

*53-1003859-02
26 October 2015*

Brocade Virtual Traffic Manager: Virtual Appliance Installation and Getting Started Guide

Supporting 10.2



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Preface

Read this preface for an overview of the information provided in this guide. This preface includes the following sections:

- [“About This Guide,”](#) next
- [“Documentation and Release Notes”](#) on page 2
- [“Getting Technical Help or Reporting Errors”](#) on page 3

About This Guide

The *Brocade Virtual Traffic Manager: Virtual Appliance Installation and Getting Started Guide* describes the virtual appliance variant of the Brocade Virtual Traffic Manager (Traffic Manager), used to provide high-availability, application-centric traffic management and load-balancing solutions.

This guide introduces you to the functionality available in the Traffic Manager virtual appliance and is intended to get you using the Traffic Manager quickly and efficiently.

Document Conventions

This guide uses the following standard set of typographical conventions

| Convention | Meaning |
|-----------------|--|
| <i>italics</i> | Within text, new terms and emphasized words appear in <i>italic</i> typeface. |
| boldface | Within text, CLI commands, CLI parameters, and REST API properties appear in bold typeface. |
| Courier | Code examples appear in Courier font: <pre>amnesiac > enable amnesiac # configure terminal</pre> |
| < > | Values that you specify appear in angle brackets: interface <ip-address> |
| [] | Optional keywords or variables appear in brackets: ntp peer <ip-address> [version <number>] |
| { } | Elements that are part of a required choice appear in braces: {<interface-name> ascii <string> hex <string>} |
| | The pipe symbol represents a choice to select one keyword or variable to the left or right of the symbol. The keyword or variable can be either optional or required: { delete <filename> upload <filename>} |

Documentation and Release Notes

To obtain the most current version of all Brocade documentation, click through to the desired product page on the Brocade Web site at <http://www.brocade.com/en/products-services.html>.

If you need more information, see the Brocade Knowledge Base for any known issues, how-to documents, system requirements, and common error messages. You can browse titles or search for keywords and strings. To access the Brocade Knowledge Base, login to the MyBrocade Web site at <https://login.brocade.com>.

Each software release includes release notes. The release notes identify new features in the software as well as known and fixed problems. To obtain the most current version of the release notes, login to the MyBrocade Web site at <https://login.brocade.com>.

Examine the release notes before you begin the installation and configuration process.

Traffic Manager Documentation

The Traffic Manager includes a comprehensive user's guide that describes the Traffic Manager's feature set in depth. There are also getting started guides for each product variant, and a series of reference guides to cover additional functionality such as the TrafficScript rules language and product APIs.

You can download documentation for all supported versions of the Traffic Manager from the Brocade Virtual Traffic Manager product page on the Brocade Web site at:

<http://www.brocade.com/en/products-services/application-delivery-controllers/virtual-traffic-manager.html>.

Traffic Manager Online Help

Click the **Help** button on any page of the Admin UI to see detailed help information for that page. You can also view contents and use index pages to navigate the online help.

The Rules > Edit page also has a link to TrafficScript Help, a quick reference guide for all Traffic Manager TrafficScript functions.

Traffic Manager Information Online

For Traffic Manager product specifications, see:

<http://www.brocade.com/en/products-services/application-delivery-controllers/virtual-traffic-manager.html>

Visit the Brocade Community Web site for further documentation, examples, white papers, and other resources:

<http://community.brocade.com>

Getting Technical Help or Reporting Errors

Brocade is committed to ensuring that your investment in our products remains cost-effective. If you need assistance or find errors in the documentation, contact Brocade using one of the following options.

Web Access

The Brocade Web site contains the latest version of this guide and all other user guides for the Traffic Manager. For more information, see <http://www.brocade.com/en/products-services/application-delivery-controllers/virtual-traffic-manager.html>

To report errors, log in to the MyBrocade Web site at <https://login.brocade.com> and click **Support Cases** to open a new support case. Make sure you specify the document title in the case description.

E-mail and Telephone Access

Go to <http://www.brocade.com/en/support.html> for the latest e-mail and telephone contact information.

CHAPTER 1 Overview

This chapter provides an overview of the Brocade Virtual Traffic Manager. This chapter contains the following sections:

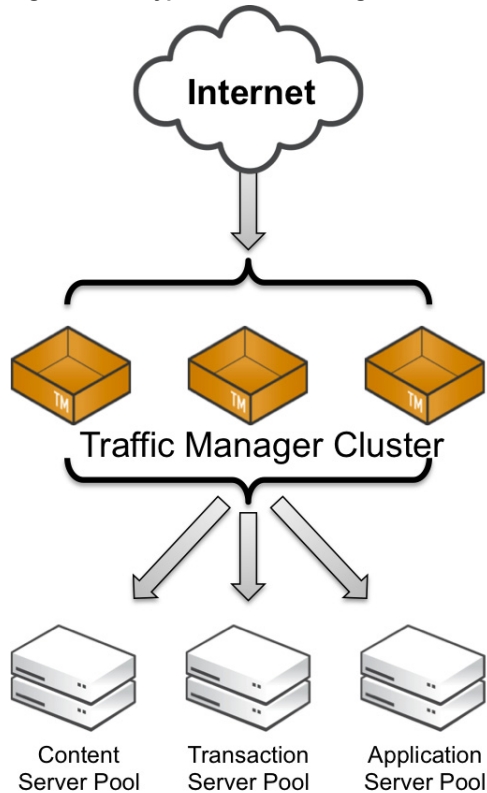
- [“Introducing Brocade Virtual Traffic Manager” on page 5](#)
- [“Product Variants” on page 6](#)

Introducing Brocade Virtual Traffic Manager

The Brocade Virtual Traffic Manager (Traffic Manager) product family provides high-availability, application-centric traffic management and load balancing solutions. They provide control, intelligence, security and resilience for all your application traffic.

The Traffic Manager is intended for organizations hosting valuable business-critical services, such as TCP-based and UDP-based services like HTTP (web) and media delivery, and XML-based services such as Web Services.

Figure 1-1. A Typical Cluster Configuration



Product Variants

The Traffic Manager product line is available in a variety of forms on different platforms:

- As software, with versions for supported Linux and UNIX operating systems (including support for virtual machine instances running on Amazon's Elastic Compute Cloud (EC2) platform).
- As a virtual appliance, with versions for VMware, Microsoft Hyper-V, Xen, and QEMU / KVM.
- As a cloud computing platform machine image, with versions for Amazon EC2, Rackspace, and Microsoft Azure.

Brocade provides a separate edition of this guide for each of the above product variants.

The release notes included with your product variant contain a full list of the supported platforms and versions.

CHAPTER 2 Getting Started

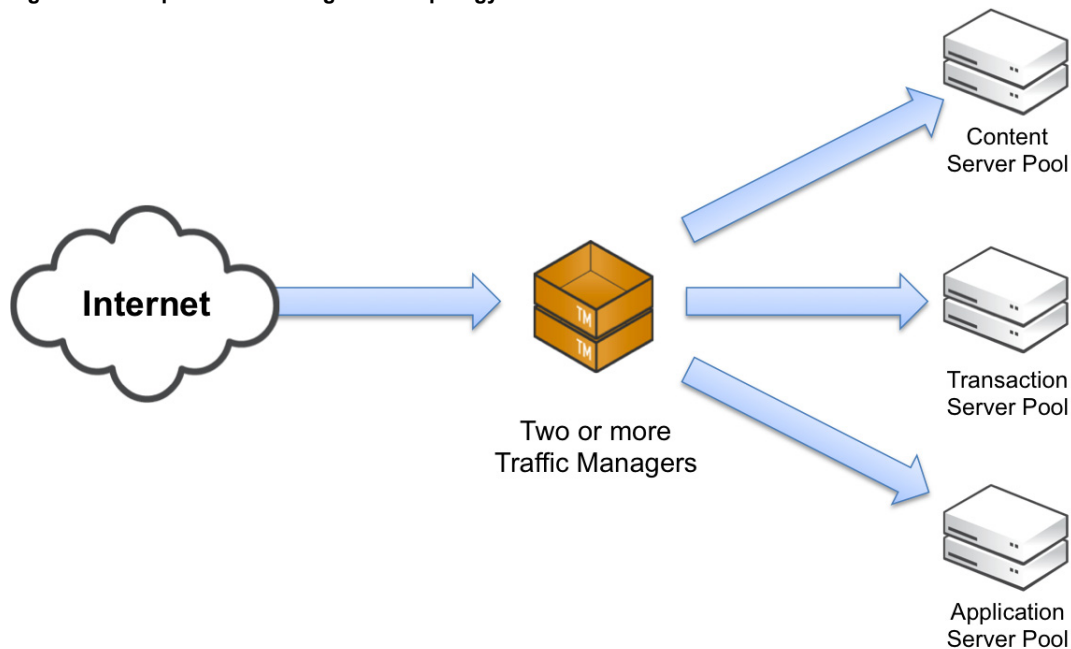
This chapter contains information about getting started using the Traffic Manager. This chapter contains the following sections:

- [“Network Architecture,”](#) next
- [“Prerequisites”](#) on page 8
- [“Network Configurations”](#) on page 8
- [“Management Network”](#) on page 11

Network Architecture

The Traffic Manager sits between the Internet and your back-end servers, acting as a reverse proxy. It can be used in conjunction with a standalone firewall if desired. Traffic received from the Internet is passed on to the most appropriate back-end server to respond to the request.

Figure 2-1. Simple Traffic Management Topology



You can install two or more Traffic Managers in a clustered configuration to provide full fault-tolerance for individual software failures. A typical configuration contains at least two Traffic Managers, and at least two servers hosting the load-balanced application.

Prerequisites

Before you begin the installation of the Traffic Manager virtual appliance, make sure you have the version appropriate to your hypervisor platform, and suitable license keys for each Traffic Manager instance you want to create.

Make sure that you have the following information:

- Hostnames for each of the virtual appliance instances that you are creating.
- IP addresses for each of the interfaces that you intend to use on each virtual appliance.
- Subnet masks for each of the IP addresses you are using.
- The domain name to which your appliances belong (optional)
- The IP address for the default gateway.
- The IP address for each name server that the virtual appliance uses to resolve your internal network addresses (optional).
- The DNS search path (the "local part" of your machine hostnames) (optional). This item is commonly the same as the domain name.
- An Admin password for the Admin UI.

You administer all Traffic Manager variants through a Web-enabled user interface. The Traffic Manager supports the following browsers for this purpose:

- **Internet Explorer:** v.7 or newer
- **Firefox:** v.3 or newer
- **Safari:** v.4 or newer
- **Chrome:** v.5 or newer

Brocade recommends using one or more test servers (for example, Web servers) to which you can direct traffic.

Note: References to \$ZEUSHOME throughout this guide refer to the Traffic Manager software installation directory you specify during the installation process.

Network Configurations

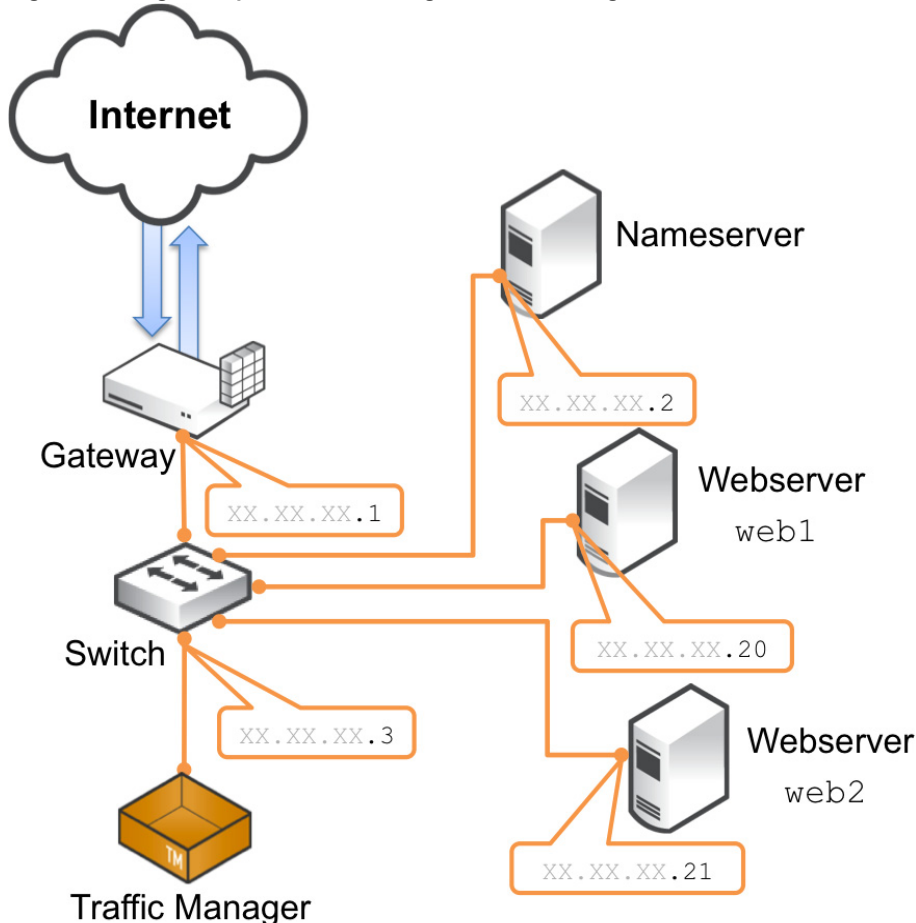
This section provides a number of scenarios showing how you can deploy the Traffic Manager into your network.

Scenario 1: Simple Network

This scenario demonstrates how you can place a single Traffic Manager into an existing network to handle traffic for a Web site. All IP addresses run on a publicly addressable network (represented by xx.xx.xx in the diagram, with a netmask of 255.255.255.0).

Without the Traffic Manager, clients connecting to the Web site are directed, through the gateway, to one of the Web servers hosting the site (for example, “web1” on the IP address xx.xx.xx.20).

Figure 2-2. Single setup of a Traffic Manager into an existing network



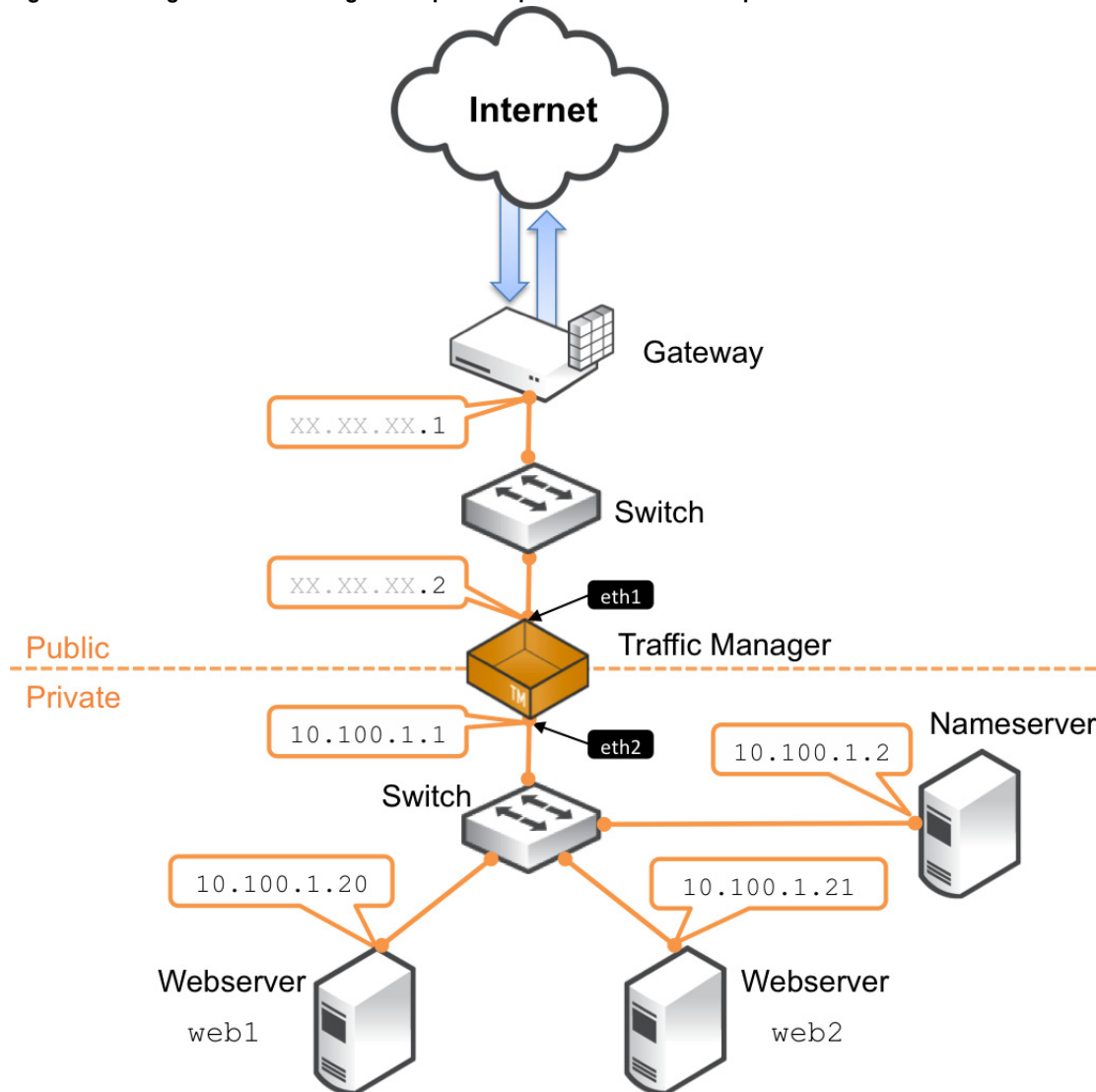
By installing a Traffic Manager, configured to receive traffic over a single network port and IP address xx.xx.xx.3, you can alter your DNS record to instead direct clients to xx.xx.xx.3. In this way, the Traffic Manager receives the Web page requests and responds with content from one of the available Web servers.

Scenario 2: Public/Private Networks

This scenario splits your network infrastructure into separate public and private networks. This offers greater security as the private network hides the internal back-end services from the outside world. Access is only permitted through the Traffic Manager. Using more network interfaces also gives higher performance as there is greater bandwidth capacity.

The diagram shows how you can configure the network gateway and the Traffic Manager's front-end (eth1) interface with publicly routable IP addresses (the xx.xx.xx network, netmask 255.255.255.0). You then configure the Traffic Manager's back-end interface (eth2) on the internal network (10.100.xx.xx, netmask 255.255.0.0).

Figure 2-3. Using the Traffic Manager to separate a public network from a private network

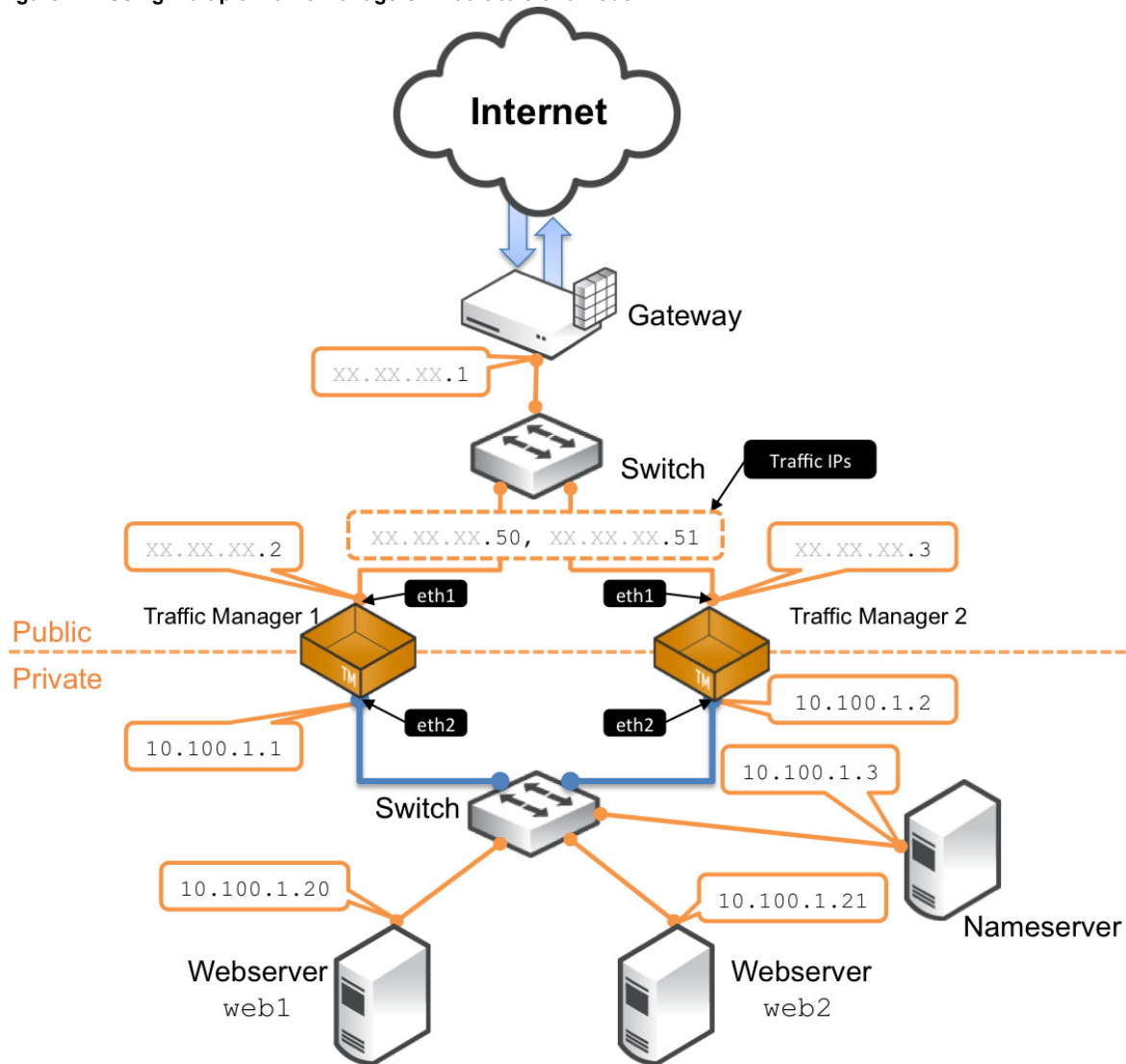


Scenario 3: Multiple Traffic Managers

This scenario deploys two Traffic Managers in a public/private network. The Traffic Managers make use of Traffic IP Addresses to provide a fault tolerant service. Traffic IP addresses are additional IP addresses that are distributed across the front-end network interfaces. If one Traffic Manager becomes uncontactable, the other Traffic Manager is able to adopt the Traffic IP address and continue handling requests.

You define and manage your Traffic IP addresses through the Traffic Manager's Web-based Admin UI, and you set them up after the initial low-level networking is complete. For more information, see the *Brocade Virtual Traffic Manager: User's Guide*.

Figure 2-4. Using multiple Traffic Managers in fault-tolerant mode



Management Network

By default, the Traffic Manager accepts management traffic on all of its network interfaces. All management traffic is encrypted or secured.

Management traffic includes the following types:

- Access to the Web-based administration interface (also known as the Admin UI).
- Connections through the SOAP-based Control API, the REST API, and Command-Line Interface (CLI).
- Internal health and state sharing traffic.

You typically use a network firewall to prevent external clients from attempting to access any of the management interfaces.

For heightened security, the Traffic Manager enables you to nominate a particular network interface for management traffic. This interface can reside on a secure internal management network.

Installing the Traffic Manager Virtual Appliance on Microsoft Hyper-V

This chapter describes how to install the Traffic Manager Virtual Appliance on the Microsoft Hyper-V platform.

It contains the following sections:

- [“System Requirements,”](#) next
- [“Installing the Virtual Appliance”](#) on page 14
- [“Checking the Initial IP Address”](#) on page 16
- [“Connecting to the Admin UI”](#) on page 17
- [“Expanding the Log File Partition”](#) on page 17

System Requirements

The Traffic Manager virtual appliance is supported for production use on the Microsoft Hyper-V hypervisor, running on the Windows Server platform. The Traffic Manager is available on Hyper-V as a 64-bit version only.

Refer to the release notes included with your virtual appliance package for a full list of the supported platforms and versions.

The virtual appliance software is provided as a ZIP archive file. This file contains a VHD disk image file suitable for use within a Hyper-V environment. The software can be installed and configured through the Hyper-V Manager component in the Server Manager application.

The minimum resource requirements for the virtual appliance are:

- Allocated Memory (RAM): 2 GB
- Disk allocation: 16 GB

The Traffic Manager uses a dynamically expanding virtual hard disk format. A freshly installed appliance starts with a minimal disk size and expands automatically with usage up to the defined maximum allocation shown above. Such usage includes stored configuration and log file entries. Should you reach this maximum, it is possible to increase the disk size through tools provided in the Hyper-V manager. For more details, see [“Expanding the Log File Partition”](#) on page 17.

Installing the Virtual Appliance

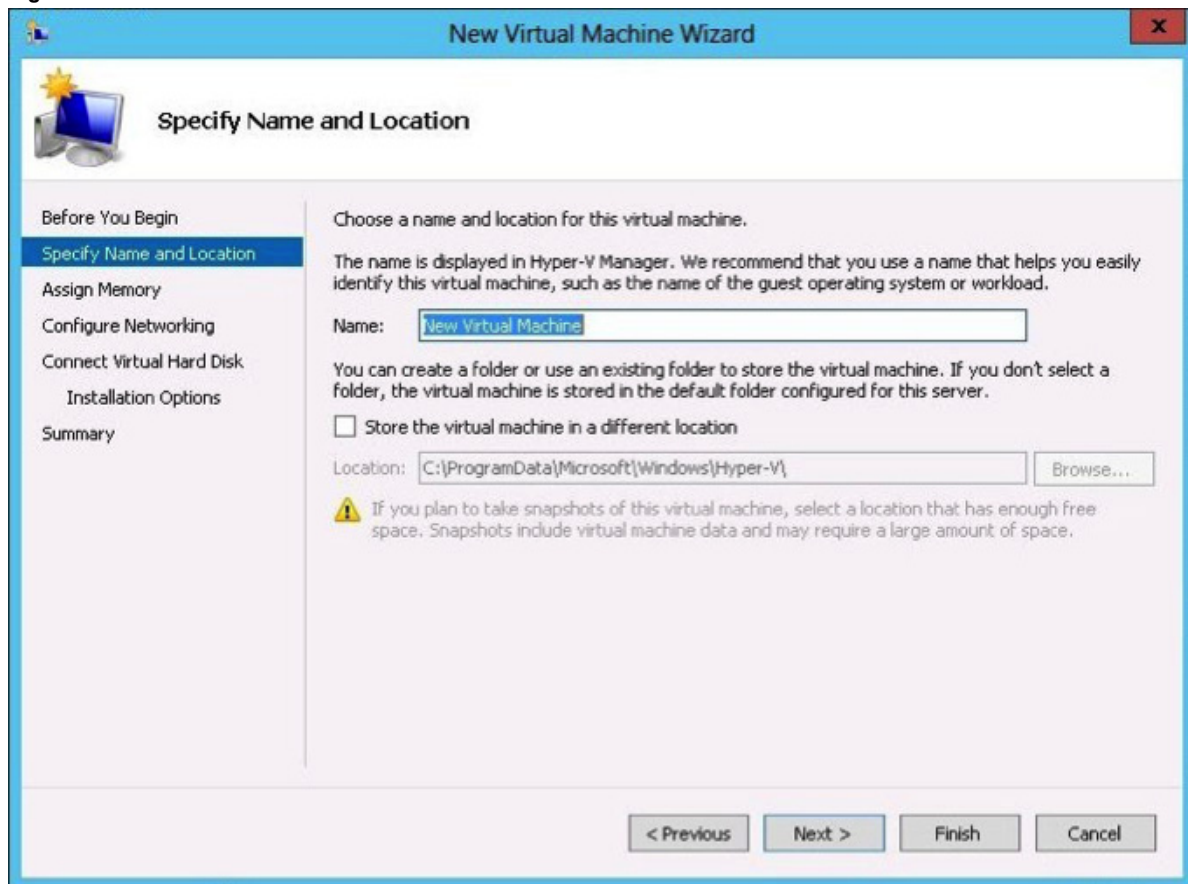
Microsoft provides a Windows Server-based Hyper-V Manager application for managing your virtual infrastructure. This application can be used to install and administer the Traffic Manager virtual appliance on Hyper-V.

First obtain the appropriate virtual appliance disk image in VHD format. If the virtual appliance is delivered in a compressed archive file (for example, .zip), unpack this archive to your Windows server first.

To install the Virtual Appliance on Hyper-V

1. Launch the Hyper-V Manager application.
2. Connect to the Hyper-V host server you intend to create the virtual machine on.
3. From the Actions command list, choose New > Virtual Machine...
4. The New Virtual Machine wizard is displayed. The individual steps to follow are shown on the left, with the current step displayed in the main part of the window. The **Previous** and **Next** buttons allow navigation between the various steps.

Figure 3-1. The New Virtual Machine wizard



5. *Specify Name and Location:* Enter a suitably identifying name for your virtual machine. Optionally enter an alternative location for the virtual machine to be stored.
6. *Assign Memory:* Enter the total amount of allocated memory (RAM) to be made available to the virtual machine. This should be equal to the amount specified in [“System Requirements” on page 13](#).
7. *Configure Networking:* A suitable connection needs to be created between the network interfaces within your Hyper-V virtual infrastructure and the interface on the Traffic Manager virtual appliance. Select the virtual switch interface from the drop-down list you want this connection to use.
8. *Connect Virtual Hard Disk:* Brocade provides the necessary virtual hard disk as part of the Traffic Manager virtual appliance package. Click **Use an existing virtual hard disk** and provide the full path to the .vhd file from your unpacked virtual appliance archive. Alternatively click **Browse...** to locate it in the file explorer dialog.
9. *Summary:* Click **Finish** to complete the process.

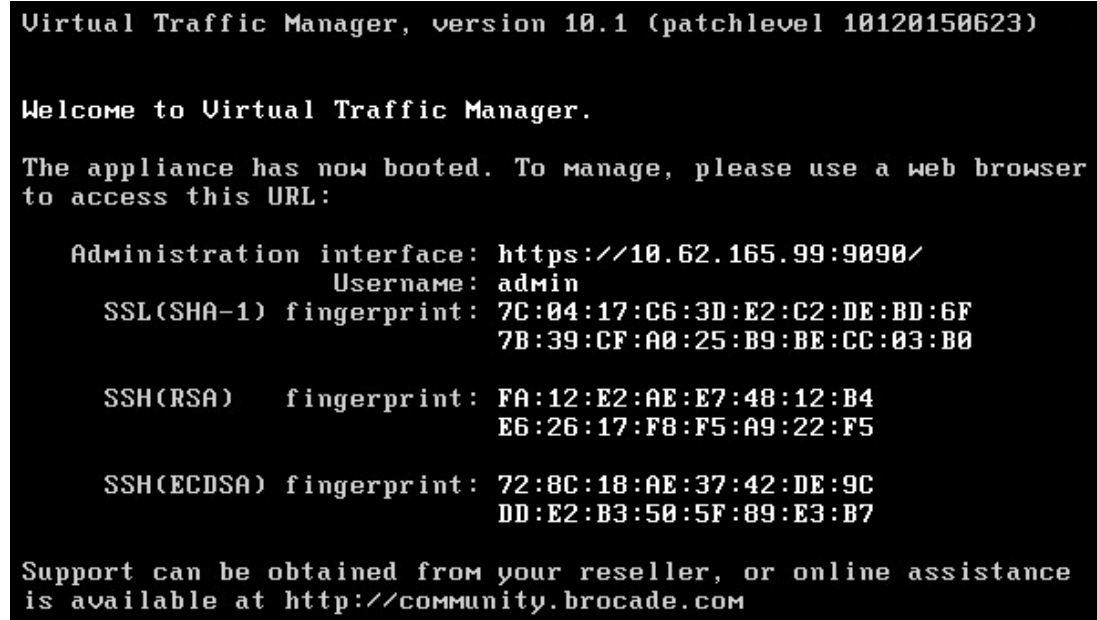
Note: Some variants of Hyper-V Manager contain an additional wizard step to specify which *Generation* your virtual machine belongs to. For this step, choose "Generation 1".

Your Traffic Manager virtual appliance appears in the Virtual Machines pane of the main window. To start the appliance, click **Start** in the Actions pane below the virtual machine name.

Checking the Initial IP Address

When you first start the Traffic Manager virtual appliance, it attempts to obtain an IPv4 address using DHCP. If it receives no response to its DHCP requests, the virtual appliance configures itself with the static IP 192.168.1.101 (on the 192.168.1.0/24 network). With either case, the chosen IP address is displayed on the console.

Figure 3-2. The Traffic Manager virtual appliance console



```
Virtual Traffic Manager, version 10.1 (patchlevel 10120150623)

Welcome to Virtual Traffic Manager.

The appliance has now booted. To manage, please use a web browser
to access this URL:

  Administration interface: https://10.62.165.99:9090/
                        Username: admin
  SSL(SHA-1) fingerprint: 7C:04:17:C6:3D:E2:C2:DE:BD:6F
                        7B:39:CF:A0:25:B9:BE:CC:03:B0

  SSH(RSA)   fingerprint: FA:12:E2:AE:E7:48:12:B4
                        E6:26:17:F8:F5:A9:22:F5

  SSH(ECDSA) fingerprint: 72:8C:18:AE:37:42:DE:9C
                        DD:E2:B3:50:5F:89:E3:B7

Support can be obtained from your reseller, or online assistance
is available at http://community.brocade.com
```

If the virtual appliance could not obtain an address using DHCP and the default 192.168.1.101 address is not appropriate for your network, you can manually set the initial IP address.

To set the initial IP address

1. Engage the Traffic Manager virtual appliance console interface.
2. Type Alt+F2 to switch to the alternative console display "tty2".
3. Log in as "admin" with the default password of "admin".
4. Run the following command:
`z-set-initial-address`
5. Type an IP address and netmask at the prompt.
6. Once the command terminates, type `logout` to log out of the console.
7. Switch back to "tty1" by typing Alt+F1.
8. Observe that the IP address in the URL for the Traffic Manager administration interface (Admin UI) has changed to your new IP address.

Connecting to the Admin UI

To connect to the Traffic Manager Admin UI, type the URL displayed on the appliance console into your Web browser.

By default, this URL is "https://<appliance_IP>:9090/", where <appliance_IP> is either:

- The IP address obtained using DHCP
- The IP address specified with the `z-set-initial-address` command (if used).
- 192.168.1.101

Note: Before you can connect to the Admin UI, your Web browser might report problems with the SSL certificate (either that it cannot trust it, or that the hostname in the certificate does not match the hostname in the URL). These problems can safely be ignored: the certificate is a self-signed certificate, and the hostname in the certificate might not match the URL you have used to access it, particularly if you have used the appliance's IP address in the URL.

Expanding the Log File Partition

If you want to allocate more space for your log files, expand the virtual disk and then resize the file system from the virtual appliance's command line.

Before you start, make sure you have completed the following steps:

1. Performed a backup of your Traffic Manager configuration and log files.
2. Stopped the virtual appliance.

Resizing the Virtual Hard Disk

In the Hyper-V Manager application, edit the settings of the desired Traffic Manager virtual machine to set a new size for the hard disk.

To resize the virtual hard disk

1. To edit the virtual machine settings, click **Settings...** in the Actions pane, use the right-click context menu over the virtual machine name, or use the Action menu in the toolbar.
2. In the Settings dialog, select the hard drive you want to expand in the Hardware pane (the relevant .vhd virtual hard disk file is listed here), and click **Edit** in the right hand details pane. This launches the Edit Virtual Hard Disk wizard.
3. Choose "Expand" and click **Next**.
4. Enter the new disk size (in GB) in the box provided.
5. Click **Next** to view a summary of the changes, or **Finish** to expand the disk immediately.

6. Click **OK** to close the Settings dialog, and click **Start** to restart the virtual machine.

Once the virtual machine has started, resize its log partition to take advantage of the newly allocated disk size.

Resizing the Virtual Appliance Log Partition

To expand the Traffic Manager's log partition into a newly resized virtual hard disk, use the virtual appliance console interface.

To expand the log partition

1. Engage the virtual appliance console, or connect using SSH.
2. Log in as the “admin” user.
3. Resize the /logs partition by typing the following command:

```
z-expand-logs-partition
```


CHAPTER 4 Installing the Traffic Manager Virtual Appliance on VMware

This chapter describes how to install the Traffic Manager Virtual Appliance on VMware.

It contains the following sections:

- [“System Requirements,”](#) next
- [“Importing the OVF package”](#) on page 20
- [“Checking the Initial IP Address”](#) on page 22
- [“Connecting to the Admin UI”](#) on page 23
- [“Expanding the Log File Partition”](#) on page 23

System Requirements

The Traffic Manager virtual appliance is supported for production use on VMware vSphere.

For a full list of the supported platforms and versions, see the release notes included with your virtual appliance package.

Caution: If you are upgrading your virtual appliance from a previous Traffic Manager version, you can find information specific to VMware users in [“Upgrading and Downgrading”](#) on page 61.

Brocade provides a Traffic Manager virtual machine package conforming to the VMware OVF (Open Virtualization Format) standard in a ZIP archive file.

The minimum resource requirements for the virtual appliance are:

- Allocated Memory (RAM): 2 GB
- Disk allocation: 16 GB

To ensure the full performance of your deployment, Brocade recommends you set the memory resource reservation for your new virtual machine at least equal to its allocated RAM. To achieve this, configure the "Reservation" setting on the Resources > Memory tab of your Virtual Machine settings.

Note: The Traffic Manager supports the VMware hot-plug capability for RAM and CPU allocation. This provides the ability to dynamically adjust these resources whilst the virtual machine is powered on. Certain limitations might apply

depending on the version you are running. For more information, see the release notes, or contact your support provider for assistance.

Cloning and Guest OS Customization

The Traffic Manager supports vSphere Client cloning, which provides a mechanism to create and deploy new instances of a previously installed virtual machine. These new instances are configured with the same virtual hardware, installed software, and other properties that were configured for the original.

This capability includes Guest Operating System (OS) Customization, which can help prevent conflicts in cloned virtual machines by allowing you to specify unique settings such as name and network configuration. It also enables the automation of virtual machine provisioning.

To use Guest OS Customization

1. Deploy a Traffic Manager OVF in vSphere Client to be used as a template.
2. Navigate to the Admin UI and complete the Initial Configuration Wizard. For more information, see [Chapter 8, “Configuring the Traffic Manager Virtual Appliance.”](#)

If you are unable to successfully complete the Initial Configuration Wizard, incorrect network settings might be applied to any cloned virtual machines based on this template.

Caution: The Guest OS Customization process does not support bonded network interfaces within the Traffic Manager virtual machine to be cloned. If you use such a setup, you must manually check and set the network configuration for each cloned virtual machine.

Caution: The Guest OS Customization process causes the Traffic Manager to disable use of the *nameip* feature. In situations where your DNS system cannot successfully resolve your Traffic Manager hostname, *nameip* allows you to configure the Traffic Manager to instead use its IP address to identify itself to other cluster members.

Caution: If you are using Guest OS Customizations to clone a virtual appliance with a management interface configured, the management interface settings are cleared to ensure that the cloned appliance is accessible.

For further information on cloning and Guest OS Customization, see the VMware documentation Web site: <http://www.vmware.com/support/pubs>.

Importing the OVF package

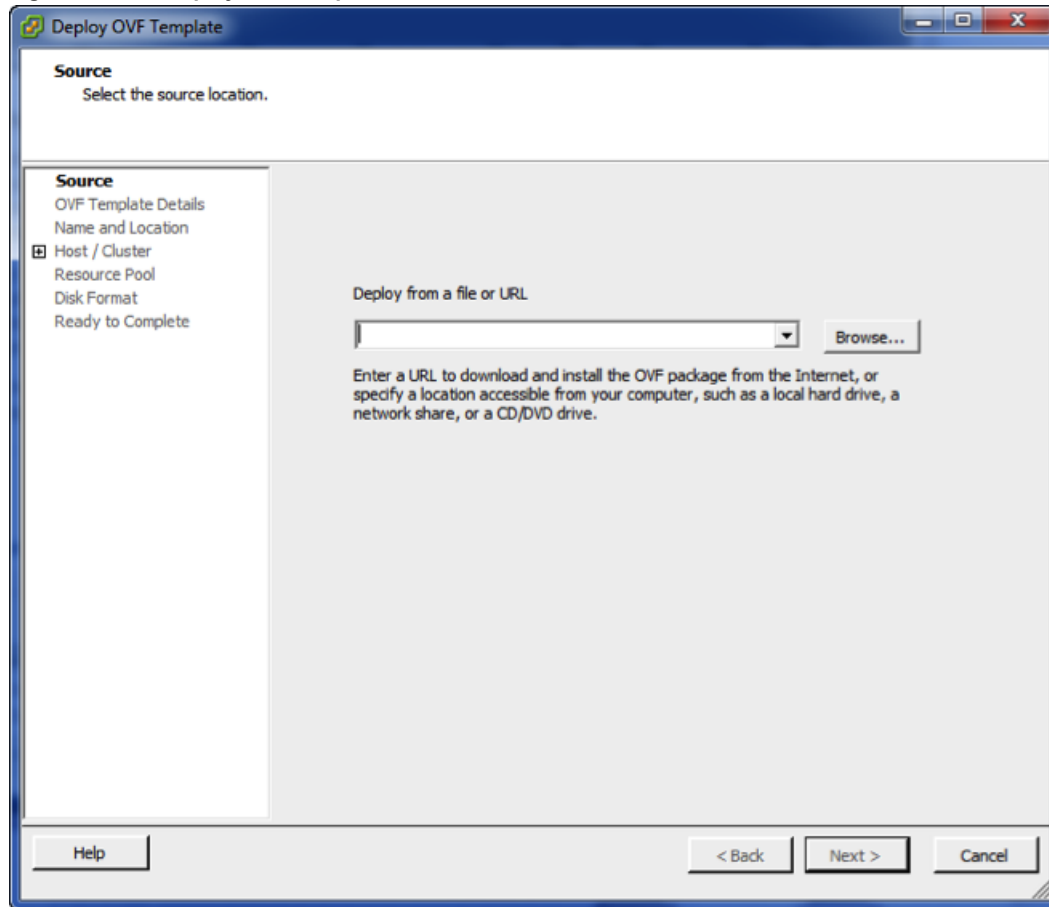
This section describes the process of importing your Traffic Manager OVF package into your VMware infrastructure.

To import the OVF package

1. Run the VMware vSphere Client program.

2. Choose **File > Deploy OVF Template...** to launch the "Deploy OVF Template" wizard. The individual steps to follow are shown on the left of the wizard window, with the current step displayed in the main section. Click **Back** and **Next** to navigate between steps, and **Cancel** to exit the wizard without deploying the OVF template.

Figure 4-1. The Deploy OVF Template wizard



3. *Source*: Specify the location of the Traffic Manager OVF file on your hard disk, or from some other location on the Internet. For OVF packages on your local hard disk, unpack the ZIP archive and locate the ".ovf" file contained inside.
4. *OVF Template Details*: Displays the details of your successfully validated virtual appliance package.
5. *End User License Agreement*: To continue importing the OVF template, you must read and accept the Brocade Terms and Conditions of Sale. To view the agreement, use the URL provided.
6. *Name and Location*: Enter an identifying name for this virtual appliance. Depending on your infrastructure configuration, you might be prompted to provide a location within the inventory for the appliance. If you are connected directly to the host, the location is not applicable.
7. *Host / Cluster*: Select the appropriate host or cluster on which you intend to install and run the virtual appliance.
8. *Resource Pool*: If you have multiple resource pools, hosts, or clusters set up within your infrastructure, use this page to select the resource within which you want your virtual appliance to reside.

9. *Disk Format*: Select either "thin" or "thick" disk provisioning according to your organizational policy or requirements.
10. *Ready to complete*: Check the configuration summary of your virtual appliance deployment and click **Finish** to begin the import process. To go back and modify any step of the wizard, click **Back** or click the relevant step link in the left-side pane.

The Traffic Manager virtual appliance is supplied preconfigured with one network interface. If you require more than one interface, edit the virtual machine settings of the newly imported appliance before starting it and add new Ethernet adapters as required.

Note: If different network drivers (for example, e1000, vmxnet3, and so on) are used for different interfaces, the mapping of network interface to MAC address might vary from reboot to reboot. Brocade recommends that you select the same network driver for each defined interface if MAC address preservation is required across your network interfaces.

Click **Power on the virtual machine** to start the Traffic Manager.

Checking the Initial IP Address

When you first start the Traffic Manager virtual appliance, it attempts to obtain an IPv4 address using DHCP. If it receives no response to its DHCP requests, the virtual appliance configures itself with the static IP 192.168.1.101 (on the 192.168.1.0/24 network). With either case, the chosen IP address is displayed on the console.

Figure 4-2. The Traffic Manager virtual appliance console

```
Virtual Traffic Manager, version 10.1 (patchlevel 10120150623)

Welcome to Virtual Traffic Manager.

The appliance has now booted. To manage, please use a web browser
to access this URL:

  Administration interface: https://10.62.165.99:9090/
                        Username: admin
  SSL(SHA-1) fingerprint: 7C:04:17:C6:3D:E2:C2:DE:BD:6F
                        7B:39:CF:A0:25:B9:BE:CC:03:B0

  SSH(RSA)   fingerprint: FA:12:E2:AE:E7:48:12:B4
                        E6:26:17:F8:F5:A9:22:F5

  SSH(ECDSA) fingerprint: 72:8C:18:AE:37:42:DE:9C
                        DD:E2:B3:50:5F:89:E3:B7

Support can be obtained from your reseller, or online assistance
is available at http://community.brocade.com
```

If the virtual appliance could not obtain an address using DHCP and the default 192.168.1.101 address is not appropriate for your network, you can manually set the initial IP address.

To set the initial IP address

1. Engage the Traffic Manager virtual appliance console interface.
2. Type Alt+F2 to switch to the alternative console display "tty2".
3. Log in as "admin" with the default password of "admin".
4. Run the following command:
`z-set-initial-address`
5. Type an IP address and netmask at the prompt.
6. Once the command terminates, type logout to log out of the console.
7. Switch back to "tty1" by typing Alt+F1.
8. Observe that the IP address in the URL for the Traffic Manager administration interface (Admin UI) has changed to your new IP address.

Connecting to the Admin UI

To connect to the Traffic Manager Admin UI, type the URL displayed on the appliance console into your Web browser.

By default, this URL is "https://<appliance_IP>:9090/", where <appliance_IP> is either:

- The IP address obtained using DHCP
- The IP address specified with the z-set-initial-address command (if used).
- 192.168.1.101

Note: Before you can connect to the Admin UI, your Web browser might report problems with the SSL certificate (either that it cannot trust it, or that the hostname in the certificate does not match the hostname in the URL). These problems can safely be ignored: the certificate is a self-signed certificate, and the hostname in the certificate might not match the URL you have used to access it, particularly if you have used the appliance's IP address in the URL.

Expanding the Log File Partition

If you want to allocate more space for your log files, expand the virtual disk, and then resize the file system from the virtual appliance's command line.

Before you start, make sure you have completed the following steps:

1. Performed a backup of your Traffic Manager configuration and log files.
2. Stopped the virtual appliance using either the Admin UI or vSphere Client.

To resize the virtual hard disk

1. On the command line of the ESX Server, change to the directory containing the virtual disk file (.vmdk) for your virtual appliance.
2. Use the "vmkfstools" command to expand the disk:

```
vmkfstools -X 24G <Virtual Appliance Name>.vmdk
```

To expand the log partition

1. Start the virtual appliance using the vSphere Client.
2. Engage the virtual appliance console, or connect using SSH.
3. Log in as the "admin" user.
4. Resize the /logs partition by typing the following command:

```
z-expand-logs-partition
```

Installing the Traffic Manager Virtual Appliance on Xen Based Systems

This chapter describes how to install the Traffic Manager Virtual Appliance on Xen based hypervisors. It contains the following sections:

- [“Installing the Virtual Appliance XVA Package,”](#) next
- [“Checking the Initial IP Address”](#) on page 27
- [“Connecting to the Admin UI”](#) on page 28
- [“Expanding the Log File Partition”](#) on page 28
- [“Booting your Virtual Appliance into Recovery Mode”](#) on page 29
- [“Importing the Virtual Appliance Into Open-source Xen”](#) on page 30

Installing the Virtual Appliance XVA Package

Brocade recommends using Citrix XenCenter for managing your XenServer virtual infrastructure. These instructions refer to importing the Traffic Manager virtual appliance using this method.

For a full list of the supported platforms and versions, see the release notes included with your virtual appliance package.

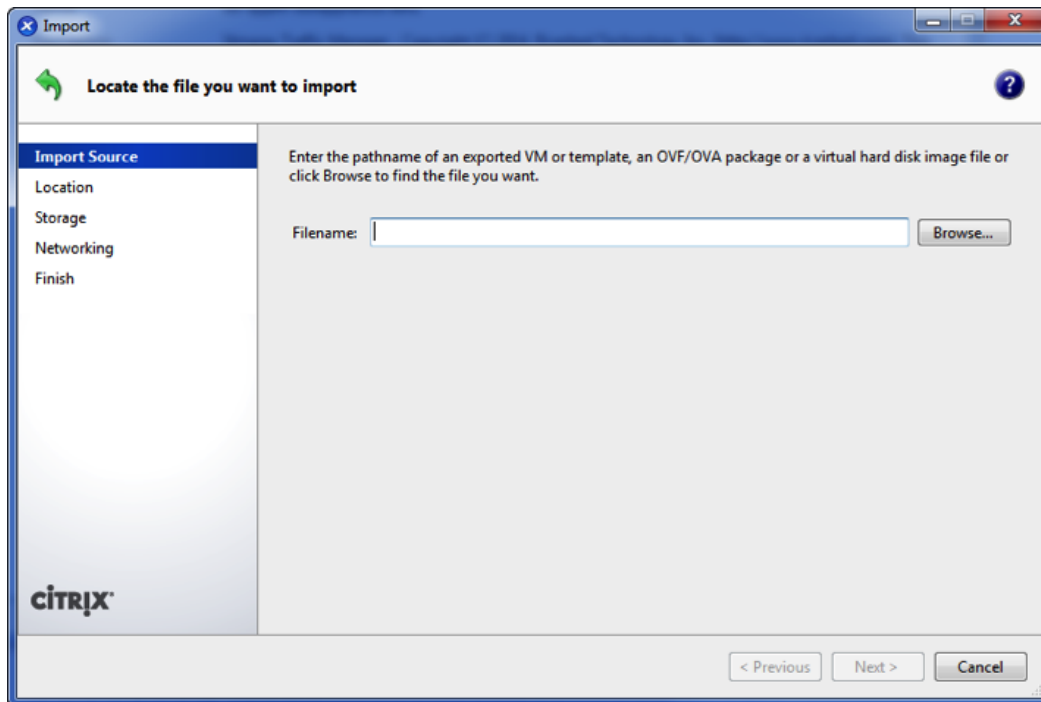
To install the Traffic Manager, obtain the appropriate Traffic Manager virtual appliance package in XVA format. If the virtual appliance is delivered in a compressed archive format (for example, ZIP) unpack this archive to your local hard disk before starting the installation procedure.

To install the Traffic Manager using XenCenter

1. Log in to XenCenter and connect to your designated XenServer.

2. Click **File > Import** to launch the Import wizard. The individual steps to follow are shown on the left of the wizard window, with the current step displayed in the main section. Click **Previous** and **Next** to navigate between steps, and **Cancel** to exit the wizard without deploying the virtual appliance.

Figure 5-1. The XenCenter Import wizard

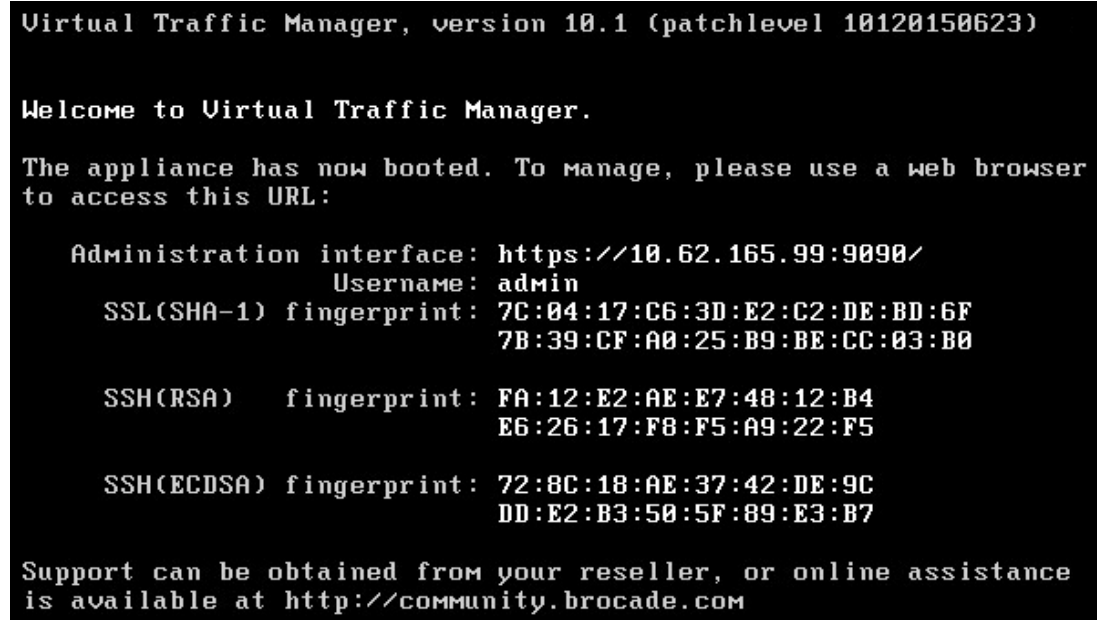


3. *Import source:* Type the full name and path of the .xva file from your unpacked virtual appliance archive package into the Filename box, or click **Browse...** to locate the file on your hard disk. Click **Next** to proceed.
4. *Home server:* Click the XenServer name you want to install the virtual appliance on, or click **Add New Server** to add a new XenServer. Click **Next** to proceed.
5. *Storage:* Select the storage repository you want XenCenter to use for the Traffic Manager's virtual disk. Click **Import** to proceed.
6. *Networking:* Use this step to create one or more network connections between the interfaces in your Xen virtual infrastructure and the interface on the Traffic Manager virtual appliance. Click **Add** to create a new connection, and under the Network column select the XenServer interface from the drop-down list you want this connection to use. Click **Delete** to remove connections as necessary. Click **Next** to proceed.
7. *Finish:* Check the configuration summary of your virtual appliance deployment and click **Finish** to proceed. Click **Previous** to go back and modify any step of the wizard. Click **Start VM(s) after import** to instruct XenCenter to start the virtual appliance automatically upon completion.

Checking the Initial IP Address

When you first start the Traffic Manager virtual appliance, it attempts to obtain an IPv4 address using DHCP. If it receives no response to its DHCP requests, the virtual appliance configures itself with the static IP 192.168.1.101 (on the 192.168.1.0/24 network). With either case, the chosen IP address is displayed on the console.

Figure 5-2. The Traffic Manager virtual appliance console



```
Virtual Traffic Manager, version 10.1 (patchlevel 10120150623)

Welcome to Virtual Traffic Manager.

The appliance has now booted. To manage, please use a web browser
to access this URL:

Administration interface: https://10.62.165.99:9090/
Username: admin
SSL(SHA-1) fingerprint: 7C:04:17:C6:3D:E2:C2:DE:BD:6F
                        7B:39:CF:A0:25:B9:BE:CC:03:B0

SSH(RSA) fingerprint: FA:12:E2:AE:E7:48:12:B4
                      E6:26:17:F8:F5:A9:22:F5

SSH(ECDSA) fingerprint: 72:8C:18:AE:37:42:DE:9C
                       DD:E2:B3:50:5F:89:E3:B7

Support can be obtained from your reseller, or online assistance
is available at http://community.brocade.com
```

If the virtual appliance could not obtain an address using DHCP and the default 192.168.1.101 address is not appropriate for your network, you can manually set the initial IP address.

To set the initial IP address

1. In XenCenter, select the required Traffic Manager from the list of virtual appliances and click the **Console** tab to engage the console interface.
2. Press Enter to display the login prompt.
3. Log in as "admin" with the default password of "admin".

4. Run the following command:

```
z-set-initial-address
```

5. Type an IP address and netmask at the prompt.
6. Once the command terminates, type logout to log out of the console.
7. Observe that the IP address in the URL for the Traffic Manager administration interface (Admin UI) has changed to your new IP address.

Connecting to the Admin UI

To connect to the Traffic Manager Admin UI, type the URL displayed on the appliance console into your Web browser.

By default, this URL is "https://<appliance_IP>:9090/", where <appliance_IP> is either:

- The IP address obtained using DHCP
- The IP address specified with the z-set-initial-address command (if used).
- 192.168.1.101

Note: Before you can connect to the Admin UI, your Web browser might report problems with the SSL certificate (either that it cannot trust it, or that the hostname in the certificate does not match the hostname in the URL). These problems can safely be ignored: the certificate is a self-signed certificate, and the hostname in the certificate might not match the URL you have used to access it, particularly if you have used the appliance's IP address in the URL.

Expanding the Log File Partition

To increase the disk space for your virtual appliance log files, expand the virtual disk and then resize the file system from the virtual appliance's console interface.

Before you start, make sure you have completed the following steps:

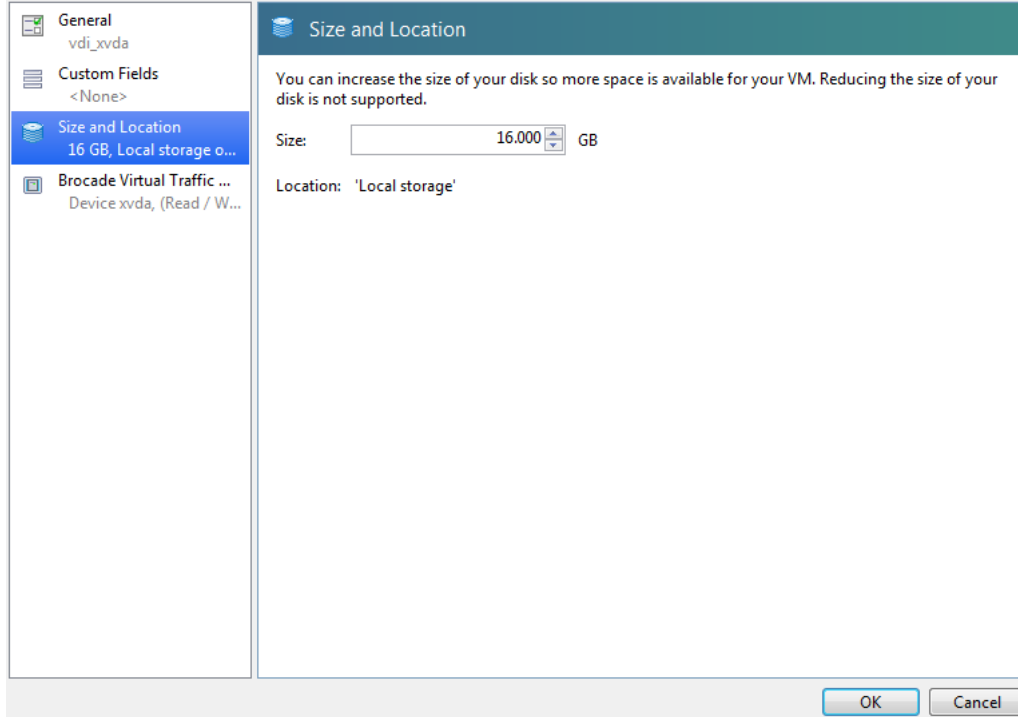
1. Performed a backup of your Traffic Manager configuration and log files.
2. Stopped the virtual appliance using XenCenter.

To resize the virtual disk

1. In XenCenter, select the required Traffic Manager from the list of virtual appliances and click the **Storage** tab. A standard Traffic Manager virtual appliance installation contains one virtual disk, displayed in this tab.
2. Select the Traffic Manager virtual disk and click **Properties**.

3. In the virtual disk properties window, click **Size and Location**.

Figure 5-3. The Virtual Disk Properties window



4. Expand the disk to the required size (the default is 16 GB). Click **OK** to make the change.
5. Start the Traffic Manager virtual appliance.
6. After it has finished booting, log in to the console using SSH or the Console tab in XenCenter.
7. To resize the `/logs` partition, type the following command into the console:

```
z-expand-logs-partition
```

Booting your Virtual Appliance into Recovery Mode

If your Traffic Manager ever becomes unresponsive, or if you suffer some other failure that cannot be resolved from the XenCenter console, it might be necessary to boot your virtual appliance into Recovery Mode.

To use Recovery Mode

1. Log in to the command console of the XenServer that contains your Traffic Manager virtual appliance.
2. Find the "UUID" of the virtual appliance you are interested in using this command:

```
xe vm-list
```

3. After you have obtained the UUID, run the following command:

```
xe vm-param-set PV-bootloader-args="--entry=1" uuid=<UUID>
```

4. Restart the Traffic Manager virtual appliance.

To reset the virtual appliance boot mode back to the default, perform the same operation again, inserting this command in place of [Step 3](#):

```
xe vm-param-set PV-bootloader-args="" uuid=<UUID>
```

Importing the Virtual Appliance Into Open-source Xen

To install the Traffic Manager virtual appliance in Open-source Xen, obtain the virtual appliance package in XenRaw format. If the virtual appliance is delivered in a compressed archive format (for example, ZIP), unpack this to your local hard disk before continuing.

To register the Traffic Manager virtual appliance in Open-source Xen

1. Run the following command at the console:

```
xm create vm.cfg
```

If you encounter errors or warnings such as "bootloader not executable", edit the file "vm.cfg" to point to the correct location for "pygrub".

If you encounter errors or warnings such as "disk not found", edit "vm.cfg" and provide a full path for the "system.img" disk image.

2. The Traffic Manager virtual appliance is now registered. To confirm that registration was successful, use the following command to view all registered virtual appliances:

```
xm list
```

Installing the Traffic Manager Virtual Appliance on Oracle VM Server

This chapter describes how to install the Traffic Manager Virtual Appliance on Oracle VM Server.

It contains the following sections:

- “Installing the Virtual Appliance,” next
- “Logging In to the Console” on page 37
- “Checking the Initial IP Address” on page 38
- “Connecting to the Admin UI” on page 38
- “Expanding the Log File Partition” on page 39
- “Booting Your Virtual Appliance Into Recovery Mode” on page 40

Installing the Virtual Appliance

To install the Traffic Manager virtual appliance on Oracle VM Server, Brocade recommends using Oracle VM Manager. These instructions refer to importing the virtual appliance using this method.

For a full list of the supported platforms and versions, see the release notes included with your virtual appliance package.

The following instructions assume you have already created a suitable server pool upon which to install your virtual appliance. For instructions on how to create a server pool, see the Oracle Web site at:

<http://www.oracle.com/technetwork/documentation/vm-096300.html>

Note: The installation instructions given in this chapter vary depending on the version of Oracle VM Server you are using. Differences are noted where appropriate.

Creating a Virtual Machine Template

To install a Traffic Manager virtual appliance in Oracle VM Server, first create a new Virtual Machine template. The procedure to do this varies depending on which version of Oracle VM Server you are using.

Note: Before starting this procedure, make sure that you have the virtual appliance XenRaw archive package.

To install the Traffic Manager on Oracle VM Server versions 2.1 and 2.2

1. If the virtual appliance is delivered in a compressed archive format (for example, .zip), unpack the archive file first. Place the resulting uncompressed virtual appliance folder in the "/OVS/seed_pool" directory on your Oracle VM Server.
2. Log in to Oracle VM Manager.
3. Choose Resources > Virtual Machine Templates and then click **Import** to launch the Template Import wizard.
4. Your progress in the wizard is displayed at the top, with the current step shown in the main part of the window. Click **Previous** and **Next** to navigate between the various steps.

Figure 6-1. The Import VM Template wizard

ORACLE VM Manager

Home Profile Logout Help

Virtual Machines Resources Servers Server Pools Administration

Virtual Machine Templates Virtual Machine Images ISO Files Shared Virtual Disks

Logged in as admin

Source General Information Import Confirmation

Cancel Next

☐ Download from External Source (HTTP and FTP)
☒ Select from Server Pool (Discover and register)
☐ Linux/Windows P2V Import

TIP
 Download a virtual machine template from outside of the Server Pool, such as OTN: http://www.oracle.com/technology/software/products/virtualization/vm_templates.html, or your own HTTP/FTP server.
 Select an existing virtual machine template from the Server Pool, and register it with Oracle VM Manager.
 Linux/Windows P2V downloads and converts your physical Linux to OracleVM image.

Cancel Next

Virtual Machines Resources Servers Server Pools Administration

Copyright © 2007-2009. Oracle. All rights reserved. Oracle VM Manager 2.2.0

5. *Source:* Click **Select from Server Pool (Discover and register)** and then click **Next** to continue.
6. *General Information:* The following list describes each required field:

| Field | Description |
|---------------------------------|---|
| Server Pool | The name of the pool within which your selected Oracle VM Server resides. |
| Virtual Machine Template Name | Your unpacked archive folder name should automatically appear here. |
| Operating System | Choose "Other" from the drop-down list. |
| Virtual Machine System Username | Type "none". |

| Field | Description |
|---------------------------------|---|
| Virtual Machine System Password | Type "none". |
| Description | (Optional) Type an appropriate description. |

7. *Confirmation:* (Note that the Import stage is unnecessary for this procedure) Ensure that the information on this page is correct, then click **Confirm**.

The Traffic Manager template appears as a new entry in the Virtual Machine Template list with a status of "Importing". After a short wait, the status updates to "Pending". While in this state, you cannot use the template until approval is granted to make it fully available.

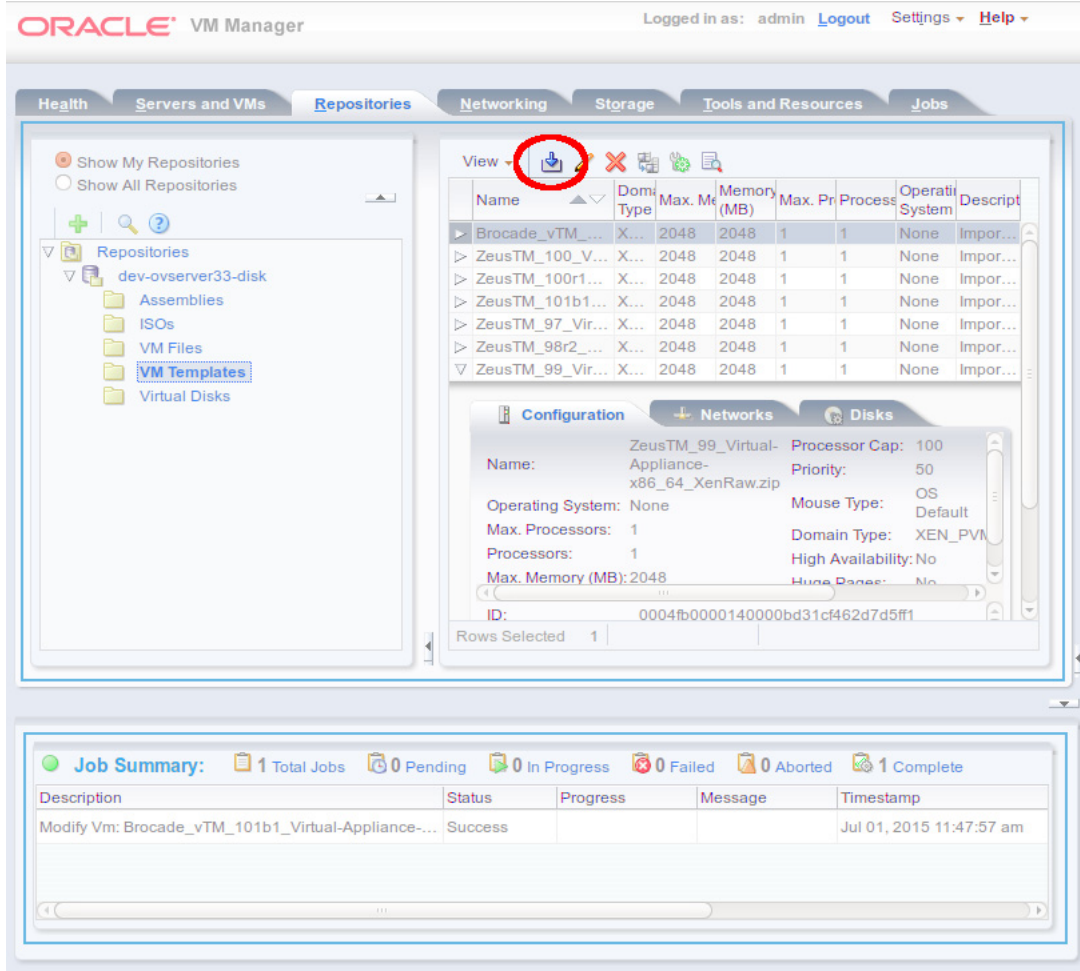
To grant approval, select the radio button next to the template name and click **Approve**. A confirmation page appears showing the template details. Click **Approve** again to complete the process. After the template is approved, the status changes to "Active".

For Oracle VM Server version 3.2 and later:

1. Ensure that your virtual appliance XenRaw ZIP archive package is available for download through a HTTP server.
2. Log in to the Oracle VM Manager user interface.
3. Click the **Repositories** tab and then, in the left side pane, click **VM Templates** under the repository you want to use.

4. In the right side pane, click the **Import Template** icon.

Figure 6-2. The Import Template icon (highlighted)



5. In the Import VM Template window, paste the URL serving the virtual appliance XenRaw ZIP archive file into the VM Template URLs box. For example, "http://myserver.mycompany.com/files/vTM_VA_XenRaw.zip".
6. Click **OK** to confirm the import request.

To view the import process, observe the Job Summary pane. The status shows "In Progress" during the import and changes to "Complete" when finished. If the import operation is successful, your template file is added to the list of available VM templates.

Creating a Traffic Manager Virtual Machine

To create a Traffic Manager virtual machine, use a previously imported template. For information concerning importing virtual machine templates, see [“Creating a Virtual Machine Template” on page 32](#).

The procedure used here varies depending on which version of Oracle VM Server you are using.

For Oracle VM Server versions 2.1 and 2.2

1. Log in to the Oracle VM Manager user interface.

2. Click the **Virtual Machines** tab and then click **Create Virtual Machine**.
3. For the "Creation Method" step, click **Create virtual machine based on virtual machine template** and click **Next**.
4. For the "Server Pool" step, select the pool for your new virtual machine and then the preferred server in that pool. Click **Next** to continue.
5. For the "Source" step, choose the virtual machine template you want to use. Click **Next** to continue.
6. For the "Virtual Machine Information" step, enter the following details:
 - **Virtual Machine Name:** Type the name of your new virtual machine.
 - **Console Password:** Type the console password of your new virtual machine. Confirm this password in the second field.
 - **Enable High Availability:** Click to enable High Availability, if this is required in your deployment.
 - **Network Interface Card:** By default, Oracle VM Manager creates one interface mapping (VIF0) between the network interfaces within your virtual infrastructure and the interface on the Traffic Manager virtual machine. To add further interface mappings, click **Add Row**. Under the Bridge column select the Oracle VM Server interface you want each connection to use. To remove a network connection, click **Select** and then click **Delete**.

Figure 6-3. The New Virtual Machine Information step

ORACLE VM Manager

Home Profile Logout Help

Virtual Machines Resources Servers Server Pools Administration

Logged in as admin

Creation Method Server Pool Source Virtual Machine Information Confirm

Previous Next

* Virtual Machine Name: Brocade_vTM_10_1

* Console Password: *****

* Confirm Console Password: *****

High Availability

Enable High Availability: ☐

Network Interface Card

Select and Delete

| Select | Virtual Network Interface Name | Virtual Network Interface MAC Address | Bridge |
|----------------------------------|--------------------------------|---------------------------------------|--------|
| <input checked="" type="radio"/> | VIF0 | 00:16:3E:4C:28:37 | xenbr0 |

Add Row

Previous Next

Virtual Machines Resources Servers Server Pools Administration

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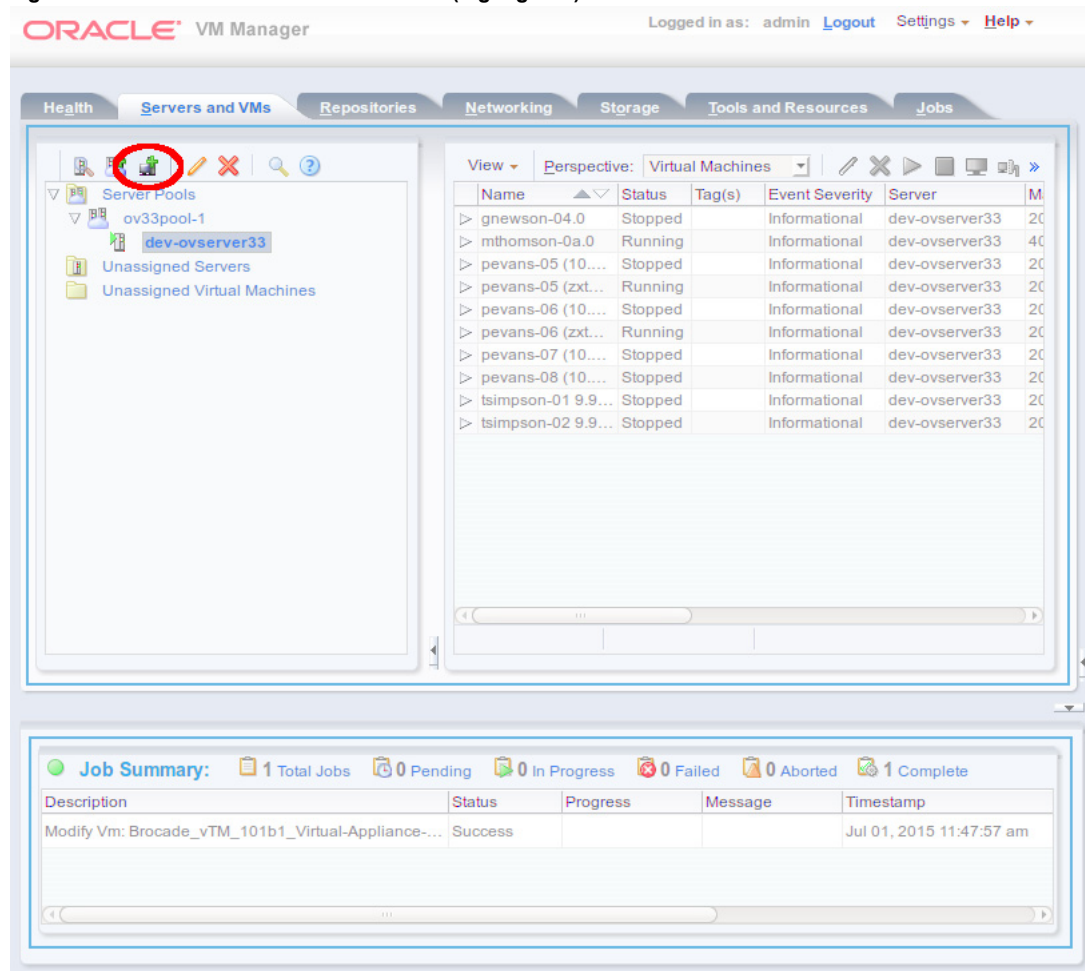
7. Click **Next** to continue.
8. For the "Confirm" step, ensure that the Virtual Machine details are correct and then click **Confirm**.

For Oracle VM Server version 3.2 and later

1. Log in to the Oracle VM Manager user interface.

2. Click the **Servers and VMs** tab, and select your server from the list of Server Pools in the left side pane.
3. Click the **Create Virtual Machine** icon.

Figure 6-4. The Create Virtual Machine icon (highlighted)



4. In the Create Virtual Machine window, click **Clone from an existing VM Template**.
5. Enter the following information:
 - **Clone Count:** Type the number of Virtual Machines you want to create.
 - **Name Index:** Type a starting index number for your Virtual Machines.
 - **Repository/VM Template:** Choose your previously created template from the desired combination of Repository and VM Template drop-down lists. To create a Virtual Machine template, see [“Creating a Virtual Machine Template” on page 32](#).
 - **VM Name:** Type an identifying name for your Virtual Machine.
 - **Server Pool:** Choose the server pool you want your Virtual Machine to reside in.
 - **Description:** (optional) Type further descriptive text for your Virtual Machine.
6. Click **Finish** to complete the process.

7. Before starting your Virtual Machine, specify a network interface. With your virtual machine entry highlighted, click the **Edit** icon and then click the **Networks** tab. Specify the required interface mapping, and click **OK**.
8. Click the **Start** icon to start up your Virtual Machine.

Logging In to the Console

Choose one of the following methods to view the console:

- Click **Launch Serial Console** in Oracle VM Manager (version 3.2 and later only).
- Use a VNC connection.
- Use the raw Xen console.

For earlier versions of Oracle VM Manager, or if you cannot launch the console directly using the Oracle VM Manager UI, use SSH to connect to the Oracle VM Server directly. After you have connected, type the following command at the prompt to list the available Virtual Machines:

```
xm list
```

Type the following command to launch the required Virtual Machine console:

```
xm console <name>
```

Replace <name> with the Virtual Machine name selected from the list displayed by the previous command.

If SSH access to Oracle VM Server is not available, use the VNC program to connect to the Virtual Machine. Type the following command:

```
vncviewer <name>:<vncport>
```

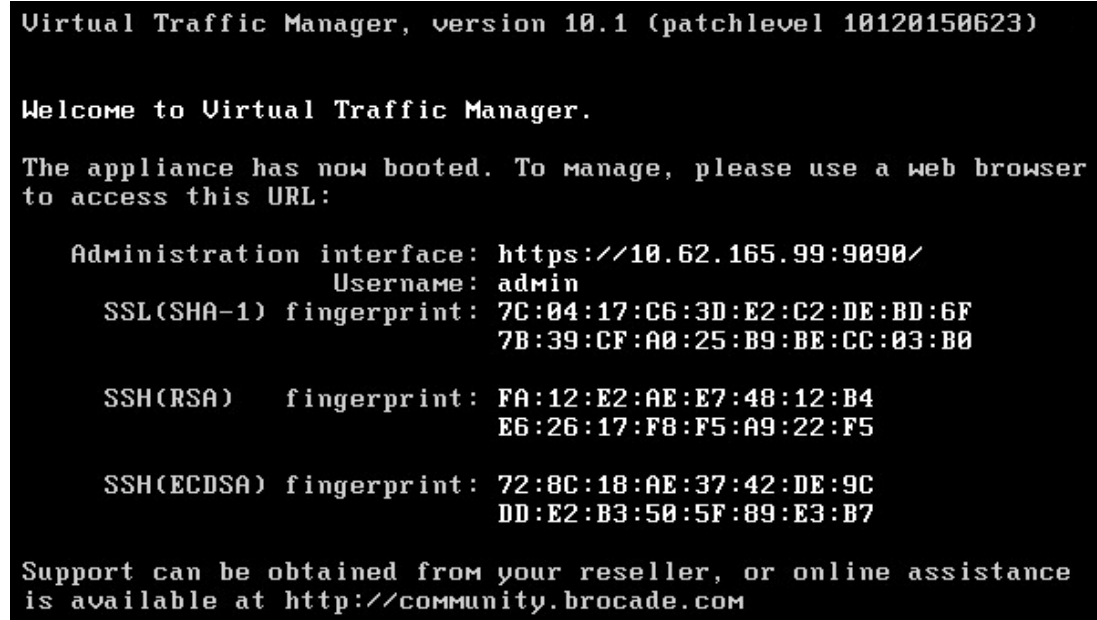
<vncport> is automatically selected Oracle VM Server. For instructions on how to locate the port number, see the Oracle VM Server documentation.

After you connect to the Virtual Machine console, press Enter to display a login prompt.

Checking the Initial IP Address

When you first start the Traffic Manager virtual appliance, it attempts to obtain an IPv4 address using DHCP. If it receives no response to its DHCP requests, the virtual appliance configures itself with the static IP 192.168.1.101 (on the 192.168.1.0/24 network). With either case, the chosen IP address is displayed on the console.

Figure 6-5. The Traffic Manager virtual appliance console



```
Virtual Traffic Manager, version 10.1 (patchlevel 10120150623)

Welcome to Virtual Traffic Manager.

The appliance has now booted. To manage, please use a web browser
to access this URL:

Administration interface: https://10.62.165.99:9090/
Username: admin
SSL(SHA-1) fingerprint: 7C:04:17:C6:3D:E2:C2:DE:BD:6F
                        7B:39:CF:A0:25:B9:BE:CC:03:B0

SSH(RSA) fingerprint: FA:12:E2:AE:E7:48:12:B4
                      E6:26:17:F8:F5:A9:22:F5

SSH(ECDSA) fingerprint: 72:8C:18:AE:37:42:DE:9C
                       DD:E2:B3:50:5F:89:E3:B7

Support can be obtained from your reseller, or online assistance
is available at http://community.brocade.com
```

If the virtual appliance could not obtain an address using DHCP and the default 192.168.1.101 address is not appropriate for your network, you can manually set the initial IP address.

To set the initial IP address

1. Engage the Traffic Manager virtual appliance console interface.
2. Log in as "admin" with the default password of "admin".
3. Run the command `z-set-initial-address`.
4. Type an IP address and netmask at the prompt.
5. Once the command terminates, type `logout` to log out of the console.
6. Observe that the IP address in the URL for the Traffic Manager administration interface (Admin UI) has changed to your new IP address.

Connecting to the Admin UI

To connect to the Traffic Manager Admin UI, type the URL displayed on the appliance console into your Web browser.

By default, this URL is "https://<appliance_IP>:9090/", where <appliance_IP> is either:

- The IP address obtained using DHCP
- The IP address specified with the z-set-initial-address command (if used).
- 192.168.1.101

Note: Before you can connect to the Admin UI, your Web browser might report problems with the SSL certificate (either that it cannot trust it, or that the hostname in the certificate does not match the hostname in the URL). These problems can safely be ignored: the certificate is a self-signed certificate, and the hostname in the certificate might not match the URL you have used to access it, particularly if you have used the appliance's IP address in the URL.

Expanding the Log File Partition

To increase the disk space for your virtual appliance log files, expand the virtual disk and then resize the file system from the virtual appliance's console interface.

Before you start, make sure you have completed the following steps:

1. Performed a backup of your Traffic Manager configuration and log files.
2. Stopped the virtual appliance.

To resize the virtual disk and expand the /logs partition

1. Shut down the Traffic Manager.
2. Log in to the Oracle VM Server that the Traffic Manager Virtual Machine is running on.
3. Go to the /OVS/running_pool/ directory and locate the sub-directory that corresponds to your Traffic Manager Virtual Machine. Virtual Machine directories are typically in the format <number>_<name>, where <number> is a unique ID number provided by Oracle VM Server and <name> is the name of your Virtual Machine. Go into this sub-directory and locate the file "disk.img".
4. Run the following command to increase disk space (in this example, by 4 GB):

```
dd if=/dev/zero bs=1048576 count=4096 >> disk.img
```

The "count" argument value is the number of Megabytes by which to increase the disk. Note that it is very important to use the ">>" operator so that the new space is appended to the existing disk.

5. Start the Traffic Manager Virtual Machine.
6. Once the Traffic Manager has completed booting, log in to the Virtual Machine console.
7. To resize the "/logs" partition, type the following command:

```
z-expand-logs-partition
```

Note: Note: Oracle VM Server continues to report the disk size as the original amount rather than its new expanded value.

Booting Your Virtual Appliance Into Recovery Mode

If your Traffic Manager ever becomes unresponsive, or if you suffer some other failure that cannot be resolved from the Virtual Machine console, it might be necessary to boot your virtual appliance into Recovery Mode.

To use Recovery Mode

1. Shut down the Traffic Manager.
2. Log in to the Oracle VM Server that the Traffic Manager resides on.
3. Go to the `/OVS/running_pool/` directory and locate the sub-directory that corresponds to your Traffic Manager Virtual Machine. Virtual Machine directories are typically in the form `<number>_<name>`, where `<number>` is a unique ID number provided by Oracle VM Server and `<name>` is the name of your Virtual Machine. Go into this sub-directory and locate the file `"vm.cfg"`.
4. Edit this file in a text editor, and add the following line:

```
bootargs = '--entry=1'
```

5. Start the Traffic Manager Virtual Machine.

To reset the Traffic Manager boot mode back to the default, perform the same operation while removing the extra line from `"vm.cfg"`, discussed in [Step 4](#).

Installing the Traffic Manager Virtual Appliance on QEMU/KVM

This chapter describes how to install the Traffic Manager Virtual Appliance on the Microsoft Hyper-V platform.

It contains the following sections:

- [“System Requirements,”](#) next
- [“Installing the Virtual Appliance”](#) on page 42
- [“Accessing the Virtual Appliance Console”](#) on page 48
- [“Checking the Initial IP Address”](#) on page 49
- [“Connecting to the Admin UI”](#) on page 50
- [“Expanding the Logs Partition”](#) on page 50
- [“Using Multi-Hosted Traffic IPs”](#) on page 51

System Requirements

The Traffic Manager virtual appliance is supported for production use on the QEMU/KVM (Kernel Virtual Machine) hypervisor. The Traffic Manager is available on QEMU/KVM as a 64-bit version only.

For a full list of the supported platforms and versions, see the release notes included with your virtual appliance package.

To run the installation process, use either the Virtual Machine Manager (VMM) Graphical User Interface (GUI) tool or the command-line interface (CLI) provided by the "libvirt" software library. The VMM GUI is provided by "virt-manager" and the CLI is provided by "virt-image" or "virt-install".

Note: "virt-image" is not available for all systems.

First obtain the appropriate virtual appliance package in ZIP archive format. Unpack this archive to your QEMU/KVM host prior to setting up the virtual machine.

The minimum resource requirements for the virtual appliance are:

- Allocated Memory (RAM): 2 GB

- Disk allocation: 16 GB

Installing the Virtual Appliance

The installation procedure consists of two separate steps. The virtual appliance disk file must first be added to an appropriate storage pool. You can then install the virtual appliance software through the CLI or VMM, basing it on the disk file from the storage pool.

In a standard implementation, libvirt manages designated directories, known as storage pools, to store virtual machine disk volume files. Other complex setup scenarios are possible, but are not discussed here. Your system administrator determines which storage pool to use, with the default being `/var/lib/libvirt/images`.

To add the disk file to an appropriate storage pool:

1. Copy the virtual appliance ZIP archive file to the host machine.
2. Log in to the host machine and uncompress the archive file to the local disk. The uncompressed contents include:
 - **VirtualTrafficManager.img**: the virtual machine disk file.
 - **virt-image.xml**: the virtual appliance descriptor file (to be used only if you install the virtual appliance with virt-image).
3. Copy VirtualTrafficManager.img to the storage pool directory.
4. Rename VirtualTrafficManager.img to your virtual machine name (for example, "MyTrafficManager-01.img"). As each .img file corresponds to a specific virtual appliance, this step ensures that your disk image files remain unique within the storage pool.
5. You can use the following command to ensure this file appears correctly inside a storage pool:

```
virsh <connectionURI> pool-refresh --pool <poolname>
```

To install the virtual appliance software using virt-image in the CLI:

1. Edit the virt-image.xml file that was uncompressed in the previous section. In the `<storage>` section, locate and replace the attribute:

```
file="VirtualTrafficManager.img"
```

with an absolute path to your new virtual appliance disk image file name:

```
file="/my/storage/pool/MyTrafficManager-01.img"
```

2. Issue a virt-image command to install the virtual appliance:

```
virt-image <connectionURI> virt-image.xml
  --name <Virtual Appliance name> --os-type=linux
  --os-variant=ubuntuprecise --network bridge=br0
```

In the above command, `br0` is the name of the network bridge interface on the host (if one is used). Interface names in your network infrastructure might vary.

Caution: If the installation process fails with the error: "ERROR OS variant 'ubuntuprecise' does not exist in our dictionary for OS type 'linux'", Brocade recommends changing the OS Variant part of the command to an alternative supported Linux variant.

To install the virtual appliance software using virt-install in the CLI:

1. Issue a virt-install command to install the virtual appliance:

```
virt-install --import --cpu=host
             --connect <connectionURL>
             --disk <full path to disk img file>,format=qcow2,bus=virtio
             --name=<Virtual Appliance name> --os-type=linux
             --os-variant=ubuntuprecise --network bridge=br0,model=virtio
             --ram=2048
             --graphics=vnc
```

In the above command, `br0` is the name of the network bridge interface on the host (if one is used). Interface names in your network infrastructure might vary.

Caution: If the installation process fails with the error: "ERROR OS variant 'ubuntuprecise' does not exist in our dictionary for OS type 'linux'", Brocade recommends changing the OS Variant part of the command to an alternative supported Linux variant.

To install the virtual appliance software using the VMM GUI:

1. Start the VMM tool from a client machine, and connect to the host QEMU/KVM machine. The following command can be used to achieve this:

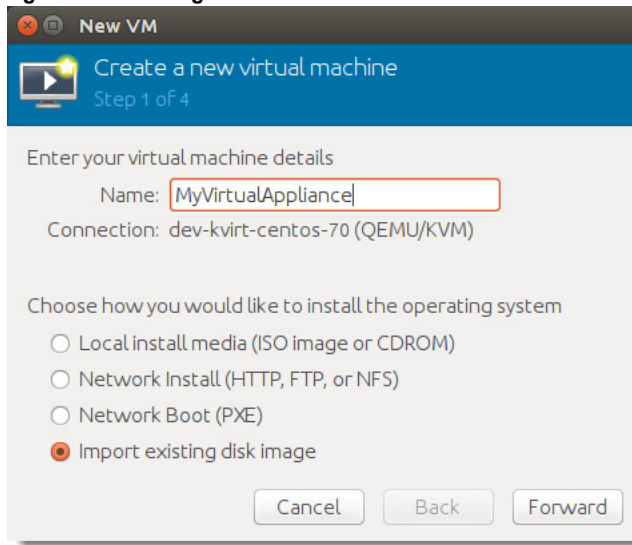
```
virt-manager --connect=qemu+ssh://my-kvm-host.com/system
```

In the above command, `my-kvm-host.com` is the host machine name. An SSH tunnel is used to connect to the QEMU/KVM host. You must have an SSH account and corresponding public key stored on this host for authentication.

For information on alternative connection methods, see the `virt-manager` documentation.

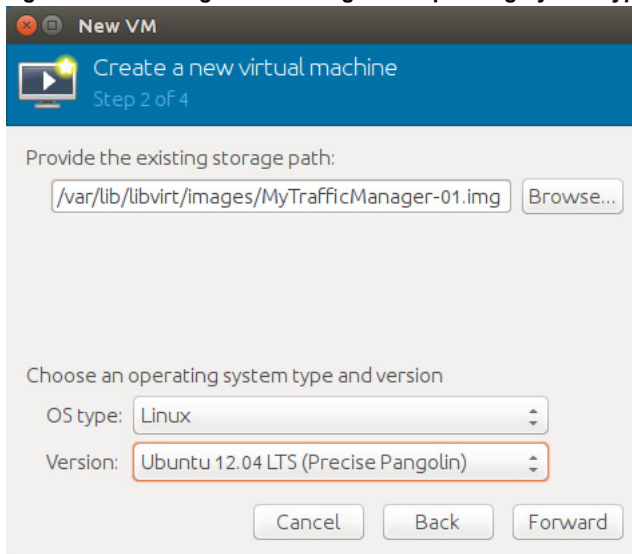
2. Click **New** to start the process of creating a new virtual machine.

Figure 7-1. Creating a new Virtual Machine



3. Enter a name for your virtual appliance that corresponds with the name used for the disk image file. From the list of options, click **Import existing image** and then click **Forward** to proceed.

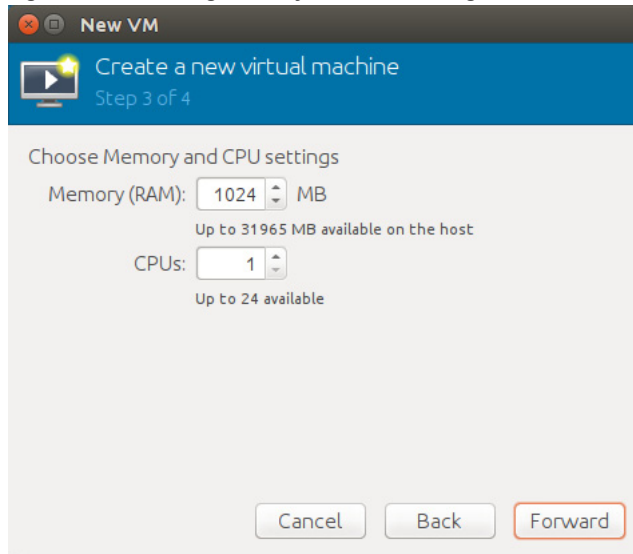
Figure 7-2. Selecting the disk image and Operating System type



4. Click **Browse** to select the storage pool location and disk image file for this virtual machine.
5. Select an OS type of "Linux" and set Version to a supported Linux variant. Click **Forward** to proceed.

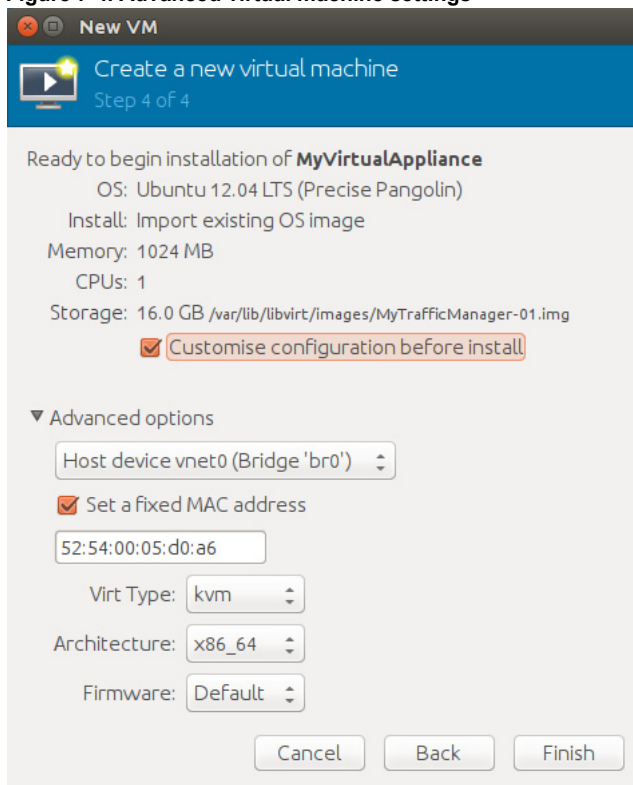
6. Enter the RAM and CPU resource settings required for your virtual machine. For recommended settings, see [“System Requirements” on page 41](#) or in the release notes provided with your virtual appliance package. Click **Forward** to proceed.

Figure 7-3. Choosing memory and CPU settings



7. Under Advanced options, choose any further settings that you want to apply. Brocade recommends that you select bridged networking using the drop-down list provided.

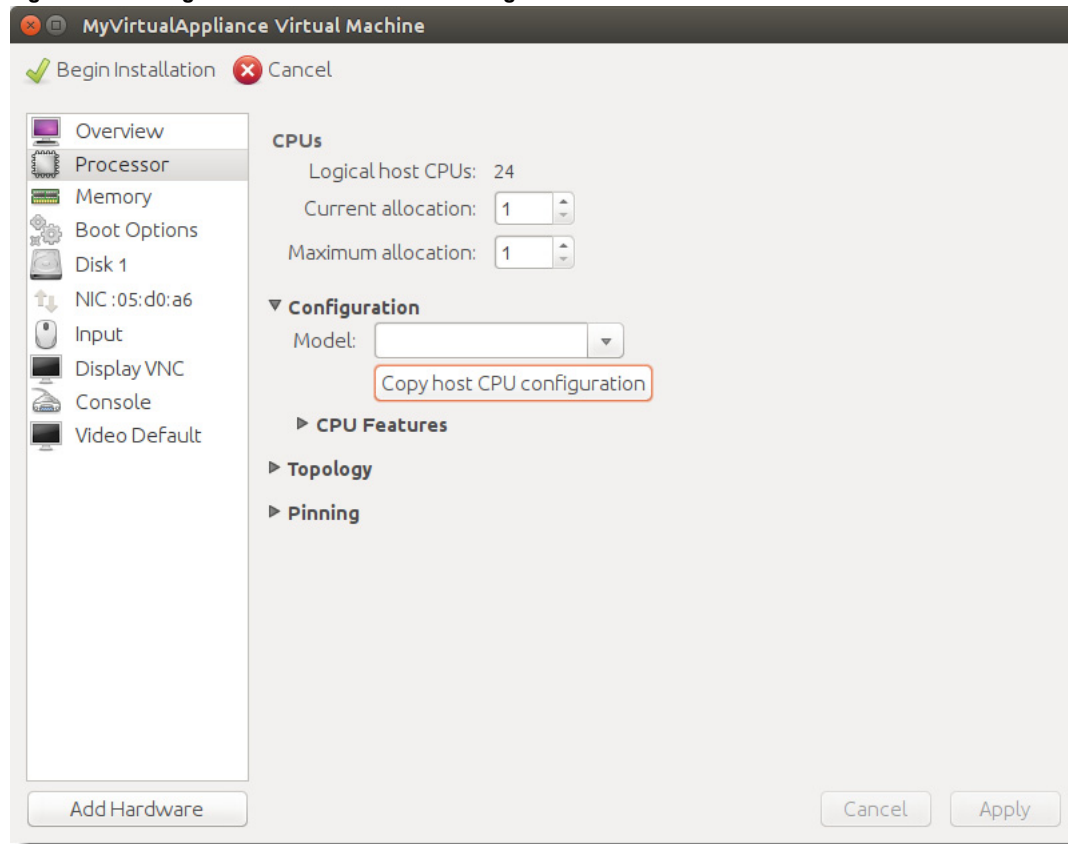
Figure 7-4. Advanced virtual machine settings



8. Tick **Customise configuration before install**, and then click **Finish**.

- Before your Traffic Manager virtual machine is installed,VMM displays the hardware configuration page. Click **Processor** in the left hand category list and then click **Copy host CPU configuration** to set the CPU model to match the host hardware.

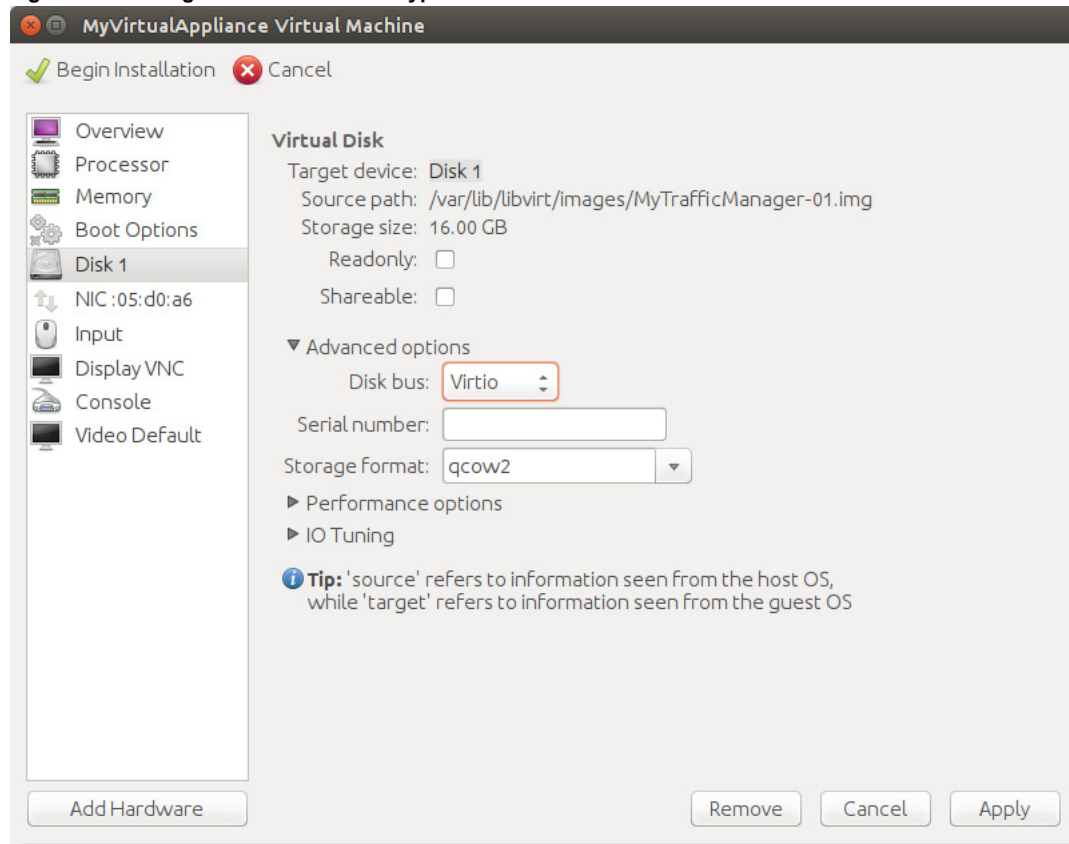
Figure 7-5. Setting the virtual machine CPU configuration to the same as the host



- Click **Apply** to save your changes.

- Click **Disk 1** in the left hand category list and then click the fold-down arrow next to Advanced options. For Disk bus, select “Virtio” from the drop-down list.

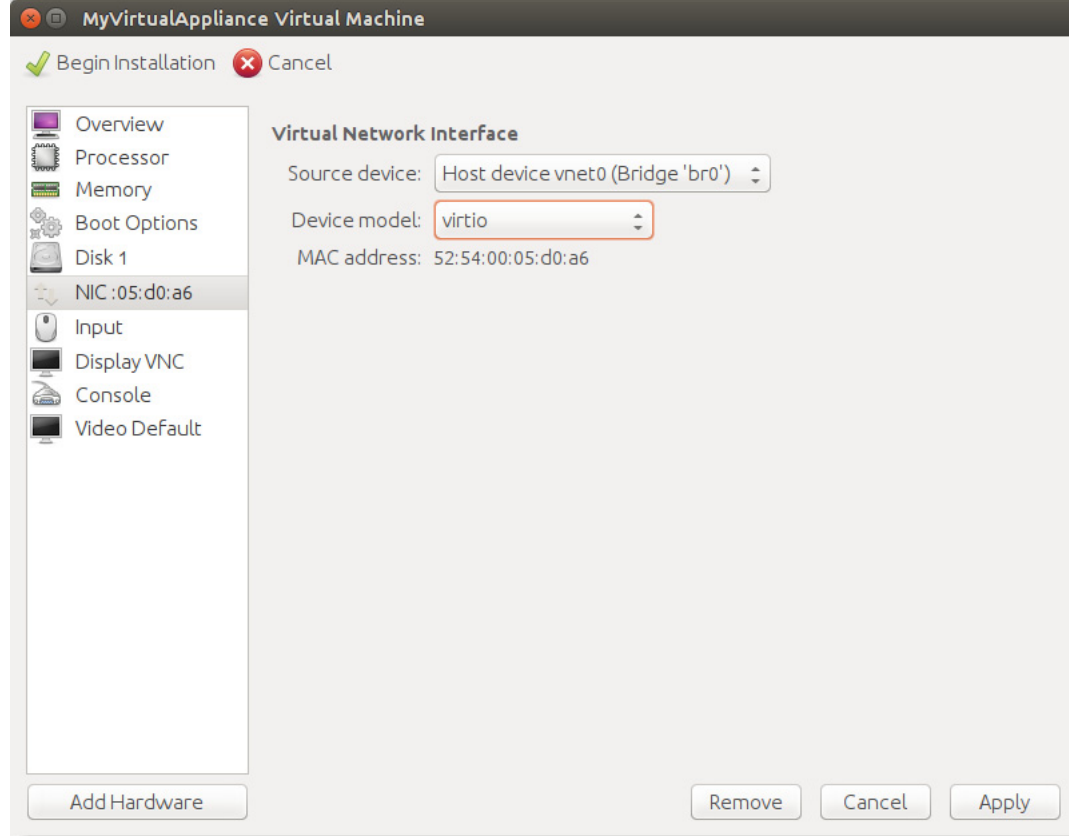
Figure 7-6. Setting the virtual disk bus type



- Click **Apply** to save your changes.

13. Click **NIC** in the left hand category list and then select “Virtio” from the Device model drop-down list.

Figure 7-7. Setting the Virtual Network Interface Device model



14. Click **Apply** to save your changes and then click **Begin Installation** to complete the installation process.

Accessing the Virtual Appliance Console

To connect to your virtual appliance console, use the virt-manager or virt-viewer GUI tools. However, these tools are not available on all client platforms. In this case, you can allow access to the console for a VNC-compatible client program. SSH to your QEMU/KVM host server, and type the following commands:

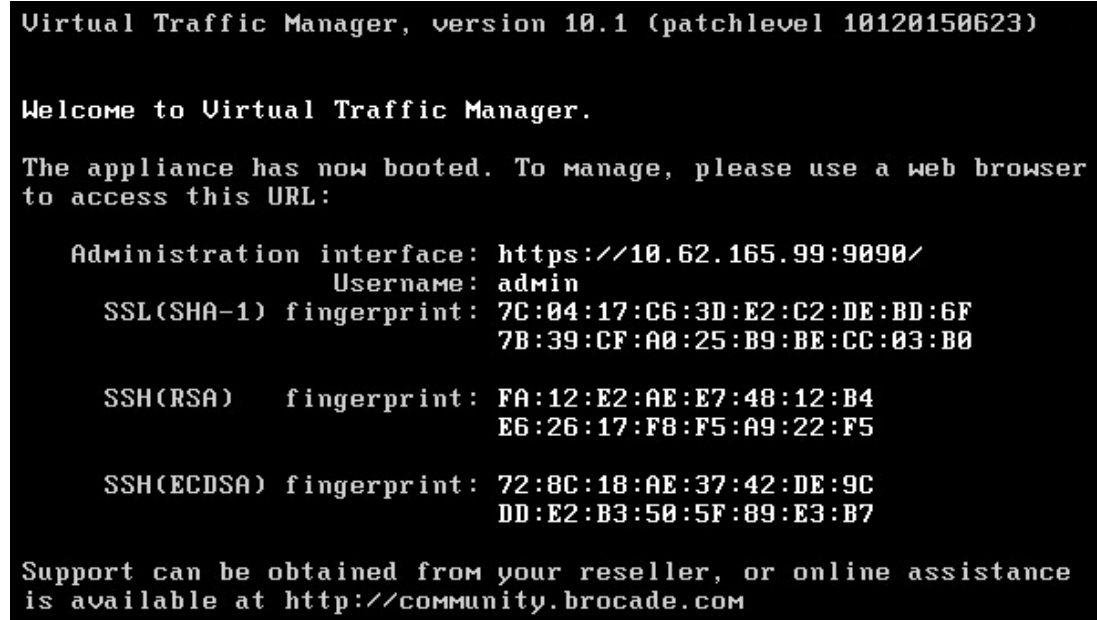
```
virsh vncdisplay <your VM name>
:12
```

The command ":12" means that your virtual machine provides VNC access on this host using the port 5912 (5900 + 12). Connect your VNC client to this host and port to access the console.

Checking the Initial IP Address

When you first start the Traffic Manager virtual appliance, it attempts to obtain an IPv4 address using DHCP. If it receives no response to its DHCP requests, the virtual appliance configures itself with the static IP 192.168.1.101 (on the 192.168.1.0/24 network). With either case, the chosen IP address is displayed on the console.

Figure 7-8. The Traffic Manager virtual appliance console



```
Virtual Traffic Manager, version 10.1 (patchlevel 10120150623)

Welcome to Virtual Traffic Manager.

The appliance has now booted. To manage, please use a web browser
to access this URL:

  Administration interface: https://10.62.165.99:9090/
                        Username: admin
  SSL(SHA-1) fingerprint: 7C:04:17:C6:3D:E2:C2:DE:BD:6F
                        7B:39:CF:A0:25:B9:BE:CC:03:B0

  SSH(RSA)   fingerprint: FA:12:E2:AE:E7:48:12:B4
                        E6:26:17:F8:F5:A9:22:F5

  SSH(ECDSA) fingerprint: 72:8C:18:AE:37:42:DE:9C
                        DD:E2:B3:50:5F:89:E3:B7

Support can be obtained from your reseller, or online assistance
is available at http://community.brocade.com
```

If the virtual appliance could not obtain an address using DHCP and the default 192.168.1.101 address is not appropriate for your network, you can manually set the initial IP address.

To set the initial IP address

1. Engage the Traffic Manager virtual appliance console interface.
2. Type Alt+F2 to switch to the alternative console display "tty2".
3. Log in as "admin" with the default password of "admin".
4. Run the command `z-set-initial-address`.
5. Type an IP address and netmask at the prompt.
6. Once the command terminates, type `logout` to log out of the console.
7. Switch back to "tty1" by typing Alt+F1.
8. Observe that the IP address in the URL for the Traffic Manager administration interface (Admin UI) has changed to your new IP address.

Connecting to the Admin UI

To connect to the Traffic Manager Admin UI, type the URL displayed on the appliance console into your Web browser.

By default, this URL is "https://<appliance_IP>:9090/", where <appliance_IP> is either:

- The IP address obtained using DHCP
- The IP address specified with the `z-set-initial-address` command (if used).
- 192.168.1.101

Note: Before you can connect to the Admin UI, your Web browser might report problems with the SSL certificate (either that it cannot trust it, or that the hostname in the certificate does not match the hostname in the URL). These problems can safely be ignored: the certificate is a self-signed certificate, and the hostname in the certificate might not match the URL you have used to access it, particularly if you have used the appliance's IP address in the URL.

Expanding the Logs Partition

To increase the disk space for your virtual appliance log files, expand the virtual disk and then resize the file system from the virtual appliance's console interface.

Before you start, make sure you have completed the following steps:

1. Performed a backup of your Traffic Manager configuration and log files.
2. Stopped the virtual appliance.

To resize the virtual disk and expand the `/logs` partition

1. Log in to the QEMU/KVM host server command line.
2. Type the following command to expand the disk:

```
virsh vol-resize MyTrafficManager-01.img --pool <pool> --delta 4G
```

This command expands the disk by 4 GB. To expand the disk by a different amount, choose a different value for the "`--delta`" argument.

3. Start the virtual appliance.
4. Engage the virtual appliance's console interface, or connect using SSH.
5. To resize the `/logs` partition, type the following command:

```
z-expand-logs-partition
```

Using Multi-Hosted Traffic IPs

By default, multi-hosted Traffic IP Groups cannot be used on a QEMU/KVM-based Traffic Manager virtual appliance. To enable support for this feature, enter the following command on the QEMU/KVM host server command line:

```
echo >/sys/devices/virtual/net/<iface>/bridge/multicast_snooping 0
```

In this command, "<iface>" is the name of the bridge network interface used by your virtual machines.

Configuring the Traffic Manager Virtual Appliance

This chapter describes how to configure a newly installed Traffic Manager virtual appliance. It assumes you have already performed the installation procedure described the preceding chapter applicable to your virtualization platform.

This chapter also documents further configuration tasks such as reconfiguring, uninstalling, and upgrading the virtual appliance.

It contains the following sections:

- [“Administration User Interface Authentication,”](#) next
- [“Running the Initial Configuration Wizard”](#) on page 54
- [“NTP Settings”](#) on page 61
- [“Upgrading and Downgrading”](#) on page 61
- [“Useful System Information”](#) on page 67

Administration User Interface Authentication

Access to the administration user interface (also known as the Admin UI) is authenticated with a dedicated SSL certificate. The SHA-1 fingerprint of the SSL certificate is displayed on the virtual appliance console. The SHA-1 fingerprint is useful for the following purposes:

- To verify the SSL certificate when connecting with a Web browser for the first time.
- To verify the authenticity of Traffic Manager identities when joining a cluster.

Note: When you set up a new Traffic Manager, Brocade recommends noting the SHA-1 fingerprint. You can also display the fingerprint from the host command line using the following command:

```
$ZEUSHOME/admin/bin/cert -f fingerprint -in $ZEUSHOME/admin/etc/admin.public
```

Running the Initial Configuration Wizard

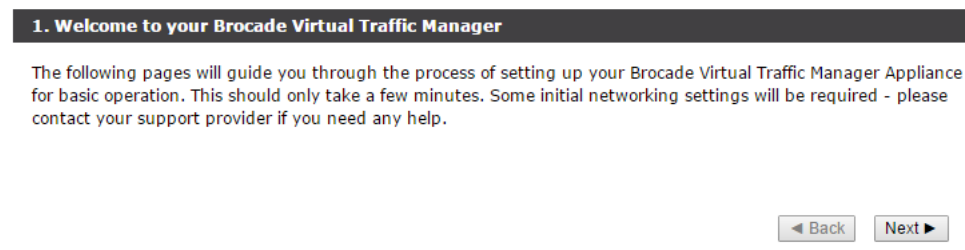
Before you begin, make sure you have met all the requirements listed in “Prerequisites” on page 8. Brocade recommends that you read this chapter fully before continuing.

A newly installed virtual appliance requires some basic information in order to function. The Traffic Manager gathers this information over a series of steps that form the Initial Configuration wizard. To access the wizard, use your Web browser. The wizard URL is displayed on the virtual appliance console.

Type the URL into your browser to view the first step of the wizard:

Figure 8-1. Step 1 of the initial configuration wizard

Initial configuration, step 1 of 8



Click **Next** to begin the initial configuration of your virtual appliance.

Accept the Terms and Conditions of Sale

Read and accept the Brocade Terms and Conditions of Sale, available from the URL shown:

Figure 8-2. Accept the terms and conditions of sale

Initial configuration, step 2 of 8



Read the agreement fully. If you agree to its terms, click **I accept the license agreement** and then click **Next** to continue. You cannot proceed with the wizard, and thus use the software, if you do not accept the license agreement.

Configuring Networking

Use this page to set your virtual appliance basic network configuration.

Note: These settings replace the temporary addresses obtained by DHCP at installation. A summary of the network settings to be applied to your virtual appliance is given at the end of the wizard.

Figure 8-3. Key networking settings when configuring the virtual appliance

Initial configuration, step 3 of 8

3. Networking

Please provide the basic network configuration for this appliance. The configuration may be changed at a later date using the user interface.

The hostname that this appliance will be known by. This can be provided as 'hostname' or 'hostname.domainname'.

Hostname: **(required)**

Please enter a valid IPv4 address and netmask for at least one network card.

IPv6 addresses can be configured on the *System > Networking* page.

| Interface | IP address | Netmask | Management IP address |
|-----------|---|---------------------------------|----------------------------------|
| eth0 | <input type="text" value="10.62.165.97"/> | <input type="text" value="18"/> | <input type="radio"/> |
| eth1 | <input type="text" value="10.62.165.98"/> | <input type="text" value="18"/> | <input type="radio"/> |
| eth2 | <input type="text" value="10.62.165.99"/> | <input type="text" value="18"/> | <input checked="" type="radio"/> |

The appliance can be configured to only allow management on one specific IP address. This restricts all admin server access, SOAP management, REST API access and other control information to this IP address. This setup is useful if you want to completely separate your public and private networks. If you wish to do this, tick the box below and select an IP address using the Management IP address option buttons above.

☒ Use a single Management IP address

To use trunking, give interfaces the same IP address. All interfaces in a trunk must be connected to the same switch and the switch must have IEEE 802.3ad support enabled.

The gateway IP address for this appliance.

Gateway:

Configure the following settings:

| Setting | Description |
|------------|--|
| Hostname | The hostname of the appliance, in either the simple form or fully qualified form (for example, "vtm1" or "vtm1.mgmt.site.com"). If you intend to create a cluster of Traffic Manager virtual appliances and you are using DNS servers for name resolution, it is important that the name you choose is resolvable from your name servers. Name resolution issues are flagged up later in the wizard. |
| IP address | The IP address in dotted quad notation (for example, 192.168.1.101) for each interface. |
| Netmask | The netmask for the associated IP address (for example, 255.255.0.0) for each interface. |

| Setting | Description |
|----------------------------|--|
| Use a single Management IP | <p>Click to restrict management traffic to a single interface. Then click the Management IP radio button next to the interface you want to use.</p> <p>Management traffic includes access to the Traffic Manager Admin UI, external API access, and internal communications within a Traffic Manager cluster. This address normally resides on a private or dedicated management network.</p> <p>Note: If you are cloning a VMware based virtual appliance using guest customization, this feature is disabled on the cloned instances to ensure they remain accessible. For further information, see “Cloning and Guest OS Customization” on page 20.</p> <p>Caution: Brocade recommends only choosing to use a management address if you have a dedicated, reliable management network. Each management address is a single point of failure for an entire Traffic Manager cluster. All of your management addresses must always be available.</p> <p>To later modify the management IP address, use the System > Traffic Managers page of the Admin UI. Note that a software restart is required for this procedure.</p> |
| Gateway | <p>The IP address of the default gateway. This IP address is also used for network connectivity tests by your Traffic Manager, and the gateway machine should respond to "ping" requests for this purpose. If it does not, you must configure your Traffic Manager with an additional machine to ping instead. To set a different address to ping, use the Admin UI after your Traffic Manager has been configured.</p> |

Caution: Configuring IP addresses on unplugged interfaces is not recommended. Routing problems could occur if the IP address is located on the same subnet as an IP address on a connected interface. If the IP is on the same subnet as the management port, your virtual appliance might become unreachable.

For optimum performance, Brocade recommends that you use separate interfaces for front and back end traffic. In other words, for traffic between remote clients and the Traffic Manager, and for traffic between the Traffic Manager and the servers that it is load balancing.

You might find the "Network Layouts" chapter of the *Brocade Virtual Traffic Manager: User's Guide* helpful in planning your network. Additionally, the Brocade Community Web site (<http://community.brocade.com>) contains several articles about configuring your Traffic Manager.

DNS Settings

Use this page to configure the IP addresses of the name servers to use for DNS resolution and the DNS search domain. These settings are optional, but if you configure one or more name servers, you can use your servers' hostnames rather than IP addresses. This can make subsequent configuration tasks easier:

Figure 8-4. Entering Name Servers and the default Search Domain

Initial configuration, step 4 of 8

4. DNS/Search Domain Settings

Please provide the DNS and Search Domain configuration for this appliance. DNS settings are optional. However, without access to a Name Server, hostnames won't be able to be automatically converted to IP addresses.

The Name Server(s) that the appliance will use. Please provide a space separated list of your Name Servers' IP addresses.

Name Servers:

The default domain name used when looking up unqualified hostnames in the DNS.

Search Domain:

The Traffic Manager works correctly without access to external name servers, however you then have to use IP addresses instead of hostnames when setting up pools of servers, or manually enter the hostname to IP mappings, which can be done from the Admin UI (in the "DNS" section of the System > Networking page) once you have completed the initial configuration wizard.

Hostname Resolution

The Traffic Manager attempts to resolve your chosen hostname to an IP address using the Name Servers specified. Where the hostname cannot be resolved, the wizard suggests using one of the IP addresses assigned to your network interfaces instead to identify this Traffic Manager to other cluster members:

Figure 8-5. Configuring the resolvable name

Initial configuration, step 4 of 8

Select the desired IP address from the drop-down list, or select "None" to force the wizard to set the Traffic Manager name to be the unresolvable hostname. However, you can experience connectivity issues until the hostname successfully resolves to an IP address within your DNS. Read and confirm your acknowledgement of the Ignore Warning message by clicking the checkbox provided.

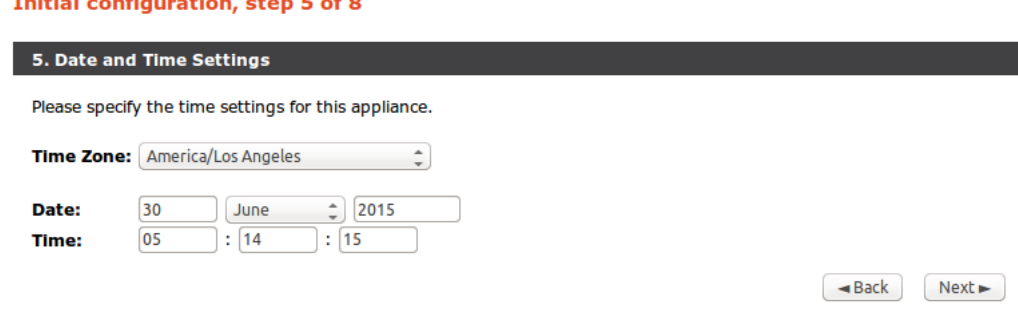
To change the identifying IP address after the wizard has completed, use the "Replace Traffic Manager Name" section on the System > Traffic Managers page of the Admin UI.

Note: If you are cloning a VMware based virtual appliance using guest customization, this feature is disabled on the cloned instances. For further information, see ["Cloning and Guest OS Customization" on page 20](#).

Timezone Settings

Use this page to set the time zone for the virtual appliance. This ensures that any logs and diagnostic messages generated by the Traffic Manager have the correct timestamps:

Figure 8-6. Configuring the date and time
Initial configuration, step 5 of 8



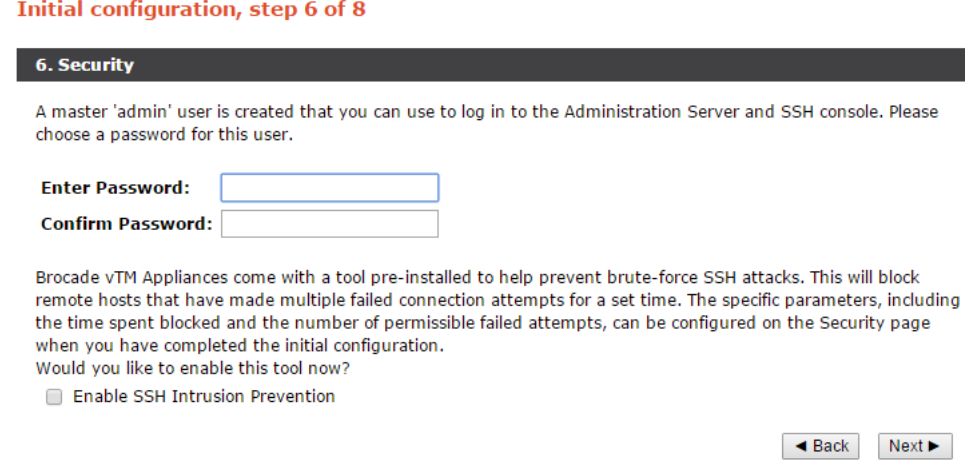
Note: Some Traffic Manager variants, for example Oracle VM Server based appliances, manage the date and time through the host environment. In these circumstances, this step contains only the time zone setting.

After initial configuration is complete, you can additionally configure some virtual appliance variants to synchronize with a collection of Network Time Protocol (NTP) servers. For further details, see the *Brocade Virtual Traffic Manager: User's Guide*.

Admin Password

Use this page to set the password for the admin user. This is the master password that is used when configuring the virtual appliance through a Web browser. If you enable password authentication for SSH, you can also use the this password when you log in to an instance using SSH (with the username “admin”).

Figure 8-7. Entering the Admin password
Initial configuration, step 6 of 8



The Traffic Manager also contains the option to enable SSH Intrusion Detection to help prevent brute-force SSH attacks on your virtual appliance. Brocade strongly recommends you enable this option.

License Key

The Traffic Manager requires a license key to operate in full production mode. The feature set and bandwidth limits are determined by the license applied, the details of which can be seen on the System > Licenses page of the Admin UI after the Initial Configuration Wizard has completed.

Choose either to upload the license key now, or to upload it later once you have completed the wizard.

Where no key is provided, the system operates in a default state known as *Developer* mode. This mode is suitable for evaluation and development purposes only and should not be used in a production environment. The maximum available bandwidth is limited to 1Mb/sec, and SSL transactions are limited to 100 TPS.

Figure 8-8. Uploading a license key file to the virtual appliance

Initial configuration, step 7 of 8

7. License Key

To use the traffic manager, you will need a valid license key. You can either upload a license key now, or skip this step and install the key later. Without the license key the traffic manager will run in **Developer mode**.

Upload a new license key:

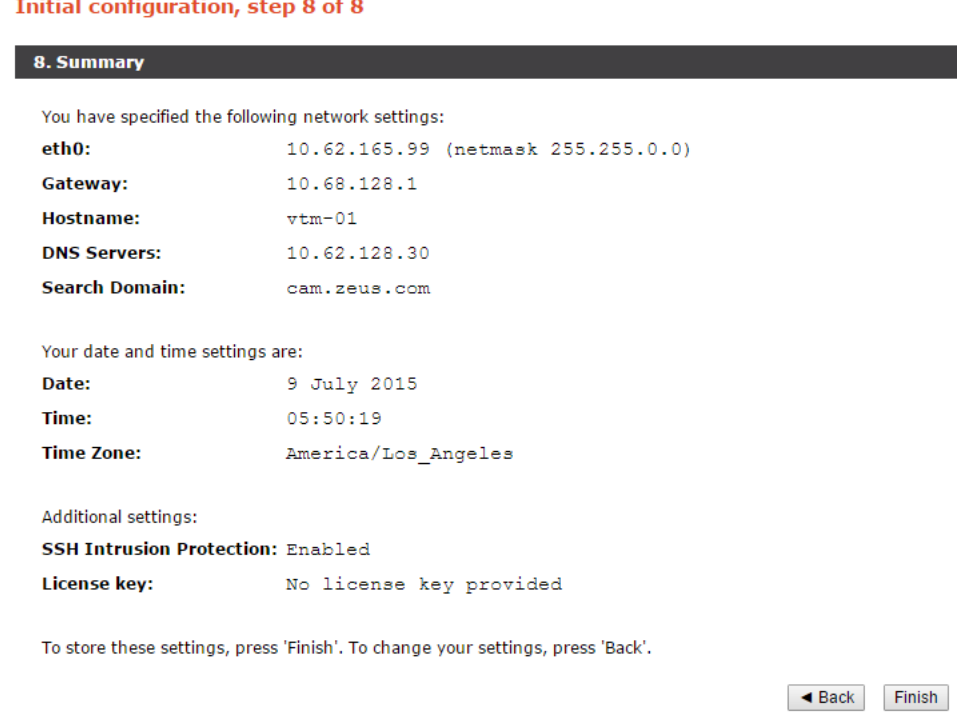
Key file: No file selected.

If you need to obtain a license key, please visit the **Brocade vTM website**.

Summary

Before your settings are applied to the virtual appliance, the initial configuration wizard displays a summary of the settings you have configured.

Figure 8-9. Configuration summary
Initial configuration, step 8 of 8



8. Summary

You have specified the following network settings:

| | |
|-----------------------|------------------------------------|
| eth0: | 10.62.165.99 (netmask 255.255.0.0) |
| Gateway: | 10.68.128.1 |
| Hostname: | vtm-01 |
| DNS Servers: | 10.62.128.30 |
| Search Domain: | cam.zeus.com |

Your date and time settings are:

| | |
|-------------------|---------------------|
| Date: | 9 July 2015 |
| Time: | 05:50:19 |
| Time Zone: | America/Los_Angeles |

Additional settings:

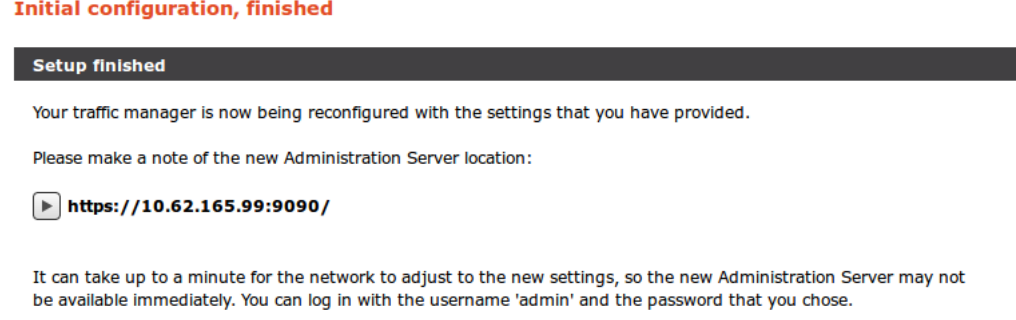
| | |
|----------------------------------|-------------------------|
| SSH Intrusion Protection: | Enabled |
| License key: | No license key provided |

To store these settings, press 'Finish'. To change your settings, press 'Back'.

Review these settings, and in particular the specified network settings, since your virtual appliance might become uncontactable if any of the settings are incorrect. Use the **Back** button to go back through the wizard to make any changes.

To apply your settings, click **Finish**.


Figure 8-10. Configuration is complete
Initial configuration, finished



Setup finished

Your traffic manager is now being reconfigured with the settings that you have provided.

Please make a note of the new Administration Server location:

 <https://10.62.165.99:9090/>

It can take up to a minute for the network to adjust to the new settings, so the new Administration Server may not be available immediately. You can log in with the username 'admin' and the password that you chose.

The Traffic Manager presents a page with a link to the new URL of the Admin UI. Brocade recommends waiting a short period (typically 10 – 30 seconds) before clicking the link, to allow the virtual appliance time to reconfigure its network interfaces. You might also need to reconfigure your computer's network settings so that it can send packets to the IP address of the virtual appliance management interface.

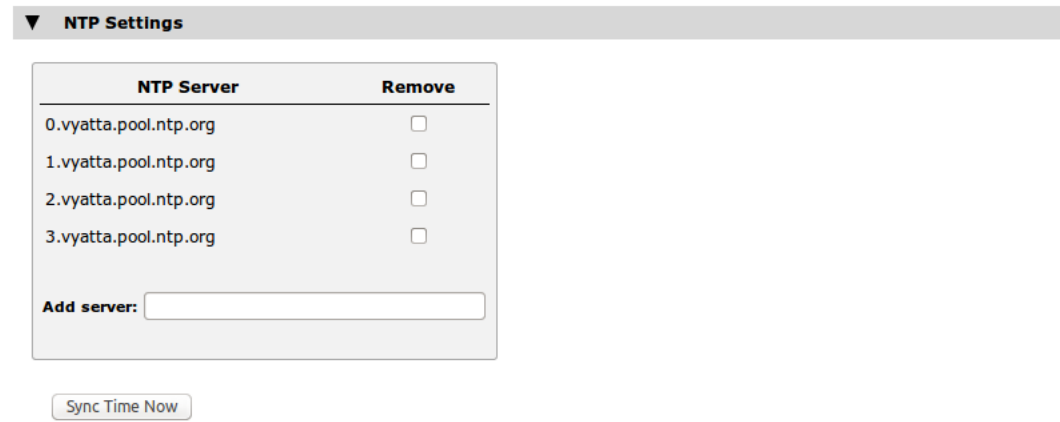
Click the link to view the login page of the Admin UI. Log in using the username "admin" and the password you chose during the wizard.

NTP Settings

Note: This section is not applicable to Xen VA users, where the virtual appliance time is automatically synchronized from the host machine.

Brocade recommends configuring your virtual appliances to use the Network Time Protocol (NTP) to synchronize their clocks. To do this, visit the System > Time page of the Admin UI and set your NTP servers accordingly. By default, the virtual appliance attempts to use the public NTP servers referenced by "pool.ntp.org".

Figure 8-11. Setting NTP servers



▼ NTP Settings

| NTP Server | Remove |
|-----------------------|--------------------------|
| 0.vyatta.pool.ntp.org | <input type="checkbox"/> |
| 1.vyatta.pool.ntp.org | <input type="checkbox"/> |
| 2.vyatta.pool.ntp.org | <input type="checkbox"/> |
| 3.vyatta.pool.ntp.org | <input type="checkbox"/> |

Add server:

Note: If, for any reason, the time on your virtual appliance differs from the correct time by more than a few minutes, the NTP daemon is not able to adjust the time automatically. To correct the time difference in this case, click **Sync Time Now** on the System > Time page.

Traffic Manager virtual appliances also run a local NTP server that listens for NTP (time) requests on all interfaces. You can optionally use the Traffic Manager as a local time source for other servers on your network.

Unexpected time jumps by more than one second trigger a warning message in the Event Log and an SNMP Trap (where configured). Synchronize the time of your virtual appliance if such messages appear.

Upgrading and Downgrading

This section contains details of how to upgrade and, if necessary, downgrade your Traffic Manager virtual appliance version.

Before You Start

Caution: If you are upgrading from version 9.1 and earlier, you must instead install a new instance of the Traffic Manager virtual appliance and import your configuration into it. This is due to the underlying operating system on earlier virtual appliances missing packages required in version 9.9 and later. For more information on creating and importing configuration backups, see the *Brocade Virtual Traffic Manager: User's Guide*.

Caution: If you are upgrading from version 9.6 and earlier, your Traffic Manager virtual appliance has a root partition size of 1.9 Gb. To obtain the larger root partition of 3.7 Gb required for version 9.7 and later, Brocade recommends instead installing a new instance of the virtual appliance and importing your configuration into it. For more information on creating and importing configuration backups, see the *Brocade Virtual Traffic Manager: User's Guide*.

Caution: 32-bit instances of the Traffic Manager (software, appliance, and cloud variants) are deprecated from version 9.6. To upgrade an earlier 32-bit instance to version 9.6 or later, you must instead install a new 64-bit instance and import your configuration into it. For more information on creating and importing configuration backups, see the *Brocade Virtual Traffic Manager: User's Guide*.

Before you start, make sure you have enough system resources to perform the upgrade:

- **Available memory:** The Traffic Manager requires a minimum of 2GB of RAM to function normally. If the Traffic Manager in question currently has less memory, assign more to the virtual machine before proceeding.
- **Free disk space:** For an incremental upgrade to succeed, a minimum of 700MB must be free on the / (root) partition, and at least 600MB must be free on the /logs partition. To confirm the available free disk space, use the System > Traffic Managers page of the Admin UI. A full upgrade installs the new appliance version into a separate partition on the appliance. After the new version has been installed, the upgrade process applies a copy of your configuration from the previous version. Space requirements are therefore different to incremental revision upgrades in that you should only encounter problems if you have unusually large amounts of data in your configuration directories (specifically /root and \$ZEUSHOME). If you are in any doubt, contact your support provider for assistance.

Note: Brocade recommends you backup your configuration as a precaution before upgrading a Traffic Manager. Use the System > Backup page to create a snapshot of your current configuration that you can restore later if necessary.

For further information on upgrading and space requirements, see the Brocade Community Web site:

<http://community.brocade.com>

Caveats for VMware Users

Certain earlier versions of the Traffic Manager were built for VMware platforms that have since been updated or changed. Before upgrading to the latest version of the Traffic Manager, Brocade recommends you check your virtual machine settings for any of the following out-of-date configuration values:

| Setting | Out Of Date Value | Correct Value |
|----------------------|-----------------------|---|
| Virtual Hardware | "VM Version" set to 4 | Set to 7 or later (depending on the ESX version you are running, you might be offered more than one virtual hardware version) |
| Guest OS | Other Linux | Ubuntu Linux 64 |
| Network Adapter Type | VMXNET | VMXNET3 |

Note: If you have configured your virtual appliance with additional network adapters, make sure you update the adapter type for each one.

You must correct all of these settings before performing an upgrade.

To correct your VMware configuration

1. Shut down the virtual appliance.
2. Edit the virtual machine settings.
3. Make your changes according to the values in the table.
4. Save your settings, and restart the virtual appliance.

Note: If your virtual appliance has several network adapters defined with distinct configuration differences, such as with connections to different virtual networks, deleting and recreating them might disrupt the expected interface assignment order within your virtual machine (eth0, eth1, and so on). You must confirm that the newly created adapters are connected to your virtual machine as per your original configuration.

Installing Incremental Software Revisions

Installing a software revision (for example, 9.9 to 9.9r1) involves replacement of the Traffic Manager software and a small number of operating system packages.

Any previously installed revisions of the current version, including the original unrevised version, are retained in case you need to cancel or revert the upgrade. For more details, see [“Downgrading to an Earlier Version” on page 65](#).

A restart of the Traffic Manager software is required, but an appliance reboot is not generally needed.

To install a software revision

1. Obtain the appropriate upgrade package. Packages are named according to the following convention:

```
ZeusTM_<version>_VMware-Appliance-Upgrade-x86_64.tgz
```

```
ZeusTM_<version>_Xen-Appliance-Upgrade-x86_64.tgz
ZeusTM_<version>_hyperv-Appliance-Upgrade-x86_64.tgz
ZeusTM_<version>_kvm-Appliance-Upgrade-x86_64.tgz
```

2. Log into the Admin UI, and go to the System > Upgrade page.
3. Follow the instructions to upload and apply the upgrade package.

Upgrading a Cluster From One Revision to Another

The procedure for upgrading a cluster of several Traffic Managers is the same as upgrading one. Note that when the cluster is in a mixed state (cluster members are using different software versions), Brocade strongly advises against making any configuration changes.

To upgrade a cluster, upgrade each Traffic Manager in turn. All Traffic Managers in the cluster continue to run their configured services.

Installing Full Upgrades (Version Number Changes)

Full version upgrades (for example 9.9 to 10.0) involve installation of a new operating system image and a full system restart. To achieve this, the Traffic Manager maintains a secondary disk partition into which the new system image is installed. The Traffic Manager then applies a copy of the configuration from the previous version to the new version, marks the partition as primary, and restarts the appliance.

The previous partition is not deleted, but instead marked as dormant. This dual-partition mechanism facilitates a roll-back capability, should you need to revert to the previous version (see [“Downgrading to an Earlier Version” on page 65](#)).

Caution: Only one previous full version, with installed incremental revisions, can be maintained on the virtual appliance in addition to the current version. If you have previously upgraded to a new full version, upgrading a further time will overwrite the oldest version held. Please note that this operation is permanent – the overwritten version cannot be retrieved once the upgrade is applied.

If you are upgrading from a currently installed Traffic Manager version of 9.0 or later, you can perform the upgrade through the Admin UI or from the virtual appliance command line.

To upgrade using the Admin UI

1. Obtain the relevant Traffic Manager virtual appliance installation package for the hypervisor you are using. Packages are named according to the following convention:

```
ZeusTM_<version>_VMware-Appliance-Upgrade-x86_64.tgz
ZeusTM_<version>_Xen-Appliance-Upgrade-x86_64.tgz
ZeusTM_<version>_hyperv-Appliance-Upgrade-x86_64.tgz
ZeusTM_<version>_kvm-Appliance-Upgrade-x86_64.tgz
```

2. Log in to the Admin UI, and go to the System > Upgrade page.
3. Follow the instructions to upload and apply the upgrade package.

To upgrade using the command line

Note: This method is mandatory where the currently installed Traffic Manager version is prior to 9.0

1. Obtain the relevant Traffic Manager virtual appliance installation package for the hypervisor you are using. Packages are named according to the following convention:

```
ZeusTM_<version>_Appliance-x86_64-vmware.zpkg
ZeusTM_<version>_Appliance-x86_64-xen.zpkg
ZeusTM_<version>_Appliance-x86_64-hyperv.zpkg
ZeusTM_<version>_Appliance-x86_64-kvm.zpkg
```

2. Copy the upgrade package to the virtual appliance, using the Linux scp command, or Windows based pscp (<http://www.chiark.greenend.org.uk/~sgtatham/putty/>) or WinSCP (<http://winscp.net/eng/index.php>).

Caution: Brocade recommends the package is copied to the /logs partition to avoid any disk space issues during the upgrade process.

3. Connect to the virtual appliance command line using "putty" or some other suitable terminal emulator.

4. Run the command:

```
z-upgrade-appliance <package_filename>
```

5. Follow the instructions provided. The upgrade program then copies your configuration data to the new version, but a reboot is required before you can start to use it.

Note: Subsequent configuration changes in the original version are not migrated to the new version.

6. Reboot the appliance when convenient from the Admin UI or command line (type "reboot").

Upgrading a Cluster From One Full Version to Another

Follow the advice in [“Upgrading a Cluster From One Revision to Another” on page 64](#) to upgrade each Traffic Manager virtual appliance in turn, taking care to not make any configuration changes during the cluster upgrade process.

Downgrading to an Earlier Version

The upgrade process preserves the previous full Traffic Manager software version, and any applied revisions, in a separate disk partition to facilitate a downgrade capability. You can revert to a previously installed version using the rollback program included with your Traffic Manager software. Using this method, you can revert back to any revision installed in the current version, or to the most recent revision of a dormant previous full version.

Note: Rollback can only access the most recent revision of a previous full version. If you want to revert to an earlier revision of that version, you must run rollback twice: first to switch to the latest revision of that version, and then once more to access the earlier revisions.

To revert the Traffic Manager to a previous version

1. Connect to the Traffic Manager appliance command line using "putty" or some other suitable terminal emulator.
2. Ensure you are the root user.

3. Run the command:

```
$ZEUSHOME/zxtm/bin/rollback
```

This starts the rollback program:

```
Rollback
Copyright (C) 2015, Brocade Communications, Inc. All rights reserved.
```

This program allows you to roll back to a previously installed version of the software. Please note that the older version will not gain any of the configuration changes made since upgrading.

To delete obsolete versions of the software, use the `--delete` option.

Do you want to continue? Y/N [N]:

4. Type **Y** and press Enter to continue. The program lists all versions of the software it can restore:

```
Which version of the Traffic Manager would you like to use?
```

- ```
1) 9.8
2) 9.8r1
3) 9.8r2
4) 9.9
5) 10.0 (current version)
```

```
Select a version [5]
```

5. Select the version of the software you want to restore, and press Enter.
6. The Traffic Manager stops the current version and restarts itself with the selected version.

If you need to cancel this process and return to the latest software version, rerun rollback and select the newer version to restore. You do not need to reinstall the latest version of the Traffic Manager to achieve this. The change in software version is applied permanently; subsequent appliance reboots continue to use the version you select from the rollback program.

The rollback program includes a `--delete` option to delete unneeded software revisions for the version you are currently using. Using the procedure outlined above, run the following command from the console:

```
$ZEUSHOME/zxtm/bin/rollback --delete
```

Follow the instructions to permanently delete a selected software revision. You cannot delete the revision you are currently using, and you cannot delete revisions from other dormant Traffic Manager versions.

---

**Caution:** This operation is permanent and cannot be reversed. Brocade recommends taking a configuration backup first.

---

## Downgrading a Traffic Manager Manually

If the rollback program is unable to complete a version change, you can perform the operation manually by editing the virtual appliance "boot menu" from the console.



**To edit VMware and Hyper-V based virtual appliances**

1. Ensure you have access to the virtual appliance console.
2. Reboot the virtual appliance from the System > Traffic Managers page of the Admin UI, or from the console (use the command "reboot").
3. During the reboot process, press Escape when you see the following message on the console:  

```
GRUB loading, please wait...
Press 'ESC' to enter the menu...
```
4. Select the required version from the list provided.

**To edit Citrix Xen, Oracle VM Server, and QEMU/KVM based virtual appliances**

1. Log in to the appliance console as the "admin" user.
2. Edit the file /boot/grub/menu.lst.
3. Locate the line:  

```
default 0
```

Replace it with:

```
default 2
```
4. Save the changes to the file.
5. Type "reboot" at the prompt to reboot your appliance.

---

## Useful System Information

### SSH

You normally administer the virtual appliance through the Web-based Admin UI. However, you can also access the Traffic Manager through the console (command line) to access files stored on the system. To do this, use an SSH client to log in to the virtual appliance.

### Freeing Up Disk Space

Over time, your appliance can run low on disk space. For example, your system logs can become large if you have configured your Traffic Manager to produce detailed request log information. Additionally, archived software revisions (used by the Traffic Manager for roll back) might no longer be required and can be removed. For information on deleting software revisions, see [“Downgrading to an Earlier Version” on page 65](#).

The Traffic Manager warns you if disk space is running low through the Event Log and Diagnose > Cluster Diagnosis page. You can also view disk space usage at any time through the System > Traffic Managers page.

To free up disk space, click **Free up some disk space** from the Wizards: drop-down menu in the main tool bar. You can also run the wizard from the "Free Disk Space" link on the System > Traffic Managers page at any time, and from the Diagnose > Cluster Diagnosis page when a low disk space warning appears.

---

**Caution:** This operation is irreversible. Make sure you have created a backup of any files you need to keep before running the wizard. Note also that any "Technical Support Reports" you create afterwards contain only those logs generated since the wizard was run.

---

## Changing the Traffic Manager Name

Each Traffic Manager in your cluster uses a DNS resolvable hostname with which it can be identified and contacted by each other cluster member. If you are unable to use a resolvable name, you can instead use a contactable IP address. You set the hostname or IP address during the initial configuration of your Traffic Manager. See ["Running the Initial Configuration Wizard" on page 54](#).

To change the designated Traffic Manager hostname after you have completed the initial configuration, or to instead switch to using an IP address, run the Brocade Configuration Program from the virtual appliance console:

```
$ZEUSHOME/zxtm/configure
```

This program displays the following options:

```
Brocade Configuration Program
Copyright (C) 2015, Brocade Communications, Inc. All rights reserved.
```

```
This program will perform the initial configuration of the
Traffic Manager.
```

```
Initial configuration has already been performed on this Traffic Manager installation.
```

```
1. Quit (default)
2. Perform the post-install configuration again
3. Clear all configuration
H. Help
```

```
Choose option [1]:
```

Select **Perform the post-install configuration again** and then choose which action you want to perform from the further options provided:

```
Each traffic manager in your cluster must have a unique name,
resolvable by each member of the cluster.
```

```
This traffic manager is currently called 'stm1.example.com'.
Would you like to
```

```
1. Keep the current traffic manager name (default)
2. Specify a new resolvable hostname
3. Use an IP address instead of a hostname
```

```
Choose option [1]:
```

You can also switch to using an IP address from the Replace Traffic Manager Name section on the System > Traffic Managers page of the Admin UI. You cannot, however, switch back to using a resolvable name from this page. Instead, rerun `$ZEUSHOME/zxtm/configure` as previously described.

## Resetting to Factory Defaults

If you would like to completely reset the virtual appliance back to its unconfigured state, use the following command. Be aware that this command completely erases your existing configuration, including the network configuration and any additional software modules you might have installed (such as the Brocade Virtual Web Application Firewall).

```
z-reset-to-factory-defaults
```

After the virtual appliance has been reset, reconfigure the virtual appliance using the instructions in [“Running the Initial Configuration Wizard” on page 54](#).

## Resetting the Admin Password

If you forget the admin user password, you can reset it from the virtual appliance console.

### To reset the admin user password

1. Access the virtual appliance host management interface (for example, vSphere Client or XenCenter).
2. Reboot the virtual appliance, “forcefully” if required.
3. Access the virtual appliance console.
4. Press Escape when you see the following prompt:

```
GRUB loading, please wait
Press ESC to enter menu...
```

5. Choose *Recovery mode* from the boot menu and press Enter.
6. At the prompt, enter the following command:

```
z-reset-password
```

7. Follow the instructions to change the password (enter a new admin password twice as directed).
8. Type the following command to reboot the virtual appliance:

```
reboot
```

9. After the virtual appliance reboots, log in to the Admin UI using the username “admin” and your new admin password.

---

**Note:** If your virtual appliance is a member of a cluster, the Diagnose page of the Admin UI might report a configuration conflict. Use this page to push the new admin password to the other Traffic Managers in the cluster.

---



# Basic Configuration Information

The Traffic Manager receives traffic from the Internet, makes decisions based on the traffic source, destination and content, and chooses a group of back-end servers to handle the traffic. Traffic is balanced across this group according to the network resources.

In a traffic management system, you configure a virtual server object to manage connections from remote clients, and configure a pool object to manage connections to your local servers.

Once you have installed and configured your Traffic Manager system on the network, you can access the Admin UI to set up a pool and a virtual server.

This chapter describes the basic Traffic Manager configuration and contains the following sections:

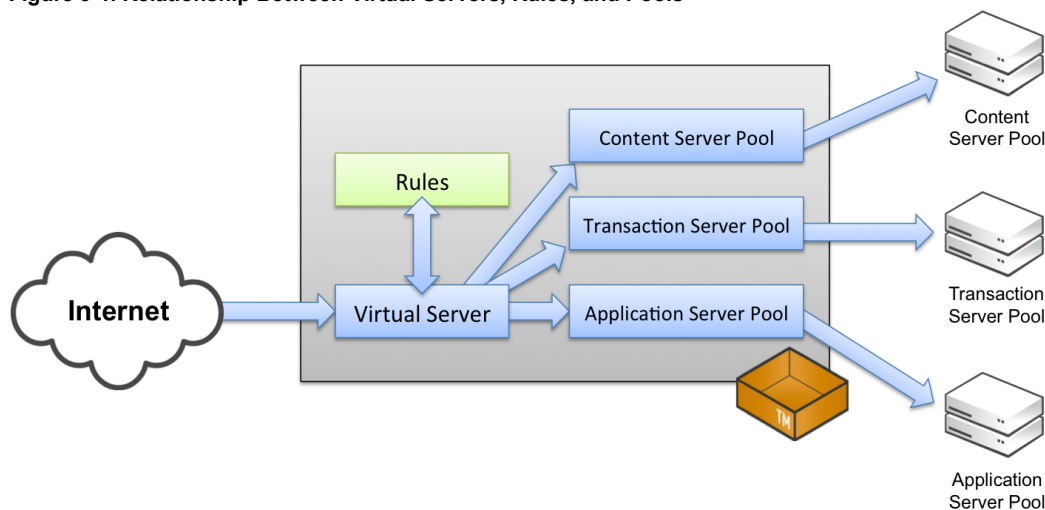
- [“Virtual Servers, Pools, and Rules,”](#) next
- [“Managing Your First Service”](#) on page 72
- [“Creating a Traffic Manager Cluster”](#) on page 73

---

## Virtual Servers, Pools, and Rules

The following figure illustrates the relationship between virtual servers, rules, and pools.

**Figure 9-1. Relationship Between Virtual Servers, Rules, and Pools**



A pool is a collection of nodes. Each node corresponds to a back-end server and port, such as `server1.mysite.com:80`. You can set up several pools with nodes in common.

A virtual server listens for and processes incoming network traffic, and typically handles all of the traffic for a certain protocol (for example, HTTP or FTP). In contrast, a virtual server in a Web server typically serves only one website. The Traffic Manager sends traffic to a default pool, although the virtual server first runs through any rules that you have associated with it. Each of these might select a different pool to use depending on the conditions satisfied within the rule. Traffic is balanced across the nodes in the selected pool.

A request rule can do much more than just select a pool. It can read an entire request, inspect and rewrite it, and control how the other traffic management features on the Traffic Manager are used to process that particular request. It can select the pool based on the contents of the request.

Response rules process responses. They can inspect and rewrite responses, control how the response is processed, or even instruct the Traffic Manager to try the request again against a different pool or node.

---

## Managing Your First Service

### To manage your first service

1. Browse to the Admin UI and log in with the username “admin” and your password.
2. The Admin UI home page shows that you have not yet created any pools or virtual servers. From the Wizards drop-down menu, choose Manage a New Service to begin using the wizard.
3. Specify a name that identifies the virtual server, and choose a protocol and port (for example, HTTP and default port 80).

**Figure 9-2. Basic Parameters for the new Service**

**Manage a new Service, step 2 of 4**

**2. Specify the service**

Please enter a brief name to identify the service you would like to balance.

Name:

Please select the protocol that the service uses.

Protocol:

Please specify the port that the protocol listens on.

Port:

- Click **Next** to continue.

**Figure 9-3. Back-end Nodes Forming the Pool**  
**Manage a new Service, step 3 of 4**

- Create a list of backend nodes, which form the default pool for the virtual server.  
 The nodes are identified by hostname and port. You can modify these later from the Pools > Edit page. Make sure that you can serve content directly from the hostname/port combinations you specify here.
- Click **Next** to display the setting summary page.
- Review the settings that you have chosen. Click **Back** to make changes or click **Finish** to set up the service.
- Test your Traffic Manager setup by browsing to it, using the port you set up for your new service. Use one of the following paths:  

```
http://<machine_name>:<port>
```

 or  

```
http://<ip_address>:<port>
```
- (Optional) You can observe the traffic handled by the Traffic Manager to verify that the traffic was processed and routed correctly. To do so, click Activity in the Admin UI and select the Connections tab. This page lists connections that the Traffic Manager has recently managed. If the list is empty, reload pages from the Website that the Traffic Manager is managing and check that the connections list is modified accordingly.  
 You can also use the Current Activity graph to watch the activity of the Traffic Manager in real-time.

---

## Creating a Traffic Manager Cluster

If you are configuring two or more Traffic Managers in a cluster, first perform the initial configuration process for each instance. Then, before making any other changes, join the instances together to form a cluster using one of the following procedures:

- If you are creating a new Traffic Manager cluster, choose one Traffic Manager as the first cluster member. Log in to the Admin UI on each of the other instances, and use the Join a cluster wizard to join each of these with the first Traffic Manager.

- If you want to join an existing Traffic Manager cluster, log in to the Admin UI on each of the new instances and use the Join a cluster wizard to join each of these to the existing cluster.

---

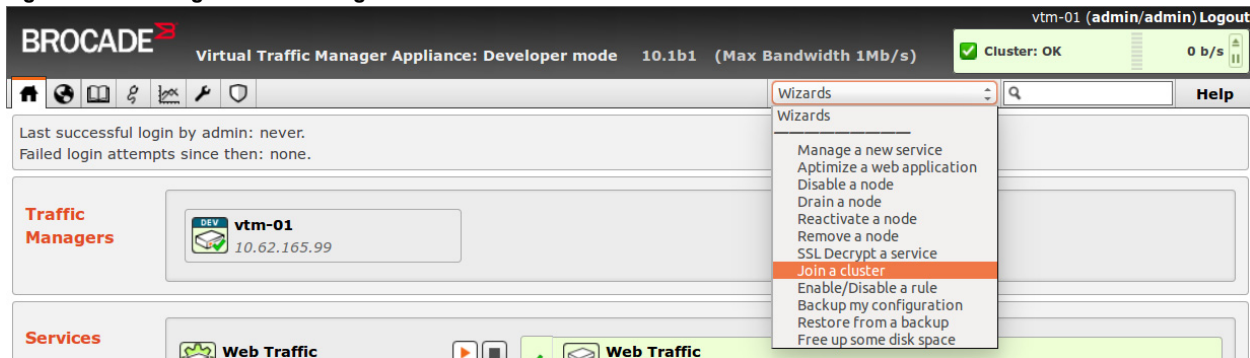
**Note:** In a Traffic Manager cluster, all systems are considered equal. You can access the Admin UI on any of the Traffic Managers. Any configuration changes you make are automatically replicated across the cluster. All Traffic Managers function together to provide fault tolerance and simplified management.

---

## To join a cluster

1. Log in to the Admin UI on one of your Traffic Managers and select Join a cluster from the Wizards drop down box manu in the tool bar.

**Figure 9-4. Creating a Cluster Using the Wizard**



2. Step 1 of the Join a cluster wizard requires you to choose whether to scan for existing clusters or manually specify the cluster details.

**Figure 9-5. Getting Started with the cluster joining wizard**

### Cluster Joining wizard, step 1 of 5

1. Getting Started

This wizard joins your current traffic manager to an existing cluster so that it can share the cluster's configuration and traffic.

Would you like to select an existing cluster from a list of available clusters on your network, or enter the Administration Server address and port of a specific traffic manager to join?

☒ Select existing cluster  
☐ Manually specify host/port

To instruct the Traffic Manager to automatically scan the network for contactable Traffic Managers, click "Select existing cluster". Alternatively, to enter a specific hostname and port you want to join, click "Manually specify host/port".

3. Click **Next** to continue.



- Step 2 reflects the choice you make in step 1. If you clicked "Select existing cluster", the Traffic Manager presents a list of discovered Traffic Manager instances and clusters.

**Figure 9-6. Select an existing Traffic Manager cluster to join**  
**Cluster Joining wizard, step 2 of 5**

**2. Cluster selection**

Please select the cluster you wish to join:

- ☐ Cluster 1: 10.62.164.130:9090
- ☐ Cluster 2: abraggins-0d.cam.zeus.com:9090
- ☐ Cluster 3: aknox-02.cam.zeus.com:9091
- ☐ Cluster 4: apritchard-04.cam.zeus.com:9090
- ☐ Cluster 5: apritchard-08.cam.zeus.com:9090
- ☐ Cluster 6: pevans-03.cam.zeus.com:9090 pevans-04.cam.zeus.com:9090
- ☐ Cluster 7: pevans-05.cam.zeus.com:9090 pevans-06.cam.zeus.com:9090

If you clicked "Manually specify host/port", enter your hostname and port number in the boxes provided.

**Figure 9-7. Specifying a Hostname and Port**  
**Cluster Joining wizard, step 2 of 5**

**2. Cluster selection**

Please provide the admin server host and port of one of the machines in the cluster you wish to join:

**Hostname:**

**Port:**

- Click **Next** to continue.

- To connect to the specified instance or cluster, first verify the identity of the Traffic Managers within the cluster, and provide the administration credentials used by the cluster.

**Figure 9-8. Authenticating the Cluster**  
**Cluster Joining wizard, step 3 of 5**

**3. Authentication**

The admin server you are clustering with is using an SSL certificate with the following SHA-1 fingerprint:

**172.29.68.212:9090** ☒ 09:0F:B6:24:59:AE:CF:03:61:A2  
DB:83:DB:DE:42:00:D8:2D:63:29

► [Unfold to view full certificate details ...](#)

Please check the box beside the fingerprint above to indicate that you have verified it or that you trust the network between it and this system.

If you do not already have this fingerprint on record you can get it by logging into the target admin server and visiting the **System > Security** page. (Refer to the product documentation for further information on cluster security.)

Enter the username and password of a user in the target cluster with permission to add and remove traffic managers.

**Username:**

**Password:**

Check the displayed SHA-1 fingerprint against the fingerprint shown in the target Traffic Manager's Admin UI, in System > Security.

Tick the checkbox next to each Traffic Manager hostname to confirm you trust its identity, and then enter the cluster admin username and password. Click **Next** to continue.

- If the cluster already has one or more Traffic IP groups configured, you can elect to add the new Traffic Manager to these Traffic IP groups so that it starts handling traffic immediately.

**Figure 9-9. Assigning Traffic IP Group Membership**  
**Cluster Joining wizard, step 4 of 5**

**4. Additional Settings**

If the cluster has Traffic IP groups, should the new machine join them?

☒ Yes, and allow it to host Traffic IPs immediately

☐ Yes, but make it a passive machine

☐ No, do not add it to any Traffic IP groups

To add the Traffic Manager to existing Traffic IP groups, click "Yes, and allow it to host Traffic IPs immediately". However, this can result in a number of connections being dropped at the instant the new Traffic Manager is added to the Traffic IP group, because allocations of traffic need to be transferred to the new Traffic Manager.

To avoid this situation, click "Yes, but make it a passive machine" to add the new Traffic Manager as a "passive" member of the Traffic IP group. This way, it does not accept any traffic until another member of the group fails.

To leave the new Traffic Manager out of all existing Traffic IP groups, click "No, do not add it to any Traffic IP groups".

Click **Next** to continue.

8. Check your settings in the summary step and then click **Finish** to join the cluster.

Provided the other Traffic Manager instances can be contacted, the Traffic Manager software reconfigures itself and presents a new home page showing all connected Traffic Manager instances in the Traffic Managers list.

To add further Traffic Managers to the cluster, run the Join a cluster wizard on the Admin UI of each Traffic Manager instance you want to add.

---

**Note:** When you join a Traffic Manager to an existing cluster, it takes on the entire configuration that the cluster is using, including the administration password you specify during the wizard.

---

Clusters consisting of Traffic Managers on different platforms is possible, although you might find that product capabilities present on one of your cluster members are not present on others. For example, Networking and Time settings are configurable only for certain Traffic Manager variants.



## CHAPTER 10 Open Source Software Licenses

This product includes software originating from third parties that are subject to one or more of the following:

- The GNU Library/Lesser General Public License (LGPL)
- The GNU General Public License (GPL)
- The Berkeley Software Distribution (BSD) License
- The OSI Artistic License
- Various GPL/BSD-like Distribution Licenses

All third party software packages and accompanying licenses can be found in the *Brocade Virtual Traffic Manager: Appliance License Acknowledgments* document, available from the Traffic Manager product pages on the Brocade Web site.

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Source Code Requests VTM-APPLIANCE (GPL)

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