



PlateSpin Forge[®] 11

Rebuilding Forge 11 Appliance 3

August 15, 2014

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About NetIQ Corporation

We are a global, enterprise software company, with a focus on the three persistent challenges in your environment: Change, complexity and risk—and how we can help you control them.

Our Viewpoint

Adapting to change and managing complexity and risk are nothing new

In fact, of all the challenges you face, these are perhaps the most prominent variables that deny you the control you need to securely measure, monitor, and manage your physical, virtual, and cloud computing environments.

Enabling critical business services, better and faster

We believe that providing as much control as possible to IT organizations is the only way to enable timelier and cost effective delivery of services. Persistent pressures like change and complexity will only continue to increase as organizations continue to change and the technologies needed to manage them become inherently more complex.

Our Philosophy

Selling intelligent solutions, not just software

In order to provide reliable control, we first make sure we understand the real-world scenarios in which IT organizations like yours operate — day in and day out. That's the only way we can develop practical, intelligent IT solutions that successfully yield proven, measurable results. And that's so much more rewarding than simply selling software.

Driving your success is our passion

We place your success at the heart of how we do business. From product inception to deployment, we understand that you need IT solutions that work well and integrate seamlessly with your existing investments; you need ongoing support and training post-deployment; and you need someone that is truly easy to work with — for a change. Ultimately, when you succeed, we all succeed.

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- ♦ Access Management
- ♦ Security Management
- ♦ Systems & Application Management
- ♦ Workload Management
- ♦ Service Management

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About This Guide

This *Field Rebuild Guide* provides information about rebuilding and reconfiguring the Forge disaster recovery appliance by using the *Forge 11.0 Field Rebuild Kit*.

- ♦ [Chapter 1, “Overview,” on page 9](#)
- ♦ [Chapter 2, “Reconfiguring the RAID Controller \(Conditional\),” on page 11](#)
- ♦ [Chapter 3, “Installation Tasks,” on page 13](#)
- ♦ [Chapter 4, “Troubleshooting,” on page 35](#)
- ♦ [Appendix A, “Reconfiguring the RAID Controller on Dell R610/R620 Forge Hardware,” on page 37](#)
- ♦ [“Glossary” on page 39](#)

Intended Audience

This guide is intended for technical staff, such as PlateSpin partners, who require the capability to rebuild the Forge appliance from scratch.

Other Information in the Library

The library provides the following information resources:

Getting Started Guide

Provides information about the basic steps required for setting up your PlateSpin Forge appliance.

Upgrade Guide

Provides information about upgrading earlier versions of PlateSpin Forge to PlateSpin Forge 11.0.

Help

Provides embedded guidance to assist users with common tasks as they access the user interface.

Documentation Updates

The most recent version of this guide can be found at [PlateSpin Forge 11 Online Documentation Web Site \(https://www.netiq.com/documentation/platespin_forge_11/\)](https://www.netiq.com/documentation/platespin_forge_11/).

1 Overview

This section includes the following information:

- ♦ [Section 1.1, “About the Forge 11.0 Rebuild Process,” on page 9](#)
- ♦ [Section 1.2, “What You Need,” on page 10](#)

1.1 About the Forge 11.0 Rebuild Process

Use the Forge 11 Rebuild Kit to rebuild PlateSpin Forge appliance version 3. Before you begin this process, make sure that you have your VMware ESXi 5.5 license available.

At a high level, the Forge 11.0, Appliance Version 3* rebuild process consists of the following major steps:

- ♦ (Conditional) Re-creating the RAID array on the appliance*
- ♦ Setting up the system BIOS
- ♦ Re-installing the hypervisor
- ♦ Re-deploying Forge software (including the Forge Management VM and the Forge Appliance Configuration Console (Forge ACC))
- ♦ Re-licensing all components

NOTE: The rebuild process erases all data in the Forge appliance's local storage.

If you need only to revert the appliance to its factory default state, use the Factory Reset feature that the appliance ships with Forge 11.0. See [“Resetting Forge to Factory Defaults”](#) in the *PlateSpin Forge 11.0 User Guide*.

The complete rebuild instructions that are in this section should be used only when Factory Reset is not working or is not applicable (for example, after a major hardware failure that prevents Factory Reset from working, or when you are upgrading from an older version of the appliance).

*If you upgraded your Forge Appliance to version 11.0 from an earlier release prior to this rebuild, you will be reconfiguring the RAID controller for Forge Appliance Version 1 or Version 2 on earlier hardware. [Appendix A, “Reconfiguring the RAID Controller on Dell R610/R620 Forge Hardware,” on page 37](#) provides information about this procedure.

1.2 What You Need

Before you start rebuilding Forge, make sure that you have the following prerequisites:

A *Forge 11.0 Field Rebuild Kit*, containing: Contact PlateSpin Support to request a Kit.

- ♦ Forge 11.0 OVF template files
- ♦ Forge 11.0 Installation CD/DVD
- ♦ This *Field Rebuild* guide.

A VMware ESXi 5.5 license	Contact PlateSpin Support for help to retrieve your license
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A Microsoft SQL 2014 Standard Edition license	Contact PlateSpin Support for help to retrieve your license
---	---

A Windows license for the Forge VM 2012 Server	A Windows OEM Product Key sticker is attached to every PlateSpin Forge appliance and is located on the appliance's top cover. Contact PlateSpin Support if missing.
--	---

A PlateSpin Forge 11.0 license	Post-rebuild requirement for unlocking the product's business functionality.
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See “[Product Licensing](#)” in the *PlateSpin Forge 11.0 User Guide*.

2 Reconfiguring the RAID Controller (Conditional)

Use the information in this section if you need to reconfigure the RAID controller on the Forge 11 Appliance Hardware. Reconfiguring the RAID controller is not necessary unless you are adding or replacing hard disks in your Forge Appliance as part of the product rebuild.

This RAID controller configuration procedure applies to Forge appliances based on Dell PowerEdge R710/R720 hardware.

NOTE: If you have upgraded your Forge Appliance from an earlier version and you need to rebuild it, see [Appendix A, “Reconfiguring the RAID Controller on Dell R610/R620 Forge Hardware,”](#) on [page 37](#).

On first boot, you use the PERC 5/I Configuration utility to configure the RAID controller:

- 1 Press Ctrl+R at the RAID Controller boot prompt, approximately 24 seconds into the boot sequence.
- 2 Configure the PERC RAID controller to have multiple logical disks over a single RAID5 (or RAID 6) array:
 - 2a Delete any existing disk groups:

IMPORTANT: Remember, deleting a disk group also deletes the data on that disk group.

 - 2a1 Select a disk group and press F2.
 - 2a2 Select **Delete Disk Group**.
 - 2a3 Repeat [Step 2a1](#) and [Step 2a2](#) for all existing disk groups.
 - 2b Create a new disk group for the Forge system:
 - 2b1 Select the controller and press F2.
 - 2b2 Select **Create New VD**.
 - 2b3 Select the **RAID Level** value, press Enter, select **RAID-5** (or **RAID-6**) from the list, then press Enter again.

IMPORTANT: If your hardware configuration consists of eight 4TB disk drives, select **RAID-6**.

 - 2b4 Select all available physical disks by selecting a disk item and pressing the Spacebar (disk sizes might vary).
 - 2b5 Under **Basic Settings**, fill in the following fields:

VD Size: Enter 300, the recommended size for the Forge System disk group.

VD Name: Use `ForgeSystem` as the value.
 - 2b6 Select **OK** and press Enter.

2c Create a new disk group for the Forge failover VMs:

2c1 On the *Virtual Disk* page tree view, select **Disk Group: 0, RAID 5** (or **RAID 6** – see [Step 2b3](#)) and press F2 to open the Operations dialog box.

2c2 In the dialog box, select **Add New VD** to open the *Add VD in Disk Group 0* page.

2c3 On this the page, configure the new virtual disk for the failover by completing the following fields:

- ♦ **VD Size:** Enter the default maximum size for the rest of the disk (that is, 4355 GB or greater).
- ♦ **VD Name:** Enter FailoverVMs.

Click **OK** when these fields are completed.

2d Configure the VD disks: to fast initialize:

2d1 On the *Virtual Disk* page tree view, select **Virtual Disks** > <disk_name> and press F2 to open the Operations dialog box.

2d2 In the dialog box(es), select **Initialization** > **Fast Init.** > **OK**.

2d3 Repeat [Step 2d1](#) and [Step 2d2](#) for each virtual disk.

The final RAID configuration should look like this:



3 Press Esc to exit the controller configuration utility.

4 Press Ctrl+Alt+Del if prompted. The server reboots with the new settings.

3 Installation Tasks

This section provides information about installing the hypervisor and Forge software components in your appliance.

- ♦ [Section 3.1, “Installing the Hypervisor and Forge Components,” on page 13](#)
- ♦ [Section 3.2, “Licensing Microsoft Products on the Forge Management VM,” on page 17](#)
- ♦ [Section 3.3, “Licensing the ESXi 5.5 Hypervisor,” on page 19](#)
- ♦ [Section 3.4, “Running the Forge Appliance Configurator,” on page 20](#)
- ♦ [Section 3.5, “Backing Up the Factory VM,” on page 20](#)
- ♦ [Section 3.6, “Restarting the Appliance,” on page 21](#)
- ♦ [Section 3.7, “Configuring the Appliance for Immediate Use,” on page 21](#)
- ♦ [Section 3.8, “Launching the PlateSpin Forge Web Client,” on page 22](#)
- ♦ [Section 3.9, “Licensing the Forge Product,” on page 22](#)
- ♦ [Section 3.10, “Installing the Hypervisor and Forge Components,” on page 23](#)
- ♦ [Section 3.11, “Licensing Microsoft Products on the Forge Management VM,” on page 27](#)
- ♦ [Section 3.12, “Licensing the ESXi 5.5 Hypervisor,” on page 29](#)
- ♦ [Section 3.13, “Running the Forge Appliance Configurator,” on page 30](#)
- ♦ [Section 3.14, “Backing Up the Factory VM,” on page 30](#)
- ♦ [Section 3.15, “Restarting the Appliance,” on page 31](#)
- ♦ [Section 3.16, “Configuring the Appliance for Immediate Use,” on page 31](#)
- ♦ [Section 3.17, “Launching the PlateSpin Forge Web Client,” on page 32](#)
- ♦ [Section 3.18, “Licensing the Forge Product,” on page 32](#)

3.1 Installing the Hypervisor and Forge Components

This section provides information about installing the hypervisor and Forge software components in your appliance.

- ♦ [Section 3.1.1, “Installing VMware ESXi 5.5.0 to the Appliance,” on page 13](#)
- ♦ [Section 3.1.2, “Reconnecting the Forge Administrative Computer,” on page 14](#)

3.1.1 Installing VMware ESXi 5.5.0 to the Appliance

PlateSpin Forge requires VMware ESXi 5.5 to control the Forge Management VM. You need to make sure that you have the *PlateSpin Forge 11.0.0 Installation* CD to proceed with the installation.

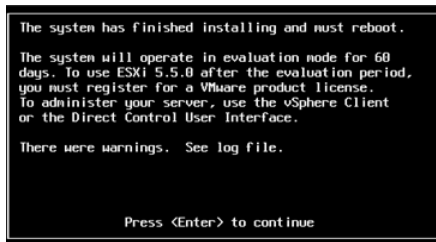
To install VMware ESXi 5.5.0 to the Forge Appliance:

- 1 Power on the appliance and press F11 at the boot prompt.
- 2 While at the boot prompt, insert the installation CD into the CD-ROM drive.
It might take some time for the *Boot Manager* utility to be displayed.
- 3 On the *Boot Manager Main Menu*, select **BIOS Boot Menu** to launch the *BIOS Boot Manager*.
- 4 In the *BIOS Boot Manager* utility, navigate to the option that lets you boot from an optical device (for example, a SATA optical drive), then press Enter.

NOTE: The name of the optical device might vary, depending on the device driver installed on the appliance.

- 5 On the Forge *ESXi build* installation menu, select **ESX Scripted Install for the Forge Appliance**, then press Enter to load the ESXi installer.

The installation progress updates on the screen and moves through several stages. When the process is completed, the following dialog box is displayed prior to the system reboot:



NOTE: If you choose not to attend the installation, the system reboots on its own. You will see the ESXi console when you return.

If you encounter problems during the installation, see [Section 4.2, “Errors Occurring During ESXi Installation,”](#) on page 35 of this guide.

- 6 In the dialog box, press Enter to reboot the system (or let the system reboot itself), then continue with the instructions in [Section 3.1.2, “Reconnecting the Forge Administrative Computer,”](#) on page 14.

3.1.2 Reconnecting the Forge Administrative Computer

To continue with the installation and configuration of the appliance, you need to connect directly to it through another computer, an “administrative computer.” You should have been using a Windows notebook computer (that is, a “laptop”) for this purpose in the past.

This section includes the following information:

- ♦ [“Connecting the Appliance and the Administrative Computer”](#) on page 14
- ♦ [“Deploying the OVF Template”](#) on page 16

Connecting the Appliance and the Administrative Computer

For licensing and configuration tasks in this section, use the following procedure to connect your administrative computer to the Forge hardware appliance. This requires setting up a physical connection, configuring with a static IP address in the same subnet as Forge, then re-connecting the

administrative computer to the Forge appliance. It also includes establishing a management connection, which enables the administrative computer to configure aspects of the Forge appliance software.

This section includes the following information:

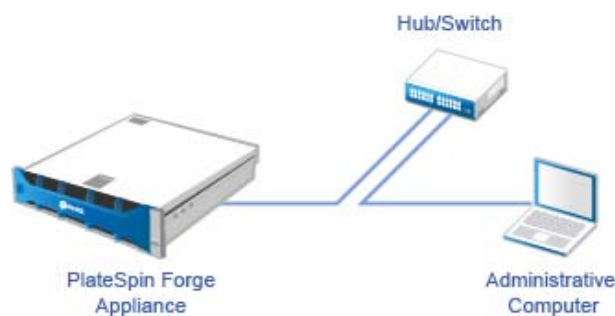
- ♦ [“Establishing a Physical Connection” on page 15](#)
- ♦ [“Establishing a Management Connection through the vSphere Client” on page 16](#)

Establishing a Physical Connection

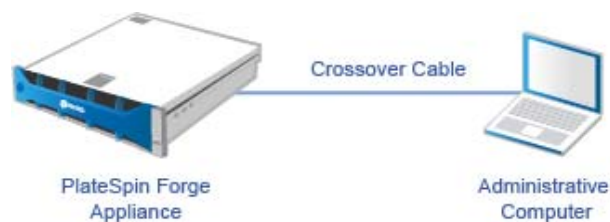
To establish a physical connection between the administrative computer and the Forge Appliance:

- 1 Use one of these methods:

Connection through a Network Switch: Connect both units to a network switch or a hub through an Ethernet network cable:



Direct Connection: Connect your PlateSpin Forge appliance and the computer directly through a crossover cable:



- 2 Turn on the power at the Forge appliance. Wait at least 10 minutes for the system to fully start before trying to connect.
- 3 Access the TCP/IP properties of the administrative computer's wired LAN adapter and assign it an IP address (192.168.1.205) and an associated subnet mask (255.255.255.0).

NOTE: Do not use the following IP addresses:

- ♦ 192.168.1.200 - used by the hypervisor
- ♦ 192.168.1.210 - used by the Forge VM (assigned by an automatic appliance configuration utility).

-
- 4 Save the settings and close the LAN Properties applet.

Establishing a Management Connection through the vSphere Client

When the administrative computer has been connected physically, you need to establish the management connection between the administrative computer and the ESXi hypervisor and the Forge Management VM. The connection is enabled through the VMware vSphere Client on the administrative computer. By using the vSphere client on the administrative computer, you can access the ESXi hypervisor and the Forge Management VM.

You already installed ESXi 5.5 on the Forge Appliance. From the administrative computer's physical connection to the Forge Appliance, you can access and download the vSphere Client.

NOTE: You will need a connection to the Internet for the download to be successful. You can either copy the link location and download the client while you are connected, or you can manually download the vSphere Client from the VMware download site (see the procedure below).

On the administrative computer, use the following steps to install the VMware Infrastructure Client program:

- 1 From a browser, enter the Forge Host address to open the *VMware ESXi 5.5 Welcome* page, then select **Download vSphere Client**.
- 2 At the download location, run the vSphere Client installation .exe.
- 3 Launch the vSphere Client login, then connect to the PlateSpin Forge using these parameters:
IP address: 192.168.1.200
User name: root
Password: Password1
The vSphere Client opens, connected to the hypervisor.

Deploying the OVF Template

Included in the *PlateSpin Forge 11 Appliance Build Kit* USB Flash Drive (available from PlateSpin Support) is the The VM .ovf file used in the PlateSpin Forge 11.0.0.x release build. You will access this .ovf file during the installation process to import the Forge VM into ESXi.

Use the following steps to deploy the OVF template:

- 1 From the *PlateSpin Forge 11 Appliance Build Kit* media, copy the PlateSpin Forge 11.0 Appliance VM folder, with all its contents, to the administrative computer.
- 2 In the vSphere Client (see [“Installing VMware ESXi 5.5.0 to the Appliance” on page 13](#)), click **File > Deploy OVF Template**.
- 3 In the *Deploy OVF Template* dialog box, browse to the location where you downloaded the .ovf file, then click **Next**.
- 4 In the **Name** field of the *Name and Location* view, enter PLATESPINFORGE01 as the name for the imported PlateSpin Forge Management VM, then click **Next**.
- 5 From the *Storage* view, select **ForgeSystem** as the destination storage location, then click **Next**.
- 6 From the *Disk Format* view, select **Thick Provision Eager Zeroed**, then click **Next**.
- 7 From the *Ready to Complete* view, select **Power on after deployment**, then click **Finish**.
The VM import process should complete after approximately 15 minutes.
- 8 In the vSphere client, locate the Forge Management VM (PLATESPINFORGE01), right-click the VM, then rename it to PlateSpin Forge Management VM.
- 9 In the vSphere client, click the **Console** tab, then click inside the remote console window.

- 10 At the *Product Key Settings* page, enter the product key.
- 11 On the *Administrator Account Settings* page, set the administrator password as `Password1`, click **Finish**, then log in (ensure that you press Ctrl+Alt+Insert to log in to the VM).

3.2 Licensing Microsoft Products on the Forge Management VM

NetIQ subscribes to a Microsoft Volume Licensing agreement, allowing us to pre-install Windows Server 2012 and SQL Server 2014 on the Forge Management VM without activating a license for either installation. You are not required to obtain a license from Microsoft yourself. Contact NetIQ Support for assistance with questions or issues regarding Microsoft product licensing.

3.2.1 Licensing Windows Server 2012

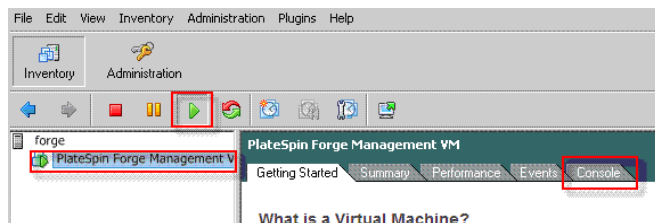
There are two methods you can use to activate the Windows Server 2012 license:

- ♦ [“Offline License Activation by Phone”](#) on page 17
- ♦ [“Multiple Activation Key License Activation”](#) on page 18

Offline License Activation by Phone

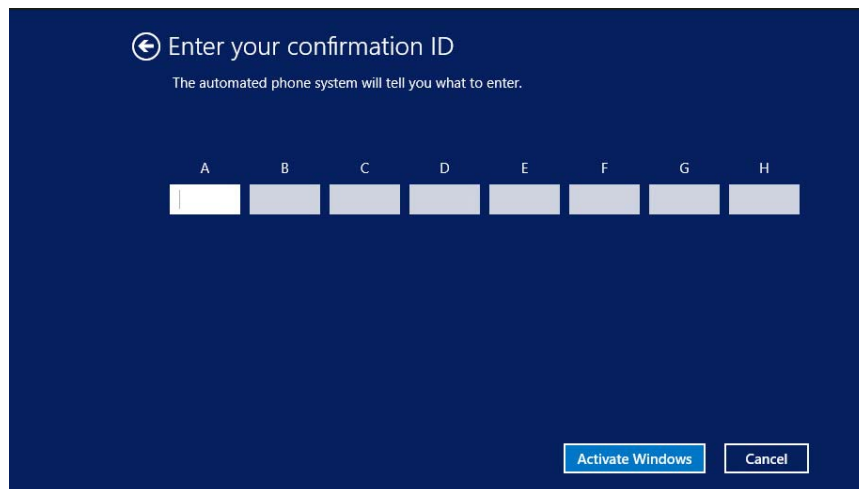
To license Windows Server 2012 offline for the Forge Management VM and log in for the first time:

- 1 In the program tree view of the vSphere client (on the administrative computer), select the **PlateSpin Forge Management VM** item and click the green **Play** button to power it on (if it is not already on).



- 2 Click the **Console** tab, then click inside the remote console window.
- 3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.
- 4 At the command line, enter `slui 4`.
The command launches the Software Licensing User Interface (Wizard) used for calling Microsoft for manual license activation.
- 5 In the interface, select your country or region, dial the toll-free number provided by Microsoft, write down the confirmation ID provided by the Microsoft automated phone system, then click **Enter confirmation ID**.

- 6 In the *Enter your confirmation ID* Wizard page of the interface, enter the confirmation ID you obtained from Microsoft, then click **Activate Windows**.

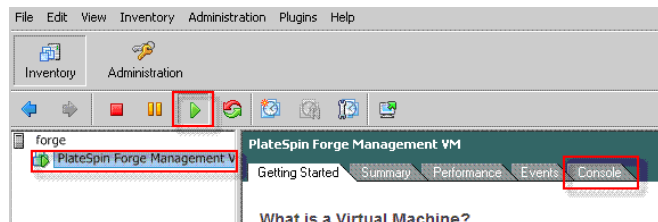


Multiple Activation Key License Activation

As an OEM provider, you might have already made Volume Licensing arrangements with Microsoft to automate and manage the activation process of Volume Licensing media. Under such an arrangement, you could have a Multiple Activation Key License (MAK) that allows the use of a command line licensing tool.

To license Windows Server 2012 for the Forge Management VM using a command line:

- 1 In the program tree view of the vSphere client (on the administrative computer), select the **PlateSpin Forge Management VM** item and click the green **Play** button to power it on (if it is not already on).



- 2 Click the **Console** tab, then click inside the remote console window.
- 3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.
- 4 At the command line, enter `slmgr.vbs /ipk <MultipleActivationKey>`.
The command launches a visual basic script that configures licensing on the Windows 2012 Server. After the script executes, a pop-up dialog box confirms that the product key is installed successfully.
- 5 In the dialog box, click **OK** to finish the key installation.

IMPORTANT: The Microsoft SQL Upgrade window does not display a progress bar. Because upgrading might take a few minutes, you need to wait for an indication that the upgrade completed before you close the dialog box.

3.2.2 Licensing the SQL Server 2014

To license the SQL Server 2014 for the Forge Management VM:

- 1 Open the remote console window of the running Forge Management VM, click **Start**, then select the Apps arrow located at the lower-left corner of the *Start* screen.
- 2 In the **Apps** tiles array, expand the list, then scroll right to find **SQL Server 2014 Installation Center**.

IMPORTANT: Do NOT select the *SQL Server Installation Center* app listed in the **Microsoft SQL Server 2008** category.

- 3 In this Installation Center app, click **Maintenance > Edition Upgrade**.
- 4 On the *Edition Upgrade* dialog box, select **Enter the product key**, then enter the product key you obtained from Microsoft to activate the SQL Server 2014 OEM license on the Forge Management VM.
- 5 On subsequent upgrade dialog boxes, click **Next** or **Upgrade** until the licensing process is complete, then close the licensing application.

3.3 Licensing the ESXi 5.5 Hypervisor

NetIQ subscribes to a VMware Volume Licensing agreement, allowing us to pre-install ESXi 5.5 on the Forge Management VM without activating a license for the installation. As the OEM reseller and NetIQ partner, you need to activate the vSphere OEM license as you prepare each Forge Appliance for shipping.

Obtaining the vSphere Product Key

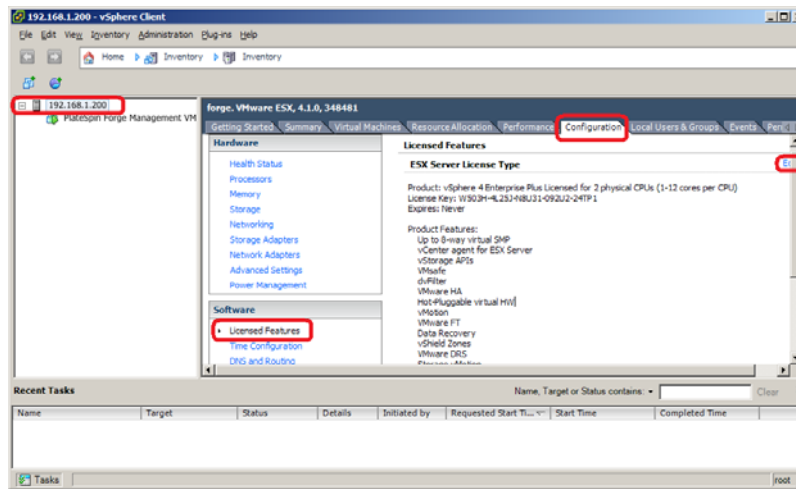
To obtain the OEM Product Keys:

- 1 Contact VMware Support, using one of regional telephone numbers listed on its [Support Contacts page](https://www.vmware.com/support/contacts/us_support.html) (https://www.vmware.com/support/contacts/us_support.html).
- 2 Advise the support representative of the VMware Customer number for NetIQ (supplied in the *Forge 11 Appliance Build Kit*) and that you are activating a license for PlateSpin Forge.
The representative will provide an ESXi 5.5 OEM product key.
- 3 Write down the ESXi 5.5 OEM product key for later use.

Activating the ESXi 5.5 License

To activate the ESXi 5.5 license for the Forge Management VM:

- 1 In the tree view of the VIC client, select the ESXi server node, click the **Configuration** tab, then click **Licensed Features**.



- 2 In the upper right corner of the client interface, click **Edit** and select **Assign a new license key to this host**.
- 3 In the *Assign License* dialog box, enter your license key and click **OK**.
- 4 Click **OK** and exit the vSphere Client program.

3.4 Running the Forge Appliance Configurator

After its components are installed, the Forge Appliance is ready for configuration.

To configure the Forge Appliance after installation:

- 1 On the Windows desktop of the Forge Management VM, double-click the **Configure Forge Appliance** shortcut.
The tool runs for about two minutes. The configuration is complete when the system console displays a **SUCCESS** message at the command prompt.
- 2 Shut down the Forge Management VM in Windows (**Settings > Power > Shut down**).

3.5 Backing Up the Factory VM

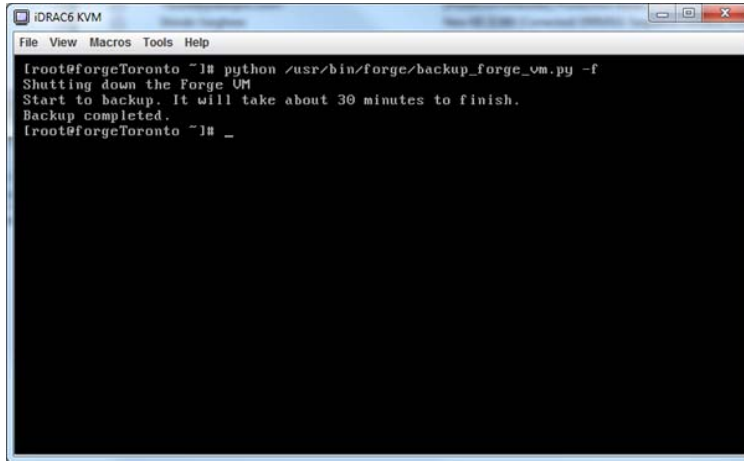
As a precaution after the installation and configuration, you need to back up the Forge Management VM (a.k.a. the “Factory VM”) on the Forge Appliance.

To back up the Factory VM:

- 1 Verify that the Forge Factory VM is shut down.
- 2 At the local console of the Forge Appliance (that is, the Dell Server iDRAC), press Alt+F1.
- 3 Log in as root (password: Password1).
- 4 At the console prompt, enter the following command:

```
python /opt/platespin/config/backup_forge_vm.py -f
```

Wait for the Python script to complete the factory backup process:



```
iDRAC6 KVM
File View Macros Tools Help
[root@forgeToronto ~]# python /usr/bin/forge/backup_forge_vm.py -f
Shutting down the Forge VM
Start to backup. It will take about 30 minutes to finish.
Backup completed.
[root@forgeToronto ~]# _
```

3.6 Restarting the Appliance

To restart the Forge appliance software:

Some aspects of the appliance configuration do not take effect until the next boot. You must reboot the appliance to complete the rebuild process.

- 1 Remove the *Forge 11.0 Installation CD*.
- 2 At the console prompt, enter the `reboot` command and press Enter.
The shutdown sequence switches screens, hiding the shutdown process.
- 3 Press `Alt+F2` to return to the screen displaying the shutdown sequence.
Forge is now rebuilt and is in the same state as it was when it left the factory.

3.7 Configuring the Appliance for Immediate Use

To begin the configuration of the appliance, reconnect your administrative machine and use the browser-based Forge Appliance Configuration Console (Forge ACC) utility.

To configure the appliance:

- 1 Power on the appliance hardware.
- 2 Configure Forge by following the instructions in the “[Appliance Configuration Procedure](#)” section of the *PlateSpin Forge 11.0 Getting Started Guide*.

NOTE: The *Getting Started Guide* is posted online at (https://www.netiq.com/documentation/platespin-forge-11/forge_getstart/data/bookinfo.html).

3.8 Launching the PlateSpin Forge Web Client

Most of your interaction with the appliance takes place through the browser-based PlateSpin Forge Web Client.

The supported browsers are:

- ♦ *Google Chrome*, version 34.0 and later
- ♦ *Microsoft Internet Explorer*, version 11.0 and later
- ♦ *Mozilla Firefox*, version 29.0 and later

NOTE: JavaScript (Active Scripting) must be enabled in your browser:

- ♦ **Chrome:** From the Chrome menu, select **Settings**, scroll to and select **Show advanced settings...**, select **Content Settings** > **Allow all sites to run JavaScript**.
 - ♦ **IE:** From the Tools menu, select **Internet Options** > **Security**, click **Custom level...**, scroll to and select **Active scripting**, select **Enable**, select **Yes** at the warning dialog box, click **OK**, click **Apply** > **OK**.
 - ♦ **Firefox:** Click **Tools** > **Options** > **Content**, then select the **Enable JavaScript** option.
-

To launch the PlateSpin Forge Web Client from any computer:

- 1 Open a web browser and go to:

`http://<hostname | IP_address>/Forge`

Replace `<hostname | IP_address>` with the hostname or the IP address of your Forge VM.

If SSL is enabled, use `https` in the URL.

The first time you log into PlateSpin Forge, the browser is automatically redirected to the License Activation page.

3.9 Licensing the Forge Product

For Forge product licensing, you must have a license activation code. If you do not have a PlateSpin Forge license activation code, request one through the [Customer Center website \(http://www.netiq.com/center/\)](http://www.netiq.com/center/). A license activation code will be emailed to you.

You have two options for activating your product license: online or offline.

- ♦ [Section 3.9.1, “Online License Activation,” on page 22](#)
- ♦ [Section 3.9.2, “Offline License Activation,” on page 23](#)

3.9.1 Online License Activation

For online activation, the PlateSpin Forge Web Client must have Internet access.

NOTE: HTTP proxies might cause failures during online activation. Offline activation is recommended for users in HTTP proxy environments.

To activate a Forge license online:

- 1 In the PlateSpin Forge Web Client, click **Settings > Licenses > Add License**. The License Activation page is displayed.



- 2 Select **Online Activation**, specify the email address that you provided when placing your order and the activation code you received, then click **Activate**.

The system obtains the required license over the Internet and activates the product.

3.9.2 Offline License Activation

For offline activation, the PlateSpin Forge Web Client must have Internet access.

NOTE: To obtain a license key, you must have a Customer Center account. If you are an existing PlateSpin customer and you don't have a Novell account, you must first create one. Use your existing PlateSpin username (a valid email address registered with PlateSpin) as input for your Customer Center account username.

To activate a Forge license when offline:

- 1 In the PlateSpin Forge Web Client, click **Settings > License**, then click **Add license**. The License Activation page is displayed.
- 2 Select **Offline Activation**.
- 3 Use your hardware ID to create a license key file at the [PlateSpin Product Activation website \(http://www.platespin.com/productactivation/ActivateOrder.aspx\)](http://www.platespin.com/productactivation/ActivateOrder.aspx). This also requires a user name, password, the email address that you provided when placing your order and the activation code you received.
- 4 Type the path to the file or browse to its location and click **Activate**.

The license key file is saved and the product is activated based on this file.

3.10 Installing the Hypervisor and Forge Components

This section provides information about installing the hypervisor and Forge software components in your appliance.

- ♦ [Section 3.10.1, "Installing VMware ESXi 5.5.0 to the Appliance," on page 24](#)
- ♦ [Section 3.10.2, "Reconnecting the Forge Administrative Computer," on page 24](#)

3.10.1 Installing VMware ESXi 5.5.0 to the Appliance

PlateSpin Forge requires VMware ESXi 5.5 to control the Forge Management VM. You need to make sure that you have the *PlateSpin Forge 11.0.0 Installation* CD to proceed with the installation.

To install VMware ESXi 5.5.0 to the Forge Appliance:

- 1 Power on the appliance and press F11 at the boot prompt.
- 2 While at the boot prompt, insert the installation CD into the CD-ROM drive.
It might take some time for the *Boot Manager* utility to be displayed.
- 3 On the *Boot Manager Main Menu*, select **BIOS Boot Menu** to launch the *BIOS Boot Manager*.
- 4 In the *BIOS Boot Manager* utility, navigate to the option that lets you boot from an optical device (for example, a SATA optical drive), then press Enter.

NOTE: The name of the optical device might vary, depending on the device driver installed on the appliance.

- 5 On the Forge *ESXi build* installation menu, select **ESX Scripted Install for the Forge Appliance**, then press Enter to load the ESXi installer.

The installation progress updates on the screen and moves through several stages. When the process is completed, the following dialog box is displayed prior to the system reboot:



NOTE: If you choose not to attend the installation, the system reboots on its own. You will see the ESXi console when you return.

If you encounter problems during the installation, see [Section 4.2, "Errors Occurring During ESXi Installation,"](#) on page 35 of this guide.

- 6 In the dialog box, press Enter to reboot the system (or let the system reboot itself), then continue with the instructions in [Section 3.1.2, "Reconnecting the Forge Administrative Computer,"](#) on page 14.

3.10.2 Reconnecting the Forge Administrative Computer

To continue with the installation and configuration of the appliance, you need to connect directly to it through another computer, an "administrative computer." You should have been using a Windows notebook computer (that is, a "laptop") for this purpose in the past.

This section includes the following information:

- ♦ ["Connecting the Appliance and the Administrative Computer" on page 25](#)
- ♦ ["Deploying the OVF Template" on page 26](#)

Connecting the Appliance and the Administrative Computer

For licensing and configuration tasks in this section, use the following procedure to connect your administrative computer to the Forge hardware appliance. This requires setting up a physical connection, configuring with a static IP address in the same subnet as Forge, then re-connecting the administrative computer to the Forge appliance. It also includes establishing a management connection, which enables the administrative computer to configure aspects of the Forge appliance software.

This section includes the following information:

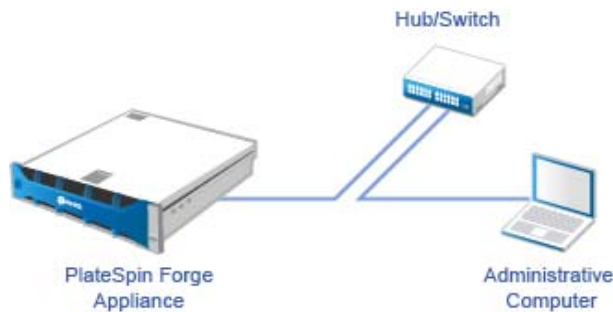
- ♦ [“Establishing a Physical Connection” on page 25](#)
- ♦ [“Establishing a Management Connection through the vSphere Client” on page 26](#)

Establishing a Physical Connection

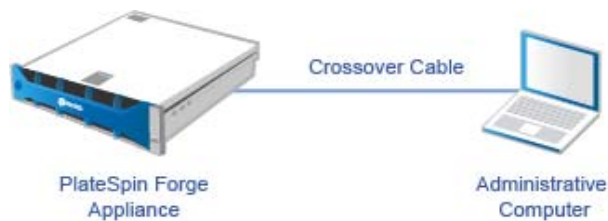
To establish a physical connection between the administrative computer and the Forge Appliance:

- 1 Use one of these methods:

Connection through a Network Switch: Connect both units to a network switch or a hub through an Ethernet network cable:



Direct Connection: Connect your PlateSpin Forge appliance and the computer directly through a crossover cable:



- 2 Turn on the power at the Forge appliance. Wait at least 10 minutes for the system to fully start before trying to connect.
- 3 Access the TCP/IP properties of the administrative computer's wired LAN adapter and assign it an IP address (192.168.1.205) and an associated subnet mask (255.255.255.0).

NOTE: Do not use the following IP addresses:

- ♦ 192.168.1.200 - used by the hypervisor
- ♦ 192.168.1.210 - used by the Forge VM (assigned by an automatic appliance configuration utility).

- 4 Save the settings and close the LAN Properties applet.

Establishing a Management Connection through the vSphere Client

When the administrative computer has been connected physically, you need to establish the management connection between the administrative computer and the ESXi hypervisor and the Forge Management VM. The connection is enabled through the VMware vSphere Client on the administrative computer. By using the vSphere client on the administrative computer, you can access the ESXi hypervisor and the Forge Management VM.

You already installed ESXi 5.5 on the Forge Appliance. From the administrative computer's physical connection to the Forge Appliance, you can access and download the vSphere Client.

NOTE: You will need a connection to the Internet for the download to be successful. You can either copy the link location and download the client while you are connected, or you can manually download the vSphere Client from the VMware download site (see the procedure below).

On the administrative computer, use the following steps to install the VMware Infrastructure Client program:

- 1 From a browser, enter the Forge Host address to open the *VMware ESXi 5.5 Welcome* page, then select **Download vSphere Client**.
- 2 At the download location, run the vSphere Client installation .exe.
- 3 Launch the vSphere Client login, then connect to the PlateSpin Forge using these parameters:
IP address: 192.168.1.200
User name: root
Password: Password1
The vSphere Client opens, connected to the hypervisor.

Deploying the OVF Template

Included in the *PlateSpin Forge 11 Appliance Build Kit* USB Flash Drive (available from PlateSpin Support) is the The VM .ovf file used in the PlateSpin Forge 11.0.0.x release build. You will access this .ovf file during the installation process to import the Forge VM into ESXi.

Use the following steps to deploy the OVF template:

- 1 From the *PlateSpin Forge 11 Appliance Build Kit* media, copy the PlateSpin Forge 11.0 Appliance VM folder, with all its contents, to the administrative computer.
- 2 In the vSphere Client (see [“Installing VMware ESXi 5.5.0 to the Appliance” on page 13](#)), click **File > Deploy OVF Template**.
- 3 In the *Deploy OVF Template* dialog box, browse to the location where you downloaded the .ovf file, then click **Next**.
- 4 In the **Name** field of the *Name and Location* view, enter PLATESPINFORGE01 as the name for the imported PlateSpin Forge Management VM, then click **Next**.
- 5 From the *Storage* view, select **ForgeSystem** as the destination storage location, then click **Next**.
- 6 From the *Disk Format* view, select **Thick Provision Eager Zeroed**, then click **Next**.
- 7 From the *Ready to Complete* view, select **Power on after deployment**, then click **Finish**.
The VM import process should complete after approximately 15 minutes.
- 8 In the vSphere client, locate the Forge Management VM (PLATESPINFORGE01), right-click the VM, then rename it to PlateSpin Forge Management VM.
- 9 In the vSphere client, click the **Console** tab, then click inside the remote console window.

- 10 At the *Product Key Settings* page, enter the product key.
- 11 On the *Administrator Account Settings* page, set the administrator password as `Password1`, click **Finish**, then log in (ensure that you press Ctrl+Alt+Insert to log in to the VM).

3.11 Licensing Microsoft Products on the Forge Management VM

NetIQ subscribes to a Microsoft Volume Licensing agreement, allowing us to pre-install Windows Server 2012 and SQL Server 2014 on the Forge Management VM without activating a license for either installation. You are not required to obtain a license from Microsoft yourself. Contact NetIQ Support for assistance with questions or issues regarding Microsoft product licensing.

3.11.1 Licensing Windows Server 2012

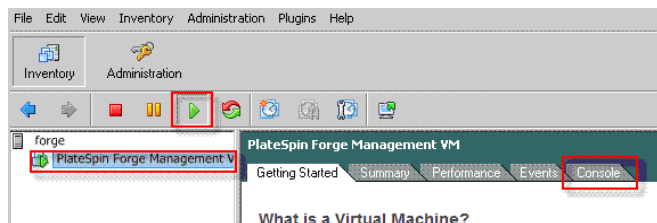
There are two methods you can use to activate the Windows Server 2012 license:

- ♦ [“Offline License Activation by Phone” on page 27](#)
- ♦ [“Multiple Activation Key License Activation” on page 28](#)

Offline License Activation by Phone

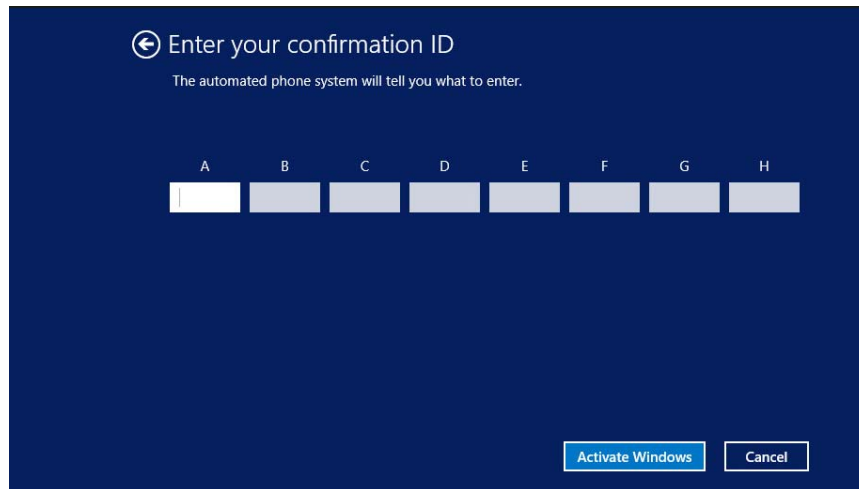
To license Windows Server 2012 offline for the Forge Management VM and log in for the first time:

- 1 In the program tree view of the vSphere client (on the administrative computer), select the **PlateSpin Forge Management VM** item and click the green **Play** button to power it on (if it is not already on).



- 2 Click the **Console** tab, then click inside the remote console window.
- 3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.
- 4 At the command line, enter `slui 4`.
The command launches the Software Licensing User Interface (Wizard) used for calling Microsoft for manual license activation.
- 5 In the interface, select your country or region, dial the toll-free number provided by Microsoft, write down the confirmation ID provided by the Microsoft automated phone system, then click **Enter confirmation ID**.

- 6 In the *Enter your confirmation ID* Wizard page of the interface, enter the confirmation ID you obtained from Microsoft, then click **Activate Windows**.

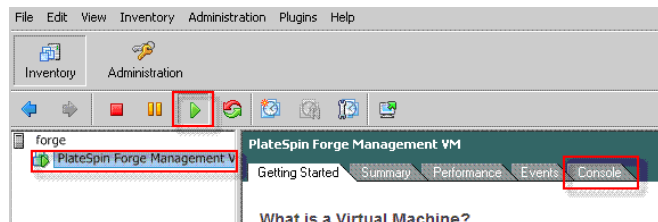


Multiple Activation Key License Activation

As an OEM provider, you might have already made Volume Licensing arrangements with Microsoft to automate and manage the activation process of Volume Licensing media. Under such an arrangement, you could have a Multiple Activation Key License (MAK) that allows the use of a command line licensing tool.

To license Windows Server 2012 for the Forge Management VM using a command line:

- 1 In the program tree view of the vSphere client (on the administrative computer), select the **PlateSpin Forge Management VM** item and click the green **Play** button to power it on (if it is not already on).



- 2 Click the **Console** tab, then click inside the remote console window.
- 3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.
- 4 At the command line, enter `slmgr.vbs /ipk <MultipleActivationKey>`.
The command launches a visual basic script that configures licensing on the Windows 2012 Server. After the script executes, a pop-up dialog box confirms that the product key is installed successfully.
- 5 In the dialog box, click **OK** to finish the key installation.

IMPORTANT: The Microsoft SQL Upgrade window does not display a progress bar. Because upgrading might take a few minutes, you need to wait for an indication that the upgrade completed before you close the dialog box.

3.11.2 Licensing the SQL Server 2014

To license the SQL Server 2014 for the Forge Management VM:

- 1 Open the remote console window of the running Forge Management VM, click **Start**, then select the Apps arrow located at the lower-left corner of the *Start* screen.
- 2 In the **Apps** tiles array, expand the list, then scroll right to find **SQL Server 2014 Installation Center**.

IMPORTANT: Do NOT select the *SQL Server Installation Center* app listed in the **Microsoft SQL Server 2008** category.

- 3 In this Installation Center app, click **Maintenance > Edition Upgrade**.
- 4 On the *Edition Upgrade* dialog box, select **Enter the product key**, then enter the product key you obtained from Microsoft to activate the SQL Server 2014 OEM license on the Forge Management VM.
- 5 On subsequent upgrade dialog boxes, click **Next** or **Upgrade** until the licensing process is complete, then close the licensing application.

3.12 Licensing the ESXi 5.5 Hypervisor

NetIQ subscribes to a VMware Volume Licensing agreement, allowing us to pre-install ESXi 5.5 on the Forge Management VM without activating a license for the installation. As the OEM reseller and NetIQ partner, you need to activate the vSphere OEM license as you prepare each Forge Appliance for shipping.

Obtaining the vSphere Product Key

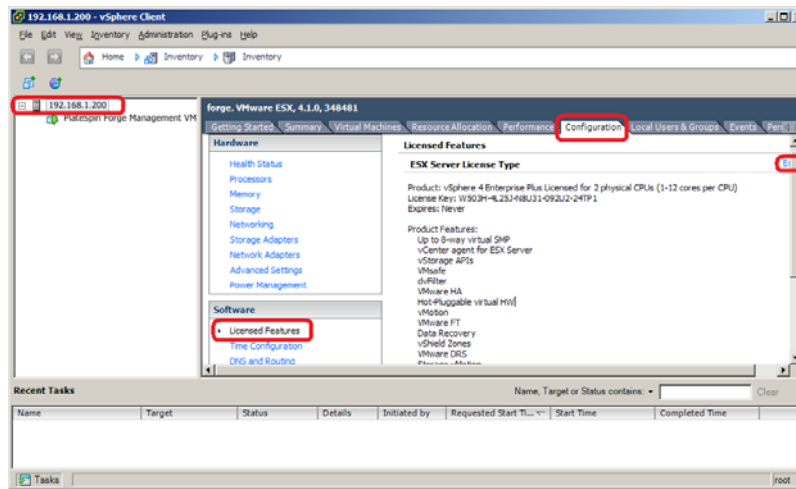
To obtain the OEM Product Keys:

- 1 Contact VMware Support, using one of regional telephone numbers listed on its [Support Contacts page](https://www.vmware.com/support/contacts/us_support.html) (https://www.vmware.com/support/contacts/us_support.html).
- 2 Advise the support representative of the VMware Customer number for NetIQ (supplied in the *Forge 11 Appliance Build Kit*) and that you are activating a license for PlateSpin Forge.
The representative will provide an ESXi 5.5 OEM product key.
- 3 Write down the ESXi 5.5 OEM product key for later use.

Activating the ESXi 5.5 License

To activate the ESXi 5.5 license for the Forge Management VM:

- 1 In the tree view of the VIC client, select the ESXi server node, click the **Configuration** tab, then click **Licensed Features**.



- 2 In the upper right corner of the client interface, click **Edit** and select **Assign a new license key to this host**.
- 3 In the *Assign License* dialog box, enter your license key and click **OK**.
- 4 Click **OK** and exit the vSphere Client program.

3.13 Running the Forge Appliance Configurator

After its components are installed, the Forge Appliance is ready for configuration.

To configure the Forge Appliance after installation:

- 1 On the Windows desktop of the *Forge Management VM*, double-click the **Configure Forge Appliance** shortcut.
The tool runs for about two minutes. The configuration is complete when the system console displays a **SUCCESS** message at the command prompt.
- 2 Shut down the *Forge Management VM* in Windows (**Settings > Power > Shut down**).

3.14 Backing Up the Factory VM

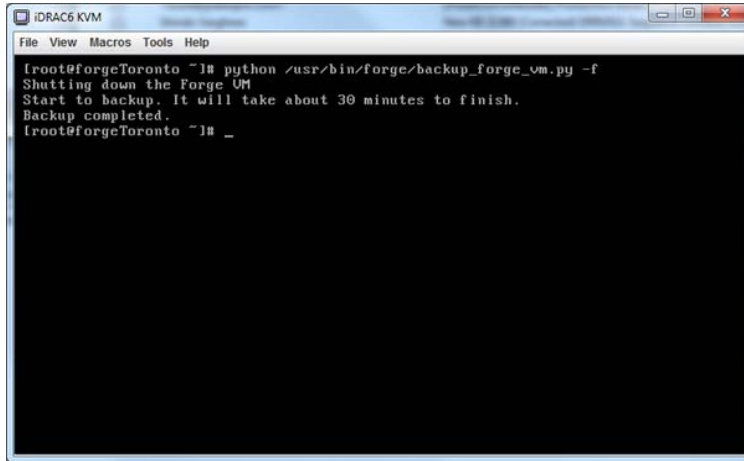
As a precaution after the installation and configuration, you need to back up the *Forge Management VM* (a.k.a. the “Factory VM”) on the Forge Appliance.

To back up the Factory VM:

- 1 Verify that the *Forge Factory VM* is shut down.
- 2 At the local console of the Forge Appliance (that is, the Dell Server iDRAC), press Alt+F1.
- 3 Log in as root (password: Password1).
- 4 At the console prompt, enter the following command:

```
python /opt/platespin/config/backup_forge_vm.py -f
```

Wait for the Python script to complete the factory backup process:



```
iDRAC6 KVM
File View Macros Tools Help
[root@forgeToronto ~]# python /usr/bin/forge/backup_forge_vm.py -f
Shutting down the Forge VM
Start to backup. It will take about 30 minutes to finish.
Backup completed.
[root@forgeToronto ~]# _
```

3.15 Restarting the Appliance

To restart the Forge appliance software:

Some aspects of the appliance configuration do not take effect until the next boot. You must reboot the appliance to complete the rebuild process.

- 1 Remove the *Forge 11.0 Installation CD*.
- 2 At the console prompt, enter the `reboot` command and press Enter.
The shutdown sequence switches screens, hiding the shutdown process.
- 3 Press `Alt+F2` to return to the screen displaying the shutdown sequence.
Forge is now rebuilt and is in the same state as it was when it left the factory.

3.16 Configuring the Appliance for Immediate Use

To begin the configuration of the appliance, reconnect your administrative machine and use the browser-based Forge Appliance Configuration Console (Forge ACC) utility.

To configure the appliance:

- 1 Power on the appliance hardware.
- 2 Configure Forge by following the instructions in the “[Appliance Configuration Procedure](#)” section of the *PlateSpin Forge 11.0 Getting Started Guide*.

NOTE: The *Getting Started Guide* is posted online at (https://www.netiq.com/documentation/platespin-forge-11/forge_getstart/data/bookinfo.html).

3.17 Launching the PlateSpin Forge Web Client

Most of your interaction with the appliance takes place through the browser-based PlateSpin Forge Web Client.

The supported browsers are:

- ♦ *Google Chrome*, version 34.0 and later
- ♦ *Microsoft Internet Explorer*, version 11.0 and later
- ♦ *Mozilla Firefox*, version 29.0 and later

NOTE: JavaScript (Active Scripting) must be enabled in your browser:

- ♦ **Chrome:** From the Chrome menu, select **Settings**, scroll to and select **Show advanced settings...**, select **Content Settings** > **Allow all sites to run JavaScript**.
 - ♦ **IE:** From the Tools menu, select **Internet Options** > **Security**, click **Custom level. . .**, scroll to and select **Active scripting**, select **Enable**, select **Yes** at the warning dialog box, click **OK**, click **Apply** > **OK**.
 - ♦ **Firefox:** Click **Tools** > **Options** > **Content**, then select the **Enable JavaScript** option.
-

To launch the PlateSpin Forge Web Client from any computer:

- 1 Open a web browser and go to:

`http://<hostname | IP_address>/Forge`

Replace `<hostname | IP_address>` with the hostname or the IP address of your Forge VM.

If SSL is enabled, use `https` in the URL.

The first time you log into PlateSpin Forge, the browser is automatically redirected to the License Activation page.

3.18 Licensing the Forge Product

For Forge product licensing, you must have a license activation code. If you do not have a PlateSpin Forge license activation code, request one through the [Customer Center website \(http://www.netiq.com/center/\)](http://www.netiq.com/center/). A license activation code will be emailed to you.

You have two options for activating your product license: online or offline.

- ♦ [Section 3.18.1, “Online License Activation,” on page 32](#)
- ♦ [Section 3.18.2, “Offline License Activation,” on page 33](#)

3.18.1 Online License Activation

For online activation, the PlateSpin Forge Web Client must have Internet access.

NOTE: HTTP proxies might cause failures during online activation. Offline activation is recommended for users in HTTP proxy environments.

To activate a Forge license online:

- 1 In the PlateSpin Forge Web Client, click **Settings > Licenses > Add License**. The License Activation page is displayed.



- 2 Select **Online Activation**, specify the email address that you provided when placing your order and the activation code you received, then click **Activate**.

The system obtains the required license over the Internet and activates the product.

3.18.2 Offline License Activation

For offline activation, the PlateSpin Forge Web Client must have Internet access.

NOTE: To obtain a license key, you must have a Customer Center account. If you are an existing PlateSpin customer and you don't have a Novell account, you must first create one. Use your existing PlateSpin username (a valid email address registered with PlateSpin) as input for your Customer Center account username.

To activate a Forge license when offline:

- 1 In the PlateSpin Forge Web Client, click **Settings > License**, then click **Add license**. The License Activation page is displayed.
- 2 Select **Offline Activation**.
- 3 Use your hardware ID to create a license key file at the [PlateSpin Product Activation website \(http://www.platespin.com/productactivation/ActivateOrder.aspx\)](http://www.platespin.com/productactivation/ActivateOrder.aspx). This also requires a user name, password, the email address that you provided when placing your order and the activation code you received.
- 4 Type the path to the file or browse to its location and click **Activate**.

The license key file is saved and the product is activated based on this file.

4 Troubleshooting

This section includes current information that can help you to troubleshoot the setup of the Forge Appliance.

- ♦ [Section 4.1, “Log File Locations,” on page 35](#)
- ♦ [Section 4.2, “Errors Occurring During ESXi Installation,” on page 35](#)

4.1 Log File Locations

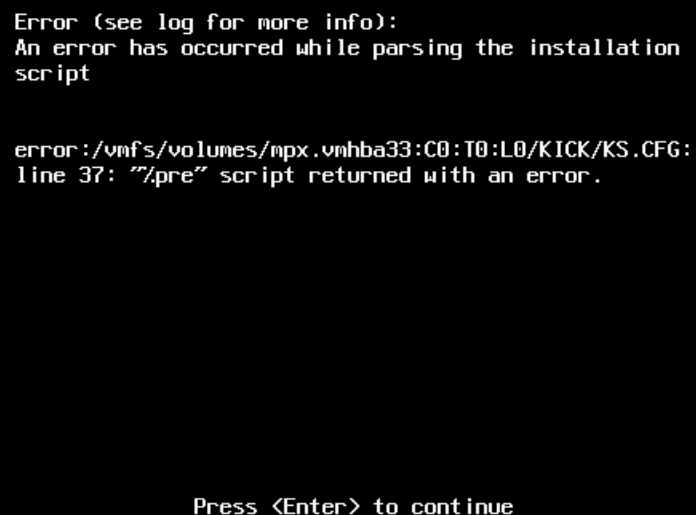
Use these installation logs to help you diagnose problems with the configuration of the Forge Appliance:

- ♦ The automated ESXi installer writes log files located at `/var/log/messages`.
- ♦ Forge installation logs are located at `/var/log/forge/`.

4.2 Errors Occurring During ESXi Installation

An error has occurred while parsing the installation script

Source: When you are performing the [VMware ESXi configuration](#), you might see the following error:

A screenshot of a terminal window with a black background and white text. The text displays an error message from the ESXi installer. At the bottom, it prompts the user to press the Enter key to continue.

```
Error (see log for more info):  
An error has occurred while parsing the installation  
script  
  
error:/vmfs/volumes/mpx.vmhba33:C0:T0:L0/KICK/KS.CFG:  
line 37: "/pre" script returned with an error.  
  
Press <Enter> to continue
```

Explanation: This is a symptom of the hardware model verification script that is failing.

Action: You need to gather information from the installation to understand the corrective actions you need to take.

- 1 Press Alt+F11. This command displays the ESXi alert messages related to the installation failure.
- 2 Press Alt+F1. This command displays the ESXi shell, where you can log in to locate the relevant diagnostic log file:

2a Log in with these credentials:

username: root

password: press Enter for an “empty” password (this is the beginning of the ESXi install, so no root password is set).

2b When logged in, navigate to `/var/log/forge/forge.log`.

This file can provide clues to reasons behind the failure of the install.

A Reconfiguring the RAID Controller on Dell R610/R620 Forge Hardware

Use the information in this section if you need to reconfigure the RAID controller on the Forge 11 Appliance Hardware. Reconfiguring the RAID controller is not necessary unless you are adding or replacing hard disks in your Forge Appliance as part of the product rebuild.

This RAID controller configuration procedure applies to Forge appliances based on Dell PowerEdge R610/R620 hardware, a situation that occurs only if you previously upgraded your Forge Appliance Hardware to version 11.0 from an earlier Forge release.

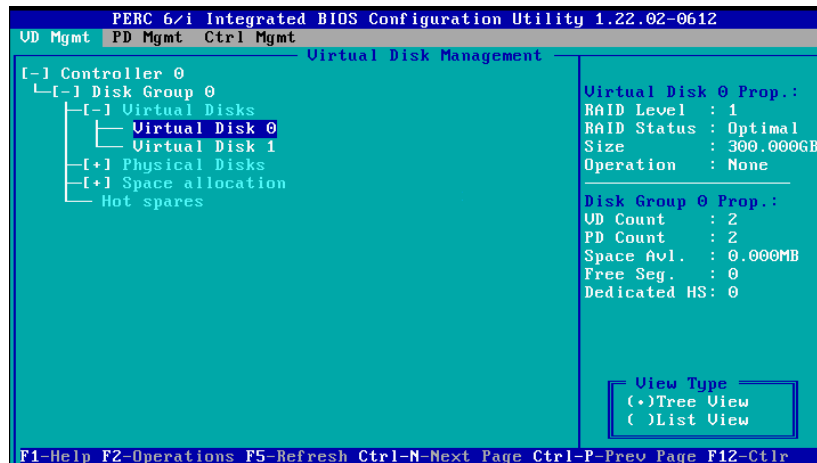
On first boot, you use the PERC 6/I Configuration utility to configure the RAID controller:

- 1 At the RAID Controller boot prompt, approximately 10 seconds into the boot sequence, press Ctrl+R.
- 2 Configure the PERC RAID controller to have two logical disks consisting of two physical disks in RAID 1:
 - 2a Delete any existing disk groups:
 - 2a1 Select a disk group and press F2.
 - 2a2 Select **Delete Disk Group**.
 - 2a3 Repeat [Step 2a1](#) and [Step 2a2](#) for all existing disk groups.
 - 2b Create a new disk group for the Forge system:
 - 2b1 Select the controller and press F2.
 - 2b2 Select **Create New VD**, press Enter on **RAID Level**, then select **RAID 1**.
 - 2b3 Select both physical disks (disk sizes might vary).
 - 2b4 Under **Basic Settings**, fill in the following fields:

VD Size: Use 307200 as the value.

VD Name: Use ForgeSystem as the value.
 - 2c Create a new disk group for the failover VMs:
 - 2c1 Select the controller, select **Disk Group 0**, then press F2.
 - 2c2 Select **Add New VD**, then select **RAID 1**.
 - 2c3 Select both physical disks (disk sizes might vary).
 - 2c4 Allocate all remaining disk space for the VD size.
 - 2c5 Type FailoverVMs as the **VD Name** value, select **OK**, then press Enter.

- 2d Choose to fast-initialize both VD disks:
 - 2d1 Select a virtual disk and press F2.
 - 2d2 Select **Initialization > Fast Init.**
 - 2d3 Repeat [Step 2d1](#) and [Step 2d2](#) for the other VD disk, and select **OK** when you are prompted.
- 3 Verify that the final RAID configuration looks like the following:



- 4 Press Ctrl+Alt+Del if prompted. The server reboots.

Glossary

administrative computer. A Windows computer used externally from the Appliance Hardware to perform the rebuild. We recommend that you use a laptop for this process because the Forge Hardware Appliance build and the configuration procedure requires a direct connection to the Dell Hardware that is used as the Forge Appliance Host.

appliance management software. Software that uses either a terminal console (getty) or a proprietary, browser-based interface (Forge Appliance Configuration Console: ACC) to connect directly to an appliance for installation and configuration purposes (for example, setting the Host/VM IP addresses, Hostnames, and user password configuration).

Forge Appliance. A Forge Appliance Host containing a virtual machine running a Microsoft Windows OS with Forge software installed.

Forge Appliance Hardware. Dell hardware (PowerEdge R610, R710, R620 or R720) shipped by a PlateSpin hardware provider.

Forge Appliance Host. The VMware ESX software running on supported hardware.

Forge installation/upgrade executable. The executable file that upgrades the Forge Appliance software. The executable (also referred to as an “upgrade utility,”) is included in the *Forge 11 Rebuild Kit*.

Forge software. PlateSpin software engineered by NetIQ to protect a specific virtual workload (that is, an ESX VM’s operating system, middleware, and data) by using virtualization technology. If there is a production server outage or disaster, a virtualized replica of a workload can be rapidly powered on within the target container (a VM host), and continue to run as normal until the production environment is restored.

rebuild. The process of configuring the Forge Dell hardware, the Forge ESXi Host, and the Forge Appliance that is running on Windows 2003 Server.

