



CHAPTER 3

Installing Components

This chapter explains the procedures you must follow to correctly install Broadband Access Center for Cable (BACC) components in a Solaris operating system environment.

This chapter contains these topics:

- [Installing Components Using the Graphical User Interface, page 3-1](#)
- [Installing Components Using the CLI, page 3-8](#)

Installing Components Using the Graphical User Interface

This section explains the procedures that you follow to install one or more of components of BACC using the GUI.

You can choose to install one or all of these components:

- Regional distribution unit (RDU). Refer to [Installing the Regional Distribution Unit, page 3-2](#) for further information.
- Network Registrar extensions. Refer to [Installing Extensions on a Network Registrar Server, page 3-3](#) for further information.
- Key Distribution Center (KDC). Refer to [Installing the Key Distribution Center, page 3-7](#) for further information.
- Device Provisioning Engine (DPE). Refer to [Installing the Device Provisioning Engine, page 3-8](#) for further information.

For more information about each component see the “[Broadband Access Center for Cable Components](#)” section on page 2-1.

Before you begin any of these procedures, you must complete the initial installation procedure described in the “[Installation and Startup Process](#)” section on page 2-2.

Installing the Regional Distribution Unit

Install the RDU server on a Solaris 8 server that meets the requirements described in the “[Hardware Requirements](#)” section on page 1-2.

To install the RDU server, complete the steps described in the “[Installation and Startup Process](#)” section on page 2-2, then follow these steps:

-
- Step 1** Click **Next**. The Home Directory Destination screen appears. The default directory is `/opt/CSCObpr`.
- Step 2** Accept the default directory or enter a new directory. You can use the **Browse** button to select a new directory.
- Step 3** Click **Next**. The installation program displays the Create Directory dialog box. Click **Yes** to continue. The Data Directory Destination screen appears. The default directory is `/var/CSCObpr`.
- Step 4** Accept the default directory or enter a new directory. You can use the **Browse** button to select a new directory.



Note By default, the installation program installs the data directory (BPR_DATA) on a different directory than the home directory (BPR_HOME). Cisco Systems recommends that the data directory be on a different physical disk than the home directory; for example `/var/disk0/CSCObpr`. However, you can install the data directory on the same disk as the home directory.

The directory specified becomes the top-level directory under which the installation program creates a number of subdirectories; for example, `/var/disk0/CSCObpr/rdu/db`.

- Step 5** Click **Next**. The installation program displays the Create Directory dialog box. Click **Yes** to continue. The Database Transaction Logs screen appears.
- Step 6** Enter the pathname for the directory in which you want the transaction logs (BPR_DBLOG) installed. The default directory is `/var/CSCObpr`.



Note By default, the installation program installs the database transaction logs directory (BPR_DBLOG) in the same directory as the data directory (BPR_DATA). Cisco Systems recommends that you locate the database transaction logs directory on the fastest disk on the system; for example, `/var/disk1/CSCObpr`. You also should ensure that the disk has 1 GB of space available.

The directory specified becomes the top-level directory under which the installation program creates a number of subdirectories.

- Step 7** Accept the default directory or enter a new directory. You can use the **Browse** button to select a new directory.
- Step 8** Click **Next**. The installation program displays the Create Directory dialog box. Click **Yes** to continue. The Regional Distribution Unit Host/Port screen appears.
- Step 9** Accept the default listening port number or enter a new port number. The default port is 49187.

**Note**

The installation program obtains the IP address of the RDU automatically. You do not need to enter this value.

**Caution**

If you change the default listening port value, ensure that the new value does not conflict with any existing port assignments. Also, ensure that you configure all DPEs and Network Registrar servers with the correct RDU port number. See the *Broadband Provisioning Registrar Administrator's Guide* for information about configuring the DPE and Network Registrar extensions.

Step 10 Click **Next**. The Shared Secret Password screen appears.

Step 11 Enter and confirm the shared secret password.

**Note**

The RDU, DPEs, and Network Registrar extension points all use the same shared secret. This is a character string, or token, that is used to authenticate communication.

Step 12 Click **Next**. The Installation Parameters screen appears. 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.

Step 13 Click **Next**. When the installation is complete, the Installation Summary screen appears. Click **Finish** to exit the installation program.

**Note**

You must configure your license keys using the administrator's user interface. Refer to the *Cisco Broadband Access Center for Cable Administrator's Guide* for additional information.

Installing Extensions on a Network Registrar Server

You install BACC extensions on a Network Registrar server. If you are deploying BACC in a failover environment, you also must install the extensions on the failover servers. After you install extensions, you need to configure them.

The remainder of this section explains how to install, configure, and validate these extensions.

Installing Extensions

Before you install the Network Registrar extensions, complete the steps described in the “[Installation and Startup Process](#)” section on page 2-2. To install the extensions:

- Step 1** On the Installation Components screen, select the Cisco Network Registrar extension points option, then click **Next** to continue; the Home Directory Destination screen appears.



Note The installation program now validates your Network Registrar (CNR) installation. We recommend that you have CNR version 6.1.2.3 or higher. If the required version is not installed, the installation process is terminated and you must upgrade to the required Network Registrar version before proceeding.

- Step 2** Enter the pathname for the home directory, or click the **Browse** button to locate the desired directory.



Note The installation program does not ask for the home directory when it identifies that you are installing BACC components on a computer that already has a BACC component installed on it.

- Step 3** Click **Next**. The installation program performs some validation and, prompts you to create the directory, if necessary, before the Data Directory Destination screen appears.

- Step 4** Accept the default directory or enter a new directory. You can use the **Browse** button to select a new directory.



Note By default, the installation program installs the data directory (BPR_DATA) on a different directory than the home directory (BPR_HOME). Cisco Systems recommends that the data directory be on a different physical disk than the home directory; for example, /var/disk0/CSCObpr. However, you can install the data directory on the same disk as the home directory.

- Step 5** Click **Next**. The Regional Distribution Unit Host/Port screen appears.

- Step 6** Enter the IP address (or hostname) and the listening port of the host where the RDU software is installed. By default, the name of the local host appears in the RDU IP Address field. The RDU uses the listening port to communicate with the DPEs and Network Registrar extension points.

- Step 7** Click **Next**. The Cisco Network Registrar Extension Point Provisioning Group screen appears.

- Step 8** Enter the name of the extension point provisioning group.

- Step 9** Click **Next**. The PacketCable Panel screen appears.

- Step 10** Determine if you need to install the voice technology option and click:
- **Yes** button if you want to install the voice technology option. The PacketCable Properties screen appears.
 - **No** if you do not have a valid license key for this technology. After clicking **No**, go to step number 12.

- Step 11** Enter the appropriate information into the fields shown.

Field Name	Description
Kerberos Realm Name	Specifies, using a unique name, the Kerberos realm. This must match the realm set at the associated components.
IP Address of Primary DHCP Server	Specifies the IP address of the voice technology primary DHCP server.
IP Address of Primary DNS Server	Specifies the IP address of the computer which is running the primary DNS server.
IP Address of Secondary DHCP Server	Specifies the IP address of the voice technology secondary DHCP server.
IP Address of Secondary DNS Server	Specifies the IP address of the computer which is running the secondary DNS server; if that server is being used.

Step 12 Click **Next**. The Shared Secret Password screen appears.

Step 13 Enter and confirm the shared secret password.



Note Use the shared secret password specified during the RDU installation.

Step 14 Click **Next**. The Installation Parameters screen appears. This screen identifies the values that you have entered in the previous screens. To modify any of the values entered click **Back** until the desired screen appears.

Step 15 Click **Next**. When the installation is complete, the Installed Components Summary screen appears. Click **Finish** to exit the installation program.

Configuring Extensions

After you install the BACC extensions to Network Registrar, you must configure the extensions. The procedure described in this section makes these assumptions:

- The BACC component is installed in `/opt/CSCObrpr`.
- Network Registrar is installed in `/opt/nwreg2`.
- The Network Registrar username is **admin** and the password is **changeme**.

To configure extensions, follow these steps:

Step 1 Log in as *root* to the Network Registrar server.

Step 2 At the command line, enter these commands:

```
<NR_HOME>/usrbin/nrcmd -N admin -P changeme -b <
<BACC_HOME>/cnr_ep/bin/bpr_cnr_enable_extpts.nrcmd
```

Step 3 Enter these commands to reload the Network Registrar server:

```
/etc/init.d/nwreglocal stop
/etc/init.d/nwreglocal start
```

Alternatively, you can enter this command to reload the DHCP server alone:

```
<NR_HOME>/usrbin/nrcmd -N admin -P changeme "dhcp reload"
```

**Caution**

Be aware that you also must configure client-classes, scope selection tags, policies, and scopes before you can use the Network Registrar server. See the *Network Registrar User's Guide* for information about configuring these entities.

Validating Extensions

In the **nrcmd** program, run the following command and verify the output is the same:

```
nrcmd> extension list
100 Ok
dextdropas:
  entry = dextdropas
  file = libdextdropas.so
  init-args =
  init-entry =
  lang = Dex
preClientLookup:
  entry = bprClientLookup
  file = libbprextensions.so
  init-args = BACC_HOME=/opt/CSCObpr, BACC_DATA=/var/CSCObpr
  init-entry = bprInit
  lang = Dex
prePacketEncode:
  entry = bprExecuteExtension
  file = libbprextensions.so
  init-args =
  init-entry =
  lang = Dex
```

**Note**

The <BACC_HOME> and <BACC_DATA> values may be different in your installation.

Also in the **nrcmd** program, run the following command and verify the output is the same:

```
nrcmd> dhcp listextensions
100 Ok
post-packet-decode: dextdropas
pre-packet-encode: prePacketEncode
pre-client-lookup: preClientLookup
post-client-lookup:
post-send-packet:
pre-dns-add-forward:
check-lease-acceptable:
```

Installing the Key Distribution Center

To install the Key Distribution Center (KDC), complete the steps described in the “[Installation and Startup Process](#)” section on page 2-2, then follow these steps:

Step 1 On the Installation Components screen, select the Key Distribution Center option, then click **Next** to continue; the Home Directory Destination screen appears.

Step 2 Enter the pathname for the home directory, or click the **Browse** button to locate the desired directory.



Note The installation program does not ask for the home directory when it identifies that you are installing BACC components on a computer that already has a BACC component installed on it.

Step 3 Click **Next**. The installation program performs some validation and, prompts you to create the directory, if necessary, before displaying the Data Directory Destination screen.

Step 4 Click **Next** and the Key Distribution Center Realm Name screen appears.

Step 5 Enter the appropriate information into the fields shown.

Field Name	Description
KDC Realm	Specifies, using a unique name, the Kerberos realm. This must match the realm set at the associated components.
KDC FQDN	Identifies the fully qualified domain name on which the KDC server is located.
KDC Interface Address	Specifies the interface (generally the IP address of the KDC server) on which the KDC listens for requests.

Step 6 Click **Next** and the KDC Service Key and DPE screen appears.



Note The KDC requires a password for each DPE. This password must be entered at the corresponding DPE and **MUST** match that entered for the KDC otherwise the DPE will not operate.

Step 7 Enter a 6 to 20 character password (see the example below) and the fully qualified domain name (FQDN), for each DPE, and then click **Add**. Continue to add additional DPEs as necessary.

Example KDC Password

12345678901234567890

Step 8 Click **Next** when you are done. The Installation Parameters screen appears.

Step 9 After verifying that the parameters are correct, click **Next** to install BACC, or **Back** to modify the parameters. When installation is complete, the Installation Summary screen appears.

Step 10 Click **Finish** to end the installation process and exit the installation program.

**Caution**

After installing the KDC, you must install your licenses, and the chain of certificates, or the KDC will not start.

Installing the Device Provisioning Engine

To install the DPE, complete the steps described in the “[Installation and Startup Process](#)” section on [page 2-2](#), then follow these steps:

- Step 1** On the Installation Components screen, select the Device Provisioning Engine option, then click **Next** to continue; the Home Directory Destination screen appears.
- Step 2** Enter the pathname for the home directory, or click the **Browse** button to locate the desired directory.
- Step 3** Click **Next**. The installation program performs some validation and, prompts you to create the directory, if necessary, before displaying the Data Directory Destination screen.
- Step 4** Click **Next**, when you are done. The Installation Parameters screen appears.
- Step 5** After verifying that the parameters are correct, click **Next** to install the DPE, or **Back** to modify the parameters. When installation is complete, the Installation Summary screen appears.
- Step 6** Click **Finish** to end the installation process and exit the installation program.

Installing Components Using the CLI

This section explains the procedures that you follow to install one or more of components of BACC using the CLI.

Refer to these sections for installation instructions:

- [Installing the Regional Distribution Unit, page 3-9](#)
- [Installing Network Registrar Extensions, page 3-11](#)
- [Installing the Key Distribution Center, page 3-14](#)
- [Installing the Device Provisioning Engine, page 3-16](#)

For more information about each component see the “[Broadband Access Center for Cable Components](#)” section on [page 2-1](#).

Before you begin any of these procedures, you must complete the initial installation procedure. For more information, see the “[Installing from the Command Line](#)” section on [page 2-8](#).

Installing the Regional Distribution Unit

To install an RDU, complete the steps described in the [“Installing from the Command Line”](#) section on page 2-8. Then, follow these steps:

Step 1 When the installation program prompts you to select one or more components, enter **y** and press **Enter** at the Regional Distribution Unit (RDU) (y/n/?) prompt. The program then asks if you want to install Cisco Network Registrar extension points, the DPE, and the KDC.

Step 2 To skip installing either the extension points or the KDC, press **n** and **Enter** for each option.

You can choose to install these options at a later date. See the [“Installing Network Registrar Extensions”](#) section on page 3-11 for additional information.

For example:

```
Installation Components
```

```
Select one or more components to install BPR.
Regional distribution unit (RDU) (y/n/?) [no] y
Cisco Network Registrar extension points (y/n/?) [no] n
Device Provisioning Engine (DPE) (y/n/?) [no] n
Key Distribution Center (KDC) (y/n?) [no] n
```

The program prompts you to confirm the components that you want to install.

Step 3 Press **y** and **Enter** to continue. The program prompts you to start individual component validation.

Step 4 Press **Enter** to continue. For example:

```
Starting the individual component installation parameters validation.
```

```
Press Enter to Continue or 'q' to Quit:
Validating the individual component installation parameters - Please wait.
```

The program prompts you to enter the home directory destination.

Step 5 To accept the default directory, /opt/CSCObpr, press **Enter**; or enter another directory. For example:

```
Home Directory Destination
```

```
Home Directory Destination [/opt/CSCObpr]
```

The program asks you to confirm the directory.

Step 6 Press **y** and **Enter** to continue. The program prompts you to enter the data directory destination.

Step 7 To accept the default directory, /var/CSCObpr, press **Enter**; or enter another directory. For example:

```
Data Directory Destination
```

```
Data Directory Destination [/var/CSCObpr]/var/disk0/CSCObpr
```

The program then asks you to confirm the directory.



Note By default, the installation program installs the data directory (BPR_DATA) on a different directory than the home directory (BPR_HOME). Cisco Systems recommends that the data directory be on a different physical disk than the home directory; for example, /var/disk0/CSCObpr. However, you can install the data directory on the same disk as the home directory.

Step 8 Press **y** and **Enter** to continue. The program prompts you to enter the database transaction logs destination.

Step 9 To accept the default directory, `/var/CSCObpr`, press **Enter**; or enter another directory. For example:

```
Database Transaction Logs Destination
```

```
Logs Directory Destination
```

```
Logs Directory Destination [/var/CSCObpr] /var/disk1/CSCObpr
```

The program then asks you to confirm the directory.



Note By default, the installation program installs the database transaction logs directory (BPR_DBLOG) in the same directory as the data directory (BPR_DATA). Cisco Systems recommends that you locate the database transaction logs directory on the fastest disk on the system and that you ensure that the disk has 1 GB of space available.

The directory specified becomes the top-level directory under which the installation program creates a number of subdirectories.

Step 10 Press **y** and **Enter** to continue. The program prompts you to enter the listening port for the RDU.

Step 11 To accept the default value, 49187, press **Enter**; or enter another port number. For example:

```
Regional Distribution Unit Host/Port
```

```
Enter the IP address and the listening port of the regional distribution
unit(RDU)associated with this installation.
```

```
Enter the Host/IP address and address of the listening port for the RDU and RDU Listening
Port [49187]
```



Note The installation program obtains the IP address of the RDU automatically. You do not need to enter this value.

The program then prompts you to confirm the listening port number.



Note The RDU listens on all interfaces. The listening port is the port number that the RDU uses to communicate with other BACC components, such as DPEs and Network Registrar extension points.

Step 12 Press **y** and **Enter** to continue. The program prompts you to enter the shared secret password.



Note You must use the same shared secret password for all RDUs, DPEs, and Network Registrar extension points in your network. The default password is **secret**.

Step 13 Enter the password that you want to use for authentication among BACC 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] changeme
```

The program prompts you to confirm the password.

- Step 14** Enter the password again and press **y** to continue. The program displays the installation parameters you have selected. For example:

```
The Component Installation will use the following parameters
to install the RDU component:
```

```
Home directory:/opt/CSCObpr
Data directory:/var/disk0/CSCObpr
Logs directory:/var/disk1/CSCObpr
RDU Port:49187
```

- Step 15** Press **y** to install the RDU component. The program displays a message when the installation is complete.



Caution

You must configure your license keys using the administrator's user interface. Refer to the *Cisco Broadband Access Center for Cable Administrator's Guide* for further information.

Installing Network Registrar Extensions

Before you install Network Registrar extensions, complete the steps described in the [“Installing from the Command Line” section on page 2-8](#) and ensure that Network Registrar is running. To install the extensions:

- Step 1** When the installation program prompts you to select one or more components, press **y** and **Enter** at Cisco Network Registrar extension points (y/n/?).

To skip installing an RDU, the DPE, and the KDC, press **n** and **Enter** for these options.

For example:

```
Installation Components
```

```
Select one or more components to install BPR.
```

```
Regional distribution unit (RDU) (y/n/?) [no] n
Cisco Network Registrar extension points (y/n/?) [no] y
Device Provisioning Engine (DPE) (y/n/?) [no] n
Key Distribution Center (KDC) (y/n?) [no] n
```

The program prompts you to confirm the components that you want to install.

- Step 2** Press **y** and **Enter** to continue. The program displays a message that it is starting individual component validation.

- Step 3** Press **Enter** to continue. For example:

```
Starting the individual component installation parameters validation.
```

```
Press Enter to Continue or 'q' to Quit:
```

```
Validating the individual component installation parameters - Please wait.
```

The program prompts you to enter the home directory destination.

- Step 4** To accept the default home directory destination, `/opt/CSCObpr/`, press **Enter**; or enter another directory. For example:

```
Home Directory Destination
    Home Directory Destination [/opt/CSCObpr]
```

The program then asks you to confirm the directory.

- Step 5** Press **y** and **Enter** to continue. The program prompts you to enter the data directory destination

- Step 6** To accept the default directory, `/var/CSCObpr`, press **Enter**; or enter another directory. For example:

```
Data Directory Destination
    Data Directory Destination [/var/CSCObpr] /var/disk0/CSCObpr
```



Note By default, the installation program installs the data directory (BPR_DATA) on a different directory than the home directory (BPR_HOME). Cisco Systems recommends that the data directory be on a different physical disk than the home directory; for example `/var/disk0/CSCObpr`. However, you can install the data directory on the same disk as the home directory.

- Step 7** Press **y** and **Enter** to continue. The program prompts you to enter the host IP address and the listening port of the RDU.

- Step 8** Enter the IP address (or hostname) and listening port of the host where the RDU software is installed. The program prompts you to confirm this information. For example:

```
Regional Distribution Unit Host/Port

Enter the IP address and the listening port of the regional distribution unit (RDU)
associated with this installation.

Enter the Host/IP address and address of the listening port for the RDU.

RDU IP Address [doc-u5.cisco.com] 10.10.10.2
RDU Listening Port [49187]

===== Confirmation =====
RDU Host:10.10.10.2
RDU Port:49187

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

- Step 9** Press **y** and **Enter** to continue. The program prompts you to enter the name of the extension point provisioning group.

- Step 10** Enter the name of the Network Registrar extension point group. For example:

```
Cisco Network Registrar Extension Point Provisioning Group
Enter the Cisco Network Registrar extension point provisioning group.
```

This a required field. The value you specify must contain only alphanumeric characters without spaces and not exceed 10 characters in length. You can use the BPR command-line tool to change this value after you complete this installation.

```
Extension Point Provisioning Group [] group1
```

- Step 11** Press **y** and **Enter** to continue. The program then lets you decide if you are going to be provisioning voice technology devices. For example:

```
Are you going to use a device(s) that supports PacketCable voice technology?
```

```
If you are going to use PacketCable devices we need some more info.
Enter Yes to Install PacketCable and No if you do not want Packetcable
installed [No]: yes
```

- Step 12** Press **y** if you are using voice technology devices or **n** if you are not. If you are not using voice technology devices, you will be prompted to enter a shared secret password as described in Step 14. If you press **y**, the program will prompt you to enter several voice technology properties. For example:

```
Enter KDC Realm Name          ACME.COM

Enter the IP Address of the Primary DHCP Server.    10.10.10.1

Enter the IP Address of the Primary DNS Server.    10.10.10.3

Enter the IP Address of the Secondary DHCP Server.  10.10.10.2

Enter the IP Address of the Secondary DNS Server.  10.10.10.4
```

- Step 13** Press **y** and **Enter** to continue. The program prompts you to enter the shared secret password.



Note You must use the same shared secret password for all BACC servers on your network.

- Step 14** Enter the password that you want to use for authentication among BACC 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] changeme
```

The program prompts you to confirm the password.

- Step 15** Enter the password again.

- Step 16** Press **y** and **Enter** to continue. The program then displays the installation parameters you have selected. For example:

```
Installation Parameters
```

```
This screen shows the installation parameters that you have chosen:
```

```
===== Confirmation =====
The Component Installation will use the following parameters
to install the NR Extension Points component:
```

```
Home directory:/opt/CSCObpr
Data directory:/var/disk0/CSCObpr
NR extension point provisioning group:group1
```

- Step 17** Press **y** and **Enter** to install the Network Registrar extensions. The program displays a message when the installation is complete.

- Step 18** To configure the extensions complete the procedure described in the “Configuring Extensions” section on page 3-5.

Installing the Key Distribution Center

To install the KDC:

- Step 1** When the installation program prompts you to select one or more components, press **y** and **Enter** at Key Distribution Center (KDC) (y/n/?).

To skip installing an RDU and Network Registrar extension points, enter **n** and **Enter** for these options.

For example:

```
Installation Components
```

```
Select one or more components to install BPR.
```

```
Regional distribution unit (RDU) (y/n/?) [no] n
Cisco Network Registrar extension points (y/n/?) [no] n
Device Provisioning Engine (DPE) (y/n/?) [no] n
Key Distribution Center (KDC) (y/n/?) [yes] y
```

The program prompts you to confirm the components that you want to install.

- Step 2** Press **y** and **Enter** to continue. The program displays a message that it is starting individual component validation.

- Step 3** When validation is complete, the program prompts you to enter the home directory destination. Validation involves checking to verify that the correct patches have been installed. If they are not, error messages appear on screen.

- Step 4** To accept the default home directory destination, /opt/CSCObpr/, press **Enter**, or enter another directory. For example:

```
Home Directory Destination
```

```
Home Directory Destination [/opt/CSCObpr]
```

Choosing yes will create the directory during the installation. Choosing no will allow a different directory to be chosen.

```
The directory /opt/CSCObpr does not exist. Create it? (y/n/?) [yes]
```

- Step 5** When validation is complete, the program prompts you to enter the data directory destination.

- Step 6** To accept the default data directory destination, /var/CSCObpr/, press **Enter**, or enter another directory. For example:

```
Data Directory Destination
```

```
Data Directory Destination [/var/CSCObpr]
```

Choosing yes will create the directory during the installation. Choosing no will allow a different directory to be chosen.

```
The directory /var/CSCObpr does not exist. Create it? (y/n/?) [yes]
```

The program prompts you to confirm the components that you want to install.

- Step 7** Press **y** and **Enter** to create the directory and continue. The program prompts you to enter the KDC realm name. For example:

```
Key Distribution Center (KDC) Realm Name
```

```
Enter the Kerberos realm name for the KDC:
```

```
The realm name should be consistent with the realm you give to DPEs in this provisioning group.
```

```
KDC Interface Address [10.10.10.5]
KDC FQDN [acme_u6.acme.com]
KDC Realm [ACME.COM]
```

The program prompts you to confirm the realm name.

- Step 8** Press **y** and **Enter** to confirm your entry and continue. The program prompts you to enter the KDC service key and the DPE panel. For example:

```
KDC Service Key and DPE Panel
```

```
Please Enter the Necessary Info
```

```
Enter Password Here [] 12345678901234567890
Enter Your DPE FQDN [] dpe1.cisco.com
```



Note Please be aware that the service key consists of 48 characters. If all are not entered the service key will be invalid.

- Step 9** The program prompts you to enter the information for another DPE. Press **y** and **enter** to add another DPE, or press **n** and enter to continue.



Note The installation program uses the same voice technology shared key for all DPEs.

- Step 10** Press **y** and **Enter** to continue. The program displays the installation parameters that you selected. For example:

```
Installation Parameters
```

```
This screen shows the installation parameters that you have chosen:
```

```
===== Confirmation =====
The Component Installation will use the following parameters
to install the KDC component:
```

```
KDC realm name: ACME.COM
Home directory: /opt/CSCObpr
Data directory: /var/CSCObpr
```

- Step 11** Press **y** and **Enter** to install the KDC. The program displays a message when the installation is complete.



Caution After installing the KDC, you must install your licenses and the chain of certificates or the KDC will not start.

Installing the Device Provisioning Engine

To install the DPE:

- Step 1** When the installation program prompts you to select one or more components, press **y** and **Enter** at Device Provisioning Engine (y/n/?).
- To skip installing an RDU and Network Registrar extension points, enter **n** and **Enter** for these options.

For example:

```
Installation Components
```

```
Select one or more components to install BPR.
```

```
Regional distribution unit (RDU) (y/n/?) [no] n
Cisco Network Registrar extension points (y/n/?) [no] n
Device Provisioning Engine (DPE) (y/n/?) [yes] y
Key Distribution Center (KDC) (y/n/?) [no] n
```

The program prompts you to confirm the components that you want to install.

- Step 2** Press **y** and **Enter** to continue. The program displays a message that it is starting individual component validation. Press **Enter** to continue

- Step 3** When validation is complete, the program prompts you to enter the home directory destination. Validation involves checking to verify that the correct patches have been installed. If they are not, error messages appear on screen.

- Step 4** To accept the default home directory destination, /opt/CSCObpr/, press **Enter**, or enter another directory. For example:

```
Home Directory Destination
```

```
Home Directory Destination [/opt/CSCObpr]
```

```
Choosing yes will create the directory during the installation. Choosing no will allow a
different directory to be chosen.
```

```
The directory /opt/CSCObpr does not exist. Create it? (y/n/?) [yes]
```

- Step 5** When validation is complete, the program prompts you to enter the data directory destination.

- Step 6** To accept the default data directory destination, /var/CSCObpr/, press **Enter**, or enter another directory. For example:

```
Data Directory Destination
```

```
Data Directory Destination [/var/CSCObpr]
```

```
Choosing yes will create the directory during the installation. Choosing no will allow
a different directory to be chosen.
```

```
The directory /var/CSCObpr does not exist. Create it? (y/n/?) [yes]
```

The program prompts you to confirm the components that you want to install.

- Step 7** Press **y** and **Enter** to create the directory and continue. The program displays the installation parameters that you selected. For example:

```
Installation Parameters
```

```
This screen shows the installation parameters that you have chosen:
```



```
===== Confirmation =====  
The Component Installation will use the following parameters  
to install the DPE component:  
  
    Home directory: /opt/CSCObpr  
    Data directory: /var/CSCObpr
```

Step 8 Press **y** and **Enter** to install the DPE. The program displays a message when the installation is complete.
