

SteelCentral™ Controller for SteelHead™ (Virtual Edition) Installation Guide

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riverbed®

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NetApp Manageability Software Development Kit (NM SDK), including any third-party software available for review with such SDK which can be found at <http://communities.netapp.com/docs/DOC-1152>, and are included in a NOTICES file included within the downloaded files.

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Preface

Read this introduction for the documentation conventions used throughout, additional reading, and contact information. This preface includes the following sections:

- [“About This Guide” on page 5](#)
- [“Document Conventions” on page 6](#)
- [“Documentation and Release Notes” on page 6](#)
- [“Contacting Riverbed” on page 6](#)

About This Guide

The guide describes how to install and configure the SteelCentral Controller for SteelHead (virtual edition) (Controller-v).

This guide includes information relevant to the following products:

- Riverbed SteelCentral Controller for SteelHead (SCC)
- SteelCentral Controller for SteelHead (virtual edition) (Controller-v)
- Riverbed SteelHead (SteelHead)
- Riverbed Optimization System (RiOS)

Audience

This guide is written for storage and network administrators with familiarity administering and managing WANs using common network protocols such as TCP, CIFS, HTTP, FTP, and NFS.

Document Conventions

This manual uses the following standard set of typographical conventions to introduce new terms, illustrate screen displays, and describe command syntax.

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 separates alternative, mutually exclusive elements of a choice. The pipe symbol is used in conjunction with braces or brackets; the braces or brackets group the choices and identify them as required or optional: { delete <filename> upload <filename>}

Documentation and Release Notes

To obtain the most current version of all Riverbed documentation, go to the Riverbed Support site at <https://support.riverbed.com>.

If you need more information, see the Riverbed 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 Riverbed Knowledge Base, log in to the Riverbed Support site at <https://support.riverbed.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, go to the Software and Documentation section of the Riverbed Support site at <https://support.riverbed.com>.

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

Contacting Riverbed

This section describes how to contact departments within Riverbed.

- **Technical support** - If you have problems installing, using, or replacing Riverbed products, contact Riverbed Support or your channel partner who provides support. To contact Riverbed Support, open a trouble ticket by calling 1-888-RVBD-TAC (1-888-782-3822) in the United States and Canada or +1 415-247-7381 outside the United States. You can also go to <https://support.riverbed.com>.

- **Professional services** - Riverbed has a staff of professionals who can help you with installation, provisioning, network redesign, project management, custom designs, consolidation project design, and custom coded solutions. To contact Riverbed Professional Services, email proserve@riverbed.com or go to <http://www.riverbed.com/services-training/Services-Training.html>.
- **Documentation** - The Riverbed Technical Publications team continually strives to improve the quality and usability of Riverbed documentation. Riverbed appreciates any suggestions you might have about its online documentation or printed materials. Send documentation comments to techpubs@riverbed.com.

CHAPTER 1 Overview of the Controller-v

This chapter provides an overview of the Controller-v: a virtualized appliance of the SteelCentral Controller for SteelHead specifically designed for customers (such as Managed Service Providers) and users who need to centrally manage multiple, separate deployments of the Riverbed system on behalf of their customers. This chapter includes the following sections:

- [“Prerequisites” on page 9](#)
- [“Overview of the Controller-v” on page 10](#)
- [“VMware ESXi” on page 11](#)

Prerequisites

This section describes the prerequisites necessary to install the product.

Product Licensing

All licensing must be properly in place. Appliances can still be managed if appliance licenses are valid and available.

You need to have valid licenses installed on all appliances that you want to manage with the Controller-v.

A missing base license on an appliance can cause the health of the Controller-v to become critical and temporarily invalidates other Controller-v licenses which in turn prevents management of appliances.

Networking Requirements

You can access each Controller-v instance through HTTP, HTTPS, or SSH. You can configure the default access protocol in the Management Console. For details, see the *SteelCentral Controller for SteelHead User's Guide*.

For SteelHead management, each Controller-v instance requires port 80 and port 443 inbound from the SteelHeads and port 22 outbound from each Controller-v instance to SteelHeads.

Hardware Requirements for VMware Infrastructure Client

The installation process requires accessing the VMware Infrastructure Client (VIC) on a Windows workstation. For requirements, see the VMware documentation.

Hardware Requirements per Controller-v Instance

The Controller-v consists of three files:

- Hard disk 1 contains the operating system. The default value is 22 GB.
- Hard disk 2 is for statistics storage and must be provisioned according to the following table. The default value is 5 GB. The minimum allocation value is 8 GB.
- Hard disk 3 is for RSP image and package management and must be provisioned based on total size of the image and package files. The default value is 2 GB.

The total datastore space required for the Controller-v is the sum of the three VMDK files with a minimum value of 32 GB to a maximum of over 400 GB.

This table describes the minimum hardware requirements per Controller-v instance.

Number of Appliances Managed	Hard disk 2	RAM	CPU (effective)
Up to 10	8 GB	2 GB	1 core, 1 GHz
Up to 50	25 GB	2 GB	1 core, 1 GHz
Up to 100	100 GB	4 GB	2 cores, 2 GHz
Up to 250*	125 GB	4 GB	2 cores, 2 GHz
Up to 500*	400 GB	8 GB	2 cores, 2 GHz
Up to 2000*	400 GB	8 GB	4 cores, 4 GHz

* Use the 64-bit Controller-v when managing more than 100 appliances.

Third-Party Software Requirements

The following table describes the third-party software requirements for the Controller-v.

Component	Description
VMware	VMware ESXi 5.5
SCC Management Console	The SCC has been tested with Mozilla Firefox Extended Support Release version 38 and Microsoft Internet Explorer 11. JavaScript and cookies must be enabled in your web browser.

Overview of the Controller-v

The Controller-v facilitates the following administrative tasks as a multitenant solution for managing deployments of the Riverbed system across parallel network environments.

- **Multiple Instances** - The Controller-v is a virtual appliance that is installed in your VMware ESXi cluster. You can run multiple Controller-v instances, provided that the ESXi platform has sufficient hardware resources and the appropriate licenses are available.
- **Configuration** - The Controller-v enables you to automatically configure new SteelHead groups or to send configuration settings to appliances in remote offices. The Controller-v uses configuration objects (that is, policies and groups) to facilitate centralized configuration and reporting.
- **Monitoring** - The Controller-v provides both high-level status of and detailed statistics about the performance of SteelHeads and enables you to configure event notification for managed SteelHeads.
- **Management** - The Controller-v enables you to start, stop, restart, and reboot remote SteelHeads. You can also schedule jobs to send software upgrades and configuration changes to remote appliances or to collect logs from remote SteelHeads.
- **Partial Federation** - You can put any appliance into branch-managed mode to prevent configuration changes or maintenance operations from the Controller-v. The Controller-v continues to monitor and gather statistics from appliances that are branch managed.
- **Operations History** - The Operations History page in the Management Console lists all of the actions related to configuring SteelHeads that have been performed and indicates whether they were successful or not.

VMware ESXi

VMware ESXi is a virtualization platform that enables that enable you to install and run the SteelCentral Controller for SteelHead as a virtual appliance. For details about VMware ESXi, see <http://www.vmware.com>.

For details about implementation requirements for the Controller-v, see [“Prerequisites” on page 9](#).

CHAPTER 2 Managing Riverbed Licenses

This chapter describes the Riverbed licensing methods and how to manage Riverbed licenses. It includes these sections:

- [“Riverbed Licensing Methods” on page 13](#)
- [“Retrieving Licenses Using the Riverbed Licensing Portal” on page 14](#)
- [“Installing Your License Keys” on page 14](#)

Riverbed Licensing Methods

A license is a string issued by Riverbed that embeds information that ties the license to data to prevent tampering. After you install the license, the system saves it in the configuration database and enables the functionality associated with the license. Riverbed employs the following licensing methods:

- **Manual Licensing** - You can manually fetch and activate licenses for Riverbed products using the Riverbed Licensing Portal. Go to <https://licensing.riverbed.com/index.htm> and follow the instructions to retrieve and activate license keys.
- **Factory Licensing** - You can have all your Riverbed licenses installed at the factory for a small fee.
- **Token Method** - You use tokens to activate Riverbed software, such as the Virtual SteelCentral Controller for SteelHead Mobile, Virtual SteelStore, SteelHead (virtual edition), and HP ProCurve. For detailed information, see the respective installation guides for these products.

Manual Licensing Using the Riverbed Licensing Portal

You can retrieve and manage Riverbed licenses using the Riverbed Licensing Portal. Once you retrieve a license from the Riverbed Licensing Portal, you need to install it.

Retrieving Licenses Using the Riverbed Licensing Portal

The licensing portal requires a unique product identifier to retrieve a license. Depending on the product, the identifier can be a serial number, a license request key (activation code), or a token. The steps to retrieve a license vary based on the product identifier. Online instructions guide you through the process.

To retrieve your licenses for an appliance using a serial number

1. Go to the License page in the Riverbed Licensing Portal at <https://licensing.riverbed.com/index.htm>.
2. Enter your appliance serial number as your unique product identifier.
The serial number is on a label located on your appliance. It also appears in the Help tab of the SCC Management Console.
3. Click **Next**.
4. Provide the contact information for the license, including your name and email.
5. Click **Submit** to display license information for all the products purchased with the serial number you specified.
6. Click a serial number to see license details.
7. Optionally, if you are behind a firewall, type the email address in the Email address text box and click **Email Keys** to have the license keys emailed to you.
8. Optionally, if you are behind a firewall, click **Download XML** to download an XML file. The XML file can be imported by the SteelCentral Controller for SteelHead.

Tip: Click **New Search** to look for additional license records.

Installing Your License Keys

Because each license key is generated for a specific appliance, ensure that you install your license key on the appropriate appliance.

To install a license using the SCC Management Console

1. Connect to the SCC Management Console of the appliance. For details, see the *SteelCentral Controller for SteelHead User's Guide*.

2. Choose Administration > Maintenance: Licenses to display the Licenses page.
3. Click + **Add New License** to expand the page.
4. Copy and paste the license key provided by Riverbed Licensing Portal into the text box. Separate multiple license keys with a space, Tab, or Enter.
5. Click **Add** to display the license in the table.

You can also install a license key using the SCC command-line interface (CLI).

To install a license using the CLI

1. Connect to the CLI of the appliance and enter configuration mode.
For details see the *Riverbed Command-Line Interface Reference Manual*.
2. At the system prompt, enter the following commands:

```
license install <license-key>  
write memory
```


CHAPTER 3 Installing the Controller-v

This chapter describes how to install and configure the SteelCentral Controller for SteelHead (virtual edition) (Controller-v). Controller-v requires Controller-v models 8001 (32-bit) or 8151 (64-bit).

This chapter includes the following sections:

- [“Completing the Configuration Checklist” on page 17](#)
- [“Installing the Controller-v” on page 18](#)
- [“Completing the Initial Configuration” on page 19](#)
- [“Verifying Your Connections” on page 21](#)
- [“Logging In to the Controller-v Console” on page 21](#)

Completing the Configuration Checklist

This section lists the parameters you specify to complete the initial configuration of the Controller-v and to register remote SteelHeads.

Be prepared to provide values for the parameters listed in the following checklist.

Appliance	Parameter	Your Value
SCC	Hostname	
	IP address	
	Netmask	
	Default gateway	
	DNS Server	
	Domain Name	

Appliance	Parameter	Your Value
Remote SteelHeads	Serial number	
	Version	
	IP address or hostname	
	User name	
	Password	

Installing the Controller-v

This section describes the procedures for installing the virtual machine package obtained from Riverbed. The Controller-v supports VMware ESXi. However, installation procedures vary depending on whether you are using VMware VI or vSphere Client.

The Controller-v is provided by Riverbed as both an .ova file for ESXi and a zip file that contains the VMX and VMDK files that are necessary to create the virtual machine.

Important: If you are using the vSphere Client, Riverbed recommends you install from the .ova file.

Installing with the VMware vSphere Client

This section describes how to install the Controller-v from an OVA package using the VMware vSphere Client.

To install with the VMware vSphere Client

1. Obtain the OVA package from the Downloads section of the Riverbed Support website at <https://support.riverbed.com>. (Access requires registration.)
2. Open the VMware vSphere Client.
3. In the left column, select an ESXi host.
4. Choose File > Deploy OVF Template.
5. Select one of the following methods:
 - To install from a location served by a web server, select Deploy from URL and specify the URL to the .ova file.
Deploying directly from <https://support.riverbed.com> is not supported.
 - To install from a location served by a file server, select Deploy from File and point to the .ova file.
6. Click **Next**.
7. Follow the prompts for the following configurations:

- **Name and Location** - Specify a suitable name for the Controller-v.
 - **Datastore** - Select the preferred datastore from the list.
 - **Network Mapping** - For both the Primary and Auxiliary interfaces, specify the destination networks.
8. Click **Finish** to complete the installation. For more information on hardware requirements, see [“Prerequisites” on page 9](#).
 9. Choose File> Virtual Appliance> Import to open the Import Virtual Appliance Wizard.
 10. In the Import Location screen, specify the location of the virtual machine package (*.ovf), and click **Next**.
If you downloaded the image, use the Import from file option. If Riverbed has provided you with a URL, use the Import from URL option.
 11. In the Virtual Appliance Details screen, review the information to confirm that the correct virtual machine package (*.ovf) is selected, and click **Next**.
 12. In the Name and Location screen, specify the name for the virtual appliance and select the directory, and click **Next**.
 13. In the Host/Cluster screen, select the host or cluster on which to run the virtual appliance, and click **Next**.
 14. If you selected a cluster in the preceding step, specify the specific host within the cluster (as prompted in the subsequent Specific Host screen), and click **Next**.
 15. In the Datastore screen, select the data store for storing the files for the virtual appliance, and click **Next**.
 16. In the Network Mapping screen, map the networks used in the virtual appliance to networks used in the virtual infrastructure, and click **Next**.
 17. In the Ready to Complete screen, review the summary of the settings specified in the preceding screens.
 18. Click **Finish**.
The installation begins. The virtual machine package is approximately 2 GB in size; depending on local network conditions, the installation process might take up to forty five minutes or possibly longer.

Completing the Initial Configuration

This section describes how to complete the initial configuration of the Controller-v.

To configure the Controller-v

1. After you log in to the Controller-v as administrator, the system prompts you to start the configuration wizard.
Enter **yes** at the system prompt:

```
Configuration wizard.  
Do you want to use the wizard for initial configuration? yes
```

2. Complete the configuration wizard steps as described in the following table.

Tip: Press Enter to enter the default value. If you mistakenly answer **no**, you can start the configuration wizard by entering **configuration jump-start** at the system prompt.

Tip: Press ? for help. Press Ctrl-B to go back to the previous step.

Wizard Prompt	Description	Example
Step 1: Host Name?	Enter the hostname for the Controller-v.	Step 1: Hostname? minna
Step 2: Use DHCP?	<p>You are given the option to enable the DHCP to automatically assign an IP address to the primary interface for the Controller-v.</p> <p>Riverbed recommends that you do not set DHCP.</p> <p>The default value is no.</p>	Step 2: Use DHCP? no
Step 3: Primary IP address?	Enter the IP address for the Controller-v.	Step 3: Primary IP address? 10.0.0.74
Step 4: Netmask?	Enter the netmask for the network on which the Controller-v is to reside.	Step 4: Netmask? 255.255.0.0
Step 5: Default gateway?	Enter the default gateway for the network on which the Controller-v is to reside.	Step 5: Default gateway? 10.0.0.1
Step 6: Primary DNS server?	Enter the primary DNS server for the network on which the Controller-v is to reside.	Step 6: Primary DNS server? 10.0.0.2
Step 7: Domain name?	<p>Enter the domain name for the network on which the Controller-v is to reside.</p> <p>If you set a domain name, you need not specify the domain names when you set up remote appliances to be managed by the Controller-v.</p> <p>Note: When you configure DNS server settings, map riverbedcnc to the IP address for the Controller-v.</p>	Step 7: Domain name? example.com
Step 8: Admin password?	<p>Riverbed strongly recommends that you change the default password at this time. The password must contain at least 6 characters.</p> <p>The default administrator password is password.</p>	Step 8: Admin password? xxxyyy

3. Confirm your settings.

You have entered the following information:

1. Hostname: minna
2. Use DHCP: no
3. Primary IP address: 10.0.0.74

- 4. Netmask: 255.255.0.0
- 5. Default gateway: 10.0.0.1
- 6. Primary DNS server: 10.0.0.2
- 7. Domain name: example.com
- 8. Admin password: xxxyyy

To change an answer, enter the step number to return to.

Otherwise hit <enter> to save changes and exit.

Choice:

The Controller-v configuration wizard automatically saves your initial configuration settings.

4. To log out of the system, enter the following command at the system prompt:

```
# exit
```

Verifying Your Connections

This section describes how to verify that you have properly connected the Controller-v.

To verify your connections

1. From a remote host, connect to the Controller-v CLI. At the system prompt, enter one of the following commands:

```
ssh admin@<host>.<domain>
```

or

```
ssh admin@<ipaddress>
```

2. When you are prompted for a password, specify the administrator password you set when you ran the configuration wizard.
3. At the system prompt, enter ping commands to verify the connections:

```
ping -I <primary-IP-address> <primary-default-gateway>
```

Logging In to the Controller-v Console

After you install the Controller-v, you can check and modify your configuration settings and view performance reports and system logs in the SCC console. You can connect to the console through any supported web browser.

To connect to the console, you must know the host, domain, and administrator password that you assigned in the configuration wizard.

Important: Cookies and JavaScript must be enabled in your web browser.

Important: Before you begin, clear your browser cache and cookies to ensure the user interface displays correctly.

To connect to the SCC console

1. Enter the URL for the SCC in the location box of your browser:

<protocol>://<host>.<domain>

<protocol> is http or https. The secure HTTPS uses the SSL protocol to ensure a secure environment. When you connect using HTTPS, you are prompted to inspect and verify the SSL certificate. This is a self-signed certificate used to provide encrypted web connections to the SCC.

<host> is the IP address or hostname you assigned the SCC during initial configuration. If your DNS server maps the IP address to a name, you can specify the DNS name.

<domain> is the full domain name for the SCC.

The SCC Login page displays.

2. In the text box, specify the user login: admin, monitor, a login from a RADIUS or a TACACS+ database, or a previously configured RBM account.

The default login is admin. Users with administrator privileges can configure and administer the SCC. Users with monitor privileges can view SCC reports but they cannot configure the system.

3. In the Password text box, specify the password you assigned in the configuration wizard of the SCC.

The SCC is shipped with password as the default password.

4. Click **Sign In** to log in to display the Dashboard.

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