmcp-6ru-1#reload
Proceed with reload? [confirm]
Aug 17 00:06:47.051 R0/0: %PMAN-5-EXITACTION: Process manager is exiting: prs exit with
reload chassis code
```

**Step 4** After confirming the reload command, wait until the system bootstrap message is displayed before powering off the system:

```
System Bootstrap, Version 15.4(3r)S4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2014 by Cisco Systems, Inc.
```

```
Current image running: Boot ROM0
Last reset cause: RSP-Board
UEA platform with 2097152 Kbytes of main memory
```

**Step 5** Remove power cables, if any, from the Cisco ASR-920-10SZ-PD Router:

- For power supplies with a circuit breaker switch, position the switch to the Off (O) position.
- For power supplies with a standby switch, place the standby switch in the Standby position.

**Note** After powering off the router, wait for a minimum of 30 seconds before powering it on again.

---