

PlateSpin Forge® 11.0

Upgrade Guide

February 2015

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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.

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About this Book and the Library

The *Upgrade Guide* provides conceptual information about upgrading the PlateSpin Forge Appliance from version 3.1, 3.3, 3.4, or 4.0 to version 11.0.

Intended Audience

This book provides information for individuals responsible for upgrading PlateSpin Forge.

Other Information in the Forge Documentation Library

The library provides the following information resources:

Getting Started Guide

Provides detailed planning and installation information.

User Guide

This book also provides an overview of the user interfaces and step-by-step guidance for many administration tasks.

Help

Provides context-sensitive information and step-by-step guidance for common tasks, as well as definitions for each field on each window.

1 Upgrade Overview

You can upgrade your Forge appliance and software from version 4.0 to version 11.0. This section provides general information you can use prior to upgrading your PlateSpin Forge appliance.

- Section 1.1, “Possible Forge Configurations,” on page 9
- Section 1.2, “The Upgrade Paths,” on page 10
- Section 1.3, “The Forge 11 Upgrade Media Kit and Its Contents,” on page 12
- Section 1.4, “Important Upgrade Information,” on page 13
- Section 1.5, “Upgrade Precautions,” on page 13
- Section 1.6, “Upgrade Prerequisites,” on page 14
- Section 1.7, “Forge Components Changed by the Upgrade,” on page 15
- Section 1.8, “Summary of Forge Upgrade Tasks,” on page 16

1.1 Possible Forge Configurations

The configuration of the Dell hardware used for the Forge platform has changed as new versions of the Forge software and the accompanying Forge Appliance have been released. Hardware type is a major factor you need to consider when determining the version of PlateSpin Forge to which you can upgrade.

In addition to PlateSpin Forge software, the PlateSpin Forge Appliance includes a VMware ESX hypervisor and a virtual machine that runs a Windows operating system (Forge versions, 3.*x* to 4.0 implement a VM that runs on the Windows 2003 OS; the Forge 11.0 VM runs on the Windows 2012 OS).

The combination of the hypervisor version and the version of the Windows virtual machine (a.k.a., the Forge Management VM) determines the *appliance version* of your PlateSpin Forge Appliance.

Use the following table to help you understand the combined configuration of your current Forge Appliance.

Table 1-1 *Possible Forge Configurations*

Dell Hardware Model	ESX Hypervisor	Forge Appliance	Forge Software Version(s)
Dell PowerEdge 1950	ESX 3.5	Appliance 1	PlateSpin Forge 3.0, 3.0.1, and 3.0.2
Dell PowerEdge 2950	ESX 3.5	Appliance 1	PlateSpin Forge 3.0, 3.0.1, and 3.0.2
	ESXi 4.1 (after upgrade)	Appliance 2 (after upgrade)	PlateSpin Forge 3.1, 3.3, 3.4, and 4.0 (after upgrade)
Dell PowerEdge R610	ESXi 4.1	Appliance 2	PlateSpin Forge 3.1, 3.3, 3.4, and 4.0
Dell PowerEdge R620	ESXi 4.1	Appliance 2	PlateSpin Forge 3.1, 3.3, 3.4, and 4.0
Dell PowerEdge R710	ESXi 4.1	Appliance 2	PlateSpin Forge 3.1, 3.3, 3.4, and 4.0

Dell Hardware Model	ESX Hypervisor	Forge Appliance	Forge Software Version(s)
Dell PowerEdge R720 (customized to spec. by user)	ESXi 4.1	Appliance 2	PlateSpin Forge 3.1, 3.3, 3.4, and 4.0
Dell PowerEdge R720	ESXi 5.5	Appliance 3	PlateSpin Forge 11.0

If you need further information to determine the Forge appliance version or the ESX version running on your Forge unit, see the following sections:

- Section 1.1.1, “Determining Your Forge Unit’s Appliance Version,” on page 10
- Section 1.1.2, “Determining Your Forge Unit’s ESX Version,” on page 10

1.1.1 Determining Your Forge Unit’s Appliance Version

You can determine the appliance version of your Forge unit by using one of the following methods:

- **Forge Web Client:** Look up the `appliance version number` in the PlateSpin Forge Web Interface’s *Help* > *About* page. You can do this only if you are reconfiguring Forge.
- **Local Configuration Interface Type:** Connect a monitor to the appliance and power it on. If the system displays the blue screen of the Forge Console, your appliance version is 1. If the system displays the ESX configuration screen, your appliance is version 2 or version 3.
- **Remote Configuration Interface:** Using a Web browser and the IP address of your Forge unit, attempt to launch the Forge Appliance Configuration Console (Forge ACC) as described in Step 2 through Step 4 of the“Appliance Configuration Procedure” in the *PlateSpin Forge 11.0 Getting Started Guide*. If you are able to connect, your appliance is version 2 or version 3.

1.1.2 Determining Your Forge Unit’s ESX Version

The following table shows the correlation between the Forge Software Appliance version and the VMware ESX version it shipped with.

Forge Software Appliance Version	VMware ESX Version
Appliance 1	ESX 3.5
Appliance 2	ESX 4.1 ESX 4.1 Update 3
Appliance 3	ESXi 5.5

You can also determine the ESX version on your unit by opening the Containers page of the Forge Web Interface. From the Web Client, click **Settings > Containers**, then check the *Operating System* column to determine the installed ESX version.

1.2 The Upgrade Paths

Depending on the version of Forge you currently use and the version of Forge to which you want to upgrade, you might need to follow an incremental upgrade path. The table below lists the steps your upgrade path might include.

Table 1-2 *Possible Upgrade Paths*

Current Forge SW, HW and Appliance Version	Highest Version Upgrade Path	Upgrade Steps
3.0, 3.0.1 ◆ Appliance 1 ◆ Dell 1950	3.0.2 ◆ Appliance 1	1. Upgrade Forge software to version 3.0.2. ◆ Run `PlateSpinForgeSetup-3.0.2.2497.exe`. To obtain a copy of this software, contact PlateSpin Support.
3.0, 3.0.1, 3.0.2 ◆ Appliance 1 ◆ Dell 2950	4.0 ◆ Appliance 2	1. Upgrade PlateSpin Forge software to version 3.1. ◆ Run `PlateSpinForgeSetup-3.1.0.3050.exe` from the *Forge 4 Upgrade Kit*. ◆ Run `PlateSpinForgeSetup-4.0.0.x.exe` from the *Forge 4 Upgrade Kit*. ◆ See *Upgrading Forge 3.x Appliance 1* in the Forge 4 Upgrade Guide for more information.
3.1, 3.3, 3.4 ◆ Appliance 2 ◆ Dell 2950, R610, R620, R710, R720	4.0 ◆ Appliance 2	1. Upgrade PlateSpin Forge software to version 4.0. ◆ Run `PlateSpinForgeSetup-4.0.0.x.exe` from the *Forge 4 Upgrade Kit*. ◆ See Appendix A, “Upgrading Forge 3.x Appliance 2,” on page 49 for more information.
4.0 ◆ Appliance 2 ◆ Dell R610, R620, R710, R720	11.0 ◆ Appliance 3	1. Use the Forge 11.0 Backup mechanism to back up the Appliance 2 database. ◆ Run `PlateSpin.ForgeUpgrade.exe /backup /usehttps`, included in `PlateSpin.ForgeUpgrade_11.0.0.xxxx.zip`, part of the *Forge 11 Upgrade Kit*. **NOTE:** The `/usehttps` flag is required for upgrades from version 4.0 to version 11.0. ◆ See Section 2.1, “Backing Up the Forge Management VM,” on page 17 for more information. 2. Use the Forge 11.0 Restore mechanism to restore data from the Appliance 2 database to the Appliance 3 database. ◆ Run `PlateSpin.ForgeUpgrade.exe /restore`, included in `PlateSpin.ForgeUpgrade_11.0.0.xxxx.zip`, part of the *Forge 11 Upgrade Kit*. ◆ See Section 2.4, “Restoring the Appliance,” on page 34 for more information.

1.3 The Forge 11 Upgrade Media Kit and Its Contents

The *Forge 11 Upgrade Kit* is intended for customers who want to update their PlateSpin Forge 4 Appliance 2 installation to PlateSpin Forge 11.0.0 Appliance 3. The table below lists the media included in the upgrade kit, along with a listing of the files on each medium. One or more of these files are required to accomplish the upgrade, depending on the upgrade scenario.

Table 1-3 *Forge 11 Upgrade Kit Media and Contents*

Label	Medium Type and Storage Used	Included Contents and Purpose

Forge 11 Rebuild Kit	13+ GB of storage accessible by the administrative computer	1. Contents of the 13 GB storage includes a `/VM` folder with the following files:
		`PLATESPINFORGE01.mf`
		`PLATESPINFORGE01.ovf`
		`PLATESPINFORGE01-disk1.vmdk`
		`PLATESPINFORGE01-disk2.vmdk`
		`PLATESPINFORGE01-file1.flp`
		2. The Forge 11 installation ISO, which is used during a rebuild of the Forge Appliance Host.
		◆ The VM `.ovf` file is the same as the file used in the PlateSpin Forge 11.0.0.*x* release build. You will mount this `.ovf` file during the installation process to import the Forge VM into ESXi.
		◆ For more information, see Section 2.2.2, “What You Need,” on page 21 and Section 2.2.4, “Installing the Hypervisor and Forge Components,” on page 24.

Forge 11 Rebuild Kit	CD 678 MB	1. The PlateSpin Forge 11.0.0.*x* ISO image. ◆ This CD is included in the *Forge 11 Upgrade Kit* for your convenience. Use it as the boot media to install the latest ESXi version and to import the Forge VM (from the VM folder on the USB flash drive) to the Forge Appliance Host. ◆ See Section 2.2.4, “Installing the Hypervisor and Forge Components,” on page 24 for more information.
Forge 11 Upgrade - Disk 1	DVD 2.83 GB	1. `PlateSpin.Forge_11.0.0_UpgradeGuide.pdf` ◆ This manual, which includes information about upgrade scenarios, upgrade tasks, and troubleshooting tips you need for the Forge 11 upgrade. 2. `PlateSpinForgeSetup-4.0.0.xxxx.exe` ◆ The Forge 11.0.0 installation/upgrade program. ◆ Use this program to update Forge 3.*x* software (appliance 2 only) to Forge 4 software. ◆ For more information, see Appendix A, “Upgrading Forge 3.x Appliance 2,” on page 49. 3. `PlateSpinForgeUpgrade_11.0.0.xxxx.zip` ◆ The Forge 11.0.0 backup/restore utility, `PlateSpin.ForgeUpgrade.exe`

1.4 Important Upgrade Information

You need to understand the following facts as you upgrade to PlateSpin Forge 11.0:

- Ongoing protection contracts are supported, such as
  - X2V or Sync2V
  - Live or Idle workload states
  - Windows or Linux workloads
- Failover VM locations can be a local datastore (ds), an external ds, or a combination of both.
- Failover VM components locations
  - `.vmx` files can be located on a local ds, an external ds, or a combination of both.
  - `.vmdk` files can be located on a local ds, an external ds. or a combination of both
- Although the administrative computer you use to run the backup does not need to be the same machine that you use to run the restore, the outputdirectory of the backup (including all of its generated subdirectories and files) should be the same outputdirectory used in the restore.

  The machine needs to have access to the outputdirectory specified in the backup and restore operations.

  The machine needs to have access to the same USB storage media for the restore process as that which it accessed for the backup process.

1.5 Upgrade Precautions

The upgrade process to Forge 11 might require you to monitor conditions and make adjustments as needed:

- Prior to the Backup stage, all Forge datastores must use default naming:
  - **Appliance 2**: `datastore1` and `ForgeSystem`

TIP: Use the following steps if you want to check the datastore name:

1. Open the VMware Client program to your Forge Appliance Host.
2. From the client, select the address or DNS name of your Forge Appliance Host.
3. Click the **Configuration** tab to open the Configuration page.
4. In the Configuration page **Hardware** table, select **Storage**.
5. In the **Identification** column, verify the datastore name.

- Prior to the Backup and Restore stages, you could run the `net use` command to test authentication to the Forge Management VM. For example, if drive letter `P:` is available on the administrative computer, you would use the command like this:

  ```
  net use P: \\<forge_management_vm_address>\ADMIN$
  ```

  ```
  net use P: /delete
  ```

- Due to firewall restrictions, the VM's IP address might have to reside in the same VLAN as the administrative computer.
- Following the rebuild, appliance version 2 carries forward any user-modified settings from appliance version 1.

The user might have modified these settings:

- ESX server
  - Datastores added that are backed by external storage
  - Networking changes: vSwitches, portgroups, VM kernel ports
  - Windows domain membership or Active Directory authentication
  - Clock or NTP settings
  - Local account usernames and passwords
- Forge VM
  - Network or firewall settings
  - Domain or workgroup membership
  - Local Windows usernames and passwords
  - Windows updates

- Following the Restore stage, the Appliance host network IP must be static. DHCP settings are not supported in appliance version 2.

1.6 Upgrade Prerequisites

Before you start the upgrade, make sure that check for the following:

- The Forge Appliance, version 2.
- The Forge Configuration Worksheet, available inside your physical copy of the *PlateSpin Forge 11.0 Getting Started Guide* or online at the PlateSpin Forge 11 documentation web site.
- Forge rebuild instructions, as detailed in Upgrading the Forge Appliance in this guide.
- The ESXi 5.5 License Key (an old ESX 5.1 key will not be valid after the upgrade) you obtained with Forge 11. For details, see “Licensing the ESXi 5.5 Hypervisor” on page 29.
- A Microsoft SQL 2014 Standard Edition license that you obtained with Forge 11. Contact PlateSpin support if you require help.
- A Windows license for the Forge VM 2012 Server that you obtained with Forge 11. Contact PlateSpin support if you require help.
- The VMware client program. See “Downloading the vSphere Client Program” in the *PlateSpin Forge 11.0 User Guide*.
- For systems currently at version Forge 3.*x* or earlier, an upgrade to Forge 4.0 is required. For upgrade instructions, see Appendix A, “Upgrading Forge 3.x Appliance 2,” on page 49.
- A Forge administrative computer with the following:
  - Windows 2003 (or later) operating system
  - 3 GB hard disk space for applications
  - 13 GB disk space on media for OVF templates
  - Microsoft .NET 3.5 framework installed
  - Network connectivity to the Forge Appliance. This can be established by using a direct cable to the Appliance Host or through the Appliance Host’s Windows network.
- The *PlateSpin Forge 11.0 Upgrade Kit*, available from PlateSpin Support. For more information about upgrade media, see Section 1.3, “The Forge 11 Upgrade Media Kit and Its Contents,” on page 12.

- **External USB Storage:** Use this storage for backing up Forge failover VMs residing on the appliance local storage. You can restore Forge from this storage.
  - **USB space and quantity:** Examples of the USB backup arrangements that work:
    - To back up 900 MB of Forge failover VMs, a single 1 TB USB drive or a set of two 500 MB drives is sufficient.
    - To back up 3.8 GB of Forge failover VMs, two 2 TB USB drives are sufficient.
  - **USB power:** We recommend an externally-powered (AC) USB drive. Plug this drive directly into the administrative computer.
  - **USB 3.0:** We recommend USB 3.0 to speed up the data transfer. You might need to consult with your hardware vendor to ensure that your administrative computer supports USB 3.0.
- **Web Browser Compatibility:** The Forge Appliance Configuration Console (Forge ACC) supports the following Web browsers:
  - *Google Chrome*, version 34.0 and later
  - *Microsoft Internet Explorer*, version 11.0 and later
  - *Mozilla Firefox*, version 29.0 and later

1.7 Forge Components Changed by the Upgrade

Some components of the Forge Appliance change after the end-to-end is completed. The changes are apparent in either the Forge Web Client, the appliance management software, the appliance console, the Forge VM console, or the vSphere Client connected to ESXi.

The table below lists the affected components.

Table 1-4 *Forge components affected by upgrade.*

Item	State at Pre-upgrade	State at Post-upgrade	Changed?
Forge Appliance version	version 2	version 3	Yes
ESX version	4.1 Update 1 4.1 Update 3	ESXi 5.5	Yes
Forge VM hardware version	version 4	version 7	Yes
Forge software version	4.0.0.xxxx	11.0.0	Yes
Forge local datastore name	forge:datastore1	forge:datastore1	No
Forge local datastore version	VMFS 3.46	VMFS 5.54	Yes
Existence of ForgeSystem datastore	Yes	Yes	No
Failover VM hardware version	4	4	No
Forge Host credentials	forgeuser	forgeuser	No
Appliance Host network IP	Static	Static only	Yes

1.8 Summary of Forge Upgrade Tasks

To upgrade your Forge appliance, you need to perform the following tasks in order:

1. Make sure all prerequisites are met. See Section 1.6, “Upgrade Prerequisites,” on page 14 for more information.
2. Prepare for backup.
3. Backup.
4. Rebuild Forge Appliance to version 3.
5. Manually restore and confirm Forge Appliance settings.
6. Prepare for restore.
7. Restore.
8. Resume workload protection.

For complete information of tasks/phases of the upgrade, see Chapter 2, “Upgrade Tasks,” on page 17.

2 Upgrade Tasks

This section provides detailed information about the steps required to complete the upgrade. The following information is included:

- Section 2.1, “Backing Up the Forge Management VM,” on page 17
- Section 2.2, “Upgrading the Forge Appliance,” on page 20
- Section 2.3, “Post-Setup Tasks,” on page 34
- Section 2.4, “Restoring the Appliance,” on page 34
- Section 2.5, “Confirming Appliance Data and Resuming Protection,” on page 36

2.1 Backing Up the Forge Management VM

The following information is included in this section:

- Section 2.1.1, “Preparing for the Backup,” on page 17
- Section 2.1.2, “Performing the Forge Backup,” on page 18

2.1.1 Preparing for the Backup

Before you back up the Forge Management VM, you need to ensure that all of the upgrade prerequisites have been met and that you have a completed PlateSpin Forge 11.0 Configuration Worksheet to document your current environment, and that you retain the worksheet to list changes needed for Forge 11.0 configuration.

NOTE: If you are upgrading from version 3.*x* of PlateSpin Forge, you need to upgrade the appliance VM software prior to the backup. To do so, you should request the *Forge 11.0 Upgrade Kit* (available from PlateSpin Support) and extract the Forge 4.0 Setup Utility (`PlateSpinForgeSetup-4.0.0.xxxx.exe`) from the kit, then use the instructions in Appendix A, “Upgrading Forge 3.x Appliance 2,” on page 49 to bring the appliance up to date prior to backup.

Use the following steps to prepare for the backup:

1. Extract the contents of the *Forge 11.0 Upgrade Kit* from the USB media (`D:\forgebackup\11.0_kit\Forge_11.0_Upgrade_kit.zip`) to a storage area on the administrative computer with sufficient free space. The location where you extract the upgrade kit becomes the working directory. For example, `D:\forge_backup\11.0_kit`.
2. Pause all protection contracts. Workloads should be in an “Idle” or “Live” state.

   NOTE: The upgrade utility also attempts to pause protection contracts.

   ---

3. On any Windows machine that can connect to the Forge Appliance (such as the administrative computer), obtain information for the VMs registered on the VMware server.
   - **3a** Launch VMware Infrastructure Client and connect to the Forge Appliance.
   - **3b** In the left pane of the Infrastructure Client, select the root of the inventory (representing the ESX host), then select the **Virtual Machines** tab.

3c Click **File > Export > Export List**, select the file format you in which you want to save the list (for example, `.csv`), then save the file list to an output directory. For example, you could save VM-list.csv to `D:\forge_backup\out\`.

NOTE: You will use this same output directory in the backup stage (see Step 4 on page 18) and in the restore stage (see Step 3 on page 35) of the upgrade.

You also need to prepare the USB backup media:

- Remember that you can attach USB storage devices to the administrative computer to back up any virtual machines located locally on the ESXi host, prior to rebuilding the appliance. For more information, see Section 1.6, “Upgrade Prerequisites,” on page 14.
- Ensure that your backup media are the only USB storage devices attached to the administrative computer. Detach any other USB medium.

IMPORTANT: The USB drives that are attached to the administrative computer are formatted as part of the backup process.

2.1.2 Performing the Forge Backup

Use the following steps to perform the backup:

1 From the administrative computer, open a command prompt window and change to the working directory you created in Step 1 on page 17.

NOTE: You must have administrator rights to run the backup command successfully.

To set this privilege from the administrative computer:

1. From the Windows administrative computer desktop, click **Start** > **All Programs** > **Accessories**, right-click the Command Prompt start icon, then select **Run as administrator** to launch the command prompt as Administrator.

   TIP: If you want to set the *Run as administrator* mode as the default, follow Step 1 above, but after the right-click, select **Properties** > **Shortcut** > **Advanced** > **Run as administrator**.

2 From the location where you extracted the contents of the *Forge 11 Upgrade kit*, unzip the *Forge 11.0 Upgrade Utility* (`PlateSpin.ForgeUpgrade.exe`) to the same working directory.

3 In the working directory, change to the newly created `\PlateSpin.ForgeUpgrade` subdirectory.

4 Run the backup utility from the command line, entering data you obtain from the *Configuration Worksheet*. For example:

```
PlateSpin.ForgeUpgrade /backup /psserver=10.99.160.72 /username=administrator
/usehttps /esx_address=10.99.163.200 /esx_username=forgeuser
/outputfolder=D:\forge_backup\out
```

NOTE: If you are unfamiliar with the backup utility parameters, you can learn more by accessing its help: `PlateSpin.ForgeUpgrade.exe /help`.

5 (Conditional) If you chose not to use the available parameters for supplying passwords via a file, enter those passwords when prompted:

```
Starting task "Validate user input".
Step 1 of 6: Setting Default Values
Step 2 of 6: Getting Required Passwords
   Please enter the password for PlateSpin server user 'administrator':********

   Please enter the Forge Virtual Host password for user 'forgeuser': ********

   Please enter the Forge Virtual Host superuser/root password: ********
```

6 Enter `y` (yes) at the following prompt:

```
Step 4 of 6: Validating Contract Export
    All scheduled contracts will be paused.  Continue?  [y|n]  y
```

7 (Optional) If you want to backup the failover VMs to USB drives, enter `y` (yes) at the following prompt:

```
Step 5 of 6: Confirming that failover VMs should be backed up
    These failover VMs can be backed up:

AS-WINA--01-04F_VM
AS-SL10S3-A-02.PLATESPIN.COM_VM

   Would you like to backup VMs on local storage to USB drives? [y|n] y
```

The failover VM names eligible for backup are listed at this prompt. Note that only VMs stored locally are listed here. For more information about the USB drives you can use for backup, see Section 1.6, “Upgrade Prerequisites,” on page 14.

IMPORTANT: The VM backup process to USB storage might take up to six days to complete, depending on the number and size of the VMs.

VERY IMPORTANT: If you do not choose this option, any failover VMs on local storage are **not** saved. You will need to re-add each source machine currently configured to replicate to local storage back to Forge after the upgrade.

The backup utility displays an information screen:

```
Please ensure that external USB storage is plugged in. All data on external USB
storage will be wiped out before backup. Press any key to continue...
```

The backup process also displays a confirmation list of the drive names of all attached storage on the administrative computer that are about to be formatted.

8 Press any key to display the final warning screen:

```
Step 6 of 6: Confirming backup
    Do you wish to begin the backup process?

    Please note that this process can take up to 6 days to complete, depending
on the size of your protected workloads.  During this time, incremental
replications will be stopped.  Do not disrupt this process or use the appliance
until the backup has completed. [y|n] y
```

9 Enter `y` (yes) to display this information:

```
Step 2 of 3: Pausing scheduled contracts
```

The utility begins pausing the scheduled contracts.

When the backup process has completed successfully, you will see output at the command prompt similar to this:

```
The task Back up Forge failover VMs completed successfully.

Backup Summary:
The task "Validate user input" completed successfully.
        Step Setting Default Values completed successfully.
        Step Getting Required Passwords completed successfully.
        Step Validating Parameters completed successfully.
        Step Validating Contract Export completed successfully.
        Step Confirming that failover VMs should be backed up completed
successfully.
        Step Confirming backup completed successfully.
The task "Back up contracts" completed successfully.
        Step Gathering information about the Forge appliance completed
successfully.
        Step Pausing scheduled contracts completed successfully.
        Step Exporting Forge Server Contracts completed successfully.
The task Back up Forge failover VMs completed successfully.
        Step Enable ssh for root user on ESX completed successfully.
        Step Validate external USB disks completed successfully.
        Step Partition and format external USB disks completed successfully.
        Step Backup of ESX configuration completed successfully.
        Step Shut down Forge failover VMs completed successfully.
        Step Backup of Forge failover VMs on local storage completed
successfully.
```

2.2 Upgrading the Forge Appliance

When you have completed the backup of the Forge appliance, use the *Forge 11 Upgrade Kit* to upgrade it from version 2 to version 3. Before you begin this process, make sure that you have your ESXi 5.5 license available (the older ESX 5.1 license will not be valid after you upgrade).

This section includes the following information:

- Section 2.2.1, “About the Forge 11 Upgrade Process,” on page 20
- Section 2.2.2, “What You Need,” on page 21
- Section 2.2.3, “Reconfiguring RAID on the Hardware,” on page 21
- Section 2.2.4, “Installing the Hypervisor and Forge Components,” on page 24
- Section 2.2.5, “Licensing Microsoft Products on the Forge Management VM,” on page 27
- Section 2.2.6, “Licensing the ESXi 5.5 Hypervisor,” on page 29
- Section 2.2.7, “Running the Forge Appliance Configurator,” on page 30
- Section 2.2.8, “Backing Up the Factory VM,” on page 31
- Section 2.2.9, “Restarting the Appliance,” on page 31
- Section 2.2.10, “Configuring the Appliance for Immediate Use,” on page 32
- Section 2.2.11, “Launching the PlateSpin Forge Web Client,” on page 32
- Section 2.2.12, “Product Licensing,” on page 33

2.2.1 About the Forge 11 Upgrade Process

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

- Reconfiguring the RAID controller

- Re-installing the hypervisor
- Re-deploying Forge software (including the Forge Management VM and the Appliance Configuration Console (ACC)
- Re-licensing all components

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

2.2.2 What You Need

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

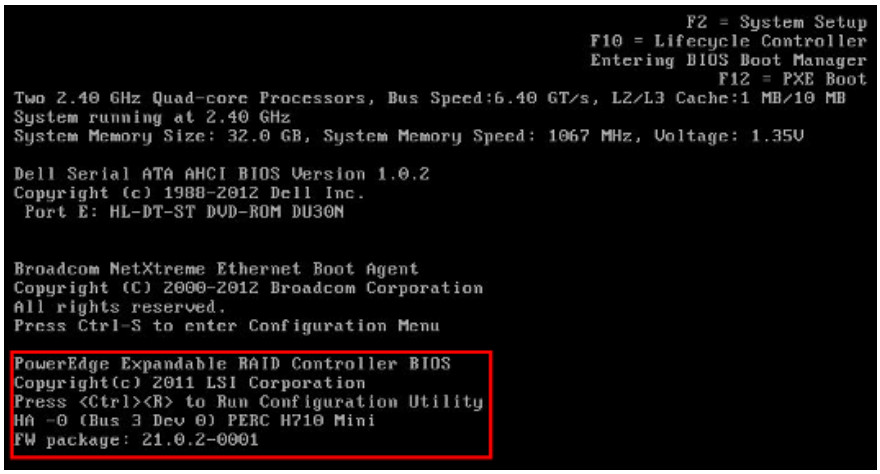
A *Forge 11.0 Upgrade Kit*	Contact PlateSpin Support to request a kit.
A VMware ESXi 5.5 license	Contact PlateSpin Support for help to retrieve your license.
A Microsoft license for the Forge VM operating system (Windows Server 2012)	Contact PlateSpin Support for help to retrieve your license.
A Microsoft license for the Forge database (SQL Server 2014)	Contact PlateSpin Support for help to retrieve your license.
A PlateSpin Forge 11.0 license	Post-upgrade requirement for unlocking the product's business functionality. See "Product Licensing" in the *PlateSpin Forge 11.0 User Guide*.

2.2.3 Reconfiguring RAID on the Hardware

On first boot of the hardware, you use the PERC configuration utility to configure the RAID controller for PlateSpin Forge.

To configure the RAID controller:

1 During the computer boot sequence, wait approximately 24 seconds for this screen,



then press Ctrl+R to launch the PERC configuration utility.

2 In the configuration utility, configure the PERC RAID controller with multiple logical disks spanning all six physical disks in a single RAID 5 array:

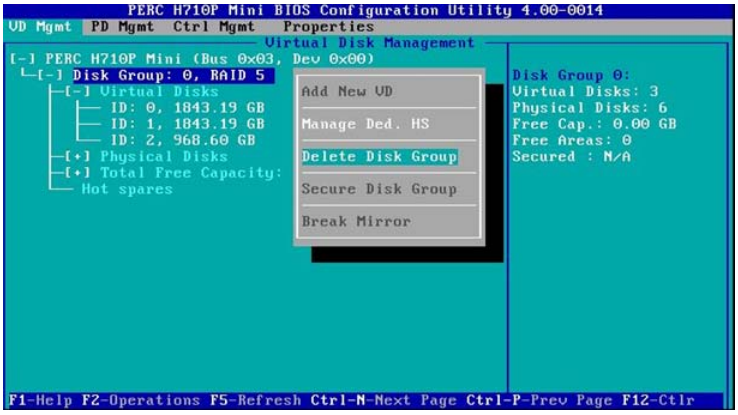
2a Delete all existing disk groups:

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

2a1 On the *Virtual Disk* page, select an existing disk group, then press F2 to open the Operations dialog box.

2a2 In the dialog box, select **Delete Disk Group**.

Figure 2-1 *PERC config utility: "Virtual Disk" initial page display on Dell PowerEdge 720 hardware*



2a3 Repeat Step 2a1 and Step 2a2 until all disk groups are deleted.

2b Create a new disk group for the Forge system:

2b1 On the *Virtual Disk* page, select the root of the tree view, **PERC XXX Mini** and press F2 to open the Operations dialog box.

2b2 In the dialog box, select **Create New VD** to open the *Create New VD* page.

Figure 2-2 *PERC config utility: "Create New VD" page displayed on Dell PowerEdge 720 hardware*



2b3 On this the page, configure the new virtual disk by completing the following fields:

- **Raid Level:** Select **RAID-5**.*

*On Dell PowerEdge 610 hardware, select **RAID-1**.

- **Physical Disks:** Select all available physical disks.

  NOTE: Disk sizes might vary.

- **VD Size:** If the PERC Controller displays the disk size in MB, enter `307200`. If the disk size is displayed in GB, enter `300`.
- **VD Name:** Enter `ForgeSystem`.

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

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** 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:

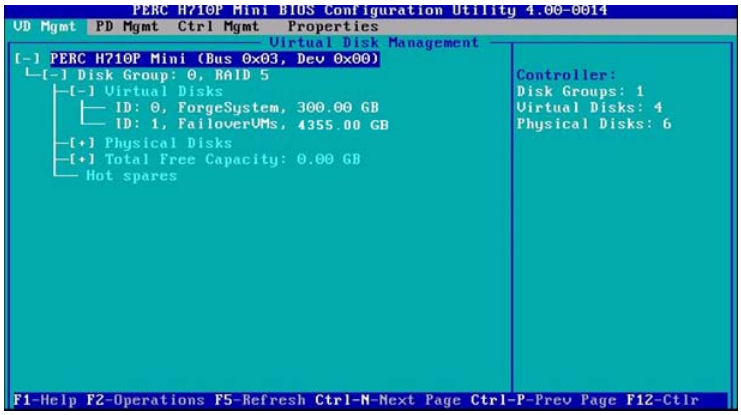
2d1 On the *Virtual Disk* page tree view, select **Virtual Disks** > <**disk_name**> and press F2 to open the Operations dialog box.

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:

Figure 2-3 *PERC config utility: "Virtual Disk" final page display on Dell PowerEdge 720 hardware*



3 Press Esc to exit the controller configuration utility.

4 (Conditional) Press Ctrl+Alt+Del if prompted.

The server reboots.

2.2.4 Installing the Hypervisor and Forge Components

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

- "Installing VMware ESXi 5.5.0 to the Appliance" on page 24
- "Connecting the Forge Administrative Computer" on page 25

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.

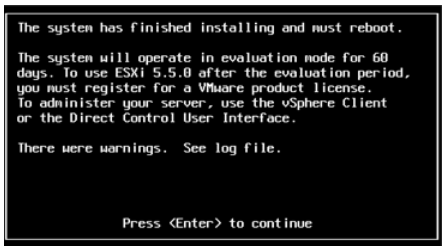
To install VMware ESXi 5.5.0 to the Forge Appliance:

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 3.4, "Errors Occurring During ESXi Installation," on page 41 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 "Connecting the Forge Administrative Computer" on page 25.

Connecting 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:

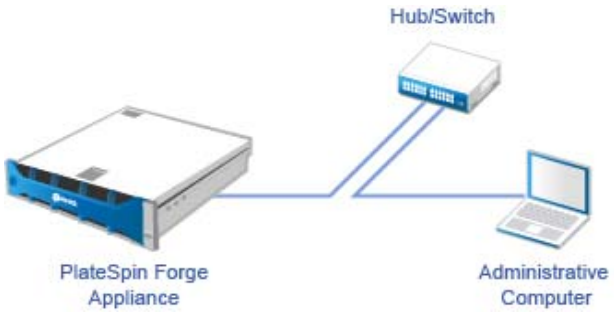
- “Establishing a Physical Connection” on page 25
- “Establishing a Management Connection through the vSphere Client” on page 26

Establishing a Physical Connection

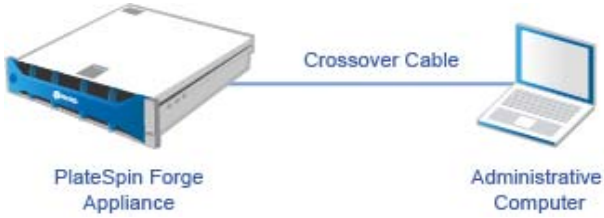
To establish a physical connection between the administrative computer and the Forge Appliance:

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 Upgrade/Rebuild Kit* is the `PLATESPINFORGE01.ovf` file used in the PlateSpin Forge 11.0.0.*x* release build.You will deploy 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 Upgrade/Rebuild Kit* download site, select and download the following files and copy them to the same location on the administrative computer.:

- `PLATESPINFORGE01-disk1.vmdk`
- `PLATESPINFORGE01-disk2.vmdk`

- `PLATESPINFORGE01-file1.flp`
- `PLATESPINFORGE01.mf`
- `PLATESPINFORGE01.ovf`

NOTE: The OVF template uses the other files from the kit to create the Forge Management VM.

2. In the vSphere Client (see "Installing VMware ESXi 5.5.0 to the Appliance" on page 24), 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).

2.2.5 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.

WARNING: You ***must*** activate your Windows license key before you perform any PlateSpin Forge operations.

Licensing Windows Server 2012

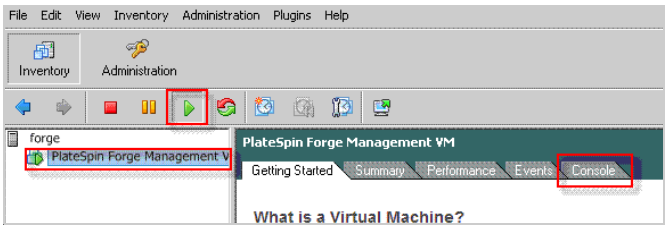
There are two methods you can use to activate the Windows Server 2012 license:

- "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.

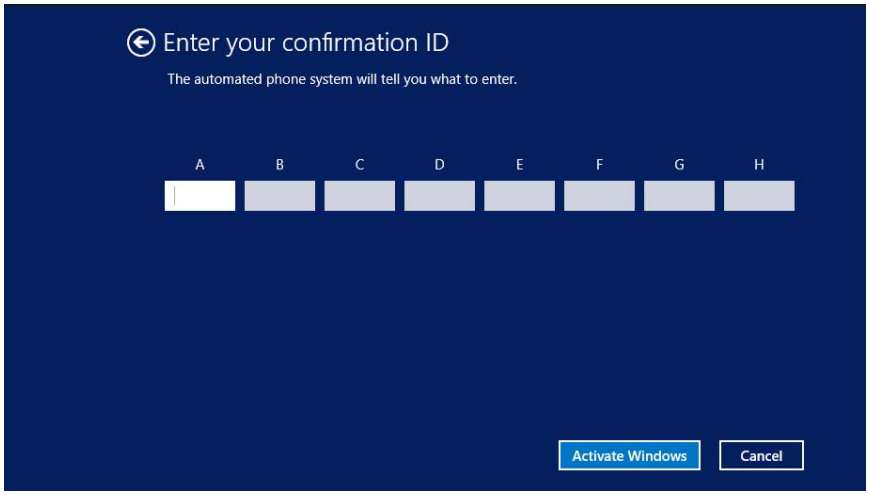
3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.

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**.

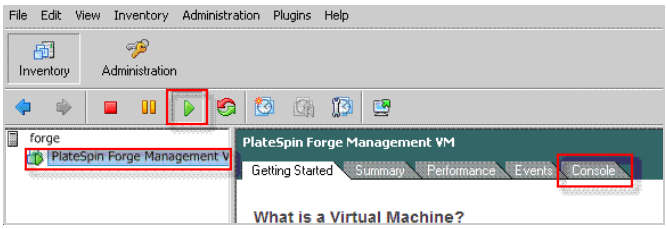


Multiple Activation Key License Activation

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 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.

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.

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.

2.2.6 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:

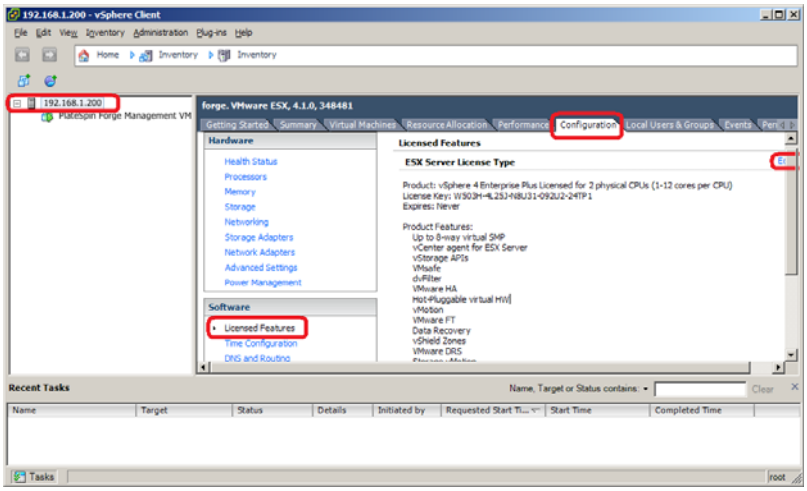
1. Contact VMware Support, using one of regional telephone numbers listed on its Support Contacts page (https://www.vmware.com/support/contacts/us_support.html).
2. Advise the support representative of the VMware Customer number for NetIQ (supplied in the *Forge 11 Appliance Build Kit*) and that you 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**.

2.2.7 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**).

2.2.8 Backing Up the Factory VM

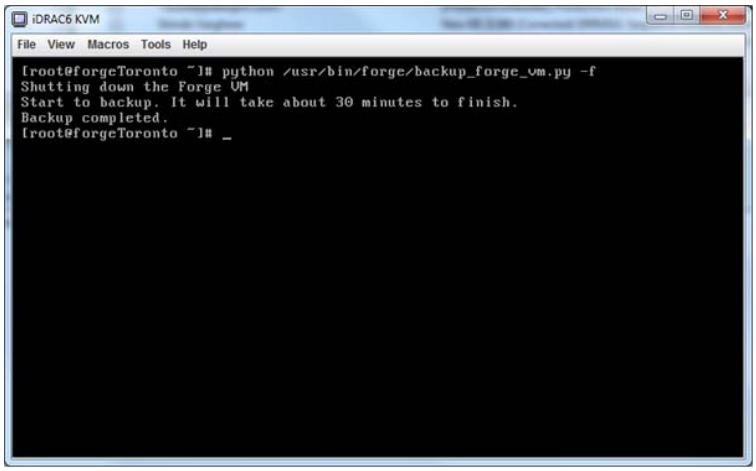
As a precaution after the installation and configuration, you need to back up the Forge Management VM (a.k.a. the “Factory VM”) on the Forge Appliance.

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:



2.2.9 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.

2.2.10 Configuring the Appliance for Immediate Use

To begin the configuration of the appliance, reconnect your administrative computer 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).

2.2.11 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.

2.2.12 Product Licensing

To license PlateSpin Forge 11.0, 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/). A license activation code will be emailed to you.

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

- “Online License Activation” on page 33
- “Offline License Activation” on page 33

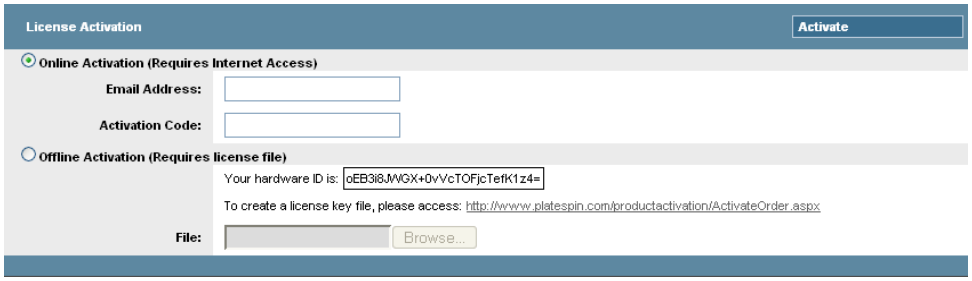
Online License Activation

For online activation, PlateSpin Forge Web 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.

Offline License Activation

For offline activation, you need to obtain a license key over the Internet by using a machine that has Internet access.

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

To activate a Forge license when offline:

1 In the PlateSpin Forge Web interface, 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). 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.

2.3 Post-Setup Tasks

1. Check the following:
   - If you connected the administrative computer to external USB storage during backup, you need to reconnect it to the same external storage.
   - Ensure that all ESX network (or portgroup) names are the same they were as prior to upgrade.
   - Ensure that the current Forge Hostname and IP address are the same as the previous Forge 4 host name and IP address.
   - Ensure that the current ESXi hostname is the same as the previous Forge 4 ESX hostname.
2. (Optional; for international versions) Set up PlateSpin Forge and your browser for use in a specific supported language. See "Language Setup for International Versions of PlateSpin Forge" in the *PlateSpin Forge 11.0 User Guide*.
3. Configure appliance host networking to separate replication or failover traffic from your main production network. See "Setting up Appliance Host Networking" in the *PlateSpin Forge 11.0 User Guide*.
4. Configure SMTP settings and add email notification recipients. For information, see "Setting Up Automatic Email Notifications of Events and Reports" in the *PlateSpin Forge 11.0 User Guide*.
5. (Optional) Add additional data storage capacity to Forge. See "Using External Storage Solutions with PlateSpin Forge" in the *PlateSpin Forge 11.0 User Guide*.
6. Familiarize yourself with the PlateSpin Forge Web Interface (see "Up and Running" in your *User Guide*), as well as the workload protection life cycle ("Basic Workflow for Workload Protection and Recovery" in the *PlateSpin Forge 11.0 User Guide*).

2.4 Restoring the Appliance

Before you begin restoring the appliance, make sure that you do the following:

- **IMPORTANT:** Make sure that your Windows license key is activated before you restore the appliance.
- Connect your administrative computer to the appliance, as explained in Step 1 on page 25.
- Make sure that the administrative computer has the output folder that was generated and collected during the backup (see Step 3 on page 17).
- If you connected external USB storage to the administrative computer at backup time, you need to reconnect the same external storage to the administrative computer for restore.
- Make sure you have access to the `PlateSpin.ForgeUpgrade` utility, part of the PlateSpin Forge 11 Upgrade Kit available from PlateSpin Support.

- You must be able to run the `net use` command referenced in Section 2.1.2, “Performing the Forge Backup,” on page 18. If the command fails, you might need to add some exceptions to the firewall for file sharing, or you might need to disable the firewall altogether during the upgrade process.
- Reattach any external storage you might have previously used with the appliance.

Use the following steps to restore the appliance:

1. From the command prompt on the administrative computer, change the directory to the working directory. For information about the backup directory, see Section 1.5, “Upgrade Precautions,” on page 13.
2. If you have not already done so, extract the contents of `PlateSpin.ForgeUpgrade_11.0.0.xxxx.zip` into to the same volume where the output directory resides (for example, `D:\forge_backup`), then change directory to the `\PlateSpin.ForgeUpgrade_11.0` subdirectory.
3. Run the restore utility from the command line, entering data you obtain from the configuration worksheet. For example:

   ```
   PlateSpin.ForgeUpgrade.exe /restore /psserver=10.10.10.226 /
   username=administrator /esx_address=10.10.10.225 /esx_username=forgeuser  /
   outputfolder=D:\forge_backup\out
   ```

   NOTE: You need to know the following as you run this utility:

   - If you are unfamiliar with the restore utility parameters, you can learn more by accessing its help: `PlateSpin.ForgeUpgrade.exe /help`.
   - You must specify a path pointing to the `/outputfolder` specified in the backup utility (see Step 4 on page 18).

4. (Conditional) If you chose not to use the available parameters for supplying passwords via a file, enter those passwords when prompted:

   ```
   Starting task "Validate user input".
   Step 1 of 5: Setting Default Values
   Step 2 of 5: Getting Required Passwords
       Please enter the password for PlateSpin server user 'administrator':
   ********

       Please enter the Forge Virtual Host password for user 'forgeuser': ********

       Please enter the Forge Virtual Host superuser/root password: ********
   ```

5. Enter `y` (yes) at the following prompt:

   ```
   Step 3 of 5: Validating Parameters
   Step 4 of 5: Confirming restore
       Do you wish to begin the restore process?

   Please note that this process can take up to 4 days to complete, depending on
   the size of your protected workloads that were backed up to local USB storage.
   During this time, the protection contracts will not have been restored. Once
   the failover VMs have been restored, all existing contract data will be
   overwritten. Do not disrupt this process or use the appliance until the restore
   has completed. [y|n] y
   ```

6. (Optional) If you previously backed up the failover VMs to USB drives, enter `y` (yes) at the following prompt:

   ```
   Step 5 of 5: Confirming that failover VMs should be restored
       Proceed with restore Forge failover VMs from external USB storage? If so,
   please attach it now and answer "yes" to continue. If you answer "no" then USB
   restore will be skipped. [y|n] y
   ```

IMPORTANT: If you choose this option, you might have to wait up to four days for the restore process to complete. Otherwise, the wait time should be much less, maybe a few hours.

The restore utility runs. When its process is completed the console displays an information screen like this:

```
The task Restore Forge failover VMs completed successfully.

Restore Summary:
The task "Validate user input" completed successfully.
        Step Setting Default Values completed successfully.
        Step Getting Required Passwords completed successfully.
        Step Validating Parameters completed successfully.
        Step Confirming restore completed successfully.
        Step Confirming that failover VMs should be restored completed
successfully.
The task Restore previously backed up Forge failover VMs  completed
successfully.
        Step Enable ssh for root user on ESX completed successfully.
        Step Enable USB in ESX COS completed successfully.
        Step Validate external USB disks completed successfully.
        Step Gather list of Forge failover VMs to restore completed
successfully.
        Step Restore Forge failover VMs from external USB storage completed
successfully.
        Step Register VMs on shared storage completed successfully.
        Step Disable ssh for root user on ESX completed successfully.
The task Restore Forge failover VMs completed successfully.
        Step Update contracts completed successfully.
        Step Importing Forge Server Contracts completed successfully.
        Step Refreshing Forge ESX Server container completed successfully.
```

The first line of the output indicates that the utility ran successfully.

2.5 Confirming Appliance Data and Resuming Protection

When the restore for Forge 11 appliance version 3 is complete, you can confirm the appliance data and resume workload protection. Use these steps to confirm:

1. From any Windows machine that can connect to the appliance, use the vSphere Client to log in to the ESXi 5.5 server, then compare the details of the VMs registered on the server:
   - **1a** Launch the vSphere Client and connect to the Forge Appliance.
   - **1b** Click on the root of the inventory in the left pane, which represents the ESX host
   - **1c** Select the **Virtual Machines** tab, then open the `VM-list.csv` file that you saved when preparing for the backup.
   - **1d** Compare the number of VMs in the vSphere client with the VMs listed at time of backup, as detailed in `VM-list.csv`. The number should match.
2. Launch the Forge Web Client and complete the following:
   - **2a** Ensure all workloads are listed
   - **2b** (Conditional) If workload schedules are still paused, resume contract replication.
3. In the Forge Web Client, click **Settings > Containers**, then ensure that this new appliance is listed correctly as a VMware ESXi Server version 5.5.

3 Troubleshooting the Upgrade

This section includes information that you can use to help you troubleshoot the Forge upgrade process.

- Section 3.1, “Overview of the Restore/Backup Utility,” on page 37
- Section 3.2, “Upgrade Utility Parameters,” on page 37
- Section 3.3, “Generated Files in the /output Directory,” on page 40
- Section 3.4, “Errors Occurring During ESXi Installation,” on page 41
- Section 3.5, “Log File Locations,” on page 43
- Section 3.6, “Troubleshooting Specific Issues,” on page 43
- Section 3.7, “Known Issues,” on page 48

3.1 Overview of the Restore/Backup Utility

The backup or restore process can take a number of days. The following table provides some statistics that might give you some idea of the length of time required to run the Backup and Restore processes on 4TB of data, with 2TB of local VM backup and two USB drives of 2TB each.

Utility	Length of time to complete
Backup	◆ Full Backup: 140 hours (5.83 days) ◆ 2TB Backup: 70 hours
Restore	◆ Full Restore: 93 hours (3.87 days) ◆ 2TB Backup: 46 hours

In case of disruption during this process (for example, a network failure occurs between the administrative computer and the appliance or any other failure that prevents backup or restore from completing) the process is interrupted.

Should this occur, the utility allows for skipping some of previously completed steps. You can analyze the logs to determine which steps have completed successfully and which steps need to be re-run. For more information, see Section 3.3, “Generated Files in the /output Directory,” on page 40 and Section 3.5, “Log File Locations,” on page 43.

3.2 Upgrade Utility Parameters

The following table includes the details of the command line parameters you can use with the `PlateSpin.ForgeUpgrade.exe` utility. There are four types of parameters:

- **Mandatory:** Parameters that must be included in the command line.
- **Optional:** Parameters that can be optionally included in the command line.
- **Hidden:** Parameters that are not included in the list of commands via the /help parameter, but can be used for troubleshooting.

- **Debug:** Parameters that are used by PlateSpin Development to debug and test the utility.

Parameter	Type	Description
`/help`		Displays help for the utility.
`/backup`		Backs up all contracts from the specified server.
`/restore`		Restores previously backed up contracts to the specified server.
`/psserver`	Mandatory	Specifies the address of the PlateSpin Server: ◆ The PlateSpin Server is the Forge Server that is running on the Forge Management VM. ◆ The address can be specified as IP, hostname, or FQDN. ◆ The value should be specified on the configuration worksheet as the *Forge Mgmt VM network settings* (Item 5).
`/username`	Mandatory	Specifies the username used to connect to the PlateSpin Server: ◆ Use IP address only. ◆ The value can be specified as username, `DOMAIN\username or username@DOMAIN`. ◆ The value should be specified on the configuration worksheet as the *Local Administrator Password* (Item 9).
`/esx_address`	Mandatory	Specifies the address of the ESX Server. ◆ The value should be specified as IP only. ◆ The value should be specified on the configuration worksheet as the *Appliance Host Network Information* (Item 2).
`/esx_username`	Mandatory (for Backup only)	Specifies the username used to connect to the ESX Server. ◆ The default value is `forgeuser`. For the Restore function, this value (`forgeuser`) is hard coded. ◆ The value should be specified on the configuration worksheet as *Forge Host Credentials* (part of Item 3).
`/debugmode`	Optional	This parameter prompts the user for the execution of each step of the upgrade. You can choose the next step to execute from the ESX task.
`/esx_pwdfile`	Optional	Use this parameter to specify the path to a file with the ESX server password in its first line. ◆ You can find the `/esx_pwdfile` value on the configuration worksheet as *Forge Host Credentials* (part of Item 3).
`/esx_rootpwdfile`	Optional	Use this parameter to specify the path to a file with the ESX server root password in its first line. ◆ You can find the `/esx_rootpwdfile` value on the configuration worksheet as *Forge Superuser/root* (part of Item 1).

Parameter	Type	Description
`/outputfolder`	Optional	Specifies the location where all generated and collected files are to be stored. If you do not use this parameter or if you use it and do not add a value for the parameter, the upgrade utility's location is used as the output location.
`/pwdfile`	Optional	Use this parameter to specify the path to a file with the PlateSpin Server password in its first line. ◆ You can find the `/pwdfile` value on the configuration worksheet as the *Local Administrator Password* (part of Item 9).
`/vmPrompt`	Optional	Use this parameter to specify the VMs that are to be backed up and restored from USB storage. This parameter applies to VMs on the local datastore.
`/zipfile`	Optional	This parameter specifies the path to export (that is, back up) or to import (that is, restore) protection contracts. For the backup function, the utility creates the file. For the restore function, the file should already exist.
`/noninteractive`	Hidden	Use this parameter when you are scripting or redirecting console output. The following is a list of characteristics of this mode when applied to the utility: ◆ When typed, passwords are not hidden. ◆ The progress indicator is suppressed. ◆ The mode is not precisely "non-interactive," though that is its name: you are still prompted for action during the process.
`/usehttps`	Hidden	Use this parameter when you use the HTTPS protocol to connect to the PlateSpin Server. The utility applies the parameter when you add it. For example, if you are constructing a URL to the Protect Web services for the purpose of pausing all contracts before export.
`/skipesx`	Debug	Use this parameter to skip the ESX task in the upgrade workflow.
`/skiperversioncheck`	Debug	Use this parameter to skip the version check of the Forge Server.
`/skipforge`	Debug	Use this parameter to skip the Forge task in the upgrade workflow. **WARNING:** Applying this parameter might delete the contracts `.zip` file. For example, when you are prompted that the file will be overwritten, and you answer yes, the file is deleted. A new file is not created because the Forge part is skipped
`/process`	Optional	Use this parameter to specify whether to process checksums asynchronously (`async`) or synchronously (`sync`) as the files are being downloaded. Depending on the total size of the files, this could save some time. The default value is asynchronously.
`/protocol`	Optional	Use this parameter to specify whether to use SCP (`scp`) or SFTP (`sftp`) for file transfers. SCP is the default.

Parameter	Type	Description
`/skipformat`	Optional	Use this parameter to skip formatting the USB devices on backup. Skipping the formatting allows re-running the backup process in the event of a failure without having to re-download all of the virtual machine files.

3.3 Generated Files in the `/output` Directory

This section includes the names and descriptions of files that are generated during the upgrade process.

File Name	Description
`esx-<date_and_time>.tgz`	The ESX diagnostics bundle generated during Backup.
`ExportLogs`	Logs from the PlateSpin Protect and PlateSpin Forge export utilities.
`ForgeUpgrade.log`	The main log file. The content rolls over on each execution of utility and at 1 MB. Upon rollover, older logs are renamed as `ForgeUpgrade.log.<n>`, where *n* is a number from 1 through 9.
`ForgeUpgrade.zip`	These files contain the exported data from the Forge database. If you gave the rebuilt Forge 11.0 appliance a different hostname, you can search and replace the old values in these files.
`ForgeUpgrade.zip.orig`	This file contains contract data – backup of original after the main file has appliance version 1 local datastore references changed to appliance version 2.
`ForgeVMsOnSharedStorageBackupManifest.txt`	The paths to the VMs with VMX files that are located on a shared storage datastore.
`VM_FILE_MANIFEST`	All of the Virtual Machine files that were copied to the USB device(s) from the ESXi server at backup time.
`GetForgeVMInfo_Console.txt`	Data discovered on the Forge Server: hostname, domain registration, network settings and Windows groups.
`GetForgeVMInfo_Debug.log`	Log file for remote execution of GetForgeVMInfo.
`GetForgeVMInfo_Result.xml`	Data discovered on the Forge Server: hostname, domain registration, network settings and Windows groups. Formatted in xml.
`ImportLogs`	Logs from the PlateSpin Protect and PlateSpin Forge import utilities.
`RefreshContainer.log`	Log file for remote execution of RefreshContainer.

3.3.1 Generated File Locations

The location of the files generated during the upgrade depends on the path you that you specified in the `/outputfolder` upgrade parameter or the `/zipfile` upgrade parameter. It also depends on the combination of parameters you used when running the utility. The following table illustrates these cases:

Upgrade Parameter Applied	File Location
Neither the `/outputfolder` parameter nor the `/zipfile` parameter were specified when running the upgrade utility.	**All** files are located in the utility's location.
Only the `/outputfolder` parameter was specified when running the upgrade utility.	**All** files are located in the path specified by this parameter.
The `/outputfolder` parameter and the `/zipfile` parameter were both specified when running the upgrade utility.	The contract data (`.zip`) file, the Export and Import logs and RefreshContainer.log are located at the `/zipfile` location, all others are located at the `/outputfolder` location.
Only the `/zipfile` parameter was specified when running the upgrade utility.	The contract data (`.zip`) file, the Export and Import logs and RefreshContainer.log are located at the `/zipfile` location, all others are located at the utility's location.

There are some ESX locations where you can find some files:

Server Location	Description
`/root`	◆ Most shell scripts are copied here before execution. ◆ Location of `backup_and_restore.log` and `vmcopy.log`
`/home/forgeuser`	Only one shell script is copied here before execution.

3.4 Errors Occurring During ESXi Installation

- "An error has occurred while parsing the installation script" on page 41
- "Unable to identify the Forge system disk by its expected size" on page 42

An error has occurred while parsing the installation script

Source: When you are performing the VMware ESXi configuration, you might see the following error:



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.

Unable to identify the Forge system disk by its expected size

Source: When you are performing the VMware ESXi installation, you might see the following error when you press Alt+F11 to display the ESXi alert messages related to the installation failure:

```
Unable to identify the forge system disk by its expected size
```

Explanation: This is an indication that you might have added additional disks as part of the upgrade and that it is now necessary to reconfigure the RAID Controller.

Action: Refer to the procedure in Section 2.2.3, "Reconfiguring RAID on the Hardware," on page 21.

3.5 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/`.

For log location information specific to the Forge Upgrade utility, see Section 3.3, “Generated Files in the /output Directory,” on page 40.

3.6 Troubleshooting Specific Issues

This section includes some of the issues you might encounter while performing a Forge upgrade. The issues and actions you can take to correct or work around them include the following:

- “Importing Forge Server contracts fails” on page 43
- “The task "Back up contracts" failed. Could not find a part of the <some_path>\GetForgeVmInfo_Result.xml path” on page 44
- “Please stop all jobs or wait for them to complete before running the upgrade” on page 44
- ““Validate user input" failed. Unable to connect to the Forge Server.” on page 44
- ““Validate user input" failed. Failed to log in. Please check your credentials and try again” on page 44
- ““Validate user input" failed. Unable to connect to the PlateSpin Server at <IP_address>” on page 45
- ““Validate user input" failed. Unable to connect to the Forge ESX Server at <IP_address>” on page 45
- ““Validate user input" failed. The administrator user does not have access to the PlateSpin Server” on page 45
- ““Validate user input" failed. The password file does not exist” on page 46
- “Authentication for user root failed” on page 46
- “Backup or Restore using USB drive fails with error about read-only device” on page 46
- “Backup to the USB storage fails because it cannot detect the attached USB devices” on page 46
- “Error when using external shared storage such as a NAS” on page 46

Importing Forge Server contracts fails

Explanation: The following message is displayed:

```
Step 2 of 2: Importing Forge Server Contracts

The task failed.
"C:\bin\PlateSpin.ForgeUpgrade\11.0.0.5180\PlateSpin.ForgeUpgrade
\ForgeUpgrade.zip" Could not be found.
```

Possible Cause: Exported data is not in the location it should be.

Action: If you are using the `/outfolder` parameter, make sure that it points to the folder where the backup output is located.

If you are not using the `/outfolder` parameter, make sure that the backup output is in the same folder as the executable.

The task "Back up contracts" failed. Could not find a part of the *<some_path>*\GetForgeVmInfo_Result.xml path

Possible Cause: This could be an indication that you are attempting to run the Forge Upgrade utility from a network path. In the ForgeUpgrade.log file, you might see this manifest as:

```
Type: System.IO.DirectoryNotFoundException
```

Please stop all jobs or wait for them to complete before running the upgrade

Error Display: You might see the following message:

```
There are jobs running. Please stop all jobs or wait for them to
complete before running the upgrade.
```

Explanation: The PlateSpin Server is busy with running operations.

Action: Pause all replications and wait for all operations to complete, or abort the running operations.

"Validate user input" failed. Unable to connect to the Forge Server.

Explanation: During the validation phase of the Backup or Restore, the authentication is failing although the password you entered is correct.

Possible Cause: This is a symptom of having a firewall on the Forge Server, which is preventing access.

Action: Try one of the following:

- Modify the firewall settings to enable file sharing on the Forge Host for the network on which the administrative computer resides, then try again.
- Temporarily disable the firewall, then try again.
- Run the tool from a machine within the same subnet as the PlateSpin Server.

"Validate user input" failed. Failed to log in. Please check your credentials and try again

Error Display: You might see the following message:

```
Step 3 of 5: Validating Parameters
The task "Validate user input" failed. Failed to login. Please
check your credentials and try again.
```

Logs: You might see an exception like this in the stack trace of the main log file:

```
Message: Multiple connections to a server or shared resource by
the same user, using more than one user name, are not allowed.
Disconnect all previous connections to the server or shared
resource and try again
```

Other Symptoms: If you run the net use command on the administrative computer, you might see a message formatted like this:

```
Disconnected        \\<psserver>\d$       Microsoft Windows Network
```

Where `<psserver>` represents the value specified for the `psserver` parameter. For example:

```
Disconnected        \\10.99.160.72\d$     Microsoft Windows Network
```

Possible Cause: A `net use` connection already exists, probably because you attempted to run the utility previously.

Action: Run the `net use <connection>` command where `<connection>` contains relevant content. For example:

```
net use \\10.99.160.72\d$ /d
```

"Validate user input" failed. Unable to connect to the PlateSpin Server at <*IP_address*>

Error Display: You might see a message like this:

```
The task "Validate user input" failed. Unable to connect to the
PlateSpin server at '10.99.160.72'.
Verify that the address is correct
```

Possible Cause: A domain user is being used to connect to the PlateSpin Server.

Action: Enter the PlateSpin Server credentials of either a non-Domain user or a Domain Administrator.

"Validate user input" failed. Unable to connect to the Forge ESX Server at <*IP_address*>

Error Display: You might see a message like this:

```
The task "Validate user input" failed. Unable to connect to the
Forge ESX server at '10.99.163.112'.
Please ensure that the address, username, and password are correct
and retry
```

Possible Cause: Credentials for `forgeuser` (or equivalent) are invalid.

Action: Enter the valid ESX Server credentials.

"Validate user input" failed. The `administrator` user does not have access to the PlateSpin Server

Error Display: You might see the following message:

```
The task "Validate user input" failed. The user 'administrator'
does not have access to the PlateSpin server at '10.99.160.72'.
Verify that the username and password are correct
```

Explanation: You entered the wrong password for the administrator.

Action: Enter the correct password.

"Validate user input" failed. The password file does not exist

Error Display: You might see the following message:

```
The task "Validate user input" failed. An exception occurred while
reading the password file.  Error:  {0}
```

Explanation: A password file either does not exist or cannot be read.

Action: Check all of the password files.

Authentication for user `root` failed

Error Display: You might see the following message:

```
The task Back up Forge failover VMs failed. Authentication for
user "root" failed with result: FAILED
```

Explanation: You entered the wrong password for the superuser or root user.

Action: Enter the correct password for the root user.

Backup or Restore using USB drive fails with error about read-only device

Context: The USB drive is relatively new, but was used in previous backup/restore operations.

Possible Cause: USB drive mount status can change to read-only midway through the backup process. This might occur if the USB drive goes bad.

Action: Try the operation again or try a new USB device.

Backup to the USB storage fails because it cannot detect the attached USB devices

Explanation: Backup fails with an error stating that USB devices not detected. You are prompted to attach the USB devices.

Possible Cause: USB device detection on ESX (in general) is unreliable.

Action: Try these steps:

1. Shut down the administrative computer.
2. Attach the USB devices.
3. Power on the administrative machine.

Error when using external shared storage such as a NAS

Explanation: The upgrade utility displays errors that indicate it is not able to import the VMs. For example:

```
Step 6 of 7: Register VMs on shared storage -
    23 Apr 2014 10:00:14,560 WARN  - Failed to register VM
<vm_name>.vmx on NAS datastore <nas_name>|
23 Apr 2014 10:00:14,968 WARN  - Failed to process VM
<vm_name>.vmx. Exception: System.ApplicationException: Could not
find virtual machine <vm_name>.vmx
```

Possible Cause: The shared storage was not added prior to the restore.

Action: Follow these steps to import the VMs:

1. Launch the restore process again.
2. Repeat the restore process, using the same options as during your previous attempt, until the following is displayed:

```
 Step 5 of 5: Confirming that failover VMs should be restored
    Proceed with restore Forge failover VMs from external USB
storage? If so, please attach it now and answer "yes" to
continue. If you answer "no" then USB restore will be skipped.
[y|n]
```

3. Enter `n` to skip the USB restore.

   The Restore process resumes, displaying text like this:

```
Step 1 of 1: Register VMs on shared storage -
INFO - Successfully registered VM <vm_name>.vmx on NAS
datastore <nas_name>
The task Restore previously backed up Forge failover VMs
completed successfully.
```

   and then this:

```
Starting task Restore Forge failover VMs.
Step 1 of 3: Update contracts
Step 2 of 3: Importing Forge Server Contracts \-/
Step 3 of 3: Refreshing Forge ESX Server container
The task Restore Forge failover VMs completed successfully.

Restore Summary:
The task "Validate user input" completed successfully.
        Step Setting Default Values completed successfully.
       Step Getting Required Passwords completed successfully.
        Step Validating Parameters completed successfully.
        Step Confirming restore completed successfully.
        Step Confirming that failover VMs should be restored
completed successfully.
The task Restore previously backed up Forge failover VMs
completed successfully.
        Step Register VMs on shared storage completed
successfully.
The task Restore Forge failover VMs completed successfully.
        Step Update contracts completed successfully.
        Step Importing Forge Server Contracts completed
successfully.
        Step Refreshing Forge ESX Server container completed
successfully.
```

4. Check the imported VMs.
   - **4a** From the vSphere client, select each of the imported VMs:
   - **4b** Select the **Summary** tab.
   - **4c** (Conditional) If a VM is tagged with a message like this:

```
msg.uuid.altered: This virtual machine might have been
moved or copied
```

Select **I Moved it** to preserve the UUID for the VM.

For more information, see the VMware Knowledge Base article: *Changing or keeping a UUID for a moved virtual machine*.

3.7 Known Issues

This section includes some known anomalies and issues discovered in the upgrade process. They are listed here for your convenience:

- **The `esx_username` parameter:** The `forgeuse`r account (or equivalent) is needed to enable SSH for `root` user. If `root` is specified instead of `forgeuser` (or equivalent), the utility does not prompt for the `forgeuser` account's password separately. At this point, the utility runs successfully only if the `root` user already has SSH enabled
- **Some VMs not registered after Restore:** If some VMs are not registered back after running the Restore process and the container is refreshed, the contract becomes unusable and must be re-created. You can rerun restore to fix the issue.
- **NFS datastores:** NFS datastores have not been tested and might not work.
- **GetForgeVMInfo files:** If you see the output `(not on domain)` in the log file, the `.xml` file shows the same output as blank: `<Domain></Domain>`.
- **Inserting a USB drive during upgrade:** Inserting a USB drive into the administrative computer during upgrade corrupts the console display until the display refreshes at interval. The corruption consists of text superimposed over console prompts. If the USB device has a problem, any errors being displayed might be unreadable.

A Upgrading Forge 3.*x* Appliance 2

If you are upgrading Forge 3.*x* (Appliance 2) to Forge 4 (Appliance 2), the installation/upgrade utility, `PlateSpinForgeSetup-4.0.0.1231.exe` automatically exports and imports data from your previous installation.

You need to follow the steps as documented for upgrading from Forge 3.1, 3.3, or 3.4 (Appliance 2) to Forge 4.0 (Appliance 2). Those steps are detailed in the *Upgrading from Forge 3.1, 3.3, or 3.4 section (https://www.netiq.com/documentation/platespin_forge_4/forge_upgrade/data/b1ah96jp.html)* of the *PlateSpin Forge 4.0 Upgrade Guid*e.

NOTE: The `PlateSpinForgeSetup-4.0.0.1231.exe` utility is included in the *Forge 11 Upgrade Kit*, available from PlateSpin Support.

Ensure that you run the utility in the PlateSpin Forge Management VM that you are upgrading.

B Documentation Updates

This section contains information on documentation content changes that were made in this *Upgrade Guide* after the initial release of NetIQ PlateSpin Forge 11.0. The changes are listed according to the date they were published.

NOTE: This updated information does not appear in the help content accessible from the product's user interface nor in localized versions of the *Upgrade Guide*.

The documentation for this product is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the changes listed in this section.

If you need to know whether a copy of the PDF documentation that you are using is the most recent, the PDF document includes a publication date on the title page.

The documentation was updated on the following dates:

- Section B.1, "February 2, 2015," on page 51
- Section B.2, "November 17, 2014," on page 51
- Section B.3, "October 2, 2014," on page 51

B.1 February 2, 2015

Updates were made to the following sections:

Location	Update
Table 1-2 on page 11	**NOTE:** The `/usehttps` flag is required for upgrades from version 4.0 to version 11.0.

B.2 November 17, 2014

Updates were made to the following sections:

Location	Update
"Licensing Microsoft Products on the Forge Management VM" on page 27 and "Restoring the Appliance" on page 34	Added a warning note and an important note to emphasize the need for activating the Windows License prior to performing Forge operations or restoring the appliance after an upgrade.

B.3 October 2, 2014

Updates were made to the following sections:

Location	Update
“Deploying the OVF Template” on page 26	Corrected the content citing the location of the PlateSpin Forge OVF template and how to deploy it during upgrade.

Glossary

administrative computer. A Windows machine used externally from the Appliance host to perform the upgrade. 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 or *Forge 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).

appliance version. The version of appliance management software used to manage network settings on the Forge ESX Host and the Forge Appliance VM. Appliance (version) 1 uses a getty interface, appliance (version) 2 uses the Django Web framework and the ACC interface. Appliance version updates are motivated primarily by changes to the underlying VMware ESX version.

You can determine the appliance version of your Forge unit by using one of the following methods:

• **Forge Web Client:** Look up the appliance version number in the *Help* > *About* page of the ACC. You can only do this if you are reconfiguring Forge.

• **Local Configuration Interface Type:** Connect a monitor to the appliance and power it on. If the system displays the blue screen of the Forge Console, your appliance version is 1. If the system displays the ESX configuration screen, your appliance version is 2.

• **Remote Configuration Interface:** Using a Web browser and the IP address of your Forge unit (`http://<forge_esx_server>:1000`), attempt to launch the Forge Appliance Configuration Console (ACC). If you are able to connect, your appliance version is 2.

backup. The process of exporting existing database data, which includes existing workloads and contracts. This process also backs up the VMs that reside on the datastore local to the Forge Appliance Host.

contract data. Exported data for the protection contracts. The upgrade utility stores this in a `.zip` file.

See also protection contracts.

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 1950, 2950, R610, R710, R620 or R720) shipped by PlateSpin partner Avnet, Inc. The version of PlateSpin Forge you purchase is installed on a particular Dell model. For more information, see Section 1.1, “Possible Forge Configurations,” on page 9.

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 Upgrade 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.

outputdirectory. (Also **output folder**). The network location where important backup data is stored on the administrative computer. For example, `D:\forge_backup\out`.

protection contract. A collection of currently-active settings pertaining to the complete lifecycle of a workload's protection (*Add-inventory*, initial and ongoing *Replications*, *Failover*, *Failback*, and *Reprotect*).

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

restore. The process of importing existing database data (including workloads and contracts) as it existed prior to backup. The process also restores all local VMs that formerly resided on the Forge Appliance Host.

working directory. The network location where the Forge upgrade kit is copied. For example, `D:\forge_backup\11.0_kit`.