C H A P T E R 14

Performing Maintenance Operations

This chapter provides routine procedures for maintaining Cisco WCS. It contains these sections:

Verifying the Status of WCS

This section provides instructions for checking the status of WCS on either a Windows or Linux server.

Checking the Status of WCS on Windows

Follow these steps to check the status of WCS when it is installed as a Windows application or Windows service. You can check the status at any time.

Step 1   Log into the system as administrator.

Step 2   Perform one of the following:

- From the Windows Start menu, click **Programs > Wireless Control System> WCSStatus**.
- From the command prompt, navigate to the WCS installation directory (such as C:\Program Files\WCS7.0.X.X) and enter **WCSAdmin status**.

The WCSAdmin window appears and displays messages indicating the status of WCS.

Step 3   Close the WCSAdmin window when the Close button becomes active.

Checking the Status of WCS on Linux

Follow these steps to check the status of WCS when it is installed as a Linux application or Linux service. You can check the status at any time.

Step 1   Log into the system as **root**.

Step 2   Using the Linux CLI, perform one of the following:

- Navigate to the installation directory (such as /opt/WCS7.0.X.X) and enter **./WCSStatus**.
- Navigate to the installation directory (such as /opt/WCS7.0.X.X) and enter **WCSAdmin status**.

The CLI displays messages indicating the status of WCS.

Stopping WCS

This section provides instructions for stopping WCS on either a Windows or Linux server.

Stopping WCS on Windows

Follow these steps to stop WCS when it is installed as a Windows application or Windows service. You can stop WCS at any time.

Note   If any users are logged in when you stop WCS, their WCS sessions stop functioning.

Step 1   Log into the system as administrator.

Step 2   Perform one of the following:

- From the shortcut location (defaulted to Windows Start menu > Programs > Cisco Wireless Control System A.B.C.D), select **StopWCS**.
- From the command prompt, navigate to the WCS installation directory (defaulted to C:\Program Files\WCSA.B.C.D\bin) and enter **StopWCS**.

   Note   You can use **StopWCS** for a graceful shut down. A graceful shut down does not trigger the automatic failover. Use the CLI command **<WCSROOT>\nmsadmin.bat -switchover stop** to trigger automatic failover when shutting down WCS.

The WCSAdmin window appears and displays messages indicating that WCS is stopping.

   Note   If WCS is installed as a service, messages also appear to indicate that the Nms_Server service is stopping.

Step 3   Close the WCSAdmin window when the Close button becomes active.

Stopping WCS on Linux

Follow these steps to stop WCS when it is installed as a Linux application or Linux service. You can stop WCS at any time.

Note If any users are logged in when you stop WCS, their WCS sessions stop functioning.

Step 1 Log into the system as root.

Note To see which version of WCS you currently have installed, enter **nmsadmin.sh version**.

Step 2 Using the Linux CLI, perform one of the following:

- Navigate to the shortcut location (defaulted to /opt/WCSA.B.C.D) and enter **./StopWCS**.
- Navigate to the installation bin directory (defaulted to /opt/WCSA.B.C.D/bin) and enter **StopWCS**.

The CLI displays messages indicating that WCS is stopping.

Backing Up the WCS Database

This section provides instructions for backing up the WCS database. You can schedule regular backups through the WCS user interface or manually initiate a backup on either a Windows or Linux server.

Note Machine specific settings (such as FTP enable and disable, FTP port, FTP root directory, TFTP enable and disable, TFTP port, TFTP root directory, HTTP forward enable and disable, HTTP port, HTTPS port, report repository directory, and all high availability settings) are not included in the backup and restore function if the backup is restored to a different device.

Scheduling Automatic Backups

Follow these steps to schedule automatic backups of the WCS database.

Step 1 Log into the WCS user interface.

Step 2 Click **Administration > Background Tasks** to display the Scheduled Tasks page.

Step 3 Click **WCS Server Backup** to display the Task > WCS Server Backup page.

Step 4 Select the **Enabled** check box.

Step 5 At the Report History Backup parameter, select the **Enabled** check box to run history backup.

Step 6 In the Max Backups to Keep text box, enter the maximum number of backup files to save on the server.

Range: 7 to 50

Default: 7

✎

Note   To prevent the WCS platform from running out of disk space, the server automatically deletes old backup files when the number of files exceeds the value entered for this text box.

Step 7   In the Interval (Days) text box, enter a number representing the number of days between each backup. For example, 1 = a daily backup, 2 = a backup every other day, 7 = a weekly backup, and so on.

Range: 1 to 360

Default: 7

Step 8   In the Time of Day text box, enter the time when you want the backup to start. It must be in this format: *hh*:*mm* AM/PM (for example: 03:00 AM).

✎

Note   Backing up a large database affects the performance of the WCS server. Therefore, Cisco recommends that you schedule backups to run when the WCS server is idle (for example, in the middle of the night).

Step 9   Click **Submit** to save your settings. The backup file is saved as a .zip file in the *ftp-install-dir*/ftp-server/root/WCSBackup directory using this format: *dd-mmm-yy_ hh-mm-ss*.zip (for example, 11-Nov-05_10-30-00.zip).

Performing a Manual Backup

This section provides instructions for backing up the WCS database on either a Windows or Linux server.

Backing Up the WCS Database (for Windows)

Follow these steps to back up the WCS database on a Windows server.

Step 1   Log into the system as administrator.

Step 2   Create a backup directory for the WCS database with no spaces in the name, such as C:\WCS7.0.X.X_Backup.

✎

Note   Make sure that the directory name does not contain spaces. Spaces can generate errors.

Step 3   Perform one of the following:

- Follow these steps from the Windows Start menu:

    a.   Click **Programs** > **Wireless Control System> Backup**. The Enter Information window appears.

    b.   Browse to the backup directory that you created and choose the filename or enter the full path of the backup directory that you created and a name for the backup file (such as C:\WCS7.0.X.X_Backup\Nov11) and click **OK**.

- Follow these steps from the command prompt:

    a.   Navigate to the WCS installation directory (C:\Program Files\WCS7.0.X.X\bin).

    b. Enter **DBAdmin backup** *backup-filename*, where *backup-filename* is the full path of the backup directory that you created plus a name for the backup file (such as C:\WCS7.0.X.X_Backup\Nov11).

The DBAdmin window appears and displays messages indicating the status of the backup.

Step 4   Close the DBAdmin window when the Close button becomes active.

> ✎
> **Note**   In the example above, the backup file would appear in the C:\WCS7.0.X.X_Backup directory as Nov11.nmsbackup.

Backing Up the WCS Database (for Linux)

Follow these steps to back up the WCS database on a Linux server.

Step 1   Log into the system as root.

Step 2   Using the Linux CLI, navigate to the /opt/WCS7.0 directory (or any other directory).

Step 3   Create a backup directory for the WCS database with no spaces in the name (for example, **mkdir WCS7.0.X.X_Backup**).

> ✎
> **Note**   Make sure that the directory name does not contain spaces. Spaces can generate errors.

Step 4   Perform one of the following:

- Navigate to the /opt/WCS7.0.X.0 directory (or the directory chosen during installation) and enter **./Backup**. Enter a name for the backup file when prompted (such as WCS7.0.X.X_Backup/Nov11).

- Navigate to the /opt/WCS7.0.X.X/bin directory (or the directory chosen during installation) and enter **DBAdmin backup** *backup-filename*, where *backup-filename* is the full path of the backup directory that you created plus a name for the backup file (such as WCS7.0.X.X_Backup/Nov11).

- Using KDE or X-Windows, enter **DBAdmin - gui backup**, browse to the backup directory, and choose the file.

The CLI displays messages indicating the status of the backup.

> ✎
> **Note**   In the example above, the backup file would appear in the WCS7.0.X.X_Backup directory as Nov11.nmsbackup.

Restoring the WCS Database

This section provides instructions for restoring the WCS database on either a Windows or Linux server.

Restoring the WCS Database (for Windows)

Follow these steps to restore the WCS database from a backup file on a Windows server. If you are restoring the WCS database in a high availability environment, refer to the "Restoring the WCS Database in a High Availability Environment" section on page 14-8.

Note The server may incorrectly perceive the amount of free space available during a restore if a FAT32 file system is used. Microsoft's recommended file system for Windows servers is NTFS.

Step 1 Log into the system as administrator.

Step 2 Perform one of the following:

- Follow these steps from the Windows Start menu:

  a. Click **Start > Programs > Wireless Control System> Restore**. The DBAdmin and Enter Information window appears.

  b. Browse to the backup directory that you created and choose the filename or enter the full path and filename of the backup file (such as C:\WCS7.0.X.X_Backup\Nov11.nmsbackup) and click **OK**.

     < OR >

- Follow these steps from the command prompt:

  a. Navigate to the WCS installation directory (C:\Program Files\WCS7.0.X.X\bin).

  b. Enter **DBAdmin restore** *backup-filename*, where *backup-filename* is the full path and filename of the backup file (for example, C:\WCS7.0.X.X_Backup\Nov11.nmsbackup).

  Note When you perform a restore of a large database, you must instead enter **dbadmin.bat -gui -largedb restore**.

Step 3 If you have a large event table to migrate, you must limit the size of the event table. You cannot decline this process, but it generally only affects pre-5.1 to 5.2 or later migration. The following warning message appears:

WARNING: You are migrating from a pre-5.1 database to a post-5.1 database. This may take a very long time -- possibly several hours. You can considerably speed this migration by retaining only the most recent events from the restored database. Even if you do this, the event table will be repopulated within seven days. This does not affect current alarms. This does not affect the backed-up database.

Would you like to retain only recent events?

If you type **Y** or **Yes** (or click **Yes** from the GUI prompt), the restore retains only the most recent 40,000 events.

Note When you perform a restore of a UBC database, it is strongly recommended that you choose to retain only recent events.

Note You can also type **-dropoldevents** at the CLI prompt as an equivalent to answering yes here.

Step 4   Click **Yes** if a message appears indicating that WCS is running and needs to be shut down.

Step 5   The DBAdmin window appears and displays messages indicating that WCS is shutting down (if applicable) and the WCS database is being restored. Close the DBAdmin window when the Close button becomes active.

> ✎
> **Note**   If the restore process shuts down WCS, a restart is attempted after a successful restore.

Restoring the WCS Database (for Linux)

Follow these steps to restore the WCS database from a backup file on a Linux server. If you are restoring the WCS database in a high availability environment, refer to the "Restoring the WCS Database in a High Availability Environment" section on page 14-8.

Step 1   If possible, stop all WCS user interfaces to stabilize the database.

Step 2   Log into the system as root.

Step 3   Using the Linux CLI, perform one of the following:

- Navigate to the /opt/WCS7.0.X.X directory (or the directory chosen during installation) and enter **./Restore** to start the restoration process. Enter the backup filename when prompted (such as WCS7.0.X.X_Backup/Nov11.nmsbackup).

- Navigate to the /opt/WCS7.0.X.X/bin directory (or the directory chosen during installation) and enter **DBAdmin restore** *backup-filename*,
  where *backup-filename* is the full path and filename of the backup file (such as WCS7.0.X.X_Backup/Nov11.nmsbackup).

> ✎
> **Note**   If you are restoring from a WCS version prior to 3.2, you must enter a directory rather than a backup file because tar/gzip did not exist prior to 3.2. Enter **DBAdmin restore** *directory*, where *directory* is the backup directory that you created.

Step 4   Click **Yes** if a message appears indicating that WCS is running and needs to be shut down.

Step 5   The DBAdmin window appears and displays messages indicating that WCS is shutting down (if applicable) and the WCS database is being restored. Close the DBAdmin window when the Close button becomes active.

> ✎
> **Note**   If the restore process shuts down WCS, a restart is attempted after a successful restore.

The CLI displays messages indicating that the WCS database is being restored.

Restoring the WCS Database in a High Availability Environment

During installation, you were prompted to determine if a secondary WCS server would be used for high availability support to the primary WCS server. If you opted for this high availability environment and enabled it in the Administration > High Availability window, the status appears as HA enabled. Before restoring a database, you must convert the status to HA not configured.

✎

Note   If you attempt to restore the database while the status is set to HA enabled, unexpected results may occur.

Follow one of these procedures to change the status from HA enabled to HA not configured:

- Click the **Remove** button on the HA Configuration window (Administration > High Availability).

- Restart the primary server. Go to the secondary HealthMonitor GUI (https://<SecondaryWCS>:8082) and click **Failback**.

  - Use this method when one of the following instances has occurred:

    The primary server is down and failover has not been executed, so the secondary server is in SecondaryLostPrimary state.

    or

    The primary server is down and failover is already executed, so the secondary server is in the SecondaryActive state.

The primary server will now be in HA Not Configured mode, and you can safely restore the database.

Uninstalling WCS

This section provides instructions for uninstalling WCS on either a Windows or Linux server. You can uninstall WCS at any time, even while WCS is running.

Uninstalling WCS on Windows

Follow these steps to uninstall WCS on a Windows server.

Step 1   Log into the system as administrator.

Step 2   From the Windows Start menu, click **Programs > Wireless Control System> Uninstall WCS**.

Step 3   When the Uninstall Wireless Control System window appears, click **Uninstall**.

Step 4   Follow the instructions on the window to continue the uninstall process.

Step 5   When the WCS Uninstaller window indicates that the program is uninstalled, click **Finish** to close the window.

Note If any part of the C:\Program Files\WCS7.0.X.X folder remains on the hard drive, manually delete the folder and all of its contents. If you fail to delete the previous WCS installation, this error message appears when you attempt to reinstall WCS: "Cisco WCS already installed. Please uninstall the older version before installing this version."

Uninstalling WCS on Linux

Follow these steps to uninstall WCS on a Linux server.

Step 1 Stop WCS.

Step 2 Log into the system as root through an X terminal session.

Step 3 Using the Linux CLI, navigate to the /opt/WCS7.0.X.X directory (or the directory chosen during installation).

Step 4 Enter **./UninstallWCS**.

Step 5 Click **Yes** to continue the uninstall process.

Step 6 Click **Finish** when the uninstall process is complete.

Note If any part of the /opt/WCS7.0.X.X directory remains on the hard drive, manually delete the directory and all of its contents. If you fail to delete the previous WCS installation, this error message appears when you attempt to reinstall WCS: "Cisco WCS already installed. Please uninstall the older version before installing this version."

Upgrading WCS

This section provides instructions for upgrading WCS on either a Windows or Linux server. An automated upgrade is available in software release 4.2 and later. It handles the steps you would normally follow to accomplish an upgrade (shut down WCS, perform a backup, install new version, restore the backup, remove the old WCS version, and start WCS). If you choose to use the installer, it searches for any previous WCS versions.

If you are upgrading WCS in a high availability environment, refer to the "Upgrading WCS in a High Availability Environment" section on page 14-14.

Note You must have software release 4.1.91.0 before you can automatically upgrade to 4.2.

> **Note**   You should perform a Refresh Config from Controller after an upgrade of software to ensure that FTP details for the controller are retained. This Refresh Config from Controller drop-down option is available from the Configuration Commands section after choosing Configure > Controller > System > Commands.

If you choose to use the easy upgrade process, it provides error checking at each step and gives an informative message if an error causing an exit occurs. An upgrade-*version*.log is also produced and provides corrective measures. As part of the automatic upgrade process, machine specific settings are migrated.

If WCS is configured to use TACACS+ or RADIUS for external authentication, the custom vendor attribute list should be updated in the TACACS+ or RADIUS server with any new permissions. The attribute list for the appropriate UserGroup is found in Administration > AAA > UserGroups. Click the **Export** link for the appropriate user group.

> **Note**   Scheduled task settings are not preserved when you upgrade from WCS 4.0 or earlier releases. Be sure to record your settings manually if you wish to retain them or go to Administration > Background Tasks after starting WCS to check or change the settings as necessary.

> **Note**   If you upgrade to a WCS software release later than 4.0.87.0 from a release prior to 4.0.87.0, the users, user groups, tasks, and user passwords do not migrate. Upgrading to 4.0.87.0 before upgrading to a later release migrates the users, user groups, tasks, and user passwords.

Using the Installer to Upgrade WCS for Windows

Follow these steps to upgrade WCS (on a Windows platform) using the automated upgrade:

Step 1   Insert the Windows Cisco WCS CD into the CD-ROM drive and double-click the WCS-STANDARD-K9-7.0.X.Y.exe file where 7.0.X.Y is the software build. If you downloaded the installer from Cisco.com, double-click the WCS-STANDARD-WB-K9-7-0-X-Y.exe file that you downloaded to your local drive.

Step 2   The Install Anywhere window appears and prepares the system for installation. After a few seconds, the Introduction window appears, followed by the license agreement window. You must click the "I accept the terms of the License Agreement" option to continue.

Step 3   At this point, the install wizard detects whether a previous version of WCS is installed and specifies whether the current version is eligible for an automated upgrade. If your most recent WCS version cannot participate in the automated upgrade, you receive a notification as shown in Figure 14-1. If your WCS version is eligible for an automated upgrade, you receive a notification as shown in Figure 14-2.

Figure 14-1   Ineligible for Automated Upgrade
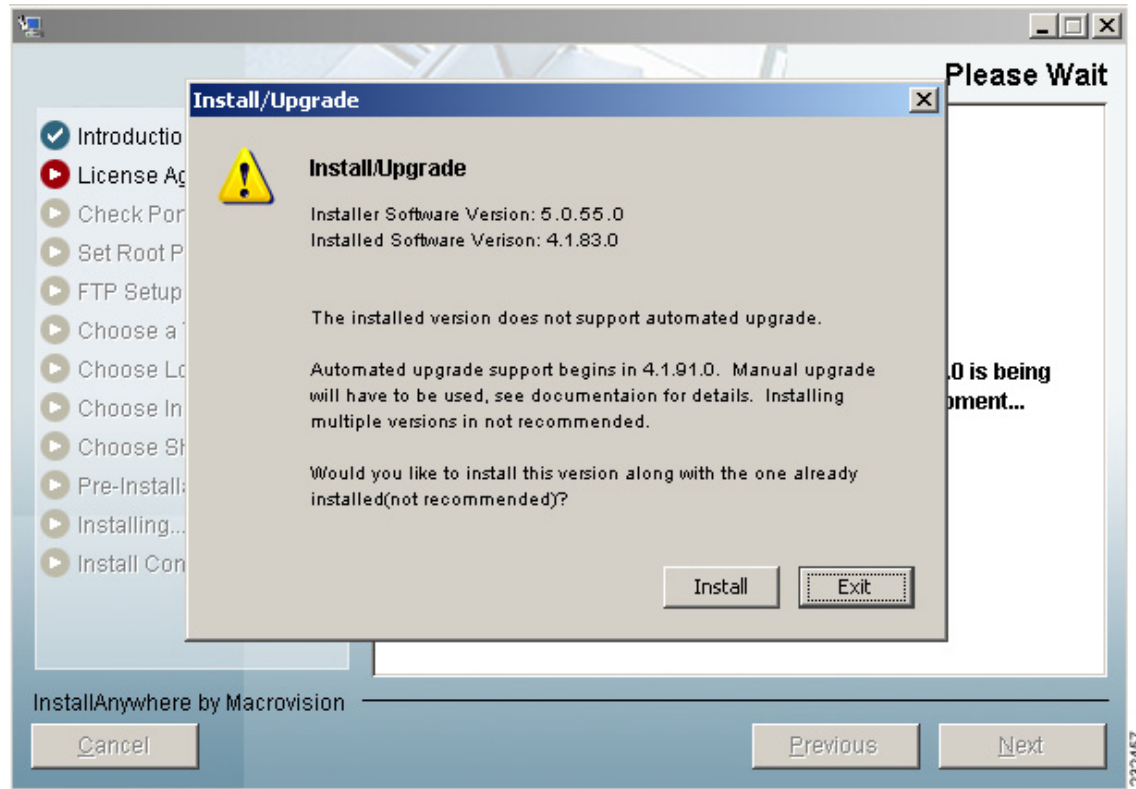
Figure 14-2   Previous Installation Detected
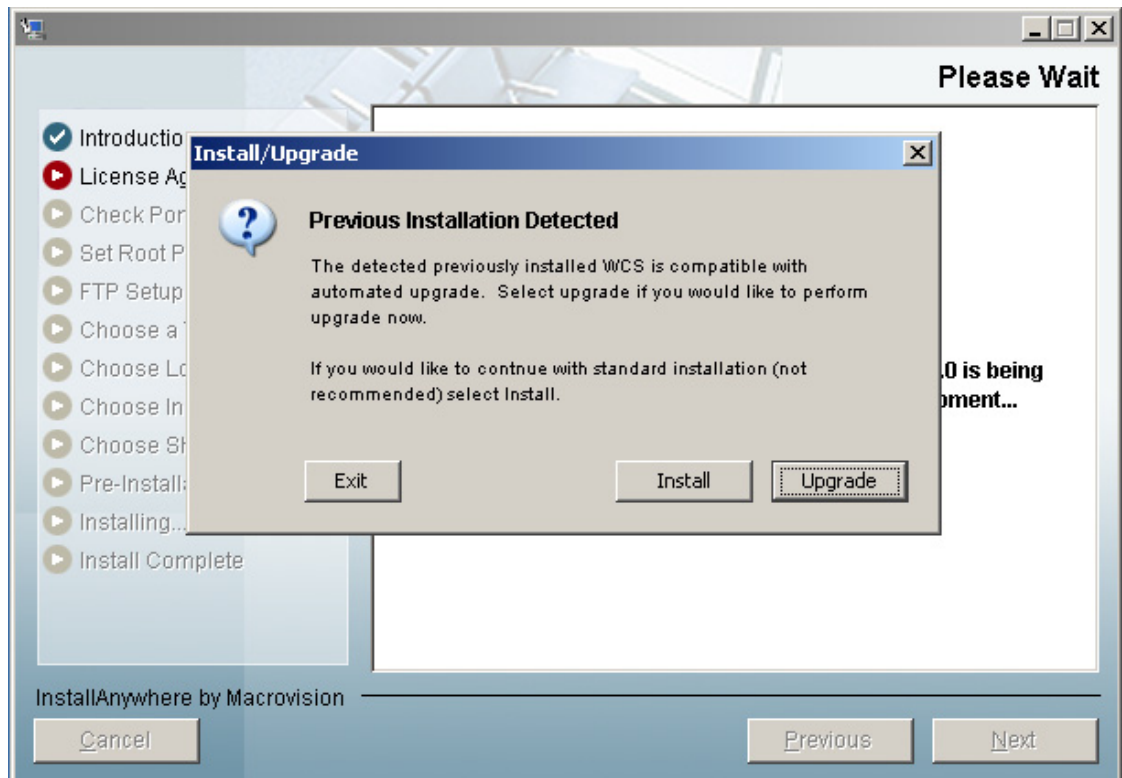
Step 4   If you see a window similar to the one in Figure 14-1 and choose **Install** because you cannot perform the automated upgrade, continue to the "Manually Upgrading WCS on Windows" section on page 14-14. If you see a window similar to the one in Figure 14-2 and choose **Install**, continue to the "Manually Upgrading WCS on Windows" section on page 14-14. If you see a window similar to the one in Figure 14-2 because a previous qualifying version of WCS is detected, choose **Upgrade** and continue to Step 5. This method is preferred.

Step 5   Several of the values from the previous install are retained and carried over as part of the upgrade. These include the following:

- the ports
- the root password
- the root FTP password
- the TFTP server file location
- the FTP server file location
- the multi-homed server interfaces

Step 6   Choose a folder in which to install the Cisco WCS at the Choose Install Folder window. It must be a different location than the previous install. Click **Next** to continue.

Step 7   Choose a folder location to store the shortcuts. It must be a different location than the previous install.

Step 8   Continue to follow the prompts that appear. You are notified of checking for required space, uninstalling of previous versions, backing up files, restoring, and so on. You then see a prompt asking if you are now ready to start WCS as a service. Click **Yes**.

✎

Note   The upgrade log is located in the standard log directory (\webnms\logs) if the automated upgrade completes. If the automated upgrade did not complete, the upgrade log is located in the user home directory.

Using the Installer to Upgrade WCS for Linux

Follow these steps to upgrade WCS (on a Linux platform) using the automated upgrade:

Step 1   Using the command line, perform one of the following:

   a. If you are installing from a CD, switch to the /media/cdrom directory.

   b. If you are installing from Cisco.com, switch to the directory in which the install file was downloaded. For example, if the install file was placed in /root/Desktop, enter **cd /root/Desktop**.

Step 2   Enter **./WCS-STANDARD-K9-7.0.X.Y.bin** (for CD users) or **./WCS-STANDARD-LB-K9-7-0-X-Y.bin** (for Cisco.com users) to start the install script.

Step 3   The Install Anywhere message appears and prepares the system for installation. After a few seconds, the Introduction appears, followed by the license agreement statement. You must accept the license agreement to continue.

Step 4   At this point, the install wizard detects whether a previous version of WCS is installed and specifies whether the current version is eligible for an automated upgrade. You receive a notification whether or not your most recent WCS version is eligible for the automated upgrade.

Step 5   If you cannot continue to the automated upgrade because your current WCS version is not eligible, choose **Install** and continue to the "Manually Upgrading WCS on Linux" section on page 14-14. If you choose to do a manual upgrade rather than the recommended automated upgrade, choose **Install** and continue to the "Manually Upgrading WCS on Linux" section on page 14-14. If your current WCS version is eligible for the recommended automated upgrade, choose **Upgrade** and continue to Step 6.

Step 6   Several of the values from the previous install are retained and carried over as part of the upgrade. These include the following:

   • the ports

   • the root password

   • the root FTP password

   • the TFTP server file location

   • the FTP server file location

   • the multi-homed server interfaces

Step 7   Choose a folder in which to install the Cisco WCS. It must be a different location than the previous install. Click **Next** to continue.

Step 8   Choose a folder location to store the shortcuts. It must be a different location than the previous install.

Step 9   Continue to follow the prompts that appear. You are notified of checking for required space, uninstalling of previous versions, backing up files, restoring, and so on. You then see a prompt asking if you are now ready to start WCS as a service. Click **Yes**.

> **Note** The upgrade log is located in the standard log directory (\webnms\logs) if the automated upgrade completes. For an incomplete automated upgrade, the upgrade log is located in the user home directory.

Manually Upgrading WCS on Windows

Follow these steps to manually upgrade WCS on a Windows server. This type of upgrade is not recommended.

Step 1 If possible, stop all WCS user interfaces to stabilize the database.

Step 2 Back up the WCS database by following the instructions in the "Backing Up the WCS Database (for Windows)" section on page 14-4.

Step 3 Uninstall the WCS application by following the instructions in the "Uninstalling WCS on Windows" section on page 14-8.

Step 4 Install the new version of WCS by following the instructions in the "Installing WCS for Windows" section on page 2-6.

Step 5 Restore the WCS database by following the instructions in the "Restoring the WCS Database (for Windows)" section on page 14-6.

Manually Upgrading WCS on Linux

Follow these steps to upgrade WCS on a Linux server. This type of upgrade is not recommended.

Step 1 If possible, stop all WCS user interfaces to stabilize the database.

Step 2 Back up the WCS database by following the instructions in the "Backing Up the WCS Database (for Linux)" section on page 14-5.

Step 3 Uninstall the WCS application by following the instructions in the "Uninstalling WCS on Linux" section on page 14-9.

Step 4 Install the new version of WCS by following the instructions in the "Installing WCS for Linux" section on page 2-14.

Step 5 Restore the WCS database by following the instructions in the "Restoring the WCS Database (for Linux)" section on page 14-7.

Upgrading WCS in a High Availability Environment

If you have a primary and secondary WCS, follow these steps for a successful upgrade:

Step 1   You must first upgrade the secondary WCS with the following steps:

    a. Shut down the secondary WCS. See the "Stopping WCS" section on page 14-2 for more information.

        ✎ **Note**   You can use **StopWCS** for a graceful shut down. A graceful shut down does not trigger the automatic failover. Use the CLI command **<WCSROOT>\nmsadmin.bat -switchover stop** to trigger automatic failover when shutting down WCS.

    b. Perform an auto upgrade on the secondary WCS. See the "Using the Installer to Upgrade WCS for Windows" section on page 14-10 or the "Using the Installer to Upgrade WCS for Linux" section on page 14-13 for more information.

    c. Start the secondary WCS.

        ✎ **Note**   It will attempt to reconnect to the primary WCS, but a version mismatch error is returned.

Step 2   Upgrade the primary WCS.

    a. Shut down the primary WCS. See the "Stopping WCS" section on page 14-2 for more information.

    b. Perform an auto upgrade on the primary WCS. See the "Using the Installer to Upgrade WCS for Windows" section on page 14-10 or the "Using the Installer to Upgrade WCS for Linux" section on page 14-13 for more information.

    c. Start the primary WCS.

        It connects to the Secondary WCS, and all data is resynchronized.

Upgrading the Network

Network upgrades must follow a recommended procedure so that databases can remain synchronized with each other. You cannot for instance upgrade the controller portion of the network to a newer release but maintain the current WCS version and not upgrade it. The supported order of upgrade is WCS first, followed by the controller, and then any additional devices.

Reinitializing the Database

If you need to reset the database because of a synchronization problem or a corruption of some type, enter *{install directory}***/bin/dbadmin.(sh|bat) reinitdb** to reinitialize the database.

Recovering the WCS Password

You can change the WCS application root user or FTP user password. This option provides a safeguard if you lose the root password. An executable was added to the installer /bin directory (passwd.bat for Windows and passwd.sh for Linux). Follow these steps to recover the passwords and regain access to WCS. For password recovery on a wireless location device, refer to chapters 8 or 9 of the *Cisco 2700 Series Location Appliance Configuration Guide*.

Note   If you are a Linux user, you must be the root user to run the command.

Step 1   Change to the WCS bin folder.

Step 2   Perform one of the following:

Enter **passwd root-user** *newpassword* to change the WCS root password. The *newpassword* is the root login password you choose.

or

Enter **passwd location-ftp-user** *newuser newpassword* to change the FTP user and password. The *newuser* and *newpassword* are the FTP user and password you choose.

Step 3   The following options are available with these commands:

- -q — to quiet the output
- -pause — to pause before exiting
- -gui — to switch to the graphical user interface
- -force — to skip prompting for configuration

Step 4   Start WCS.