



CHAPTER 4

Installing and Uninstalling Cisco BAC on Linux

This chapter explains how to successfully install Cisco BAC on Linux 5.

The SELinux and iptable should be disabled. Also, ensure that before installing Cisco BAC, you install the sysstat package for the proper execution of the diagnostic scripts. This is an optional package which you might have not installed while installing Linux

Installing Cisco BAC

The initial steps in the Cisco BAC installation program are identical, regardless of the component you are installing. This section explains how to work with the installation program.

To install Cisco BAC:

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- Step 1** Log into the intended Cisco BAC with your user name and password.
 - Step 2** At the Linux system prompt, change directory to your CD-ROM drive or other installation media.
 - Step 3** Ensure that the **gzip** and **gtar** utilities are available on your system under /bin directory, to decompress and unpack the Cisco BAC installation file, and:

- a. Change to the directory in which you will decompress and extract the installation file.
- b. Decompress and unpack the file with the .gtar.gz extension. Enter:

```
gtar zxvf BAC_37_LinuxK9.gtar.gz
```

The utility creates the BAC_37_LinuxK9 directory into which the installation program is extracted.



Note If the program displays a checksum error while unpacking, specify the path to the GNU tar on your machine.

- Step 4** After the installation program is extracted, you can choose to install the components.
Before you begin any of these procedures, you must complete the initial procedure described in [Installing Cisco BAC, page 4-1](#).

To install the Cisco BAC components, see:

- [Installing the RDU, page 4-2](#)
- [Installing the DPE, page 4-3](#)
- [Installing the Cisco Network Registrar Extensions, page 4-4](#)
- [Installing the Cisco Access Registrar Extension Points, page 4-7](#)
- [Installing the STUN Server, page 4-8](#)

Installing the RDU

Install the RDU on a server running Linux that meets the requirements described in [Cisco BAC Components, page 1-1](#).



Note

We recommend that you configure the RDU server to use a static IP address.

To install the RDU, complete the initial installation described in [Installing Cisco BAC, page 4-1](#). After you do this:

Step 1 Enter the following command to start the installation program in interactive mode:

```
# install-path/BAC_37_LinuxK9/install_bac.sh
```

where *install-path* specifies the complete path to the directory in which the BAC_37_LinuxK9 directory has been created.

The installation program verifies that you have installed the required patches on the Linux operating system. When the verification ends, the Welcome information appears.

Step 2 Press **Enter** to continue.

The program prompts you to choose the component that you want to install.

Step 3 Enter **y** and press **Enter** at the RDU prompt.

To skip installing the DPE, Cisco Network Registrar extension points, Cisco Access Registrar extension points and the STUN server, enter **n** and press **Enter**. You can choose to install these components later.

Step 4 Confirm the components that you want to install. To do this, enter **y** and press **Enter**.

The home directory prompt appears.

Step 5 Accept the default directory, /opt/CSCObac, by pressing **Enter**; or enter another directory.

Step 6 Confirm the directory location. To do this, enter **y** and press **Enter**.

The data directory prompt appears.

Step 7 Accept the default directory, /var/CSCObac, by pressing **Enter**; or enter another directory.

Step 8 Confirm the directory location. To do this, enter **y** and press **Enter**.

The database log directory prompt appears.

Step 9 Accept the default directory, /var/CSCObac, by pressing **Enter**; or enter another directory.

Step 10 Confirm the directory location. To do this, enter **y** and press **Enter**.

The program starts preparing the packages for the installation.

Step 11 Accept the default port number, 49187, by pressing **Enter**; or enter another port number.

**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 with the correct RDU port number. For details on configuring the DPE, see the *Cisco Broadband Access Center DPE CLI Reference*, 3.7.

Step 12 Confirm the listening port number. To do this, enter **y** and press **Enter** to continue.

The program prompts you to enter the shared secret password.

Step 13 Enter the shared secret password that you want to use for authentication among Cisco BAC servers, and confirm the password.

**Note**

You must use the same shared secret password for the RDU, all DPEs, and Cisco Network Registrar extension points in your network.

Step 14 Press **Enter** to continue.

The program displays the parameters you have selected to install.

Step 15 Enter **y** and press **Enter** to confirm the installation parameters.

After a successful installation, the following message appears:

```
Installation of <CSCObac> was successful.
```

Installing the DPE

Install the DPE on a server running Linux that meets the requirements described in [Cisco BAC Components, page 1-1](#).

**Note**

We recommend that you configure the DPE server to use a static IP address. During DPE installation, if the program detects a TFTP server or a ToD server running on the same server as the DPE, the installation displays an error message and quits. To terminate the TFTP or ToD server, perform the steps that the error message lists.

To install the DPE, complete the initial installation described in [Installing Cisco BAC, page 4-1](#). To start the installation program in interactive mode:

Step 1 Run:

```
# install-path/BAC_37_LinuxK9/install_bac.sh
```

where *install-path* specifies the complete path to the directory in which the BAC_37_LinuxK9 directory has been created.

The installation program verifies that you have installed the required patches on the Linux operating system. When the verification ends, the Welcome information appears.

Step 2 Press **Enter** to continue.

The program prompts you to choose the component that you want to install.

- Step 3** Enter **y** and press **Enter** at the DPE prompt.
To skip installing the RDU, Cisco Network Registrar extension points, Cisco Access Registrar extension points and the STUN server, enter **n** and press **Enter**. You can choose to install these components later.
The home directory prompt appears.
- Step 4** Accept the default directory, /opt/CSCObac, by pressing **Enter**; or enter another directory.
- Step 5** Confirm the directory location. To do this, enter **y** and press **Enter**.
The data directory prompt appears.
- Step 6** Accept the default directory, /var/CSCObac, by pressing **Enter**; or enter another directory.
The database log directory prompt appears.
- Step 7** Accept the default directory, /var/CSCObac, by pressing **Enter**; or enter another directory.
- Step 8** Confirm the directory location. To do this, enter **y** and press **Enter**.
The program prompts you to enter the shared secret password. Enter the shared secret password that you want to use for authentication between the Cisco BAC servers.
- Step 9** Re-enter the password for confirmation, and press **Enter**.
The program prompts you to enter information on the RDU, required to install the extensions.
- Step 10** Enter the IP address (or hostname) and the listening port of the host on which you have installed the RDU.
- Step 11** Accept the default information, by pressing **Enter**; or enter alternative information.
- Step 12** Confirm the information. To do this, enter **y** and press **Enter**.
The installation proceeds, and displays the following message after successful installation:

```
Installation of <CSCObac> was successful.
```

Installing the Cisco Network Registrar Extensions

Install the Cisco Network Registrar extension points on a Linux server that meets the requirements described in [Cisco BAC Components, page 1-1](#).

To install the Cisco Network Registrar extension points, complete the initial installation described in [Installing Cisco BAC, page 4-1](#). After you do this

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- Step 1** Enter the following command to start the installation program in interactive mode:
- ```
install-path/BAC_37_LinuxK9/install_bac.sh
```
- where *install-path* specifies the complete path to the directory in which the BAC\_37\_LinuxK9 directory has been created.
- The installation program verifies that you have installed the required patches on the Linux operating system. When the verification ends, welcome information appears.
- Step 2** Press **Enter** to continue.  
The program prompts you to choose the component that you want to install.

- Step 3** Enter **y** and press **Enter** at the Cisco Network Registrar extension prompt.
- To skip installing the RDU, DPE, Cisco Access Registrar extension points and the STUN server, enter **n** and press **Enter**. You can choose to install these components later.
- The home directory prompt appears.
- Step 4** Accept the default directory, `/opt/CSCObac`, by pressing **Enter**; or enter another directory.
- Step 5** Confirm the directory location. To do this, enter **y** and press **Enter**.
- The data directory prompt appears.
- Step 6** Accept the default directory, `/var/CSCObac`, by pressing **Enter**; or enter another directory.
- The database log directory prompt appears.
- Step 7** Accept the default directory, `/var/CSCObac`, by pressing **Enter**; or enter another directory.
- Step 8** Confirm the directory location. To do this, enter **y** and press **Enter**.
- The program prompts you to enter the shared secret password. Enter the shared secret password that you want to use for authentication between the Cisco BAC servers.
- Step 9** Re-enter the password for confirmation, and press **Enter**.
- The program prompts you to enter information on the RDU, required to install the extensions.
- Step 10** Enter the IP address (or hostname) and the listening port of the host on which you have installed the RDU.
- Step 11** Accept the default information, by pressing **Enter**; or enter alternative information.
- Step 12** Confirm the information. To do this, enter **y** and press **Enter**.
- The installation proceeds, and displays the following message after successful installation:
- ```
Installation of <CSCObac> was successful.
```

Configuring Extensions

After you install the Cisco BAC extensions on the Cisco Network Registrar server, you must configure the extensions. The procedure described in this section assumes that:

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

To configure extensions:

- Step 1** Log into the Cisco Network Registrar server, with *root* access.
- Step 2** At the command line, enter:
- ```
NR_HOME/local/usrbin/nrcmd -N admin -P changeme -b <
BAC_HOME/cnr_ep/bin/bpr_cnr_enable_extpts.nrcmd
```
- To reload the Cisco Network Registrar server, enter:
- ```
# /etc/init.d/nwreglocal stop
# /etc/init.d/nwreglocal start
```

- To reload the DHCP server alone, enter:

```
# NR_HOME/local/usrbin/nrcmd -N admin -P changeme "dhcp reload"
```

**Note**

Before you can use the Cisco Network Registrar server, you must configure client classes, scope-selection tags, policies, and scopes. See the [User Guide for Cisco Network Registrar 7.2](#).

Validating Extensions

To validate the extensions installed on the Cisco Network Registrar server, from the Cisco Network Registrar Command Line Tool (**nrcmd**), run:

Depending on whether you installed a local or regional cluster, the **nrcmd** tool is located in:

- Local—/opt/nwreg2/local/usrbin
- Regional—/opt/nwreg2/regional/usrbin

```
nrcmd> extension list
100 Ok
dextdropas:
  entry = dextdropas
  file = libdextextension.so
  init-args =
  init-entry =
  lang = Dex
  name = dextdropas
preClientLookup:
  entry = bprClientLookup
  file = libbprextensions.so
  init-args = BPR_HOME=/opt/CSCObac,BPR_DATA=/var/CSCObac
  init-entry = bprInit
  lang = Dex
  name = preClientLookup
nrcmd>
```

**Note**

The *BPR_HOME* and *BPR_DATA* values may be different in your installation.

Also, in the **nrcmd** program, run:

```
nrcmd> extension list
100 Ok
dextdropas:
  entry = dextdropas
  file = libdextextension.so
  init-args =
  init-entry =
  lang = Dex
  name = dextdropas
preClientLookup:
  entry = bprClientLookup
  file = libbprextensions.so
  init-args = BPR_HOME=/opt/CSCObac,BPR_DATA=/var/CSCObac
  init-entry = bprInit
  lang = Dex
  name = preClientLookup
nrcmd>
```

**Note**

When you install all the components in the same Linux server, Cisco Network Registrar will not respond to the lease queries from RDU.

Installing the Cisco Access Registrar Extension Points

Install the Cisco Abstract Registrar on a Linux server that meets the requirements described in [Cisco BAC Components, page 1-1](#).

To install the Cisco Abstract Registrar, complete the initial installation described in [Installing Cisco BAC, page 4-1](#). After you do this

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- Step 1** Enter the following command to start the installation program in interactive mode:
- ```
install-path/BAC_37_LinuxK9/install_bac.sh
```
- where *install-path* specifies the complete path to the directory in which the BAC\_37\_LinuxK9 directory has been created.
- The installation program verifies that you have installed the required patches on the Linux operating system. When the verification ends, the Welcome information appears.
- Step 2** Press **Enter** to continue.
- The program prompts you to choose the component that you want to install.
- Step 3** Enter **y** and press **Enter** at the CAR prompt.
- To skip installing the RDU, DPE, Cisco Network Registrar extension points and the STUN server, enter **n** and press **Enter**. You can choose to install these components later.
- The home directory prompt appears.
- Step 4** Accept the default directory, */opt/CSCObac*, by pressing **Enter**; or enter another directory.
- Step 5** Confirm the directory location. To do this, enter **y** and press **Enter**.
- The data directory prompt appears.
- Step 6** Accept the default directory, */var/CSCObac*, by pressing **Enter**; or enter another directory.
- Step 7** Confirm the directory location. To do this, enter **y** and press **Enter**.
- The program prompts you to enter information on the RDU required to install the extensions.
- Step 8** Enter the IP address (or hostname) and the listening port of the host on which you have installed the RDU.
- Step 9** Accept the default information, by pressing **Enter**; or enter alternative information.
- Step 10** Confirm the information. To do this, enter **y** and press **Enter**.
- The installation proceeds, and displays the following message after successful installation:
- ```
Installation of <CSCObac> was successful.
```
-

Installing the STUN Server

Install the STUN on a server running Linux that meets the requirements described in [Cisco BAC Components, page 1-1](#).

To install the STUN, complete the initial installation described in [Installing Cisco BAC, page 4-1](#). After you do this:

Step 1 Enter the following command to start the installation program in interactive mode:

```
# install-path/BAC_37_LinuxK9/install_bac.sh
```

where *install-path* specifies the complete path to the directory in which the BAC_37_LinuxK9 directory has been created.

The installation program verifies that you have installed the required patches on the Linux operating system. When the verification ends, the Welcome information appears.

Step 2 Press **Enter** to continue.

The program prompts you to choose the component that you want to install.

Step 3 Enter **y** and press **Enter** at the STUN server prompt.

To skip installing the RDU, DPE, Cisco Network Registrar extension points and the Cisco Access Registrar extension points, enter **n** and press **Enter**. You can choose to install these components later.

The home directory prompt appears.

Step 4 Accept the default directory, /opt/CSCObac, by pressing **Enter**; or enter another directory.

Step 5 Confirm the directory location. To do this, enter **y** and press **Enter**.

The data directory prompt appears.

Step 6 Accept the default directory, /var/CSCObac, by pressing **Enter**; or enter another directory.

Step 7 Confirm the directory location. To do this, enter **y** and press **Enter**.

The program prompts you to enter information on the RDU required to install the extensions.

Step 8 Enter the IP address (or hostname) and the listening port of the host on which you have installed the RDU.

Step 9 Accept the default information, by pressing **Enter**; or enter alternative information.

Step 10 Confirm the information. To do this, enter **y** and press **Enter**.

The program prompts you to enter the STUN HTTP listening port.

Step 11 Accept the default information, by pressing **Enter**; or enter alternative information.

The program prompts you to enter the STUN UDP listening port.

Step 12 Accept the default information, by pressing **Enter**; or enter alternative information.

The program prompts you to enter the STUN HTTP user name.

Step 13 Accept the default information, by pressing **Enter**; or enter alternative information.

The program prompts you to enter the STUN HTTP password.

Step 14 Accept the default information, by pressing **Enter**; or enter alternative information.

The program prompts you to enter the password to be used for UDP CR authentication.

Step 15 Accept the default information, by pressing **Enter**; or enter alternative information

The program prompts you to enter the shared secret password.

- Step 16** Enter the shared secret password that you want to use for authentication between the Cisco BAC servers.
- Step 17** Re-enter the password for confirmation, and press **Enter**.

The installation proceeds, and displays the following message after successful installation:

```
Installation of <CSCObac> was successful.
```

Adding Components in Linux

Adding components in Linux is similar to that of Solaris. See [Adding Components in Solaris, page 3-23](#) for details.

Upgrading Cisco BAC

This section describes how to upgrade a Cisco Broadband Access Center 3.x installation to Cisco Broadband Access Center 3.7.

You must stop the process watchdog (bprAgent) before upgrading. After the upgrade is complete, Cisco BAC does not restart the process watchdog automatically.

Upgrading Cisco BAC on Linux is similar to the upgrading of Cisco BAC on Solaris. See [Upgrading Cisco BAC, page 3-27](#) for the details.

Migrating the RDU Database

Migrating the RDU database on Linux is similar to the RDU database migration on Solaris. See [Migrating the RDU Database, page 3-29](#) for the details.

Uninstalling Cisco BAC

This section describes how to uninstall Cisco Broadband Access Center (Cisco BAC).

The procedure described in this section uninstalls the RDU, DPE, Cisco Access Registrar extension points and Cisco Network Registrar extensions but it does not uninstall the Cisco Network Registrar application. Before removing Cisco BAC, manually remove the Cisco BAC configuration on Cisco Network Registrar.

The uninstallation program removes all files found in the installation directory (the default directory is /opt/CSCObac). The program also shuts down and removes these processes, if they are detected: SNMP Agent, Tomcat, Cisco BAC agent, RDU, and DPE.

The uninstallation program does not remove files that were placed outside the installation directory.

For example, a component installation places the database and database logs directories under /var/CSCObac. These files must be removed manually. (Subsequent sections describe how to delete these files.) Also, the program does not remove any files found in the Cisco Network Registrar directory.

If you have installed Cisco BAC extensions on Cisco Network Registrar, you must uninstall those extensions to completely uninstall the Cisco BAC program; otherwise, an error message appears.



Note The path to the Cisco Network Registrar extensions differs based on the location where you have installed Cisco Network Registrar; the default location is `/opt/nwreg2`.

If the uninstallation program fails to uninstall Cisco BAC, error messages appear.

After uninstalling Cisco BAC, manually remove the data and database logs directories. See [Post-Uninstallation Task, page 4-10](#).

To uninstall Cisco BAC from the command line:

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- Step 1** Log in using your user name and password.
- Step 2** Manually remove the configuration of the Cisco BAC extensions on the Cisco Network Registrar server. You can do this from any server that has **nrcmd** installed and connectivity with Cisco Network Registrar.
- To uninstall the Cisco BAC extensions from your Cisco Network Registrar configuration, enter:


```
# NR_HOME/local/usrbin/nrcmd -N admin -P changeme -b <
BPR_HOME/cnr_ep/bin/bpr_cnr_disable_extpts.nrcmd
```
 - To reload your DHCP server, enter:


```
# /etc/init.d/nwreglocal stop
# /etc/init.d/nwreglocal start
```
 - To remove the Cisco BAC extensions from the Cisco Network Registrar extensions directory, enter:


```
# rm -rf NR_HOME/local/extensions/dhcp/dex/libbbprextensions.so
```
- Step 3** Run the following command to uninstall:
- ```
install-path/BAC_37_LinuxK9/uninstall_bac.sh
```
- Step 4** Enter **y** to continue.
- Step 5** Run the following commands to delete the previously installed directories.
- ```
rm -rf /opt/CSCObac
rm -rf /var/CSCObac
```
-

Post-Uninstallation Task

After you have uninstalled Cisco BAC, manually remove the data and database logs directories. To remove these directories:

-
- Step 1** Log in as root.
- Step 2** Remove the data and the database logs directories. (The default directory for both is `/var/CSCObac`.) For example, enter:
- ```
rm -rf /var/CSCObac
```
- The data and the database logs directories are deleted.
-