

Upgrading to NGX

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Introduction

You have a current Check Point environment for managing security in your infrastructure. Version NGX is available with many enticing new features; the bells and whistles pique your interest. With NGX media in hand you are ready to invest the resources to forge ahead with the upgrade. The technologist inside you wants the green flag, but the pragmatist is looking for yellow.

This chapter will guide you through the necessary steps to perform the NGX upgrade. You need to ensure that you have the necessary tools and perform the appropriate tests prior to starting the actual upgrade. There are various paths, depending on uptime requirements and hardware availability. In all upgrade scenarios it is equally important to have proper rollback procedures in the event of failure.

Backup

It seems ironic that the first step of any upgrade procedure is to perform system backups. Consider this step as your insurance for the worst-case scenario. In the event of a failure it is important to be able to restore functionality in a timely fashion. The SmartCenter Server is the single most important piece of your Check Point environment. The databases on this system contain everything (keys, objects, services, rules, etc.) that is required to maintain your security configuration. Rebuilding everything from scratch is unacceptable and in some cases impossible. Gateways are easier to rebuild if necessary, although another undesirable alternative.

Ensure that you have a valid current backup if you are using some type of enterprise software. Use the Export function on the NGX CD to perform an export of your SmartCenter Server configuration. This export does not include operating system configuration parameters. On Nokia or SecurePlatform devices use the built-in system tools to perform the backup. The ideal situation is to perform these backups immediately prior to the upgrade process. Document the system parameters: hostname, IP address, ARP, and routing configuration.

Upgrade Order

Only NG versions can be upgraded to NGX. If your environment has any systems not currently at NG they must be upgraded before proceeding. NGX SmartCenter Servers are not capable of managing 4.x Gateways and NGX media will not perform the upgrade. The SmartCenter Server(s) must be upgraded first, followed by the Gateways. In a stand-alone environment both components are upgraded simultaneously. Before upgrading any software you should upgrade licenses, verify the existing configuration, and develop a clear strategy.

Licenses

Upgrading to NGX requires an upgrade of your NG licenses. Licenses can be upgraded in the Check Point User Center or by using the `license_upgrade` utility. Upgrading licenses in the User Center is a manual process per license. Using the `license_upgrade` utility requires you to copy the operating system-specific version of the utility from the CD to the SmartCenter Server. The `license_upgrade` utility is a menu-driven text-based tool. Running this tool brings up the following:

Running `License_upgrade`

- To upgrade to NGX R60, YOU MUST FIRST upgrade licenses for all NG products.
- NGX R60 with licenses from previous versions WILL NOT FUNCTION.
- The license upgrade process gathers all the licenses from this machine, sends them in SSL encrypted format to the User Center, gets the upgraded licenses and installs them on the machine.
- The license upgrade process on the SmartCenter Server also handles gateway licenses in the license repository.
- After the software upgrade, open SmartUpdate and attach the new NGX licenses to the gateways.
- For more details, see the License Upgrade chapter of the Upgrade Guide (located on the CD and at the Check Point Download site).

Current Machine Status: None of the 7 licenses on the machine are upgraded.

Please choose one of the following:

- [L] View the licenses installed on your machine.
- [S] Simulate the license upgrade.
- [U] Perform license upgrade now.
- [O] Perform license upgrade for an offline machine.
- [C] Check if currently installed licenses have been upgraded.
- [Q] Quit

WARNING

You must have a current Software Subscription to get updated licenses. Some license features changed between NG and NGX and others are no longer supported. Use the Simulation option to see if any of these changes apply to your environment. Resolve any license issues before continuing with the upgrade.

There are license features no longer supported in NGX. Additionally there are changes in licensing components on the SmartCenter Server and Gateways. The `license_upgrade` tool will inform you of any existing license changes if they are applicable to your environment.

Pre_Upgrade_Verifier

Prior to proceeding you should run the `pre_upgrade_verifier` on the production SmartCenter Server. This tool looks for configuration issues that are not compatible with NGX. Using the `pre_upgrade_verifier` utility requires you to copy the operating system-specific version of the utility from the CD to the SmartCenter Server. The `pre_upgrade_verifier` utility is a menu-driven text-based tool. The results are displayed on the screen or they can be directed to a text file using the `-f` option. Add the `-w` option to report to a Web format. Running the command with no options displays the following:

```
C:\Temp\NGX>pre_upgrade_verifier
```

```
This is Check Point Pre-Upgrade Verifier Major Version 5, Feature Pack 9,
Service Pack 1 - Build 033.
```

```
Usage: pre_upgrade_verifier -p SmartCenterPath -c CurrentVersion -t
TargetVersion
```

```
[-f FileName] [-w]
```

```
Or: pre_upgrade_verifier -p SmartCenterPath -c CurrentVersion -i
```

```
[-f FileName] [-w]
```

```
-p Path of the installed SmartCenter Server (FWDIR).
```

```
-c Currently installed version.
```

```
-t Target version.
```

```
-i Check originality of Inspect files only.  
-f Output in file.  
-w Web format file.
```

where the Currently installed version is one of the following:

```
4.1  
NG  
NG_FP1  
NG_FP2  
NG_FP3  
VSX_201  
NG_AI  
VSX_NG_AI  
VSX_NGAI_R2  
NG_AI_R55  
GX_NG_25  
NG_AI_R55W  
NG_AI_R57
```

where the Target version is one of the following:

```
NG_FP1  
NG_FP2  
NG_FP3  
VSX_201  
NG_AI  
VSX_NG_AI  
VSX_NGAI_R2  
NG_AI_R55  
GX_NG_25  
NG_AI_R55W  
NG_AI_R57  
NGX_R60
```

The report lists recommended actions for pre- and post-installation. There are two classes of actions, warnings, and errors. Warnings are informational for items to correct either before or after the actual upgrade. Errors are items that must be corrected before continuing. **Performing an upgrade with uncorrected errors will result in a failed upgrade.**

NOTE

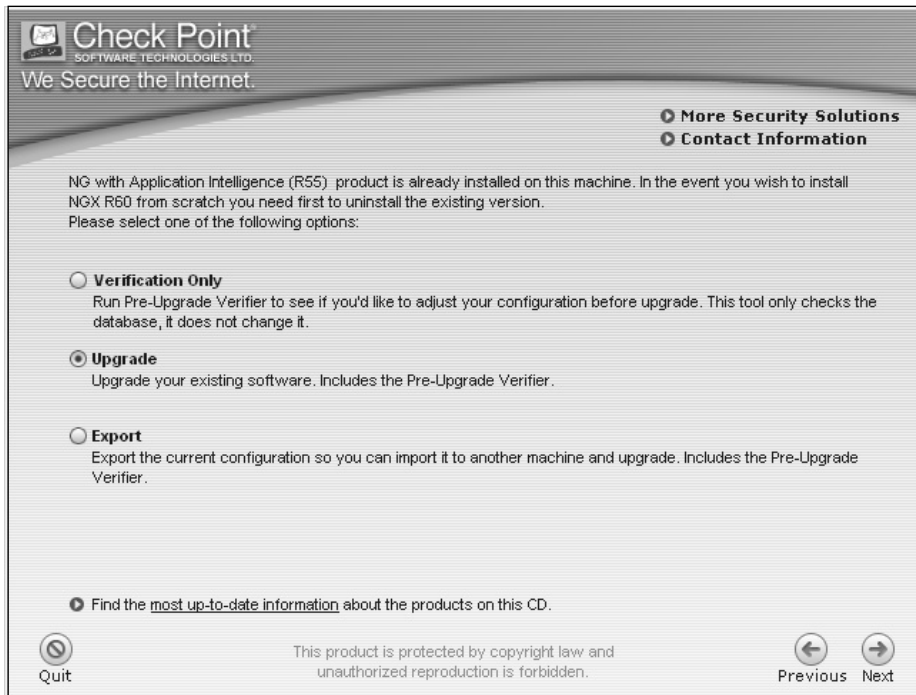
Make sure that you review the hardware and software requirements for NGX. Ensure that your systems meet the requirements to facilitate a successful upgrade. Windows 2003 SP1 is not supported according to the Check Point Knowledge base. This is different from the minimum software requirements listed in the NGX Getting Started guide.

SmartCenter

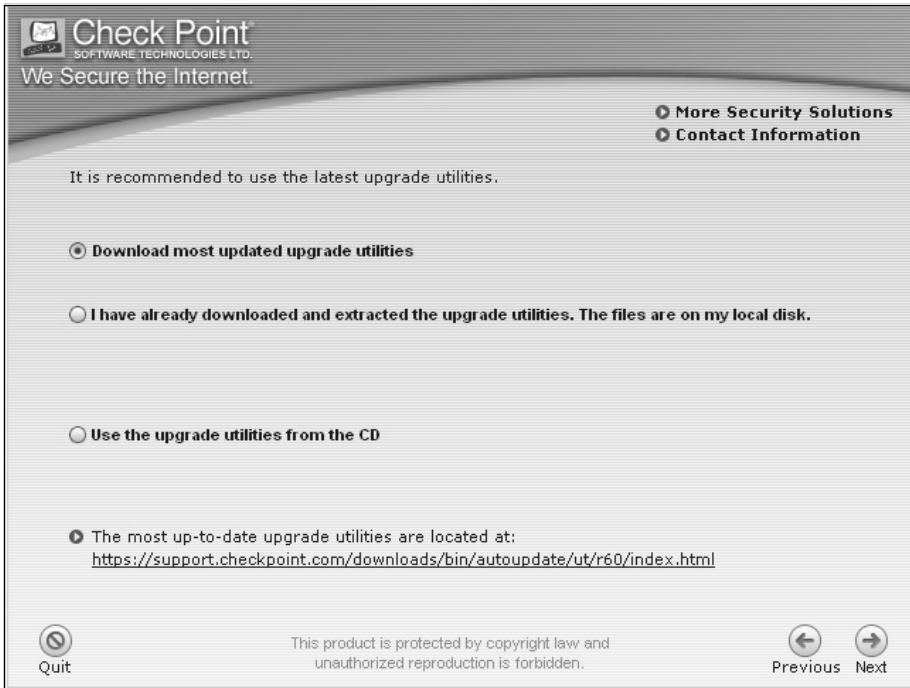
There are two methods for upgrading the SmartCenter Server. You can perform an upgrade directly to your production server, the riskiest option. Alternatively, you can migrate to a new server. Migrating to a new server provides the opportunity to change platforms or upgrade the existing hardware. The next sections will walk through both upgrade scenarios on a Windows SmartCenter Server and the upgrade option on a SecurePlatform SmartCenter Server.

Windows

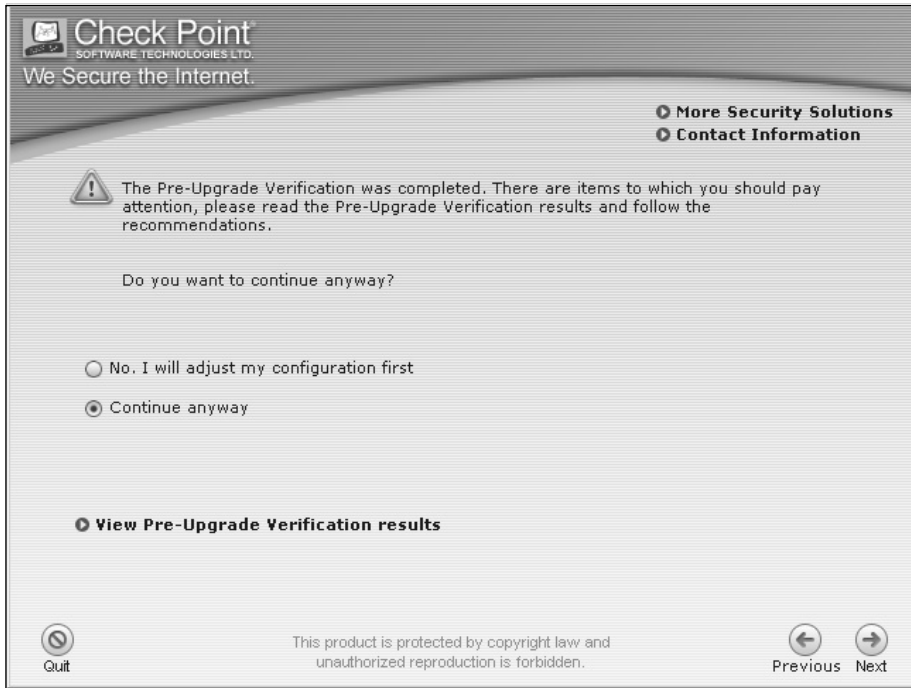
The first option we will perform is an upgrade on the production Windows SmartCenter Server. Insert CD2 of the NGX media kit into the drive. If auto-run is enabled for the drive, the install window will automatically open; otherwise run **Setup.exe** from the root of the CD. In the main screen click **Next** to open the license agreement. Check the radio button next to **I accept the terms of the license agreement** and click **Next** to open the upgrade options screen (see Figure 4.1).

Figure 4.1 Selecting the Upgrade Option

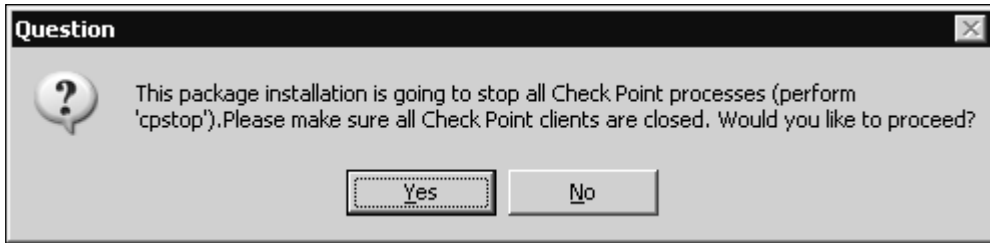
Select the **Upgrade** radio button and click **Next** to continue. A window opens, asking if you wish to upgrade licenses. Leaving the check on the **Upgrade Licenses during this installation process** will perform the `license_upgrade` function discussed earlier. Uncheck the Upgrade licenses box and click **Next** to get a strong recommendation to the upgrade licenses window and click **Next** again. This opens the upgrade utilities screen (see Figure 4.2). This screen recommends using the latest upgrade utilities and offers three choices: download the most updated utilities, use a local disk where the latest files have already been downloaded, or use the utilities on the current CD. At the time of this writing the utilities on the CD are the latest so the upgrade uses the files on the CD even if you select to download the most updated. Select the radio button for Use the upgrade utilities from the CD and click **Next**.

Figure 4.2 Upgrade Utility Options

The Pre-Upgrade Verification screen opens to ask if you want to skip this test. Leave the Skip Pre-Upgrade Verification unchecked and click **Next**. The Pre-Upgrade Verification results opens, stating recommendations exist (see Figure 4.3). You can view these in HTML format by clicking **View Pre-Upgrade Verification results**. If there are no errors, select the **Continue anyway** radio button and click **Next**.

Figure 4.3 Pre-Upgrade Verification Results

The next screen asks if you wish to add new products in addition to upgrading the existing software. Leave **Add new products checked** if you wish to add additional products, then click **Next** to open a window to select additional products. In this example uncheck the box and select **Next** to continue. The products that will be upgraded are displayed; click **Next** to continue. The installation begins and a question window opens, informing you a **cpstop** will be performed (see Figure 4.4). Click **Yes** to continue.

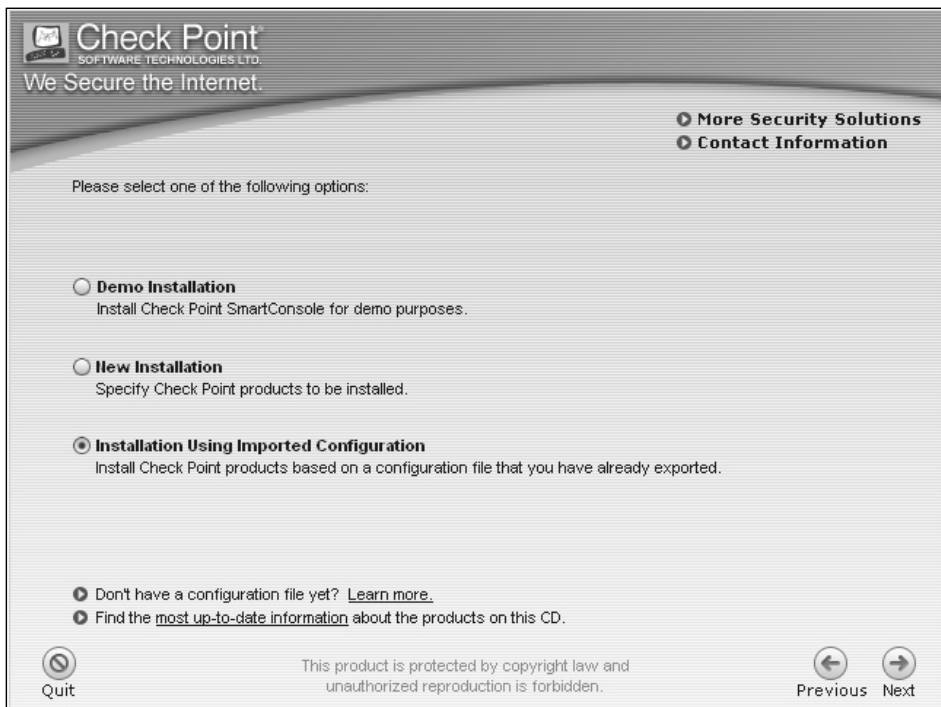
Figure 4.4 Upgrade Warning—cpstop

The installation will run and ask about copying log files automatically now or manually later. This can take time if there are a large number of log files. Select the preferred option and click **Next** to continue. If SmartConsole clients are installed on the SmartCenter Server you will be asked which clients to install and whether you want shortcuts on the desktop. After the installation wizard process completes, click **Finish** to return to a Thank You window and click **Finish** again. Now you are asked to reboot to activate the changes; click **Yes** to be asked to remove the CD from the drive. Click **OK** to eject the CD and reboot the system. The upgrade is complete.

The next option is the migration upgrade. For this option of upgrading we will plan on using the same IP and hostname as the original SmartCenter Server. There are additional steps if you plan on changing the IP address. Begin the process as described in the production upgrade section until the options screen appears. Select the **Export** radio button and click **Next** to open an upgrade utilities screen. Select the radio button for Use the upgrade utilities from the CD and click **Next**. The Pre-Upgrade Verification screen opens to ask if you want to perform this test. Leave the check to perform the Pre-Upgrade Verification and click **Next**. The Pre-Upgrade Verification results opens, stating recommendations exist. You can view these in HTML format by clicking **View Pre-Upgrade Verification results**. If there are no errors select the Continue anyway radio button and click **Next**. The next screen asks where to save the configuration file. You may change the directory or filename if you want; click **Next** to continue and create the export (see Figure 4.5). Click **OK** in this window followed by **Finish** to complete the export portion.

Figure 4.5 Export Completion

Transfer the configuration export file to the new SmartCenter Server. Insert the appropriate CD in the new SmartCenter Server. Proceed as earlier to accept the license agreement to open an options window, select the **Check Point Enterprise/Pro** radio button, and click **Next** to continue. A window opens offering installation options (see Figure 4.6). Select the **Installation Using Imported Configuration** radio button and click **Next**.

Figure 4.6 Selecting the Import Option

Type the location and name of the exported configuration file and click **Next**. You are again given the option to download the latest upgrade utilities. Select the **Use the upgrade utilities from the CD** radio button and click **Next**. After the upgrade licenses option opens, leave the option to upgrade during the installation unchecked and click **Next**. The next window lists products selected for installation; click **Next**. The licenses from the production SmartCenter Server are automatically transferred using this upgrade method.

The installation begins and you are asked to specify the installation directory; modify as desired and click **Next**. After the InstallShield Wizard window opens stating the installation is completed, click **OK**. A message advises that the database is being imported, followed by a Licenses screen where existing licenses are shown with an option to add new licenses if desired. Click **Next**. Existing administrators are shown with the option to edit the list; click **Next**. Existing GUI clients are shown with the option to add new clients; click **Next**. After the fingerprint is displayed, click **Finish**. You are now thanked for installing Check Point Software. Click **Finish**. Now you are asked to reboot to activate the changes; click **Yes** to be asked to remove the CD from the drive. Click **OK** to eject the CD and reboot the system. Disconnect the old SmartCenter Server from the production network and connect the Upgraded SmartCenter to complete the upgrade migration.

TIP

You are probably going to be really eager to connect to the new SmartCenter Server after the upgrade. The NGX SmartConsole clients are required for management. Install the NGX SmartConsole tools on the clients before upgrading the server. Multiple versions of SmartConsole software can be installed on the same computer.

SecurePlatform

The first option you will perform is an upgrade on the production SecurePlatform FP2, FP3, R54 or R55 SmartCenter Server. Insert CD1 from the NGX media kit into the CD drive on the system. If you are upgrading FP2 or FP3, enter expert mode and run the following commands to upgrade the patch command:

```
# mount /mnt/cdrom
# patch add /mnt/cdrom/SecurePlatform/patch/CPpatch_command_*.tgz.
```

Once the commands execute, the upgrade process continues with the R54 and R55 upgrade process. Log in to the system as a user; you do not need to go into expert mode. The commands are typed as follows:

```
[smartctr-svr]# patch add cd
```

```
Choose a patch to install:
```

- 1) SecurePlatform NGX R60 Upgrade Package (CPspupgrade_R60.tgz)
- 2) Exit

```
Your choice:
```

```
1
```

```
Calculating the MD5 checksum of the package.
```

```
The MD5 checksum is: 6a0b5bc83987830d571f8a2e0549e9f5
```

```
Is that right (Y/N)? Y
```

```
Extracting /mnt/cdrom/SecurePlatform/patch/CPspupgrade_R60.tgz package ..
```

```
Start Upgrading ..
```

```
Verifying ..
```

```
Extracting files ..
```

```
Extracting files completed successfully.
```

```
Upgrade program will now upgrade your system. This process may take several minutes
```

After a welcome screen opens, type **N** for Next to continue and open the license agreement. Type **Y** to agree to the license agreement to open the Enterprise Options Screen.

```
Enterprise Suite Options
```

- 1.() Export SmartCenter configuration.
- 2.() Perform pre-upgrade verification only.
- 3.(*) Upgrade.

Type **3** to highlight the Upgrade option and type **N** for Next to continue. This opens the license_upgrade utility screen; select **Q** to quit the license upgrade process and the system automatically performs a pre-upgrade verification test.

```
Pre-Upgrade Verification Results
```

```
The pre-upgrade verification process has completed.
```

See the Pre-upgrade verification results,
and follow the recommendations.

Select your choice and press Enter N-continue V-view the results E-exit: **V**

The pre-verification results are displayed by typing **V**; when done reviewing type **N** to continue. The next step asks if you want to create a snapshot image. If the upgrade terminates abnormally the system automatically will revert back to this snapshot; type **y** to create the snapshot.

Do you want to create a backup image for automatic revert (y/n)?: **y**

Creating the Snapshot Image. This can take up to 10 minutes...

Done

Upgrading the operating system.

Preparing to upgrade Check Point Products.

Existing Server/Gateway products have been detected.

Please specify one of the following upgrade options:

1. () Upgrade installed products and install new products.
2. (*) Upgrade installed products.

Type **2** to select Upgrade installed products, then type **N** for Next to continue and open a Validation screen.

Validation

You have selected the following products for installation:

- * Primary SmartCenter

Type **N** to continue and the process will complete and return the following information.

Upgrade of Check Point products has been successfully completed.

Please wait while the upgrade process completes.

Installation finished successfully

Please remove Check Point CD from the CDROM drive.

Upgrade files completed successfully.

```
-----  
In order to complete the upgrade process please reboot your system!  
-----
```

```
Patch installed successfully.
```

```
[smartctr-svr]#
```

The upgrade is finished; remove the CD and type **reboot** to reboot the server to complete the upgrade.

WARNING

If you do not remove the CD and reboot, the system boots from the CD and begins a new installation of SecurePlatform. Accidentally pressing any key during this 90-second window will begin a fresh installation.

Solaris

Upgrading a Solaris SmartCenter is similar to the processes listed previously. Run the **UnixInstallScript** from the CD. The advanced upgrade option provides the capability to use the export and import functions to migrate to a new server. Before performing either upgrade verify that the correct packages and patches have been applied to the server.

Firewall Gateway

Upgrading Gateways presents a different challenge regarding network availability. SmartCenter upgrades create a period where administrative connectivity is unavailable. Gateway upgrades involve a potential network interruption where services are unavailable. In clustered environments where two or more gateways control connectivity there are options to minimize the interruption upgrading to NGX.

There are options for performing Gateway upgrades. You can use the same process to perform local upgrades like those used for the SmartCenter Server. Alternatively you can use the SmartUpdate client to perform Gateway upgrades from the SmartCenter Server. SmartUpdate is covered in Chapter 13.

Minimal Downtime

The primary motivation to upgrade is implementing the latest version and features into your environment. The primary concern is minimizing interruption while performing the upgrade. Developing the upgrade plan is the most influential component to limiting downtime. Consider resource availability and service level requirements when defining your strategy.

Migrating the SmartCenter Server to new hardware is the best way to minimize administrative interruption. Complete the upgrade on the new server then swap the two servers on the network. Remember to clear ARP entries from the old SmartCenter Server. Pre-installing the NGX SmartConsole client software allows for quick discovery of administrative issues.

Gateway upgrades involve an interruption to network connectivity. Migrating to a new server in a single gateway environment is the best way to minimize interruption. If you are running only a single gateway it is likely your budget makes this alternative unfeasible. In a cluster environment, upgrade the modules one at a time. Remove one gateway from the cluster and upgrade the software. Swap the upgraded gateway with the other module and upgrade. Remember to clear ARP entries from upstream and downstream routers and switches. In either scenario there is an interruption to established connections. It is not possible to perform state synchronization between NG and NGX gateways.

Future upgrades, from NGX and forward, will have a zero-downtime upgrade scenario where no connections are interrupted.

Rollback

All project plans must consider the worst-case scenario. You should be able to restore the previous configuration in the event of failure during the upgrade. The rollback options are directly linked to the chosen upgrade path. Restoring from a migration to new hardware is simple compared with restoring direct upgrades to production servers. The first step is to determine how far to roll back the changes.

If you are fortunate enough to have duplicate hardware to allow migration of functionality to new servers, reconnect the original servers and clear ARP entries as necessary. The procedures for removing upgrades from production systems are operating system-specific:

- **Windows** Remove the Check Point R55, R55W, and VPN-1 Edge compatibility programs followed by Check Point VPN-1 Pro NGX R60. Reboot the system.

- **IPSO** Disable then delete VPN-1 Pro NGX R60 package. Re-enable the previous packages and previous IPSO version. Reboot the system.
- **SecurePlatform** Revert to the snapshot image taken before performing the upgrade.
- **Solaris** Remove the CPfw1-R60 package and reboot the system.

The worst-case scenarios involve restoring a system from a backup or rebuilding a system. This is the reason that you should always have complete system backups, configuration documentation, and a project plan before beginning the upgrade. It is unlikely that you will need to endure this painful process if you perform the verification steps before upgrading.

Summary

There are different reasons for wanting to upgrade to Check Point NGX. Regardless of the motivation, develop a project plan for the upgrade using formal change control guidelines. Examine the components and determine the best strategy for your organization. Assemble the necessary resources and review your plan before implementation. Consider options for upgrading the components running your Check Point security infrastructure.

Proper planning includes precautionary measures for protection. Make sure you have current system backups available. Take the preliminary steps to upgrade licenses and verify configuration functionality. Make time to understand how new features in NGX will function in your environment. A successful upgrade requires attention to detail.

Solutions Fast Track

Backup

- ☑ The SmartCenter Server is the single most important component of your Check Point infrastructure.
- ☑ Ensure that current backups exist and know how the restoration process functions.
- ☑ Compile complete configuration documentation before performing the upgrade.

Upgrade Order

- ☑ Upgrade your current NG licensing ahead of time using the `license_upgrade` utility.
- ☑ Verify the compatibility of your configuration for using NGX.
- ☑ Validate that your systems meet software and hardware requirements.

Minimal Downtime

- ☑ Migrating the SmartCenter to a new system during the upgrade provides for easier recovery.

- ☑ Review service level agreements to resolve complications in a timely matter.
- ☑ Remember to clear ARP entries when upgrading hardware.

Rollback

- ☑ Know how to use the various methods for restoring to a previous configuration.
- ☑ Plan for the worst-case scenario to be properly prepared.

Frequently Asked Questions

The following Frequently Asked Questions, answered by the authors of this book, are designed to both measure your understanding of the concepts presented in this chapter and to assist you with real-life implementation of these concepts. To have your questions about this chapter answered by the author, browse to www.syngress.com/solutions and click on the “Ask the Author” form.

Q: When should I upgrade my NG environment to NGX?

A: There is no easy answer to this question. You should fully test your production requirements with NGX to ensure proper functionality before upgrading. Upgrading to an initial release of a major version without proper testing may create problems. There is a risk in running leading edge versions.

Q: What licenses are no longer valid in NGX?

A: VPN-1 Small Office and VPN-1 Net licenses are not available in NGX. These products are still supported in NG. If you are using these products you will need to convert them to upgrade to NGX.

Q: My SmartCenter does not have Internet access. Can I still use the license_upgrade utility?

A: Yes, the utility includes options for performing an offline upgrade. You need to run the utility to generate a license package file on your SmartCenter Server. Transfer this file and the license_upgrade utility to a machine with HTTPS Internet access. Run the license_upgrade utility from the online machine to generate a file containing the upgraded licenses. Transfer this file back to the SmartCenter Server and import the file using the license_upgrade utility.

Q: Does the export utility copy my network configuration?

A: No, the utility only exports the Check Point configuration.

Q: Why should I run the license upgrade and pre-verification tools before upgrading when the tools are part of the upgrade process?

A: There may be issues that need to be resolved prior to performing the actual upgrade. If you are missing required licenses, upgraded modules will not function properly. Verification errors will cause the upgrade to fail and you will be forced to roll back changes.

Q: If upgrading to a new windows SmartCenter Server using the Import option does it need to be connected to the network?

A: The interface needs to have a link but it does not need to have a connection to the production network. You can use a hub to provide a valid link on the interface to complete the upgrade. Once the upgrade is complete you can then disconnect the previous server and connect the upgraded server to the production network.

Q: Are there any updates to the documentation provided with the NGX media?

A: Yes, some documents have been updated; current documentation can be downloaded from www.checkpoint.com/support/technical/documents/docs_r60.html. You need to have a User Center account with the appropriate rights to access the documents.