Installing In a Lab Environment

When you install BPR in a lab environment, the installation program installs all components on a single server. The lab installation program involves fewer steps than the component installation and automates much of the configuration. When you complete the installation, however, you need to perform some setup on a cable modem termination system (CMTS) and on Network Registrar.

The lab installation program is designed to keep the installation and configuration as simple as possible by using a predefined overall system configuration. This enables you to quickly set up BPR for basic evaluation purposes.

The lab installation program uses predefined default values for the installation that assume a specific network configuration. This configuration creates scopes, policies, client classes, and selection tags.

This chapter describes how to install Broadband Provisioning Registrar (BPR) in a lab environment or to demonstrate product functionality and how to configure a CMTS and Network Registrar to support BPR.

Installation Checklist

You can install BPR in a lab environment on a single computer running the Solaris 8 operating system. Before you run the installation program, use the following checklist to ensure that you are ready:

- Verify the prerequisite system hardware and software requirements described in Chapter 1, "Overview."

- Have your BPR evaluation license key or keys at hand. You need a valid license key for each technology that you want to provision with BPR.

- Ensure that you have *root* access to the computers where you intend to install BPR.

- Verify that Network Registrar 5.0.9 or greater is installed on the server.

- Determine the destination directory in which you want to install BPR.

> **Note** Cisco Systems recommends that you have at least 50 MB of disk space available.

- For the RDU, select the shared secret password that BPR servers on your network use as a token to authenticate communication with one another. The shared secret password is the same for all BPR servers on your network.

- For extensions, determine the name of provisioning group to which the Network Registrar server belongs.

- Verify that you have the necessary Network Registrar configuration files, (See Appendix A, "Network Registrar Configuration File Example" for an example of these configuration files.)

Installing in a Lab Environment Using the GUI

The lab installation prompts for the following information:

- BPR destination directory
- Network Registrar administrator username and password
- Shared secret password

During a lab installation, a set of predetermined default values are used as a network configuration.

To install BPR in a lab environment, follow these steps:

Step 1   Complete steps 1 through 4 in the "Installing from the Graphical User Interface" section on page 2-5.

Step 2   Click **Lab** when the Choose Installation Type screen appears (Figure 4-1).

Figure 4-1   Choose Installation Type Screen
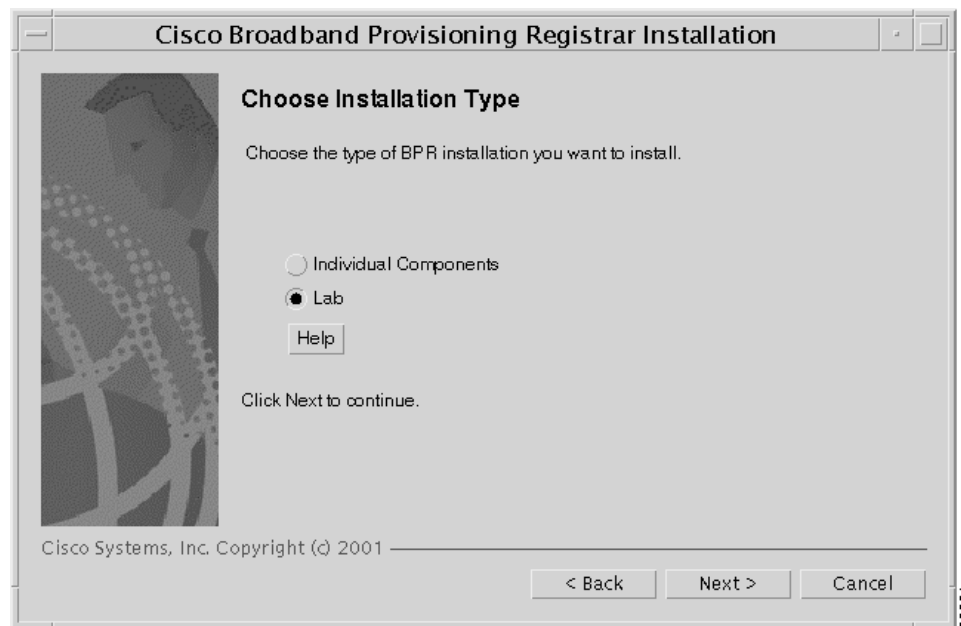
Step 3   Click **Next**. The lab installation program automatically checks to see if it detects a TFTP server. If the Solaris TFTP server is detected, an error message appears and the installation process ends.

⚠

Caution   When installing BPR on a Solaris server, the Solaris TFTP server must be disabled before starting Network Registrar TFTP servers.

Provided that a TFTP server is not detected, the BPR License Key(s) screen appears (Figure 4-2).

Figure 4-2   BPR License Key(s) Screen

Step 4   Enter your evaluation license key and click **Add License Key**. The installation program adds the key that you enter to the list of valid keys. If your BPR deployment supports multiple technologies, you need a key for each technology.

Note   If one of the license keys is incorrect an Invalid License Key dialog appears.

Step 5   Click **Next**. The Destination Directory screen appears (Figure 4-3).

Figure 4-3   Destination Directory Screen
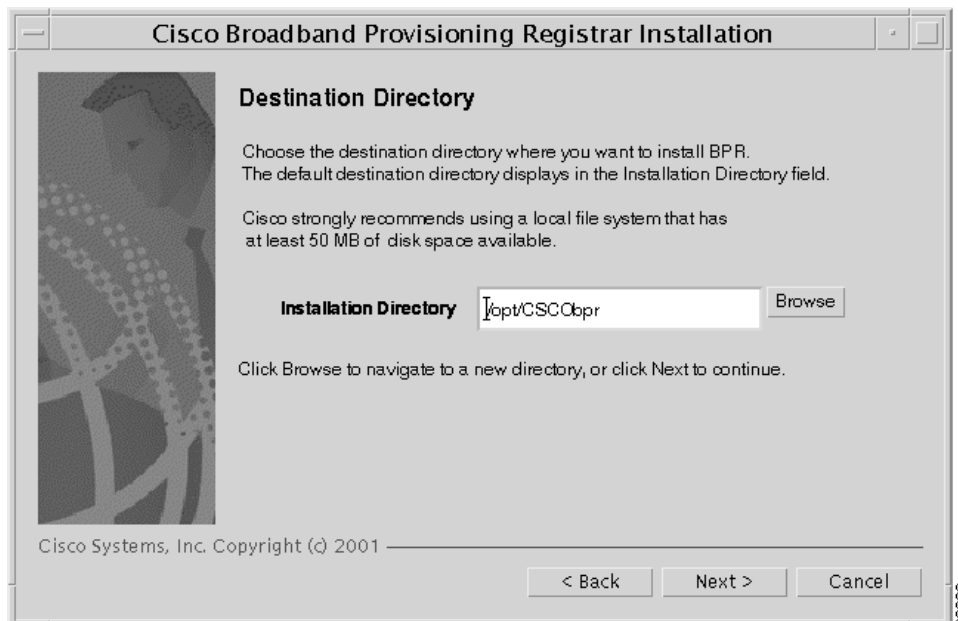
Step 6   Enter the pathname of the location where you want to install BPR.

Step 7   Click **Next**. The installation program confirms that the required disk space is available, and then displays the Network Registrar Username and Password screen (Figure 4-4).

Figure 4-4   Network Registrar Username and Password Screen

Step 8   Enter the Network Registrar administrative username and password.

Step 9   Click **Next**. The Shared Secret Password screen appears (Figure 4-5).

Figure 4-5   Shared Secret Password Screen

Step 10 Enter and confirm the shared secret password. This password is a token that a BPR server uses to authenticate communication with other BPR servers.

Step 11 Click **Next**. The Lab Installation Parameters screen appears (Figure 4-6). This screen identifies the values that you have entered in the previous screens. To modify any of the values entered:

   a. Click **Back** until the desired screen appears.

   b. Make the necessary changes.

   c. Click **Next** repeatedly until you return to this screen.

Figure 4-6   Lab Installation Parameters Screen

Step 12 Click **Next** and the lab version of BPR is installed.

Installing in a Lab Environment Using the CLI

The lab installation prompts for the following information:

   • BPR destination directory

   • Network Registrar administrator username and password

   • Shared secret password

To install BPR in a lab environment, complete the steps described in "Installing from the Command Line" section on page 2-7. Then, do the following:

Step 1 When the installation program prompts you to enter your BPR license key, enter your license key. The program confirms the license key.

The program then prompts you to enter another license key.

Step 2 To add another license key, press **y** and **Enter**; to proceed to the next step, press **n** and **Enter**. The program displays the following message.

```
Validating LAB settings...
```

The program then prompts you to enter the destination directory.

Step 3 To accept the default directory, /opt/CSCObpr, press **Enter**. For example:

```
Destination Directory


Directory path for BPR_HOME


Location BPR_HOME

    Installation Directory [/opt/CSCObpr]
```

The program then asks you to confirm the directory.

Step 4 Press **y** and **Enter** to continue. The program prompts you to enter the Cisco Network Registrar username and password.

Step 5 To enter a Network Registrar username and password, do the following:

  a. Enter a valid administrator username and password.

  b. Enter the password again to confirm it.

For example:

```
Cisco Network Registrar Username and Password


Enter the administrator username and password for the NR server.


Enter the username and password for the NR server to be used in the lab
installation.  You must confirm the NR password.

   Network Registrar adminstrator Username [admin] admin
   Network Registrar adminstrator Password [] changeme
   Confirm Network Registrar Password [] changeme
```

The program then redisplays the administrator username, password, and password confirmation. It then prompts you to confirm this information.

Step 6 Press **y** and **Enter** to continue. The program prompts you to enter the shared secret password. This password is a token that a BPR server uses to authenticate communication with other BPR servers. The default password is **secret**.

Step 7   Enter the password that you want to use for authentication among BPR servers. For example:

```
Shared Secret Password


Enter the password to be used for authentication
among the BPR servers.


If you are performing a lab installation, then the password will be used for
all the servers.  If this is a component installation, then the password you
enter must be the same as the components previously installed.

    Enter the Shared Secret Password [secret] secret
```

The program prompts you to confirm the password.

Step 8   Enter the password again and press **y** to continue. The program then displays the installation parameters that you selected. For example:

```
Installation Parameters


This screen shows the installation parameters that you have chosen:




========== Confirmation ==========
The Lab/Demo Installation will install all components using the following
parameters:

Installation directory:/opt/CSCObpr

    Is this correct (y/n/q/?)  [yes]
```

Step 9   Press **y** and **Enter** to install the lab software. The program displays a message when the installation is complete.

Configuring Network Registrar and a CMTS

For BPR to function in a lab environment you need to set up Network Registrar client-classes, policies, scopes, and selection tags. You also need to perform some configuration of CMTS devices.

To configure Network Registrar and CMTS devices, follow these steps:

Step 1   Set up scopes on your Network Registrar server. The following command shows an example of setting up scopes:

```
/opt/nwreg2/usrbin/nrcmd  -N <USER_NAME> -P <PASSWORD> -b  <
/opt/CSCObpr/cnr_ep/samples/bpr_cnr_hsd_sample_config.nrcmd > cnr_setup.out.
```

> **Note** The **/opt/CSCObpr/cnr_ep/samples/bpr_cnr_hsd_sample_config.nrcmd** command runs a sample Network Registrar configuration script, which defines client-classes, policies, scopes, selection tags and other related information. You might want to update this file to reflect the IP address settings on your network. For more information about this file, see Appendix A, "Network Registrar Configuration File Example." For more detailed information about defining client-classes, policies, scopes, and selection tags, see the *Network Registrar User's Guide*.

Step 2 Enable the cable interface or interfaces on your CMTS with the correct IP addresses and DHCP helper-address. For example, in the case of the Network Registrar script, provided in the previous step, you might edit the CMTS configuration as follows:

```
interface Cable3/0
    ip address 172.27.192.17 255.255.255.240 secondary
    ip address 172.27.192.33 255.255.255.240 secondary
    ip address 172.27.192.49 255.255.255.240 secondary
    ip address 172.27.192.1 255.255.255.240
    no ip directed-broadcast
    no keepalive
    cable downstream annex B
    cable downstream modulation 64qam
    cable downstream interleave-depth 32
    cable downstream frequency 477000000
    cable upstream 0 frequency 26000000
    cable upstream 0 power-level 0
    no cable upstream 0 shutdown
    cable dhcp-giaddr primary
    cable helper-address <IP Address Of Your Network Registrar Server>
```

Step 3 To configure your CMTS to insert the DHCP relay agent information option in forwarded BOOTREQUEST messages, use the following Cisco IOS command:

ip dhcp relay information option

The default device detection logic in BPR uses DHCP option 82 information (relay-agent information) to detect devices.

Step 4 To configure your CMTS so that it does *not* validate the relay agent information option in forwarded BOOTREPLY messages, use the following IOS command.

no ip dhcp relay information check