
Filr 2.0

Installation and Configuration Guide

May 2016

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About This Guide

This *Filr 2.0 Installation Guide* covers the installation and configuration of Filr. The guide is divided into the following sections:

- ◆ Chapter 1, “Overview,” on page 9
- ◆ Chapter 2, “Planning Your Filr Installation,” on page 27
- ◆ Chapter 3, “Creating a Small Deployment,” on page 37
- ◆ Chapter 4, “Creating a Large Deployment,” on page 53
- ◆ Chapter 5, “Configuring and Maintaining the Search Index Appliance,” on page 95
- ◆ Chapter 6, “Configuring and Maintaining the MySQL Database Appliance,” on page 97
- ◆ Chapter 7, “Setting Up the Filr Site,” on page 101
- ◆ Chapter 8, “Upgrading Filr,” on page 105
- ◆ Chapter 9, “Troubleshooting the Filr Installation and Upgrade,” on page 131
- ◆ Part I, “Appendixes,” on page 135

Audience

This guide is intended for Novell Filr administrators.

Feedback

Please use the User Comments feature at the bottom of each online documentation page to comment and suggest improvements to this guide and the other documentation included with Novell Filr.

Documentation Updates

The most recent version of this guide is available [here](http://www.novell.com/documentation/novell-filr-2/filr-2-inst/data/bookinfo.html) (<http://www.novell.com/documentation/novell-filr-2/filr-2-inst/data/bookinfo.html>) on the Novell Filr Web site.

Additional Documentation

For other Novell Filr documentation, see the [Novell Filr Web site](http://www.novell.com/documentation/novell-filr-2/) (<http://www.novell.com/documentation/novell-filr-2/>).

1 Overview

This section provides overview information that is useful as you install Novell Filr. For an in-depth overview of the product, see the *Filr 2.0: Understanding How Filr Works*.

- ♦ [Section 1.1, “What Is Novell Filr?”](#), on page 9
- ♦ [Section 1.2, “Filr System Requirements,”](#) on page 12

1.1 What Is Novell Filr?

Novell Filr is an enterprise file management tool designed to share files by leveraging your security infrastructure, both internally and externally. Filr gives you access to corporate files (including files that are located on mapped drives) and lets you access them from a mobile app on a mobile device, from a desktop application on your workstation, or from a web browser.

- ♦ [Section 1.1.1, “Filr Applications and Appliances,”](#) on page 9
- ♦ [Section 1.1.2, “Filr Components,”](#) on page 10
- ♦ [Section 1.1.3, “Filr Storage,”](#) on page 11
- ♦ [Section 1.1.4, “Using Novell Filr,”](#) on page 11

1.1.1 Filr Applications and Appliances

The following sections provide information about the distinction between Filr applications and appliances.

- ♦ [“Applications”](#) on page 9
- ♦ [“Appliances”](#) on page 10

Applications

Filr applications are client interfaces that allow users to access the Filr software. There are three Filr applications:

- ♦ **Web application:** See the *Filr 2.0: Web Application User Guide* for information about how to use the Filr web application.

After installing Filr, you can log in to the web application. Review the information in [“Setting Up the Filr Site before Users Log In”](#) in the *Filr 2.0: Administration Guide* for information about how you can configure your Filr site.
- ♦ **Desktop application:** See the *Filr Desktop Application for Windows Quick Start* (<http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktop/data/filr-2-qs-desktop.html>) and the *Filr Desktop Application for Mac Quick Start* (<http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktopmac/data/filr-2-qs-desktopmac.html>) for information about how to use the desktop application.

Before the desktop application can be available to users, you need to configure it for your Filr site, as described in [“Setting Up the Filr Desktop Application”](#) in the *Filr 2.0: Administration Guide*.

- ♦ **Mobile app:** See the [Novell Filr Mobile App Quick Start](#) for information about how to download and use the mobile app.

Appliances

Appliances are prepackaged software bundles designed to reduce installation and configuration overhead. Components that make up a Filr site can be deployed either as a single appliance for small deployments or as multiple appliances for larger installations. Filr appliances run as virtual machines within a VMware, Hyper-V, or Xen environment. For more information, see [Section 1.1.2, “Filr Components,” on page 10](#).

1.1.2 Filr Components

A Novell Filr site consists of three major components. In very small deployments, each of these components is part of the Filr appliance. In large deployments, the software, the database, and the search index each runs as a separate appliance.

- ♦ [“Filr Software” on page 10](#)
- ♦ [“Filr Database” on page 10](#)
- ♦ [“Search Index” on page 10](#)

Filr Software

The Filr software is a customized version of Apache Tomcat. This software provides the web-based functionality you use as you access the Filr site through your web browser.

Filr Database

Filr supports using a MySQL, MariaDB, or Microsoft SQL database. You can either install the MySQL database appliance that ships with Filr or configure Filr to use your organization’s existing SQL database server. (Using your organization’s existing database is recommended for enterprise installations.)

The Filr database is used for storing information about the Filr site and its users:

- ♦ Structural information about folders and files
- ♦ Identification information about folders and files (for example, titles, descriptions, dates of creation/modification, and users associated with creation and modification)
- ♦ User profile information (for example, full name, phone number, and email address)

The Filr database disk space requirements are relatively modest, because the database is not used for storing files.

Search Index

The search index is a high-performance Java search engine built with Lucene technology. The search index contains pointers to the actual data stored in the Filr file repository. The index enables the search engine to perform very fast searches through large quantities of Filr data.

1.1.3 Filr Storage

Data for the Filr system is stored in three areas:

- ♦ “[SQL Database](#)” on page 11
- ♦ “[Data Storage for the Appliance](#)” on page 11
- ♦ “[Configuration Data for the Appliance](#)” on page 11

SQL Database

The SQL database is used to store SQL data files, including tablespace data files, tablespace log files, and binary log files. It is also used to store comments on files and folders.

The SQL database can be part of the all-in-one appliance (small deployment), can be configured as a separate appliance (large deployment), or can be leveraged on an existing SQL database.

Data Storage for the Appliance

When you set up Filr (either as a single appliance in a small deployment or as separate appliances for a large deployment), you configure data to reside on a hard disk.

The following data is stored for each appliance on the hard disk:

All appliances: Web application certificates for Jetty and Tomcat and the Ganglia RRD database

Filr appliance: Data for the Filr appliance (located in the `/Cachefilestore` and `/conf`, `/extension`, `/filerepository`, `/temp` directories)

Search index appliance: Data for the search appliance

MySQL database appliance: Data for the MySQL database appliance

For more detailed storage information, see “[Filr Appliance Storage](#)” on page 19.

Configuration Data for the Appliance

Configuration information for each appliance is stored on the appliance itself, and can be exported during an upgrade process and then re-imported.

For more information, see [Chapter 8, “Upgrading Filr,”](#) on page 105.

1.1.4 Using Novell Filr

Novell Filr lets users work with files in important ways:

- ♦ **Access:** Users can access the files they need in multiple ways, including from a web browser, from a desktop, or from a mobile device.

For more information, see “[Accessing Filr](#)” in the *Filr 2.0: Web Application User Guide*.

- ♦ **Share:** Users can share files with their co-workers and grant them specific rights to the files. For example, a user can share a file with User A with Read-Only access, and then share the same file with User B with Edit access.

Users can easily see what has been shared with them and what they have shared.

For more information, see “[Sharing Files and Folders](#)” in the *Filr 2.0: Web Application User Guide*.

- ♦ **Collaborate:** Users can make comments on a file. Then all users with access can see the comments and make comments of their own.

For more information, see “[Commenting on a File](#)” in the *Filr 2.0: Web Application User Guide*.

Filr allows users to access, share, and collaborate on files that are in two key locations:

- ♦ “[Files in Net Folders](#)” on page 12
- ♦ “[My Files](#)” on page 12

Files in Net Folders

Filr gives users easy access to folders and files on the corporate file system. Corporate files can be files on a user’s home drive, files on a mapped drive, or files on a remote server. Filr gives users seamless access to these files, regardless of their location. You as the Filr administrator define which corporate files users have access to.

In Filr, users access these corporate files by clicking **Net Folders** in the masthead. For more information about Net Folders, see the *Filr 2.0: Web Application User Guide*.

My Files

Users can upload files directly to the Filr site for personal use or to promote collaboration; they can create folders to better organize files. For more information about how to upload files, see “[Adding Files to a Folder](#)” in the *Filr 2.0: Web Application User Guide*.

Files and folders that are located in a user’s My Files area are visible only to that user by default. Users can make files and folders available to others by sharing them, as described in “[Sharing Files and Folders](#)” in the *Filr 2.0: Web Application User Guide*.

The My Files area can contain two types of files. Users can access these files by clicking **My Files** in the masthead.

- ♦ **Personal Storage:** You can configure Filr to allow users to add Personal Storage files to the My Files area. These are files that users have uploaded to the Filr site and do not exist on an external server; instead, the files are on the Filr server itself.
- ♦ **Home Folder:** You can configure Filr to display users’ Home folders. Files in users’ Home folders are synchronized from the corporate file system.

1.2 Filr System Requirements

As a Novell Filr site administrator, ensure that your system meets Filr system requirements, so that your Filr site can be set up successfully. After your Filr site is set up, you must also ensure that users’ browsers and office applications meet Filr user requirements, so that they can access the Filr site successfully.

- ♦ [Section 1.2.1, “Filr Server Requirements,”](#) on page 13
- ♦ [Section 1.2.2, “Filr Storage Size Requirements,”](#) on page 18
- ♦ [Section 1.2.3, “Filr User Requirements,”](#) on page 23
- ♦ [Section 1.2.4, “Desktop Application Requirements,”](#) on page 24
- ♦ [Section 1.2.5, “Mobile App Requirements,”](#) on page 25

- ◆ Section 1.2.6, “File Viewer Information,” on page 25
- ◆ Section 1.2.7, “Linux File System,” on page 25

For any known issues related to System Requirements for Filr 2.0, see the *Novell Filr 2.0 Release Notes* (<http://www.novell.com/documentation/novell-filr-2/filr-2-relnote/data/filr-2-relnote.html>).

1.2.1 Filr Server Requirements

- ◆ “Virtualization Requirements” on page 14
- ◆ “Memory Requirements” on page 15
- ◆ “Database Requirements” on page 16
- ◆ “File Server Requirements” on page 16
- ◆ “Net Folder Access to Storage” on page 17
- ◆ “Directory Requirements” on page 17
- ◆ “Browser Requirements” on page 17
- ◆ “File Shared Storage Requirements (/vashare Mount Point)” on page 18
- ◆ “IP Address Information” on page 18

Virtualization Requirements

Hypervisor Type	Supported Versions
VMware	<ul style="list-style-type: none"> ◆ One of the following VMware host servers for hosting the Filr appliance. <ul style="list-style-type: none"> ◆ ESXi 6.0 with the latest update ◆ ESX 5.5 with the latest update <p>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.</p> <p>To generate the correct chart from the <i>VMware Compatibility Guide</i>:</p> <ol style="list-style-type: none"> 1. Ensure that Guest OS is selected in the What are you looking for field. 2. In the OS Vendor field, select SUSE, then in the OS Family Name field, select SUSE Linux Enterprise 11. 3. Click Update and View Results, then look at the SUSE Linux Enterprise Server 11 Service Pack 3 64-bit line of the provided table. <p>The versions of ESX and ESXi that are listed in the Supported Releases column of this row are compatible with Filr 2.0</p> <ul style="list-style-type: none"> ◆ A VMware vSphere client 5.1.x for accessing the host server and appliance for initial configuration <p>Not all versions of the vSphere client are compatible with versions of VMware ESX and ESXi. For a complete matrix of compatibility, see the VMware Product Interoperability Matrixes (http://partnerweb.vmware.com/comp_guide2/sim/interop_matrix.php) provided by VMware.</p> <ul style="list-style-type: none"> ◆ VMware vMotion is supported when running Filr on VMware ESXi or 5.5 with the latest updates
Hyper-V	<ul style="list-style-type: none"> ◆ Windows 2008 R2 Server (as a Role) ◆ Hyper-V Server 2012 R2 (Core)
Xen	<p>IMPORTANT: All Xen and kernel patches must be applied before installing.</p> <ul style="list-style-type: none"> ◆ SLES 11 SP4, 64-bit ◆ SLES 12, 64-bit
Citrix Xen	<ul style="list-style-type: none"> ◆ Citrix XenServer 6.5 and later

Memory Requirements

Deployment Type	Requirement
Small deployment (Filtr appliance only)	<p>Minimum 12 GB of memory (16 GB is recommended) and 4 CPUs. At least 50% and preferably 66% of the memory should be dedicated to the Java heap. (Default is 8 GB and 4 CPUs.)</p> <p>A small deployment requires more resources than a large deployment for the Filr appliance, because in a small deployment the database and the search index are also running on the Filr appliance.</p> <p>For information about adjusting the Java heap settings, see “Changing the JVM Configuration Settings” in the <i>Filr 2.0: Administration Guide</i>.</p>
Large deployment	<ul style="list-style-type: none">♦ Filtr Appliance: Recommend 12 GB of memory and 4 CPUs. 2 GB of memory for the operating system, and 10 GB of memory for Java heap. Default is 8 GB and 4 CPUs. 1.5 GB of memory for the operating system, and 6.5 GB of memory for Java heap.♦ Database Appliance: 8 GB of memory and 2 CPUs. In larger environments (more than 1,000 users), recommended memory is 12 GB.♦ Search Index Appliance: 8 GB of memory and 2 CPUs 2 GB of memory for the operating system, 2 GB for Memcached, and 4GB for the Java heap. In larger environments (more than 1,000 users), recommended memory is 12 GB (allocate 2 GB for the operating system, 3 GB to Memcached, and 7 GB of memory for Java heap). <p>For information about adjusting the Java heap settings, see “Changing the JVM Configuration Settings” in the <i>Filr 2.0: Administration Guide</i>.</p>

Database Requirements

Following are the database requirements when configuring Filr to use an existing database instead of the database appliance (as described in [Section 4.3, “Configuring an Existing Database Server,”](#) on [page 76](#)):

Database Type	Supported Versions
MySQL	<ul style="list-style-type: none">◆ 5.5.46 (Filr Appliance)◆ 5.6 on Linux◆ 5.6.x on Windows
Microsoft SQL	<ul style="list-style-type: none">◆ 2008 R2 on Windows 2008 R2◆ 2012 SP2 on Windows 2012 R2◆ 2014 on Windows 2012 R2
MariaDB	<ul style="list-style-type: none">◆ SLES 12

File Server Requirements

You can configure Net Folders in Filr to access files on any combination of the file servers listed below.

NOTE: File servers are not required if you use Filr only for files in the My Files area.

Platform	Supported Versions
Windows	<ul style="list-style-type: none">◆ Windows 2003 (CIFS)◆ Windows 2008 R2 (CIFS)◆ Windows 2012 R2 (CIFS) <p>Windows native DFS-N and DFS-R with replication are supported</p>
OES	<ul style="list-style-type: none">◆ OES 2 SP3 (NCP)◆ OES 11 SP1 (NCP and CIFS) <p>IMPORTANT: You must apply at least the December 2012 Scheduled Maintenance Update, otherwise the NCP server can fail.</p> <ul style="list-style-type: none">◆ OES 11 SP2 (NCP and CIFS)◆ OES 2015 (NCP and CIFS), including NSS AD (CIFS) <p>DFS and DST for OES are supported.</p> <p>Domain Services for Windows (DSfW) is not supported.</p>
NetWare	<ul style="list-style-type: none">◆ NetWare 6.5.8
Share Point	<ul style="list-style-type: none">◆ 2013

Net Folder Access to Storage

In addition to storage that is directly attached to the file servers listed in “[File Server Requirements](#)” on page 16, Net Folders can include access to files that are being stored through any of the following storage methods:

- ◆ Network Attached Storage (NAS) with NetApp, EMC, and other Microsoft Active Directory joined NAS devices that support the CIFS protocol.
- ◆ Storage Area Network (SAN)

Directory Requirements

Directory Service	Platform Version
eDirectory	<ul style="list-style-type: none">◆ NetIQ eDirectory 8.8.x.x (8.8.8.3 is recommended). <p>For more information, see the NetIQ eDirectory 8.8 Documentation website (http://www.novell.com/documentation/edir88).</p> <ul style="list-style-type: none">◆ NetIQ eDirectory version 8.8.x.x on standalone Windows. <p>eDirectory running on Windows servers with file shares is not supported.</p>
Active Directory	<ul style="list-style-type: none">◆ Windows Server 2008 R2 Active Directory with the latest Service Pack◆ Windows Server 2012 R2 Active Directory with the latest Service Pack <p>For more information, see Windows Server 2008 Active Directory (http://www.microsoft.com/windowsserver2008/en/us/active-directory.aspx).</p>

Browser Requirements

A workstation (Windows, Mac, or Linux) capable of running one of the supported browsers for configuring and managing the appliance after the initial setup:

Browser	Requirement
Mozilla Firefox	Latest version
Microsoft Internet Explorer	11
Microsoft Edge	Latest version
Chrome	Latest version
Safari	Latest version

File Shared Storage Requirements (/vashare Mount Point)

In large clustered deployments, personal storage must reside on an external NFS drive or CIFS share, as listed below.

Protocol	Requirement
CIFS	<ul style="list-style-type: none">♦ Windows CIFS share
NFS	Exported mount point on one of the following: <ul style="list-style-type: none">♦ SLES 11 SP4♦ SLES 12 NFS on Windows is not supported.

IP Address Information

IP address information for assigning to the Filr appliance, including:

- ♦ Static IP address
- ♦ Network mask
- ♦ Gateway IP address
- ♦ DNS host name associated with the IP address
- ♦ IP address of a DNS server
- ♦ IP address or DNS name of the same NTP server that your target OES servers use (optional)

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

1.2.2 Filr Storage Size Requirements

The tables in the following sections outline the storage requirements for the various appliances, as well as the kinds of information that is stored. The storage requirements vary depending on the size of your Filr installation.

Clustered Deployment: All information in the following sections applies to a clustered deployment.

Large Deployment: All information in the following sections applies to a non-clustered large deployment except:

- ♦ All storage recommendations and functions listed under Shared Storage (/vashare) apply instead to Hard Disk 2 (/vastorage), in [“Filr Appliance Storage” on page 19](#).

Small Deployment: Only the information in [“Filtr Appliance Storage” on page 19](#) applies to a small deployment. All information in [“Filtr Appliance Storage” on page 19](#) applies to a small deployment except:

- ◆ All storage recommendations and functions listed under Shared Storage (`/vashare`) apply instead to Hard Disk 2 (`/vastorage`).
- ◆ [“Filtr Appliance Storage” on page 19](#)
- ◆ [“Search Index Appliance Storage” on page 21](#)
- ◆ [“MySQL Database Appliance Storage” on page 22](#)

Filtr Appliance Storage

Boot Partition (Hard Disk 1)

Recommended Storage: 20 GB of disk space

Function: Stores the operating system and all appliance-specific software (such as Apache Tomcat for the Filtr appliance and Lucene for the search appliance).

VMware/Hyper-V/Xen/Citrix Xen Hard Disk (Hard Disk 2 - `/vastorage`)

In a small deployment, all storage recommendations and functions listed under Shared Storage (`/vashare`) are included in Hard Disk 2 (`/vastorage`).

Recommended Storage: Must have three times as much disk space as the sum of all files that will be uploaded concurrently to personal storage on the Filtr site, and two times as much disk space as the sum of all files that will be uploaded concurrently to any Net Folders.

For example, if 10 users each upload a 3GB file to their My Files area (personal storage) at the same time, you must have at least 30GB x 3 (90GB) of disk space allocated to `/vastorage`. If `/vastorage` does not have sufficient disk space, an error occurs.

Function: Stores the following types of files:

- ◆ Configuration files that are used for appliance upgrades
 - ◆ Ganglia files that are used to store monitoring information
-

VMware/Hyper-V/Xen/Citrix Xen Disk (Hard Disk 3 - `/var`)

Recommended Storage: Disk size should be equal to the amount of memory given to the appliance, plus whatever is required for storage. It is a good idea to have enough storage to accommodate two memory dumps.

Function: Stores the following types of files:

- ◆ System event logs
- ◆ Memory dumps

Because log files are continually growing and can consume large amounts of disk space, the Filtr administrator should regularly delete old log files.

Shared Storage (/vashare)

Shared storage is used only in large Filr deployments that have been configured with shared storage. (It is always recommended to create shared storage in large deployments, even if the large deployment has only one Filr appliance.)

Large deployments with only one Filr appliance can be set up without shared storage. (This is not recommended because if shared storage is not configured during installation, it is not possible to add additional Filr appliances in the future if the need arises.)

In a small deployment, all storage recommendations and functions listed under Shared Storage (/vashare) are included in Hard Disk 2 (/vastorage).

Recommended Storage: Disk space must be equal to the size of all files that you anticipate users will add to their Personal Storage (My Files area), plus adequate space to account for the storing of HTML renderings and text extractions.

/vashare must have three times as much disk space as the sum of all files that will be uploaded concurrently to personal storage on the Filr site, and two times as much disk space as the sum of all files that will be uploaded concurrently to any Net Folders.

For example, if 10 users each upload a 3GB file to their My Files area (personal storage) at the same time, you must have at least 30GB x 3 (90GB) of disk space allocated to /vashare. If /vashare does not have sufficient disk space, an error occurs.

IMPORTANT: HTML renderings and text extractions have a significant impact on the amount of storage required for a file. For more information about how these factors affect storage, see the IMPORTANT note following this table.

Function: Stores the following types of files:

- ◆ Configuration files that are used for appliance upgrades
- ◆ Personal Storage files (files that are located in users' My Files area)
- ◆ Temporary files (uploads and conversions that are in progress)
- ◆ Cached files that have been previously rendered as HTML

Because cached files are not automatically deleted, the Filr administrator should clean up cached files in the /vashare/cachefilestore area on a regular basis. For more information about the amount of space required for HTML renderings, see the IMPORTANT note following this table.

IMPORTANT: HTML renderings and text extractions have a significant impact on the amount of storage required per file for the Filr appliance. In a small deployment, index files and database files also have an impact on the amount of storage required per file for the Filr appliance.

- ◆ **HTML Renderings:** Each time a user renders a file as HTML (either by clicking [View Details](#) on the file from the web interface, by clicking [View as HTML](#) from the web interface, or by tapping on a file from the mobile app), that rendering occupies additional disk space.

HTML renderings for files in both Personal Storage and files in Net Folders are stored in the /vashare directory in a clustered environment and in the /vastorage directory in a non-clustered environment.

Only one HTML rendering can exist for a single document. If a user views a file as HTML and a rendering already exists, a second rendering is not created.

The amount of space the HTML rendering occupies differs depending on the type of file that is rendered:

- ◆ Office file renderings (such as Microsoft Office and OpenOffice) require the same amount of disk space as the original file. (For example, a 1 MB file requires an additional 1 MB of disk space for the HTML rendering.)
- ◆ PDF renderings require approximately 10 times the amount of disk space as the original file. (For example, a 1 MB file requires an additional 10 MB of disk space for the HTML rendering.)
- ◆ PowerPoint renderings require approximately 3 times the amount of disk space as the original file. (For example, a 1 MB file requires an additional 3 MB of disk space for the HTML rendering.)

If HTML renderings are consuming more than 10 GB of disk space on your system, you can delete all HTML renderings by restarting the Filr appliance. (For information about how to restart the Filr appliance, change any configuration option, then click **Reconfigure Filr Server**, as described in “[Configuring and Maintaining the Filr Appliance](#)” in the *Filr 2.0: Administration Guide*.)

- ◆ **Text Extractions:** When a file is added to Filr (either to Personal Storage or to a Net Folder), text from the file is extracted and added to the search index to be used for searching. By default, each text-extracted file is truncated to 1.1 MB.
- ◆ **Index Files:** (Applies only to a small deployment) In a large or clustered deployment, index files are stored in the search appliance.
- ◆ **Database Files:** (Applies only to a small deployment) In a large deployment or clustered deployment, database files are stored in the MySQL database appliance.

On the /vashare or /vastorage hard disks, inodes can be consumed on an ext-3 file system so that space still exists on the disk, but no more files can be added. To learn more about inodes and proper allocation based on the potential number of files that are created on the file system, see [The File System in Reality \(http://www.tldp.org/LDP/intro-linux/html/sect_03_01.html#sect_03_01_0\)](http://www.tldp.org/LDP/intro-linux/html/sect_03_01.html#sect_03_01_0), in the [The Linux Documentation Project \(http://www.tldp.org\)](http://www.tldp.org).

Search Index Appliance Storage

Boot Partition (Hard Disk 1)

Recommended Storage: 20 GB of disk space

Function: Linux operating system, Java, and Lucene search code

Because log files are continually growing and can consume large amounts of disk space, the Filr administrator should regularly delete old log files.

VMware/Hyper-V/Xen/Citrix Xen (Hard Disk 2 - /vastorage)

Recommended Storage:

20 GB minimum for small systems

50 GB minimum for 2-3 node clustered systems

Or

10 GB of disk space, plus:

- ◆ Allocate 11 KB of disk space per file when indexing is enabled for Net Folders. The appliance optimizes and reclaims unneeded disk space after initial synchronization.
- ◆ Allocate 5 KB of disk space per file if indexing is not enabled for Net Folders.

For more information about file indexing, see “[Searchability of Data](#)” in the *Filr 2.0: Administration Guide*.

In order to optimize the index (as described in “[Optimizing the Lucene Index](#)” in the *Filr 2.0: Administration Guide*), at least 51% of /vastorage needs to be free space. Therefore, double the amount that you think you will need.

Function: Stores the following types of files:

- ◆ Configuration files that are used for appliance upgrades
 - ◆ Ganglia files that are used to store monitoring information
 - ◆ Search indexes
-

VMware/Hyper-V/Xen/Citrix Xen Hard Disk (Hard Disk 3 - /var)

Recommended Storage: 40 GB of disk space

Function: Stores the following types of files:

- ◆ System event logs and core dumps
-

MySQL Database Appliance Storage

Boot Partition (Hard Disk 1)

Recommended Storage: 20 GB of disk space

Function: Stores log files

Log files are automatically deleted after they consume 1GB of disk space.

You can delete log files before they reach the 1 GB threshold, as described in [Section 6.2, “Maintaining the MySQL Database Appliance,” on page 99](#).

VMware/Hyper-V/Xen/Citrix Xen (Hard Disk 2 - /vastorage)

Recommended Storage:

25 GB of disk space, plus:

- ◆ Allocate 30 KB per file when indexing is enabled for Net Folders.
- ◆ Allocate 20 KB per file when indexing is not enabled for Net Folders.

For more information about file indexing, see “[Searchability of Data](#)” in the *Filr 2.0: Administration Guide*.

Allocate 10 KB per user.

Function: Stores the following types of files:

- ◆ Configuration files that are used for appliance upgrades
 - ◆ Ganglia files that are used to store monitoring information
 - ◆ MySQL database files
-

VMware/Hyper-V/Xen/Citrix Xen Disk (Hard Disk 3 - /var)

Recommended Storage: 40 GB of disk space

Function: Stores the following types of files:

- ◆ System event logs and core dumps
-

1.2.3 Filr User Requirements

- ◆ “[Browser Requirements](#)” on page 23
- ◆ “[Office Application Requirements](#)” on page 24

Browser Requirements

Platform	Requirement
Linux	Mozilla Firefox; Google Chrome (latest versions)
Windows	Microsoft Edge
	Microsoft Internet Explorer 11
	Mozilla Firefox; Google Chrome (latest versions)
Mac	Safari (latest version)
	Mozilla Firefox (latest version)

Java v1.7.0_72 must be installed on the workstation in order for the following functionality to be available:

- ◆ Editing files with Edit-in-Place, as described in “[Editing Files with Edit-in-Place](#)” in the *Filr 2.0: Web Application User Guide*.

- ◆ Uploading folders to Filr, as described in “[Adding Folders](#)” in the *Filr 2.0: Web Application User Guide*.

If the browser does not support HTML 5, uploading both files and folders requires this version of Java to be installed.

Accessing Filr through a web browser on a mobile device is not supported. Instead, download the Filr mobile app that is compatible with your mobile device. For more information, see [Section 1.2.5, “Mobile App Requirements,”](#) on page 25.

Office Application Requirements

One of the following office applications is required for editing documents on your workstation, as described in “[Editing Files with Edit-in-Place](#)” in the *Filr 2.0: Web Application User Guide*:

NOTE: OpenOffice and LibreOffice are used synonymously throughout the Novell Filr documentation. Functionality and issues that apply to OpenOffice also apply to LibreOffice.

Platform	Requirement
Linux	<ul style="list-style-type: none"> ◆ OpenOffice.org (latest version) ◆ LibreOffice (latest version)
Windows	<ul style="list-style-type: none"> ◆ LibreOffice (latest version) ◆ OpenOffice (latest version) ◆ MS Office 2013 ◆ MS Office 2010 ◆ MS Office 365
Mac	<ul style="list-style-type: none"> ◆ LibreOffice (latest version) ◆ OpenOffice (latest version) ◆ MS Office 2011 for MAC ◆ MS Office 2013 for MAC ◆ MS Office 365 for MAC

1.2.4 Desktop Application Requirements

The Filr desktop application requires Filr 2.0 on the back-end and is supported on the following client operating systems:

Platform	Requirement
Windows	<p>IMPORTANT: Always make sure that the latest patches and support packs are installed.</p> <ul style="list-style-type: none"> ◆ Windows 7 SP1 (x86 & x64) ◆ Windows 8.1 (x64 only) ◆ Windows 10 (x64 only)

Platform	Requirement
Mac	<p>IMPORTANT: Always make sure that the latest patches and support packs are installed.</p> <ul style="list-style-type: none"> ◆ 10.10 (Yosemite) ◆ 10.11 (El Capitan)

For more information about the Filr desktop application, see the [Novell Filr Desktop Application for Windows Quick Start](http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktop/data/filr-2-qs-desktop.html) (<http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktop/data/filr-2-qs-desktop.html>) or the [Novell Filr Desktop Application for Mac Quick Start](http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktopmac/data/filr-2-qs-desktopmac.html) (<http://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktopmac/data/filr-2-qs-desktopmac.html>).

1.2.5 Mobile App Requirements

The Novell Filr mobile app is supported on the following mobile devices:

- ◆ iOS phones and tablets for iOS 8.x or later
 - The native app is available as a free download in the Apple App Store.
- ◆ Android phones and tablets for Android 2.3 or later
 - The native app is available as a free download in the Google Play App Store, the Amazon Appstore for Android, and the Samsung Knox Apps store.
- ◆ Windows phones version 8.0 and 8.1
 - Windows tablets are not currently supported.
 - Supported only with a Filr 1.1 server or later.
- ◆ The BlackBerry PlayBook and Z10
 - The native application is available in the BlackBerry World app store.
 - In this document, the BlackBerry steps are the same as for Android devices.

For more information about the Filr mobile app, see the [Novell Filr Mobile App Quick Start](http://www.novell.com/documentation/novell-filr1/filr1_qs_mobile/data/filr1_qs_mobile.html) (http://www.novell.com/documentation/novell-filr1/filr1_qs_mobile/data/filr1_qs_mobile.html).

1.2.6 File Viewer Information

In Novell Filr, file viewing capabilities are provided by Oracle Outside In viewer technology. See ["Oracle Outside In Technology 8.3 Supported Formats"](http://www.oracle.com/us/026956.pdf) (<http://www.oracle.com/us/026956.pdf>) for a list of the supported file formats. See ["Oracle Outside In Technology"](http://www.oracle.com/technetwork/middleware/webcenter/content/oit-all-085236.html) (<http://www.oracle.com/technetwork/middleware/webcenter/content/oit-all-085236.html>) for background information about the Oracle viewer technology included in Filr.

The file viewers also support data indexing by the search index.

1.2.7 Linux File System

Filr supports the following file systems on Linux: ext3, btrfs, and xfs.

2 Planning Your Filr Installation

Consider the following planning information before deploying Novell Filr.

- ♦ [Section 2.1, “Planning the Deployment Type,” on page 27](#)
- ♦ [Section 2.2, “Planning the File Repository,” on page 35](#)
- ♦ [Section 2.3, “Planning Net Folders,” on page 35](#)

2.1 Planning the Deployment Type

The following sections describe guidelines for deploying either a small, large, or clustered Filr installation.

- ♦ [Section 2.1.1, “Small Deployment,” on page 27](#)
- ♦ [Section 2.1.2, “Large Deployment,” on page 28](#)
- ♦ [Section 2.1.3, “Multi-Server \(Clustered\) Deployment,” on page 29](#)

2.1.1 Small Deployment



Tomcat (Filr)
Lucene Index
SQL Database

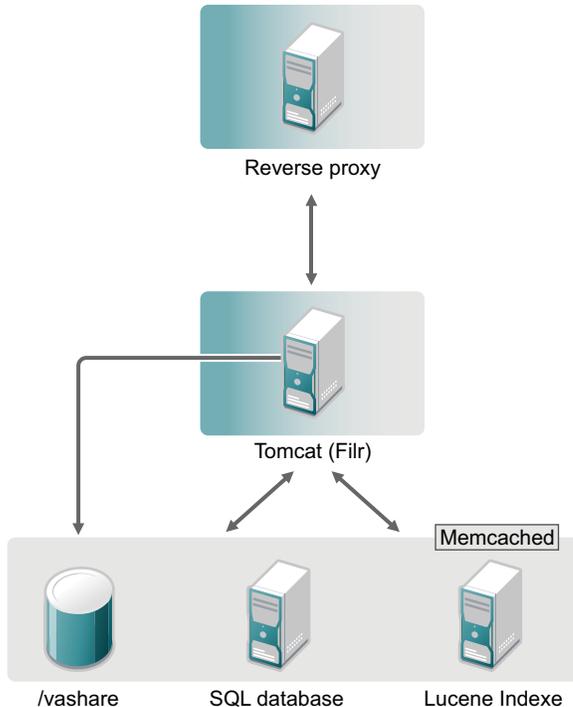
IMPORTANT: You cannot upgrade your Filr system from a small deployment to a large deployment. If your Filr system has the potential to grow, you should install Filr in a large deployment, as described in [Section 2.1.2, “Large Deployment,” on page 28](#). Doing so ensures that you can scale your system in the future if the need arises by adding additional Filr appliances.

A small deployment, where all Filr components (Filr software, MySQL database, and the search index) are running on a single Filr appliance, is suitable for systems with the following:

- ♦ 300 - 2,000 concurrent users, depending on the level of user activity.

Concurrent users are users accessing the Filr system at the same time, from any of the Filr clients.

2.1.2 Large Deployment



For more details about the capabilities and benefits of a large deployment, see the [Novell Filr 2.0 Planning and Deployment Best Practices Guide](#).

The following sections describe large and clustered deployments in more detail:

- ♦ “Components of a Large or Clustered Environment” on page 28
- ♦ “Moving from a Large to a Clustered Deployment” on page 29

Components of a Large or Clustered Environment

In a large or clustered installation, the Filr components run separately. Following are the minimum requirements:

Filr Appliance: You can run multiple instances of the Filr appliance (up to 10), which allows the Filr system to handle more users. For information about installing multiple Filr appliances, see [Section 3.1, “Installing the Filr Appliance,” on page 37](#).

Location for Shared Storage (/vashare): The shared storage location can be on an NFS server or remote CIFS. For NFS, you must either configure the remote NFS location on a remote Linux server via NFS (SLES or OES; Windows is not supported) or on a remote Windows server via CIFS, as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#). You must then configure each clustered Filr appliance to mount it as shared storage (/vashare), as described in [Section 3.1, “Installing the Filr Appliance,” on page 37](#). (All Filr appliances in the cluster must have access to the designated mount point.)

Search Appliance: Novell recommends running two instances of the search appliance, which provides fault tolerance or backup in the event that one index server fails. Load balancing is not supported between index servers. For information about installing multiple search appliances, see [Section 4.1, “Installing the Search Index Appliance,” on page 53](#).

MySQL Database Appliance: You can run only one instance of the MySQL database appliance. For information about installing a MySQL database appliance, see [Section 4.2, “Installing the MySQL Database Appliance,”](#) on page 65.

The MySQL database appliance is not intended for enterprise installations. If your organization has an existing MySQL database, it is recommended that you configure Filr to use the existing database, as described in [Section 4.3, “Configuring an Existing Database Server,”](#) on page 76.

For information about possible configuration setups and how many users are appropriate for each setup, see [Section 2.1.2, “Large Deployment,”](#) on page 28.

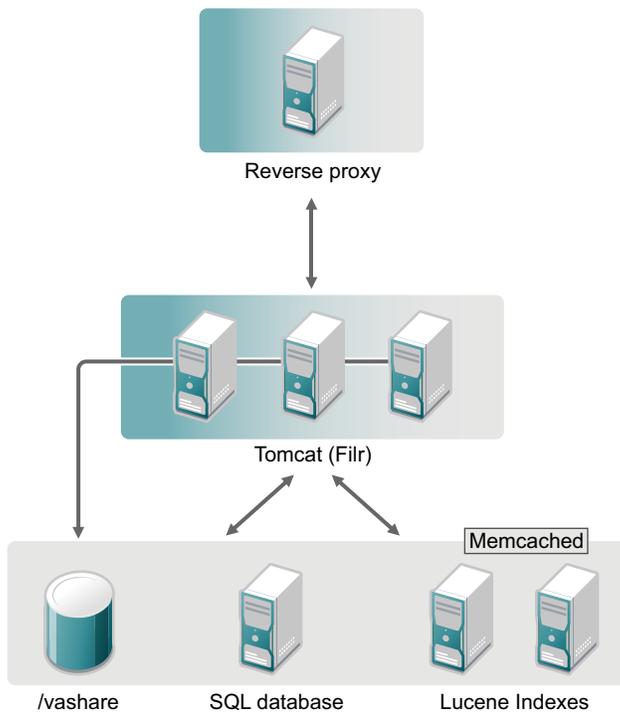
Moving from a Large to a Clustered Deployment

When you create a large Filr deployment, you have the option to include shared storage (`/vashare`) as the Filr storage location. If you create the shared storage location with your initial installation, adding additional Filr appliances in the future is easy (see [“Adding a Filr Appliance to an Existing Deployment to Accommodate System Load”](#) on page 33).

If you do not create the shared storage location with your initial installation, you cannot create a clustered deployment in the future.

TIP: Increasing memory and CPU resources for an appliance can sometimes be more favorable than adding another appliance. You might need to adjust CPU and Memory settings for each appliance before you can determine the optimal setting for your environment.

2.1.3 Multi-Server (Clustered) Deployment



- ◆ [“Components of a Large or Clustered Environment”](#) on page 30
- ◆ [“Advantages of Clustering”](#) on page 30

- ◆ “Filr Clustering (Expanding a Deployment)” on page 31
- ◆ “Adding a Filr Appliance to an Existing Deployment to Accommodate System Load” on page 33
- ◆ “Setting Aside a Filr Appliance for Re-Indexing and Net Folder Synchronization in a Clustered Environment” on page 34
- ◆ “Clustering Limitations” on page 34

Components of a Large or Clustered Environment

In a large or clustered installation, the Filr components run separately. Following are the minimum requirements:

Filr Appliance: You can run multiple instances of the Filr appliance (up to 10), which allows the Filr system to handle more users. For information about installing multiple Filr appliances, see [Section 3.1, “Installing the Filr Appliance,” on page 37](#).

Location for Shared Storage (/vashare): The shared storage location can be on an NFS server or remote CIFS. For NFS, you must either configure the remote NFS location on a remote Linux server via NFS (SLES or OES; Windows is not supported) or on a remote Windows server via CIFS, as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#). You must then configure each clustered Filr appliance to mount it as shared storage (/vashare), as described in [Section 3.1, “Installing the Filr Appliance,” on page 37](#). (All Filr appliances in the cluster must have access to the designated mount point.)

Search Appliance: Novell recommends running two instances of the search appliance, which provides fault tolerance or backup in the event that one index server fails. Load balancing is not supported between index servers. For information about installing multiple search appliances, see [Section 4.1, “Installing the Search Index Appliance,” on page 53](#).

MySQL Database Appliance: You can run only one instance of the MySQL database appliance. For information about installing a MySQL database appliance, see [Section 4.2, “Installing the MySQL Database Appliance,” on page 65](#).

The MySQL database appliance is not intended for enterprise installations. If your organization has an existing MySQL database, it is recommended that you configure Filr to use the existing database, as described in [Section 4.3, “Configuring an Existing Database Server,” on page 76](#).

For information about possible configuration setups and how many users are appropriate for each setup, see [Section 2.1.2, “Large Deployment,” on page 28](#).

Advantages of Clustering

A large deployment with a cluster of Filr appliances and search appliances provides the following:

- ◆ Scalability

As more users begin using the system and more data is added, you can add more Filr appliances to accommodate the load. This is not an advantage with the search appliance. The purpose of adding a secondary search appliance is strictly for fault tolerance.

- ◆ Fault tolerance

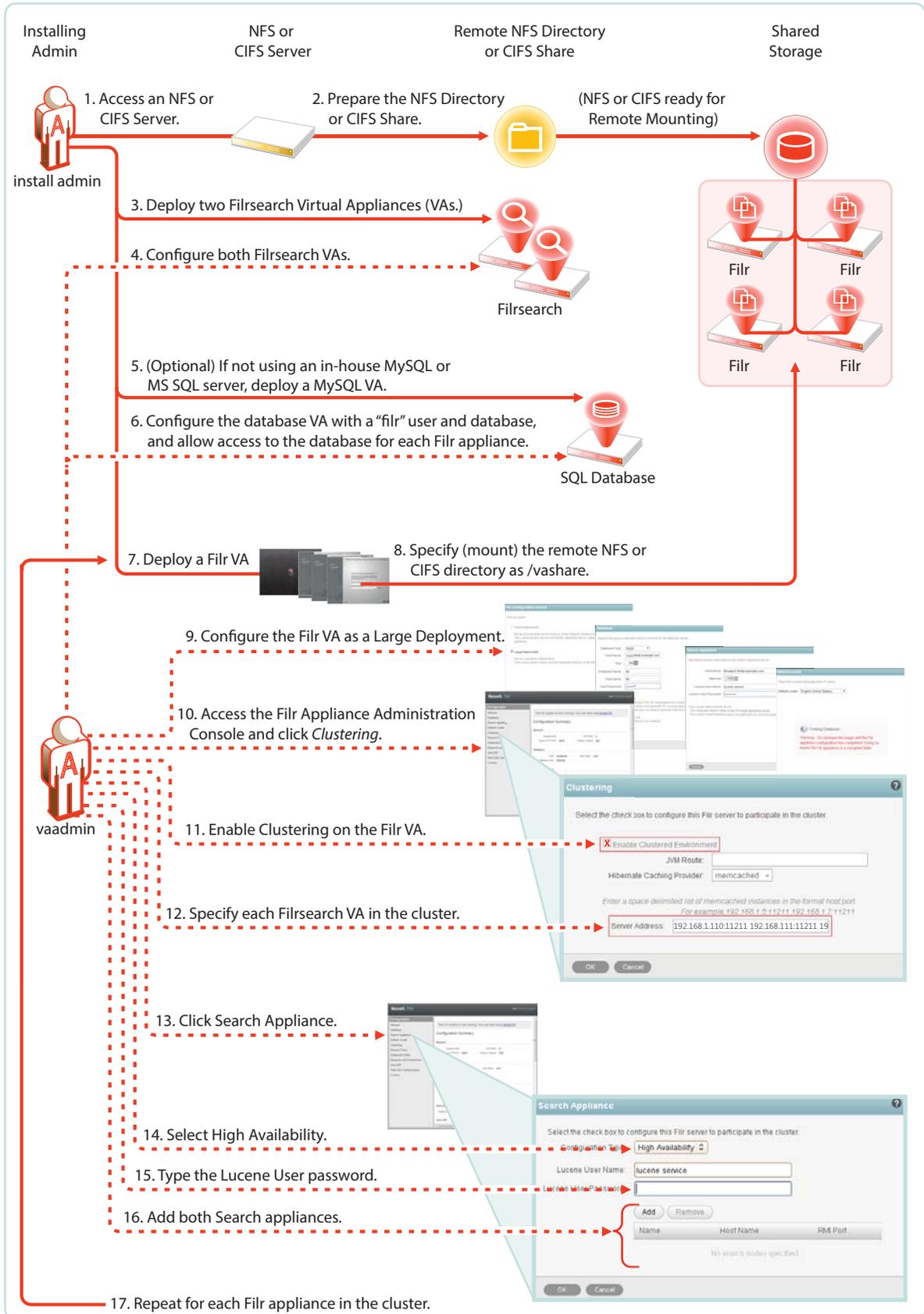
In the event that one Filr appliance goes down, other Filr appliances are there to maintain the system. This is also true with the search appliance. It is optimal for your Filr system to have two search indexes.

Filr Clustering (Expanding a Deployment)

Filr clustering involves two or more Filr VAs sharing the same NFS or CIFS data storage location (/vashare). You can only create a cluster if your Filr appliances were deployed pointing to the same /vashare disk.

Basic steps for setting up Filr clustering are included in [Figure 2-1](#).

Figure 2-1 Clustered Filr VAs



For step-by-step instructions, see “[Setting Up a Large, Expandable \(Clustered\) Deployment](#)” in the *Novell Filr 2.0 Planning and Deployment Best Practices Guide*.

For more information about clustering, see “[Multi-Server \(Clustered\) Deployment](#)” in the *Filr 2.0: Installation and Configuration Guide*.

Adding a Filr Appliance to an Existing Deployment to Accommodate System Load

To accommodate additional load, you can add Filr appliances to the Filr system only if your original Filr system was configured with shared storage (`/vashare`).

- ◆ “[Prerequisites](#)” on page 33
- ◆ “[Adding Filr Appliances to an Existing Deployment](#)” on page 33

Prerequisites

You can add a Filr appliance to an existing Filr deployment only if your Filr deployment meets the following prerequisites:

- ◆ **It is a large deployment:** Small (all-in-one) Filr deployments cannot be expanded.
- ◆ **Shared storage is enabled:** Ensure that a shared storage CIFS or NFS mount (`/vashare`) exists for the Filr deployment. You configure shared storage during the Filr appliance installation, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#). (For additional information about shared storage, see “[Filr Appliance Storage](#)” on page 19.)

IMPORTANT: If shared storage (`/vashare`) was not configured at the time you installed your original Filr system, you cannot add additional Filr appliances to the system.

- ◆ **CIFS or NFS mount is accessible to all Filr appliances:** All Filr appliances in the cluster need to have access to the CIFS or NFS mount.
- ◆ **A load balancing solution is in place:** When you add a Filr appliance and thereby create a clustered deployment (2 or more Filr appliances), you need to provide a solution for load balancing between the Filr appliances. Novell does not provide a load balancing appliance; however, there are many software solutions available, such as Apache, HAProxy, and NGINX. There are also hardware solutions available, such as F5 Networks, Juniper, Riverbend, and A10 Networks. Searching on the web for *Layer 4-7 switches of Application Delivery Controller* is a good place to start in determining a solution suitable for your environment.

Adding Filr Appliances to an Existing Deployment

To add Filr appliances to an exiting large Filr deployment:

- 1 Ensure that your system meets the necessary [prerequisites](#).
- 2 Install the additional Filr appliance. This is the same process as when you installed the original Filr appliance, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#).

IMPORTANT: Choose the same configuration options (including the same CIFS and NFS mount) that you chose when you installed the original Filr appliance.

- 3 Run the installation wizard for a large deployment (at port 9443), as described in [Section 4.5, “Configuring a Large Deployment for the First Time,”](#) on page 92.
- 4 After the configuration is complete, select Clustering (as described in [“Changing Clustering Configuration Settings”](#) in the *Filr 2.0: Administration Guide*), then verify that clustering is enabled and that the Memcached configuration matches the configuration of the original Filr appliance.

Setting Aside a Filr Appliance for Re-Indexing and Net Folder Synchronization in a Clustered Environment

In a clustered environment, it is a good idea to set aside a single Filr appliance to perform specific resource-intensive tasks.

You can use the standalone Filr appliance to perform the following tasks:

- ♦ Synchronizing a Net Folder
- ♦ Re-indexing the search index (this is a manual task that you must perform directly from the Filr appliance)

To set aside a Filr appliance and to use it to perform resource-intensive tasks:

- 1 Configure one of the Filr appliances in the cluster to allow synchronization, as described in [“Net Folder Configuration”](#) in the *Filr 2.0: Administration Guide*.

This is the appliance that will perform the synchronization work.

- 1a Select **Allow Synchronization** on the Net Folders page for the Novell Filr configuration at port 9443.
- 2 Configure the load balancer to load balance between all the Filr appliances in the cluster, except the Filr appliance for which you configured Net Folder synchronization to take place, as described in [Step 1](#).

Now when a Full synchronization occurs (either as a result of a scheduled or manual synchronization), the Filr appliance that you set aside is the one that handles the load.

- 3 (Optional) Rebuild the search index.
 - 3a Access the standalone Filr appliance from a web browser by navigating to the URL of that particular Filr appliance.

Because the standalone appliance is separate from the load balancer, you must access it directly in order to use it for re-indexing. By accessing the appliance directly, you force the process to originate from this particular appliance.

- 3b Rebuild the search index as described in [“Rebuilding the Search Index with Multiple Index Servers”](#) in the *Filr 2.0: Administration Guide*.

Clustering Limitations

In a clustered environment, Filr appliances are not tolerant to latency, and should exist in the same subnet or near-subnet.

Ensure that all Filr appliances in the cluster are pointing to the same NTP time source. Failure to do so can significantly degrade overall system performance.

2.2 Planning the File Repository

In a small deployment, the location for the Novell Filr file repository is `/vastorage/filr`. In a large deployment, the location for the Novell Filr file repository is `/vashare/filr`.

For information about sizing recommendations for the file repository, see [Section 1.2.2, “Filr Storage Size Requirements,”](#) on page 18.

The data files not stored in the Filr database are divided into several functional areas:

- ♦ **Simple file repository:** A large consumer of disk space.

All Personal Storage files are stored in the file repository.

- ♦ **Cache store:** Consumes less disk space than the file repository.

Information derived from the Personal Storage files, such as thumbnails, HTML renderings, scaled images, and word lists for indexing are stored in the cache store.

- ♦ **Search index:** (Small deployment only; in a large deployment, the search index is maintained on the separate search appliance) Takes only a fraction of the space consumed by the file repository.

The search index contains only pointers to the actual data stored in the file repository. The index enables the Lucene search engine to perform very fast searches through large quantities of data.

2.3 Planning Net Folders

Net Folders in Filr provide access to files on your corporate OES, Windows, Share Point, or NetWare file servers. In essence, a Net Folder is simply a pointer or a reference to a specific folder on a specific file server.

Configuring Net Folders in a sub-optimal way can result in unsatisfactory performance of your Filr system. The ideal Net Folder configuration can vary greatly depending on the number of files that you want to synchronize to Filr, the frequency in which files are modified, and so forth. Before configuring Net Folders, become familiar with the various subtleties related to Net Folders, such as the various synchronization methods and the impact of indexing content. For more detailed information, see [“Planning Net Folder Creation”](#) in the *Filr 2.0: Administration Guide*.

3 Creating a Small Deployment

The following sections describe how to download, install, and configure the Filr software as a single appliance for a small deployment. For a small deployment, you install only the Filr appliance. The Filr appliance includes the Filr software, the MySQL database, and the search index.

NOTE: Before you begin the installation:

- ◆ Ensure that the server requirements in [Section 1.2.1, “Filr Server Requirements,”](#) on page 13 have been met.
- ◆ Ensure that you have read and understand [Chapter 1, “Overview,”](#) on page 9.

The following sections describe how to create a small Filr deployment:

- ◆ [Section 3.1, “Installing the Filr Appliance,”](#) on page 37
- ◆ [Section 3.2, “Configuring a Small Deployment for the First Time,”](#) on page 50

3.1 Installing the Filr Appliance

- ◆ [Section 3.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,”](#) on page 37
- ◆ [Section 3.1.2, “Installing the Filr Appliance,”](#) on page 47

3.1.1 Downloading the Filr Appliance and Configuring the Virtual Environment

You need to download the Filr appliance and configure the virtual environment where you plan to run the appliance. This includes configuring system resources and so forth.

The process of downloading the Filr appliance and configuring the virtual environment differs, depending on which virtual environment you plan to use to run the Filr appliance.

- ◆ [“VMware Configuration”](#) on page 37
- ◆ [“Hyper-V Configuration”](#) on page 41
- ◆ [“Xen Configuration”](#) on page 43
- ◆ [“Citrix Xen Configuration”](#) on page 46

VMware Configuration

- 1 Download the Filr software (`Filr.x86_64-version.ovf.zip`) to your management workstation. You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

- 2 Extract the `Filr.x86_64-version.ovf.zip` file on your management workstation so that the `Filr-version` file folder appears.
- 3 In the vSphere client, click **File > Deploy OVF Template**.
- 4 Browse to and select the `.ovf` file in the `Filr-version` file folder.
- 5 Click **Next**.
- 6 Click **Next** again.
- 7 In the **Name** field, rename the Filr appliance to a name of your choosing, then click **Next**.
- 8 Select the datastore where you want to store the virtual machine files, then click **Next**.
- 9 Click **Next** to accept the default for the disk format.
- 10 Click **Finish**.
- 11 Create a separate VMware hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate VMware hard disk as described here, you cannot upgrade to a new version of Filr.

- 11a In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click **Edit Settings**.
The Virtual Machine Properties page is displayed.
- 11b On the **Hardware** tab, click **Add**.
The Add Hardware dialog box is displayed.
- 11c Select **Hard Disk**, then click **Next**.
- 11d Leave **Create a new virtual disk** selected, then click **Next**.
- 11e In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.
For more detailed information about the type of information that is stored here, see "[Filr Appliance Storage](#)" on page 19.
- 11f In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
- 11g In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
- 11h Select a datastore, then click **OK**.
- 11i Click **Next**.
- 11j In the **Virtual Device Node** section, select **SCSI (1:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see "[Shutting Down and Restarting the Novell Appliance](#)" in the *Filr 2.0: Administration Guide*.)

4. In VMware, change the controller to **VMware Paravirtual**.
 5. Power on each appliance in the Filr system.
-

11k In the **Mode** section, select **Independent**, select **Persistent**, then click **Next**.

11l Click **Finish**.

12 Create a separate VMware hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)

12a In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

12b Select **Hard Disk**, then click **Next**.

12c Leave **Create a new virtual disk** selected, then click **Next**.

12d In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 20 GB.

For more detailed information about the type of information that is stored here, see “[Filr Appliance Storage](#)” on page 19.

12e In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.

12f In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.

12g Select a datastore, then click **OK**.

12h Click **Next**.

12i In the **Virtual Device Node** section, select **SCSI (2:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
 2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
 3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see “[Shutting Down and Restarting the Novell Appliance](#)” in the *Filr 2.0: Administration Guide*.)
 4. In VMware, change the controller to **VMware Paravirtual**.
 5. Power on each appliance in the Filr system.
-

12j Leave the **Mode** section blank, then click **Next**.

You do not need to select anything in this section, because unlike Hard Disk 2, this hard disk does not need to be carried over on an upgrade.

12k Click **Finish**.

13 For a **clustered Filr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filr appliances in the cluster.

For a **large Filr deployment** with only one Filr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filr appliances.

For a **small Filr deployment**, you do not configure shared storage.

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.

For information about how to set up remote NFS for the Filr shared storage location, see [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,”](#) on page 149.

- 14 (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the /vashare mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

- 14a In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 14b Select **Ethernet Adapter**, then click **Next**.

- 14c In the **Network Connection** section, select the secondary network associated with the Filr installation.

- 14d Click **Next > Finish**.

- 15 Increase the amount of memory that VMware allocates for the Filr appliance.

The default of 8 GB is the recommended minimum amount of memory for a large deployment. Novell also recommends 2 CPUs.

For an all-in-one deployment, you should increase the default to at least 12 GB of memory and 4 CPUs.

Small deployments require more CPUs and memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in [“Changing the JVM Configuration Settings”](#) in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 15a In the Virtual Machine Properties window, select **Memory**, then increase the setting to a suitable size for your environment.

- 15b Click **OK** to exit the Virtual Machine Properties window.

- 16 (Optional) Upgrade the virtual machine hardware version to the latest that your infrastructure can support. To do so, in the vSphere client, right-click the virtual machine that you just created, and for which you want to upgrade the hardware, then click **Upgrade Virtual Hardware**.

- 17 Power on the appliance (virtual machine).

IMPORTANT: Do not power on the appliance until you have created a separate VMware hard disk for the appliance, as described in [Step 11](#).

- 18 (Optional) Install VMware Tools on the host server.

- 19 Continue with [Section 3.1.2, “Installing the Filr Appliance,”](#) on page 47.

Hyper-V Configuration

- 1 Log in to the host server either locally or from a remote workstation.
You can use Windows Remote Desktop to log in to the host server from a remote workstation.
- 2 Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the Filr software to this directory.

As a best practice, give this directory the same name as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory should also be `Filr1`.
- 3 Download the Filr software (`Filr.x86_64-version.vhd.zip`) to the directory on the host server that you created in [Step 2](#).

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).
- 4 Extract the `Filr.x86_64-version.vhd.zip` file to the directory on the host server that you created in [Step 2](#).
- 5 Open the Hyper-V Manager.
- 6 In Hyper-V Manager, right-click the disk name in the Action Pane in the left column of the Hyper-V Manager window. This is the disk where you want to create the new virtual machine. Then click **New > Virtual Machine**.

The New Virtual Machine Wizard is displayed.
- 7 Review the Before You Begin page, then click **Next**.
- 8 In the **Name** field, specify a name for the new virtual machine. For example, `Filr1`.
- 9 Click **Next**.
- 10 (Conditional) If your host server is Windows Server 2012 R2, the Specify Generation page is displayed. This page allows specify the generation of the virtual machine. You must select **Generation 1**, then click **Next**.

IMPORTANT: If you do not select Generation 1 and you select Generation 2 instead, the Filr virtual machine cannot be deployed.

- 11 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. 8 GB (8192 MB) is the recommended minimum for a large deployment of Filr. Novell also recommends 2 CPUs.

For an all-in-one (small) deployment, you should increase the default to at least 12 GB (12288 MB) of memory and 4 CPUs.

Small deployments require more CPUs and memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 12 Click **Next**.
- 13 On the Configure Networking page, select the networking card of your choice, then click **Next**.

- 14 Configure the bootable disk image:
 - 14a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in [Step 4](#).
 - 14b Click **Open** to select the file, then click **Next**.
- 15 Click **Finish**.
- 16 Create a separate Hyper-V hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate Hyper-V hard disk as described here, you cannot upgrade to a new version of Filr.

- 16a In Hyper-V Manager, right-click the virtual machine that you just created, then click **Settings**.
- 16b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 16c Select **Virtual hard disk**, then click **New**.
- 16d Review the Before You Begin page, then click **Next**.
- 16e On the Choose Disk Format page, select **VHD**, then click **Next**.
- 16f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 16g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk2`.
 - Location:** Specify the location where you want the hard drive to be located.
- 16h On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see "[Filr Appliance Storage](#)" on page 19.
- 16i Click **Next**.
- 16j Review the summary information, then click **Finish > OK**.
- 17 Create a separate Hyper-V hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
 - 17a In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.
 - 17b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
 - 17c Select **Virtual hard disk**, then click **New**.
 - 17d Review the Before You Begin page, then click **Next**.
 - 17e On the Choose Disk Format page, select **VHD**, then click **Next**.
 - 17f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
 - 17g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk3`.
 - Location:** Specify the location where you want the hard drive to be located.
 - 17h On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see "[Filr Appliance Storage](#)" on page 19.

17i Click **Next**.

17j Review the summary information, then click **Finish** > **OK**.

- 18 For a **clustered Filr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filr appliances in the cluster.

For a **large Filr deployment** with only one Filr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filr appliances.

For a **small Filr deployment**, you do not configure shared storage.

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.

For information about how to set up remote NFS for the Filr shared storage location, see [Appendix C, "Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,"](#) on page 149.

- 19 (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

19a In Hyper-V Manager, right-click the virtual machine for which you want to create an additional NIC, then click **Settings**.

19b In the Hardware section, select **Add Hardware**, select **Network Adapter**, then click **Add**.

19c Specify the desired settings for the new network adapter.

Select the secondary network associated with the Filr installation.

19d Click **OK**.

- 20 Right-click the virtual machine, then click **Start**.

IMPORTANT: Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in [Step 16](#).

- 21 Right-click the virtual machine, then click **Connect**.

- 22 Continue with [Section 3.1.2, "Installing the Filr Appliance,"](#) on page 47.

Xen Configuration

- 1 Log in to the host server either locally or from a remote workstation.

You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```

You must use the `-X` in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.

- 2 Navigate to the `/var/lib/xen/images` directory on the host server.

- 3 Create a new directory inside the images directory where you can download the Filr software.

The name of this directory must be the same as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory must also be `Filr1`.

- 4 Change to the directory that you just created. For example, `/var/lib/xen/images/Filr1`.
- 5 Download the Filr software (`Filr.x86_64-version.xen.tar.gz`) to the current directory on the host server. For example: `/var/lib/xen/images/Filr1`.

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

- 6 Untar the `Filr.x86_64-version.xen.tar.gz` file in the directory where you downloaded it.

You can use the following command to untar the file:

```
tar -Sxvzf Filr.x86_64-version.xen.tar.gz
```

A `filr-version` directory is created; it contains a `.raw` file that you will use to run the virtual image. This process can take a few minutes.

- 7 From the host server, run the following command to launch the GUI configuration menu:

```
vm-install
```

The Create a Virtual Machine wizard is displayed.

- 8 Click **Forward**.
- 9 Select **I have a disk or disk image with an installed operating system**, then click **Forward**.
- 10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.
- 11 Rename the virtual machine by clicking **Name of Virtual Machine** and specifying a new name in the **Name** field. Then click **Apply**. For example, `Filr1`.
- 12 Configure the amount of memory and number of CPUs that Xen allocates for the Filr appliance.

- 12a On the Summary page, click **Hardware**, then specify the following information:

Available Memory: Displays the amount of memory that is available on the host server.

Initial Memory: 8 GB is the recommended minimum amount of memory for a large deployment.

For an all-in-one deployment, you should increase the default to at least 12 GB of memory.

Small deployments require more memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

Maximum Memory: Set this to the same value that you set for Initial Memory.

Available Processors: Displays the number of available processors on the host server.

Virtual Processors: Specify 2 CPUs for a large deployment and 4 CPUs for a small deployment. At least half of the memory should be dedicated to the Java heap. (Java heap is set in the Filr configuration.)

Small deployments require more CPUs because in a small deployment, all components are running on a single virtual machine.

- 12b Click **Apply**.

- 13 Configure the bootable disk image:
 - 13a On the Summary page, click **Disks**.
 - 13b Click **Harddisk**.
 - 13c On the Virtual Disk page, specify the following information:
 - Source:** Click **Browse**, then browse to the `.raw` file that you untarred in [Step 6](#).
 - Protocol:** Select **file**.
 - Size (GB):** The default size is 20 GB. This cannot be changed.
 - Create Sparse Image File:** This option is not available.
 - Read-Only Access:** Do not select this option.
 - 13d Click **OK**.
- 14 Create a separate Xen hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate Xen hard disk as described here, you cannot upgrade to a new version of Filr.

- 14a On the Disks page, click **Harddisk**.
- 14b On the Virtual Disk page, specify the following information:
 - Source:** This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.
 - Protocol:** Select **file**.
 - Size (GB):** Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.
For more detailed information about the type of information that is stored here, see "[Filr Appliance Storage](#)" on page 19.
 - Create Sparse Image File:** Select this option.
 - Read-Only Access:** Do not select this option.
- 14c Click **OK**.
- 15 Create a separate Xen hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
 - 15a On the Disks page, click **Harddisk**.
 - 15b On the Virtual Disk page, specify the following information:
 - Source:** This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.
 - Protocol:** Select **file**.
 - Size (GB):** Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.
For more detailed information about the type of information that is stored here, see "[Filr Appliance Storage](#)" on page 19.
 - Create Sparse Image File:** Select this option.
 - Read-Only Access:** Do not select this option.
- 16 Click **OK > Apply**.

- 17** For a **clustered Filr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filr appliances in the cluster.

For a **large Filr deployment** with only one Filr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filr appliances.

For a **small Filr deployment**, you do not configure shared storage.

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.

For information about how to set up remote NFS for the Filr shared storage location, see [Appendix C, "Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location," on page 149](#).

- 18** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

18a On the Summary page, click **Network Adapters**.

18b Click **New**, then specify the desired settings for the new network adapter.

Select the secondary network associated with the Filr installation.

18c Click **Apply** > **Apply**.

- 19** Click **OK** to save your changes and to create and power on the virtual machine.

IMPORTANT: Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in [Step 14](#).

- 20** Continue with [Section 3.1.2, "Installing the Filr Appliance," on page 47](#).

Citrix Xen Configuration

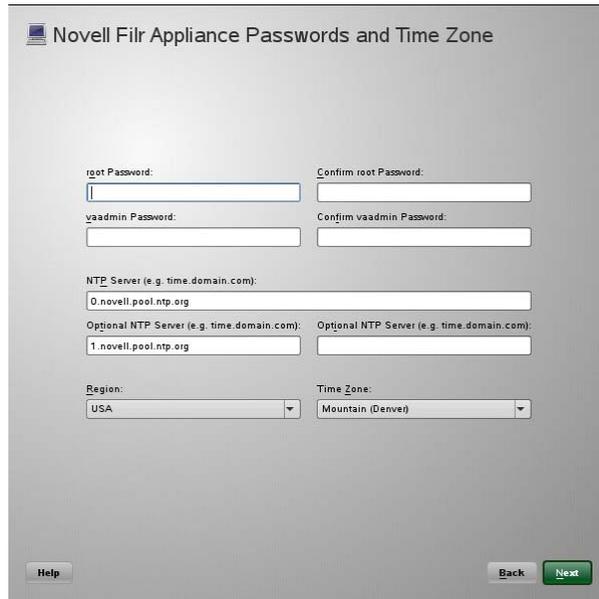
Do the following in order.

- 1** Expand the `.xva.tar.gz` file.
- 2** From the Citrix XenCenter, connect to a Citrix 6.5 or 6.5 SP1 XenServer.
- 3** Import the `.xva` file.
- 4** Assign two disks to the imported virtual appliance.
- 5** Modify the CPU and memory settings as required for your environment.
- 6** Start the VA.
- 7** Install the `xs-tools` and optimize according to the needs of your environment.
- 8** Continue with [Section 3.1.2, "Installing the Filr Appliance," on page 47](#).

3.1.2 Installing the Filr Appliance

- 1 After you have downloaded the Filr appliance, configured the virtual environment, and powered on the appliance, click the **Console** tab.
- 2 After the appliance starts, select your preferred keyboard layout in the **Keyboard Language** drop-down, then accept the license agreement. (You can change the language that the license agreement is displayed in from the **License Language** drop-down.)

The Appliance Passwords and Time Zone page appears.



The screenshot shows the 'Novell Filr Appliance Passwords and Time Zone' configuration page. It contains the following fields and controls:

- root Password:** A text input field with a small icon on the left.
- Confirm root Password:** A text input field.
- vaadmin Password:** A text input field.
- Confirm vaadmin Password:** A text input field.
- NTP Server (e.g. time.domain.com):** A text input field containing '0.novell.pool.ntp.org'.
- Optional NTP Server (e.g. time.domain.com):** A text input field containing '1.novell.pool.ntp.org'.
- Optional NTP Server (e.g. time.domain.com):** An empty text input field.
- Region:** A dropdown menu with 'USA' selected.
- Time Zone:** A dropdown menu with 'Mountain (Denver)' selected.
- Buttons:** 'Help', 'Back', and 'Next' (highlighted in green).

- 3 On the configuration page, specify the following information:

Root password and confirmation: The root password for your Filr appliance. The root user name is case sensitive and should not be capitalized.

Vaadmin password and confirmation: The preferred user to use when logging in to the appliance. The user name is case sensitive and should not be capitalized.

When configuring passwords for the vaadmin user for multiple appliances in a large installation, consider using different passwords between appliances for enhanced security.

NTP Server: The IP address or DNS name of the reliable external Network Time Protocol (NTP) server that your OES server uses. For 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: Your local time zone.

The time zone of your Filr server should match the time zone of all file servers that Filr will point to via Net Folders.

After installation, if you are not able to access the appliance and you need to change any of these settings, you can use the VACONFIG utility from the Filr command prompt. For more information, see “Using VACONFIG to Modify Network Information” in the *Filr 2.0: Administration Guide*.

- 4 Click **Next**.

5 On the Network Settings page, specify the following network information:

Hostname: The fully qualified DNS host name associated with the appliance's IP address. For example, myFiltr.mynetwork.example.com.

IP Address: The static IP address for the appliance. For example, 172.17.2.3.

Network Mask: The network mask associated with the appliance's IP address. For example, 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your Filr virtual appliance is located. For example, 172.17.2.254.

In a clustered environment, Filr appliances are not tolerant to latency, and should exist in the same subnet or near-subnet.

DNS Servers: The IP address of a primary DNS server for your network. For example, 172.17.1.1.

Domain Search: The domain that is associated with the Filr host name.

6 Click **Next**.

7 (Conditional) If you configured multiple NICs (as described in [Section 3.1.1, "Downloading the Filr Appliance and Configuring the Virtual Environment," on page 37](#)), select from the following options, then click **Next**:

- ♦ **Do Not Configure:** Select this option to configure this network at a later time. If you do not currently know your network information, you can configure the network after installation, as described in ["Changing Network Settings"](#) in the *Filr 2.0: Administration Guide*.
- ♦ **DHCP Dynamic Address:** Select this option to dynamically assign an IP address to this network.
- ♦ **Statically Assigned IP Address:** Select this option to assign a static IP address to this network, then specify the IP address, network mask, and host name.

8 The secondary hard disk for `/vastorage` that you created for this appliance is automatically detected and `sdb` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location (`/vastorage`) where information specific to the appliance is stored and is used when the appliance is upgraded. Each appliance has its own `/vastorage` location.

If you have not already assigned a second hard disk to the virtual machine (as described in ["Downloading the Filr Appliance and Configuring the Virtual Environment" on page 37](#)), power off the virtual machine, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see ["Data Storage for the Appliance" on page 11](#).

9 The third hard disk for `/var` that you created for this appliance is automatically detected and `sdc` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location where the `/var` directory for the appliance is stored. (The `/var` directory is where system events for the Novell appliances are logged.)

If you have not already assigned a third hard disk to the virtual machine (as described in ["Downloading the Filr Appliance and Configuring the Virtual Environment" on page 37](#)), power off the virtual machine, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see ["Data Storage for the Appliance" on page 11](#).

- 10** In a **large or clustered deployment**, select the shared storage location (remote NFS or remote CIFS). This storage (`/vashare`) is shared storage among all of the Filr appliances in the cluster. There is only one `/vashare` storage location that is used by all Filr appliances in the cluster.

IMPORTANT: You must select a shared storage location in a clustered deployment (if your Filr system contains multiple Filr appliances).

It is recommended that you select a shared storage location in a large deployment with only one Filr appliance. This ensures that you can scale your system in the future if the need arises by adding additional Filr appliances.

In a **small deployment**, select **Do Not Configure Shared Storage**.

- ◆ **Remote NFS:** Select this option for all large or clustered deployments for which you want to configure shared storage on remote NFS. You must export the remote directory before you choose this option. Also, set the `rw` and `no_root_squash` options on the remote directory.

IMPORTANT: Before you choose this option, understand the following:

- ◆ You must configure NFS on the remote linux server by setting the `rw` and `no_root_squash` options on the remote directory.

For detailed information about how to configure NFS, see [Section C.1, “Setting Up Remote NFS for the Filr Shared Storage Location,” on page 149](#).

- ◆ Filr does not support using an NSS volume as an exported NFS mount point.
 - ◆ Remote NFS is not supported when hosted on a Windows server.
-

- ◆ **Remote CIFS:** Select this option for all large or clustered deployments for which you want to configure shared storage on a remote Windows share. If you select this option, skip to [Step 12](#).
For detailed information about how to configure CIFS, see [Section C.2, “Setting Up Remote CIFS for the Filr Shared Storage Location,” on page 150](#).
- ◆ **Do Not Configure Shared Storage:** You must choose this option if you are creating a small deployment where all components are part of a single appliance, then skip to [Step 13](#).
Do not select this option with a clustered Filr deployment. This option is recommended only for a small deployment, but can be selected for a large (non-clustered) deployment if you do not plan to add Filr appliances in the future.

For more information about possible configurations when running Filr in a clustered environment, see [Section 2.1.2, “Large Deployment,” on page 28](#).

- 11** (Conditional) If you are configuring Filr for a clustered environment with remote NFS:

11a Click **Next**.

11b Specify the following options:

NFS Server Hostname: Specify the host name of the NFS server. This is the remote Linux server or the MySQL appliance that you previously configured for NFS (as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#)). Windows servers are not supported.

Remote Directory: Specify the path to the remote directory.

When using a remote Linux server for the NFS location (as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#)), specify the path on the remote NFS server.

- 12 (Conditional) If you are configuring Filr for a clustered environment with remote CIFS:
 - 12a Click **Next**.
 - 12b Specify the following options:
 - CIFS Folder:** Specify the path to the CIFS share.
For example, `\\server\share`.
 - CIFS User Name:** Specify the user name for accessing the CIFS share.
 - CIFS User Password:** Specify the password for the user that is accessing the CIFS share.
- 13 Click **Configure**.

A message indicating that the installation was successful is displayed.
- 14 (Conditional) If you are performing a large deployment with multiple Filr appliances, install another Filr appliance as described in this section, until you have installed your desired number of Filr appliances.

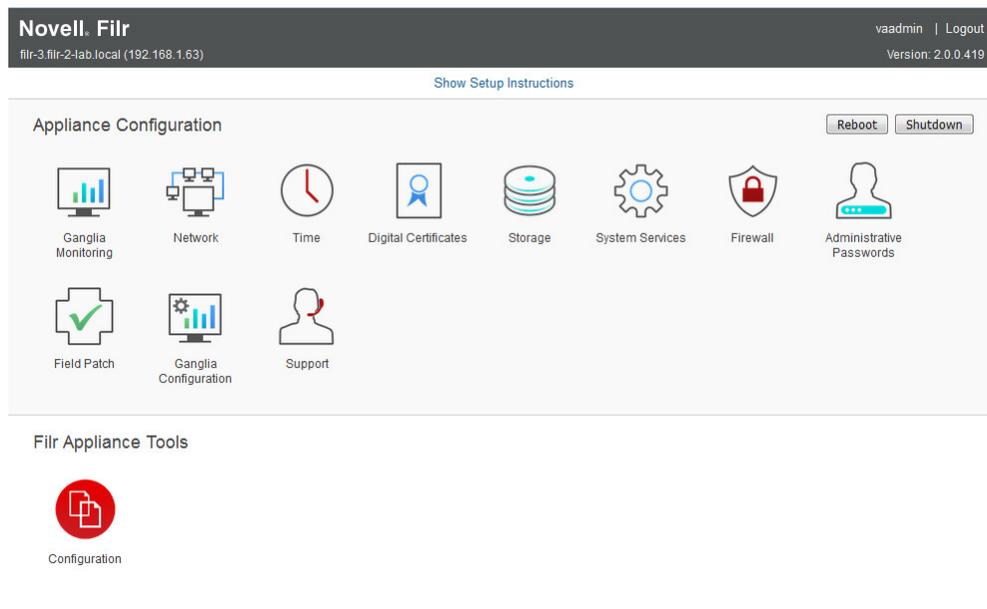
You cannot install multiple Filr appliances in a small deployment.
- 15 Continue with the first-time configuration, as described in the following section.

3.2 Configuring a Small Deployment for the First Time

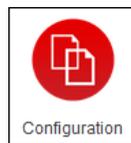
After you install the Novell Filr appliance and configure the network settings as described earlier, you are ready to configure the Filr appliance for the first time. This configuration process uses a quick wizard that gets your Filr system up and running. You can then make further configuration decisions, as described in “[Configuring and Maintaining the Filr Appliance](#)” in the *Filr 2.0: Administration Guide*.

To configure the Filr appliance for a small deployment:

- 1 After you have installed the Novell Filr appliance, as described in [Section 3.1, “Installing the Filr Appliance,” on page 37](#), navigate to the following URL from a web browser:
`https://ip_address_or_DNS:9443`
Use the IP address or DNS name of the server that you specified during the appliance installation.
- 2 Log in to the appliance using the `vaadmin` user and the password that you set.
The Novell Filr Appliance landing page is displayed.



- 3 Click the **Filr Appliance Configuration** icon.



The Filr Configuration Wizard displays.

- 4 Select **Small Deployment**, then click **Next**.
- 5 On the Database page, create a password for the MySQL administrator.
If you need to change this password at a later time, you must use the native MySQL tools to do so.
- 6 Click **Next**.
- 7 In the **Default Locale** field, select the default locale for your Filr site. This is the language and locale that Filr uses when users first log in to the Filr site.
Users can change the individual locale after they log in by modifying the user profile, as described in “[Modifying Your Profile](#)” in the *Filr 2.0: Web Application User Guide*.
Some aspects of the Filr interface, such as group names and the login page, are always displayed in the default language, regardless of individual user settings. For more information, see “[Understanding the Filr Site Default Language](#)” in the *Filr 2.0: Administration Guide*.
The default language that the Filr mobile app and the Filr desktop application are displayed in is defined by the language set on the mobile device and the user workstation where the application is running.
- 8 (Optional) As a security precaution, it might make sense to change the administrator’s user ID from the default `admin`. The administrator user ID is used only when logging in to the Filr system at port 8443.

In the **Administrator User ID** field, specify a new user ID for the Filr administrator.

IMPORTANT: If you change the administrator user ID, the password that you use to log in to the Filr system for the first time is also changed to match the user ID that you specify.

9 Click **Finish**.

After the configuration is complete, a summary is displayed.

This configuration summary contains information such as network, database, and so forth. You can modify these configuration settings at any time from the **Configuration** column on the left side of this page.

For information about each configuration option, see “[Configuring and Maintaining the Filr Appliance](#)” in the *Filr 2.0: Administration Guide*.

- 10** Continue with [Chapter 7, “Setting Up the Filr Site,”](#) on page 101 to make your site ready for user access.

4 Creating a Large Deployment

In a large deployment, the Filr software, the MySQL database, and the search index each runs as a separate appliance. This allows each component to have access to more server memory, disk space, and CPU resources.

For a large deployment, you need to do the following:

1. Install two search index appliances, as described in [Section 4.1, “Installing the Search Index Appliance,” on page 53](#). (Two search index appliances are recommended in order to provide fault tolerance or backup in the event that one index server fails.)
2. Install either the MySQL database appliance or configure Filr to use your organization’s existing MySQL, MariaDB, or Microsoft SQL database server. (Using your organization’s existing SQL database server is recommended for enterprise installations.)

For information about how to configure Filr to use an existing database, see [Section 4.3, “Configuring an Existing Database Server,” on page 76](#).

For information about how to install the MySQL database appliance, see [Section 4.2, “Installing the MySQL Database Appliance,” on page 65](#).

3. Install one or more Filr appliances, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#).
4. Configure the large deployment, as described in [Section 4.5, “Configuring a Large Deployment for the First Time,” on page 92](#).

NOTE: Before you begin the installation:

- ♦ Ensure that the server requirements in [Section 1.2.1, “Filr Server Requirements,” on page 13](#) have been met.
 - ♦ Ensure that you have read and understand [Chapter 1, “Overview,” on page 9](#).
-

The following sections describe how to create a large Filr deployment:

- ♦ [Section 4.1, “Installing the Search Index Appliance,” on page 53](#)
- ♦ [Section 4.2, “Installing the MySQL Database Appliance,” on page 65](#)
- ♦ [Section 4.3, “Configuring an Existing Database Server,” on page 76](#)
- ♦ [Section 4.4, “Installing the Filr Appliance,” on page 79](#)
- ♦ [Section 4.5, “Configuring a Large Deployment for the First Time,” on page 92](#)

4.1 Installing the Search Index Appliance

- ♦ [Section 4.1.1, “Downloading the Search Index Appliance and Configuring the Virtual Environment,” on page 54](#)
- ♦ [Section 4.1.2, “Installing the Search Index Appliance,” on page 62](#)

4.1.1 Downloading the Search Index Appliance and Configuring the Virtual Environment

You need to download the search index appliance and configure the virtual environment where you plan to run the appliance. This includes configuring system resources and so forth.

The process of downloading the search index appliance and configuring the virtual environment differs depending on which virtual environment you plan to use to run the search index appliance.

- ◆ “VMware Configuration” on page 54
- ◆ “Hyper-V Configuration” on page 56
- ◆ “Xen Configuration” on page 59
- ◆ “Citrix Xen Configuration” on page 61

VMware Configuration

- 1 Download the search appliance software (`Filrsearch-version.ovf.zip`) to your management workstation.

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

- 2 Extract the `Filrsearch.x86-64-version.ovf.zip` file on your management workstation until the `Filrsearch-version` file folder appears.
- 3 In the vSphere client, click **File > Deploy OVF Template**.
- 4 Browse to and select the `.ovf` file in the `Filrsearch.x86-64-version` file folder.
- 5 Click **Next**.
- 6 Click **Next** again.
- 7 In the **Name** field, rename the Filr appliance to a name of your choosing, then click **Next**.
- 8 Select the datastore where you want to store the virtual machine files, then click **Next**.
- 9 Click **Next** to accept the default for the disk format.
- 10 Click **Finish**.
- 11 Create a separate VMware hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.

IMPORTANT: If you do not create a separate VMware hard disk as described here, you cannot upgrade to a new version of the appliance.

- 11a In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click **Edit Settings**.

The Virtual Machine Properties page is displayed.

- 11b On the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 11c Select **Hard Disk**, then click **Next**.

- 11d Leave **Create a new virtual disk** selected, then click **Next**.

- 11e Specify the amount of hard disk space that you want to allocate. The recommended minimum differs depending on the nature of your Filr environment.

To see a formula to calculate the storage requirement for your environment, see [“Search Index Appliance Storage” on page 21](#).

- 11f In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
- 11g In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
- 11h Select a datastore, then click **OK**.
- 11i Click **Next**.
- 11j In the **Virtual Device Node** section, select **SCSI (1:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance”](#) in the *Filr 2.0: Administration Guide*.)
4. In VMware, change the controller to **VMware Paravirtual**.
5. Power on each appliance in the Filr system.

-
- 11k In the **Mode** section, select **Independent**, select **Persistent**, then click **Next**.
 - 11l Click **Finish**.
- 12 Create a separate VMware hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 12a In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.
 - 12b Select **Hard Disk**, then click **Next**.
 - 12c Leave **Create a new virtual disk** selected, then click **Next**.
 - 12d In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 20 GB.

For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).
 - 12e In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
 - 12f In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
 - 12g Select a datastore, then click **OK**.
 - 12h Click **Next**.
 - 12i In the **Virtual Device Node** section, select **SCSI (2:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.

2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
 3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance”](#) in the *Filr 2.0: Administration Guide*.)
 4. In VMware, change the controller to **VMware Paravirtual**.
 5. Power on each appliance in the Filr system.
-

12j Leave the **Mode** section blank, then click **Next**.

You do not need to select anything in this section, because unlike Hard Disk 2, this hard disk does not need to be carried over on an upgrade.

12k Click **Finish**.

13 (Optional) Add an additional Network Interface Controller (NIC).

13a In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

13b Select **Ethernet Adapter**, then click **Next**.

13c In the **Network Connection** section, select the secondary network associated with the Filr installation.

13d Click **Next > Finish**.

14 Increase the amount of memory that VMware allocates for the appliance.

The default is 8 GB. Novell also recommends 2 CPUs.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in [“Changing the JVM Configuration Settings”](#) in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

14a In the Virtual Machine Properties window, select **Memory**, then increase the setting to a suitable size for your environment.

14b Click **OK** to exit the Virtual Machine Properties window.

15 Power on the appliance (virtual machine).

IMPORTANT: If you are planning to use a separate VMware hard disk to store your Filr files, do not power on the appliance until you have created the hard disk, as described in [Step 11](#).

16 Continue with [“Installing the Search Index Appliance”](#) on page 62.

Hyper-V Configuration

1 Log in to the host server either locally or from a remote workstation.

You can use Windows Remote Desktop to log in to the host server from a remote workstation.

2 Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the Filr software to this directory.

As a best practice, give this directory the same name as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `FilrSearch1`, the name of this new directory should also be `FilrSearch1`.

- 3 Download the Filr software (`Filrsearch.x86-64-version.vhd.zip`) to the directory on the host server that you created in [Step 2](#).
You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).
- 4 Extract the `Filrsearch.x86-64-version.vhd.zip` file to the directory on the host server that you created in [Step 2](#).
- 5 Open the Hyper-V Manager.
- 6 In Hyper-V Manager, right-click the disk name in the Action Pane where you want to create the new virtual machine, then click **New > Virtual Machine**.
The New Virtual Machine Wizard is displayed.
- 7 Click **Next** after you have reviewed the Before You Begin page.
- 8 In the **Name** field, specify a name for the new virtual machine. For example, `FilrSearch1`.
- 9 Click **Next**.
- 10 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. The default is 8 GB. Novell also recommends 2 CPUs.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 11 Click **Next**.
- 12 On the Configure Networking page, select the networking card of your choice, then click **Next**.
- 13 Configure the bootable disk image:
 - 13a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in [Step 4](#).
 - 13b Click **Open** to select the file, then click **Next**.
- 14 Click **Finish**.
- 15 Create a separate Hyper-V hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.

IMPORTANT: If you do not create a separate Hyper-V hard disk as described here, you cannot upgrade to a new version of Filr.

- 15a In Hyper-V Manager, right-click the disk that you just created, then click **Settings**.
- 15b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 15c Select **Virtual hard disk**, then click **New**.
- 15d Review the Before You Begin page, then click **Next**.
- 15e On the Choose Disk Format page, select **VHD**, then click **Next**.
- 15f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 15g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk2`.
 - Location:** Specify the location where you want the hard drive to be located.

- 15h** On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify the amount of hard disk space that you want to allocate. The recommended minimum differs depending on the nature of your Filr environment.
- To see a formula to calculate the storage requirement for your environment, see [“Search Index Appliance Storage” on page 21](#).
- 15i** Click **Next**.
- 15j** Review the summary information, then click **Finish > OK**.
- 16** Create a separate Hyper-V hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 16a** In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.
- 16b** In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 16c** Select **Virtual hard disk**, then click **New**.
- 16d** Review the Before You Begin page, then click **Next**.
- 16e** On the Choose Disk Format page, select **VHD**, then click **Next**.
- 16f** On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 16g** On the Specify Name and Location page, specify the following information, then click **Next**:
- Name:** Specify a name for the hard disk. For example, `FilrDisk3`.
- Location:** Specify the location where you want the hard drive to be located.
- 16h** On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.
- For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).
- 16i** Click **Next**.
- 16j** Review the summary information, then click **Finish > OK**.
- 17** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

- 17a** In Hyper-V Manager, right-click the virtual machine for which you want to create an additional NIC, then click **Settings**.
- 17b** In the Hardware section, select **Add Hardware**, select **Network Adapter**, then click **Add**.
- 17c** Specify the desired settings for the new network adapter.
- Select the secondary network associated with the Filr installation.
- 17d** Click **OK**.
- 18** Right-click the virtual machine, then click **Start**.

IMPORTANT: Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in [Step 15](#).

- 19 Right-click the virtual machine, then click **Connect**.
- 20 Continue with “[Installing the Search Index Appliance](#)” on page 62.

Xen Configuration

- 1 Log in to the host server either locally or from a remote workstation.

You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```

You must use the -X in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.

- 2 Navigate to the `/var/lib/xen/images` directory on the host server.
- 3 Create a new directory inside the images directory where you can download the Filr software.
The name of this directory must be the same as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `FilrSearch1`, the name of this new directory must also be `FilrSearch1`.
- 4 Change to the directory that you just created. For example, `/var/lib/xen/images/FilrSearch1`.
- 5 Download the Filr software (`Filrsearch.x86-64-version.xen.tar.gz`) to the following directory on the host server:

```
/var/lib/xen/images
```

You can access the software from the [Novell Customer Center \(NCC\) \(https://www.novell.com/center\)](https://www.novell.com/center). Or, you can access an evaluation version of the software from [this location \(https://download.novell.com/Download?buildid=SjqlZZ28ka8~\)](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) on the [Novell Downloads page \(http://download.novell.com\)](http://download.novell.com).

- 6 Untar the `Filrsearch-version.xen.tar.gz` file in the directory where you downloaded the file, as described in [Step 5](#).

You can use the following command to untar the file:

```
tar -Sxvzf Filrsearch.x86-64-version.xen.tar.gz
```

A `filr -version` directory is created; it contains a `.raw` file that you will use to run the virtual image.

- 7 From the host server, run the following command to launch the GUI configuration menu:

```
vm-install
```

The Create a Virtual Machine wizard is displayed.

- 8 Click **Forward**.
- 9 Select **I have a disk or disk image with an installed operating system**, then click **Forward**.
- 10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.
- 11 Rename the virtual machine by clicking **Name of Virtual Machine** and specifying a new name in the **Name** field. Then click **Apply**. For example, `FilrSearch1`.
- 12 Configure the amount of memory that Xen allocates for the Filr appliance.
 - 12a On the Summary page, click **Hardware**, then specify the following information:
 - Available Memory:** Displays the amount of memory that is available on the host server.

Maximum Memory: The default is 8 GB. Novell also recommends 2 CPUs.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

Virtual Processors: Specify 2 CPUs. At least half of the memory should be dedicated to the Java heap.

- 12b** Click **Apply**.
 - 13** Configure the bootable disk image:
 - 13a** On the Summary page, click **Disks**.
 - 13b** Click **Harddisk**.
 - 13c** On the Virtual Disk page, specify the following information:
 - Source:** Click **Browse**, then browse to the `.raw` file that you untared in [Step 6](#).
 - Protocol:** Select **file**.
 - Size (GB):** The default size is 20 GB. This cannot be changed.
 - Create Sparse Image File:** This option is not available.
 - Read-Only Access:** Do not select this option.
 - 13d** Click **OK**.
 - 14** Create a separate Xen hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.
-

IMPORTANT: If you do not create a separate Xen hard disk as described here, you cannot upgrade to a new version of Filr.

- 14a** On the Summary page, click **Disks**.
- 14b** Click **Harddisk**.
- 14c** On the Virtual Disk page, specify the following information:
 - Source:** Click **Browse**, then browse to the location of a datastore where you want Filr files to be stored.
 - Protocol:** Select **file**.
 - Size (GB):** Specify the amount of hard disk space that you want to allocate. The recommended minimum differs depending on the nature of your Filr environment.
To see a formula to calculate the storage requirement for your environment, see “[Search Index Appliance Storage](#)” on page 21.
For more detailed information about the type of information that is stored here, see “[Search Index Appliance Storage](#)” on page 21.
 - Create Sparse Image File:** Select this option.
 - Read-Only Access:** Do not select this option.
- 14d** Click **OK**.

15 Create a separate Xen hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)

15a On the Disks page, click **Harddisk**.

15b On the Virtual Disk page, specify the following information:

Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

Protocol: Select **file**.

Size (GB): Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

16 Click **OK > Apply**.

17 (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

17a On the Summary page, click **Network Adapters**.

17b Click **New**, then specify the desired settings for the new network adapter.

Select the secondary network associated with the Filr installation.

17c Click **Apply > Apply**.

18 Click **OK** to save your changes and to create the virtual machine.

19 Power on the appliance (virtual machine).

IMPORTANT: Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in [Step 14](#).

20 Continue with [“Installing the Search Index Appliance” on page 62](#).

Citrix Xen Configuration

Do the following in order.

- 1 Expand the `.xva.tar.gz` file.
- 2 From the Citrix XenCenter, connect to a Citrix 6.5 or 6.5 SP1 XenServer.
- 3 Import the `.xva` file.
- 4 Assign two disks to the imported virtual appliance.
- 5 Modify the CPU and memory settings as required for your environment.

- 6 Start the VA.
- 7 Install the xs-tools and optimize according to the needs of your environment.
- 8 Continue with [“Installing the Search Index Appliance” on page 62.](#)

4.1.2 Installing the Search Index Appliance

- ♦ [“Configuring and Starting the Search Appliance” on page 62](#)
- ♦ [“Creating a Search Appliance Cluster \(Recommended\)” on page 63](#)
- ♦ [“Setting a Password on Each Search Appliance” on page 63](#)

Configuring and Starting the Search Appliance

- 1 After you have downloaded the search index appliance, configured the virtual environment, and powered on the appliance, click the **Console** tab.
- 2 After the appliance starts, select your preferred keyboard layout in the **Keyboard Language** drop-down, then accept the license agreement. (You can change the language that the license agreement is displayed in from the **License Language** drop-down.)
- 3 Specify the following information:

Root password and confirmation: The root password for your search index appliance.

Vaadmin password and confirmation: The password for the vaadmin user.

NTP Server: The IP address or DNS name of the reliable external Network Time Protocol (NTP) server your OES server uses. For example, time.example.com.

Region: Your local region.

Time Zone: Your local time zone.

After installation, if you are not able to access the appliance through a browser and you need to change any of these settings, you can use the VACONFIG utility from the command prompt. For more information, see [“Using VACONFIG to Modify Network Information”](#) in the *Filr 2.0: Administration Guide*.

- 4 Click **Next**.
- 5 Specify the following network information:

Hostname: The fully qualified DNS host name associated with the appliance’s IP address. For example, myFilr.mynetwork.example.com.

IP Address: The static IP address for the appliance. For example, 172.17.2.3.

Network Mask: The network mask associated with the appliance’s IP address. For example, 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your Filr virtual appliance is located. For example, 172.17.2.254.

DNS Servers: The IP address of a primary DNS server for your network. For example, 172.17.1.1.

Domain Search: The domain that is associated with the Filr host name.

- 6 Click **Next**.

7 (Conditional) If you configured multiple NICs (as described in [Section 4.1.1, “Downloading the Search Index Appliance and Configuring the Virtual Environment,”](#) on page 54), select from the following options, then click **Next**:

- ♦ **Do Not Configure:** Select this option to configure this network at a later time. If you do not currently know your network information, you can configure the network after installation, as described in [“Changing Network Settings”](#) in the *Filr 2.0: Administration Guide*.
- ♦ **DHCP Dynamic Address:** Select this option to dynamically assign an IP address.
- ♦ **Statically Assigned IP Address:** Select this option to assign a static IP address to this appliance, then specify the IP address, network mask, and host name.

8 The secondary hard disk for `/vastorage` that you created for this appliance is automatically detected and `sdb` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location (`/vastorage`) where information specific to the appliance is stored and is used when the appliance is upgraded. Each appliance has its own `/vastorage` location.

If you have not already assigned a second hard disk to the virtual machine (as described in [“Downloading the Search Index Appliance and Configuring the Virtual Environment”](#) on page 54), click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see [“Data Storage for the Appliance”](#) on page 11.

9 The third hard disk for `/var` that you created for this appliance is automatically detected and `sdc` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Configure**.

This is the location where the `/var` directory for the appliance is stored. (The `/var` directory is where system events for the Novell appliances are logged.)

If you have not already assigned a third hard disk to the virtual machine (as described in [“Downloading the Search Index Appliance and Configuring the Virtual Environment”](#) on page 54), click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see [“Data Storage for the Appliance”](#) on page 11.

The appliance might take a few minutes to install. When the installation is complete, you see a message indicating that the appliance is now ready to configure.

Creating a Search Appliance Cluster (Recommended)

1 Create a two-node cluster of Search appliances (no more than two is recommended). Having two Search appliances provides fault tolerance or backup in the event that one index server fails.

Install another search appliance, as described in [Section 4.1, “Installing the Search Index Appliance,”](#) on page 53).

Setting a Password on Each Search Appliance

Set a password for each search appliance. You can also change other configuration settings if desired.

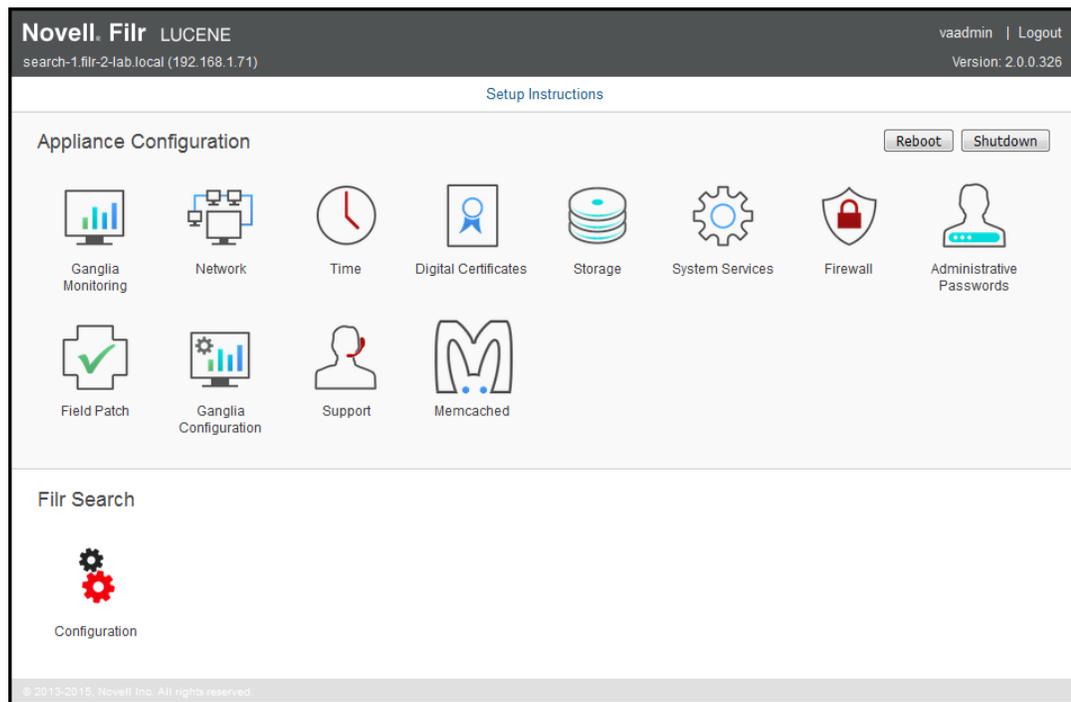
1 After installing the search index appliance, open a browser and navigate to the following URL:

```
https://ip_address:9443
```

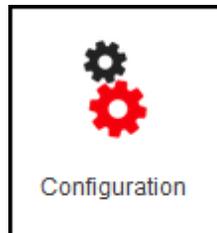
Replace `ip_address` with the IP address of your search index appliance.

- 2 Sign in to the search index appliance using the `vaadmin` user and the password that you set during installation.

The Novell Filr Search Appliance landing page is displayed.



- 3 Click the **Filr Search Configuration** icon.



The Filr Search Configuration Wizard is displayed.

- 4 (Conditional) If this is the first time you have accessed the Filr search appliance, you must do the following:

- 4a Select **New** or **Upgrade**, depending on whether this is a new installation or an upgrade from a previous installation, then click **Next**.
- 4b Create a password for the default search appliance user.

IMPORTANT: In an environment where you are running multiple search index appliances, ensure that the password is the same for each search index appliance.

It is recommended that you have two search index appliances in a large or clustered Filr environment.

- 4c Click **Finish**.

The password for the search appliance user is now set.

The Search Settings page is displayed.

- 5 On the Search Settings page, refer to the on-screen instructions for information about the fields that you can modify.

NOTE: You can change the Username from `lucene_service` at this point if you want to. The only requirement is that you specify exactly the same name across the Filr deployment you are creating or updating.

- 6 Click **Submit** after you have made the desired modifications for your search settings.
- 7 After both search appliances are configured, continue with installing the database appliance, as described in [Section 4.2, “Installing the MySQL Database Appliance,” on page 65](#).

4.2 Installing the MySQL Database Appliance

IMPORTANT: The MySQL database appliance is not intended for enterprise installations. If your organization has an existing MySQL, MariaDB, or Microsoft SQL database, it is recommended that you configure Filr to use the existing database.

If you already have a MySQL, MariaDB, or Microsoft SQL database server that you want Filr to use, you can skip this section and continue with [Section 4.3, “Configuring an Existing Database Server,” on page 76](#).

- ♦ [Section 4.2.1, “Downloading the MySQL Database Appliance and Configuring the Virtual Environment,” on page 65](#)
- ♦ [Section 4.2.2, “Installing the MySQL Database Appliance,” on page 73](#)

4.2.1 Downloading the MySQL Database Appliance and Configuring the Virtual Environment

You need to download the MySQL database appliance and configure the virtual environment where you plan to run the appliance. This includes configuring system resources and so forth.

The process of downloading the MySQL database appliance and configuring the virtual environment differs depending on which virtual environment you plan to use to run the MySQL database appliance.

- ♦ [“VMware Configuration” on page 65](#)
- ♦ [“Hyper-V Configuration” on page 68](#)
- ♦ [“Xen Configuration” on page 70](#)
- ♦ [“Citrix Xen Configuration” on page 73](#)

VMware Configuration

- 1 Download the MySQL database software (`MySQL.x86_64-version.ovf.zip`) to your management workstation.

You can access the software from the [Novell Customer Center \(NCC\) \(https://www.novell.com/center\)](https://www.novell.com/center). Or, you can access an evaluation version of the software from [this location \(https://download.novell.com/Download?buildid=SjqlZZ28ka8~\)](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) on the [Novell Downloads page \(http://download.novell.com\)](http://download.novell.com).

- 2 Extract the `MySQL.x86_64-version.ovf.zip` file on your management workstation until the `MySQL-version` file folder appears.

- 3 In the vSphere client, click **File > Deploy OVF Template**.
- 4 Browse to and select the `.ovf` file in the `MySQL-version` file folder.
- 5 Click **Next**.
- 6 Click **Next** again.
- 7 In the **Name** field, rename the Filr appliance to a name of your choosing, then click **Next**.
- 8 Select the datastore where you want to store the virtual machine files, then click **Next**.
- 9 Click **Next** to accept the default for the disk format.
- 10 Click **Finish**.
- 11 Create a separate VMware hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.

IMPORTANT: If you do not create a separate VMware hard disk as described here, you cannot upgrade to a new version of Filr.

- 11a In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click **Edit Settings**.

The Virtual Machine Properties page is displayed.

- 11b On the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 11c Select **Hard Disk**, then click **Next**.

- 11d Leave **Create a new virtual disk** selected, then click **Next**.

- 11e In the **Capacity** section, specify the amount of hard disk space that you want to allocate.

To see a formula to calculate the storage requirement for your environment, see [“MySQL Database Appliance Storage” on page 22](#).

- 11f In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.

- 11g In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.

- 11h Select a datastore, then click **OK**.

- 11i Click **Next**.

- 11j In the **Virtual Device Node** section, select **SCSI (1:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
 2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
 3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance” in the *Filr 2.0: Administration Guide*](#).)
 4. In VMware, change the controller to **VMware Paravirtual**.
 5. Power on each appliance in the Filr system.
-

- 11k** In the **Mode** section, select **Independent**, select **Persistent**, then click **Next**.
- 11l** Click **Finish**.
- 12** Create a separate VMware hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 12a** In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.
- 12b** Select **Hard Disk**, then click **Next**.
- 12c** Leave **Create a new virtual disk** selected, then click **Next**.
- 12d** In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 20 GB.
- For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).
- 12e** In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
- 12f** In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
- 12g** Select a datastore, then click **OK**.
- 12h** Click **Next**.
- 12i** In the **Virtual Device Node** section, select **SCSI (2:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance”](#) in the *Filtr 2.0: Administration Guide*.)
4. In VMware, change the controller to **VMware Paravirtual**.
5. Power on each appliance in the Filr system.

-
- 12j** Leave the **Mode** section blank, then click **Next**.
- You do not need to select anything in this section, because unlike Hard Disk 2, this hard disk does not need to be carried over on an upgrade.
- 12k** Click **Finish**.
- 13** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

-
- 13a** In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 13b** Select **Ethernet Adapter**, then click **Next**.
- 13c** In the **Network Connection** section, select the secondary network associated with the Filr installation.
- 13d** Click **Next > Finish**.
- 14** Increase the amount of memory that VMware allocates for the appliance.
The default is 4 GB. This default is appropriate for a system that has a few hundred to 1,000 users. You should increase this if your user count exceeds 1,000. Novell also recommends 2 CPUs.
Increasing the memory for the appliance does not automatically provide MySQL with more resources. In addition to increasing the memory in VMware, you also need to increase the memory within MySQL itself. For information about how to accomplish this, see the [MySQL documentation \(http://dev.mysql.com/doc/\)](http://dev.mysql.com/doc/).
- 14a** In the Virtual Machine Properties window, select **Memory**, then increase this setting to a suitable size for your environment.
- 14b** Click **OK** to exit the Virtual Machine Properties window.
- 15** Power on the appliance (virtual machine).

IMPORTANT: Do not power on the appliance until you have created the hard disk, as described in [Step 11](#).

- 16** Continue with “[Installing the MySQL Database Appliance](#)” on page 73.

Hyper-V Configuration

- 1** Log in to the host server either locally or from a remote workstation.
You can use Windows Remote Desktop to log in to the host server from a remote workstation.
- 2** Create a new directory in the location where you want the virtual machine to reside (for example, C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks). In a later step, you will download the Filr software to this directory.
As a best practice, give this directory the same name as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `FilrDatabase1`, the name of this new directory should also be `FilrDatabase1`.
- 3** Download the Filr software (`MySQL.x86_64-version.vhd.zip`) to the directory on the host server that you created in [Step 2](#).
You can access the software from the [Novell Customer Center \(NCC\) \(https://www.novell.com/center\)](https://www.novell.com/center). Or, you can access an evaluation version of the software from [this location \(https://download.novell.com/Download?buildid=SjqZZ28ka8-\)](https://download.novell.com/Download?buildid=SjqZZ28ka8-) on the [Novell Downloads page \(http://download.novell.com\)](http://download.novell.com).
- 4** Extract the `MySQL.x86_64-version.vhd.zip` file to the directory on the host server that you created in [Step 2](#).
- 5** Open the Hyper-V Manager.
- 6** In Hyper-V Manager, right-click the disk name in the Action Pane where you want to create the new virtual machine, then click **New > Virtual Machine**.
The New Virtual Machine Wizard is displayed.
- 7** Review the Before You Begin page, then click **Next**.
- 8** In the **Name** field, specify a name for the new virtual machine. For example, `FilrDatabase1`.

- 9 Click **Next**.
- 10 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. 4 GB is the recommended minimum for a system that has a few hundred to 1,000 users. You should increase this if your user count exceeds 1,000. Novell also recommends 2 CPUs.
- 11 Click **Next**.
- 12 On the Configure Networking page, select the networking card of your choice, then click **Next**.
- 13 Configure the bootable disk image:
 - 13a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in [Step 4](#).
 - 13b Click **Open** to select the file, then click **Next**.
- 14 Click **Finish**.
- 15 Create a separate Hyper-V hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.

IMPORTANT: If you do not create a separate Hyper-V hard disk as described here, you cannot upgrade to a new version of Filr.

- 15a In Hyper-V Manager, right-click the disk that you just created, then click **Settings**.
- 15b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 15c Select **Virtual hard disk**, then click **New**.
- 15d Review the Before You Begin page, then click **Next**.
- 15e On the Choose Disk Format page, select **VHD**, then click **Next**.
- 15f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 15g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk2`.
 - Location:** Specify the location where you want the hard drive to be located.
- 15h On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 100 GB. A minimum of 100 GB is recommended, but this might be more for your environment.
 - To see a formula to calculate the storage requirement for your environment, see [“MySQL Database Appliance Storage” on page 22](#).
- 15i Click **Next**.
- 15j Review the summary information, then click **Finish**.
- 16 Create a separate Hyper-V hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
 - 16a In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.
 - 16b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
 - 16c Select **Virtual hard disk**, then click **New**.
 - 16d Review the Before You Begin page, then click **Next**.
 - 16e On the Choose Disk Format page, select **VHD**, then click **Next**.
 - 16f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
 - 16g On the Specify Name and Location page, specify the following information, then click **Next**:

Name: Specify a name for the hard disk. For example, `FilrDisk3`.

Location: Specify the location where you want the hard drive to be located.

- 16h** On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).

16i Click **Next**.

16j Review the summary information, then click **Finish > OK**.

- 17** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

17a In Hyper-V Manager, right-click the virtual machine for which you want to create an additional NIC, then click **Settings**.

17b In the Hardware section, select **Add Hardware**, select **Network Adapter**, then click **Add**.

17c Specify the desired settings for the new network adapter.

Select the secondary network associated with the Filr installation.

17d Click **OK**.

- 18** Right-click the virtual machine, then click **Start**.

IMPORTANT: Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in [Step 15](#).

- 19** Right-click the virtual machine, then click **Connect**.

- 20** Continue with [“Installing the MySQL Database Appliance” on page 73](#).

Xen Configuration

- 1** Log in to the host server either locally or from a remote workstation.

You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```

You must use the `-X` in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.

- 2** Navigate to the `/var/lib/xen/images` directory on the host server.
- 3** Create a new directory inside the images directory where you can download the Filr software. The name of this directory must be the same as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `FilrDatabase1`, the name of this new directory must also be `FilrDatabase1`.
- 4** Change to the directory that you just created. For example, `/var/lib/xen/images/FilrDatabase1`.

- 5 Download the Filr software (`MySQL.x86_64-version.xen.tar.gz`) to the following directory on the host server:

```
/var/lib/xen/images
```

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8-) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8->) on the [Novell Downloads](http://download.novell.com) page (<http://download.novell.com>).

- 6 Untar the `MySQL.x86_64-version.xen.tar.gz` file in the directory where you downloaded the file, as described in [Step 5](#).

You can use the following command to untar the file:

```
tar -Sxvzf MySQL.x86_64-version.xen.tar.gz
```

A `filr-version` directory is created; it contains a `.raw` file that you will use to run the virtual image.

- 7 From the host server, run the following command to launch the GUI configuration menu:

```
vm-install
```

The Create a Virtual Machine wizard is displayed.

- 8 Click **Forward**.
- 9 Select **I have a disk or disk image with an installed operating system**, then click **Forward**.
- 10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.
- 11 Rename the virtual machine by clicking **Name of Virtual Machine** and specifying a new name in the **Name** field. Then click **Apply**. For example, `FilrDatabase1`.
- 12 Configure the amount of memory that Xen allocates for the Filr appliance.
 - 12a On the Summary page, click **Hardware**, then specify the following information:
 - Available Memory:** Displays the amount of memory that is available on the host server.
 - Maximum Memory:** 4 GB is the recommended minimum for a system that has a few hundred to 1,000 users. You should increase this if your user count exceeds 1,000.
 - Virtual Processors:** Specify 2 CPUs. At least half of the memory should be dedicated to the Java heap.
 - 12b Click **Apply**.
- 13 Configure the bootable disk image:
 - 13a On the Summary page, click **Disks**.
 - 13b Click **Harddisk**.
 - 13c On the Virtual Disk page, specify the following information:
 - Source:** Click **Browse**, then browse to the `.raw` file that you untarred in [Step 6](#).
 - Protocol:** Select **file**.
 - Size (GB):** The default size is 20 GB. This cannot be changed.
 - Create Sparse Image File:** This option is not available.
 - Read-Only Access:** Do not select this option.
 - 13d Click **OK**.
- 14 Create a separate Xen hard disk (Hard Disk 2) for the appliance. This hard disk is used to store configuration files that are used for appliance upgrades.

IMPORTANT: If you do not create a separate Xen hard disk as described here, you cannot upgrade to a new version of Filr.

- 14a** On the Summary page, click **Disks**.
- 14b** Click **Harddisk**.
- 14c** On the Virtual Disk page, specify the following information:
- Source:** Click **Browse**, then browse to the location of a datastore where you want Filr files to be stored.
 - Protocol:** Select **file**.
 - Size (GB):** Specify the amount of hard disk space that you want to allocate. A minimum of 100 GB is recommended, but you might need more for your environment.
To see a formula to calculate the storage requirement for your environment, see [“MySQL Database Appliance Storage” on page 22](#).
 - Create Sparse Image File:** Select this option.
 - Read-Only Access:** Do not select this option.
- 14d** Click **OK**.
- 15** Create a separate Xen hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 15a** On the Disks page, click **Harddisk**.
- 15b** On the Virtual Disk page, specify the following information:
- Source:** This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.
 - Protocol:** Select **file**.
 - Size (GB):** Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.
For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).
 - Create Sparse Image File:** Select this option.
 - Read-Only Access:** Do not select this option.
- 16** Click **OK > Apply**.
- 17** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

- 17a** On the Summary page, click **Network Adapters**.
- 17b** Click **New**, then specify the desired settings for the new network adapter.
Select the secondary network associated with the Filr installation.
- 17c** Click **Apply > Apply**.

- 18 Click **OK** to save your changes and to create the virtual machine.
- 19 Power on the appliance (virtual machine).

IMPORTANT: Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in [Step 14](#).

- 20 Continue with “[Installing the MySQL Database Appliance](#)” on page 73.

Citrix Xen Configuration

Do the following in order.

- 1 Expand the `.xva.tar.gz` file.
- 2 From the Citrix XenCenter, connect to a Citrix 6.5 or 6.5 SP1 XenServer.
- 3 Import the `.xva` file.
- 4 Assign two disks to the imported virtual appliance.
- 5 Modify the CPU and memory settings as required for your environment.
- 6 Start the VA.
- 7 Install the `xs-tools` and optimize according to the needs of your environment.
- 8 Continue with “[Installing the MySQL Database Appliance](#)” on page 73.

4.2.2 Installing the MySQL Database Appliance

- 1 After you have downloaded the MySQL database appliance, configured the virtual environment, and powered on the appliance, click the **Console** tab.
- 2 After the appliance starts, select your preferred keyboard layout in the **Keyboard Language** drop-down, then accept the license agreement. (You can change the language that the license agreement is displayed in from the **License Language** drop-down.)
- 3 On the configuration page, specify the following information:

Root password and confirmation: The root password for your database appliance. The root user name is case sensitive and should not be capitalized.

Vaadmin password and confirmation: The preferred user to use when logging in to the appliance. The user name is case sensitive and should not be capitalized.

NTP Server: The IP address or DNS name of the reliable external Network Time Protocol (NTP) server that your OES server uses. For example, `time.example.com`.

Region: Your local region.

Time Zone: Your local time zone.

After installation, if you are not able to access the appliance and you need to change any of these settings, you can use the `VACONFIG` utility from the `Filr` command prompt. For more information, see “[Using VACONFIG to Modify Network Information](#)” in the *Filr 2.0: Administration Guide*.

- 4 Click **Next**.
- 5 On the configuration page, specify the following network information:

Hostname: The fully qualified DNS host name associated with the appliance’s IP address. For example, `myFilr.mynetwork.example.com`.

IP Address: The static IP address for the appliance. For example, `172.17.2.3`.

Network Mask: The network mask associated with the appliance's IP address. For example, 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your database appliance is located. For example, 172.17.2.254.

DNS Servers: The IP address of a primary DNS server for your network. For example, 172.17.1.1.

Domain Search: The domain that is associated with the Filr host name.

6 Click **Next**.

7 (Conditional) If you configured multiple NICs (as described in [Section 4.2.1, "Downloading the MySQL Database Appliance and Configuring the Virtual Environment,"](#) on page 65), select from the following options, then click **Next**:

- ◆ **Do Not Configure:** Select this option to configure this network at a later time. If you do not currently know your network information, you can configure the network after installation, as described in ["Changing Network Settings"](#) in the *Filr 2.0: Administration Guide*.
- ◆ **DHCP Dynamic Address:** Select this option to dynamically assign an IP address to this network.
- ◆ **Statically Assigned IP Address:** Select this option to assign a static IP address to this network, then specify the IP address, network mask, and host name.

8 The secondary hard disk for `/vastorage` that you created for this appliance is automatically detected and `sdb` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location (`/vastorage`) where information specific to the appliance is stored and is used when the appliance is upgraded. Each appliance has its own `/vastorage` location.

If you have not already assigned a second hard disk to the virtual machine (as described in ["Downloading the MySQL Database Appliance and Configuring the Virtual Environment"](#) on page 65), click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see ["Data Storage for the Appliance"](#) on page 11.

9 The third hard disk for `/var` that you created for this appliance is automatically detected and `sdc` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Configure**.

This is the location where the `/var` directory for the appliance is stored. (The `/var` directory is where system events for the Novell appliances are logged.)

If you have not already assigned a third hard disk to the virtual machine (as described in ["Downloading the MySQL Database Appliance and Configuring the Virtual Environment"](#) on page 65), click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see ["Data Storage for the Appliance"](#) on page 11.

The appliance might take a few minutes to install. When the installation is complete, you see a message telling you that the appliance is now ready to configure.

10 Configure the MySQL database appliance to change the database administrator password.

IMPORTANT: You must do this before you configure the Filr appliance for the first time.

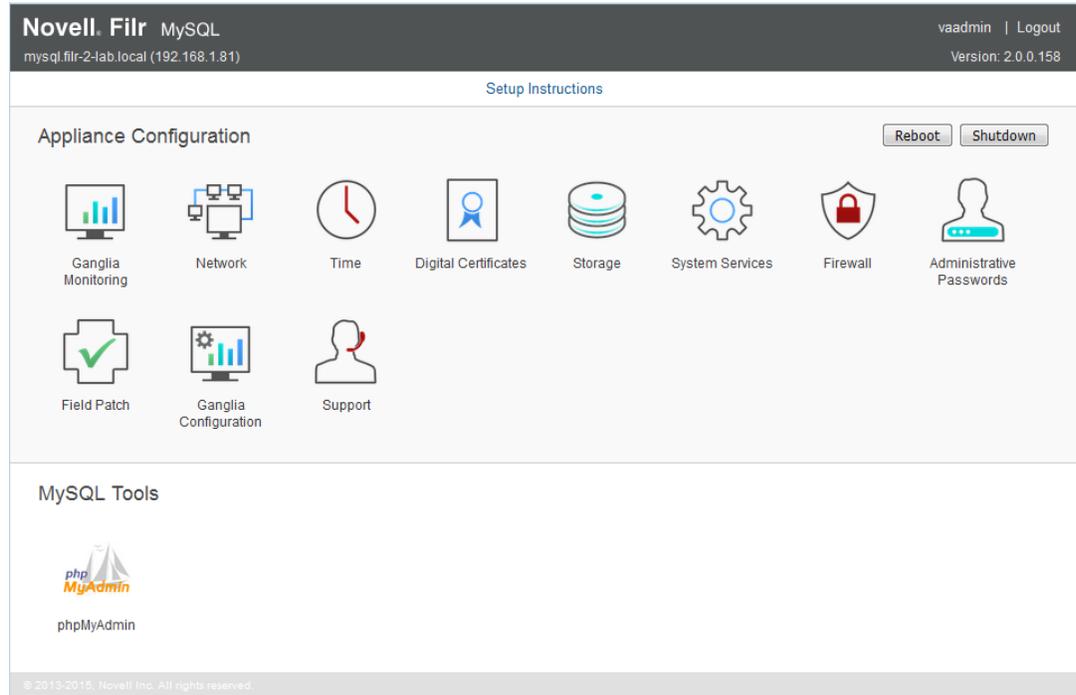
10a Navigate to the following URL:

`https://ip_address:9443`

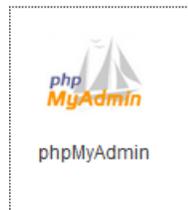
Replace `ip_address` with the IP address of your database appliance.

- 10b** Sign in to the database appliance as `vaadmin` with the password that you set during installation.

The Novell MySQL Appliance landing page is displayed.



- 10c** Click the **phpMyAdmin** icon, then click **Go** to log in to phpMyAdmin.



- 10d** Log in to the phpMyAdmin tool as `root` with password `root`. (You change the password in a future step.)

- 10e** Create the `filr` user to administer the MySQL database:

10e1 At the top of the page, click **Users**.

10e2 Click **Add user**.

10e3 In the **User name** field, specify `filr` as the new user.

10e4 In the **Host** field, select **Use text field** in the drop-down list, then specify the IP address or host name of the Filr appliance.

10e5 In the **Password** field, specify a new password for the user, then confirm it in the **Re-type** field.

10e6 In the **Database for user** section:

- ♦ **If you are installing the MySQL database for the first time:** select **Create database with same name and grant all privileges**.

- ♦ **If you are upgrading the MySQL database:** select **Grant all privileges on wildcard name**.

10e7 In the **Global privileges** section, select **Check All**, then deselect all privileges in the **Administration** section.

10e8 Click **Go**. Note the user name and password of this user. This is the user you will use to access the MySQL database when you configure the Filr appliance.

You can now administer the Filr MySQL database by using this new user.

10f (Conditional) If you have a clustered Filr system with multiple Filr appliances, edit the privileges of the Filr user that you created in the previous step so that each of the Filr appliances is granted remote access to the database.

10f1 On the **Users overview** page, click **Edit Privileges** next to the user that you created in Step 5.

10f2 Click the **Login Information** button. In the **Host** field, specify the IP address or host name of the next Filr appliance in the cluster.

10f3 In the **Create a new user with the same privileges and...** section, ensure that **keep the old one** is selected, then click **Go**.

10f4 Repeat this process for each Filr appliance in the cluster.

10g (Recommended) Change your MySQL root password if you have not done so already:

10g1 At the top of the page, click **Users**.

10g2 In the Users Overview table, locate the root user with **localhost** in the **Host** column, then click **Edit Privileges** for that user in the **Action** column.

10g3 Scroll to the **Change password** section. In the **Password** field, specify your password, then confirm it in the **Re-type** field.

10g4 Click **Go**.

10h Make any other configuration changes.

11 Continue with [Section 4.4, "Installing the Filr Appliance,"](#) on page 79.

4.3 Configuring an Existing Database Server

You can configure Filr to use an existing MySQL, MariaDB, or Microsoft SQL database server. In an enterprise deployment, using your existing corporate database server is recommended over using the MySQL appliance.

You configure Filr to leverage your existing database server when running the Filr configuration wizard for the first time, as described in [Section 4.5, "Configuring a Large Deployment for the First Time,"](#) on page 92. During this time (the initial Filr configuration), the Filr configuration wizard **creates and configures the Filr database on the existing server**.

IMPORTANT: Do not create the Filr database on your existing server before running the Filr configuration wizard. Instead, allow the Filr configuration wizard to create the Filr database to ensure that the database is properly configured for Filr.

During the Filr configuration, you need the following information for accessing your database server:

- ♦ The host name or IP address of the database
- ♦ The user name and password of the account you use to administer the MySQL, MariaDB, or Microsoft SQL database

If you are leveraging an existing Microsoft SQL database server, you need the following additional information:

- ♦ Access to a user account configured with SQL Server Authentication and with sufficient rights to manage the Filr database. This user must have the necessary rights to administer the database. (You might need to create a new user to administer the Filr database.)

The following sections describe tasks that need to be performed on the existing database before you configure Filr to use the database:

- ♦ [Section 4.3.1, “Configuring an Existing MySQL or MariaDB Database Server,” on page 77](#)
- ♦ [Section 4.3.2, “Configuring an Existing Microsoft SQL Database Server,” on page 78](#)

4.3.1 Configuring an Existing MySQL or MariaDB Database Server

When configuring Filr to use an existing MySQL database server rather than the database appliance, Filr supports MySQL 5.0.96 and later.

- ♦ [“Configuring the Existing MySQL or MariaDB Database Server” on page 77](#)
- ♦ [“Configuring Ganglia to Monitor the Existing Database” on page 78](#)

Configuring the Existing MySQL or MariaDB Database Server

IMPORTANT: Do not create the Filr database on your existing server before running the Filr configuration wizard. Instead, allow the Filr configuration wizard to create the Filr database to ensure that the database is properly configured for Filr.

If you want to use an existing MySQL or MariaDB database server as the Filr database, you must make some changes on the database server to configure it to work with Filr.

- 1 Make the following changes to the `/etc/my.cnf` file on the server:

```
[client]
default-character-set = utf8

[mysqld]
character-set-server = utf8
max_connections = 900
transaction-isolation = READ-COMMITTED
expire_logs_days = 7
```

The `expire_logs_days` setting is optional, but is recommended. It is used to clean up `mysql-bin-*` files. If these files are not cleaned up on a regular basis, they can begin to consume a significant amount of disk space in the `vastorage` directory.

- 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.

For example, a dedicated server with 4 GB of RAM should have a buffer pool size of 2560 MB, as follows:

```
innodb_buffer_pool_size = 2560M
```

- 4 Identify a user account with sufficient rights to manage the Filr database.
- 5 Continue with [“Configuring Ganglia to Monitor the Existing Database” on page 78.](#)

Configuring Ganglia to Monitor the Existing Database

If you want to use Ganglia to monitor the existing database, you need to change the database name on the Filr appliance that Ganglia is configured to monitor to match the name of your database:

- 1 Edit the following file:

```
/opt/novell/ganglia/monitor/lib64/ganglia/python_modules/mysql.py
```

- 2 Modify the value of the following parameter (`filr`) to match the name of your database:

```
param dbname {  
    value = "filr"  
}
```

- 3 Save and close the file.
- 4 Restart the Ganglia service by using the following command:

```
rcnovell-gmond restart  
rcnovell-gmetad restart
```

- 5 Continue with [Section 4.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 79.](#)

4.3.2 Configuring an Existing Microsoft SQL Database Server

IMPORTANT: Do not create the Filr database on your existing Microsoft SQL server (by using Microsoft Management Studio) before running the Filr configuration wizard. Instead, allow the Filr configuration wizard to create the Filr database to ensure that the database is properly configured for Filr.

For information regarding which versions of the Microsoft SQL database Filr supports, see [Section 1.2.1, “Filr Server Requirements,” on page 13.](#)

To configure an existing Microsoft SQL database server to be used with your Filr system:

- 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 a user account configured with SQL Server Authentication and that this user has sufficient rights to manage the Filr database.

Filr supports only SQL Server Authentication. Filr does not support Windows Authentication or Windows Domain User Authentication to Microsoft SQL.

- 4 Run the following queries against the database:

```
ALTER DATABASE database-name SET READ_COMMITTED_SNAPSHOT ON  
ALTER DATABASE database-name COLLATE Latin1_General_CI_AS_KS_WS
```

- 5 Continue with [Section 4.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 79.](#)

4.4 Installing the Filr Appliance

- ♦ Section 4.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 79
- ♦ Section 4.4.2, “Installing the Filr Appliance,” on page 88

4.4.1 Downloading the Filr Appliance and Configuring the Virtual Environment

You need to download the Filr appliance and configure the virtual environment where you plan to run the appliance. This includes configuring system resources and so forth.

The process of downloading the Filr appliance and configuring the virtual environment differs, depending on which virtual environment you plan to use to run the Filr appliance.

- ♦ “VMware Configuration” on page 79
- ♦ “Hyper-V Configuration” on page 82
- ♦ “Xen Configuration” on page 85
- ♦ “Citrix Xen Configuration” on page 88

VMware Configuration

- 1 Download the Filr software (`Filr.x86_64-version.ovf.zip`) to your management workstation. You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).
- 2 Extract the `Filr.x86_64-version.ovf.zip` file on your management workstation so that the `Filr-version` file folder appears.
- 3 In the vSphere client, click **File > Deploy OVF Template**.
- 4 Browse to and select the `.ovf` file in the `Filr-version` file folder.
- 5 Click **Next**.
- 6 Click **Next** again.
- 7 In the **Name** field, rename the Filr appliance to a name of your choosing, then click **Next**.
- 8 Select the datastore where you want to store the virtual machine files, then click **Next**.
- 9 Click **Next** to accept the default for the disk format.
- 10 Click **Finish**.
- 11 Create a separate VMware hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate VMware hard disk as described here, you cannot upgrade to a new version of Filr.

- 11a In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click **Edit Settings**.

The Virtual Machine Properties page is displayed.

- 11b On the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 11c** Select **Hard Disk**, then click **Next**.
- 11d** Leave **Create a new virtual disk** selected, then click **Next**.
- 11e** In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.
For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).
- 11f** In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
- 11g** In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
- 11h** Select a datastore, then click **OK**.
- 11i** Click **Next**.
- 11j** In the **Virtual Device Node** section, select **SCSI (1:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance”](#) in the *Filtr 2.0: Administration Guide*.)
4. In VMware, change the controller to **VMware Paravirtual**.
5. Power on each appliance in the Filr system.

-
- 11k** In the **Mode** section, select **Independent**, select **Persistent**, then click **Next**.
 - 11l** Click **Finish**.
- 12** Create a separate VMware hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 12a** In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.
 - 12b** Select **Hard Disk**, then click **Next**.
 - 12c** Leave **Create a new virtual disk** selected, then click **Next**.
 - 12d** In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 20 GB.
For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).
 - 12e** In the **Disk Provisioning** section, select either **Thick Provision Eager Zeroed** or **Support clustering features such as Fault Tolerance**, depending on the VMware version that you are running.
 - 12f** In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
 - 12g** Select a datastore, then click **OK**.
 - 12h** Click **Next**.

12i In the **Virtual Device Node** section, select **SCSI (2:0)** from the drop-down list.

IMPORTANT: Do not change the controller to VMware Paravirtual at this point of the installation process.

If you want to change the SCSI controller to **VMware Paravirtual**:

1. Finish the installation and power on the Filr system.
2. Ensure that the Filr system is running. (Log in as the Filr administrator, create a user, and log in as that user.)
3. Shut down each appliance in the Filr system. (For information about how to safely shut down an appliance, see [“Shutting Down and Restarting the Novell Appliance”](#) in the *Filr 2.0: Administration Guide*.)
4. In VMware, change the controller to **VMware Paravirtual**.
5. Power on each appliance in the Filr system.

12j Leave the **Mode** section blank, then click **Next**.

You do not need to select anything in this section, because unlike Hard Disk 2, this hard disk does not need to be carried over on an upgrade.

12k Click **Finish**.

13 For a **clustered Filr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filr appliances in the cluster.

For a **large Filr deployment** with only one Filr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filr appliances.

For a **small Filr deployment**, you do not configure shared storage.

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.

For information about how to set up remote NFS for the Filr shared storage location, see [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,”](#) on page 149.

14 (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

14a In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

14b Select **Ethernet Adapter**, then click **Next**.

14c In the **Network Connection** section, select the secondary network associated with the Filr installation.

14d Click **Next > Finish**.

15 Increase the amount of memory that VMware allocates for the Filr appliance.

The default of 8 GB is the recommended minimum amount of memory for a large deployment. Novell also recommends 2 CPUs.

For an all-in-one deployment, you should increase the default to at least 12 GB of memory and 4 CPUs.

Small deployments require more CPUs and memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

15a In the Virtual Machine Properties window, select **Memory**, then increase the setting to a suitable size for your environment.

15b Click **OK** to exit the Virtual Machine Properties window.

16 (Optional) Upgrade the virtual machine hardware version to the latest that your infrastructure can support. To do so, in the vSphere client, right-click the virtual machine that you just created, and for which you want to upgrade the hardware, then click **Upgrade Virtual Hardware**.

17 Power on the appliance (virtual machine).

IMPORTANT: Do not power on the appliance until you have created a separate VMware hard disk for the appliance, as described in [Step 11](#).

18 (Optional) Install VMware Tools on the host server.

19 Continue with [Section 4.4.2, “Installing the Filr Appliance,”](#) on page 88.

Hyper-V Configuration

1 Log in to the host server either locally or from a remote workstation.

You can use Windows Remote Desktop to log in to the host server from a remote workstation.

2 Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the Filr software to this directory.

As a best practice, give this directory the same name as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory should also be `Filr1`.

3 Download the Filr software (`Filr.x86_64-version.vhd.zip`) to the directory on the host server that you created in [Step 2](#).

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the software from [this location](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) (<https://download.novell.com/Download?buildid=SjqlZZ28ka8~>) on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

4 Extract the `Filr.x86_64-version.vhd.zip` file to the directory on the host server that you created in [Step 2](#).

5 Open the Hyper-V Manager.

6 In Hyper-V Manager, right-click the disk name in the Action Pane in the left column of the Hyper-V Manager window. This is the disk where you want to create the new virtual machine. Then click **New > Virtual Machine**.

The New Virtual Machine Wizard is displayed.

- 7 Review the Before You Begin page, then click **Next**.
- 8 In the **Name** field, specify a name for the new virtual machine. For example, `Filr1`.
- 9 Click **Next**.
- 10 (Conditional) If your host server is Windows Server 2012 R2, the Specify Generation page is displayed. This page allows specify the generation of the virtual machine. You must select **Generation 1**, then click **Next**.

IMPORTANT: If you do not select Generation 1 and you select Generation 2 instead, the Filr virtual machine cannot be deployed.

- 11 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. 8 GB (8192 MB) is the recommended minimum for a large deployment of Filr. Novell also recommends 2 CPUs.

For an all-in-one (small) deployment, you should increase the default to at least 12 GB (12288 MB) of memory and 4 CPUs.

Small deployments require more CPUs and memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 12 Click **Next**.
- 13 On the Configure Networking page, select the networking card of your choice, then click **Next**.
- 14 Configure the bootable disk image:
 - 14a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in [Step 4](#).
 - 14b Click **Open** to select the file, then click **Next**.
- 15 Click **Finish**.
- 16 Create a separate Hyper-V hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate Hyper-V hard disk as described here, you cannot upgrade to a new version of Filr.

- 16a In Hyper-V Manager, right-click the virtual machine that you just created, then click **Settings**.
- 16b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 16c Select **Virtual hard disk**, then click **New**.
- 16d Review the Before You Begin page, then click **Next**.
- 16e On the Choose Disk Format page, select **VHD**, then click **Next**.
- 16f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 16g On the Specify Name and Location page, specify the following information, then click **Next**:

Name: Specify a name for the hard disk. For example, `FilrDisk2`.

Location: Specify the location where you want the hard drive to be located.

- 16h** On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.
- For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).
- 16i** Click **Next**.
- 16j** Review the summary information, then click **Finish > OK**.
- 17** Create a separate Hyper-V hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
- 17a** In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.
- 17b** In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
- 17c** Select **Virtual hard disk**, then click **New**.
- 17d** Review the Before You Begin page, then click **Next**.
- 17e** On the Choose Disk Format page, select **VHD**, then click **Next**.
- 17f** On the Choose Disk Type page, select **Fixed size**, then click **Next**.
- 17g** On the Specify Name and Location page, specify the following information, then click **Next**:
- Name:** Specify a name for the hard disk. For example, `FilrDisk3`.
- Location:** Specify the location where you want the hard drive to be located.
- 17h** On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.
- For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage” on page 19](#).
- 17i** Click **Next**.
- 17j** Review the summary information, then click **Finish > OK**.
- 18** For a **clustered Filr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filr appliances in the cluster.
- For a **large Filr deployment** with only one Filr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filr appliances.
- For a **small Filr deployment**, you do not configure shared storage.
- You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.
- For information about how to set up remote NFS for the Filr shared storage location, see [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#).
- 19** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

- 19a** In Hyper-V Manager, right-click the virtual machine for which you want to create an additional NIC, then click **Settings**.
- 19b** In the Hardware section, select **Add Hardware**, select **Network Adapter**, then click **Add**.
- 19c** Specify the desired settings for the new network adapter.
Select the secondary network associated with the Filr installation.
- 19d** Click **OK**.
- 20** Right-click the virtual machine, then click **Start**.

IMPORTANT: Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in [Step 16](#).

- 21** Right-click the virtual machine, then click **Connect**.
- 22** Continue with [Section 4.4.2, “Installing the Filr Appliance,” on page 88](#).

Xen Configuration

- 1** Log in to the host server either locally or from a remote workstation.
You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```


You must use the -X in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.
- 2** Navigate to the `/var/lib/xen/images` directory on the host server.
- 3** Create a new directory inside the images directory where you can download the Filr software.
The name of this directory must be the same as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory must also be `Filr1`.
- 4** Change to the directory that you just created. For example, `/var/lib/xen/images/Filr1`.
- 5** Download the Filr software (`Filr.x86_64-version.xen.tar.gz`) to the current directory on the host server. For example: `/var/lib/xen/images/Filr1`.
You can access the software from the [Novell Customer Center \(NCC\) \(https://www.novell.com/center\)](https://www.novell.com/center). Or, you can access an evaluation version of the software from [this location \(https://download.novell.com/Download?buildid=SjqlZZ28ka8~\)](https://download.novell.com/Download?buildid=SjqlZZ28ka8~) on the [Novell Downloads page \(http://download.novell.com\)](http://download.novell.com).
- 6** Untar the `Filr.x86_64-version.xen.tar.gz` file in the directory where you downloaded it.
You can use the following command to untar the file:

```
tar -Sxvzf Filr.x86_64-version.xen.tar.gz
```


A `filr-version` directory is created; it contains a `.raw` file that you will use to run the virtual image. This process can take a few minutes.
- 7** From the host server, run the following command to launch the GUI configuration menu:

```
vm-install
```


The Create a Virtual Machine wizard is displayed.
- 8** Click **Forward**.
- 9** Select **I have a disk or disk image with an installed operating system**, then click **Forward**.

- 10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.
- 11 Rename the virtual machine by clicking **Name of Virtual Machine** and specifying a new name in the **Name** field. Then click **Apply**. For example, `Filr1`.
- 12 Configure the amount of memory and number of CPUs that Xen allocates for the Filr appliance.

12a On the Summary page, click **Hardware**, then specify the following information:

Available Memory: Displays the amount of memory that is available on the host server.

Initial Memory: 8 GB is the recommended minimum amount of memory for a large deployment.

For an all-in-one deployment, you should increase the default to at least 12 GB of memory.

Small deployments require more memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

Maximum Memory: Set this to the same value that you set for Initial Memory.

Available Processors: Displays the number of available processors on the host server.

Virtual Processors: Specify 2 CPUs for a large deployment and 4 CPUs for a small deployment. At least half of the memory should be dedicated to the Java heap. (Java heap is set in the Filr configuration.)

Small deployments require more CPUs because in a small deployment, all components are running on a single virtual machine.

12b Click **Apply**.

- 13 Configure the bootable disk image:

13a On the Summary page, click **Disks**.

13b Click **Harddisk**.

13c On the Virtual Disk page, specify the following information:

Source: Click **Browse**, then browse to the `.raw` file that you untarred in [Step 6](#).

Protocol: Select **file**.

Size (GB): The default size is 20 GB. This cannot be changed.

Create Sparse Image File: This option is not available.

Read-Only Access: Do not select this option.

13d Click **OK**.

- 14 Create a separate Xen hard disk (Hard Disk 2) for the appliance. This is the location where you will store your Filr files (files that are located in users' [My Files](#) area).

IMPORTANT: If you do not create a separate Xen hard disk as described here, you cannot upgrade to a new version of Filr.

14a On the Disks page, click **Harddisk**.

14b On the Virtual Disk page, specify the following information:

Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

Protocol: Select `file`.

Size (GB): Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

14c Click **OK**.

- 15** Create a separate Xen hard disk (Hard Disk 3) for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)

15a On the Disks page, click **Harddisk**.

15b On the Virtual Disk page, specify the following information:

Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

Protocol: Select `file`.

Size (GB): Specify the amount of hard disk space that you want to allocate. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

16 Click **OK > Apply**.

- 17** For a **clustered Filtr deployment**, you must create a shared storage location (`/vashare`) for shared storage among all Filtr appliances in the cluster.

For a **large Filtr deployment** with only one Filtr appliance, it is still recommended that you create a shared storage location, because having a shared storage location allows you to easily scale your system in the future if the need arises by adding additional Filtr appliances.

For a **small Filtr deployment**, you do not configure shared storage.

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS.

For information about how to set up remote NFS for the Filtr shared storage location, see [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filtr Shared Storage Location,” on page 149](#).

- 18** (Optional) Add an additional Network Interface Controller (NIC).

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filtr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the `/vashare` mount point
- ◆ Security of memcached in a Filtr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

18a On the Summary page, click **Network Adapters**.

18b Click New, then specify the desired settings for the new network adapter.
Select the secondary network associated with the Filr installation.

18c Click **Apply** > **Apply**.

19 Click **OK** to save your changes and to create and power on the virtual machine.

IMPORTANT: Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in [Step 14](#).

20 Continue with [Section 4.4.2, “Installing the Filr Appliance,” on page 88](#).

Citrix Xen Configuration

Do the following in order.

- 1 Expand the `.xva.tar.gz` file.
- 2 From the Citrix XenCenter, connect to a Citrix 6.5 or 6.5 SP1 XenServer.
- 3 Import the `.xva` file.
- 4 Assign two disks to the imported virtual appliance.
- 5 Modify the CPU and memory settings as required for your environment.
- 6 Start the VA.
- 7 Install the `xs-tools` and optimize according to the needs of your environment.
- 8 Continue with [Section 4.4.2, “Installing the Filr Appliance,” on page 88](#).

4.4.2 Installing the Filr Appliance

- 1 After you have downloaded the Filr appliance, configured the virtual environment, and powered on the appliance, click the **Console** tab.
- 2 After the appliance starts, select your preferred keyboard layout in the **Keyboard Language** drop-down, then accept the license agreement. (You can change the language that the license agreement is displayed in from the **License Language** drop-down.)
The Appliance Passwords and Time Zone page appears.

- 3 On the configuration page, specify the following information:

Root password and confirmation: The root password for your Filr appliance. The root user name is case sensitive and should not be capitalized.

Vaadmin password and confirmation: The preferred user to use when logging in to the appliance. The user name is case sensitive and should not be capitalized.

When configuring passwords for the vaadmin user for multiple appliances in a large installation, consider using different passwords between appliances for enhanced security.

NTP Server: The IP address or DNS name of the reliable external Network Time Protocol (NTP) server that your OES server uses. For 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: Your local time zone.

The time zone of your Filr server should match the time zone of all file servers that Filr will point to via Net Folders.

After installation, if you are not able to access the appliance and you need to change any of these settings, you can use the VACONFIG utility from the Filr command prompt. For more information, see “[Using VACONFIG to Modify Network Information](#)” in the *Filr 2.0: Administration Guide*.

- 4 Click **Next**.

- 5 On the Network Settings page, specify the following network information:

Hostname: The fully qualified DNS host name associated with the appliance’s IP address. For example, myFilr.mynetwork.example.com.

IP Address: The static IP address for the appliance. For example, 172.17.2.3.

Network Mask: The network mask associated with the appliance’s IP address. For example, 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your Filr virtual appliance is located. For example, 172.17.2.254.

In a clustered environment, Filr appliances are not tolerant to latency, and should exist in the same subnet or near-subnet.

DNS Servers: The IP address of a primary DNS server for your network. For example, 172.17.1.1.

Domain Search: The domain that is associated with the Filr host name.

6 Click **Next**.

7 (Conditional) If you configured multiple NICs (as described in [Section 4.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 79](#)), select from the following options, then click **Next**:

- ♦ **Do Not Configure:** Select this option to configure this network at a later time. If you do not currently know your network information, you can configure the network after installation, as described in [“Changing Network Settings” in the *Filr 2.0: Administration Guide*](#).
- ♦ **DHCP Dynamic Address:** Select this option to dynamically assign an IP address to this network.
- ♦ **Statically Assigned IP Address:** Select this option to assign a static IP address to this network, then specify the IP address, network mask, and host name.

8 The secondary hard disk for `/vastorage` that you created for this appliance is automatically detected and `sdb` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location (`/vastorage`) where information specific to the appliance is stored and is used when the appliance is upgraded. Each appliance has its own `/vastorage` location.

If you have not already assigned a second hard disk to the virtual machine (as described in [“Downloading the Filr Appliance and Configuring the Virtual Environment” on page 79](#)), power off the virtual machine, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see [“Data Storage for the Appliance” on page 11](#).

9 The third hard disk for `/var` that you created for this appliance is automatically detected and `sdc` is displayed as the hard drive. Accept the defaults for the other options on this page, then click **Next**.

This is the location where the `/var` directory for the appliance is stored. (The `/var` directory is where system events for the Novell appliances are logged.)

If you have not already assigned a third hard disk to the virtual machine (as described in [“Downloading the Filr Appliance and Configuring the Virtual Environment” on page 79](#)), power off the virtual machine, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

For more information about the type of data that is stored here, see [“Data Storage for the Appliance” on page 11](#).

10 In a **large or clustered deployment**, select the shared storage location (remote NFS or remote CIFS). This storage (`/vashare`) is shared storage among all of the Filr appliances in the cluster. There is only one `/vashare` storage location that is used by all Filr appliances in the cluster.

IMPORTANT: You must select a shared storage location in a clustered deployment (if your Filr system contains multiple Filr appliances).

It is recommended that you select a shared storage location in a large deployment with only one Filr appliance. This ensures that you can scale your system in the future if the need arises by adding additional Filr appliances.

In a **small deployment**, select **Do Not Configure Shared Storage**.

- ◆ **Remote NFS:** Select this option for all large or clustered deployments for which you want to configure shared storage on remote NFS. You must export the remote directory before you choose this option. Also, set the `rw` and `no_root_squash` options on the remote directory.

IMPORTANT: Before you choose this option, understand the following:

- ◆ You must configure NFS on the remote linux server by setting the `rw` and `no_root_squash` options on the remote directory.

For detailed information about how to configure NFS, see [Section C.1, “Setting Up Remote NFS for the Filr Shared Storage Location,”](#) on page 149.

- ◆ Filr does not support using an NSS volume as an exported NFS mount point.
- ◆ Remote NFS is not supported when hosted on a Windows server.

-
- ◆ **Remote CIFS:** Select this option for all large or clustered deployments for which you want to configure shared storage on a remote Windows share. If you select this option, skip to [Step 12](#).

For detailed information about how to configure CIFS, see [Section C.2, “Setting Up Remote CIFS for the Filr Shared Storage Location,”](#) on page 150.

- ◆ **Do Not Configure Shared Storage:** You must choose this option if you are creating a small deployment where all components are part of a single appliance, then skip to [Step 13](#). Do not select this option with a clustered Filr deployment. This option is recommended only for a small deployment, but can be selected for a large (non-clustered) deployment if you do not plan to add Filr appliances in the future.

For more information about possible configurations when running Filr in a clustered environment, see [Section 2.1.2, “Large Deployment,”](#) on page 28.

11 (Conditional) If you are configuring Filr for a clustered environment with remote NFS:

11a Click **Next**.

11b Specify the following options:

NFS Server Hostname: Specify the host name of the NFS server. This is the remote Linux server or the MySQL appliance that you previously configured for NFS (as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,”](#) on page 149). Windows servers are not supported.

Remote Directory: Specify the path to the remote directory.

When using a remote Linux server for the NFS location (as described in [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,”](#) on page 149), specify the path on the remote NFS server.

12 (Conditional) If you are configuring Filr for a clustered environment with remote CIFS:

12a Click **Next**.

12b Specify the following options:

CIFS Folder: Specify the path to the CIFS share.

For example, `\\server\share`.

CIFS User Name: Specify the user name for accessing the CIFS share.

CIFS User Password: Specify the password for the user that is accessing the CIFS share.

13 Click **Configure**.

A message indicating that the installation was successful is displayed.

- 14 (Conditional) If you are performing a large deployment with multiple Filr appliances, install another Filr appliance as described in this section, until you have installed your desired number of Filr appliances.

You cannot install multiple Filr appliances in a small deployment.

- 15 Continue with the first-time configuration, as described in the following section.

4.5 Configuring a Large Deployment for the First Time

When you configure Filr for the first time for a large organization, you configure the Filr appliance to point to the MySQL database appliance and the search index appliance that you installed previously.

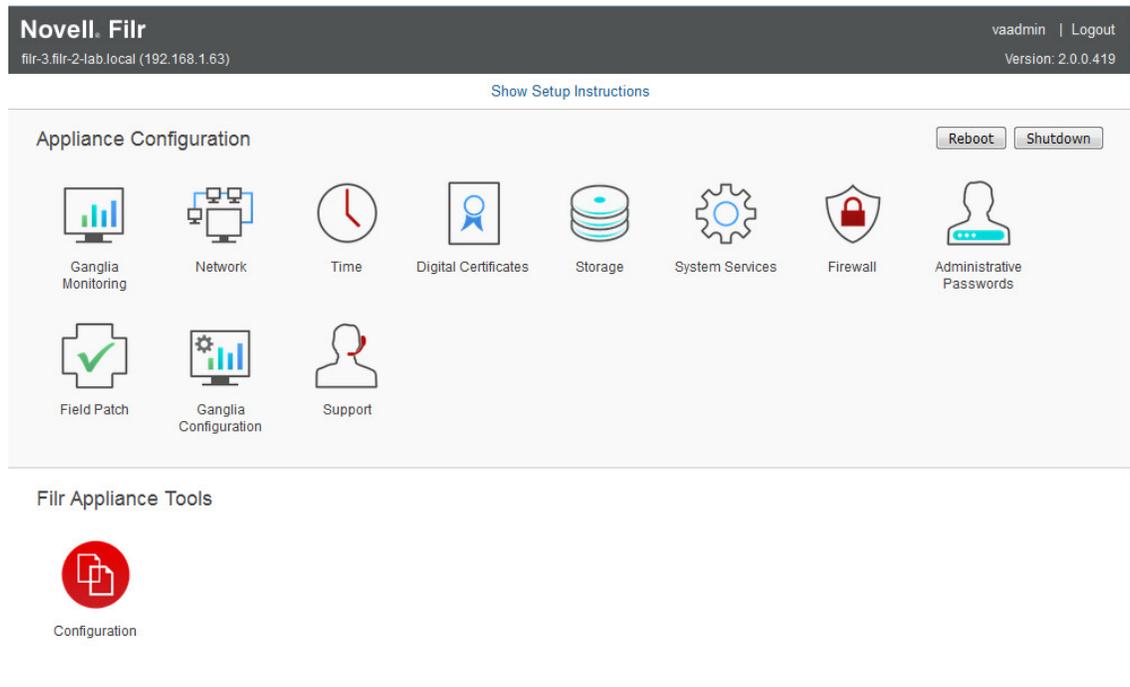
IMPORTANT: Ensure that you have installed the search index appliance and the MySQL database appliance before configuring the Filr appliance. The search index appliance and the MySQL database appliance must be running when you configure the Filr appliance.

- 1 After you have installed the Novell Filr appliance, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#), navigate to the following URL:

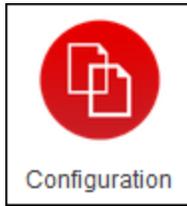
`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

- 2 Log in to the appliance using the `vaadmin` user and the password that you set during installation. The Novell Filr Appliance landing page is displayed.



- 3 Click the **Filr Server Configuration** icon.



The Filr Server Configuration Wizard is displayed.

- 4 Select **Large Deployment**, then click **Next**.
- 5 Specify the following configuration options for the database:

IMPORTANT: If you are using an existing MySQL MariaDB, or Microsoft SQL database, ensure that you have performed the tasks described in [Section 4.3, “Configuring an Existing Database Server,”](#) on page 76.

Database Type: Select the type of database. The supported databases are MySQL (which includes MariaDB) and Microsoft SQL Server.

Host Name: The host name or IP address of your existing MySQL or Microsoft SQL server. Or, the host name or IP address of the appliance where the MySQL database is running.

Port: The port that is used to access the appliance where the database is running.

Database Name: The name of the database.

User Name: The administrative user name used to access the database.

If you are using your existing MySQL or Microsoft SQL database, this is the administrative user name that you use to log in to the database.

If you are using the MySQL appliance, the default user name is `filr`.

Password: The administrative password used to access the database.

If you are using your existing MySQL or Microsoft SQL database, this is the administrative user name that you use to log in to the database.

If you are using the MySQL appliance, this is the password that you set when configuring the MySQL appliance, as described in [Chapter 6, “Configuring and Maintaining the MySQL Database Appliance,”](#) on page 97. (This is separate from the root password that you set for appliance access in [Step 3 of Section 4.2, “Installing the MySQL Database Appliance,”](#) on page 65.)

- 6 Click **Next**.
- 7 Specify the following configuration options for the search index:

Host Name: The host name of the appliance where the search index is running.

RMI Port: The port that is used to access the search appliance.

Do not change this setting from port 1199 unless your network uses a different RMI port number.

Lucene User Name: The user name for your search appliance. By default, the user name is `lucene service`, but you had the option to change it while you were configuring the service. The only requirement is that you use the same name throughout your deployment.

Lucene User Password: Specify the password for the search appliance user. This is the password that you created when installing the search appliance.

NOTE: If you have multiple search index appliances, specify the information for one of the search index appliances on this page, then after the configuration is complete, you must modify the search index settings to **High Availability**, as described in “[Changing Search Index Configuration Settings](#)” in the *Filr 2.0: Administration Guide*.

8 Click **Next**.

9 In the **Default Locale** field, select the default locale for your Filr site. This is the language and locale that Filr uses when users first log in to the Filr site.

Users can change the individual locale after they log in by modifying the user profile, as described in “[Modifying Your Profile](#)” in the *Filr 2.0: Web Application User Guide*.

Some aspects of the Filr interface, such as group names and the login page, are always displayed in the default language, regardless of individual user settings. For more information, see “[Understanding the Filr Site Default Language](#)” in the *Filr 2.0: Administration Guide*.

The default language that the Filr mobile app and the Filr desktop application are displayed in is defined by the language set on the mobile device and the user workstation where the application is running.

10 (Optional) As a security precaution, you might want to change the administrator’s user ID from the default `admin`. The administrator user ID is used only when logging in to the Filr system on port 8443.

If you want to change the **Administrator User ID**, type a different name in the field.

IMPORTANT: The password that you use to log in to the Filr system for the first time is the same as the user ID that you specify here. You will be prompted to change it the first time you log in.

11 Click **Finish**.

After the configuration is complete, a summary is displayed.

This configuration summary contains information such as network, database, and so forth. You can modify these configuration settings at any time from the **Configuration** column on the left side of this page.

For information about each configuration option, see “[Configuring and Maintaining the Filr Appliance](#)” in the *Filr 2.0: Administration Guide*.

12 Continue with [Chapter 7, “Setting Up the Filr Site,”](#) on page 101 to make your site ready for user access.

5 Configuring and Maintaining the Search Index Appliance

- [Section 5.1, “Configuring the Search Index Appliance,”](#) on page 95
- [Section 5.2, “Maintaining the Search Index Appliance,”](#) on page 96

5.1 Configuring the Search Index Appliance

This section describes how to change additional configuration options for the search index appliance for a large deployment. If your search index is configured on the same appliance as your Filr application, you make configuration changes on the Filr appliance, as described in [“Configuring and Maintaining the Filr Appliance”](#) in the *Filr 2.0: Administration Guide*.

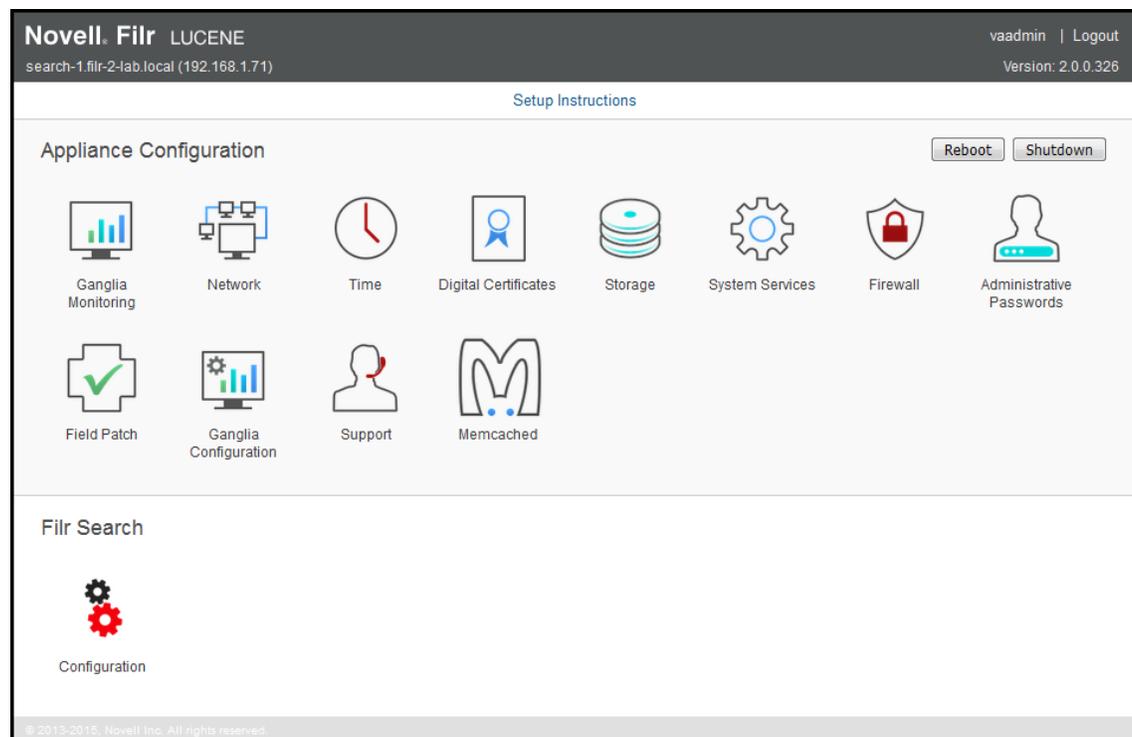
- 1 After installing the search index appliance, as described in [Section 4.1, “Installing the Search Index Appliance,”](#) on page 53, navigate to the following URL:

```
https://ip_address:9443
```

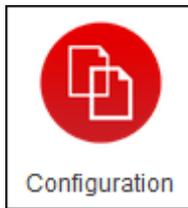
Replace `ip_address` with the IP address of your search index appliance.

- 2 Sign in to the search index appliance using the `vaadmin` user and the password that you set during installation.

The Novell Filr Search Appliance landing page is displayed.



- 3 Click the **Filr Search Configuration** icon.



The Filr Search Configuration Wizard is displayed.

- 4 (Conditional) If this is the first time you have accessed the Filr search appliance, you must do the following:
 - 4a Select **New** or **Upgrade**, depending on whether this is a new installation or an upgrade from a previous installation, then click **Next**.
 - 4b Create a password for the default search appliance user.

IMPORTANT: In an environment where you are running multiple search index appliances, ensure that the password is the same for each search index appliance.

It is recommended that you have two search index appliances in a large or clustered Filr environment.

- 4c Click **Finish**.

The password for the search appliance user is now set.

The Search Settings page is displayed.

- 5 On the Search Settings page, refer to the on-screen instructions for information about the fields that you can modify.

NOTE: You can change the Username from `lucene_service` at this point if you want to. The only requirement is that you specify exactly the same name across the Filr deployment you are creating or updating.

- 6 Click **Submit** after you have made the desired modifications for your search settings.

5.2 Maintaining the Search Index Appliance

As time passes, you might need to optimize or rebuild your search index. High availability search indexes allow you to take one search appliance out of service for required maintenance while the other search appliance continues to operate.

For more information about how to perform needed maintenance on the search index, see “[Managing the Lucene Index](#)” in the *Filr 2.0: Administration Guide*.

For information about an example setup, see “[Completing the Cluster Setup](#)” (https://www.novell.com/documentation/novell-filr-1-1/filr-1-1_plan_deploy_bp/data/b19jgg94.html) in the *Planning and Deployment Best Practices Guide* (https://www.novell.com/documentation/novell-filr1/filr1_plan_deploy_bp/data/bookinfo.html).

6 Configuring and Maintaining the MySQL Database Appliance

The MySQL database appliance is not intended for enterprise installations. If your organization has an existing MySQL or Microsoft SQL database, it is recommended that you configure Filr to use the existing database.

The following sections describe how to configure and maintain the MySQL database appliance if you decide to use the MySQL database appliance that ships with Filr as the Filr database.

- [Section 6.1, “Configuring the MySQL Database Appliance,” on page 97](#)
- [Section 6.2, “Maintaining the MySQL Database Appliance,” on page 99](#)

6.1 Configuring the MySQL Database Appliance

This section describes how to change configuration options for the MySQL database appliance for a large deployment, including how to change the credentials for the MySQL database.

If you already have a MySQL database server that you want the Filr appliance to use, you can skip this section and update the configuration as described in [Section 4.3, “Configuring an Existing Database Server,” on page 76](#).

IMPORTANT: In a production environment, it is a best practice to change the credentials for the MySQL database when the MySQL database is running as a separate appliance. If you do not change the credentials, you at least need to change the root password for the MySQL database.

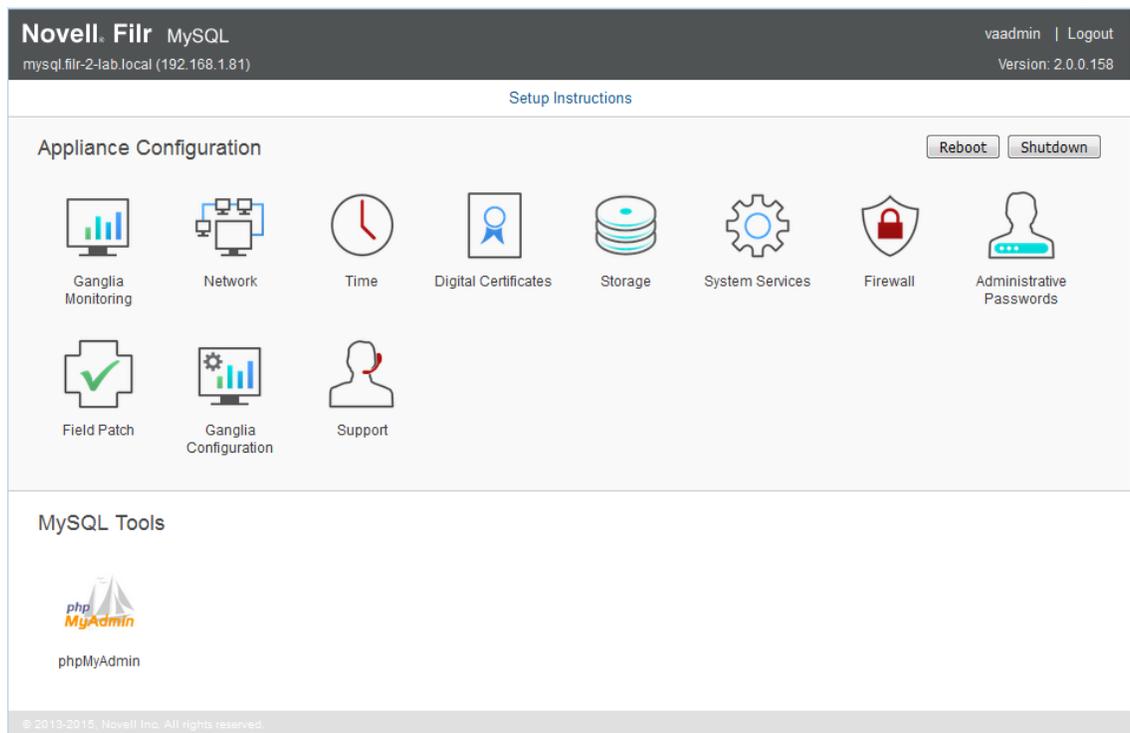
If your MySQL database is configured on the same appliance as your Filr application, you make configuration changes on the Filr appliance, as described in [“Configuring and Maintaining the Filr Appliance”](#) in the *Filr 2.0: Administration Guide*.

- 1 After installing the database appliance, as described in [Section 4.2, “Installing the MySQL Database Appliance,” on page 65](#), navigate to the following URL:

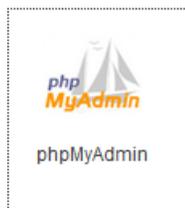
```
https://ip_address:9443
```

Replace **ip_address** with the IP address of your database appliance.

- 2 Sign in to the database appliance as `vaadmin` with the password that you set during installation. The Novell MySQL Appliance landing page is displayed.



- 3 Click the **phpMyAdmin** icon, then click **Go** to log in to phpMyAdmin.



- 4 Log in to the phpMyAdmin tool as `root` with password `root`. (You change the password in a future step.)
- 5 Create the `filr` user to administer the MySQL database:
 - 5a At the top of the page, click **Users**.
 - 5b Click **Add user**.
 - 5c In the **User name** field, specify `filr` as the new user.
 - 5d In the **Host** field, select **Use text field** in the drop-down list, then specify the IP address or host name of the Filr appliance.
 - 5e In the **Password** field, specify a new password for the user, then confirm it in the **Re-type** field.
 - 5f In the **Database for user** section:
 - ♦ If you are installing the MySQL database for the first time: select **Create database with same name and grant all privileges**.
 - ♦ If you are upgrading the MySQL database: select **Grant all privileges on wildcard name**.
 - 5g In the **Global privileges** section, select **Check All**, then deselect all privileges in the **Administration** section.

- 5h** Click **Go**. Note the user name and password of this user. This is the user you will use to access the MySQL database when you configure the Filr appliance.
- You can now administer the Filr MySQL database by using this new user.
- 6** (Conditional) If you have a clustered Filr system with multiple Filr appliances, edit the privileges of the Filr user that you created in the previous step so that each of the Filr appliances is granted remote access to the database.
- 6a** On the **Users overview** page, click **Edit Privileges** next to the user that you created in Step 5.
- 6b** Click the **Login Information** button. In the **Host** field, specify the IP address or host name of the next Filr appliance in the cluster.
- 6c** In the **Create a new user with the same privileges and...** section, ensure that **keep the old one** is selected, then click **Go**.
- 6d** Repeat this process for each Filr appliance in the cluster.
- 7** (Recommended) Change your MySQL root password if you have not done so already:
- 7a** At the top of the page, click **Users**.
- 7b** In the Users Overview table, locate the root user with **localhost** in the **Host** column, then click **Edit Privileges** for that user in the **Action** column.
- 7c** Scroll to the **Change password** section. In the **Password** field, specify your password, then confirm it in the **Re-type** field.
- 7d** Click **Go**.
- 8** Make any other configuration changes.

6.2 Maintaining the MySQL Database Appliance

The size of the MySQL log files (`mysqld.log*`) is checked every 7 days. If the log files consume more than 1 GB of total disk space at the time they are checked, the files are deleted.

If you want to delete the log files before the automatic check runs on day 7 or before the files reach the 1 GB threshold, you can manually trigger the log files to be deleted:

- 1 Restart the MySQL database appliance (as described in “[Shutting Down and Restarting the Novell Appliance](#)” in the *Filr 2.0: Administration Guide*).

or

Run the flush logs command from the MySQL appliance (`mysqladmin flush-logs`).

7 Setting Up the Filr Site

After you have installed and started Novell Filr, you will need to perform certain administrative tasks before your Filr site is ready for users to log in and start using Filr efficiently.

Filr ships with most settings disabled by default, so you must enable each piece of functionality. This ensures that your data is not unknowingly exposed to users who do not usually have access to certain information. For example, users cannot share files until you give them the ability to do so.

Some pieces of functionality, such as configuring Net Folders, must be enabled in the correct way in order to avoid unintended issues.

Complete the following steps to make your Filr site ready and available for users:

- 1 Add a valid license for each Filr appliance in your system. For more information, see [“Viewing and Updating the Filr License”](#) in the *Filr 2.0: Administration Guide*.
- 2 Change any appliance-specific configuration settings, such as network settings, email configuration, and so forth.

Appliance-specific configuration settings require that the Filr appliance be restarted in order for the configuration setting to take effect. Therefore, it is best to make any changes now, before you make your Filr site available to users.

For information about the settings you can change and how to change them, see [“Changing Appliance Configuration Options”](#) in the *Filr 2.0: Administration Guide*.

- 3 Add users and groups to your Filr site, either through an LDAP synchronization process or by manually creating users.

If the search context of your LDAP synchronization contains an OES or Windows server that has a Home folder attribute associated with at least one user, a Net Folder Server is ready to be configured immediately after running the LDAP synchronization process. You need to consider the amount of data in users' Home folder directories when performing an LDAP synchronization. For information about the amount of time it takes to perform a full synchronization on a Net Folder, see [“Planning the Amount of Data to Synchronize”](#) in the *Filr 2.0: Administration Guide*.

For more information about LDAP synchronization, see [“Synchronizing Users and Groups from an LDAP Directory”](#) or [“Creating a New Local User”](#) in the *Filr 2.0: Administration Guide*.

- 4 Configure email integration for the Filr site, as described in [“Enabling and Customizing Filr’s Email Services”](#) in the *Filr 2.0: Administration Guide*.
- 5 Set up sharing for the Filr site. You can enable users to share files and folders with internal users only, or with both internal and external users.

For more information about allowing users to share documents within Filr, see [“Setting Up Sharing”](#) in the *Filr 2.0: Administration Guide*.

- 6 Enable personal storage for the Filr site if you want users to upload files directly to the Filr site for their own personal use. These files are available in users' My Files area.

For more information about personal storage, as well as how personal storage relates to users' Home folders, see [“Setting Up Personal Storage”](#) in the *Filr 2.0: Administration Guide*.

- 7 Configure Net Folders for your Filr site. Net Folders in Filr provide access to files on your corporate OES, Windows, or NetWare file servers by synchronizing file metadata. In essence, a Net Folder is simply a pointer or a reference to a specific folder on a specific file server.

Filr can be configured to index the content of Net Folders to make the content searchable.

For more information about Net Folders, see “[Setting Up Net Folders](#)” the *Filr 2.0: Administration Guide*.

IMPORTANT: Configuring Net Folders in a sub-optimal way can result in unsatisfactory performance of your Filr system. The ideal Net Folder configuration can vary greatly depending on the number of files that you want to synchronize to Filr, the frequency in which files are modified, and so forth. Before configuring Net Folders, become familiar with the various subtleties related to Net Folders, as described in “[Planning Net Folder Creation](#)” the *Filr 2.0: Administration Guide*.

- 8 (Optional) Allow access to the Filr site through NetIQ Access Manager.

For more information about using NetIQ Access Manager with Filr, see “[Allowing Access to the Filr Site through NetIQ Access Manager](#)” in the *Filr 2.0: Administration Guide*.

IMPORTANT: When you use NetIQ Access Manager with Filr, external users cannot access your Filr site. This means that the following features are not functional:

- ◆ Users are not able to share with external users, as described in “[Sharing with People Outside Your Organization](#)” in the *Filr 2.0: Web Application User Guide*.
- ◆ Users cannot make items accessible to the public, as described in “[Making Files Accessible to the Public](#)” in the *Filr 2.0: Web Application User Guide*.

This means that public users cannot access the Filr site as the Guest user. For more information about the Guest user, see “[Allowing Guest Access to Your Filr Site](#)” in the *Filr 2.0: Administration Guide*.

For more information about external users in Filr, see “[Allowing External Users Access to Your Filr Site](#)” in the *Filr 2.0: Administration Guide*.

- 9 Configure mobile device access to the Filr site, as described in “[Configuring Mobile Device Access to the Filr Site](#)” in the *Filr 2.0: Administration Guide*.
- 10 Configure the Filr desktop application to access files from the Filr site.

For more information about configuring the Filr desktop application, see “[Setting Up the Filr Desktop Application](#)” in the *Filr 2.0: Administration Guide*.

IMPORTANT: For optimal performance of the Filr system when using the Filr desktop application, consider the following:

- ◆ Users should not configure the Filr desktop application to synchronize more than 1,000 total files, or to synchronize individual files that are larger than 1 GB to their workstations. For information about how users can configure the Filr desktop application to synchronize files to their workstations, see the *Novell Filr 2.0 Desktop Application for Windows Quick Start* (<https://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktop/data/filr-2-qs-desktop.html>) and the *Novell Filr 2.0 Desktop Application for Mac Quick Start* (<https://www.novell.com/documentation/novell-filr-2/filr-2-qs-desktopmac/data/filr-2-qs-desktopmac.html>).
 - ◆ Depending on your environment and the settings that you choose for the Filr desktop application, the Filr desktop application can put a significant load on your Filr system. For information about the factors that affect load, see “[Planning Filr Desktop Application Usage for Your Filr Site](#)” in the *Filr 2.0: Administration Guide*.
-

- 11 Configure Filr to support WebDAV on a Windows 7 environment, as described in “[Configuring Filr to Support WebDAV on Windows 7](#)” in the *Filr 2.0: Administration Guide*.
- 12 If your Filr site needs to support multiple languages, configure the site as described in “[Managing a Multiple-Language Filr Site](#)” in the *Filr 2.0: Administration Guide*.

- 13 Before your site is ready for use, ensure that you have reviewed all other topics discussed in “[Setting Up the Filr Site before Users Log In](#)” in the *Filr 2.0: Administration Guide*.
- 14 After you have completed all of the topics that are relevant to your Filr environment, as discussed in the *Filr 2.0: Administration Guide*, you can invite users to use the Filr site. For information about how to use the Filr site, see *Filr 2.0: Web Application User Guide*.

8 Upgrading Filr

Critical Prerequisites and Cautions for Successful Upgrades

Failure to comply with any of the following critical points can result in a non-functional Filr system.

NOTE: As an additional resource to the information in this section, [TID 7017288](#) has a “Pre-Flight Checklist” that can help you ensure a successful upgrade.

Critical Points	Details
♦ You cannot upgrade directly from Filr 1.0 or 1.0.1 to Filr 2.0	You must first upgrade to Filr 1.2, apply all patches, ensure that all desktop clients are updated, and then upgrade to Filr 2.0.
♦ You cannot upgrade from Small to Large	If you have a small, all-in-one deployment, and you need a large, separate-appliance deployment, you must install new appliances.
♦ You cannot upgrade from non-clustered Large to clustered Large	If you have a large non-clustered deployment, and you need a large clustered deployment, you must install a new system. (The shared storage location, /vashare, must be configured during the initial installation.) Or, contact Novell Consulting to assist you with the migration.
♦ Meet all hardware and software requirements	See Section 1.2, “Filr System Requirements,” on page 12 IMPORTANT: Memory requirements for the Filr and database appliances have increased with Filr 1.2 (see “Memory Requirements” on page 15).
♦ Ensure that each appliance has unformatted disk space available for a new /var disk	For each appliance you are upgrading, you must plan to create a third disk for storing system event log files.
♦ Ensure that each Filr 1.2 system is fully patched before upgrading to Filr 2.0	See “Managing Field Test Patches” in the <i>Filr 2.0: Administration Guide</i> .
♦ Do not copy the entire VM when upgrading	Copying the entire VM causes various problems, including the reassignment of the Eth0 interface to Eth1. Filr supports only Eth0 as the primary network interface. Copy only the datastore disk to the new VM location, as specified in Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 107.
♦ (VMware) Remove all snapshots prior to upgrading an appliance	This is required to ensure that the correct disk file and the latest configuration settings get migrated.

Critical Points	Details
<ul style="list-style-type: none"> You must upgrade the appliances in the proper order. 	<p>Successful upgrades require that appliances be upgraded in the order of dependency upon each other, as follows:</p> <ol style="list-style-type: none"> Upgrade the MySQL appliance first. Upgrade the Filr Search appliances next, one at a time. When the upgraded MySQL and Filr search appliances are up and running, upgrade the first Filr appliance in the cluster. Then upgrade the additional Filr appliances, one at a time. <p>IMPORTANT: All of the Filr and Filr Search appliances in a Large clustered deployment must run the same version.</p>
<ul style="list-style-type: none"> If you are migrating the Filr database to Microsoft SQL ... 	<p>Carefully follow the instructions in Appendix B, "Migrating the Filr Database from MySQL to Microsoft SQL," on page 141, including running the Post-Migration script.</p>
<ul style="list-style-type: none"> If your appliances have multiple Network Adapters ... 	<p>Carefully follow the instructions in Section 8.2, "Preparing Network Interface Controllers to Be Upgraded," on page 107, including running the networkprep script.</p>
<ul style="list-style-type: none"> Fully patch any OES 11 SP1 target servers 	<p>Ensure that any Filr target servers running OES 11 SP1 have at least the December 2012 Scheduled Maintenance Update applied. This ensures that the NCP server can keep up with the increased service requests of Filr 2.0.</p> <p>Failure to update your OES 11 SP1 servers can cause the configured eDirectory (LDAP) servers to fail.</p>

Complete the instructions in the following sections as applicable to upgrade from Filr 1.1 or 1.2 to Filr 2.0.

- [Section 8.1, "Upgrade Caveats,"](#) on page 106
- [Section 8.2, "Preparing Network Interface Controllers to Be Upgraded,"](#) on page 107
- [Section 8.3, "Copying the Appliance Data Storage Location to Prepare for the Upgrade,"](#) on page 107
- [Section 8.4, "Upgrading the Filr, Search, or Database Appliances,"](#) on page 108
- [Section 8.5, "Performing Post-Upgrade Tasks,"](#) on page 128

8.1 Upgrade Caveats

Before you upgrade your Filr installation, be aware of the following:

- MySQL Port Setting Changes Are Not Retained:** If you have changed the port for MYSQL communications, be aware that your changes are not retained and must be reset after the upgrade.

For more issues associated with appliance upgrades, see “[Upgrade Notes](#)” in the *Novell Filr 2.0 Release Notes*.

8.2 Preparing Network Interface Controllers to Be Upgraded

If your Filr 1.1 or 1.2 system has been configured with additional Network Interface Controllers (NICs), you need to run a script that prepares the additional NICs to be upgraded to Filr 2.0. If you fail to run the script, your NICs might not work properly after being upgraded to the Filr 2.0 system.

- 1 Download the `networkprep.zip` file from the same location where you downloaded the Filr software in the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>).
- 2 Enable SSH on the Filr appliance, as described in “[Changing System Services Configuration](#)” in the *Filr 2.0: Administration Guide*.
- 3 Using an SSH client (such as WinSCP), log in to the Filr appliance as the `root` user.
- 4 Copy the `networkprep.zip` file that you downloaded in Step 1 to the `/root/` directory on the Filr 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 following script to prepare the Filr 1.1 or 1.2 system for the upgrade to Filr 2.0:

```
sh run-networkprep.sh
```
- 8 Shut down the remote SSH connection to the Filr appliance.
- 9 Continue with [Section 8.4, “Upgrading the Filr, Search, or Database Appliances,”](#) on page 108.

8.3 Copying the Appliance Data Storage Location to Prepare for the Upgrade

Before upgrading your existing Filr system, you should create a copy of the appliance data storage location (`/vastorage`). You use this copy when configuring the new Filr system.

- 1 On each Filr, database, and search index appliance in the existing Filr system, use the Datastore Browser to create a copy of the appliance data storage location (`/vastorage`).

In order to create a copy of the data storage location, your hypervisor might require that the appliance is first shut down.
- 2 Continue with [Section 8.2, “Preparing Network Interface Controllers to Be Upgraded,”](#) on page 107.

8.4 Upgrading the Filr, Search, or Database Appliances

The method of upgrading is the same for the Filr appliance, search appliance, and the database appliance.

Although it is possible to install a new search index appliance and subsequently re-index your data, Novell recommends that in a production environment you upgrade your existing search index appliances rather than install new appliances and re-index your data.

The data location for the original appliance that you are upgrading from must be independent of the appliance on a separate VMware, Xen, or Hyper-V hard disk, as described in [Section 1.2, “Filr System Requirements,”](#) on page 12.

The upgrade process differs depending on your virtual platform.

IMPORTANT: You can upgrade only to the same virtual platform as the platform where you deployed your original Filr system. For example, if your original Filr system was deployed on VMware, you can upgrade only to VMware.

- ◆ [Section 8.4.1, “VMware,”](#) on page 108
- ◆ [Section 8.4.2, “Xen,”](#) on page 114
- ◆ [Section 8.4.3, “Hyper-V,”](#) on page 121

8.4.1 VMware

1 Download the software to your management workstation:

- ◆ **Filr Appliance:** `Filr.x86_64-version.ovf.zip`
- ◆ **Search Appliance:** `Filrsearch-version.ovf.zip`
- ◆ **Database Appliance:** `MySQL.x86_64-version.ovf.zip`

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version of the on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

2 Extract the file that you downloaded in [Step 1](#) on your management workstation until one of the following folders appears, depending on which appliance you are upgrading:

- ◆ `Filr-version`
- ◆ `Filrsearch-version`
- ◆ `MySQL-version`

3 In the vSphere client, click **File > Deploy OVF Template**.

4 Browse to and select the `.ovf` file in the `Filr-version` file folder.

5 Click **Next**.

6 Click **Next** again.

7 In the **Name** field, rename the Filr appliance to a name of your choosing, then click **Next**.

8 Select the datastore where you want to store the virtual machine files, then click **Next**.

9 Click **Next** to accept the default for the disk format.

10 Click **Finish**.

11 Shut down the appliance you are upgrading from.

IMPORTANT: When shutting down the appliance, be aware of the following limitations:

- ◆ In a large deployment with one or more Filr appliances, always bring down the Filr appliances first before you bring down the search appliances or database appliance. When restarting, start the Filr appliances last.
- ◆ In a large deployment with one or more Filr appliances, complete the search appliance upgrades before attempting to upgrade the Filr appliances. If the source Filr system contains multiple search index appliances, all search appliances must be upgraded and available before you run the Upgrade wizard for the Filr appliances. If not, the upgrade is not successful.

Rolling upgrades (upgrading one Filr or search index server while another continues to serve clients) are not supported when upgrading Filr in a clustered environment. This issue does not affect small or non-clustered large deployments.

- ◆ When you shut down the appliance, use the **Shutdown** button from the Novell Appliance Configuration screen (as described in “[Shutting Down and Restarting the Novell Appliance](#)” in the *Filr 2.0: Administration Guide*). You can also use the `init 0` command from the appliance console when you are logged in as `root`.

-
- 12** Before you power on the new appliance, point it to a copy of the VMware data disk that your previous appliance used (Hard Disk 2). (This is the copy that you created in [Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,”](#) on page 107.)

For example, for ESX 5.x:

- 12a** In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click **Edit Settings**.

The Virtual Machine Properties page is displayed.

- 12b** On the **Hardware** tab, click **Add**.

The Add Hardware dialog box is displayed.

- 12c** Select **Hard Disk**, then click **Next**.

- 12d** Select **Use an existing virtual disk**, then click **Next**.

- 12e** Next to the **Disk File Path** field, click **Browse**, browse to and select the datastore or datastore cluster where you copied the VMware data disk that your previous appliance used (Hard Disk 2). (This is the copy that you created in [Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,”](#) on page 107.) Then click **OK**.

- 12f** Click **Next**.

- 12g** In the **Virtual Device Node** section, select **SCSI (1:0)** from the drop-down list.

- 12h** (Optional) In the **Mode** section, select **Independent**, select **Persistent**.

This is a recommended best practice to prevent snapshots, which must be removed before any future upgrades are performed.

- 12i** Click **Next**.

- 12j** Click **Finish**.

- 13** Create another separate VMware hard disk for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)

- 13a** In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.

- 13b** Select **Hard Disk**, then click **Next**.

- 13c** Leave **Create a new virtual disk** selected, then click **Next**.

- 13d** In the **Disk Size** field, specify the amount of hard disk space that you want to allocate. The recommended minimum is 40 GB.
- For more detailed information about the type of information that is stored here, see [“Filtr Appliance Storage” on page 19](#).
- 13e** In the **Location** section, select **Specify a datastore or datastore cluster**, then click **Browse**.
- 13f** Select a datastore, then click **OK**.
- 13g** Click **Next**.
- 13h** In the **Virtual Device Node** section, select **SCSI (2:0)** from the drop-down list.
- 13i** Leave the **Mode** section blank, then click **Next**.
- You do not need to select anything in this section, because unlike Hard Disk 2, this hard disk does not need to be carried over on an upgrade.
- 13j** Click **Finish**.
- 14** (Conditional) If you added an additional Network Interface Controller (NIC) when you installed the Filr appliance, point the new appliance to the secondary NIC.

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the /vashare mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

- 14a** In the Virtual Machine Properties window, on the **Hardware** tab, click **Add**.
- The Add Hardware dialog box is displayed.
- 14b** Select **Ethernet Adapter**, then click **Next**.
- 14c** In the **Network Label** drop-down list, select the name of the secondary NIC.
- 14d** Click **Next > Finish**.
- 15** Increase the amount of memory that VMware allocates for the Filr appliance.
- The default of 8 GB is the recommended minimum amount of memory for a large deployment. Novell also recommends 2 CPUs.
- For an all-in-one deployment, you should increase the default to at least 12 GB of memory and 4 CPUs.
- Small deployments require more CPUs and memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in [“Changing the JVM Configuration Settings”](#) in the *Filtr 2.0: Administration Guide*, and in [Section 5.1, “Configuring the Search Index Appliance,” on page 95](#).

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 15a** In the Virtual Machine Properties window, select **Memory**, then increase the setting to a suitable size for your environment.
- 15b** Click **OK** to exit the Virtual Machine Properties window.

- 16 Before powering on the appliance that you are upgrading, ensure that the appliance has all the required disks:

Appliance Type	Appliance Disk (Disk 1) (Created new in Filr 2.0 System)	/vastorage (Disk 2) (Copied from original system)	/var (Disk 3) (Created new in Filr 2.0 System)
MySQL	Required	Required	Required
	New	Copied See Step 12.	New See Step 13.
Search Index	Required	Required	Required
	New	Copied See Step 12.	New See Step 13.
Filr	Required	Required	Required
	New	Copied See Step 12.	New See Step 13.

- 17 Power on the appliance (virtual machine).

IMPORTANT: In a large deployment, you must power on the search index and database appliances before you power on the Filr appliance. These appliances must be running at the time you power on the Filr appliance.

- 18 Click the **Console** tab.

A dialog box is displayed, prompting for the root and vaadmin passwords.

If this dialog box is not displayed after powering on the appliance, begin the upgrade process again and ensure that you have configured the new Filr system to point to the data storage location of the source Filr system.

The screenshot shows a YaST2 dialog box titled "Updating Novell Filr Appliance from version 1.1.1.682 to version 1.2.0.761". It contains four input fields: "root Password:", "Confirm root Password:", "vaadmin Password:", and "Confirm vaadmin Password:". At the bottom, there are two buttons: "Cancel" and "OK".

- 19 Specify and confirm the root and vaadmin passwords for the appliance you are upgrading from, then click **OK**.

A message indicating that the upgrade was successful is displayed.

IMPORTANT: At this stage of the upgrade process, consider the following:

- ◆ **When upgrading multiple Filr appliances in a large installation**, you must wait for the upgrade to succeed on one Filr appliance before beginning the upgrade process for another Filr appliance in the cluster.
- ◆ **When upgrading the Filr database**, the upgrade process can take a significant amount of time with no visual indication that upgrade is in process. It is typical for the upgrade to take 10 minutes for every 1 GB of information in the database. For example, upgrading a 6 GB database takes about one hour to complete.

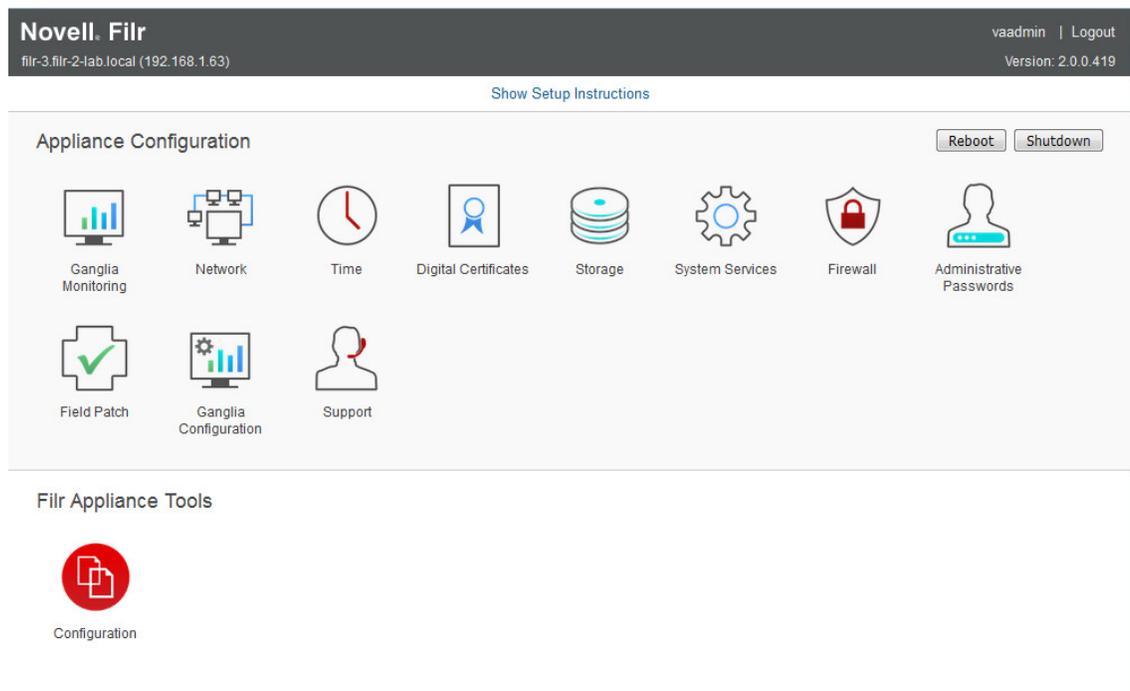
20 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

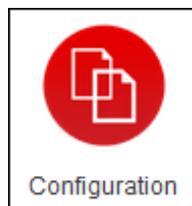
21 You can now log in to the appliance using the `vaadmin` user and the password that you set.

The Novell Filr Appliance, Novell MySQL Appliance, or Novell Filr Search Appliance landing page is displayed, depending on which appliance you are upgrading.



22 (Conditional) If you are upgrading the **search appliance**:

22a Click the **Filr Search Appliance Configuration** icon.

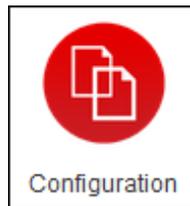


The Search Settings page is displayed.

- 22b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- 22c** Ensure that all of the settings are set to your desired specifications.
- 23** (Conditional) If you are upgrading the **database appliance**:
- 23a** Click the **phpMyAdmin** icon.



- 23b** Verify that the database is populated.
- 24** (Conditional) If you are upgrading the **Filr appliance in a large deployment**:
- 24a** Click the **Filr Appliance Configuration** icon.



The Filr Settings page is displayed.

- 24b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- Following are common configuration issues:
- ♦ If your system is not using DNS, this is most likely a problem due to unresolvable DNS names and missing `/etc/hosts` entries.
 - ♦ The Filr appliance does not have access to the database.
- 24c** Ensure that all of the settings are set to your desired specifications.
- 25** (Conditional) If you are upgrading the **Filr appliance in a small deployment**:
- 25a** Click the **Filr Appliance Configuration** icon.



The Filr Settings page is displayed.

- 25b (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- 25c Ensure that all of the settings are set to your desired specifications.
- 25d Click **Home**, then click the **phpMyAdmin** icon.



- 25e Verify that the database is populated.
- 26 In a large deployment, repeat this process for each appliance in the Filr system.
For information about how to add additional Filr appliances to the Filr system, see [“Adding a Filr Appliance to an Existing Deployment to Accommodate System Load”](#) on page 33.
- 27 Continue with [Section 8.5, “Performing Post-Upgrade Tasks,”](#) on page 128.

8.4.2 Xen

IMPORTANT: You can upgrade only to the same virtual platform as the platform where you deployed your original Filr system. For example, if your original Filr system was deployed on VMware, you can upgrade only to VMware.

- 1 Log in to the host server either locally or from a remote workstation.
You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```


You must use the -X in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.
- 2 Navigate to the `/var/lib/xen/images` directory on the host server.
- 3 Create a new directory inside the images directory where you can download the Filr software. The name of this directory must be the same as the name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory must also be `Filr1`.
- 4 Change to the directory that you just created. For example, `/var/lib/xen/images/Filr1`.
- 5 Download the software to the current directory on the host server. For example:

```
/var/lib/xen/images/Filr1
```

 - ◆ **Filr Appliance:** `Filr.x86_64-version.xen.tar.gz`

- ◆ **Search Appliance:** `Filrsearch-version.xen.tar.gz`
- ◆ **Database Appliance:** `MySQL.x86_64-version.xen.tar.gz`

You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).

- 6 Untar the file that you downloaded in [Step 5](#) in the directory where you downloaded it.

You can use the following command to untar the file:

```
tar -Sxvzf Filr.x86_64-version.xen.tar.gz
```

A `filr-version` directory is created; it contains a `.raw` file that you will use to run the virtual image. This process can take a few minutes.

- 7 From the host server, run the following command to launch the GUI configuration menu:

```
vm-install
```

The Create a Virtual Machine wizard is displayed.

- 8 Click **Forward**.
- 9 Select **I have a disk or disk image with an installed operating system**, then click **Forward**.
- 10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.
- 11 Rename the virtual machine by clicking **Name of Virtual Machine** and specifying a new name in the **Name** field. Then click **Apply**. For example, `Filr1`.
- 12 Configure the amount of memory and number of CPUs that Xen allocates for the Filr appliance.

- 12a On the Summary page, click **Hardware**, then specify the following information:

Available Memory: Displays the amount of memory that is available on the host server.

Initial Memory: 8 GB is the recommended minimum for a large deployment.

For an all-in-one deployment, you should increase the default to at least 12 GB of memory.

Small deployments require more memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*, and in [Section 5.1, “Configuring the Search Index Appliance,”](#) [page 95](#).

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

Maximum Memory: Set this to the same value as you set for Initial Memory.

Available Processors: Displays the number of available processors on the host server.

Virtual Processors: Specify 2 CPUs for a large deployment and 4 CPUs for a small deployment. At least half of the memory should be dedicated to the Java heap. (Java heap is set in the Filr configuration.)

Small deployments require more CPUs because in a small deployment, all components are running on a single virtual machine.

- 12b Click **Apply**.
- 13 Configure the bootable disk image:
 - 13a On the Summary page, click **Disks**.
 - 13b Click **Harddisk**.
 - 13c On the Virtual Disk page, specify the following information:

Source: Click **Browse**, then browse to the `.raw` file that you untared in [Step 6](#).

Protocol: Select **file**.

Size (GB): The default size is 40.1 GB. This cannot be changed.

Create Sparse Image File: This option is not available.

Read-Only Access: Do not select this option.

13d Click OK.

14 Shut down the appliance that you are upgrading.

IMPORTANT: When shutting down the appliance, be aware of the following limitations:

- ◆ In a large deployment with one or more Filr appliances, always bring down the Filr appliances first before you bring down the search appliances or database appliance. When restarting, start the Filr appliances last.
- ◆ In a large deployment with one or more Filr appliances, complete the search appliance upgrades before attempting to upgrade the Filr appliances. If the source Filr system contains multiple search index appliances, all search appliances must be upgraded and available before you run the Upgrade wizard for the Filr appliances. If not, the upgrade is not successful.

Rolling upgrades (upgrading one Filr or search index server while another continues to serve clients) are not supported when upgrading Filr in a clustered environment. This issue does not affect small or non-clustered large deployments.

- ◆ When you shut down the appliance, use the **Shutdown** button from the Novell Appliance Configuration screen (as described in “[Shutting Down and Restarting the Novell Appliance](#)” in the *Filr 2.0: Administration Guide*). You can also use the `init 0` command from the appliance console when you are logged in as `root`.

15 Before you power on the new appliance, point it to a copy of the Xen data disk (Hard Disk 2) that your previous appliance used. (This is the copy that you created in [Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,”](#) on page 107.)

15a On the Disks page, click **Harddisk**.

15b On the Virtual Disk page, specify the following information:

Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

Protocol: Select **file**.

Size (GB): Specify the amount of hard disk space that you want to allocate. The recommended minimum is 100 GB.

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

16 Create another separate Xen hard disk for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)

16a On the Disks page, click **Harddisk**.

16b On the Virtual Disk page, specify the following information:

Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

Protocol: Select **file**.

Size (GB): Specify the amount of hard disk space that you want to allocate. The recommended minimum is 40 GB.

For more detailed information about the type of information that is stored here, see “[Filtr Appliance Storage](#)” on page 19.

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

- 17 (Conditional) If you added an additional Network Interface Controller (NIC) when you installed the Filr appliance, point the new appliance to the secondary NIC.

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration
- ◆ An NFS mount or CIFS share for the /vashare mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

17a From the virtual machine page, click **Add Hardware**.

17b Select **Network**.

17c In the **Host device** drop-down list, select the name of the secondary NIC.

17d Click **Finish**.

- 18 Before powering on the appliance that you are upgrading, ensure that the appliance has all the required disks:

Appliance Type	Appliance Disk (Disk 1)	/vastorage (Disk 2) (Copied from original system)	/var (Disk 3) (Created new in Filr 2.0 System)
MySQL	Required	Required	Required
	New	Copied	New
		See Step 15 .	See Step 16 .
Search Index	Required	Required	Required
	New	Copied	New
		See Step 15 .	See Step 16 .
Filr	Required	Required	Required
	New	Copied	New
		See Step 15 .	See Step 16 .

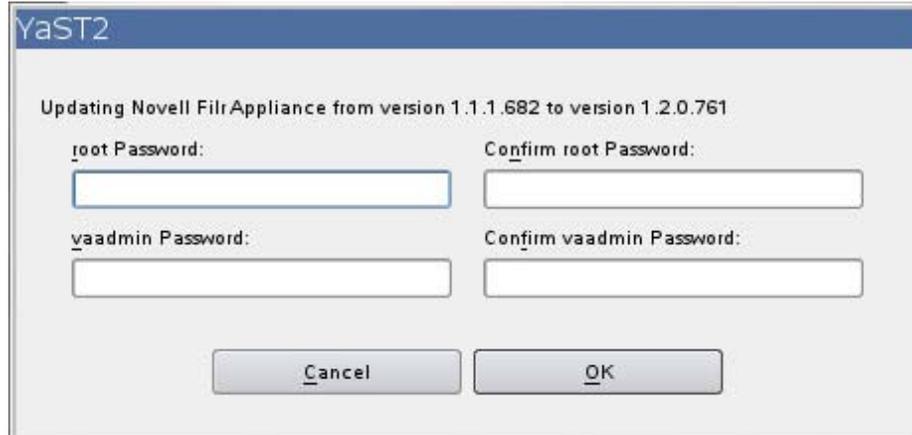
- 19 Power on the appliance (virtual machine).

IMPORTANT: In a large deployment, you must power on the search index and database appliances before you power on the Filr appliance. These appliances must be running at the time you power on the Filr appliance.

- 20 Click the **Console** tab.

A dialog box is displayed, prompting for the root and vaadmin passwords.

If this dialog box is not displayed after powering on the appliance, begin the upgrade process again and ensure that you have configured the new Filr system to point to the data storage location of the source Filr system.



The image shows a YaST2 dialog box titled "Updating Novell Filr Appliance from version 1.1.1.682 to version 1.2.0.761". It contains four password input fields arranged in a 2x2 grid. The top row is for the root user, with labels "_root Password:" and "Confirm root Password:". The bottom row is for the vaadmin user, with labels "vaadmin Password:" and "Confirm vaadmin Password:". Below the input fields are two buttons: "Cancel" and "OK".

- 21 Specify and confirm the root and vaadmin passwords for the appliance you are upgrading from, then click **OK**.

A message indicating that the upgrade was successful is displayed.

IMPORTANT: At this stage of the upgrade process, consider the following:

- ◆ **When upgrading multiple Filr appliances in a large installation**, you must wait for the upgrade to succeed on one Filr appliance before beginning the upgrade process for another Filr appliance in the cluster.
- ◆ **When upgrading the Filr database**, the upgrade process can take a significant amount of time with no visual indication that upgrade is in process. It is typical for the upgrade to take 10 minutes for every 1 GB of information in the database. For example, upgrading a 6 GB database takes about one hour to complete.

-
- 22 Click **Configure**.

A message indicating that the installation was successful is displayed.

- 23 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

- 24 Log in to the appliance using the `vaadmin` user and the password that you set.

The Novell Filr Appliance, Novell MySQL Appliance, or Novell Filr Search Appliance landing page is displayed, depending on which appliance you are upgrading.

Novell. Filr vaadmin | Logout
 filr-3.filr-2-lab.local (192.168.1.63) Version: 2.0.0.419

[Show Setup Instructions](#)

[Reboot](#) [Shutdown](#)

Appliance Configuration


 Ganglia Monitoring


 Network


 Time


 Digital Certificates


 Storage


 System Services


 Firewall


 Administrative Passwords


 Field Patch


 Ganglia Configuration

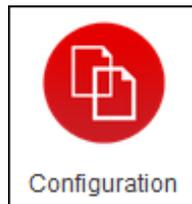

 Support

Filr Appliance Tools


 Configuration

25 (Conditional) If you are upgrading the **search appliance**:

25a Click the **Filr Search Appliance Configuration** icon.



The Search Settings page is displayed.

25b (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.

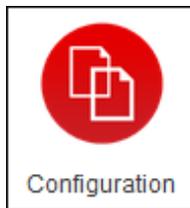
25c Ensure that all of the settings are set to your desired specifications.

26 (Conditional) If you are upgrading the **database appliance**:

26a Click the **phpMyAdmin** icon.

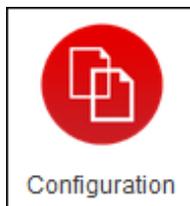


- 26b** Verify that the database is populated.
- 27** (Conditional) If you are upgrading the **Filr appliance in a large deployment**:
- 27a** Click the **Filr Appliance Configuration** icon.



The Filr Settings page is displayed.

- 27b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- Following are common configuration issues:
- ♦ If your system is not using DNS, this is most likely a problem due to unresolvable DNS names and missing `/etc/hosts` entries.
 - ♦ The Filr appliance does not have access to the database.
- 27c** Ensure that all of the settings are set to your desired specifications.
- 28** (Conditional) If you are upgrading the **Filr appliance in a small deployment**:
- 28a** Click the **Filr Appliance Configuration** icon.



The Search Settings page is displayed.

- 28b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- 28c** Ensure that all of the settings are set to your desired specifications.
- 28d** Click **Home**, then click the **phpMyAdmin** icon.



- 28e Verify that the database is populated.
- 29 In a large deployment, repeat this process for each appliance in the Filr system.
For information about how to add additional Filr appliances to the Filr system, see [“Adding a Filr Appliance to an Existing Deployment to Accommodate System Load”](#) on page 33.
- 30 Continue with [Section 8.5, “Performing Post-Upgrade Tasks,”](#) on page 128.

8.4.3 Hyper-V

IMPORTANT: You can upgrade only to the same virtual platform as the platform where you deployed your original Filr system. For example, if your original Filr system was deployed on VMware, you can upgrade only to VMware.

- 1 Log in to the host server either locally or from a remote workstation.
You can use Windows Remote Desktop to log in to the host server from a remote workstation.
- 2 Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the Filr software to this directory.

As a best practice, give this directory the same name that you plan to use for your Filr virtual appliance. For example, if you plan to name the Filr appliance `Filr1`, the name of this new directory should also be `Filr1`.
- 3 Download the software to your management workstation:
 - ◆ **Filr Appliance:** `Filr.x86_64-version.ovf.zip`
 - ◆ **Search Appliance:** `Filrsearch-version.ovf.zip`
 - ◆ **Database Appliance:** `MySQL.x86_64-version.ovf.zip`You can access the software from the [Novell Customer Center \(NCC\)](https://www.novell.com/center) (<https://www.novell.com/center>). Or, you can access an evaluation version on the [Novell Downloads page](http://download.novell.com) (<http://download.novell.com>).
- 4 Extract the file that you downloaded in [Step 3](#) to the directory on the host server that you created in [Step 2](#).
- 5 Open the Hyper-V Manager.
- 6 In Hyper-V Manager, right-click the disk name in the Action Pane where you want to create the new virtual machine, then click **New > Virtual Machine**.
The New Virtual Machine Wizard is displayed.
- 7 Review the Before You Begin page, then click **Next**.

- 8 In the **Name** field, specify a name for the new virtual machine. For example, `Filr1`.
- 9 Click **Next**.
- 10 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. 8 GB (8192 MB) is the recommended minimum for a large deployment of Filr.
For an all-in-one (small) deployment, you should increase the default to at least 12 GB (12288 MB) of memory. Small deployments require more memory because in a small deployment, all components are running on a single virtual machine.

IMPORTANT: When you increase or decrease server memory for the Filr appliance or the search index appliance, you should also modify the Java heap size, as described in “[Changing the JVM Configuration Settings](#)” in the *Filr 2.0: Administration Guide*, and in [Section 5.1](#), “[Configuring the Search Index Appliance](#),” on page 95.

At least half of the memory should be dedicated to the Java heap. You cannot adjust the Java heap until after the appliance is installed.

- 11 Click **Next**.
- 12 On the Configure Networking page, select the networking card of your choice, then click **Next**.
- 13 Configure the bootable disk image:
 - 13a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in [Step 4](#).
 - 13b Click **Open** to select the file, then click **Next**.
- 14 Click **Finish**.

WARNING: If for any reason you need to delete the new or the previous appliance, you *must* unlink (remove) the disk. Otherwise, the disk is deleted. Having the disk linked to the original or to the new appliance does not provide the expected safeguard. In other words, if the disk is linked to multiple appliances and you delete one of them, the disk is deleted despite the remaining link.

- 15 Shut down the appliance that you are upgrading.

IMPORTANT: When shutting down the appliance, be aware of the following limitations:

- ◆ In a large deployment with one or more Filr appliances, always bring down the Filr appliances first before you bring down the search appliances or database appliance. When restarting, start the Filr appliances last.
 - ◆ In a large deployment with one or more Filr appliances, complete the search appliance upgrades before attempting to upgrade the Filr appliances. If the source Filr system contains multiple search index appliances, all search appliances must be upgraded and available before you run the Upgrade wizard for the Filr appliances. If not, the upgrade is not successful.

Rolling upgrades (upgrading one Filr or search index server while another continues to serve clients) are not supported when upgrading Filr in a clustered environment. This issue does not affect small or non-clustered large deployments.
 - ◆ When you shut down the appliance, use the **Shutdown** button from the Novell Appliance Configuration screen (as described in “[Shutting Down and Restarting the Novell Appliance](#)” in the *Filr 2.0: Administration Guide*). You can also use the `init 0` command from the appliance console when you are logged in as `root`.
-

- 16 Before you power on the new appliance, point it to a copy of the Hyper-V data disk that your previous appliance used (Hard Disk 2). (This is the copy that you created in [Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,”](#) on page 107.)
 - 16a In Hyper-V Manager, right-click the virtual machine that you just created, then click **Settings**.
 - 16b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
 - 16c Select **Virtual hard disk**, then click **New**.
 - 16d Review the Before You Begin page, then click **Next**.
 - 16e On the Choose Disk Format page, select **VHD**, then click **Next**.
 - 16f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
 - 16g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk2`.
 - Location:** Specify the location where you want the hard drive to be located.
 - 16h On the Configure Disk page, select **Use an existing blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 25 GB.

For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage”](#) on page 19.
 - 16i Click **Next**.
 - 16j Review the summary information, then click **Finish > OK**.
- 17 Create another separate Hyper-V hard disk for the appliance. This hard disk is used to store the `/var` directory for the appliance. (The `/var` directory is where system events for the Novell appliances are logged.)
 - 17a In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.
 - 17b In the **Add Hardware** section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.
 - 17c Select **Virtual hard disk**, then click **New**.
 - 17d Review the Before You Begin page, then click **Next**.
 - 17e On the Choose Disk Format page, select **VHD**, then click **Next**.
 - 17f On the Choose Disk Type page, select **Fixed size**, then click **Next**.
 - 17g On the Specify Name and Location page, specify the following information, then click **Next**:
 - Name:** Specify a name for the hard disk. For example, `FilrDisk3`.
 - Location:** Specify the location where you want the hard drive to be located.
 - 17h On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. The recommended minimum is 40 GB.

For more detailed information about the type of information that is stored here, see [“Filr Appliance Storage”](#) on page 19.
 - 17i Click **Next**.
 - 17j Review the summary information, then click **Finish > OK**.
- 18 (Conditional) If you added an additional Network Interface Controller (NIC) when you installed the Filr appliance, point the new appliance to the secondary NIC.

IMPORTANT: An additional NIC should be used only if you have multiple networks associated with the Filr site for one or more of the following purposes:

- ◆ Appliance administration

- ◆ An NFS mount or CIFS share for the /vashare mount point
- ◆ Security of memcached in a Filr-clustered deployment

Bonding or teaming NICs is not supported with Filr.

18a In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click **Settings**.

18b In the **Add Hardware** section, select **Networks Adapter**, then click **Add**.

18c In the **Virtual Switch** drop-down list, select the name of the secondary NIC.

18d Make any other relevant configuration changes, then click **OK**.

19 Before powering on the appliance that you are upgrading, ensure that the appliance has all the required disks:

Appliance Type	Appliance Disk (Disk 1)	/vastorage (Disk 2) (Copied from original system)	/var (Disk 3) (Created new in Filr 2.0 system)
MySQL	Required	Required	Required
	New	Copied See Step 16 .	New See Step 17 .
Search Index	Required	Required	Required
	New	Copied See Step 16 .	New See Step 17 .
Filr	Required	Required	Required
	New	Copied See Step 16 .	New See Step 17 .

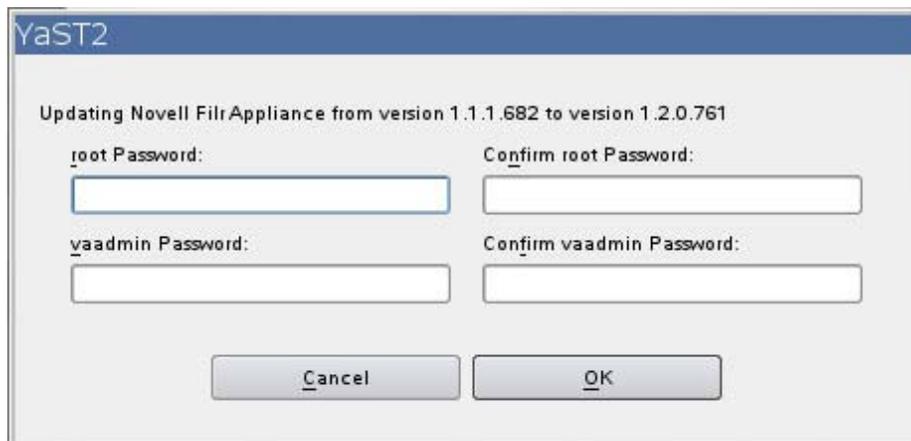
20 Power on the appliance (virtual machine).

IMPORTANT: In a large deployment, you must power on the search index and database appliances before you power on the Filr appliance. These appliances must be running at the time you power on the Filr appliance.

21 Click the **Console** tab.

A dialog box is displayed, prompting for the root and vaadmin passwords.

If this dialog box is not displayed after powering on the appliance, begin the upgrade process again and ensure that you have configured the new Filr system to point to the data storage location of the source Filr system.



- 22 Specify and confirm the root and vaadmin passwords for the appliance you are upgrading from, then click **OK**.

A message indicating that the upgrade was successful is displayed.

IMPORTANT: At this stage of the upgrade process, consider the following:

- ♦ **When upgrading multiple Filr appliances in a large installation**, you must wait for the upgrade to succeed on one Filr appliance before beginning the upgrade process for another Filr appliance in the cluster.
- ♦ **When upgrading the Filr database**, the upgrade process can take a significant amount of time with no visual indication that upgrade is in process. It is typical for the upgrade to take 10 minutes for every 1 GB of information in the database. For example, upgrading a 6 GB database takes about one hour to complete.

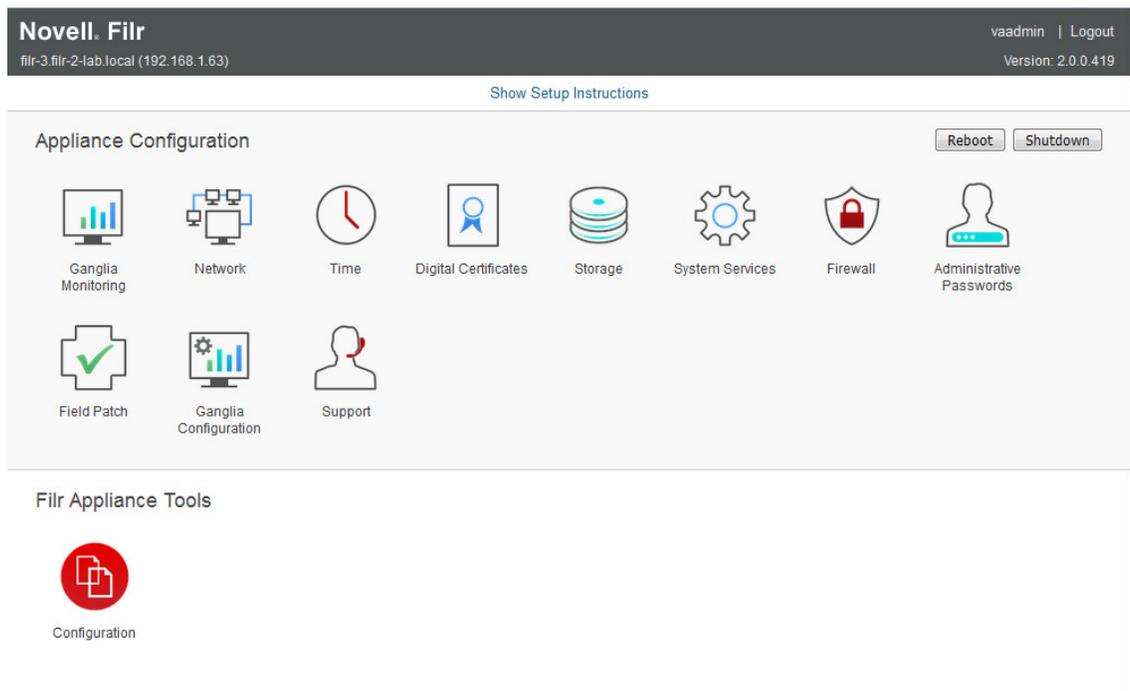
-
- 23 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

- 24 Log in to the appliance using the `vaadmin` user and the password that you set.

The Novell Filr Appliance, Novell MySQL Appliance, or Novell Filr Search Appliance landing page is displayed, depending on which appliance you are upgrading.



25 (Conditional) If you are upgrading the **search appliance**:

25a Click the **Filr Search Appliance Configuration** icon.



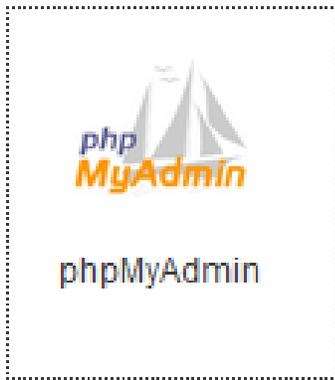
The Search Settings page is displayed.

25b (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.

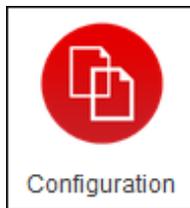
25c Ensure that all of the settings are set to your desired specifications.

26 (Conditional) If you are upgrading the **database appliance**:

26a Click the **phpMyAdmin** icon.



- 26b** Verify that the database is populated.
- 27** (Conditional) If you are upgrading the **Filr appliance in a large deployment**:
- 27a** Click the **Filr Appliance Configuration** icon.



The Filr Settings page is displayed.

- 27b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.

Following are common configuration issues:

- ♦ If your system is not using DNS, this is most likely a problem due to unresolvable DNS names and missing `/etc/hosts` entries.
- ♦ The Filr appliance does not have access to the database.

- 27c** Ensure that all of the settings are set to your desired specifications.
- 28** (Conditional) If you are upgrading the **Filr appliance in a small deployment**:
- 28a** Click the **Filr Appliance Configuration** icon.



The Filr Settings page is displayed.

- 28b** (Conditional) If the Filr Configuration wizard is displayed rather than the Settings page, there was a problem with the configuration. Resolve any configuration issues, then click **Finish** to reconfigure the system.
- 28c** Ensure that all of the settings are set to your desired specifications.
- 28d** Click **Home**, then click the **phpMyAdmin** icon.



- 28e** Verify that the database is populated.
- 28f** (Optional) On the target Filr system, remove the disk that you used for the backup of the database from the database appliance. You can either delete the disk or store it in a separate location.
- 29** In a large deployment, repeat this process for each appliance in the Filr system.
For information about how to add additional Filr appliances to the Filr system, see [“Adding a Filr Appliance to an Existing Deployment to Accommodate System Load”](#) on page 33.
- 30** Continue with [Section 8.5, “Performing Post-Upgrade Tasks,”](#) on page 128.

8.5 Performing Post-Upgrade Tasks

After upgrading to Filr 2.0, you should perform the following tasks to ensure a fully functional Filr system:

- ♦ [Section 8.5.1, “Rebuilding the Metadata and Content Search Indexes,”](#) on page 128
- ♦ [Section 8.5.2, “Re-Enabling SSH on the Filr Search and Database Appliances,”](#) on page 128
- ♦ [Section 8.5.3, “Install Your Filr 2.0 License,”](#) on page 129

8.5.1 Rebuilding the Metadata and Content Search Indexes

Because of changes made to the index schema in the Filr 1.2 release, you must re-index your Filr site if you are upgrading from Filr 1.1 to Filr 2.0.

If you are upgrading from Filr 1.2 to Filr 2.0, rebuilding the index is not required.

For information about how to re-index the Filr site, see [“Rebuilding the Lucene Index”](#) in the *Filr 2.0: Administration Guide*.

8.5.2 Re-Enabling SSH on the Filr Search and Database Appliances

If you enabled SSH on the search or database appliances before upgrading your Filr system, it is disabled after upgrading, and you need to re-enable it. For more information about how to enable SSH, see [“Changing System Services Configuration”](#) in the *Filr 2.0: Administration Guide*.

8.5.3 Install Your Filr 2.0 License

Upgraded Filr 2.0 appliances have a 60-day evaluation license installed.

To prevent a service interruption, you must install your 2.0 license by following the instructions in “[Viewing and Updating the Filr License](#)” in the *Filr 2.0: Administration Guide*.

9 Troubleshooting the Filr Installation and Upgrade

- [Section 9.1, “The Upgrade Dialog Box Is Not Displayed during an Upgrade,” on page 131](#)
- [Section 9.2, “Rolling Back to the Previous Version after an Unsuccessful Upgrade,” on page 131](#)

9.1 The Upgrade Dialog Box Is Not Displayed during an Upgrade

The following dialog box should be displayed when powering on the new appliance. If it is not displayed, the data storage location was not successfully copied or attached to the new Filr system. Begin the upgrade process again and ensure that you have configured the new Filr system to point to the data storage location of the source Filr system.



9.2 Rolling Back to the Previous Version after an Unsuccessful Upgrade

You can roll the Filr system back to the previous version if the upgrade is unsuccessful.

- [Section 9.2.1, “Rolling Back a Small or Non-Clustered Filr System,” on page 131](#)
- [Section 9.2.2, “Rolling Back a Clustered Filr System,” on page 132](#)

9.2.1 Rolling Back a Small or Non-Clustered Filr System

You should have created a copy of the data storage location (/vastorage) to be used in the new Filr system (as described in [Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 107](#)).

If you experience complications when upgrading the Filr system, your existing Filr system is still intact and you are able to power it on at any time.

9.2.2 Rolling Back a Clustered Filr System

A clustered Filr system (multiple Filr appliances) consists of not only a data storage location (`/vastorage`), but also shared storage (`/vashare`).

- “Rolling Back the Data Storage Location (`/vastorage`)” on page 132
- “Rolling Back the Shared Storage Location (`/vashare`)” on page 132

Rolling Back the Data Storage Location (`/vastorage`)

You should have created a copy of the data storage location (`/vastorage`) to be used in the new Filr system (as described in Section 8.3, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 107).

If you experience complications when upgrading the Filr system, the data storage location of your existing Filr system is still intact.

Rolling Back the Shared Storage Location (`/vashare`)

After an unsuccessful upgrade, you can roll back the shared storage location (`/vashare`) to the previous version by reconfiguring clustering on the Filr server:

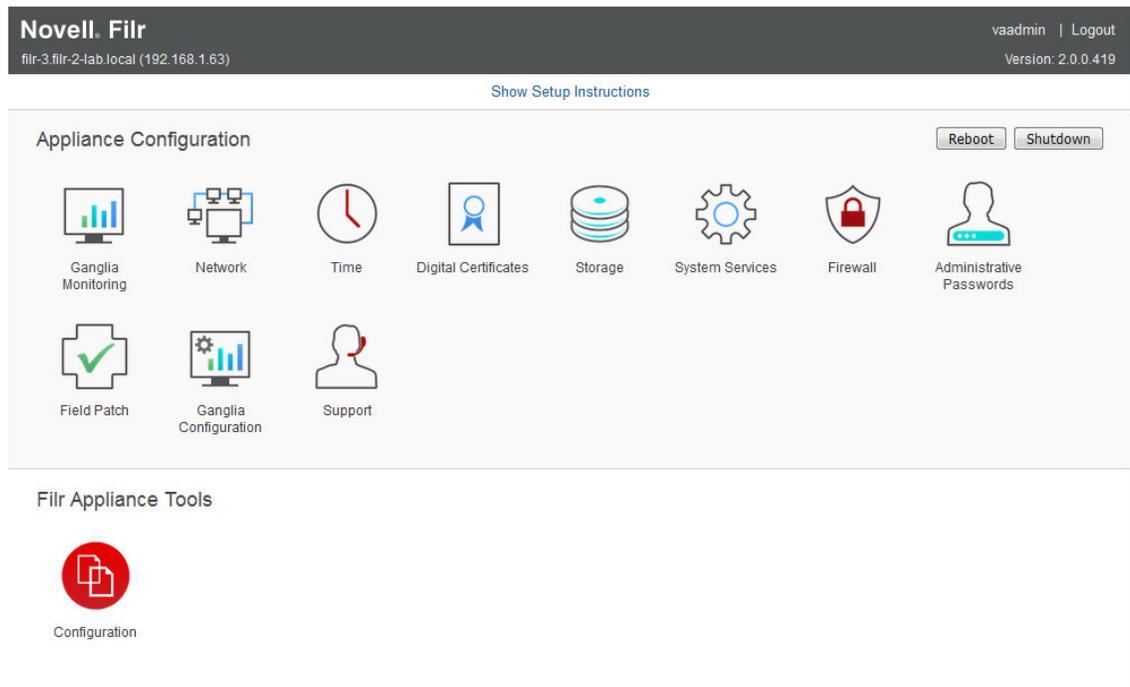
- 1 On the Filr appliance that you are rolling back to, log in as the Filr administrator.

`https://ip_address:9443`

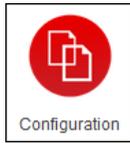
Replace `ip_address` with the IP address of your Filr appliance.

- 2 Sign in to the Filr appliance using the `vaadmin` user and the password that you set during installation.

The Novell Filr Appliance landing page is displayed.



- 3 Click the **Filr Server Configuration** icon.



- 4 Click **Clustering**.
- 5 In the **Server Address** field, add the port number to the server address of each search index appliance.
For example, change 172.17.2.2 to 172.17.2.2:11211

Appendixes

- ◆ [Appendix A, “Installing Novell Filr in Silent Mode,” on page 137](#)
- ◆ [Appendix B, “Migrating the Filr Database from MySQL to Microsoft SQL,” on page 141](#)
- ◆ [Appendix C, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 149](#)
- ◆ [Appendix D, “Troubleshooting the Filr System,” on page 151](#)
- ◆ [Appendix E, “Third-Party Materials,” on page 153](#)
- ◆ [Appendix F, “Documentation Updates,” on page 161](#)

A Installing Novell Filr in Silent Mode

If you are familiar with Novell Filr installation and you want to get the system installed quickly, you can leverage the Novell Filr silent installation.

Silent installation requires that you create the following two files:

- ♦ **vaauto.conf:** Contains the operating system configuration that is used by the system installation program.

The contents of this file are the same regardless of which appliance you are installing (Filr, search index, or database).

- ♦ **appliance.conf:** Contains the appliance-specific configuration that is used by the configuration wizard.

The contents of this file differ depending on the appliance that you are installing (Filr, search index, or database).

Filr supports silent installation and silent upgrade:

- ♦ [Section A.1, “Installing Filr in Silent Mode,” on page 137](#)
- ♦ [Section A.2, “Upgrading Filr in Silent Mode,” on page 140](#)

A.1 Installing Filr in Silent Mode

To install Filr as a new installation in silent mode:

- 1 Create the `vaauto.conf` file. You need to populate this file with configuration information. Following is an example of the type of information that is required:

```
I_HAVE_ACCEPTED_THE_PRODUCT_LICENSE_AGREEMENT="yes"
CONFIG_VAINIT_ROOT_PASSWORD="password" (example: novell)
CONFIG_VAINIT_APPLIANCE_PASSWORD="password" (example: novell)
CONFIG_VAINIT_HOSTNAME="hostname.domain" (example: filr.novell.com)
CONFIG_VAINIT_IPADDRESS="ip_address" (example: 172.17.2.3)
CONFIG_VAINIT_NETWORK_MASK="network_mask" (example: 255.255.252.0)
CONFIG_VAINIT_GATEWAY="network_gateway" (example: 172.17.2.254)
CONFIG_VAINIT_DNS_SERVER="dns_server" (example: 172.17.247.1)
CONFIG_VAINIT_DNS_SERVER_ALTERNATE="dns_server" (example: 172.17.160.160)
CONFIG_VAINIT_NTP_SERVER="ntp_server" (example: tock.novell.com)
CONFIG_VAINIT_TIMEZONE="timezone" (example: America/Denver)
CONFIG_VAINIT_STORAGE_TYPE="device"
CONFIG_VAINIT_SHARED_STORAGE_TYPE=""
CONFIG_VAINIT_NFS_SERVER_HOST=""
CONFIG_VAINIT_SHARED_NFS_SERVER_HOST=""
```

```

CONFIG_VAINIT_NFS_REMOTE_DIR=" "
CONFIG_VAINIT_SHARED_NFS_REMOTE_DIR=" "
CONFIG_VAINIT_SHARED_CIFS_SERVER_FOLDER=" "
CONFIG_VAINIT_SHARED_CIFS_ADMIN=" "
CONFIG_VAINIT_DEVICE_STORAGE="type:uninitialized drive:sdb size:16.00G
format:ext3"
#CONFIG_VAINIT_DEVICE_STORAGE="type:uninitialized drive:sdb size:*
format:ext3"
CONFIG_VAINIT_VAR_STORAGE_TYPE="device"
CONFIG_VAINIT_VAR_STORAGE="type:uninitialized drive:sdc size:* format:ext3"
CONFIG_VAINIT_SHARED_DEVICE_STORAGE=" "
CONFIG_VAINIT_HOSTNAME_2=" "
CONFIG_VAINIT_IPADDRESS_2=" "
CONFIG_VAINIT_NETWORK_MASK_2=" "

```

You can populate the `vaauto.conf` file by using either of the following methods:

- ◆ If you have already installed Filr using the regular installation process prior to running a silent installation, you can copy the information from the previously installed system. (For information about how to install Filr, see [Section 3.1.2, “Installing the Filr Appliance,” on page 47.](#))
 1. Start the SSH service on the Filr appliance that is currently running, for which you want to copy system information to be used in your silent installation.
For information about how to enable SSH on the appliance, see [“Changing System Services Configuration”](#) in the *Filr 2.0: Administration Guide*.
 2. SSH to the Filr appliance.
 3. Change to the following directory and copy the `/etc/sysconfig/novell/Nv1VAinit` file to your workstation.
 4. Copy each configuration setting that contains a value from the `Nv1VAinit` file and paste them into the `vaauto.conf` file.

IMPORTANT:

Do not copy the following setting:

- ◆ `SERVICE_CONFIGURED="YES"`

Ensure that you do copy the following settings:

- ◆ `I_HAVE_ACCEPTED_THE_PRODUCT_LICENSE_AGREEMENT="yes"`
`CONFIG_VAINIT_ROOT_PASSWORD="password" (example: novell)`
`CONFIG_VAINIT_APPLIANCE_PASSWORD="password" (example: novell)`
`CONFIG_VAINIT_APPLIANCE_PASSWORD="password" (example: novell)`

Configuration options that do not have values are not being used in your environment, and do not need to be copied. All other configuration options that do contain values do need to be copied.

- ◆ Copy and paste the configuration options above to your own `vaauto.conf` file. When doing so, specify the values unique to your environment, and delete the example text.
For information about each option, see [Section 3.1.2, “Installing the Filr Appliance,” on page 47.](#)
- 2 Create the `appliance.conf` file for the appliance that you are installing. The information that the `appliance.conf` file must contain differs depending on the appliance.
For simplicity, you can copy and paste the configuration options below to your own `appliance.conf` file. When doing so, delete the example text.

NOTE: There is no silent installation or upgrade option for the database appliance. The installation and configuration of the database appliance must be done by using the Filr installation program, as described in [Section 4.2, "Installing the MySQL Database Appliance," on page 65](#).

NOTE: If you do not set the password encoding, passwords are not encoded by default.

If you do not set a password, the default password is `novell`.

2a (Conditional) If you are installing the Filr appliance in a small deployment, use the following information:

```
filr.passwords.encoded=yes
filr.deployment.type=small
filr.database.user.password=filr
filr.locale.country=locale_code (example: "US")
filr.locale.language=language_code (example "en")
```

2b (Conditional) If you are installing the Filr appliance in a large deployment, use the following information:

```
filr.passwords.encoded=yes
filr.deployment.type=large
filr.database.type=mysql
#filr.database.type=sqlserver
filr.database.user.password=filr
filr.database.user.name=filr
filr.database.port=3306
filr.database.host.name=database_host (example: filrdb.novell.com)
filr.database.name=filr
filr.search.Service.name=lucene service
filr.search.port=1188
filr.search.host.name=search_host (example: filrsearch.novell.com)
filr.search.password=filr
filr.locale.country=locale_code (example: US)
filr.locale.language=language_code (example: en)
```

2c (Conditional) If you are installing the search index appliance, use the following information:

```
lucene.passwords.encoded=yes
lucene.server.password=filr
lucene.max.booleans=10000
lucene.ram.buffer.size.mb=256
lucene.merge.factor= 11
lucene.java.max.heap.size=3g
lucene.java.max.thread.stack.size=3m
```

2d (Conditional) If you are installing the MySQL appliance, use the following information:

```
mysql.passwords.encoded=yes
mysql.filr.username.password=filr
mysql.filr.database.name=filr
mysql.filr.username=filr
mysql.host.access=%
mysql.root.password=root
```

3 Create an ISO image that contains the `vaauto.conf` and `appliance.conf` files that you created in [Step 1](#) and [Step 2](#).

The files must be located at the root of the ISO image, and the ISO image must be in a location where you can attach it to the virtual appliance.

Give the ISO image any name of your choosing.

You can download free tools from the Internet that allow you to create ISO images. An example of one such tool is Virtual CloneDrive.

- 4 Add a second hard disk for the appliance, as described in [Section 3.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 37.](#)
- 5 Attach the ISO image to a CD-ROM device on the virtual appliance that you are installing.
- 6 Ensure that the CD-ROM device is set to connect to the appliance when the appliance powers on.
- 7 Power on the appliance.
- 8 Detach the ISO image after the installation has successfully completed.
- 9 Continue with [Chapter 7, “Setting Up the Filr Site,” on page 101](#) to make your site ready for user access.

A.2 Upgrading Filr in Silent Mode

To upgrade Filr from one version to another:

- 1 Create the `vaauto.conf` file. The file must contain the following information:

For simplicity, you can copy and paste the configuration options below to your own `vaauto.conf` file. When doing so, delete the example text.

Filr retrieves most configuration information from the shared storage directory. For an upgrade, you only need to provide Filr with the passwords for the root and vaadmin users.

```
CONFIG_VAINIT_ROOT_PASSWORD="password" (example: "novell")  
CONFIG_VAINIT_APPLIANCE_PASSWORD="password" (example: "novell")
```

- 2 Create an ISO image that contains the `vaauto.conf` file that you created in [Step 1](#).

The ISO image must be in a location where you can attach it to the virtual appliance.

Give the ISO image any name of your choosing.

You can download free tools from the Internet that allow you to create ISO images. An example of one such tool is Virtual CloneDrive.

- 3 Add a second hard disk for the appliance, as described in [Section 3.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 37.](#)
- 4 Attach the ISO image to a CD-ROM device on the virtual appliance that you are upgrading before you power on the appliance.
- 5 Power on the appliance.
- 6 Detach the ISO image after the upgrade has successfully completed.

Your Filr site is now upgraded and ready for use.

B Migrating the Filr Database from MySQL to Microsoft SQL

You can migrate the Filr database from the MySQL database appliance that ships with Filr to an enterprise database.

This section describes how to migrate from the MySQL database appliance to Microsoft SQL.

IMPORTANT: When migrating from the MySQL database appliance to Microsoft SQL, you must first migrate the database schema and then the data as described in this section.

- ♦ [Section B.1, “Prerequisites,” on page 141](#)
- ♦ [Section B.2, “Configuring the Existing Microsoft SQL Database Server,” on page 142](#)
- ♦ [Section B.3, “Connecting to the MySQL Database Server,” on page 142](#)
- ♦ [Section B.4, “Connecting to the Microsoft SQL Server,” on page 143](#)
- ♦ [Section B.5, “Customizing Data Types,” on page 143](#)
- ♦ [Section B.6, “Migrating the Database Schema,” on page 144](#)
- ♦ [Section B.7, “Migrating Data,” on page 145](#)
- ♦ [Section B.8, “Running Post-Migration Scripts,” on page 145](#)
- ♦ [Section B.9, “Post-Migration Steps,” on page 146](#)
- ♦ [Section B.10, “Modifying Liquibase Tables,” on page 147](#)

B.1 Prerequisites

- ♦ Download the latest MySQL Connector/ODBC driver to the Microsoft SQL server. You can get this driver from the [MySQL development website \(http://dev.mysql.com/downloads/connector/odbc/\)](http://dev.mysql.com/downloads/connector/odbc/).

This driver enables you to establish a connection between the MySQL server and the Microsoft SQL server.

- ♦ Download and install the Microsoft SQL Server Migration Assistant for MySQL onto the Microsoft SQL server, as described in the [Microsoft Developer Network \(http://msdn.microsoft.com/en-us/library/hh313147\(v=sql.110\).aspx\)](http://msdn.microsoft.com/en-us/library/hh313147(v=sql.110).aspx).
- ♦ Modify an existing user on the MySQL Appliance so that the user is associated with the IP address or DNS name of the Microsoft SQL server where the Microsoft SQL Server Migration Assistant for MySQL is installed. This can be accomplished via phpMyAdmin or the MySQL appliance.
- ♦ Stop the Filr service on any Filr appliances in the Filr system, as described in “[Changing System Services Configuration](#)” in the *Filr 2.0: Administration Guide*.

B.2 Configuring the Existing Microsoft SQL Database Server

For information regarding which versions of the Microsoft SQL database Filr supports, see [Section 1.2.1, “Filr Server Requirements,” on page 13](#).

To configure an existing Microsoft SQL database to be used with your Filr system:

- 1 Enable remote access to the Microsoft SQL database server.
- 2 Open port 1433 on the Windows firewall where the database is running.
- 3 Identify a user account configured with SQL Server Authentication and that this user has sufficient rights to manage the Filr database.

Filr supports only SQL Server Authentication. Filr does not support Windows Authentication or Windows Domain User Authentication to Microsoft SQL.

- 4 Using Microsoft SQL Server Management Studio, create a new database to use as the Filr database.

Select the Master database in the list of databases, then paste the following script into the **New Query** window and execute it to create the new Filr database:

```
USE master;
GO
IF DB_ID (N'filr') IS NOT NULL
DROP DATABASE filr;
GO
CREATE DATABASE filr
COLLATE Latin1_General_100_BIN;
GO

--Verify the collation setting.
SELECT name, collation_name FROM sys.databases WHERE name = N'filr';
GO
```

If your database name is something other than `filr`, replace `filr` with the name of your database in the script.

- 5 Continue with [Section B.3, “Connecting to the MySQL Database Server,” on page 142](#).

B.3 Connecting to the MySQL Database Server

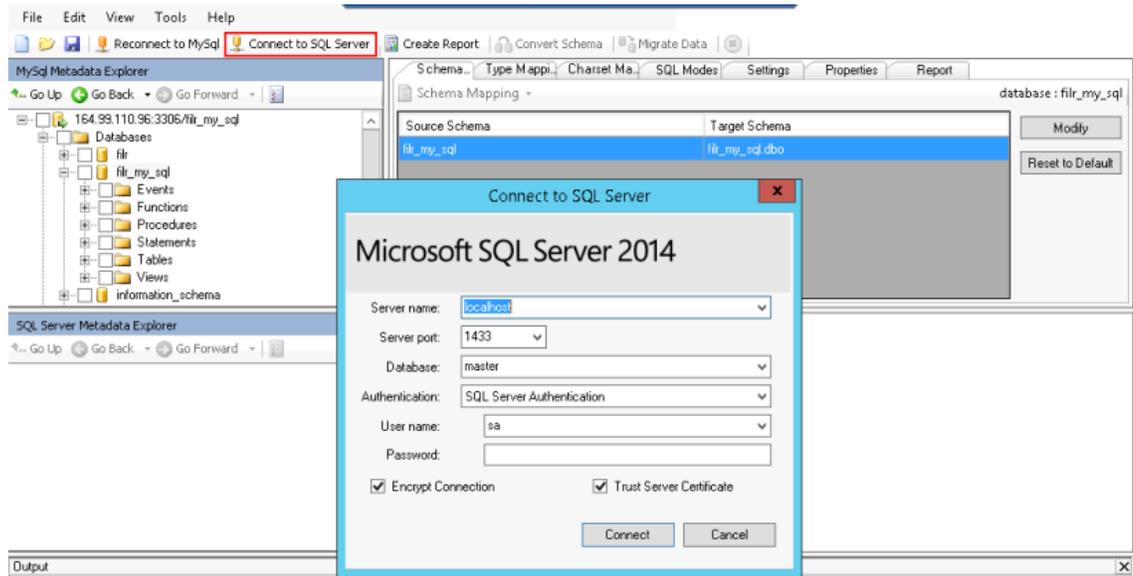
- 1 On the Microsoft SQL server, launch the Microsoft SQL Server Migration Assistant for MySQL.
- 2 Create a new project by clicking **File > New Project**.
The New Project dialog box is displayed.
- 3 Accept the defaults for the project by clicking **OK**.
- 4 Click **Connect to MySql**.
The Connect to MySql dialog box is displayed.
- 5 In the **Provider** drop-down list, select the **MySQL ODBC 5.3 Unicode Driver (v5.3.x)**.
This option must be selected because the Filr database uses a Unicode character set.
- 6 In the **Server name** field, specify the IP address of the MySQL database appliance that you are migrating from.
- 7 Specify the user name and password for the MySQL database, then click **Connect**.

A connection to the MySQL server is established.

- 8 Continue with [Section B.4, “Connecting to the Microsoft SQL Server,”](#) on page 143.

B.4 Connecting to the Microsoft SQL Server

- 1 In the **MySQL Metadata Explorer** window, browse to and select your MySQL database.
- 2 Click **Connect to SQL Server**.



- 3 Accept the defaults for connecting to the Microsoft SQL server, then specify the user name and password for a user with sufficient rights on the database.
- 4 Click **Connect**.
A connection to the Microsoft SQL server has been established.
- 5 Continue with [Section B.5, “Customizing Data Types,”](#) on page 143.

B.5 Customizing Data Types

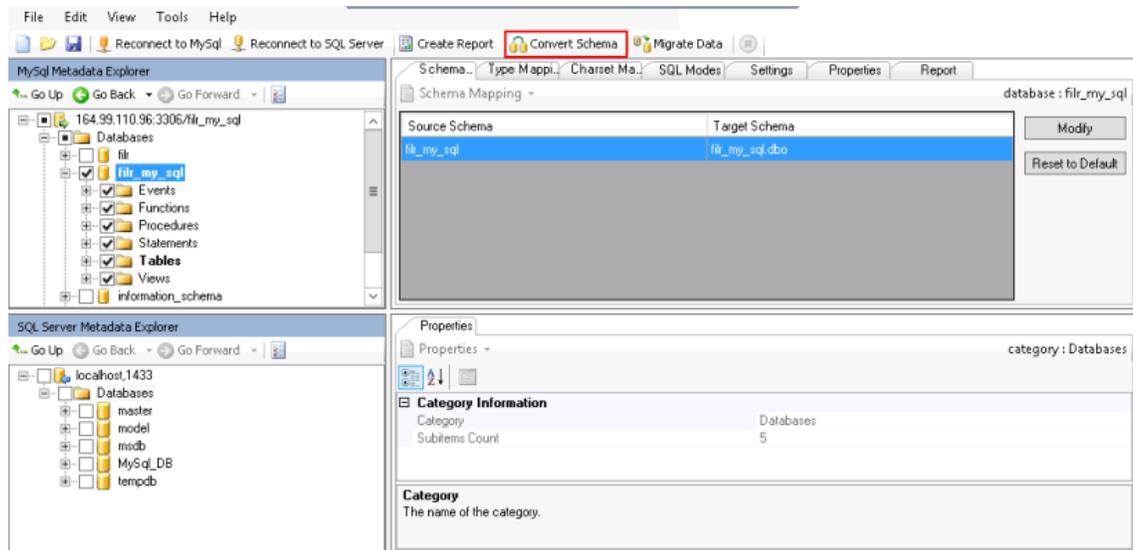
- 1 On the Microsoft SQL server, launch the Microsoft SQL Server Migration Assistant for MySQL.
- 2 Click **Tools > Project Settings**.
The Project Settings dialog box is displayed.
- 3 Click **Type Mapping**, select **bigint(*..255)** in the **Source Type** column, then click **Edit**.
The Edit Type Mapping dialog box is displayed.
- 4 In the **Target Type** drop-down list, select **Numeric (Precision, Scale)**.
- 5 In the **Precision** section, specify 19.
- 6 In the **Scale** section, specify 0, then click **OK**.
- 7 Select **datetime** in the **Source Type** column, then click **Edit**.
The Edit Type Mapping dialog box is displayed.
- 8 In the **Target Type** drop-down list, select **datetime**, then click **OK**.

- 9 Click **Apply** > **OK**.
- 10 Continue with [Section B.6, “Migrating the Database Schema,”](#) on page 144.

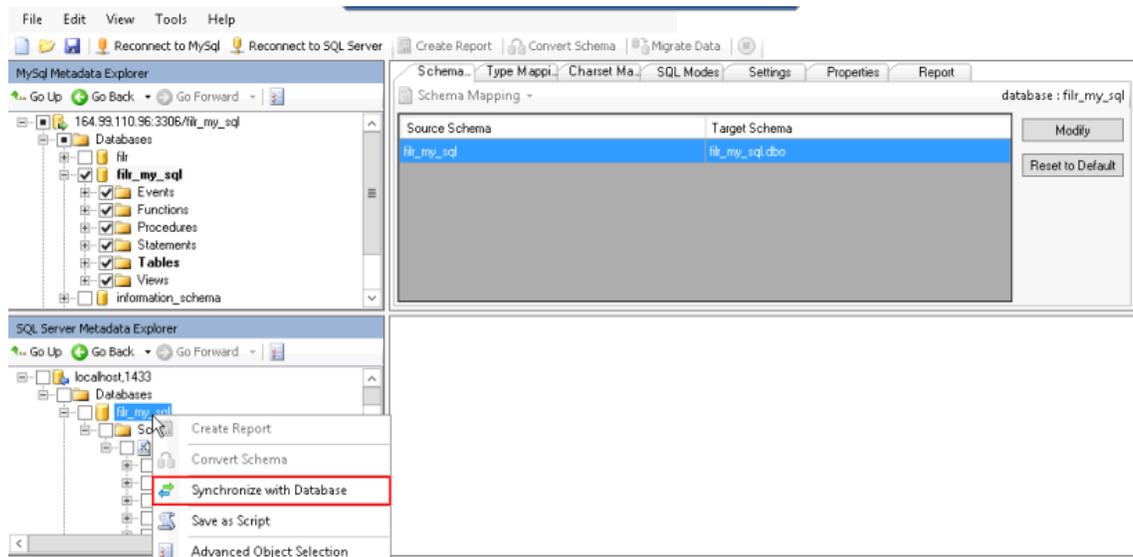
B.6 Migrating the Database Schema

- 1 In the MySQL Metadata Explorer window, select the Filr MySQL database and tables that you want to migrate, then click **Convert Schema**.

This creates the database schema on the target Microsoft SQL server.



- 2 In the SQL Server Metadata Explorer section, right-click the MySQL database that you are migrating, then click **Synchronize with Database**.



- 3 In the Synchronize with the Database dialog box, verify that the tables will be created, then click **OK**.
- 4 Continue with [Section B.7, “Migrating Data,”](#) on page 145.

B.7 Migrating Data

- 1 In the MySQL Metadata Explorer window, select the Filr MySQL database and tables that contain the data that you want to migrate.

To avoid timeout errors, migrate large tables individually, as described in [Step 6](#).

The Connect to MySQL dialog box is displayed.

- 2 Accept the defaults for connecting to the Microsoft SQL server, then specify the user name and password for a user with sufficient rights on the database.

- 3 Click **Connect**.

The Connect to SQL Server dialog box is displayed.

- 4 Accept the defaults for connecting to the Microsoft SQL Server, then specify the user name and password for a user with sufficient rights on the database.

- 5 Click **Connect**.

The data is migrated. Depending on the amount of data and number of tables in your database, this process can take a few minutes.

After the migration finishes, the Data Migration Report is displayed. You can save the report for your records, or close it without saving.

- 6 (Optional) To migrate individual tables, repeat [Step 1](#) through [Step 5](#) and select the table that you want to migrate in the MySQL Metadata Explorer window.

- 7 Run the following queries in sequence against the migrated database using the SQL Query Editor of the Microsoft SQL Server:

```
ALTER DATABASE filr SET SINGLE_USER WITH ROLLBACK IMMEDIATE;  
ALTER DATABASE filr COLLATE Latin1_General_CI_AS_KS_WS;  
ALTER DATABASE filr SET MULTI_USER;  
SELECT name, collation_name FROM sys.databases WHERE name = N'filr';
```

If your database name is something other than `filr`, replace `filr` with the name of your database.

These queries must be successfully executed in the correct order before continuing.

- 8 Continue with [Section B.8, "Running Post-Migration Scripts,"](#) on page 145.

B.8 Running Post-Migration Scripts

- 1 After the database schema and data is successfully migrated, run the post-migration script (`post-migration.sql`) on the migrated database by using the SQL Query Editor of the Microsoft SQL Server. You can download the `MySQL_MSSQL_Post_Migration_for_Filr_2_0.sql` file from the Filr 2.0 download site on download.novell.com.

After running the script, you should see the following message in the SQL Query Editor for both the Parse and Execute actions:

```
Command(s) completed successfully.
```

- 2 Continue with [Section B.9, "Post-Migration Steps,"](#) on page 146.

B.9 Post-Migration Steps

IMPORTANT: In a large Filr deployment with multiple Filr appliances, this procedure must be done for each Filr appliance in the Filr system.

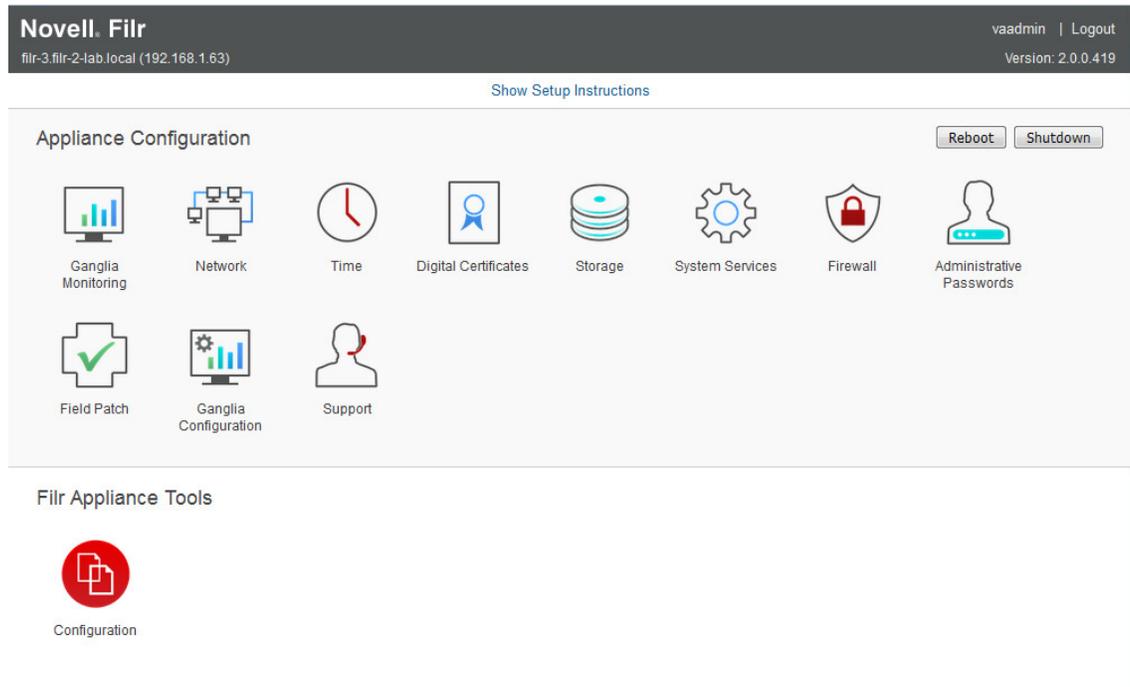
- 1 Access the Novell Filr appliance at port 9443.

For example, `https://ip_address_or_DNS:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

- 2 Log in to the appliance using the `vaadmin` user and the password that you set.

The Novell Filr Appliance landing page is displayed.



- 3 Click the **Filr Server Configuration** icon.



The Filr Server Configuration page is displayed.

- 4 Click **Database**.
- 5 In the **Database Type** drop-down, select **SQLServer**.
- 6 Change the **Host Name or IP Address** and **Port** fields to match the new host name or IP address and port number for the Microsoft SQL server.
- 7 Change the **User Name** and **User Password** fields to match that of a user on with sufficient rights on the Microsoft SQL server.
- 8 Click **OK** to save the new database configuration settings.

In the Configuration Summary, verify that the database information has changed.

- 9 Click **Reconfigure Filr Server**.
- 10 Repeat this process for each Filr appliance in the Filr system.
- 11 Continue with [Section B.10, “Modifying Liquibase Tables,” on page 147](#).

B.10 Modifying Liquibase Tables

Filr ships with Liquibase scripts that validate database schema, keep track of schema changes, compare changes with the reference database, and so forth. In order to use these scripts, the Liquibase tables need to be deleted and re-created. (This is because the Liquibase tables contain metadata specific for the MySQL database that you are migrating from.)

You need to remove the MySQL tables and create new tables that are compatible with the Microsoft SQL database.

- 1 Delete the Liquibase tables (`databasechangelog` and `databasechangeloglock`) from the migrated MSSQL database.
- 2 Modify the `sqlserver.liquibase.properties` file and set the database password to be clear text so that it can be read by the Liquibase scripts:
 - 2a SSH to the Filr appliance and log in to the appliance as the root user.
 - 2b In the console of the Filr appliance, change to the `/filrinstall/db` directory.
 - 2c Make a copy of the `sqlserver.liquibase.properties` file.
For example, to copy the file to the root partition:

```
cp sqlserver.liquibase.properties /
```
 - 2d Open the `sqlserver.liquibase.properties` file in a text editor.
For example, you can use the vi Editor to edit the file:

```
vi sqlserver.liquibase.properties
```
 - 2e Change the password value to the password of the Microsoft SQL database.
 - 2f Save and close the `sqlserver.liquibase.properties` file.
In the vi Editor, you can type the following command when in command mode:

```
:wq
```

- 3 Run the `manage-database.sh` script with the `markDatabaseAsUpdated` switch.
This creates the Liquibase tables and populates them with the definitions read from the Microsoft SQL version of the changelog files that are available in the Filr installation directory.

To run the `manage-database.sh` script with the `markDatabaseAsUpdated` switch:

- 3a SSH to the Filr appliance and log in to the appliance as the root user.
- 3b Run following command:

```
sh /filrinstall/db/manage-database.sh sqlserver markDatabaseAsUpdated
```

- 4 Perform the final validation by running `manage-database.sh` with the `updateDatabase` switch.
To run the `manage-database.sh` script with the `updateDatabase` switch:

- 4a SSH to the Filr appliance and log in to the appliance as the root user.
- 4b Get Executable permission to the `manage-database.sh` script by running the following commands:

```
cd /filrinstall/db/
```

```
chmod x manage-database.sh
```

4c Run following commands:

```
sh /filrinstall/db/manage-database.sh sqlserver updateDatabase
```

```
sh /filrinstall/db/manage-database.sh sqlserver validate
```

The Liquibase script should find no need to perform any further schema changes, and this run should complete without making any changes and without any errors.

- 5 Replace the `sqlserver.liquibase.properties` file that you edited in [Step 2d](#) with the one that you copied in [Step 2c](#).
- 6 Start the Filr service on any Filr appliances in the Filr system, as described in “[Changing System Services Configuration](#)” in the *Filr 2.0: Administration Guide*.
- 7 Users can now access the Filr site at port 8443.

For example, `https://ip_address_or_DNS:8443`

C Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location

You can configure Shared storage either on a remote Linux server via NFS or on a remote Windows server via CIFS. This is the `/vashare` location where information specific to the appliance is stored and it is used when the appliance is upgraded.

- ♦ [Section C.1, “Setting Up Remote NFS for the Filr Shared Storage Location,” on page 149](#)
- ♦ [Section C.2, “Setting Up Remote CIFS for the Filr Shared Storage Location,” on page 150](#)

C.1 Setting Up Remote NFS for the Filr Shared Storage Location

IMPORTANT: Filr does not support remote NFS from a Novell Storage Services (NSS) volume.

To configure remote NFS on a Linux server:

- 1 On the Linux server where you want to configure remote NFS to work with Filr, launch YaST2.
- 2 In the **Network Services** section, click **NFS Server**.
The NFS Server Configuration dialog box is displayed.
- 3 Click **Next**.
- 4 Click **Add Directory**.
- 5 In the **Directory to Export** field, specify the directory that you want to create, then click **OK**.

IMPORTANT: In Filr 2.0, the directory 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 [Novell Filr 2.0 Release Notes](#).

- 6 Click **Yes** to confirm directory creation.
- 7 In the **Host Wild Card** field, specify the host name for the Filr appliance.
For example, `filr1.novell.com`.
- 8 In the **Options** field, change `ro` to `rw` (read-only to read-write), then change `root_squash` to `no_root_squash`.
- 9 Click **OK**.
- 10 (Conditional) If you have a clustered Filr system with multiple Filr appliances, edit the wild card field and add each host name separated by a comma (no spaces).
- 11 Click **Finish**.
- 12 Configure each Filr appliance in the cluster to reference this NFS server, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#).

C.2 Setting Up Remote CIFS for the Filr Shared Storage Location

- ♦ [Section C.2.1, “Setting Up Remote CIFS,” on page 150](#)
- ♦ [Section C.2.2, “Modifying the Credentials for the CIFS Share,” on page 150](#)

C.2.1 Setting Up Remote CIFS

To configure shared storage on a remote Windows server via CIFS:

- 1 Create a folder on the Windows server where you want to configure remote CIFS to work with Filr.

This folder will be the shared storage location (/vashare) for Filr.

- 2 Right-click the folder that you just created, then click **Properties**.
- 3 Click the **Sharing** tab.
- 4 Designate a user to administer the folder.

This user must have Read/Write permissions to the folder. You can select an existing user, or create a new user.

- 5 After you have designated and selected a user with Read/Write permissions, click **Share**.
- 6 Configure each Filr appliance in the cluster to reference this CIFS share, as described in [Section 4.4, “Installing the Filr Appliance,” on page 79](#).

When connecting to the share via the Filr installation program, use the user name and password of the user that you designated in [Step 4](#).

C.2.2 Modifying the Credentials for the CIFS Share

After setting up shared storage on a remote Windows server via CIFS, you can change login credentials of the user who has access to the CIFS share:

- 1 Log in as `root` to the Filr command prompt.
- 2 Type the following command to navigate to the `base` directory:

```
cd /etc/opt/novell/base
```
- 3 Display the first lines of the file:

```
vi .smbcredentials
```
- 4 In the `vi` editor, modify the credentials as desired.

D Troubleshooting the Filr System

For general troubleshooting information, see “[Troubleshooting the Filr System](#)” in the *Filr 2.0: Administration Guide*.

For troubleshooting information related to Filr installation or upgrade, see [Chapter 9](#), “[Troubleshooting the Filr Installation and Upgrade](#),” on page 131.

E Third-Party Materials

- ◆ [Section E.1, “Growl License,” on page 153](#)
- ◆ [Section E.2, “Oracle Outside In Technology,” on page 154](#)
- ◆ [Section E.3, “ANTLR 3 License,” on page 154](#)
- ◆ [Section E.4, “Colt License Agreement,” on page 155](#)
- ◆ [Section E.5, “Dom4j License,” on page 155](#)
- ◆ [Section E.6, “iCal4j License,” on page 156](#)
- ◆ [Section E.7, “ICU4J license \(ICU4J 1.3.1 and later\),” on page 156](#)
- ◆ [Section E.8, “JAXEN License,” on page 157](#)
- ◆ [Section E.9, “Jung,” on page 157](#)
- ◆ [Section E.10, “ASM,” on page 158](#)
- ◆ [Section E.11, “Firebug Lite,” on page 159](#)

E.1 Growl License

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```
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E.9 Jung

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F Documentation Updates

The following changes have been made to the guide since the initial release of Novell Filr 2.0.

Date	Section	Additional Information
20 April 2016	Section 4.3.2, "Configuring an Existing Microsoft SQL Database Server," on page 78	Added two queries that must be run against an existing MS SQL database.
16 March 2016	Section 8.1, "Upgrade Caveats," on page 106	New section.

