Configure the Device

This chapter guides you through a basic device configuration that you to require to access your network.

Complex configuration procedures are beyond the scope of this guide. Descriptions of these procedures can be found in the modular configuration and command reference guides of the Cisco IOS software configuration documentation set. See the set that corresponds to the installed software release.

To configure the device from a console, connect a terminal to the device console port.

This chapter describes:

Check Conditions Before System Startup

Ensure that the following conditions are checked before starting up the device:

- The chassis is securely mounted and grounded.
- Captive installation screws are secured tight on all removable components.
- The optional Gigabit Ethernet Management port cable is installed.
- Power and interface cables are connected.
- Your PC with a terminal emulation program (Hyper-Terminal 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, and no parity. No flow control is set to none.
- Passwords for access control are selected.
- The console terminal is turned on.
- You have determined the IP addresses for the Ethernet and serial interfaces.

Powering Up the Cisco ASR 920 Series Router

After installing your Cisco ASR 920 Series 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 Cisco ASR 920 Series Router begins to initialize, see the example below.

Example:

Loading the Default System Boot Image

```
System Bootstrap, Version 12.2(20140211:085836) [pbalakan-sb_romver_16 130], DEVELOPMENT
SOFTWARE
Copyright (c) 1994-2012 by cisco Systems, Inc.
Compiled Fri 28-Mar-14 18:57 by pbalakan-sb_romver_16
Boot ROM0
Last reset cause: RSP-Board
UEA platform with 2097152 Kbytes of main memory

rommon 1 > boot
tftp:/tftpboot/master/PEGASUS/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/PEGASUS/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/PEGASUS/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: 7200TFTP_CHECKSUM: No
          ETHER_PORT: 2
    ETHER_SPEED_MODE: Auto Detect
link up 100Mbps/FD.......
Receiving /tftpboot/master/PEGASUS/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.

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           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


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agree to comply with applicable laws and regulations. If you are unable
```

```
to comply with U.S. and local laws, return this product immediately.

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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: %SPANTREE-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.

Verify 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.

Verify the Hardware Configuration

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

Table 1: Hardware Commands

Command	Description
show version	Displays the following information: • system hardware version • software version installed • configuration file names and source • boot image • DRAM space • NVRAM space • flash memory space
show diag slot	Displays IDPROM information for the assemblies in the device.

Check Hardware and Software Compatibility

To check the minimum software requirements of the Cisco IOS software, login to the Software Advisor tool at cisco.com. The tool provides the Cisco IOS minimum requirements for individual hardware modules and components.

Note To access this tool, you must have a cisco.com login credentials.

To access Software Advisor:

1. Click **Log In** at cisco.com.
2. Type your registered Username and Password and click **Log In**.
3. Type **Software Advisor** in the search box, and click the search icon.
4. From the displayed search result, select the Software Advisor Tool link.
5. Choose a product family or enter a specific product number to search for the minimum supported software that is needed for your hardware.

Configure Device at Startup

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

Note Acquire the correct network addresses from your system administrator or consult your network plan before you create the basic running configuration.

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

For information on modifying the configuration you create, see the Cisco IOS Master Command List, All Releases.

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

Access the CLI Using the Console

Procedure

Step 1 When your system is booting, enter *no* at the prompt.

Example:

```
--- 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:

```
Router> enable
```

Step 4 At the password prompt, enter your system password (if a 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 privileged EXEC mode. You can enter necessary commands to complete required tasks.

Step 5 To exit the console session, enter the quit command:

```
Router# quit
```

Configure Global Parameters

When you first start the setup program, configure certain global parameters that 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 device.

Note The following is only an example of the output display; prompts may vary.

When this information appears, it means that you have successfully booted your device:

Example:

```
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.
.
.
--- 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, the script begins with a System Configuration Dialog as shown below. When prompted 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.
```

The basic management setup configures enough connectivity for managing the system; the extended setup prompts you to configure each interface on the system.

Check the Running Configuration Settings

To view the value of the settings you have entered, enter the following command in privileged EXEC mode:

```
device# show running-config
```

To review the changes you have made to the configuration, enter the following command in EXEC mode and copy run-start stored in the NVRAM.

```
device# show startup-config
```

Save the Running Configuration to NVRAM

To store the configuration or changes to your startup configuration in NVRAM, enter the following command at the prompt:

```
device# copy running-config startup-config
```

This command saves the configuration settings that you create in the device using the configuration mode and the setup facility. If the save action fails, you lose your configuration, and it is not available during your next reload.

Safely Power Down the Device

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

To power down the device safely:

Procedure

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

Step 2 Enter the **reload** command.

Step 3 Click the **Enter** key when prompted to confirm.

Step 4 Wait for the system bootstrap message before powering down the system:

Step 5 Remove power cables, if any, from the device:

- 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.

After powering down the device, wait for a minimum of 30 seconds before powering it on again.