

GroupWise TeamWorks 18.2

Installation and Deployment Guide

November 2019

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About This Guide

Production Deployments

To create a production-viable, best practice TeamWorks deployment, complete the sections below in the order presented.

- ♦ Chapter 1, “Start Here,” on page 7
- ♦ Chapter 2, “Planning Is Important,” on page 9
- ♦ Chapter 3, “System Requirements,” on page 11
- ♦ Chapter 4, “Setting Up NFS Shared Storage,” on page 17
- ♦ Chapter 5, “Downloading and Preparing the TeamWorks Software,” on page 19
- ♦ Chapter 6, “Creating the TeamWorks Virtual Machines,” on page 21
- ♦ Chapter 7, “Starting and Configuring the Appliances,” on page 23
- ♦ Chapter 8, “Creating a Multiple-Appliance TeamWorks Deployment,” on page 27
- ♦ Chapter 9, “Setting Up TeamWorks Services,” on page 35
- ♦ Chapter 10, “Upgrading/Migrating a Multiple-appliance TeamWorks Deployment,” on page 37
- ♦ Part I, “Appendixes,” on page 47

Test and Evaluation Deployments

To create an evaluation or test deployment, see [Appendix A, “Creating an All-in-One Deployment,”](#) on page 49.

Audience

This guide is intended for TeamWorks Administrators.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the [comment on this topic](#) link at the bottom of each page of the online documentation.

Documentation Updates

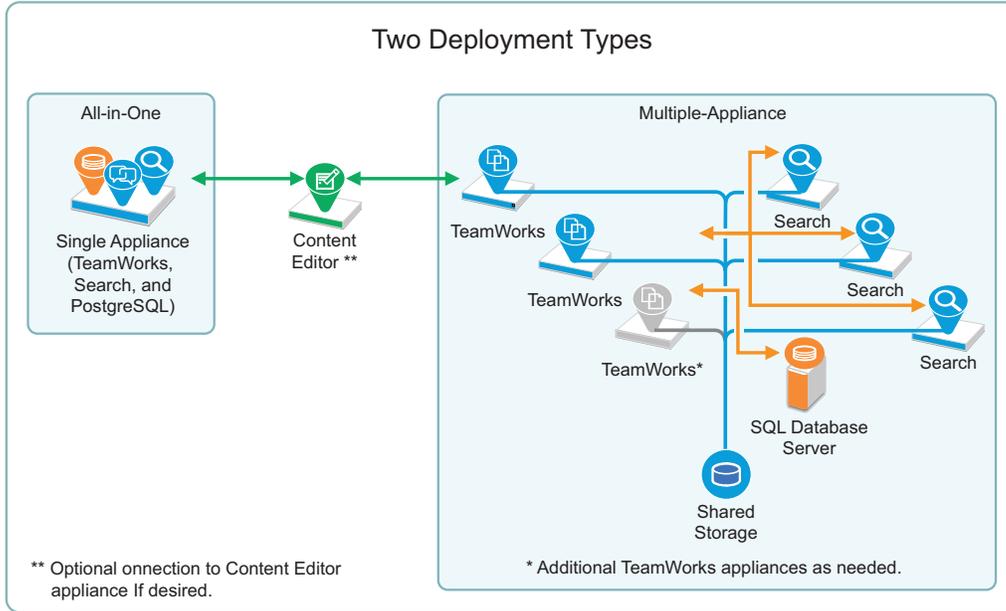
For the most recent version of this guide, visit the [TeamWorks Documentation web site \(http://www.novell.com/documentation/teamworks-18\)](http://www.novell.com/documentation/teamworks-18).

Additional Documentation

For other documentation on TeamWorks, see the [TeamWorks Documentation web site \(http://www.novell.com/documentation/teamworks-18\)](http://www.novell.com/documentation/teamworks-18).

1 Start Here

You can deploy TeamWorks in two different ways.



Micro Focus recommends multiple-appliance deployments as a best practice for the following reasons.

All-in-One	Multiple-Appliance
<ul style="list-style-type: none"> ◆ One All-in-One Appliance ◆ No fault tolerance—Single Point of Failure ◆ Not expandable beyond a single All-in-One appliance 	<ul style="list-style-type: none"> ◆ Multiple Appliances ◆ Fault-tolerant TeamWorks services ◆ Expandable by adding TeamWorks appliances, disk space, or RAM as needs increase

To deploy an all-in-one appliance, follow the instructions in [Appendix A, “Creating an All-in-One Deployment,”](#) on page 49.

Otherwise, continue with [Chapter 2, “Planning Is Important,”](#) on page 9.

2 Planning Is Important

Creating a successful TeamWorks deployment requires that you

1. Involve pertinent stakeholders.
2. Conduct a thorough needs assessment.
3. Plan your deployment based on the needs assessment.

The sections that follow assume that you have:

1. Completed the planning processes outlined in the [TeamWorks 18.2 Planning Your TeamWorks Deployment—Best Practices](#) guide.
2. Filled in the [TeamWorks 18 Planning Worksheets](#) associated with the Planning—Best Practices guide.

3 System Requirements

Multiple-Appliance Deployments Are the Focus of This Guide

All-in-One deployments are covered in [Appendix A, “Creating an All-in-One Deployment,”](#) on page 49.

The following sections outline platform, version, and other requirements for your multi-appliance TeamWorks deployment.

- ◆ [“Administrative Workstations and Browsers”](#) on page 11
- ◆ [“Appliance Disk Space”](#) on page 11
- ◆ [“Appliance Memory and CPU”](#) on page 12
- ◆ [“Appliance Shared Storage \(/vashare Mount Point\) Platforms”](#) on page 12
- ◆ [“Web Application Access \(End Users\)”](#) on page 13
- ◆ [“TeamWorks Software”](#) on page 13
- ◆ [“IP Addresses”](#) on page 13
- ◆ [“LDAP Directory Services \(Users and Groups\)”](#) on page 15
- ◆ [“Mobile Device Platforms”](#) on page 15
- ◆ [“SQL Database Server”](#) on page 16
- ◆ [“Virtualization Hypervisor Platform”](#) on page 16

Administrative Workstations and Browsers

Table 3-1 *Administrative Workstations and Browsers*

Platform	Browser	Requirement	Caveats
Windows, Mac, or Linux	Mozilla Firefox	Latest version	
	Microsoft Edge with Chromium	Latest version	Windows only
Capable of running a listed browser	Chrome	Latest version	Supported but not tested on Linux. Supported and tested on Windows and Mac.
	Safari	Latest version	Mac only

Appliance Disk Space

- ◆ See Worksheet 15—Storage Planning Summary

Planning for disk space varies widely according to organization needs and the planning process is covered in the [TeamWorks 18.2 Planning Your TeamWorks Deployment—Best Practices](#) guide.

General guidelines are summarized in the following sections of the [Planning Best Practices](#) guide:

- ◆ [Using Worksheet 10 - TeamWorks Appliances](#)

- ◆ [Using Worksheet 11 - Search Appliances](#)
- ◆ [Using Worksheet 12 - SQL Database](#)

Appliance Shared Storage (/vashare Mount Point) Platforms

- ◆ See Worksheet 15—Storage Planning Summary

The TeamWorks appliances in a Multi-appliance deployment access a commonly-shared NFS storage disk that you will identify and create in [Chapter 4, “Setting Up NFS Shared Storage,”](#) on [page 17](#).

Table 3-2 Shared Storage Platforms (/vashare Mount Point)

Protocol	Requirement
NFS	Exported mount point on one of the following: <ul style="list-style-type: none"> ◆ SLES 12 ◆ SLES 15 <p>NFS on Windows is not supported.</p>

Appliance Memory and CPU

Table 3-3 Memory and CPU

Appliance	Recommended
TeamWorks	<ul style="list-style-type: none"> ◆ 16 GB RAM 1.5 GB Operating System 8 GB Java Heap (always 1/2 total system memory) ◆ 4 CPUs
TeamWorks Search	<p>Less than 1,000 Users</p> <ul style="list-style-type: none"> ◆ 8 GB RAM ◆ 2 CPUs <p>More than 1,000 Users</p> <ul style="list-style-type: none"> ◆ 12 GB RAM ◆ 2 CPUs

Appliance	Recommended
PostgreSQL	Less than 1,000 Users <ul style="list-style-type: none"> ◆ 8 GB RAM 2 GB Operating System 2 GB Memcached 4 GB Java Heap ◆ 2 CPUs
	More than 1,000 Users <ul style="list-style-type: none"> ◆ 12 GB RAM 2 GB Operating System 3 GB Memcached 7 GB Java Heap ◆ 2 CPUs
Content Editor	<ul style="list-style-type: none"> ◆ 16 GB RAM ◆ 4 CPUs

Web Application Access (End Users)

Table 3-4 Browsers for End User Web Application Access

Platform	Requirement
Linux	Mozilla Firefox; Google Chrome (latest versions)
Windows	Microsoft Edge with Chromium , Mozilla Firefox; Google Chrome (latest versions)
Mac	Safari; Mozilla Firefox (latest versions)

TeamWorks Software

You must download and prepare the TeamWorks software in [Chapter 5, “Downloading and Preparing the TeamWorks Software,”](#) on page 19.

IP Addresses

Each appliance requires the following.

Table 3-5 IP Addresses

Component	Requirement
IP Address	<ul style="list-style-type: none"> ◆ A static address that is associated with a DNS host name. <p>Example: 192.168.1.61</p>

Component	Requirement
Network Mask	<ul style="list-style-type: none"> The appropriate network mask for the IP address. <p>Example: 255.255.255.0</p>
Gateway IP Address	<ul style="list-style-type: none"> The gateway for the IP address subnet. <p>Example: 192.168.1.254</p>
DNS Host Name	<ul style="list-style-type: none"> The DNS name associated with the IP address. <p>Example: TeamWorks-1.myorg.local</p>
DNS IP Address	<ul style="list-style-type: none"> Up to three IP addresses of DNS servers for the IP address subnet. <p>Example: 192.168.1.1</p>
NTP IP Address or DNS Name	<ul style="list-style-type: none"> Up to three IP addresses or DNS names of reliable NTP servers used to coordinate time on your organization's network—especially your LDAP directory servers. <p>Example: time.myorg.local</p> <p>If using VMware, Micro Focus recommends setting up NTP in accordance with the VMware best practices guidelines (http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externallid=1006427).</p>
(Optional) Network Proxy	<ul style="list-style-type: none"> If you want TeamWorks to connect through a forward proxy server for web requests, such as online updates, you can specify this as part of the initial configuration. <p>You need the proxy server's URL and a username and password if authentication is required.</p> <p>You can also use the Port 9443 > Network Services icon to set and manage this. See "Changing Network Settings" in the <i>TeamWorks 18.2: Administrative UI Reference</i>.</p>

LDAP Directory Services (Users and Groups)

Table 3-6 LDAP Directory Services

Directory Service	Platform	Version	Support
GroupWise	All	◆ 2018	Recommended
eDirectory	Linux	◆ Version 9.1 with the latest patch For more information, see the NetIQ eDirectory 9.1 Documentation website (https://www.netiq.com/documentation/edirectory-91/) .	Recommended
	Windows	◆ Version 9.1 and later	Supported
Active Directory	Windows	◆ Active Directory - no version specified	Supported

Content Editor Requires an SSL Connection with Each TeamWorks Appliance

If you integrate the Content Editor appliance with your TeamWorks appliances, the connections between the Content Editor and each TeamWorks appliance must be secured through certificates from an industry-recognized Certificate Authority.

Each TeamWorks appliance and the Content Editor appliance must have a valid certificate installed in its JVM Certificates key store, using the information found in “[Certificates](#)” in the [TeamWorks 18.2: Administrative UI Reference](#).

IMPORTANT: The use of self-signed certificates for securing inter-appliance communications is not supported in TeamWorks 18.2

Mobile Device Platforms

IMPORTANT: Accessing TeamWorks through a web browser on a mobile device is not recommended unless an app is not available for the device.

For more information about the TeamWorks mobile app, see the [TeamWorks User Help](#).

Table 3-7 Mobile Devices

Platform	Supported Versions
iOS Phones and Tablets	◆ iOS 12.x or later The native app is available as a free download in the Apple App Store.
Android Phones and Tablets	◆ Android phones and tablets for Android 8.1 or later The native app is available in the Android app store.

SQL Database Server

Table 3-8 SQL Database Server

Database Type	Supported Platforms
PostgreSQL (10 and later)	◆ Linux
Microsoft SQL Server	◆ 2019 ◆ 2016 ◆ 2014 (not formally tested)

Virtualization Hypervisor Platform

Table 3-9 Virtualization Hypervisor Platform

Hypervisor Type	Supported Versions
VMware	<ul style="list-style-type: none">◆ A VMware ESXi 6.x host server with the latest update for hosting the appliance VMs. For the most up-to-date compatibility matrix of supported VMware host servers, see the VMware Compatibility Guide (http://www.vmware.com/resources/compatibility/search.php?deviceCategory=software&testConfig=16) provided by VMware.◆ A VMware vSphere client 6.x or later for accessing the host server and the appliances for initial configuration. Not all versions of the vSphere client are compatible with versions of VMware ESXi. See the VMware Product Interoperability Matrixes (http://partnerweb.vmware.com/comp_guide2/sim/interop_matrix.php) provided by VMware.◆ VMware vMotion is supported when running TeamWorks on VMware ESXi.

4 Setting Up NFS Shared Storage

Compatibility Caveat

The NFS system users by new (not upgraded) TeamWorks 18.2 appliances, are not backwardly compatible. Newly created TeamWorks 18.2 server cannot use an NFS server that an older TeamWorks server is also accessing.

- ◆ Using the same NFS server as an 18.1 or earlier TeamWorks deployment used previously.
- ◆ Creating a completely new TeamWorks deployment

And

You must do the following:

1. Either use a different NFS mount point path from the previous installation, or delete the `/esn` directory that the previous installation used.
2. If the previous TeamWorks installation was version 18.1 or earlier, delete the `rabbitmq` and `elasticsearch` system users before deploying your new TeamWorks system.

Exporting an NFS Directory for /vashare

- ◆ See Worksheet 15—Storage Planning Summary

Table 4-1 Exporting an NFS Directory for /vashare

Page, Dialog, or Option	Do This
	1 - Verify that the server has adequate disk space.
	<ol style="list-style-type: none">1. Make sure that the Linux server that you are targeting has the available disk space you identified in “Planning Your Appliances” in the TeamWorks 18.2 Planning Your TeamWorks Deployment—Best Practices guide and recorded on Worksheet 15. If necessary, add disk space to the Linux server.
	<ol style="list-style-type: none">1. On the Linux server, launch YaST2.
YaST Control Center	<ol style="list-style-type: none">1. In the Network Services section, click NFS Server. The NFS Server Configuration dialog box displays.
NFS Server Configuration	<ol style="list-style-type: none">1. Make sure that the NFS Server is set to Start, that Open Port in Firewall is selected (running firewall required for option), and that Enable NFSv4 is <i>not selected</i> - i.e. NFS v4 is disabled.2. Click Next.
Directories to Export	<ol style="list-style-type: none">1. Click Add Directory.

Page, Dialog, or Option Do This

YaST2

1. Click **Browse** and choose the directory or share path identified on Worksheet 15 that has the required disk space.

You can add a directory name, such as `/shared` to the path if desired.

IMPORTANT: The directory path must not be located in the `/var` directory structure on the NFS server, as explained in “NFS Mount Point Must Not Point to `/var` on Target Server” in the [TeamWorks 18.2 Release Notes](#).

2. Click **OK**.

As your first TeamWorks appliance is deployed, a directory named `TeamWorks` will be created within the directory path you have specified.

3. If you added to the directory path, click **Yes** to confirm directory creation.
4. Leave the asterisk (*) in the **Host Wild Card** field.
5. Click the **Options** field to edit it and change the following options:
 - ◆ `ro` to `rw` (read-only to read-write)
 - ◆ `root_squash` to `no_root_squash`.
6. Click **OK**.

Directories to Export

1. Click **Finish**.
 2. Skip to [Chapter 5, “Downloading and Preparing the TeamWorks Software,”](#) on [page 19](#).
-

5 Downloading and Preparing the TeamWorks Software

After [planning your deployment](#) and making sure you have the necessary [system requirements](#) in place, you are ready to download and prepare the TeamWorks software that applies to your virtualization platform.

- 1 [Download the TeamWorks software](#) shown below to your management workstation.

IMPORTANT: Registration with Micro Focus is required to receive an email with a download link.

Appliance Type	Filename
TeamWorks	TeamWorks-18. <i>version</i> .ovf.zip
Search	TeamWorks-Search-18. <i>version</i> .ovf.zip
PostgreSQL (only if no in-house SQL server is available)	PostgreSQL-1. <i>version</i> .ovf.zip
Content Editor (optional)	ContentEditor-1. <i>version</i> .ovf.zip

- 2 Extract each `.ovf.zip` file on your management workstation until an `ApplianceType-version` folder appears.
- 3 Continue with [“Creating the TeamWorks Virtual Machines” on page 21](#).

6 Creating the TeamWorks Virtual Machines

Referring to the following Worksheets, complete the steps in [Table 6-1](#) for each appliance you have planned to deploy:

- ◆ Worksheet 10 - TeamWorks Appliances
- ◆ Worksheet 11 - Search Appliances
- ◆ Worksheet 12 - SQL Database (if you are not using an in-house SQL database server)
- ◆ Worksheet 13 - Content Editor Appliance (optional)

Table 6-1 Creating an appliance VM on VMware

Page, Dialog, or Option	Do This
1 - Launch the vSphere Client, name the VM, and choose the datastore.	
VMware Host Client	<ol style="list-style-type: none"> 1. On your management workstation, start the browser-based VMware Host Client. <p>IMPORTANT: These instructions describe the browser-based client. The vSphere path is documented in previous versions of TeamWorks if needed.</p> <ol style="list-style-type: none"> 2. In the Navigator side bar, click Virtual Machines, then click Create / Register VM.
Select creation type	<ol style="list-style-type: none"> 1. Select Deploy a virtual machine from an OVF or OVA file, then click Next.
Select OVF and VMDK files	<ol style="list-style-type: none"> 1. Type the name of the appliance as planned on the applicable worksheet. 2. In a file browser, navigate to the contents of the folder extracted in Step 2 on page 19. 3. Select the <code>.ovf</code> and <code>.vmdk</code> files and drop them in the area indicated as you hover over the VMware dialog. 4. Click Next.
Select storage	<ol style="list-style-type: none"> 1. Choose the datastore for the appliance you are deploying and click Next.
Deployment options	<ol style="list-style-type: none"> 1. Change Disk provisioning to Thick. 2. Deselect Power on after deployment. 3. Click Next.
Ready to complete	<ol style="list-style-type: none"> 1. Click Finish. <p>The boot disk is created and the appliance is deployed as specified to this point.</p>
2 - Edit the VM settings.	
Virtual Machines	<ol style="list-style-type: none"> 1. Right-click the VM that you just created and select Edit Settings.

Page, Dialog, or Option	Do This
Edit settings	<p>With the Virtual Hardware tab selected, adjust the following as needed:</p> <ol style="list-style-type: none"> 1. Memory and CPU: Set these according to the calculations and settings on the applicable worksheet. <p>Of course if needed, you can adjust them later for performance-tuning purposes.</p> <ol style="list-style-type: none"> 2. SCSI Controller Type: VMware recommends optimizing disk performance by using the VMware Paravirtual as the SCSI Controller Type. This is especially recommended for high-data-load installations. <p>Therefore, if you are installing in an ESX or ESXi environment, Micro Focus recommends changing the SCSI Controller at this point to VMware Paravirtual. You can safely ignore any warnings.</p> <p>Also, if needed you can adjust these settings later for performance tuning or other purposes. See "Optimizing Disk Performance" in <i>TeamWorks 18.2.0: Maintenance Best Practices Guide</i>.</p>
3 - Add and configure a second disk (/vstorage)	
Edit settings	<ol style="list-style-type: none"> 1. Above the list of devices, click Add hard disk > New standard hard disk. 2. Expand the New Hard disk entry that you just added.
New Hard Disk	<ol style="list-style-type: none"> 1. Adjust the disk size as planned for the appliance you are deploying. 2. If you need to change the datastore for the new disk, use the Browse button on the Location row to make your selection. 3. Next to Disk Provisioning, select Thick provision eagerly zeroed. 4. Next to Disk mode, select Independent - Persistent.
4 - Add and Configure a third disk (/var)	
Edit settings	<ol style="list-style-type: none"> 1. Above the list of devices, click Add hard disk > New standard hard disk. 2. Expand the New Hard disk entry that you just added.
New Hard Disk	<ol style="list-style-type: none"> 1. Adjust the disk size as planned for the appliance you are deploying. 2. If you need to change the datastore for the new disk, use the Browse button on the Location row to make your selection. 3. Next to Disk Provisioning, select Thick provision eagerly zeroed. 4. Next to Disk mode, select Independent - Persistent. 5. Click Save to create the VM. 6. When the appliance is deployed, return to the beginning and deploy the next appliance. <p>When all of the planned appliances are deployed, continue with Chapter 7, "Starting and Configuring the Appliances," on page 23.</p>

7 Starting and Configuring the Appliances

After the VMs are deployed with the necessary disks added and other settings adjusted according to your worksheets, it is time to start and configure the appliance software on each appliance. When this section is completed, all of the appliances will be running and ready to be deployed as an integrated TeamWorks infrastructure by using the instructions in [Chapter 8, “Creating a Multiple-Appliance TeamWorks Deployment,” on page 27](#).

Table 7-1 Starting and Configuring the Appliances

Page, Dialog, or Option	Do This
	1 - Before you deploy the first VM.
	<ol style="list-style-type: none">(Multi-appliance deployments only) If you have not already done so, before you begin this process, you must set up shared storage for your TeamWorks appliances by:<ul style="list-style-type: none">Exporting an NFS directorySee the “Network-Based Shared Disk Space for /vashare” section of <i>Worksheet 15</i> and complete the instructions in Section 4, “Setting Up NFS Shared Storage,” on page 17 before continuing.
	2 - Select an appliance.
	<ol style="list-style-type: none">Choose one of the appliances that you deployed in Chapter 6, “Creating the TeamWorks Virtual Machines,” on page 21 and refer to its planning worksheet as you start and configure it. CAUTION: Initial start-up order doesn’t matter, but <i>deployment order is critical!</i> When you reach Chapter 8, “Creating a Multiple-Appliance TeamWorks Deployment,” on page 27, you must follow the exact order presented there.
	3 - Start the appliance.
	<ol style="list-style-type: none">After you have downloaded the TeamWorks software and configured your appliances, you must start and configure each appliance in turn.<ul style="list-style-type: none">VMware: In the VMware browser-based client, power on the first appliance, then right-click the appliance and use the Console option to open a console.
	4 - Accept the license and specify the keyboard layout.
License Agreement	<ol style="list-style-type: none">After the appliance boots, the License Agreement screen displays.Select your preferred keyboard layout in the Keyboard Language drop-down.(Optional) use the License Language drop-down to change the license language.(Optional) use the Keyboard Language drop-down to change the keyboard layout.Accept the license agreement.

Page, Dialog, or Option Do This

Passwords and Time Zone

1. On the configuration page, specify the following information:

IMPORTANT: Keep a confidential record of the passwords you set for the root and vaadmin users below.

Root password and confirmation: The root password provides root access to the appliance terminal prompt. Do not access appliances as the root user unless specifically requested by TeamWorks support personnel.

Vaadmin password and confirmation: The preferred user for accessing the appliance as requested by TeamWorks support personnel.

Consider using a different password for each appliance for enhanced security.

NTP Server: The IP address or DNS name of the reliable external Network Time Protocol (NTP) server for your network.

Example: time.example.com.

For the best results, set up NTP in accordance with the [VMware best practices guidelines \(http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1006427\)](http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1006427).

Region: Your local region.

Time Zone: The time zone where the appliance is located.

2. Click **Next**.

Network Settings

1. Specify the Hostname:

Hostname: The fully qualified DNS host name associated with the appliance's static IP address.

Example: TW-Search-1.mynetwork.example.com.

2. Specify the following:

IP Address: The static IP address for the appliance.

Example: 172.17.2.3.

Network Mask: The network mask associated with the appliance's IP address.

Example: 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your TeamWorks virtual appliance is located.

Example: 172.17.2.254.

IMPORTANT: TeamWorks appliances do not tolerate latency and should be installed in the same subnet or a near-subnet.

DNS Servers: The IP address of a primary DNS server for your network.

Example: 172.17.1.1.

Domain Search: The domain that is associated with the TeamWorks host name. The first is derived from the hostname. If your deployment is located in multiple domains, be sure to include the other domains as well.

3. Click **Next**.
-

Page, Dialog, or Option	Do This
Additional LAN Card Configuration	<ol style="list-style-type: none"> (Conditional) If you configured multiple network adapters for this appliance, select from the following options, then click Next: <ul style="list-style-type: none"> Do Not Configure: Select this option to configure this network at a later time as described in “Changing Network Settings” in the <i>TeamWorks 18.2: Administrative UI Reference</i>. DHCP Dynamic Address: Select this option to have an IP address assigned dynamically on the secondary network. Statically Assigned IP Address: Select this option to assign a static IP address on the secondary network. Then specify the IP address, network mask, and host name.
Data Store Location	<ol style="list-style-type: none"> Hard Disk 2 is automatically detected and the disk designation is displayed in the hard drive drop-down. <p>Accept the defaults for the other options on this page by clicking Next.</p> <p>IMPORTANT: If you want a different filesystem than the default, do not select Ext 4.</p> <p>WARNING: If you have not already created additional disks 2 and 3 for each of your VMs and prepared a shared storage location for your TeamWorks appliances as described in early sections of this guide and in Planning Your Appliances in the <i>TeamWorks 18.2 Planning Your TeamWorks Deployment—Best Practices</i> guide, power off the virtual machine and make sure you have the required disk space in place for your deployment before proceeding. Otherwise, there is a substantial risk that your deployment will not meet your organization’s needs.</p>
Data Log Location	<ol style="list-style-type: none"> Hard Disk 3 is automatically detected and the disk designation is displayed in the hard drive drop-down. <p>IMPORTANT: If you want a different filesystem than the default, do not select Ext 4.</p> <p>TeamWorks: Accept the defaults for the other options on this page by clicking Next.</p> <p>Search and PostgreSQL: Accept the defaults for the other options on this page by clicking Configure.</p>
Shared Storage Type (TeamWorks and Search)	<ol style="list-style-type: none"> If you are configuring a PostgreSQL appliance, this page doesn’t appear. Go to “Configuring Password, Time, and Network Settings” on page 26. If you are configuring a TeamWorks or Search appliance in a multi-appliance deployment, click Next.

Page, Dialog, or Option	Do This
Shared Storage NFS Location	<p data-bbox="565 218 1360 275">Referring to the work you did in Table 4-1, “Exporting an NFS Directory for /vashare,” on page 17, do the following:</p> <ol data-bbox="581 302 1442 506" style="list-style-type: none"> <li data-bbox="581 302 1442 359">1. For the NFS Server Hostname field, click Browse and select the NFS server that you identified. If the NFS server is not found by browsing, typing its IP address or DNS name in the field should resolve the issue. <li data-bbox="581 449 1442 506">2. For the Remote Directory field, click Browse and select the directory that you exported. IMPORTANT: It is important to use the browse feature for this step to ensure that NFS is working and the path is correct. If the Remote Directory is not found, verify that the NFS server path is entered correctly and NFS is running on the server. Then browse for the directory again. If the server is still not found, or if you overlooked making an NFS mount point available, you must do the following in order to proceed: <ul data-bbox="646 764 1442 1066" style="list-style-type: none"> <li data-bbox="646 764 1442 791">◆ Click Shut Down Appliance to Fix Resources and confirm your action. <li data-bbox="646 806 1442 890">◆ Complete the instructions in Table 4-1, “Exporting an NFS Directory for /vashare,” on page 17, and verify that an NFS client can connect to the mount point you have just created. <li data-bbox="646 911 1442 938">◆ When the NFS service is verified, power on the appliance. <li data-bbox="646 953 1442 1066">◆ When prompted, re-enter the passwords for the <code>root</code> and <code>vaadmin</code> users, then click Next to confirm the choices you entered in all of the dialogs, until you reach the NFS Server Hostname field prompt (Step 1, above). <ol data-bbox="581 1079 1442 1178" style="list-style-type: none"> <li data-bbox="581 1079 1442 1106">3. Click Configure. <li data-bbox="581 1121 1442 1178">4. Continue with “Configuring Password, Time, and Network Settings” on page 26.
Configuring Password, Time, and Network Settings	<ol data-bbox="581 1205 1442 1283" style="list-style-type: none"> <li data-bbox="581 1205 1442 1253">1. The settings you have specified are configured, storage is verified, and the appliance starts. <li data-bbox="581 1268 1442 1503">2. Continue as indicated for your deployment type: Multi-appliance Deployment: Repeat the above steps starting with “2 - Select an appliance.” on page 23 until all of your appliances are started, configured, and running. Only then should you go to Chapter 8, “Creating a Multiple-Appliance TeamWorks Deployment,” on page 27. All-in-one (Small) Deployment: Return to Creating an All-in-One Deployment > “Setting Up an All-in-One (small) TeamWorks Appliance” on page 50.

8

Creating a Multiple-Appliance TeamWorks Deployment

- ♦ [“If You Need to Use a PostgreSQL Appliance Instead of a Server” on page 27](#)
- ♦ [“Setting Up the SQL Database” on page 27](#)
- ♦ [“Setting Up Three Search Appliances” on page 29](#)
- ♦ [“Setting Up the TeamWorks Appliances” on page 31](#)
- ♦ [“Setting Up a Content Editor Appliance” on page 32](#)

If You Need to Use a PostgreSQL Appliance Instead of a Server

IMPORTANT: Micro Focus recommends using an existing SQL database if one is available. Instructions are provided in [“Setting Up the SQL Database” on page 27](#).

However, if you need to use a PostgreSQL appliance, do the following:

1. Prepare the PostgreSQL appliance now by completing the instructions in [Appendix C, “Configuring the PostgreSQL Appliance to Provide the SQL Database,” on page 57](#)
 2. After the appliance is installed, configured, and running, skip to [“Setting Up Three Search Appliances” on page 29](#).
-

Setting Up the SQL Database

Prepare your in-house SQL server by completing the steps in one of the following sections:

- ♦ [“Configuring a PostgreSQL Server” on page 27](#)
- ♦ [“Configuring a Microsoft SQL Server” on page 28](#)

Configuring a PostgreSQL Server

IMPORTANT: Do not create the TeamWorks database on your PostgreSQL server manually.

Let the TeamWorks configuration wizard create the database to ensure the correct configuration.

Table 8-1 Configuring PostgreSQL for TeamWorks

File	Do This
	1 - Edit the configuration file.

File	Do This
PostgreSQL server > / etc/my.cnf file	<ol style="list-style-type: none"> 1. Edit the file as follows: <pre> [client] default-character-set = utf8 [PostgreSQLd] character-set-server = utf8 max_connections = 900 transaction-isolation = READ-COMMITTED expire_logs_days = 7 </pre> <p>The <code>expire_logs_days</code> setting is optional, but is recommended because it cleans up PostgreSQL-bin-* files.</p> <p>Unless this is done regularly, the files will consume significant disk space in the <code>vastorage</code> directory.</p> 2. Uncomment the InnoDB tables section. 3. Increase the buffer pool size to approximately 60 percent of the amount of RAM that has been allocated to the dedicated server. <p>For example, a dedicated server with 4 GB of RAM should have a buffer pool size of 2560 MB, as follows:</p> <pre>innodb_buffer_pool_size = 2560M</pre> 4. Identify or create a user account with sufficient rights to create and manage the TeamWorks database.
Worksheet 12	<ol style="list-style-type: none"> 1. Record the username and password on Worksheet 12. 2. Continue with "Setting Up Three Search Appliances" on page 29.

Configuring a Microsoft SQL Server

IMPORTANT: Do not create the TeamWorks database on your MS SQL server manually.

Let the TeamWorks configuration wizard create the database to ensure the correct configuration.

Table 8-2 Configuring Microsoft SQL Server for TeamWorks

File	Do This
1 - Configure the server.	
Server management console	<ol style="list-style-type: none"> 1. Enable remote access to the Microsoft SQL database server. 2. Open port 1433 on the Windows firewall where the database server is running. 3. Identify or create a user account that is configured with SQL Server Authentication and has sufficient rights to create and manage the TeamWorks database. IMPORTANT: TeamWorks supports only SQL Server Authentication. Windows Authentication and Windows Domain User Authentication to Microsoft SQL are not supported.
Worksheet 12	<ol style="list-style-type: none"> 1. Record the username and password on Worksheet 12.
Server management console	<ol style="list-style-type: none"> 1. Run the following queries against the database: <pre>ALTER DATABASE <i>database-name</i> SET READ_COMMITTED_SNAPSHOT ON ALTER DATABASE <i>database-name</i> COLLATE Latin1_General_CI_AS_KS_WS</pre> 2. Continue with “Setting Up Three Search Appliances” on page 29.

Setting Up Three Search Appliances

TeamWorks best practices require that every multi-appliance deployment have three Search appliances. There are no advantages to having more than three.

Best practices allow for operating TeamWorks with fewer than three search appliances, but only under special circumstances, such as when reindexing is required.

In the case of reindexing, one appliance focuses on rebuilding the search index while the other two continue to service user requests and provide the Messaging services that TeamWorks requires.

Setting Up the First Search Appliance

Table 8-3 Setting Up the First Search Appliance

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none"> 1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on the first Search appliance using the following URL: <pre>https://IP_Address:9443</pre> <p>Where <i>IP_Address</i> is the IP address of the first Search appliance.</p>
TeamWorks Search Appliance Sign In	<ol style="list-style-type: none"> 1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
TeamWorks Search Tools	<ol style="list-style-type: none"> 1. Click the Configuration button  to launch the TeamWorks Search Configuration Wizard.

Page, Dialog, or Option	Do This
TeamWorks Search Configuration Wizard	<ol style="list-style-type: none"> 1. Read the information to be sure that you're ready to proceed. 2. Click Next.
Database	<ol style="list-style-type: none"> 1. Select the database type for this TeamWorks deployment. 2. Type the DNS name or IP address of the database server or appliance. 3. The standard port for the database type is shown. You can adjust this if required. 4. Enter a name for the database. The name must not contain a dash. 5. Type the name of the database user/role that you created when preparing the database for TeamWorks. 6. Type the password for the database user/role. 7. If you have prepared your appliances for SSL communications, leave the option selected. Otherwise, deselect it before continuing. 8. Click Next. The credentials are validated and the process continues.
Passwords	<ol style="list-style-type: none"> 1. Type and confirm a password for the Search and Messaging services administrator. Make a note of the password in case a support technician needs it later to resolve a support issue. 2. Type and confirm a password for service clients, such as Tomcat, to use for accessing the Search and Messaging services. 3. Click Next.
Locale	<ol style="list-style-type: none"> 1. Select a Default Locale. 2. Click Finish. Services configuration can take a few minutes. Do not proceed until the process finishes. 3. After the process finishes, best practice dictates setting up the other two Search appliances before setting up the TeamWorks appliances. However, this is not enforced in case your circumstances dictate a different setup order. You can deploy a TeamWorks appliance when the database and at least one Search appliance are running.

Setting Up Subsequent Search Appliances

Table 8-4 Setting Up Subsequent Search Appliance

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none"> 1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on a subsequent Search appliance using the following URL: <code>https://IP_Address:9443</code> Where <i>IP_Address</i> is the IP address of a second or third, etc. Search appliance.

Page, Dialog, or Option	Do This
TeamWorks Search Appliance Sign In	1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
TeamWorks Search Tools	1. Click the Configuration button  to launch the TeamWorks Search Configuration Wizard .
TeamWorks Search Configuration Wizard	<ol style="list-style-type: none"> 1. Read the information to be sure that you are ready to proceed. 2. Click Next.
Search Clustering and Messaging Services	<ol style="list-style-type: none"> 1. Best practices dictate that two Search appliances have Messaging services enabled. You can enable this on the second or third Search appliance. The configuration wizard prevents you from disabling the Messaging service when it is the only instance in the deployment. 2. Click Finish. Services configuration can take a few minutes. Do not proceed until the process finishes. 3. Repeat the process until three Search appliances are running—two of them with Messaging services enabled.

Setting Up the TeamWorks Appliances

Table 8-5 Logging in and Starting the Configuration Wizard

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none"> 1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on a TeamWorks appliance using the following URL: <code>https://TeamWorks_IP_Address:9443</code> Where <i>IP_Address</i> is the IP address of the first TeamWorks appliance.
TeamWorks Appliance Sign In	1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
TeamWorks Appliance Tools	1. Click the Configuration icon  to launch the TeamWorks Configuration Wizard .
TeamWorks Configuration Wizard	<p>The installation wizard accesses the shared storage specified for the appliance and verifies that the deployment is prepared for a TeamWorks appliance.</p> <p>It then displays the Search appliances added earlier and prompts you to add this appliance to the deployment.</p> <ol style="list-style-type: none"> 1. Click Finish to add the TeamWorks appliance to the TeamWorks deployment.

Page, Dialog, or Option	Do This
(Optional when integrating a Content Editor appliance)	<p>If your appliances use certificates issued by a certificate authority, skip to the next row.</p> <p>If you are including a Content Editor appliance in your TeamWorks deployment and you are using self-signed certificates, you must export the appliance's certificate.</p> <ol style="list-style-type: none"> 1. Under Appliance Configuration, click the Digital Certificates icon. 2. Select the Web Application Certificates keystore. 3. Select self-signed_cert. 4. Click File > Export > Public Certificate. 5. Rename the downloaded certificate to a name that identifies the appliance it belongs to.
	<ol style="list-style-type: none"> 1. Repeat this process for all of the TeamWorks appliances. 2. After adding all of the appliances planned for the initial deployment, continue with "Chapter 9, "Setting Up TeamWorks Services," on page 35."

Setting Up a Content Editor Appliance

If your TeamWorks deployment includes an integrated Content Editor appliance, complete all of the instructions in this section.

IMPORTANT: As stated in "[Content Editor Requires an SSL Connection with Each TeamWorks Appliance](#)" on page 15, the Content Editor appliance requires a secure connection with each TeamWorks appliance that accesses its services.

This means that the Content Editor and each TeamWorks appliance must have a certificate installed from an industry-recognized Certificate Authority.

Using the appliances' self-signed certificates for this purpose is not supported.

Before you complete the instructions that follow, use the "[Certificates](#)" icon in each affected appliance's Port 9443 admin console to

- ◆ Generate certificate signing requests (CSRs)
- ◆ Install certificates

as needed.

For more information, see "[Certificates](#)" in the *TeamWorks 18.2: Administrative UI Reference*.

Configuring the Content Editor Appliance

To enable the Content Editor appliance to work with TeamWorks, do the following.

Table 8-6 Logging in and Starting the Configuration Wizard

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none"> 1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on the Content Editor appliance using the following URL: <code>https://Content-editor_IP_or_DNS:9443</code> Where <i>IP_or_DNS</i> is the IP address or DNS name of the Content Editor appliance.
Content Editor Appliance Sign In	<ol style="list-style-type: none"> 1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
Content Editor Appliance Tools	<ol style="list-style-type: none"> 1. Click the Configuration icon  to launch the Content Editor Configuration Wizard.
Allowed Hosts	<p>The installation wizard accesses the Allowed Hosts list.</p> <ol style="list-style-type: none"> 1. List each TeamWorks appliance’s DNS hostname on a separate line. For example, if you have two TeamWorks appliances, list them as follows: <code>tw-appliance-1.my-organization.com</code> <code>tw-appliance-2.my-organization.com</code> IMPORTANT: Do not substitute IP addresses for DNS hostnames in this list. 2. Click Test Connection to make sure that the configured TeamWorks appliances are found.

Configuring the TeamWorks Appliances to Work with Content Editor

To configure TeamWorks to work with Content Editor, do the following.

Table 8-7 Configuring TeamWorks to Work with Content Editor

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none"> 1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on a TeamWorks appliance using the following URL: <code>https://TeamWorks_IP_or_DNS:9443</code> Where <i>IP_or_DNS</i> is the IP address or DNS name of the TeamWorks appliance.
C Appliance Sign In	<ol style="list-style-type: none"> 1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
TeamWorks Appliance Tools	<ol style="list-style-type: none"> 1. Click the Configuration icon  to launch the TeamWorks Configuration Wizard.
Configuration	<ol style="list-style-type: none"> 1. Click Web-based Document Editing.

Page, Dialog, or Option	Do This
Web-based Document Editing	<ol style="list-style-type: none"> 1. Click Enable Web-based Document Editing. 2. In the DNS Hostname field, type the DNS hostname of the Content Editor appliance. For example, <p style="margin-left: 40px;"><code>ce-appliance.my-organization.com</code></p> <p>IMPORTANT: Do not substitute the IP addresses for the DNS hostname in this field.</p> 3. Click Test Connection to make sure that the Content Editor appliance is found. 4. Click Reconfigure TeamWorks appliance.
	<ol style="list-style-type: none"> 1. Access the Port 9443 console on each of the other TeamWorks appliances and reboot them as well.

Using Content Editor Requires DNS

Content Editor requires that users enter the TeamWorks appliance's DNS name when accessing TeamWorks services.

Using an IP address to access TeamWorks causes Content Editor to fail.

Documents will not open for editing when an IP address was used.

9 Setting Up TeamWorks Services

Complete the following steps to make your TeamWorks deployment available to users.

NOTE: As you complete the steps in this section, refer to any Worksheets indicated to make sure that you follow your plans and have an accurate record of your TeamWorks deployment's configurations.

Changing some settings in the [Port 9443 Appliance Console](#) requires restarting TeamWorks.

For example,

- ♦ All modifications to settings accessed through the Configuration Icon 
- ♦ Changes to the appliance's Network settings.

-
- 1 Using the [Port 9443 Appliance Console > Configuration Icon > License](#) dialog, install the same license on each TeamWorks appliance in your system.
 - 2 Using the settings in the [Port 9443 Appliance Console > Firewall](#) dialog as a reference, make sure that your network's port and firewall settings are configured to support TeamWorks.
 - 3 Add users and groups to your TeamWorks deployment and set up the LDAP synchronization processes.

Worksheet 4 - Users and Groups

1. Configure your TeamWorks system to connect to an existing LDAP source, such as eDirectory or Active Directory, to control user access to the system.

Path: [Port 8443 TeamWorks Admin Console > System > LDAP](#)

IMPORTANT: For initial access to the Port 8443 console, use `admin` as both the username and password. You are then prompted to change the password for user `Admin` before proceeding.

2. Manually create any non-LDAP users and groups that need access to TeamWorks services.

For more information, see "the [New User button](#)" in the [TeamWorks 18.2: Administrative UI Reference](#).

Worksheet 5 - LDAP Synchronization

1. Configure the TeamWorks system to synchronize with your LDAP servers.

For assistance, see "[LDAP Servers and Synchronization](#)" in the [TeamWorks 18.2: Administrative UI Reference](#).

-
- 4 Enable additional TeamWorks Users for Administrative Access.

Worksheet 8 - Administrative Access

1. Configure users for administrative access to TeamWorks.

For more information, see "[Assigning and Managing Port 8443 Designated Administrators](#)" in the [TeamWorks 18.2: Administrative UI Reference](#).

- 5 If your TeamWorks deployment needs to support multiple languages, configure the site as described in “[Language and Locale Settings](#)” in the [TeamWorks 18.2.0: Maintenance Best Practices Guide](#).
- 6 After you have completed all of the topics in this list that are relevant to your TeamWorks environment, you can invite users to use the TeamWorks deployment. For information about how to use the TeamWorks deployment, see the [TeamWorks User Help](#).

10 Upgrading/Migrating a Multiple-appliance TeamWorks Deployment

Moving your TeamWorks deployment to version 18.2 involves two interwoven processes:

- ◆ Deploying replacement TeamWorks 18.2 appliances.
- ◆ Migrating your TeamWorks system data (users, groups, conversations, attachments, etc.) to the newly deployed appliances.

Before You Upgrade!

Failure to comply with the following critical points could result in a non-functional TeamWorks system.

Critical Point	Details
◆ Verify the appliance versions	◆ Make sure that all appliances targeted for upgrading to version 18.2 are running version 18.1.1 with the latest updates applied.
◆ Review the Release Notes	◆ Check “Upgrade” in the TeamWorks 18.2 Release Notes before you start the upgrade process.

Critical Point	Details
<ul style="list-style-type: none"> ◆ Plan the upgrade order and follow it. 	<ul style="list-style-type: none"> ◆ You must upgrade the appliances in order of dependency upon each other. <ol style="list-style-type: none"> Shut Down Order: Prepare a list of your appliances that defines the correct shut down order: <ul style="list-style-type: none"> ◆ TeamWorks: All TeamWorks appliances must be shut down first. ◆ TeamWorks Search: Next, you shut down the TeamWorks Search appliances. ◆ PostgreSQL (if applicable): Finally, if you are using a PostgreSQL appliance instead of an in-house SQL server, you shut it down last. Deployment Order: Prepare a second list that defines the correct upgrade and deployment order: <ul style="list-style-type: none"> ◆ PostgreSQL (if applicable): If you are using a PostgreSQL appliance instead of an in-house SQL server, you must upgrade and deploy that appliance first. ◆ TeamWorks Search: You must upgrade and deploy all of the TeamWorks Search appliances before the TeamWorks appliances. ◆ TeamWorks: When the upgraded PostgreSQL and TeamWorks Search appliances are up and running, upgrade and deploy the first TeamWorks appliance. Then upgrade and deploy the additional TeamWorks appliances. 3. If there are things you need to remember about individual appliances, include those reminders in the appropriate list. 4. Use the shut down list as you complete the steps in “Upgrading the VMs.” 5. Use the upgrade list as you complete the steps in “Deploying the Upgraded (Replacement) VMs.”
<ul style="list-style-type: none"> ◆ Ensure that the VM host has enough unformatted disk space. 	<ul style="list-style-type: none"> ◆ The VM host server must have enough unallocated disk space to contain the following disks for each appliance. This is only temporary because after the upgrade completes, old appliances can be deleted and their disk space reclaimed. <ul style="list-style-type: none"> ◆ System Disk (/): This is created automatically as you deploy the downloaded software. Size is 20 GB per appliance. ◆ Disk 2 (/vastorage): You make a copy of each old appliance’s Disk 2. Size needed equals the total size of all disks to be copied. ◆ Disk 3 (/var): You create this disk for each appliance in conjunction with the upgrade process. Size recommendation for TeamWorks is 4 GB plus 3 times the RAM allocation for each appliance being upgraded. <p>NOTE: The existing <code>/vashare</code> mount point is used by the upgraded TeamWorks appliances. No new disk space is required for upgrading.</p>
<ul style="list-style-type: none"> ◆ Remove all VMware Snapshots 	<ul style="list-style-type: none"> ◆ Before copying Disk 2, make sure to remove all VMware snapshots so that the <code>/vastorage</code> disk has the correct disk file and latest configuration settings.

Critical Point	Details
<ul style="list-style-type: none"> ◆ Make sure that upgraded appliances meet TeamWorks system requirements. 	<ul style="list-style-type: none"> ◆ See Chapter 3, “System Requirements,” on page 11. ◆ RAM and CPU requirements are summarized in the following sections of the Planning Best Practices guide: <ul style="list-style-type: none"> ◆ Using Worksheet 10 - TeamWorks Appliances ◆ Using Worksheet 11 - Search Appliances ◆ Using Worksheet 12 - SQL Database
<ul style="list-style-type: none"> ◆ Do not attempt unsupported path migrations. 	<ul style="list-style-type: none"> ◆ No Mixed Versions: All of the TeamWorks and TeamWorks Search appliances in an multi-appliance deployment must be upgraded to the same version. ◆ No Cross-Deployment-Types: You can only upgrade all-in-one to all-in-one or multi-appliance to multi-appliance. If you have an all-in-one deployment, and you need a multi-appliance deployment, you must either install a new system or contact Micro Focus Consulting (http://www.novell.com/consulting) to assist you with the migration.
<ul style="list-style-type: none"> ◆ Prepare appliances with two network adapters before upgrading. 	<ul style="list-style-type: none"> ◆ For any appliances with two network adapters, do the following: <ol style="list-style-type: none"> 1. Download the <code>networkprep.zip</code> file from the TeamWorks software downloads page. 2. Enable SSH on the appliance, as described in “Managing System Services” in the <i>TeamWorks 18.2: Administrative UI Reference</i>. 3. Using an SSH client (such as WinSCP), log in to the appliance as the root user. 4. Copy the <code>networkprep.zip</code> file that you downloaded to the <code>/root/</code> directory on the appliance. 5. Unzip the <code>networkprep.zip</code> file: <pre>unzip networkprep.zip</pre> The <code>networkprep</code> folder is created. 6. Change to the <code>network prep</code> folder: <pre>cd /root/networkprep</pre> 7. Run the script: <pre>sh run-networkprep.sh</pre> 8. Close the remote SSH connection to the appliance.
<ul style="list-style-type: none"> ◆ Plan when to upgrade. 	<ul style="list-style-type: none"> ◆ TeamWorks services must be offline during the upgrade. <ol style="list-style-type: none"> 1. Schedule the upgrade for a block of time that is least disruptive from a production standpoint. 2. Notify TeamWorks users in advance of the upgrade so that they have time to prepare.

After ensuring that you have met the prerequisites and cautions above, complete the instructions in the following sections in order.

- ◆ [“Understanding the Appliance Upgrade Process”](#) on page 40
- ◆ [“Downloading and Preparing Software for the Upgrades”](#) on page 41
- ◆ [“Upgrading the VMs”](#) on page 41
- ◆ [“Shutting Down the Old Deployment”](#) on page 43

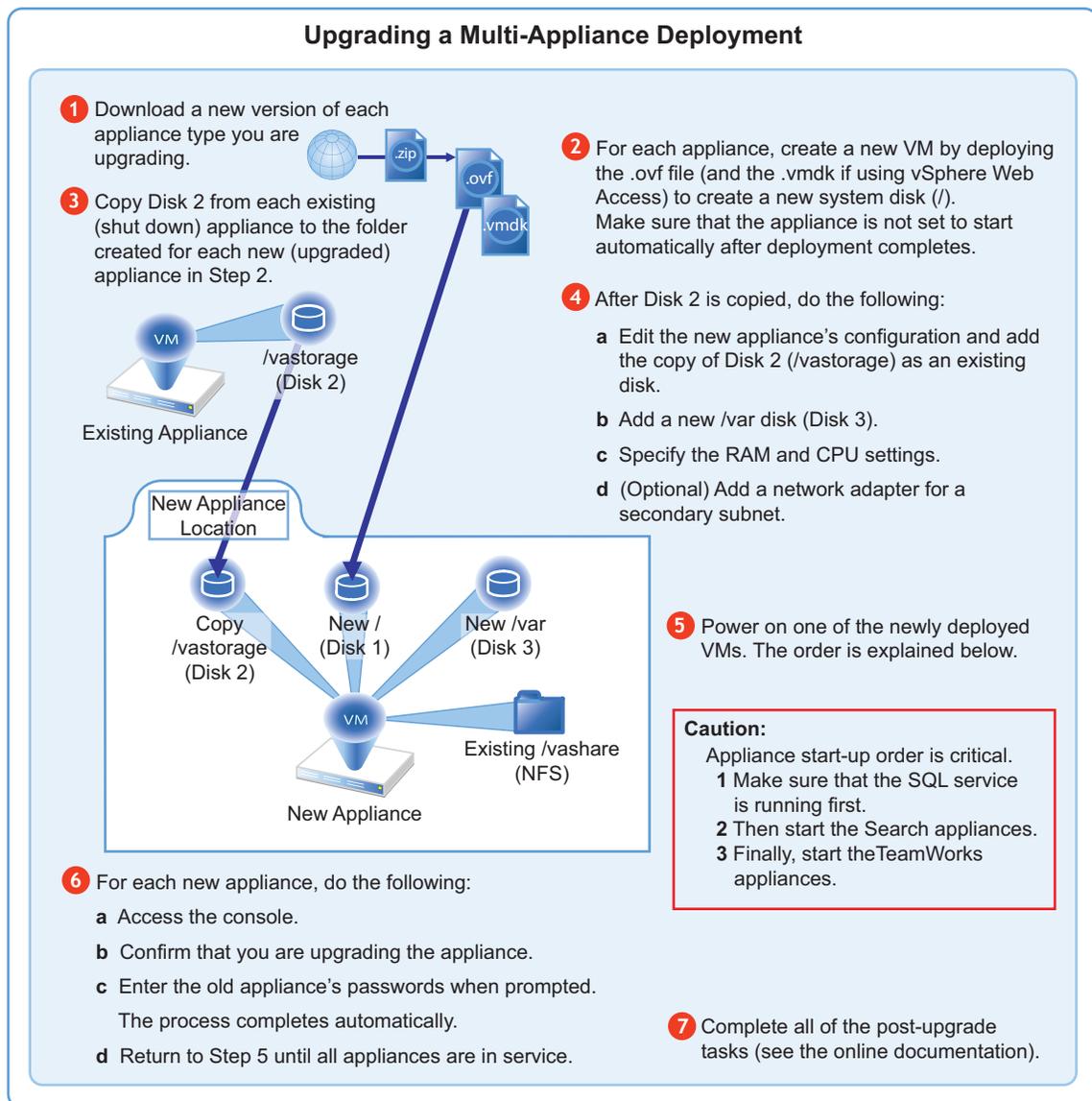
- “Deploying the Upgraded (Replacement) VMs” on page 43
- “Performing Post-Upgrade Tasks” on page 45

Understanding the Appliance Upgrade Process

The process of upgrading Micro Focus appliances is illustrated in [Figure 10-1 on page 40](#).

NOTE: If you are unsure about any part of the upgrade process, the sections that follow the graphic should provide the guidance you need.

Figure 10-1 Overview of the Appliance Upgrade Process



Downloading and Preparing Software for the Upgrades

- 1 Download the TeamWorks software (<https://www.microfocus.com/products/enterprise-messaging/teamworks/trial/>) shown below to your management workstation.

IMPORTANT: Registration with Micro Focus is required to receive an email with a software-download link.

Appliance Type	Filename
TeamWorks	TeamWorks-18.2-version.ovf.zip
Search	TeamWorks-Search-18.2version.ovf.zip
PostgreSQL (only if no in-house SQL server is available)	PostgreSQL-1.2-version.ovf.zip

- 2 Extract each .ovf.zip file on your management workstation until an *ApplianceType-version* folder appears.
- 3 Continue with “[Upgrading the VMs](#)” on page 41.

Upgrading the VMs

- 1 Complete the steps in [Table 10-1](#) for each appliance that you are upgrading

Table 10-1 Upgrading a VMware VM

Page, Dialog, or Option	Do This
VMware Host Client	<ol style="list-style-type: none"> 1. On your management workstation, start the browser-based VMware Host Client. <p>IMPORTANT: These instructions describe the browser-based client. The vSphere path is documented in previous versions of TeamWorks if needed.</p> <ol style="list-style-type: none"> 2. In the Navigator side bar, click Virtual Machines, then click Create / Register VM.
Select creation type	<ol style="list-style-type: none"> 1. Select Deploy a virtual machine from an OVF or OVA file, then click Next.

Page, Dialog, or Option Do This

Select OVF and VMDK files

1. Name the appliance with a name that is easily associated with (but not the same as) the VM name of the associated appliance being upgraded

Consider including information in the names that easily identifies the appliance type and other information, such as the IP address.

For example,

- ◆ v18-1-TeamWorks-1-192.168.1.61
- ◆ v18-1-TeamWorks-2-192.168.1.62
- ◆ v18-1-Search-1-192.168.1.71
- ◆ v18-1-Search-2-192.168.1.72
- ◆ v18-1-Search-3-192.168.1.73

2. In a file browser, navigate to the contents of the folder extracted in [Step 2 on page 19](#).
3. Select the .ovf and .vmdk files and drop them in the area indicated as you hover over the VMware dialog.
4. Click **Next**.

Select storage

1. Choose the datastore for the appliance you are upgrading and click **Next**.

Deployment options

1. Ensure that **Disk provisioning** is set to **Thick**.
2. Deselect **Power on after deployment**.
3. Click **Next**.

Ready to complete

1. Click **Finish**.

The boot disk is created and the appliance is deployed as specified to this point.

3 - Copy Disk 2 to the New Appliance.

VMware Host Client

Copying each appliance's disk is at the heart of the upgrade process because it uses the corresponding "old" appliance's configuration settings on Disk 2 to create an upgraded version of the appliance with minimal input on your part.

Disk copying can take a while, depending on disk size and the VM host environment.

Therefore, we recommend keeping service downtime to a minimum by making the copies while the TeamWorks system is still running.

1. Shutdown the appliance from which you need to copy Disk 2.
2. Copy Disk 2 to its associated folder or directory that you created for your upgraded appliances in ["Downloading and Preparing Software for the Upgrades" on page 41](#).

NOTE: Default VMware disk names are constructed as follows:

- ◆ *vm_name.vmdk*
- ◆ *vm_name_1.vmdk* - This is Disk 2
- ◆ *vm_name_2.vmdk*

3. When the disk finishes copying, start up the appliance so that the TeamWorks service can continue.

4 - Editing the VM settings.

Page, Dialog, or Option	Do This
VMware Host Client	<ol style="list-style-type: none"> In the Virtual Machines list, right-click the VM you just deployed and select Edit Settings. <p>The Virtual Machine Properties dialog displays.</p>
Virtual Hardware	<ol style="list-style-type: none"> Set the Memory and CPU settings to match the appliance you are replacing, or increase them as planned.
5 - Configuring disk 2 (/vastorage)	
Virtual Hardware	<ol style="list-style-type: none"> Click Add Hard Disk. Select Existing Hard Disk. Navigate to and select the copy of disk 2 that you made for this appliance. Click Select.
6 - Adding and Configuring disk 3 (/var)	
Virtual Hardware	<ol style="list-style-type: none"> Click Add Hard Disk. Select New Standard Hard Disk. Adjust the Disk Size and other settings to match disk 3 (/var) on the appliance you are replacing. If you need to add network adapters, continue with 7 - (Optional) Adding a Network Adapter. <p>Otherwise, click OK, and deploy the next appliance.</p> <p>When all of your planned appliances have been deployed, continue with "Deploying the Upgraded (Replacement) VMs" on page 43.</p>
Virtual Hardware	<p>7 - (Optional) Adding a Network Adapter</p> <p>If the appliance you are replacing has a second network adapter, add a network adapter matching network adapter to this appliance</p>
VMware Host Client	<ol style="list-style-type: none"> Repeat the steps in this table until all of your planned appliances have been deployed, then continue with "Shutting Down the Old Deployment" on page 43.

Shutting Down the Old Deployment

- When your replacement appliances are ready for deployment, shut the old appliances in the following order:
 - TeamWorks
 - Search
 - PostgreSQL (if applicable)
- Continue with ["Deploying the Upgraded \(Replacement\) VMs" on page 43](#)

Deploying the Upgraded (Replacement) VMs

IMPORTANT

- ◆ Make sure that you deploy (Start and configure) your appliances one at a time.

Attempting to start and configure multiple upgraded appliances at the same time causes timing, synchronization, and other problems.

- ◆ Also make sure that you deploy the appliances in the [deployment order](#) that you identified earlier:
 1. PostgreSQL (if applicable)

If using an in-house database server, make sure it is online before continuing with the Search appliances.
 2. Search
 3. TeamWorks

- 1 Power on the first (or next) appliance in your [deployment order](#) list.
- 2 Access the appliance's console.
- 3 When prompted, enter the root and vaadmin passwords for the appliance being replaced.
The upgrade process proceeds automatically.
- 4 When the appliance displays the final screen in the console window, open your management browser and log in to the appliance on port 9443 as the vaadmin user.
- 5 Depending on the appliance type you are upgrading, check the following:

PostgreSQL (optional)	TeamWorkssearch	TeamWorks
<ol style="list-style-type: none"> 1. Click the phpPgAdmin icon. 2. Verify that the database is populated as expected. 	<ol style="list-style-type: none"> 1. Click the TeamWorkssearch configuration icon. 2. Ensure that all of the settings are in place as expected. 3. If the configuration wizard displays, there was a problem with the configuration. Resolve the configuration issues, then click Finish to reconfigure the system. 	<ol style="list-style-type: none"> 1. Click the TeamWorks configuration icon. 2. Ensure that all of the settings are in place as expected. 3. If the configuration wizard displays, there was a problem with the configuration. Resolve the configuration issues, then click Finish to reconfigure the system. <p>Common configuration issues include:</p> <ul style="list-style-type: none"> ◆ If your system is not using DNS, the most likely problem is unresolvable DNS names and missing <code>/etc/hosts</code> entries. ◆ If the appliance doesn't have access to the database, ensure that all of the settings are as expected.

- 6 When the appliance is running, deploy the next appliance.
- 7 When all of your appliances are running, continue with "[Performing Post-Upgrade Tasks.](#)"

Performing Post-Upgrade Tasks

After upgrading to a new version of TeamWorks, you should perform the following tasks to ensure a fully functional TeamWorks system:

- ◆ [“Reindex Your Deployment After Migrating” on page 45](#)
- ◆ [“Re-Enabling SSH on the TeamWorks Search and Database Appliances” on page 45](#)
- ◆ [“Install Your New TeamWorks License” on page 45](#)
- ◆ [“Integrate a Content Editor Appliance” on page 45](#)

Reindex Your Deployment After Migrating

After the upgrade/migration is completed and before users can effectively begin using TeamWorks services, you must perform a full reindexing of the system.

See [“Perform Full Reindex Now”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

We recommend using the Offline option because reindexing is performed much more quickly and requires substantially fewer system resources.

Re-Enabling SSH on the TeamWorks Search and Database Appliances

If you enabled SSH on the search or database appliances before upgrading your TeamWorks system, it is disabled after upgrading, and you need to re-enable it. For more information about how to enable SSH, see [“Managing System Services”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

Install Your New TeamWorks License

Upgraded TeamWorks appliances have a 60-day evaluation license installed.

To prevent a service interruption, you must install your new license by following the instructions in [“Installing/Updating the TeamWorks License”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

Integrate a Content Editor Appliance

If you are integrating content editing as part of your TeamWorks 18.2 deployment, complete the instructions in [“Setting Up a Content Editor Appliance” on page 32](#).

Appendixes

- ◆ [Appendix A, “Creating an All-in-One Deployment,” on page 49](#)
- ◆ [Appendix B, “Upgrading/Migrating an All-in-One TeamWorks Deployment,” on page 51](#)
- ◆ [Appendix C, “Configuring the PostgreSQL Appliance to Provide the SQL Database,” on page 57](#)
- ◆ [Appendix D, “Troubleshooting the TeamWorks Installation,” on page 59](#)
- ◆ [Appendix E, “Third-Party Materials,” on page 61](#)

A

Creating an All-in-One Deployment

To create an all-in-one deployment, you install one TeamWorks appliance. By default TeamWorks also includes the PostgreSQL database and Search functions.

Ensuring All-in-One Suitability

With few exceptions, small deployments are only suitable for proof-of-concept deployments, which, by definition, do not require extensive planning. There is, however, a planning worksheet for all-in-one deployments. See Worksheet 10-a - All-in-One Appliance.

For a production deployment, you should use the [TeamWorks 18.2 Planning Your TeamWorks Deployment—Best Practices](#) guide and associated planning worksheets to gauge whether a small deployment could meet your organization’s production needs.

All-in-One System Requirements

Most of the requirements in [Chapter 3, “System Requirements,” on page 11](#) apply to small deployments.

However, 80% of the RAM should be dedicated to the Java heap.

For information about adjusting the Java heap settings, see [“Changing the Memory Configuration Settings”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

All-in-One Deployment

To deploy an all-in-one TeamWorks appliance, complete the instructions in the following sections:

Table A-1

Section	Additional Information
Chapter 5, “Downloading and Preparing the TeamWorks Software,” on page 19	You only need to download the TeamWorks software and the Content Editor software if integrating with TeamWorks.
Chapter 6, “Creating the TeamWorks Virtual Machines,” on page 21	Follow the instructions.
Chapter 7, “Starting and Configuring the Appliances,” on page 23	Follow the instructions, then continue with “Setting Up an All-in-One (small) TeamWorks Appliance” on page 50

Setting Up an All-in-One (small) TeamWorks Appliance

Table A-2 Logging in and Setting Up a Small TeamWorks Appliance

Page, Dialog, or Option	Do This
	<ol style="list-style-type: none">1. Open a management browser on your administrative workstation and access the Port 9443 Appliance Console on the TeamWorks appliance using the following URL: <code>https://TeamWorks_IP_Address:9443</code> Where <i>IP_Address</i> is the IP address of the TeamWorks appliance.
TeamWorks Appliance Sign In	<ol style="list-style-type: none">1. Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
TeamWorks Appliance Tools	<ol style="list-style-type: none">1. Click the Configuration icon  to launch the TeamWorks Configuration Wizard.
TeamWorks Configuration Wizard	<ol style="list-style-type: none">1. Click Next.
Database, Search, and Messaging services Passwords	<ol style="list-style-type: none">1. Type and confirm a password for each of the following system users:<ul style="list-style-type: none">◆ <code>db-user</code>◆ <code>postgres</code>◆ <code>svcs-user</code> (standard ASCII only)◆ <code>svcs-admin</code> (standard ASCII only)2. Make a record of the passwords in case Micro Focus Support needs them to resolve a support incident in the future. (No administrative tasks require these passwords.)
Default Locale	<ol style="list-style-type: none">1. Select your Default System Locale from the dropdown list.2. Click Finish.3. Do not close or exit the browser page until the warning message disappears.
Set Up TeamWorks Services	<ol style="list-style-type: none">1. Use the information in Chapter 9, “Setting Up TeamWorks Services,” on page 35 as a guide for setting up your all-in-one appliance.

Integrating a Content Editor Appliance

To use a Content Editor appliance with your All-in-One deployment, follow the instructions in [“Setting Up a Content Editor Appliance” on page 32](#).

B Upgrading/Migrating an All-in-One TeamWorks Deployment

Before You Upgrade!

Failure to comply with the following critical points could result in a non-functional TeamWorks system.

- ♦ **Verify the Appliance Version:** Make sure that the appliance being upgraded is running TeamWorks 18.1.1 with the latest updates applied.
- ♦ **Review the Release Notes:** Check “Upgrade” in the [TeamWorks 18.2 Release Notes](#) before you start the upgrade process.
- ♦ **Ensure that the VM host has enough unformatted disk space:**
 - ♦ **System Disk (/):** A 20 GB disk is created automatically.
 - ♦ **Disk 2 (/vastorage):** You make a copy of the appliance’s Disk 2.
 - ♦ **Each Disk 3 (/var):** You create this disk. The recommended size is 4 GB plus 3 times the appliance’s RAM allocation.
- ♦ **Remove VMware Snapshots:** Before copying Disk 2, make sure to remove all VMware snapshots so that the /vastorage disk has the correct disk file and latest configuration settings.
- ♦ **If the appliance has two network adapters:** Do the following:
 1. Download the `networkprep.zip` file from the TeamWorks software downloads page.
 2. Enable SSH on the appliance, as described in “[Managing System Services](#)” in the [TeamWorks 18.2: Administrative UI Reference](#).
 3. Using an SSH client (such as WinSCP), log in to the appliance as the `root` user.
 4. Copy the `networkprep.zip` file that you downloaded to the `/root/` directory on the appliance.
 5. Unzip the `networkprep.zip` file:

```
unzip networkprep.zip
```

The `networkprep` folder is created.
 6. Change to the `network prep` folder:

```
cd /root/networkprep
```
 7. Run the script:

```
sh run-networkprep.sh
```
 8. Close the remote SSH connection to the appliance.

After ensuring that you have met the prerequisites and cautions above, complete the instructions in the following sections in order.

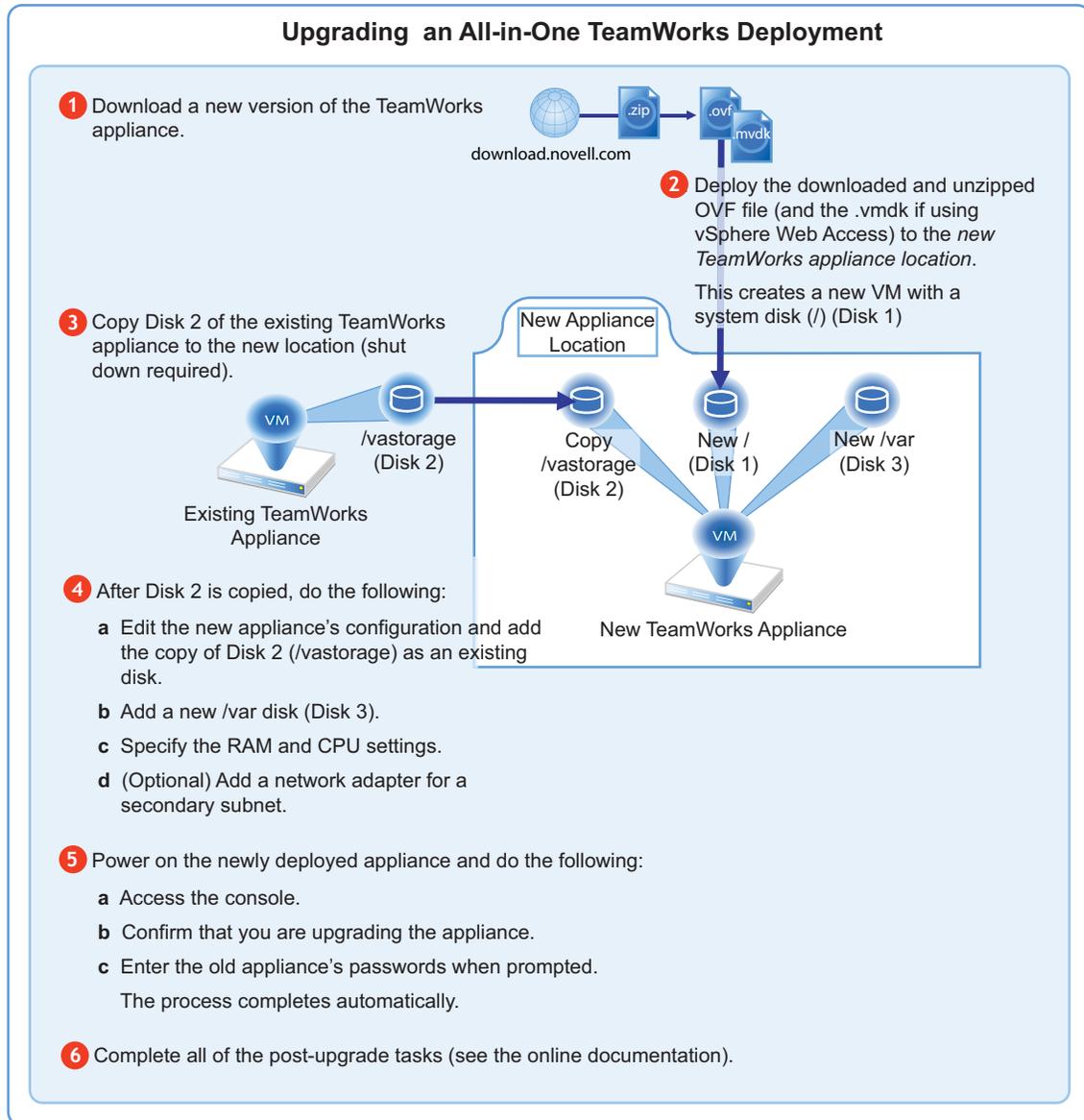
- ♦ “[Small TeamWorks Upgrade Process Overview](#)” on page 52
- ♦ “[Downloading the Software and Preparing for the Upgrade/Migration](#)” on page 53
- ♦ “[Upgrading The TeamWorks All-in-One VM](#)” on page 53

- “Deploying the Upgraded All-in-One TeamWorks VM” on page 55
- “Performing TeamWorks Post-Upgrade/Migration Tasks” on page 55

Small TeamWorks Upgrade Process Overview

If you have upgraded a small TeamWorks deployment before, the following reminder might be all you need.

Figure B-1 Overview of the Small TeamWorks Appliance Upgrade Process



Downloading the Software and Preparing for the Upgrade/Migration

Download and prepare the software as described in the following steps:

- 1 Download the TeamWorks software (<https://www.microfocus.com/products/enterprise-messaging/teamworks/trial/>) to your management workstation.

IMPORTANT: Registration with Micro Focus is required to receive an email with a software-download link.

- 2 Extract the .ovf .zip file on your management workstation until a TeamWorks-version folder appears.
- 3 Continue with “Upgrading The TeamWorks All-in-One VM” on page 53

Upgrading The TeamWorks All-in-One VM

Complete the steps in [Table B-1](#).

Table B-1 Upgrading the TeamWorks VMware VM

Page, Dialog, or Option	Do This
VMware Host Client	<ol style="list-style-type: none"> 1. On your management workstation, start the browser-based VMware Host Client. <p>IMPORTANT: These instructions describe the browser-based client. The vSphere path is documented in previous versions of TeamWorks if needed.</p> <ol style="list-style-type: none"> 2. In the Navigator side bar, click Virtual Machines, then click Create / Register VM.
Select creation type	<ol style="list-style-type: none"> 1. Select Deploy a virtual machine from an OVF or OVA file, then click Next.
Select OVF and VMDK files	<ol style="list-style-type: none"> 1. Name the appliance with a name that is easily associated with (but not the same as) the VM name of the associated All-in-One appliance being upgraded 2. In a file browser, navigate to the contents of the folder extracted in Step 2 on page 53. 3. Select the .ovf and .vmdk files and drop them in the area indicated as you hover over the VMware dialog. 4. Click Next.
Select storage	<ol style="list-style-type: none"> 1. Choose the datastore for the appliance you are upgrading and click Next.
Deployment options	<ol style="list-style-type: none"> 1. Ensure that Disk provisioning is set to Thick. 2. Deselect Power on after deployment. 3. Click Next.
Ready to complete	<ol style="list-style-type: none"> 1. Click Finish. <p>The boot disk is created and the appliance is deployed as specified to this point.</p>
3 - Copy Disk 2 to the New Appliance.	

Page, Dialog, or Option	Do This
VMware Host Client	<p>Copying the appliance's disk is at the heart of the upgrade process because it uses the corresponding "old" appliance's configuration settings on Disk 2 to create an upgraded version of the appliance with minimal input on your part.</p> <p>Disk copying can take a while, depending on disk size and the VM host environment.</p> <ol style="list-style-type: none"> 1. Shut down the appliance. 2. Copy Disk 2 to its associated folder or directory that you created for your upgraded appliance in "Downloading and Preparing Software for the Upgrades" on page 41. <p>NOTE: Default VMware disk names are constructed as follows:</p> <ul style="list-style-type: none"> ◆ <i>vm_name.vmdk</i> ◆ <i>vm_name_1.vmdk</i> - This is Disk 2 ◆ <i>vm_name_2.vmdk</i> <ol style="list-style-type: none"> 3. When the disk finishes copying, start up the appliance so that the TeamWorks service can resume.
4 - Editing the VM settings.	
VMware Host Client	<ol style="list-style-type: none"> 1. In the Virtual Machines list, right-click the VM you just deployed and select Edit Settings. <p>The Virtual Machine Properties dialog displays.</p>
Virtual Hardware	<ol style="list-style-type: none"> 1. Set the Memory and CPU settings to match the appliance you are replacing, or increase them as planned.
5 - Configuring disk 2 (/vastorage)	
Virtual Hardware	<ol style="list-style-type: none"> 1. Click Add Hard Disk. 2. Select Existing Hard Disk. 3. Navigate to and select the copy of disk 2 that you made for this appliance. 4. Click Select.
6 - Adding and Configuring disk 3 (/var)	
Virtual Hardware	<ol style="list-style-type: none"> 1. Click Add Hard Disk. 2. Select New Standard Hard Disk. 3. Adjust the Disk Size and other settings to match disk 3 (/var) on the appliance you are replacing. 4. If you need to add network adapters, continue with 7 - (Optional) Adding a Network Adapter. <p>Otherwise, click OK, and deploy the next appliance.</p> <p>When all of your planned appliances have been deployed, continue with "Deploying the Upgraded (Replacement) VMs" on page 43.</p>
Virtual Hardware	<p>7 - (Optional) Adding a Network Adapter</p> <p>If the appliance you are replacing has a second network adapter, add a network adapter matching network adapter to this appliance</p>
VMware Host Client	<ol style="list-style-type: none"> 1. Continue with "Deploying the Upgraded All-in-One TeamWorks VM" on page 55.

Deploying the Upgraded All-in-One TeamWorks VM

- 1 Power on the new all-in-one appliance.
- 2 Access the appliance's console.
- 3 When prompted, enter the root and vaadmin passwords for the appliance.
The upgrade process proceeds automatically.
- 4 When the appliance displays the final screen in the console window, open your management browser and log in to the appliance on port 9443 as the vaadmin user.
- 5 Check the following:
 - ♦ **PostgreSQL :**
 - ♦ Click the phpPgAdmin icon.
 - ♦ Verify that the database is populated as expected.
 - ♦ **TeamWorks:**
 - ♦ Click the TeamWorks configuration icon.
 - ♦ Ensure that all of the settings are in place as expected.
 - ♦ If the configuration wizard displays, there was a problem with the configuration.
 - ♦ Resolve the configuration issues, then click Finish to reconfigure the system.
Common configuration issues include:
 - ♦ If your system is not using DNS, the most likely problem is unresolvable DNS names and missing /etc/hosts entries.
 - ♦ If the appliance doesn't have access to the database, ensure that all of the settings are as expected.
- 6 When the appliance is running, continue with [“Performing Post-Upgrade Tasks.”](#)

Performing TeamWorks Post-Upgrade/Migration Tasks

Reindex Your Deployment After Migrating

After the upgrade/migration is completed and before users can effectively begin using TeamWorks services, you must perform a full reindexing of the system.

See [“Perform Full Reindex Now”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

We recommend using the Offline option because reindexing is performed much more quickly and requires substantially fewer system resources.

Install Your New License

Upgraded TeamWorks appliances have a 60-day evaluation license installed.

To prevent a service interruption, you must install your new license by following the instructions in [“Installing/Updating the TeamWorks License”](#) in the *TeamWorks 18.2: Administrative UI Reference*.

Adding a Content Editor Appliance

To use a Content Editor appliance with your All-in-One deployment, follow the instructions in [“Setting Up a Content Editor Appliance”](#) on page 32.

C

Configuring the PostgreSQL Appliance to Provide the SQL Database

Table C-1 Configuring a PostgreSQL Appliance

Page or Dialog	Do This
	<p>IMPORTANT: The following steps assume that you installed and prepared a PostgreSQL appliance in addition to your TeamWorks and Search appliances, as documented in Chapter 6, “Creating the TeamWorks Virtual Machines,” on page 21.</p>
	<ol style="list-style-type: none"> Using a browser on your management workstation, access the Port 9443 Appliance Console on the PostgreSQL appliance by entering the following URL: <pre>https://PostgreSQL_IP_Address:9443</pre> <p>Where <i>IP_Address</i> is the IP address of the PostgreSQL appliance.</p>
PostgreSQL Appliance Sign In	<ol style="list-style-type: none"> Log in as the <code>vaadmin</code> user with the password that you set for the appliance in “Vaadmin password and confirmation:” on page 24.
PostgreSQL Appliance Tools	<ol style="list-style-type: none"> Click the Configure PostgreSQL icon .
Postgres User Configuration	<ol style="list-style-type: none"> Type and confirm a new password for the <code>postgres</code> role/user, then click Submit.
PostgreSQL Appliance Tools	<ol style="list-style-type: none"> Click the phpPgAdmin icon  to launch the phpPgAdmin utility. In the left panel, click PostgreSQL, then log in as user <code>postgres</code> with the password that you specified above.
phpPgAdmin	<ol style="list-style-type: none"> Click the Roles icon . Click Create role.
Create Role	<ol style="list-style-type: none"> Type a name in the Name field, such as <code>db-user</code>, for the role that will create the database for TeamWorks and provide TeamWorks services with database access. Type and confirm a password for the role that you are creating. Select the Create DB? and Can login? options. Click the Create button. <p>The role you created is added to the Roles list.</p> Close the browser and return to “Setting Up Three Search Appliances” on page 29.

D Troubleshooting the TeamWorks Installation

Unable to Access a Newly Installed Appliance

If you are unable to access a newly installed appliance and you need to change appliance settings, such as the IP address, use the VACONFIG utility from the TeamWorks command prompt.

For more information, see “[Using VACONFIG to Modify Network Information](#)” in the *TeamWorks 18.2.0: Maintenance Best Practices Guide*.

E Third-Party Materials

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- ◆ “Oracle Outside In Technology” on page 62
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Firebug Lite

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