PlateSpin Forge® 11.1 Appliance 3
Rebuild Guide

July 2017

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About This Guide

This *Rebuild Guide* provides information about rebuilding and reconfiguring the PlateSpin Forge disaster recovery appliance by using the *PlateSpin Forge 11.1.0 Appliance 3 Upgrade/Rebuild Kit*.

Intended Audience

This document is intended for IT staff, such as data center administrators and operators, who use PlateSpin Forge in their ongoing workload protection projects.

Information in the Library

The library for this product is available in HTML and PDF formats on the PlateSpin Forge Documentation (https://www.netiq.com/documentation/platespin-forge/) website. In addition to the English language, online documentation is available in the Chinese Simplified, Chinese Traditional, French, German, Japanese, and Spanish languages.

The PlateSpin Forge library provides the following information resources:

Release Notes

Provides information about new features and enhancements in the release, as well as any known issues.

Getting Started Guide

Provides information about how to configure the appliance for your environment.

User Guide

Provides conceptual information, an overview of the user interface, and step-by-step guidance for common tasks.

Rebuild Guide

Provides information about how to rebuild and reconfigure the appliance.

Upgrade Guide

Provides information about how to update the appliance software.

Help

Provides context-sensitive information and step-by-step guidance for common tasks as you work in the user interface.

Additional Resources

We encourage you to use the following additional resources online:

- PlateSpin Forge Forum (https://forums.netiq.com/forumdisplay.php?56-Platespin-Forge): A web-based community of product users where you can discuss product functionality and advice with other product users.
- PlateSpin Forge Product (https://www.netiq.com/products/forge/): A web-based product brochure that provides information about features, how to buy, technical specifications, frequently asked questions, and a variety of resources such as videos and white papers.
- NetIQ User Community (https://www.netiq.com/communities/): A web-based community with a variety of discussion topics.
- NetIQ Support Knowledgebase (https://www.netiq.com/support/kb/): A collection of in-depth technical articles.
- NetIQ Support Forums (https://forums.netiq.com/forum.php): A web location where product users can discuss NetIQ product functionality and advice with other product users.
- MyNetIQ (https://www.netiq.com/f/mynetiq/): A website offering product information and services, such as access to premium white papers, webcast registrations, and product trial downloads.

About NetIQ Corporation

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

Our Viewpoint

Adapting to change and managing complexity and risk are nothing new

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

Enabling critical business services, better and faster

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

Our Philosophy

Selling intelligent solutions, not just software

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

Driving your success is our passion

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

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To learn more about the services and procedures of NetIQ Technical Support, see the *Technical Support Guide* (https://www.netiq.com/Support/process.asp#_Maintenance_Programs_and).

Contacting Documentation Support

Our goal is to provide documentation that meets your needs. The documentation for this product is available on the PlateSpin Forge Documentation (https://www.netiq.com/documentation/platespin-forge/) website in HTML and PDF formats.

If you have suggestions for documentation improvements, click **comment on this topic** at the bottom of any page in the HTML version of the documentation. You can also email Documentation-Feedback@netiq.com. We value your input and look forward to hearing from you.

Contacting the Online User Community

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1 Overview of the Appliance Upgrade or Rebuild

The *PlateSpin Forge 11.1 Upgrade/Rebuild Kit* provides the resources you need to do the following:

- Rebuild your PlateSpin Forge 11.1 Appliance 3 installation to factory specifications
- Update your PlateSpin Forge 11.0.0 Appliance 3 installation to PlateSpin Forge 11.1.0 Appliance 3

There is no direct upgrade from a PlateSpin Forge 4 Appliance 2 installation to PlateSpin Forge 11.1.0 Appliance 3. You must first use the *PlateSpin Forge 11.0.0 Upgrade/Rebuild Kit* to upgrade your appliance from version 4 Appliance 2 to version 11.0.0 Appliance 3. For more information, see the *PlateSpin Forge 11 Appliance 3 Rebuild Guide* (https://www.netiq.com/documentation/platespin-forge-11/forge11-field-rebuild/data/bookinfo.html).

- "About the Forge 11.1 Rebuild Process" on page 9
- "What You Need" on page 10

About the Forge 11.1 Rebuild Process

Use the *PlateSpin Forge 11.1 Appliance Upgrade/Rebuild Kit* to rebuild PlateSpin Forge Appliance Version 3. Before you begin this process, ensure that you have your licenses available. See "What You Need" on page 10.

At a high level, the Forge 11.1, Appliance Version 3* rebuild process consists of the following major tasks:

- ❒ (Conditional) Re-create the RAID array on the appliance*
- ❒ Set up the system BIOS
- ❒ Re-install the hypervisor
- ❒ Re-deploy Forge software (including the Forge Management VM and the Forge Appliance Configuration Console (Forge ACC)
- ❒ Re-license all components

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

If you need only to revert the appliance to its factory default state, use the Factory Reset feature that the appliance ships with Forge 11.1. See "Resetting Forge to Factory Defaults" in the *PlateSpin Forge User Guide*. The complete rebuild instructions that are in this section should be used only when Factory Reset is not working or is not applicable (for example, after a major hardware failure that prevents Factory Reset from working, or when you are upgrading from an older version of the appliance).

***** If you upgraded your Forge Appliance to version 11.0 from an earlier release prior to this rebuild, you will be reconfiguring the RAID controller for Forge Appliance Version 2 on earlier hardware.

Table 1-1 provides information that can help you identify the RAID configuration that applies to the Forge Appliance that you purchased. For additional technical specifications, see The PlateSpin Forge Product Information web page (https://www.netiq.com/products/forge/technical-information/).

Table 1-1 *RAID configuration for Forge Appliances*

Forge Series ID	Hardware Model	Disk Array	RAID
Forge 300	Dell PowerEdge R610 Dell PowerEdge R620	2 x 500 GB 2 x 500 GB	RAID 1
Forge 500	Dell PowerEdge R710 Dell PowerEdge R720	6 x 750 GB 6 x 1 TB	RAID 5
Forge 700	Dell PowerEdge R720 Dell PowerEdge R730xd	8 x 4 TB 14 x 2 TB	RAID 6

For information about configuring the RAID controller for rebuild, see Chapter 2, “Reconfiguring the RAID Controller (Conditional),” on page 11.

What You Need

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

A *Forge 11.1 Field Rebuild Kit*, containing: ◆ Forge 11.1 OVF template files ◆ forge-esx5-11.1.0.xxx-provider.iso ◆ This *Field Rebuild* guide.	Contact Technical Support to request a Kit.
A VMware ESXi 5.5 license	Contact Technical Support for help to retrieve your license.
A Microsoft SQL 2014 Standard Edition license	Contact Technical Support for help to retrieve your license.
A Windows license for the Forge VM 2012 Server	A Windows OEM Product Key sticker is attached to every PlateSpin Forge appliance and is located on the appliance’s top cover. Contact Technical Support if the sticker is missing.
A PlateSpin Forge 11.1 license	Post-rebuild requirement for unlocking the product’s business functionality. See “Product Licensing” in the *PlateSpin Forge User Guide*.

2 Reconfiguring the RAID Controller (Conditional)

Use the information in this section if you need to reconfigure the RAID controller on the Forge 11.1 Appliance Hardware. Reconfiguring the RAID controller is not necessary unless you are adding or replacing hard disks in your Forge Appliance as part of the product rebuild.

For more information about choosing which RAID controller you should select for reconfiguring, see Table 1-1 on page 10.

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

1. Press Ctrl+R at the RAID Controller boot prompt, approximately 24 seconds into the boot sequence.
2. Configure the PERC RAID controller to have multiple logical disks over a single RAID array (that is, a RAID 1, a RAID 5, or a RAID 6, based on your hardware):

   2a Delete any existing disk groups:

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

   2a1 Select a disk group and press F2.

   2a2 Select **Delete Disk Group**.

   2a3 Repeat Step 2a1 and Step 2a2 for all existing disk groups.

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

   2b1 Select the controller and press F2.

   2b2 Select **Create New VD**.

   2b3 Select the **RAID Level** value, press Enter, select the RAID controller type you need from the list, then press Enter again.

   2b4 Select all available physical disks by selecting a disk item and pressing the Spacebar (disk sizes might vary).

   2b5 Under **Basic Settings**, fill in the following fields:

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

   VD Name: Use `ForgeSystem` as the value.

   2b6 Select **OK** and press Enter.

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

   2c1 On the **Virtual Disk** page tree view, select **Disk Group: 0, RAID_** (see Step 2b3) and press F2 to open the Operations dialog.

   2c2 In the dialog, 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:** Depending on the appliance you have, use the remaining disk space value as your default backup storage.

- **VD Name:** Enter `FailoverVMs`.

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

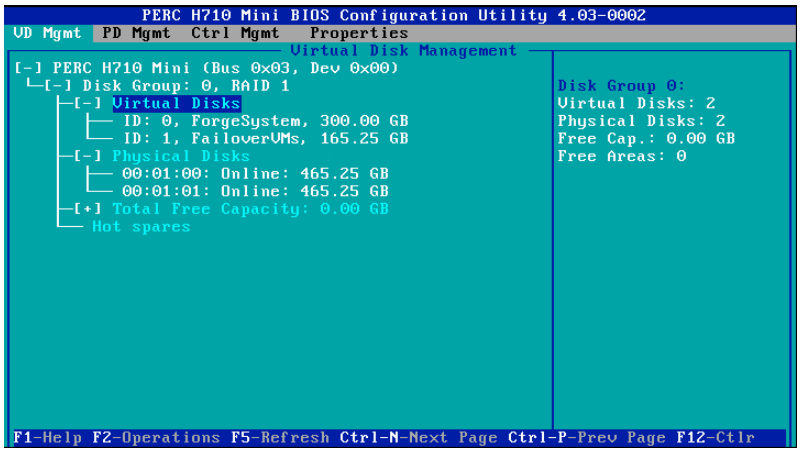
2d Configure the VD disks: to fast initialize:

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

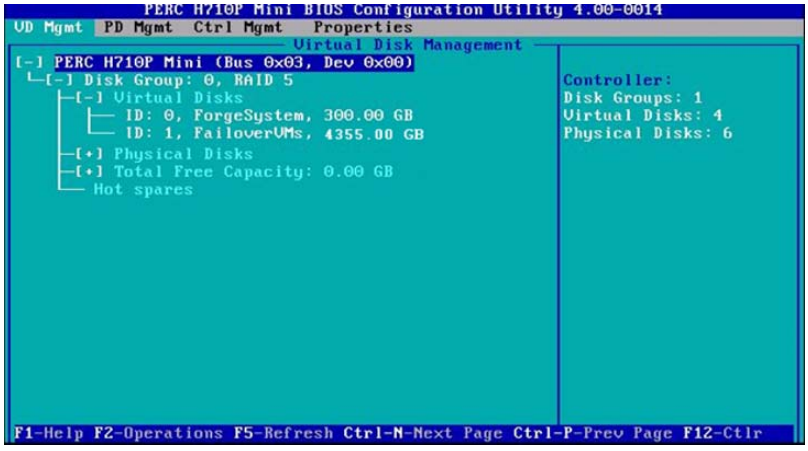
2d2 In the dialog, select **Initialization** > **Fast Init** > **OK**.

2d3 Repeat Step 2d1 and Step 2d2 for each virtual disk.

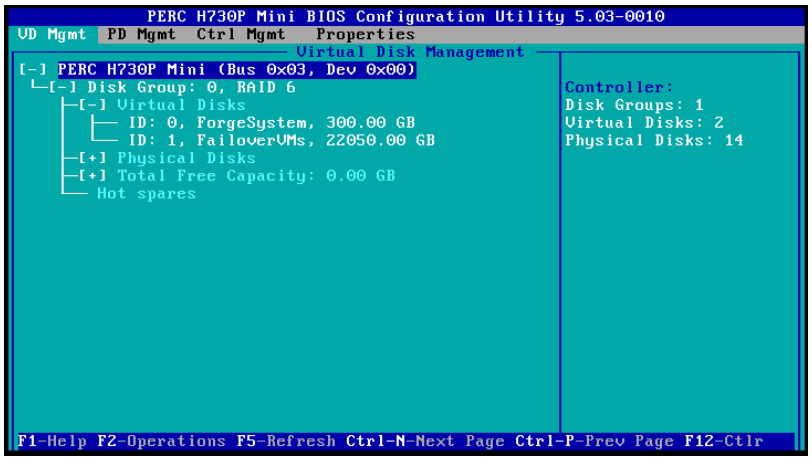
The final configuration screen for RAID 1 should look like this:



The final configuration screen for RAID 5 should look like this:



The final configuration screen for RAID 6 should look like this:



3 Press Esc to exit the controller configuration utility.

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

3 Installation Tasks

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

- “Installing the Hypervisor and Forge Components” on page 15
- “Licensing Microsoft Products on the Forge Management VM” on page 19
- “Licensing the ESXi 5.5 Hypervisor” on page 21
- “Running the Forge Appliance Configurator” on page 22
- “Backing Up the Factory VM” on page 22
- “Restarting the Appliance” on page 23
- “Configuring the Appliance for Immediate Use” on page 23
- “Launching the PlateSpin Forge Web Client” on page 23
- “Licensing the Forge Product” on page 24

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 15
- “Reconnecting the Forge Administrative Computer” on page 16

Installing VMware ESXi 5.5.0 to the Appliance

PlateSpin Forge requires VMware ESXi 5.5 to control the Forge Management VM. Ensure that you have the *PlateSpin Forge 11.1.0 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.

   NOTE: The Dell PowerEdge R730xd does not have a CD/DVD drive.

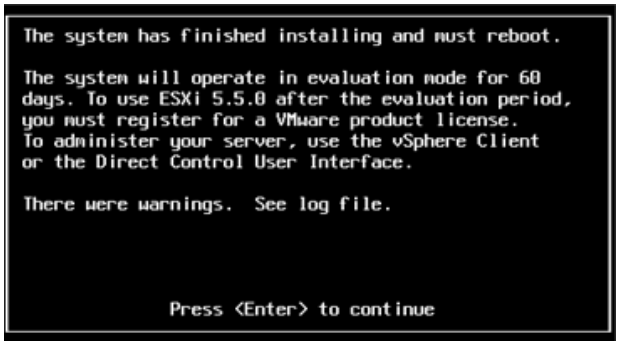
   You can plug an external CD/DVD drive into a USB port to install using the CD provided in the rebuild kit, or you can use the Dell iDRAC Configuration Utility to install using the `forge-esx5-11.1.0.xxx-provider.iso` image file as a virtual CD.

   ---
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 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 “Errors Occurring During ESXi Installation” on page 27 of this guide.

6 In the dialog, press Enter to reboot the system (or let the system reboot itself), then continue with the instructions in “Reconnecting the Forge Administrative Computer” on page 16.

Reconnecting the Forge Administrative Computer

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

This section includes the following information:

- “Connecting the Appliance and the Administrative Computer” on page 16
- “Deploying the OVF Template” on page 18

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:

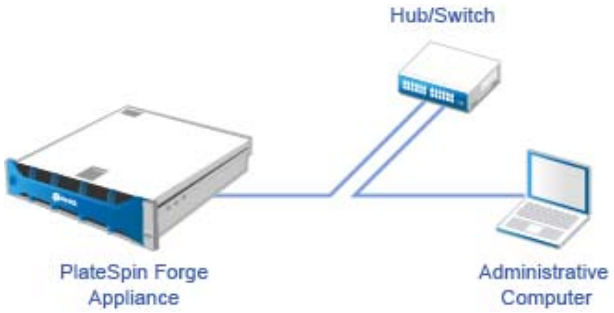
- “Establishing a Physical Connection” on page 17
- “Establishing a Management Connection through the vSphere Client” on page 17

Establishing a Physical Connection

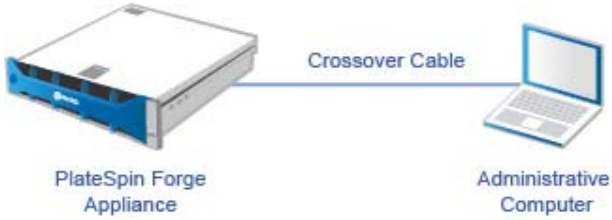
To establish a physical connection between the administrative computer and the Forge Appliance:

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).

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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 11.1 Appliance Upgrade/Rebuild Kit* is the `PLATESPINFORGE01.ovf` file used in the PlateSpin Forge 11.1.0.*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 15), click **File** > **Deploy OVF Template**.
3. In the *Deploy OVF Template* dialog, 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 user password as `Password1`, then click **Finish**.

12 Click inside the console window, press Ctrl+Alt+Insert to evoke the login prompt for Windows on the VM, then log in as Administrator (`Password1`) to the PlateSpin Forge Management VM.

13 When you are prompted to enable Networks, click **Yes** to confirm that you want to find PCs, devices, and content on this network, and to automatically connect to devices like printers and TVs.

Network support is required for the PlateSpin Server configuration, management, and operations.

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

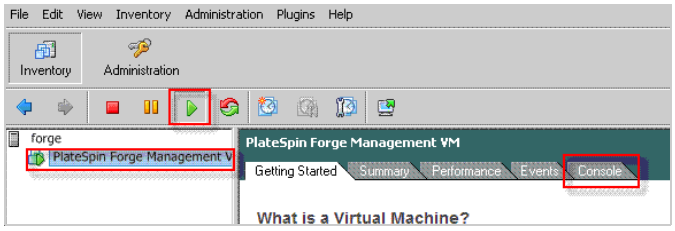
There are two methods you can use to activate the Windows Server 2012 license:

- “Offline License Activation by Phone” on page 19
- “Multiple Activation Key License Activation” on page 20

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.

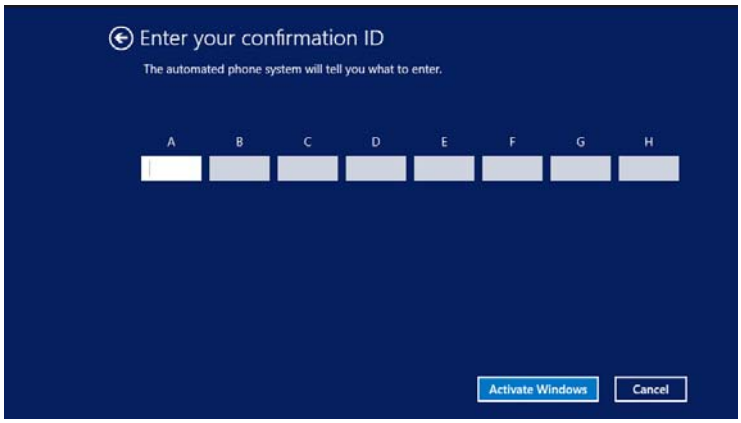
3 On the Windows Server 2012 desktop, right-click the Start button, then select **Command Prompt (Admin)** to open the command line interface with administrative privileges.

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**.

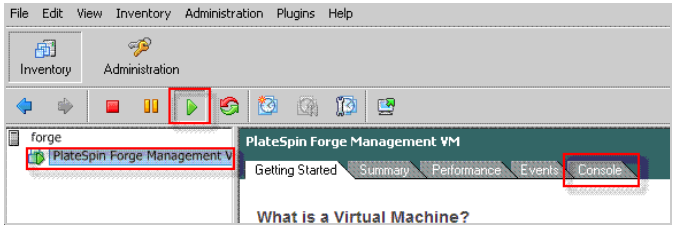


Multiple Activation Key License Activation

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 confirms that the product key is installed successfully.

5 In the dialog, click **OK** to finish the key installation.

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

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, 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 dialogs, click **Next** or **Upgrade** until the licensing process is complete, then close the licensing application.

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:

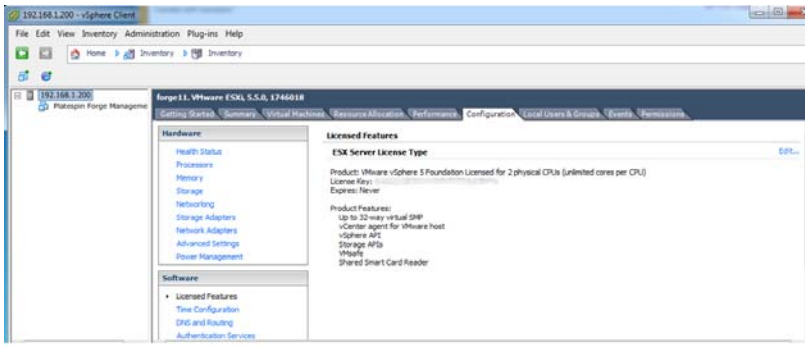
1. Contact VMware Support, using one of regional telephone numbers listed on its Support Contacts page (https://www.vmware.com/support/contacts/us_support.html).
2. Advise the support representative of the VMware Customer number for NetIQ (supplied in the *Forge 11.1 Appliance Rebuild Kit*) and that 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 vSphere 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, enter your license key and click **OK**.

4 Click **OK** and exit the vSphere Client program.

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**).

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.

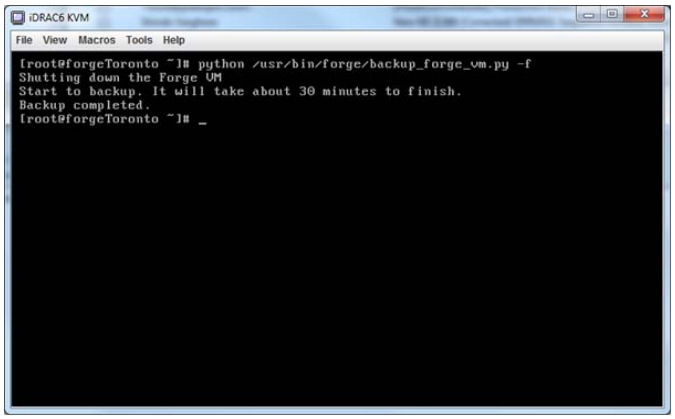
2 At the local console of the Forge Appliance (that is, the Dell Server iDRAC), press Alt+F1.

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:



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 11.1 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.

Configuring the Appliance for Immediate Use

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

To configure the appliance:

1. Power on the appliance hardware.
2. Configure Forge by following the instructions in the “Appliance Configuration Procedure” section of the *PlateSpin Forge 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).

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, 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.

Licensing the Forge Product

For Forge product licensing, you must have a license activation code. If you do not have a PlateSpin Forge license activation code, request one through the Customer Center website (http://www.netiq.com/center/). 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 24
- “Offline License Activation” on page 25

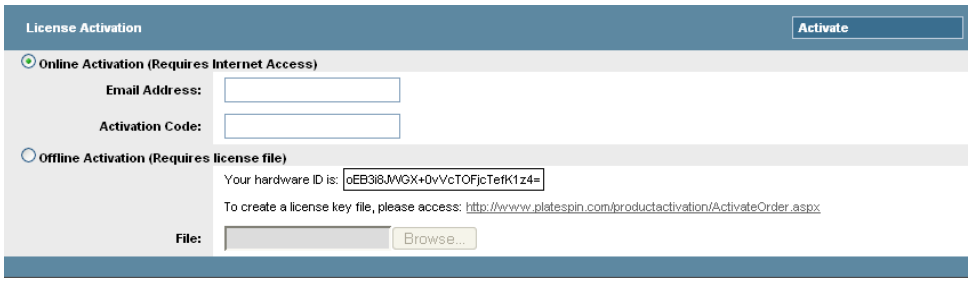
Online License Activation

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

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

To activate a Forge license online:

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



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

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

Offline License Activation

For offline activation, the PlateSpin Forge Web Client must have 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 Client, click **Settings > License**, then click **Add license**. The License Activation page is displayed.

2 Select **Offline Activation.**

3 Use your hardware ID to create a license key file at the PlateSpin Product Activation website (http://www.platespin.com/productactivation/ActivateOrder.aspx). This also requires a user name, password, the email address that you provided when placing your order and the activation code you received.

4 Type the path to the file or browse to its location and click **Activate**.

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

4 Troubleshooting

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

- “Log File Locations” on page 27
- “Errors Occurring During ESXi Installation” on page 27
- “Errors Occurred During Forge VM Configuration” on page 28

Log File Locations

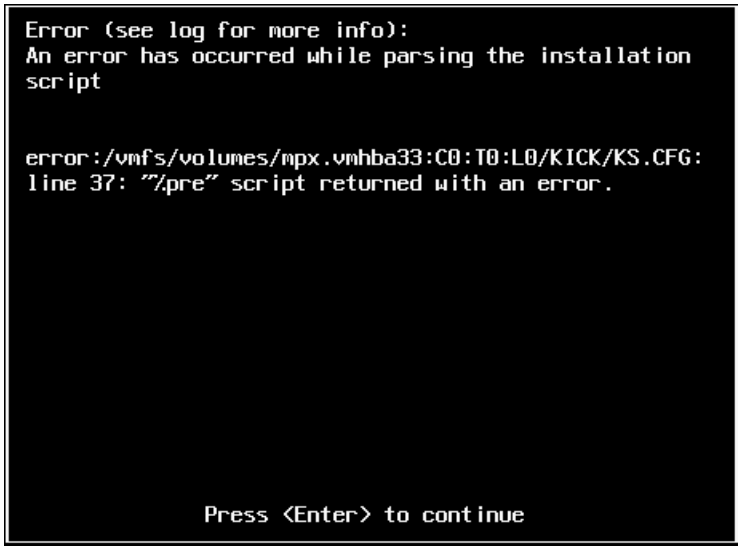
Use these installation logs to help you diagnose problems with the configuration of the Forge Appliance:

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

Errors Occurring During ESXi Installation

An error has occurred while parsing the installation script

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



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.

Errors Occurred During Forge VM Configuration

A `FAILURE` error occurred on running Forge Appliance Configurator

Source: When you run the Forge Appliance Configurator, you might not see `SUCCESS`.

Troubleshoot: Check the log file found at the location mentioned in the error message. For example:

```
D:\Program Files\PlateSpin Forge
Server\ForgeApplianceConfigurator\ForgeApplianceConfigurator.log
```

Explanation: The possible causes for this problem could be any of the following:

Possible Cause: The Forge VM disk is not `PLATESPINFORGE01`.

Action: Delete the Forge VM, then deploy the OVF Template, according to the instructions in "Deploying the OVF Template" on page 18, where the name of the imported VM is `PLATESPINFORGE01`.

Possible Cause: The Forge VM name is not `PlateSpin Forge Management VM`.

Action: Rename the Forge VM to `PlateSpin Forge Management VM`. In the vSphere client, locate the Forge Management VM, right-click the VM, then rename it to `PlateSpin Forge Management VM`.

Possible Cause: The Forge ESXi Hypervisor has the Evaluation License.

Action: Follow the instructions in "Licensing the ESXi 5.5 Hypervisor" on page 21, and then re-run the Forge Appliance Configurator.

Possible Cause: The Forge Appliance Configurator log reports an `Installing self-signed SSL certificate` event before the exception error. Check the Event Log if the Forge VM's IIS Admin Service failed to manually or automatically start up because of an `Invalid Signature` error.

Action: We are not sure why this happens, but here are the possible solutions (so far):

- Delete the Forge VM, then deploy the OVF Template, according to the instructions in "Deploying the OVF Template" on page 18, where the name of the imported VM is `PLATESPINFORGE01`.
- The checksums of the copied VM folder might not match. Re-copy the VM folder and repeat "Deploying the OVF Template" on page 18.

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 Interface:** 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.

Actual Recovery Point Objective (Actual RPO). See Recovery Point Actual.

Actual Recovery Time Objective (Actual RTO). See Recovery Time Actual.

Actual Test Time Objective (Actual TTO). See Test Time Actual.

Appliance Host. *See* container.

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.

container. The VM host that contains the failover workload (a protected workload's bootable virtual replica).

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

See also protection contract.

event. A PlateSpin Server message that contains information about important steps throughout the workload protection lifecycle.

failback. Restoration of the business function of a failed workload in its original environment when the business function of a temporary failover workload within PlateSpin Forge is no longer required.

failover. Taking over the business function of a failed workload by a failover workload within a PlateSpin Forge VM container.

failover workload. A protected workload's bootable virtual replica.

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

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 11.1 Upgrade Kit*.

Forge software. PlateSpin software engineered 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.

full. 1. (noun) An individual scheduled transfer or manual transfer of a protected workload to its 'blank' replica (the failover VM), or from a failover workload to its original virtual or physical infrastructure.

2. (adjective) Describes the scope of *replication (1)*, in which the initial replica of a protected workload is created based on all of its data.

incremental. 1. (noun) An individual scheduled transfer or manual transfer of differences between a protected workload and its replica (the failover workload).

2. (adjective) Describes the scope of *replication (1)*, in which the initial replica of a workload is created differentially, based on differences between the workload and its prepared counterpart.

Management VM. The management virtual machine containing the PlateSpin Forge software.

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

prepare for failover. A PlateSpin Forge operation that boots the failover workload in preparation of a full Failover operation.

protection tier. A customizable collection of workload protection parameters that define the frequency of replications and criteria for the system to consider a workload as failed.

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 a Windows Server operating system.

recovery point. A point-in-time snapshot, allowing a replicated workload to be restored to a previous state.

replication.

1. *Initial Replication*, the creation of an initial base copy of a workload. Can be carried out as a *Full Replication* (see full (2)), or as an *Incremental Replication* (see incremental (2)).
2. Any transfer of changed data from a protected workload to its replica in the container.

replication schedule. The schedule that is set up to control the frequency and scope of replications.

reprotect. A PlateSpin Forge command that reestablishes a protection contract for a workload following the failover and failback operations.

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.

Recovery Point Actual (RPA). Actual data loss measured in time and defined by the actual measured interval between incremental replications of a protected workload that occurs during a failover test.

Recovery Point Objective (RPO). Tolerable data loss measured in time and defined by a configurable interval between incremental replications of a protected workload. That is, in the event of a major IT outage, how much data are you prepared to lose? The RPO is affected by current utilization levels of PlateSpin Forge, the rate and scope of changes on the workload, your network speed, and the chosen replication schedule.

Recovery Time Actual (RTA). A measure of a workload's actual downtime defined by the time a failover operation takes to complete.

Recovery Time Objective (RTO). A measure of a workload's tolerable downtime defined by the time a failover operation takes to complete. The RTO is affected by the time it takes to configure and execute the failover operation (10 to 45 minutes).

source. A workload or its infrastructure that is the starting point of a PlateSpin Forge operation. For example, upon initial protection of a workload, the source is your production workload. In a failback operation, it is the failover workload in the container.

See also target.

target. A workload or its infrastructure that is the outcome of a PlateSpin Forge command. For example, upon initial protection of a workload, the target is the failover workload in the container. In a failback operation, it is either your production workload's original infrastructure or any supported container that has been inventoried by PlateSpin Forge.

See also source.

test failover. A PlateSpin Forge operation that boots a failover workload in an isolated networking environment for testing the functionality of the failover and verifying the integrity of the failover workload.

Test Time Actual (TTA). A measure of the actual time in which a disaster recovery plan can be tested. It is similar to Actual RTO, but includes the time needed for a user to test the failover workload.

Test Time Objective (TTO). A measure of the ease with which a disaster recovery plan can be tested. It is similar to RTO, but includes the time needed for a user to test the failover workload. You can use the **Test Failover** feature to run through different scenarios and generate benchmark data.

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

workload. The basic object of protection in a data store. An operating system, along with its middleware and data, decoupled from the underlying physical or virtual infrastructure.

A Documentation Updates

This section contains information on documentation content changes that were made in this *Field Rebuild Guide* after the initial release of NetIQ PlateSpin Forge 11.1.

NOTE: This updated information does not appear in localized versions of the *Field Rebuild Guide*.

- "July 2017" on page 33
- "April 2015" on page 33

July 2017

Location	Update
Step 13 in "Deploying the OVF Template" on page 18	After you log in Windows on the VM, click **Yes** when you are prompted to enable networks.

April 2015

Location	Update
"Glossary" on page 29	Added definitions for recovery point actual, recovery time actual, and test time actual.
Various	Applied editorial changes.