Installation and Configuration Guide

Novell Filr 1.1

February 2015

Novell

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About This Guide

This *Novell Filr 1.1 Installation Guide* covers the installation and configuration of Novell Filr. The guide is divided into the following sections:

- Chapter 1, “Overview,” on page 9
- Chapter 2, “What’s New in Filr 1.1,” on page 25
- Chapter 3, “Planning Your Filr Installation,” on page 29
- Chapter 4, “Creating a Small Deployment,” on page 39
- Chapter 5, “Creating a Large Deployment,” on page 55
- Chapter 6, “Configuring and Maintaining the Search Index Appliance,” on page 97
- Chapter 7, “Configuring and Maintaining the MySQL Database Appliance,” on page 99
- Chapter 8, “Setting Up the Filr Site,” on page 105
- Chapter 9, “Upgrading Filr,” on page 109
- Chapter 10, “Troubleshooting the Filr Installation and Upgrade,” on page 137
- Part I, “Appendixes,” on page 141

Audience

This guide is intended for Novell Filr administrators.

Feedback

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

Documentation Updates

For the most recent version of this manual, visit the Novell Filr 1.1 Documentation website (http://www.novell.com/documentation/novell-filr-1-1).

Additional Documentation

You can find more information in the Novell Filr documentation, which is accessible from the Novell Filr 1.1 Documentation website (http://www.novell.com/documentation/novell-filr-1-1).

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 *How Filr Works–Overview Guide*.

- Section 1.1, “What Is Novell Filr?,” on page 9
- Section 1.2, “Filr System Requirements,” on page 13

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 Web Application User Guide* (http://www.novell.com/documentation/novell-filr1/filr1_user/data/bookinfo.html) 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 *Novell Filr 1.1 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-1-1/filr-1-1_qs_desktop/data/filr-1-1_qs_desktop.html) and the *Filr Desktop Application for Mac Quick Start* (http://www.novell.com/documentation/novell-filr-1-1/filr-1-1_qs_desktopmac/data/filr-1-1_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 "Configuring the Filr Desktop Application to Access Files" in the *Novell Filr 1.1 Administration Guide*.

- Mobile app

  See the *Filr Mobile App Quick Start* (http://www.novell.com/documentation/novell-filr-1-1/filr-1-1_qs_mobile/data/filr-1-1_qs_mobile.html) 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 11

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 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 MySQL or Microsoft SQL database. (Using your organization's existing MySQL or Microsoft SQL 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:

- “MySQL Database” on page 11
- “Data Storage for the Appliance” on page 11
- “Configuration Data for the Appliance” on page 11

MySQL Database

The MySQL database is used to store MySQL 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 MySQL 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 MySQL 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` direcotries)

Search index appliance: Data for the Lucene search index appliance

MySQL database appliance: Data for the MySQL database appliance

For more detailed storage information, see “Filr Appliance Storage” on page 18.

Configuration Data for the Appliance

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

For more information, see Chapter 9, “Upgrading Filr,” on page 109.

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 Novell Filr” in the *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 Requirements," on page 17
- Section 1.2.3, "Filr User Requirements," on page 22
- Section 1.2.4, "Desktop Application Requirements," on page 23
- Section 1.2.5, "Mobile App Requirements," on page 23
- Section 1.2.6, "File Viewer Information," on page 24
- Section 1.2.7, "Linux File System," on page 24

For any known issues related to System Requirements for Filr 1.1, see the *Novell Filr 1.1 Readme* (http://www.novell.com/documentation/novell-filr-1-1/filr-1-1_readme_novell/data/filr-1-1_readme_novell.html).

1.2.1 Filr Server Requirements

- "Virtualization Requirements" on page 14
- "Memory Requirements" on page 15
- "Database Requirements" on page 15
- "File Server Requirements" on page 15
- "Directory Requirements" on page 16
- "Browser Requirements" on page 16
- "Storage Requirements" on page 17
- "File Storage Requirements" on page 17
- "IP Address Information" on page 17

Virtualization Requirements

Hypervisor	Requirements
VMware	◆ One of the following VMware host servers for hosting the Filr appliance. ◆ ESXi 5.5.*x* with the latest update ◆ ESXi 5.1.*x* with the latest update ◆ ESXi 5.0 with the latest update ◆ ESX 4.1.*x* and ESXi 4.1.*x* with the latest update 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. To generate the correct chart from the *VMware Compatibility Guide*: 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. The versions of ESX and ESXi that are listed in the Supported Releases column of this row are compatible with Filr 1.1. ◆ A VMware vSphere client 4.x or VMware vSphere client 5.x for accessing the host server and appliance for initial configuration 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. ◆ VMware vMotion is supported when running Filr on VMware ESXi 5.1.*x* or 5.5.*x* with the latest updates
Xen	◆ SLES 11 SP2, 64-bit ◆ SLES 11 SP3, 64-bit
Hyper-V	◆ Windows 2012 Server (as a Role) ◆ Windows 2008 R2 Server (as a Role) ◆ Hyper-V Server 2012 (standalone) ◆ Hyper-V Server 2008 R2 (standalone)

Memory Requirements

Deployment Type	Requirement
Small deployment (Filr appliance only)	12 GB of memory and 4 CPUs. 8 GB of memory should be dedicated to the Java heap. 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.
Large deployment	◆ **Filr Appliance:** 8 GB of memory and 2 CPUs. At least half of the memory should be dedicated to the Java heap. ◆ **Database Appliance:** 4 GB of memory and 2 CPUs. (More memory is required if there are more than 1,000 users on the system.) ◆ **Search Index Appliance:** 4 GB of memory and 2 CPUs. (More memory is required if there are more than 1,000 users on the system.) About 75 percent of the memory should be dedicated to the Java heap.

Database Requirements

Following are the database requirements when configuring Filr to use an existing database instead of the database appliance (as described in Section 5.3, “Configuring an Existing Database Server,” on page 79):

Database Type	Requirement
MySQL	5.0.96 and later
Microsoft SQL	2008 R2, 2012, and 2014

File Server Requirements

Filr supports any combination of the file servers in the following table:

(You can configure Net Folders in Filr to access files on these file servers. File servers are not required when you use Filr for files in the My Files area.)

Platform	Requirement
Windows	One or more Windows 2003 R2, Windows 2008 R2, Windows 2012, or Windows 2012 R2 file servers with one or more Windows Shares as data targets for the Filr virtual appliance DFS for Windows namespace and DFS-R for Windows replication are supported.

Platform	Requirement
OES	One or more OES 2 SP3 or OES 11 or later file servers with one or more NSS volumes as data targets for the Filr virtual appliance DFS for OES is supported. Domain Services for Windows (DSfW) is not currently supported with Filr. **NOTE:** If you have OES 11 SP1 file servers that host Filr Net Folders or Personal Storage Home folders, you must ensure that all OES 11 SP1 servers have at least the December 2012 Scheduled Maintenance Update applied. This updates the NCP server to a newer version that is capable of keeping up with the increased service requests of Filr 1.1. Failure to update your OES 11 SP1 servers can cause the configured eDirectory (LDAP) servers to fail.
NetWare	One or more NetWare 6.5.8 or later file servers with one or more NSS volumes as data targets for the Filr virtual appliance.

Directory Requirements

Platform	Requirement
Linux	NetIQ eDirectory 8.8 or later For more information, see the NetIQ eDirectory 8.8 Documentation website (http://www.novell.com/documentation/edir88).
Windows	Windows: Microsoft Active Directory, plus the latest Service Pack, or NetIQ eDirectory version 8.8.*x*.*x*. For more information, see Windows Server 2003 Active Directory (http://www.microsoft.com/windowsserver2003/technologies/directory/activedirectory) or Windows Server 2008 Active Directory (http://www.microsoft.com/windowsserver2008/en/us/active-directory.aspx). eDirectory running on a Windows file server that contains Windows file shares is not supported.

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	9 or later
Microsoft Internet Explorer	8 or later

Storage Requirements

For a list of storage requirements for each appliance, as well as information about the types of content in each storage location, see Section 1.2.2, “Filr Storage Requirements,” on page 17.

File Storage Requirements

Net Folders can access 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 and SMB version 1 protocols.
- Storage Area Network (SAN)

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).

1.2.2 Filr Storage 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 18.

Small Deployment: Only the information in “Filr Appliance Storage” on page 18 applies to a small deployment. All information in “Filr Appliance Storage” on page 18 applies to a small deployment except:

- All storage recommendations and functions listed under Shared Storage (`/vashare`) apply instead to Hard Disk 2 (`/vastorage`).

- “Filr Appliance Storage” on page 18
- “Search Index Appliance Storage” on page 20
- “MySQL Database Appliance Storage” on page 21

Filr 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 Filr appliance and Lucene for the search index appliance).

VMware/Xen/Hyper-V 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: 25 GB of disk space

`/vastorage` 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 `/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/Xen/Hyper-V 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

Because log files are continually growing and can consume large amounts of disk space, the Filr 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 *Novell Filr 1.1 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.

  If the total space for all text extractions exceeds 20 GB, all text extractions are deleted.
- **Index Files:** (Applies only to a small deployment) In a large or clustered deployment, index files are stored in the Lucene search index 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), in the The Linux Documentation Project (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/Xen/Hyper-V Hard Disk (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. Lucene 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 *Novell Filr 1.1 Administration Guide*.

In order to optimize the index (as described in "Optimizing the Lucene Index" in the *Novell Filr 1.1 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/Xen/Hyper-V 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 7.2, "Maintaining the MySQL Database Appliance," on page 103.

VMware/Xen/Hyper-V Hard Disk (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 *Novell Filr 1.1 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/Xen/Hyper-V 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

1.2.3 Filr User Requirements

- "Browser Requirements" on page 22
- "Office Application Requirements" on page 23

Browser Requirements

Ensure that you are running the latest version of each browser.

Platform	Requirement
Linux	Mozilla Firefox; Google Chrome
Windows	Microsoft Internet Explorer (must not have the Google Chrome Frame plug-in installed); Mozilla Firefox; Google Chrome
Mac	Safari; Mozilla Firefox

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 *Novell Filr 1.1 Web Application User Guide*.

- Uploading folders to Filr, as described in "Adding Folders" in the *Novell Filr 1.1 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 23.

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 *Novell Filr 1.1 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	OpenOffice.org/LibreOffice 3.1.1 or later
Windows	Microsoft Office 2007 or later; OpenOffice.org/ LibreOffice 3.1.1 or later
Mac	OpenOffice.org/LibreOffice 3.1.1 or later

1.2.4 Desktop Application Requirements

The Filr desktop application is supported on the following client operating systems:

Platform	Requirement
Windows	XP, 7, 8, and 8.1
Mac	OS X 10.7 and later

For more information about the Filr desktop application, see the *Novell Filr Desktop Application for Windows Quick Start* (http://www.novell.com/documentation/novell-filr1/filr1_qs_desktop/data/filr1_qs_desktop.html) or the *Novell Filr Desktop Application for Mac Quick Start* (http://www.novell.com/documentation/novell-filr1/filr1_qs_desktopmac/data/filr1_qs_desktop.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 6.*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).

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) 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) 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 What's New in Filr 1.1

This section describes new features and enhancements that have been added to Novell Filr 1.1.

- Section 2.1, "Filr 1.1 User Enhancements," on page 25
- Section 2.2, "Filr 1.1 Installation Enhancements," on page 25
- Section 2.3, "Filr 1.1 Administration Enhancements," on page 26

2.1 Filr 1.1 User Enhancements

For a list of Novell Filr enhancements and instructions for use, see "What's New in Novell Filr 1.1" in the *Novell Filr 1.1 Web Application User Guide*.

2.2 Filr 1.1 Installation Enhancements

- **Microsoft SQL support (v1.1):** You can configure an existing Microsoft SQL database to be used as the Filr database. For more information, see Section 5.3.2, "Configuring an Existing Microsoft SQL Database Server," on page 80.
- **Ability to add multiple NICs (v1.1):** You can now add multiple Network Interface Controllers (NICs) for associating multiple networks with the Filr installation. For more information, see Chapter 4, "Creating a Small Deployment," on page 39 or Chapter 5, "Creating a Large Deployment," on page 55.
- **Ability to add an additional disk for /var (v1.1):** You can now add a disk to the appliance to store the `/var` directory. (The `/var` directory is where system events for the Novell appliances are logged.)

  For more information about how to do this during installation, see Chapter 4, "Creating a Small Deployment," on page 39 or Chapter 5, "Creating a Large Deployment," on page 55.

  For information about how to do this after installation, see "Modifying Logging Options" in the *Novell Filr 1.1 Administration Guide*.
- **Ability to perform a silent installation or upgrade (v1.1):** You can now silently install or upgrade Filr. For more information, see Appendix A, "Installing Novell Filr in Silent Mode," on page 143.
- **Removed option on the MySQL appliance to store the secondary hard disk (/vastorage) on an NFS mount-point (v1.1):** Prior to Filr 1.1, you had the option to store Hard Disk 2 (`/vastorage`) on an NFS mount-point. This option has been removed from Filr 1.1 because as a best practice, MySQL should not be accessed from an NFS server.

  For more information about the type of data that is stored on Hard Disk 2 (`/vastorage`), see Section 1.2.2, "Filr Storage Requirements," on page 17.
- **Upgraded MySQL database (v1.1):** The MySQL database that is used in the MySQL database appliance or in a small deployment has been updated to use MySQL Server 5.5.

  In a small deployment, you must update the MySQL database on the all-in-one appliance, as described in Section 9.3, "Backing Up the Filr MySQL Database to Prepare for the Upgrade," on page 110.

In a large deployment where you are using the MySQL database appliance that ships with Filr, you must update the MySQL database appliance, as described in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

- **Moved Memcached from Filr appliance to Search appliance (v1.1):** On a new Filr 1.1 installation, Memcached now runs on the Lucene search index appliance. When upgrading to Filr 1.1, it is recommended that you move Memcached from the Filr appliance to the Lucene search index appliance, as described in Appendix E, “Moving the Memcached Service to the Search Index Appliance,” on page 159.

2.3 Filr 1.1 Administration Enhancements

- **LDAP Synchronization Improvements (v1.1):** The following improvements were made to LDAP synchronization:
  - Synchronization performance improvements

    Performance improvements in Filr 1.1 as compared with Filr 1.0.1:
    - When synchronizing 1 to 10,000 users - 3x improvement
    - When synchronizing 10,000 to 30,000 users - 5x improvement
    - When synchronizing 30,00 to 60,000 users - 10x improvement
  - Improved interface, with a tabbed view
  - LDAP browser for selecting users and containers in your directory for LDAP configuration
  - Support for non-unique group names
  - Ability to preview an LDAP synchronization (display the users and groups that will be added, deleted, or disabled in Filr) before the LDAP synchronization runs
  - Filter users and groups on Sync Results pages

  For more information, see “Synchronizing Users and Groups from an LDAP Directory” in the *Novell Filr 1.1 Administration Guide*.
- **LDAP Browser for Locating Proxy User (v1.1):** You can now use an LDAP browser to browse the LDAP directory for the proxy user that you want to use for Net Folder Server creation.

  For more information, see “Configuring Net Folder Servers” in the *Novell Filr 1.1 Administration Guide*.
- **Ability to determine whether LDAP groups can be used when sharing (v1.1):** New option to allow you to control whether groups that were imported from the LDAP directory are displayed in the *Share with* field when users are sharing an item.

  For more information, see “Enabling Sharing for the Entire Site” in the *Novell Filr 1.1 Administration Guide*.
- **Dedicate a Filr appliance to automatically perform Net Folder synchronization (v1.1):**

  When you set aside a Filr appliance to perform Net Folder synchronization processes, you no longer have to navigate to that appliance to perform the synchronization. Filr 1.1 can be configured to always assign the load for Net Folder synchronizations to a specific Filr appliance.

  For more information, see “Setting Aside a Filr Appliance for Re-Indexing and Net Folder Synchronization in a Clustered Environment” on page 36.
- **Net Folder Server Improvements (v1.1):** The following improvements were made to Net Folder server synchronization:
  - Performance improvements related to synchronization.

For more information, see “Planning the Amount of Data to Synchronize” in the *Novell Filr 1.1 Administration Guide*.

- Performance improvements related to indexing.
- Ability to configure whether the Filr desktop application can trigger an initial synchronization of user Home directories.
- Improved interface, with a tabbed view.
- Ability to select the server type and the authentication type.

  For Net Folder Servers that existed in your Filr system before upgrading to Filr 1.1, you need to modify and specify the server type and authentication type.

For more information, see “Configuring Net Folder Servers” in the *Novell Filr 1.1 Administration Guide*.

- **Net Folder Improvements (v1.1):** The following improvements were made to the Net Folder synchronization:
  - Performance improvements related to synchronization.

    For more information, see “Planning the Amount of Data to Synchronize” in the *Novell Filr 1.1 Administration Guide*.
  - Performance improvements related to indexing.
  - Multiple threading and multiple synchronizations for Net Folders on a given Filr appliance.

    For more information, see “Net Folder Configuration” in the *Novell Filr 1.1 Administration Guide*.
  - Interface improvements on the *Synchronization Schedule* tab.
  - Filter the list of Net Folders on the Manage Net Folders page.
  - Option to display or not display user Home directories on the Manage Net Folders page.
  - Ability to grant rights to all users in an Organization Unit when using eDirectory as the LDAP directory.

  For more information, see “Creating and Managing Net Folders” in the *Novell Filr 1.1 Administration Guide*.
- **Ability to disable access to the web client (v1.1):** You can disable users’ ability to access Filr via a web browser. Users can then access Filr only through the Filr desktop application or through the Filr mobile app.

  For more information, see “Disabling User Access to the Filr Site on the Web” in the *Novell Filr 1.1 Administration Guide*.
- **Whitelist or blacklist for sharing (v1.1):** You can create a whitelist or blacklist for sharing with certain email addresses and domains.

  For more information, see “Enabling Sharing for the Entire Site” in the *Novell Filr 1.1 Administration Guide*.
- **Ability to manage mobile devices (v1.1):** You can manage the Filr app on the mobile devices for users in your system. You can view devices that have accessed the Filr system and which wipe the Filr data on those devices.

  For more information, see “Managing Filr Data for Mobile Devices” in the *Novell Filr 1.1 Administration Guide*.
- **New mobile device options (v1.1):** New options allow you to control whether users can cut and copy from the Filr app, take a screen capture while within the app (Android only), and access the Filr app from a rooted or jail broken device. You can also define a whitelist to determine which apps users can open Filr documents into.

For more information, see “Configuring Mobile Device Access for All Users” in the *Novell Filr 1.1 Administration Guide*.

- **New sharing option for File Link (v1.1):** Grant users the ability to share files by distributing a link to the file. Any person with access to the link then has access to the file.

  For more information about enabling this functionality, see “Enabling Sharing for the Entire Site” in the *Novell Filr 1.1 Administration Guide*.

  For more information about creating File Links, see “Distributing a Link to a File” in the *Novell Filr 1.1 Web Application User Guide*.

- **Support for multiple groups with the same name (v1.1):** In the Type-to-Find drop-down list, Filr now includes the group name or group title, as well as secondary information about the group (either the group description or the Fully Qualified DN). This secondary information helps distinguish between multiple groups that have the same name.

  For more information, see “Managing How Group Names Are Displayed during Name Completion” in the *Novell Filr 1.1 Administration Guide*.

- **Ability to specify a maximum number of REST requests:** You can specify the maximum number of concurrent upload and download requests made by the Filr desktop and mobile applications.

  For more information, see “Changing Configuration Settings for Requests and Connections” in the *Novell Filr 1.1 Administration Guide*.

- **Ability to specify a From email address for outbound email:** You can specify an email address to be used as the From address of emails sent from Filr.

  For more information, see “Changing Outbound Email Configuration Settings” in the *Novell Filr 1.1 Administration Guide*.

- **Ability to expand storage (v1.1):** You can now expand the storage space for the `/vastorage` and `/var` partitions.

  For more information, see “Managing Storage” in the *Novell Filr 1.1 Administration Guide*.

- **DFS Support (v1.1):** Filr now supports Distributed File System (DFS) and DFS-R (DFS Replication) for Windows, as well as DFS for OES.

- **Centralized Trash Management (v1.1):** All items that have been sent to the trash are now visible in one location and can be restored or permanently deleted.

  For more information, see “Restoring Files and Folders from the Trash” in the *Novell Filr 1.1 Administration Guide*.

- **Global Password for Lucene Indexes (v1.1):** You can now specify a global password for Lucene indexes in a High Availability environment.

  For more information, see “Changing Search Index Configuration Settings” in the *Novell Filr 1.1 Administration Guide*.

- **Interface for applying software patches (v1.1):** Filr now provides an interface for applying software patches.

  For more information, see “Managing Field Test Patches” in the *Novell Filr 1.1 Administration Guide*.

3 Planning Your Filr Installation

Consider the following planning information before deploying Novell Filr.

- Section 3.1, “Best Practices and Performance,” on page 29
- Section 3.2, “Planning the Deployment Type,” on page 29
- Section 3.3, “Planning the File Repository,” on page 37
- Section 3.4, “Planning Net Folders,” on page 37
- Section 3.5, “Planning the Filr Desktop Application,” on page 37

3.1 Best Practices and Performance

Become familiar with the information in the following guides before you begin the Filr installation:

- *Novell Filr 1.1 Planning and Deployment Best Practices Guide*
- *Novell Filr 1.1: Test Report—Workload Scalability/Capacity (OES)* (https://www.novell.com/documentation/novell-filr-1-1/filr-1-1_wp_scale_t1_oes/data/filr-1-1_wp_scale_t1_oes.html)
- *Novell Filr 1.1: Test Report—Workload Capacity (Windows)* (https://www.novell.com/documentation/novell-filr-1-1/filr-1-1_wp_scale_t1_win/data/filr-1-1_wp_scale_t1_win.html)

3.2 Planning the Deployment Type

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

- Section 3.2.1, “Small Deployment,” on page 29
- Section 3.2.2, “Large Deployment,” on page 30
- Section 3.2.3, “Multi-Server (Clustered) Deployment,” on page 32

3.2.1 Small Deployment

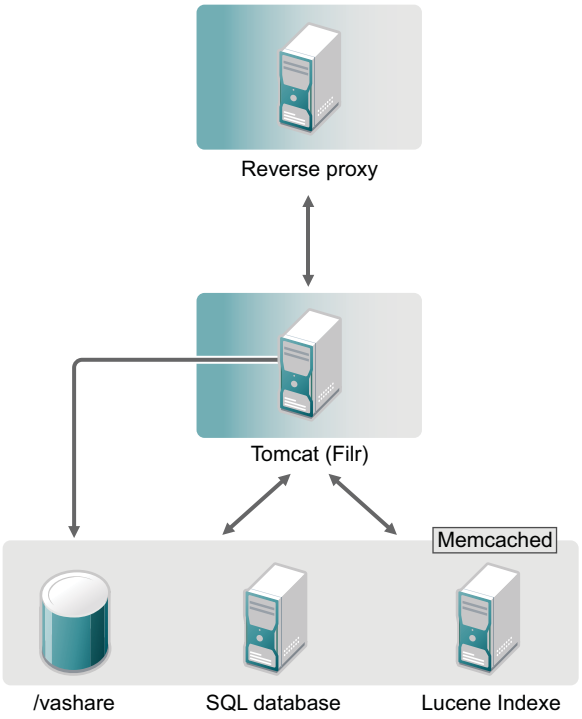
IMPORTANT: You cannot upgrade your Filr system from a small deployment to a large deployment. If your Filr system has the potential to grow, you should install Filr in a large deployment, as described in Section 3.2.2, “Large Deployment,” on page 30. Doing so ensures that you can scale your system in the future if the need arises by adding additional Filr appliances.

A small deployment, where all Filr components (Filr software, MySQL database, and Lucene 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.

3.2.2 Large Deployment



For more details about the capabilities and benefits of a large deployment, see the following guides:

- *Novell Filr 1.1 Planning and Deployment Best Practices Guide*
- *Novell Filr 1.1: Test Report—Workload Scalability/Capacity (OES)*
- *Novell Filr 1.1: Test Report—Workload Capacity (Windows)*

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

- “Components of a Large or Clustered Environment” on page 30
- “Moving from a Large to a Clustered Deployment” on page 31

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 4.1, “Installing the Filr Appliance,” on page 39.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157. You must then configure each clustered Filr appliance to mount it as shared storage (`/vashare`), as described in Section 4.1, “Installing the Filr Appliance,” on page 39. (All Filr appliances in the cluster must have access to the designated mount point.)

Lucene Index Server Appliance: Novell recommends running two instances of the Lucene index server 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 Lucene index server appliances, see Section 5.1, “Installing the Search Index Appliance,” on page 55.

MySQL Database Appliance: You can run only one instance of the MySQL database appliance. For information about installing a MySQL database appliance, see Section 5.2, “Installing the MySQL Database Appliance,” on page 66.

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 5.3, “Configuring an Existing Database Server,” on page 79.

For information about possible configuration setups and how many users are appropriate for each setup, see Section 3.2.2, “Large Deployment,” on page 30.

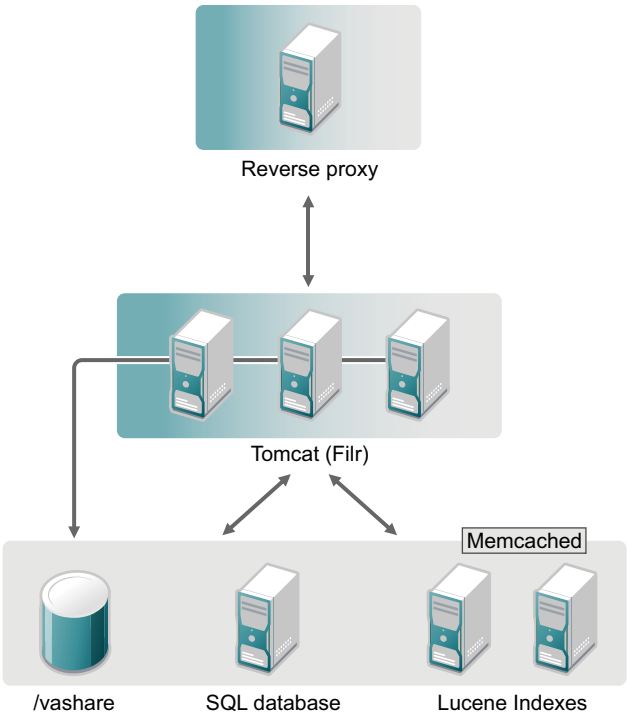
Moving from a Large to a Clustered Deployment

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 35).

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.

3.2.3 Multi-Server (Clustered) Deployment



- “Components of a Large or Clustered Environment” on page 32
- “Advantages of Clustering” on page 33
- “Filr Clustering (Expanding a Deployment)” on page 33
- “Adding a Filr Appliance to an Existing Deployment to Accommodate System Load” on page 35
- “Setting Aside a Filr Appliance for Re-Indexing and Net Folder Synchronization in a Clustered Environment” on page 36
- “Clustering Limitations” on page 36

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 4.1, “Installing the Filr Appliance,” on page 39.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157. You must then configure each clustered Filr appliance to mount it as shared storage (`/vashare`), as described in Section 4.1, “Installing the Filr Appliance,” on page 39. (All Filr appliances in the cluster must have access to the designated mount point.)

Lucene Index Server Appliance: Novell recommends running two instances of the Lucene index server 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 Lucene index server appliances, see Section 5.1, “Installing the Search Index Appliance,” on page 55.

MySQL Database Appliance: You can run only one instance of the MySQL database appliance. For information about installing a MySQL database appliance, see Section 5.2, “Installing the MySQL Database Appliance,” on page 66.

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 5.3, “Configuring an Existing Database Server,” on page 79.

For information about possible configuration setups and how many users are appropriate for each setup, see Section 3.2.2, “Large Deployment,” on page 30.

Advantages of Clustering

A large deployment with a cluster of Filr appliances and Lucene search index 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 Lucene search index. The purpose of adding a secondary Lucene search index is strictly for fault tolerance.

- Fault tolerance

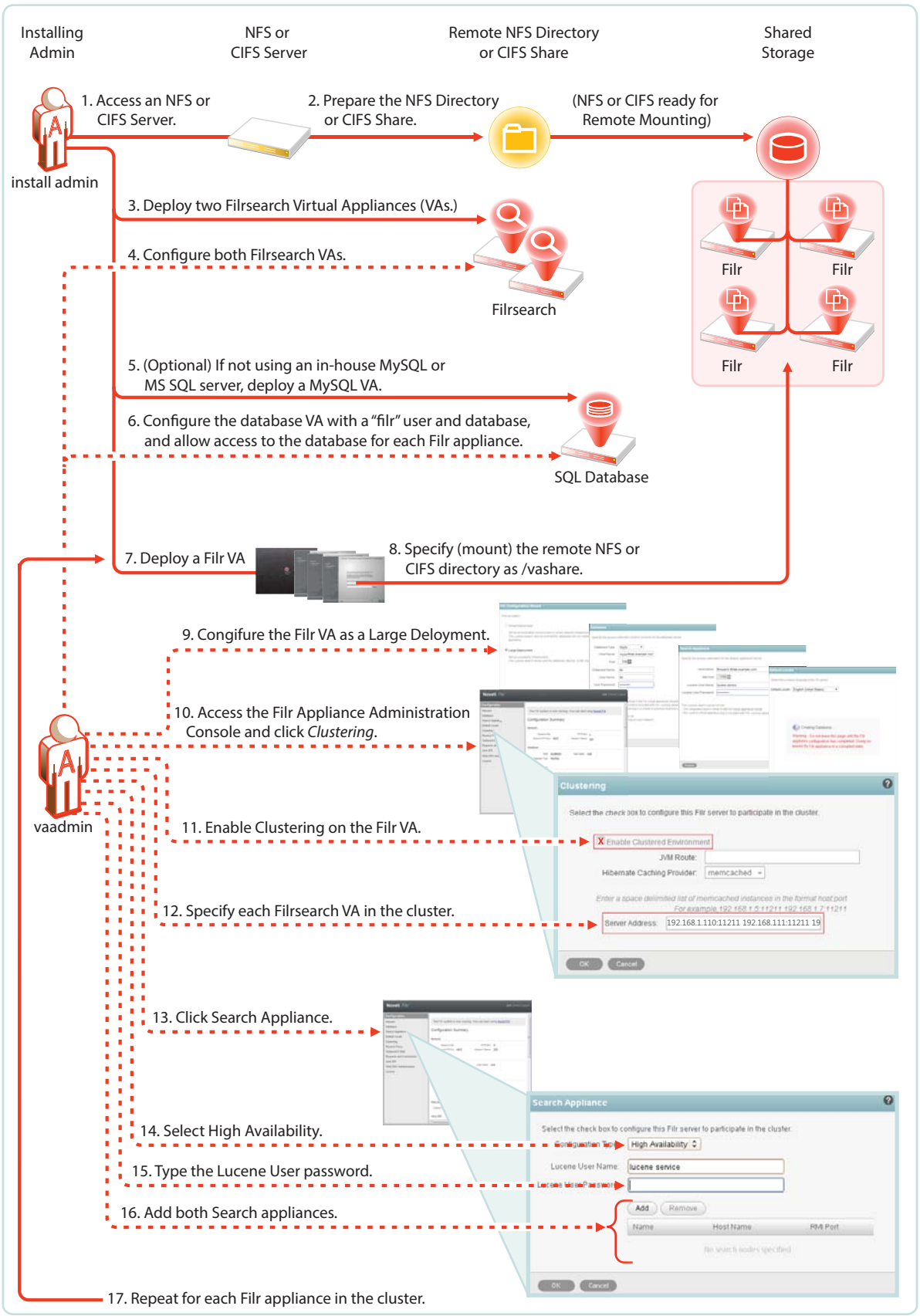
  In the event that one Filr appliance goes down, other Filr appliances are there to maintain the system. This is also true with the Lucene search index appliance. It is optimal for your Filr system to have two Lucene search index appliances.

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 3-1.

Figure 3-1 *Clustered Filr VAs*



For step-by-step instructions, see "Setting Up a Large, Expandable (Clustered) Deployment" in the *Novell Filr 1.1 Planning and Deployment Best Practices Guide*.

For more information about clustering, see "Multi-Server (Clustered) Deployment" in the *Novell Filr 1.1 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 35
- "Adding Filr Appliances to an Existing Deployment" on page 35

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 5.4, "Installing the Filr Appliance," on page 81. (For additional information about shared storage, see "Filr Appliance Storage" on page 18.)

  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` or `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 5.4, "Installing the Filr Appliance," on page 81.

   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 5.5, “Configuring a Large Deployment for the First Time,” on page 93.

4 After the configuration is complete, select Clustering (as described in “Changing Clustering Configuration Settings” in the *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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.

3.3 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 Requirements,” on page 17.

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.

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

  The Lucene 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.

3.4 Planning Net Folders

Net Folders in Filr provide access to files on your corporate OES, Windows, 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 *Novell Filr 1.1 Administration Guide*.

3.5 Planning the Filr Desktop Application

Depending on your environment and the settings that you choose for the Filr desktop application, the Filr desktop application can put significant load on your Filr system. Before enabling the Filr desktop application for all users on your system, see “Planning Filr Desktop Application Usage for Your Filr Site” in the *Novell Filr 1.1 Administration Guide*.

4 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 4.1, “Installing the Filr Appliance,” on page 39
- Section 4.2, “Configuring a Small Deployment for the First Time,” on page 52

4.1 Installing the Filr Appliance

- Section 4.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 39
- Section 4.1.2, “Installing the Filr Appliance,” on page 48

4.1.1 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 39
- “Xen Configuration” on page 42
- “Hyper-V Configuration” on page 45

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 18.

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 *Novell Filr 1.1 Administration Guide*.)
4. In VMware, change the controller to *VMware Paravirtual*.
5. Power on each appliance in the Filr system.

11k Leave the *Mode* section blank, 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 18.

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 *Novell Filr 1.1 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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 *Novell Filr 1.1 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 4.1.2, “Installing the Filr Appliance,” on page 48.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 *Disk*s.

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 18.

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 18.

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 D, "Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location," on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 4.1.2, "Installing the Filr Appliance," on page 48.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 18.

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 18.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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*.

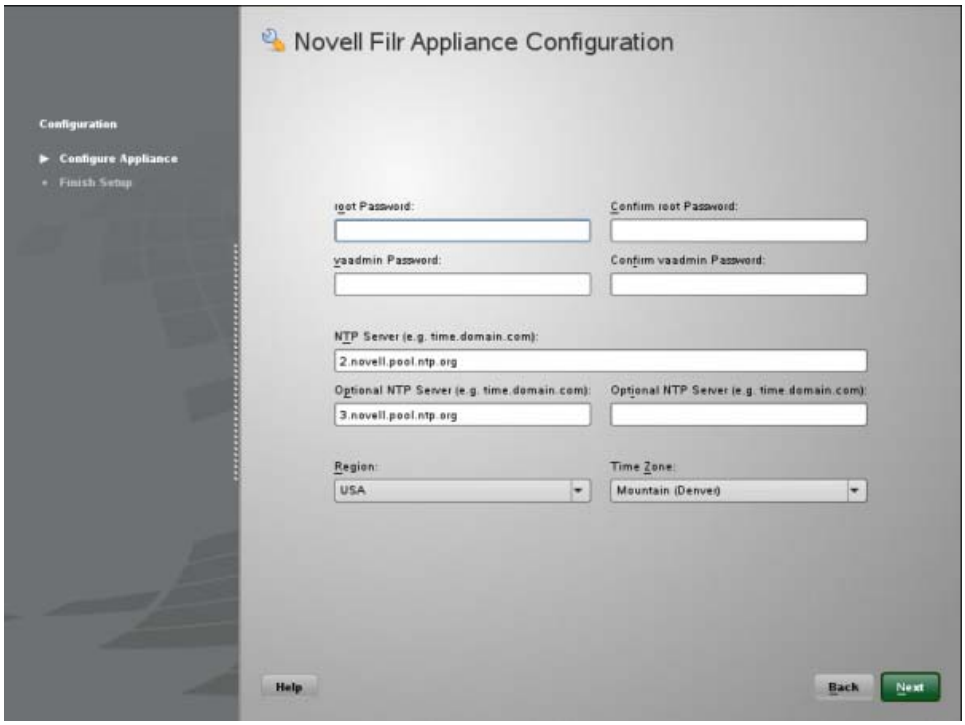
22 Continue with Section 4.1.2, “Installing the Filr Appliance,” on page 48.

4.1.2 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 Filr Appliance Configuration 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).

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 *Novell Filr 1.1 Administration Guide*.

4 Click *Next*.

5 On the network 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 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 4.1.1, "Downloading the Filr Appliance and Configuring the Virtual Environment," on page 39), 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 *Novell Filr 1.1 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 39), 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.

IMPORTANT: Prior to Filr 1.1, you had the option to store Hard Disk 2 (/vastorage) on an NFS mount-point. This option has been removed from Filr 1.1 because of issues discovered with placing /vastorage on NFS storage. You must create a separate VMware, Xen, or Hyper-V hard disk for the data storage location (/vastorage).

---

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 39), 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 D.1, “Setting Up Remote NFS for the Filr Shared Storage Location,” on page 157.
  - 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 D.2, “Setting Up Remote CIFS for the Filr Shared Storage Location,” on page 158.
- **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 3.2.2, “Large Deployment,” on page 30.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157). 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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157), 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.

4.2 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 *Novell Filr 1.1 Administration Guide*.

To configure the Filr appliance for a small deployment:

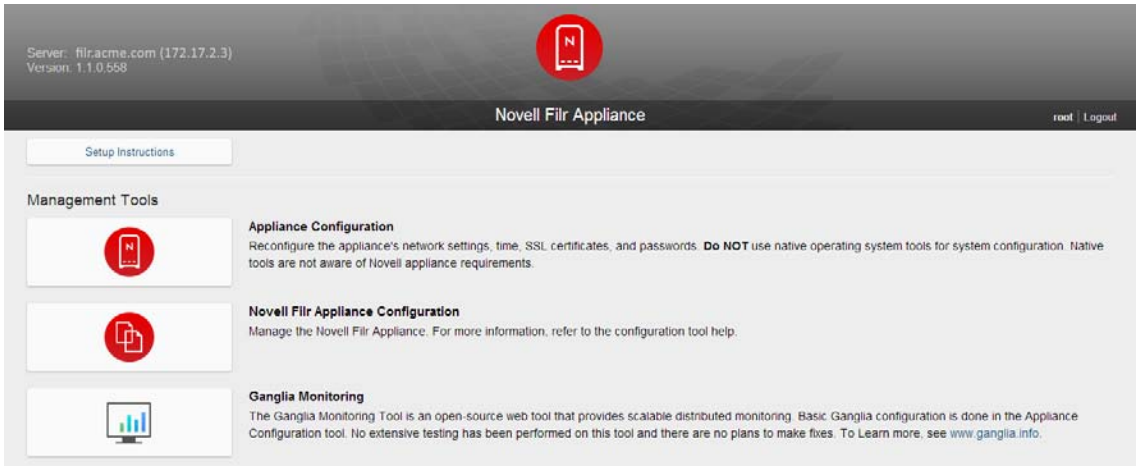
1 After you have installed the Novell Filr appliance, as described in Section 4.1, "Installing the Filr Appliance," on page 39, navigate to the following URL from a web browser:

`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 Server Configuration* icon.

The Filr Server Configuration Wizard is displayed.

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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 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 *Novell Filr 1.1 Administration Guide*.

9 Continue with Chapter 8, "Setting Up the Filr Site," on page 105 to make your site ready for user access.

5 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 5.1, “Installing the Search Index Appliance,” on page 55. (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 or Microsoft SQL database server. (Using your organization’s existing MySQL or Microsoft SQL database server is recommended for enterprise installations.)

   For information about how to configure Filr to use an existing database, see Section 5.3, “Configuring an Existing Database Server,” on page 79.

   For information about how to install the MySQL database appliance, see Section 5.2, “Installing the MySQL Database Appliance,” on page 66.
3. Install one or more Filr appliances, as described in Section 5.4, “Installing the Filr Appliance,” on page 81.
4. Configure the large deployment, as described in Section 5.5, “Configuring a Large Deployment for the First Time,” on page 93.

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 video walks you through the installation process:

http://www.youtube.com/watch?v=aVeuFi3ltIQ

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

- Section 5.1, “Installing the Search Index Appliance,” on page 55
- Section 5.2, “Installing the MySQL Database Appliance,” on page 66
- Section 5.3, “Configuring an Existing Database Server,” on page 79
- Section 5.4, “Installing the Filr Appliance,” on page 81
- Section 5.5, “Configuring a Large Deployment for the First Time,” on page 93

5.1 Installing the Search Index Appliance

- Section 5.1.1, “Downloading the Search Index Appliance and Configuring the Virtual Environment,” on page 56
- Section 5.1.2, “Installing the Search Index Appliance,” on page 63

5.1.1 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 56
- "Xen Configuration" on page 58
- "Hyper-V Configuration" on page 61

VMware Configuration

1. Download the Lucene search index 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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 20.

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 *Novell Filr 1.1 Administration Guide*.)
4. In VMware, change the controller to *VMware Paravirtual*.
5. Power on each appliance in the Filr system.

11k Leave the *Mode* section blank, 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 18.

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 *Novell Filr 1.1 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).

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 *Novell Filr 1.1 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 63.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 *Disk*s.

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 20.

For more detailed information about the type of information that is stored here, see “Search Index Appliance Storage” on page 20.

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 18.

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).

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 63.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 20.

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 18.

16i Click *Next*.

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

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 63.

5.1.2 Installing the Search Index 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. 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 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 command prompt. For more information, see "Using VACONFIG to Modify Network Information" in the *Novell Filr 1.1 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 5.1.1, "Downloading the Search Index Appliance and Configuring the Virtual Environment," on page 56), 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 *Novell Filr 1.1 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 Search Index Appliance and Configuring the Virtual Environment" on page 56), 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 56), 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.

10 (Recommended) Create a cluster of Lucene index server appliances (no more than two is recommended). Having multiple Lucene index server appliances provides fault tolerance or backup in the event that one index server fails.

Install another Lucene index server appliance, as described in Section 5.1, “Installing the Search Index Appliance,” on page 55).

11 Set a password for the search index appliance. You can also change other configuration options for the search index appliance.

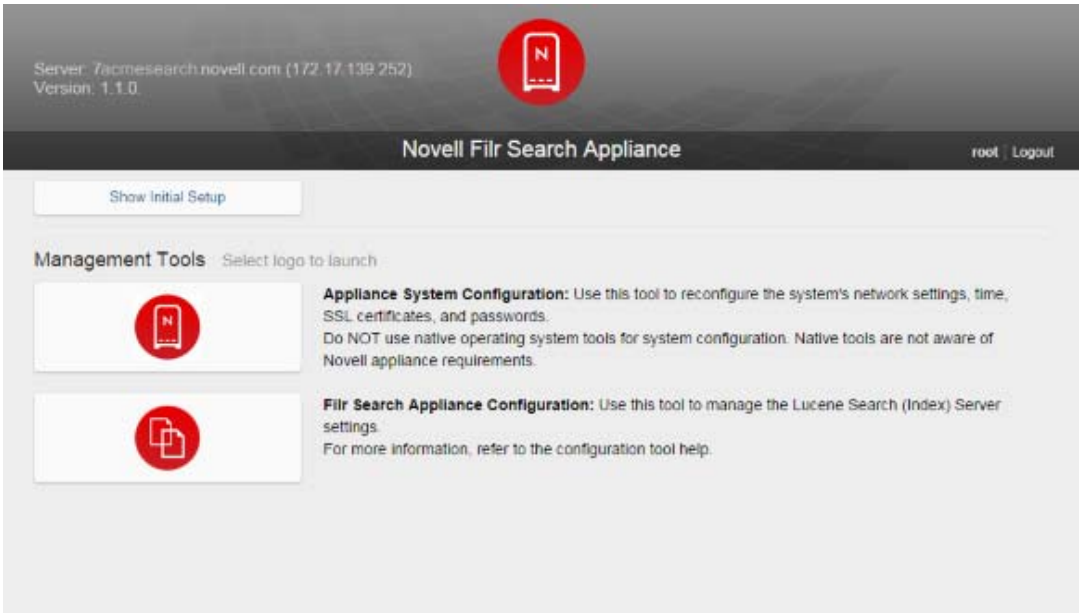
11a After installing the search index appliance, navigate to the following URL:

`https://ip_address:9443`

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

11b 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.



11c Click the *Filr Search Configuration* icon.

The Filr Search Configuration Wizard is displayed.

11d (Conditional) If this is the first time you have accessed the Filr search appliance, you must do the following:

11d1 Select *New* or *Upgrade*, depending on whether this is a new installation or an upgrade from a previous installation, then click *Next*.

11d2 Create a password for the default Lucene service 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.

11d3 Click *Finish*.

The password for the Lucene service user is now set.

The Search Settings page is displayed.

11e On the Search Settings page, refer to the on-screen instructions for information about the fields that you can modify.

11f Click *Submit* after you have made the desired modifications for your search settings.

12 Continue with installing the database appliance, as described in Section 5.2, “Installing the MySQL Database Appliance,” on page 66.

5.2 Installing the MySQL Database Appliance

IMPORTANT: 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.

If you already have a MySQL or Microsoft SQL database server that you want Filr to use, you can skip this section and continue with Section 5.3, “Configuring an Existing Database Server,” on page 79.

- Section 5.2.1, “Downloading the MySQL Database Appliance and Configuring the Virtual Environment,” on page 66
- Section 5.2.2, “Installing the MySQL Database Appliance,” on page 74

5.2.1 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 67
- “Xen Configuration” on page 69
- “Hyper-V Configuration” on page 72

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 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 *Novell Filr 1.1 Administration Guide*.)
4. In VMware, change the controller to *VMware Paravirtual*.
5. Power on each appliance in the Filr system.

11k Leave the *Mode* section blank, 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 18.

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 *Novell Filr 1.1 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).

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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/).

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 74.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads 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 *Disk*s.

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 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 "Filr Appliance Storage" on page 18.

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).

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 74.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 21.

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 18.

16i Click *Next*.

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

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your search index and database are on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 74.

5.2.2 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 *Novell Filr 1.1 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 5.2.1, "Downloading the MySQL Database Appliance and Configuring the Virtual Environment," on page 66), 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 *Novell Filr 1.1 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 66), 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 66), 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.

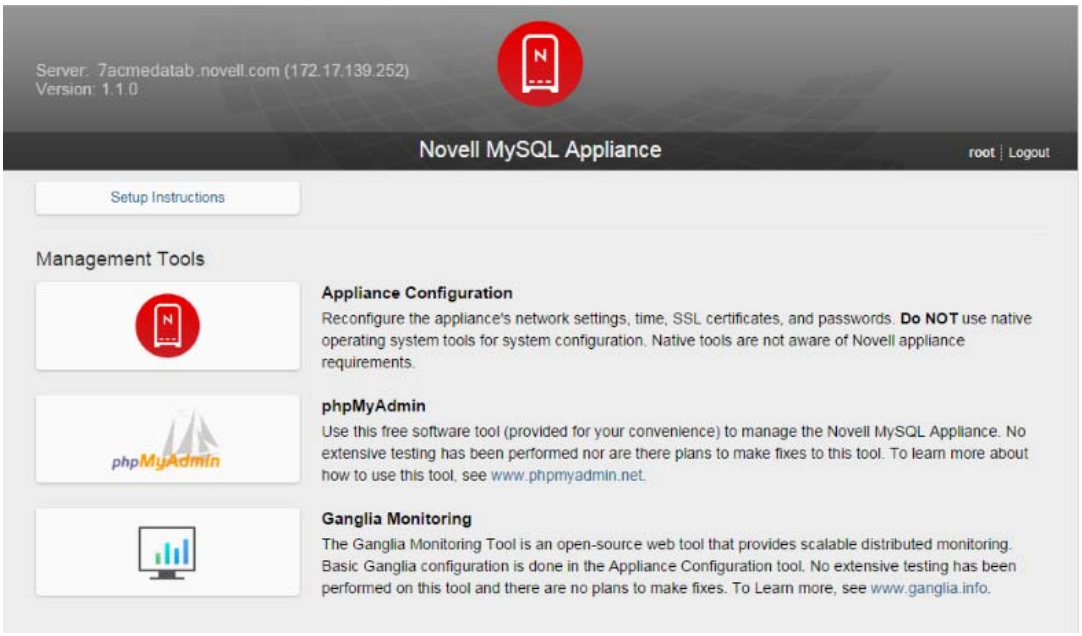
10a Navigate to the following URL:

`https://ip_address:9443`

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

10b Sign in to the database appliance using the `vaadmin` user and 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 the `root` user. (The default password for the `root` user is `root`. You will be instructed to change the default password in a future step.)

10e Create a new 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 application server.

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 Scroll to the *Login Information* section. In the *Host* field, specify the IP address or host name of the next Filr appliance in the cluster.

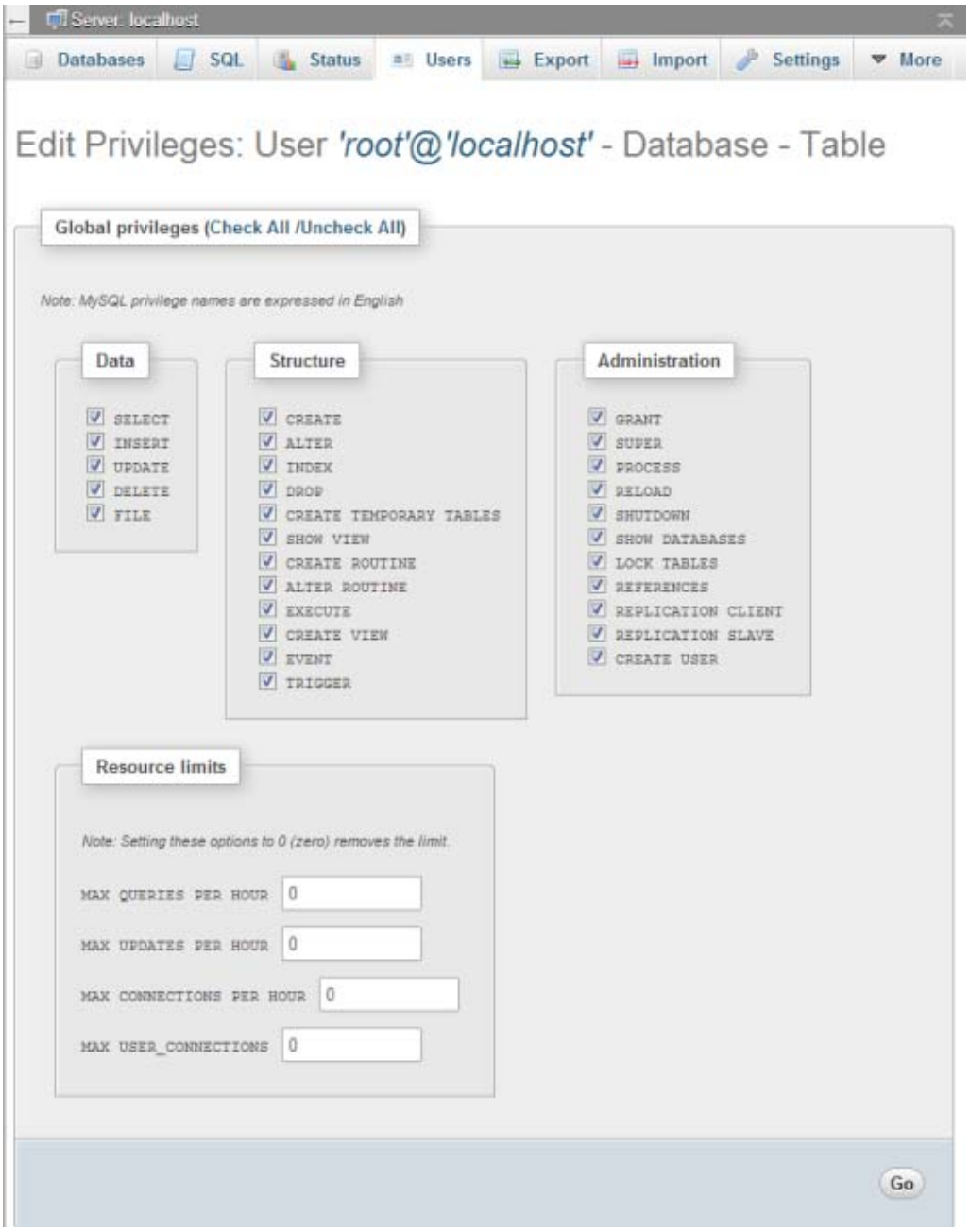
10f3 In the *Create a new user with the same privileges and...* section, ensure that *keep the old one* is selected, then click *Go*.

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 5.4, “Installing the Filr Appliance,” on page 81.

5.3 Configuring an Existing Database Server

You can configure Filr to use an existing MySQL 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 5.5, “Configuring a Large Deployment for the First Time,” on page 93. 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 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 5.3.1, “Configuring an Existing MySQL Database Server,” on page 79
- Section 5.3.2, “Configuring an Existing Microsoft SQL Database Server,” on page 80

5.3.1 Configuring an Existing MySQL 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 Database Server” on page 79
- “Configuring Ganglia to Monitor the Existing MySQL Database” on page 80

Configuring the Existing MySQL 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 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 MySQL 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 MySQL server.

   For example, a dedicated MySQL 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 MySQL Database" on page 80.

Configuring Ganglia to Monitor the Existing MySQL Database

If you want to use Ganglia to monitor the existing MySQL database, you need to change the database name on the Filr appliance that Ganglia is configured to monitor to match the name of your MySQL 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 MySQL 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 5.4.1, "Downloading the Filr Appliance and Configuring the Virtual Environment," on page 81.

5.3.2 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. Continue with Section 5.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 81.

5.4 Installing the Filr Appliance

- Section 5.4.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 81
- Section 5.4.2, “Installing the Filr Appliance,” on page 90

5.4.1 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 81
- “Xen Configuration” on page 84
- “Hyper-V Configuration” on page 87

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 18.

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 *Novell Filr 1.1 Administration Guide*.)
4. In VMware, change the controller to *VMware Paravirtual*.
5. Power on each appliance in the Filr system.

11k Leave the *Mode* section blank, 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 18.

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 *Novell Filr 1.1 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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 *Novell Filr 1.1 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 5.4.2, "Installing the Filr Appliance," on page 90.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 *Disk*s.

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 18.

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 18.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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 5.4.2, “Installing the Filr Appliance,” on page 90.

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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 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 18.

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 18.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157.

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

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

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*.

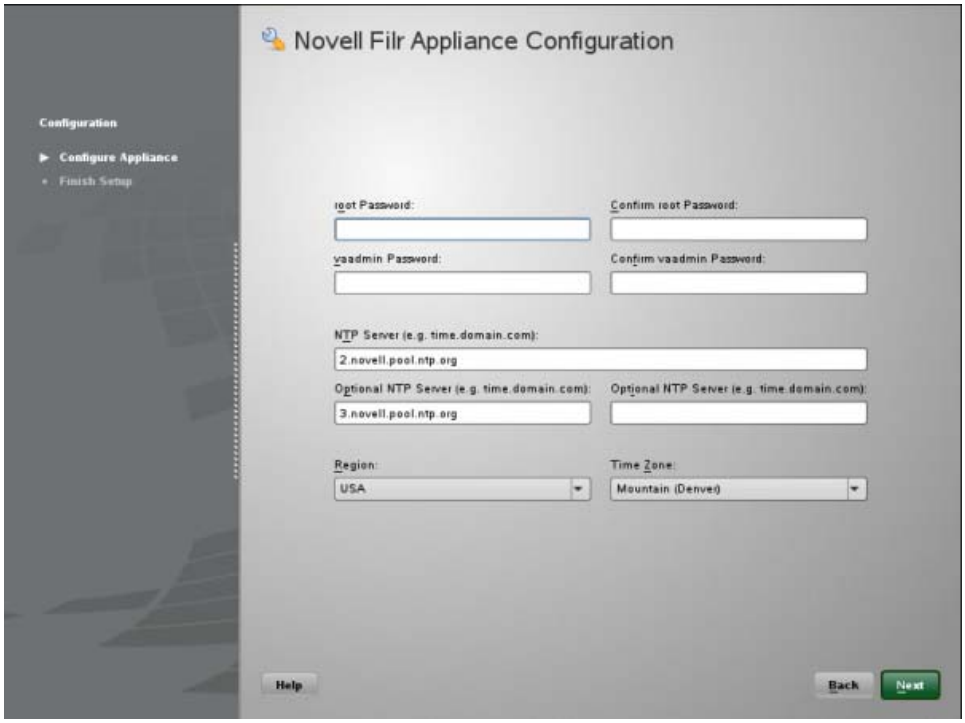
22 Continue with Section 5.4.2, “Installing the Filr Appliance,” on page 90.

5.4.2 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 Filr Appliance Configuration 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).

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 *Novell Filr 1.1 Administration Guide*.

4 Click *Next*.

5 On the network 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 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 5.4.1, "Downloading the Filr Appliance and Configuring the Virtual Environment," on page 81), 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 *Novell Filr 1.1 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 81), 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.

IMPORTANT: Prior to Filr 1.1, you had the option to store Hard Disk 2 (/vastorage) on an NFS mount-point. This option has been removed from Filr 1.1 because of issues discovered with placing /vastorage on NFS storage. You must create a separate VMware, Xen, or Hyper-V hard disk for the data storage location (/vastorage).

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 81), 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 D.1, "Setting Up Remote NFS for the Filr Shared Storage Location," on page 157.
  - 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 D.2, "Setting Up Remote CIFS for the Filr Shared Storage Location," on page 158.

- **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 3.2.2, “Large Deployment,” on page 30.

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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157). 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 D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157), 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.

5.5 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.

---

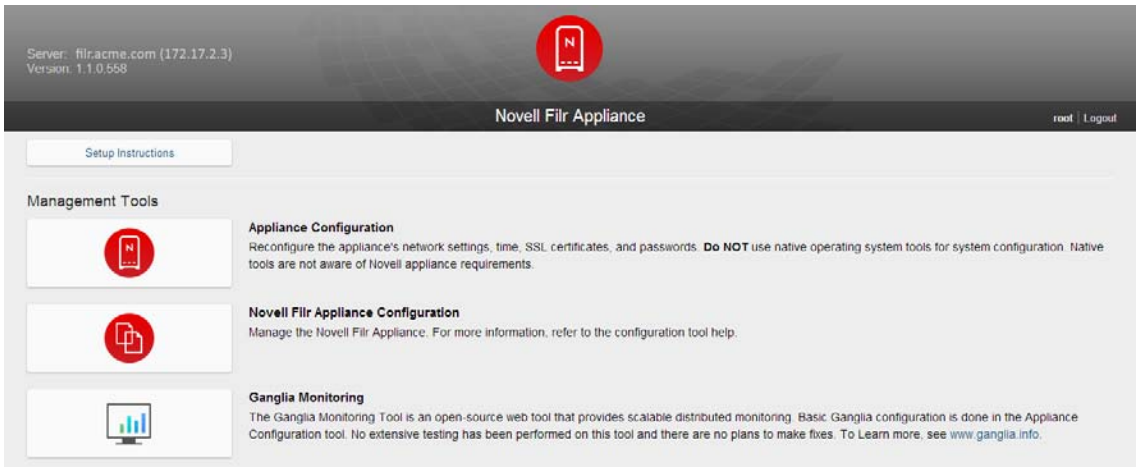
1 After you have installed the Novell Filr appliance, as described in Section 5.4, “Installing the Filr Appliance,” on page 81, navigate to the following URL:

`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 or Microsoft SQL database, ensure that you have performed the tasks described in Section 5.3, “Configuring an Existing Database Server,” on page 79.

Database Type: Select the type of database. The supported databases are MySQL 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 7, “Configuring and Maintaining the MySQL Database Appliance,” on page 99. (This is separate from the root password that you set for appliance access in Step 3 of Section 5.2, “Installing the MySQL Database Appliance,” on page 66.)

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 appliance where the Lucene search index server is running.

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 Lucene search index. By default, the user name is `lucene service`. You can keep this name or change it to a name that you choose.

Lucene User Password: Specify the password for the Lucene search index. This is the password that you created when installing the Lucene search index 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 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 *Novell Filr 1.1 Administration Guide*.

11 Continue with Chapter 8, "Setting Up the Filr Site," on page 105 to make your site ready for user access.

6 Configuring and Maintaining the Search Index Appliance

- Section 6.1, “Configuring the Search Index Appliance,” on page 97
- Section 6.2, “Maintaining the Search Index Appliance,” on page 98

6.1 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 *Novell Filr 1.1 Administration Guide*.

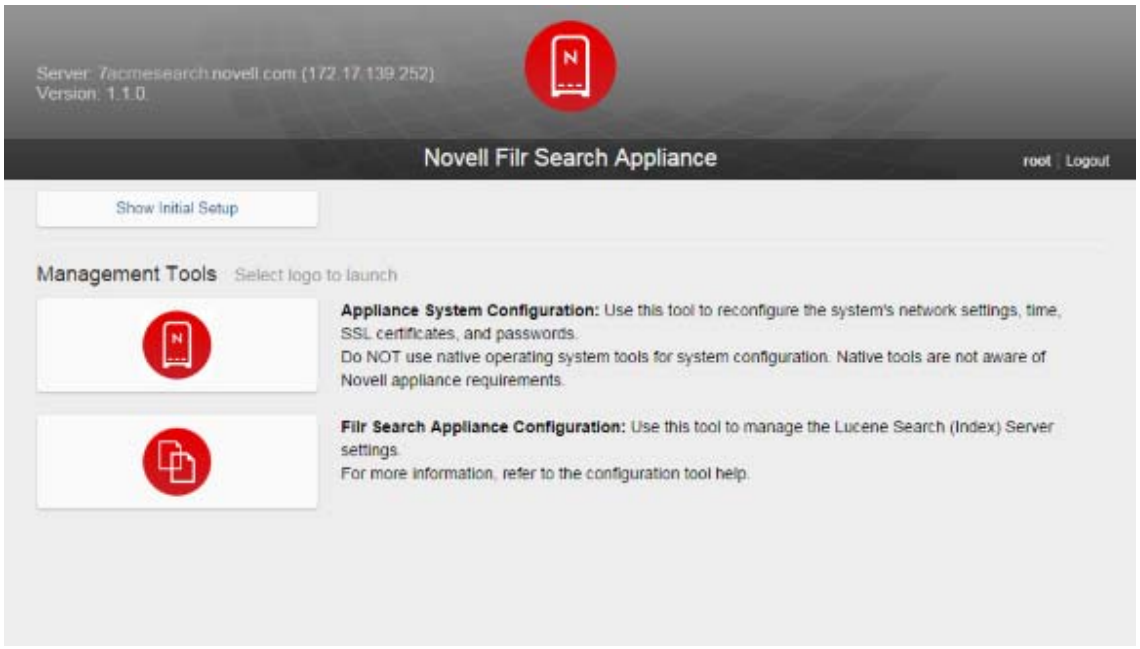
1. After installing the search index appliance, as described in Section 5.1, “Installing the Search Index Appliance,” on page 55, navigate to the following URL:

   `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 Lucene service 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 Lucene service 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.

6 Click *Submit* after you have made the desired modifications for your search settings.

6.2 Maintaining the Search Index Appliance

As time passes, you might need to optimize or rebuild your Lucene search index. High availability Lucene indexes allow you to take one Lucene node out of service for required maintenance while the other Lucene node continues to operate.

For more information about how to perform needed maintenance on the Lucene search index, see “Managing the Lucene Index” in the *Novell Filr 1.1 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).

7 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 7.1, “Configuring the MySQL Database Appliance,” on page 99
- Section 7.2, “Maintaining the MySQL Database Appliance,” on page 103

7.1 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 5.3, “Configuring an Existing Database Server,” on page 79.

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 *Novell Filr 1.1 Administration Guide*.

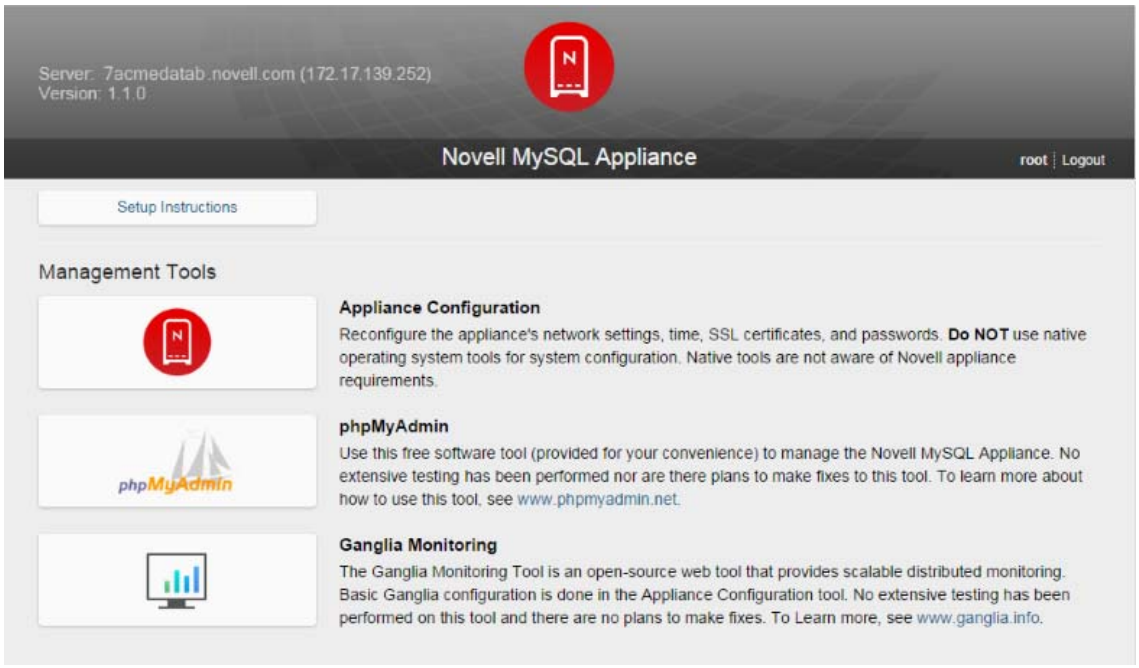
1. After installing the database appliance, as described in Section 5.2, “Installing the MySQL Database Appliance,” on page 66, navigate to the following URL:

   `https://ip_address:9443`

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

2. Sign in to the database appliance using the `vaadmin` user and 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 the `root` user. (The default password for the `root` user is `root`. You will be instructed to change the default password in a future step.)

5 Create a new 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 application server.

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 Scroll to the *Login Information* section. In the *Host* field, specify the IP address or host name of the next Filr appliance in the cluster.

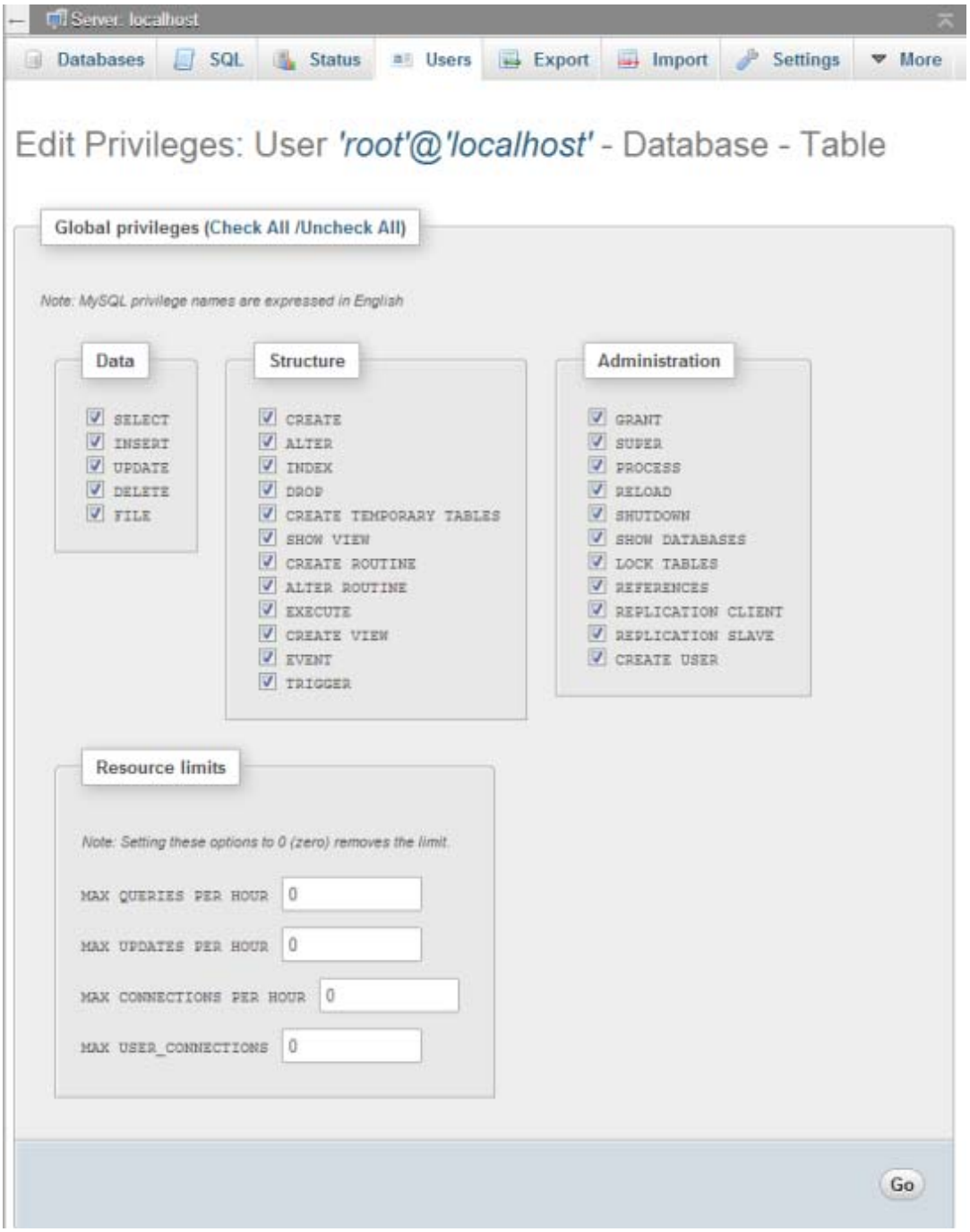
6c In the *Create a new user with the same privileges and...* section, ensure that *keep the old one* is selected, then click *Go*.

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.

7.2 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 *Novell Filr 1.1 Administration Guide*).

   or

   Run the flush logs command from the MySQL appliance (`mysqladmin flush-logs`).

8 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 Administration Guide*.
4. Configure email integration for the Filr site, as described in "Configuring Email Integration" in the *Novell Filr 1.1 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 *Novell Filr 1.1 Administration Guide*.
6. Enable personal storage for the Filr site. This allows 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 Web Application User Guide*.
- Users cannot make items accessible to the public, as described in "Making Files Accessible to the Public" in the *Novell Filr 1.1 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 *Novell Filr 1.1 Administration Guide*.

For more information about external users in Filr, see "Allowing External Users Access to Your Filr Site" in the *Novell Filr 1.1 Administration Guide*.

---

9 Configure mobile device access to the Filr site, as described in "Configuring Mobile Device Access to the Filr Site" in the *Novell Filr 1.1 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 "Configuring the Filr Desktop Application to Access Files" in the *Novell Filr 1.1 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 1.0 Desktop Application for Windows Quick Start* (http://www.novell.com/documentation/novell-filr-1-1/filr-1-1_qs_desktop/data/filr-1-1_qs_desktop.html) and the *Novell Filr 1.0 Desktop Application for Mac Quick Start* (http://www.novell.com/documentation/novell-filr-1-1/filr-1-1_qs_desktopmac/data/filr-1-1_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 *Novell Filr 1.1 Administration Guide*.

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11 Configure Filr to support WebDAV on a Windows 7 environment, as described in "Configuring Filr to Support WebDAV on Windows 7" in the *Novell Filr 1.1 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 *Novell Filr 1.1 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 *Novell Filr 1.1 Administration Guide*.

14 After you have completed all of the topics that are relevant to your Filr environment, as discussed in the *Novell Filr 1.1 Administration Guide*, you can invite users to use the Filr site. For information about how to use the Filr site, see *Novell Filr 1.1 Web Application User Guide*.

9 Upgrading Filr

Before upgrading your appliances, you must do the following. Failure to complete these steps can result in a non-functional Filr system.

1. **Ensure that /vastorage Points to an Appliance-Based, Non-NFS Data Disk:** Ensure that the existing appliance's data storage location (/vastorage) points a separate appliance-based hard disk (as described in Appendix B, "Migrating /vastorage from NFS to a Hard Disk," on page 147).

   When you point the new appliance to the existing appliance's data storage location, the new appliance detects that you intend to do an upgrade. The appliance carries forward the appropriate configuration data from the old appliance.

2. **Plan to Create an Empty, Unformatted Appliance-Based Disk for /var:** For each appliance you are upgrading, you must plan to create a third disk for storing system event log files.

3. **Fully Patch All OES 11 SP1 Target Servers:** If you have OES 11 SP1 file servers that host Filr Net Folders or Personal Storage Home folders, you must ensure that all OES 11 SP1 servers have at least the December 2012 Scheduled Maintenance Update applied.

   This updates the NCP server to a newer version that is capable of keeping up with the increased service requests of Filr 1.1.

   Failure to update your OES 11 SP1 servers can cause the configured eDirectory (LDAP) servers to fail.

4. **Do Not Attempt to Migrate 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.

5. **Do Not Attempt to Migrate from Large to a Large Cluster:** 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.

6. **Do Not Attempt to Upgrade Directly from Filr 1.0 to Filr 1.1:** Upgrading from Filr 1.0 to Filr 1.1 is not supported. You must first upgrade to Filr 1.0.1, and then to Filr 1.1.

7. **Plan to Upgrade All Filr and Search Appliances:** You must plan to upgrade all of the Filr and search index appliances to version 1.1. You cannot run varying versions of the Filr and search index appliances in a large deployment. (While it is possible to upgrade the Filr and search index appliances without upgrading the MySQL database appliance, it is also a good idea to upgrade the MySQL database appliance to the latest version.)

   For example, if you upgrade one Filr appliance in a cluster to version 1.1, then all of the Filr appliances in the cluster, as well as any search index appliances, must also be upgraded to version 1.1.

8. **Plan to Meet All Hardware and Software Requirements:** See Section 1.2, "Filr System Requirements," on page 13.

9. **Continue with the upgrade process:** After the above steps are met, continue with Section 9.2, "Copying the Appliance Data Storage Location to Prepare for the Upgrade," on page 110.

The following video walks you through the process for upgrading from Filr 1.0.1 to Filr 1.1:

http://www.youtube.com/watch?v=Rathr3Nk12s

- Section 9.1, “Prerequisites,” on page 110
- Section 9.2, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 110
- Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110
- Section 9.4, “Upgrading the Filr, Search, or Database Appliances,” on page 113
- Section 9.5, “Performing Post-Upgrade Tasks,” on page 135

9.1 Prerequisites

Before upgrading the Filr system, ensure that you have completed these important steps. Failure to do so can result in a non-functional Filr system.

9.2 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 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

9.3 Backing Up the Filr MySQL Database to Prepare for the Upgrade

When upgrading your Filr deployment, you need to also upgrade the Filr database in the following scenarios:

- You are upgrading a small deployment.
- You are upgrading a large deployment and you are using the MySQL database appliance that ships with Filr.

  In a large deployment, the MySQL database backup and upgrade are independent of the Filr and search index upgrades. For example, you can upgrade the Filr and search index appliances in your Filr system first (as described in Section 9.4, “Upgrading the Filr, Search, or Database Appliances,” on page 113), then back up and upgrade the MySQL appliance at a later time. However, if you upgrade the MySQL database appliance at a later time, the Filr service needs to be stopped until the database upgrade is complete.

If you are leveraging your own MySQL database or MSSQL database, you do not need to upgrade the Filr database as described in the following sections.

To back up the Filr MySQL database to prepare it to be upgraded:

1. Determine the size of your current Filr database. You will need this information when copying the database to the new hard disk.

   At the appliance console where the database is running, run the following command to view the database size:

   ```
   du -h /vastorage/mysql
   ```

2. (Conditional) If you are upgrading a small deployment, shut down the Filr appliance.

   For information about how to shut down the Filr system, see "Shutting Down and Restarting the Novell Appliance" in the *Novell Filr 1.1 Administration Guide*.

3. (Conditional) If you are upgrading a large deployment, shut down the Filr, search index, and MySQL database appliances that you plan to upgrade from.

   For information about how to shut down the Filr system, see "Shutting Down and Restarting the Novell Appliance" in the *Novell Filr 1.1 Administration Guide*.

4. In a **small deployment**, attach a new hard disk to the Filr appliance that you are upgrading from.

   In a **large deployment**, attach a new hard disk on the MySQL database appliance that you are upgrading from.

   IMPORTANT: When creating the hard disk, consider the following:

   - The hard disk must be large enough to store the existing Filr database.
   - Select *SCSI (2:0)* as the device controller.

   ---

5. Power on the appliance that you are upgrading from where you attached the disk.

   The disk is not recognized until the appliance is powered on.

   IMPORTANT: Before powering on the appliance, ensure that the existing appliance's `/vastorage` does not point to an NFS mount point. If it does, you must migrate it to an appliance-based hard disk (as described in Appendix B, "Migrating /vastorage from NFS to a Hard Disk," on page 147).

   ---

6. (Conditional) If you are upgrading a small deployment, stop the Filr and FAMT services:

   6a Log in to the Filr appliance configuration at the following URL:

   ```
   https://server_url:9443
   ```

   6b Click the *Appliance Configuration* icon.

   6c Click *System Services*.

   6d Select *Novell Filr*, then click *Action* > *Stop* > *Yes*.

   6e Select *Novell FAMT*, then click *Action* > *Stop* > *Yes*.

7. Start the SSH service:

   7a Log in to the appliance configuration at the following URL:

   ```
   https://server_url:9443
   ```

7b Click the *Appliance Configuration* icon.

7c Click *System Services*.

7d Select *SSH*, then click *Action* > *Start*.

8 Download the `mysqlbackup.zip` file from the Novell Customer Center (NCC) (https://www.novell.com/center).

9 Copy the `mysqlbackup.zip` file to the Filr appliance in a small deployment, or copy it to the MySQL appliance in a large deployment.

You can copy the `mysqlbackup.zip` file by using WinSCP or a similar program.

10 Unzip the `mysqlbackup.zip` file.

11 Change to the directory where you unzipped the `mysqlbackup.zip` file.

```
cd mysqlbackup
```

12 Run the `run-mysqlbackup.sh` file.

```
sh run-mysqlbackup.sh
```

If the name of the database is anything other than `filr`, add the name of the database as a parameter when you run the file.

```
sh run-mysqlbackup.sh DatabaseName
```

For example, if the name of the database is `acme`, use `acme` as the parameter:

```
sh run-mysqlbackup.sh acme
```

This formats the disk that you attached in Step 4 to be used as the Filr database backup. This script utilizes mysqldump to provide an export of the database.

13 Specify the user name and password of the MySQL database.

In a small deployment, the user name is `filr` and the password is the password that you specified during installation. In a large deployment, this is the user name and password that you specified during installation.

TIP: If you are unable to connect to the database by using the `filr` user, you can use the `root` user as a secondary option.

The backup is created.

14 (Optional) To verify that the backup was created:

In a **small deployment**, change to the `/filr-appliance` directory.

```
cd /filr-appliance
```

In a **large deployment**, change to the `/mysql-appliance` directory.

```
cd /mysql-appliance
```

The Filr database is backed up at this location:

Small deployment: `/filr-appliance/mysqlbackup/filr.sql`

Large deployment: `/mysql-appliance/mysqlbackup/filr.sql`

15 In a **small deployment**, install the new Filr all-in-one appliance, as described in Section 9.4, “Upgrading the Filr, Search, or Database Appliances,” on page 113.

In a **large deployment**, install the new MySQL database appliance, as described in Section 9.4, “Upgrading the Filr, Search, or Database Appliances,” on page 113.

9.4 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. However, because of changes made to the search index since the previous release, you should re-index your Filr site after upgrading from Filr 1.0.1 to 1.1.

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 9.1, “Prerequisites,” on page 110.

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.
- If you are upgrading the MySQL database appliance that ships with Filr for a large deployment or if you are upgrading a small Filr deployment, ensure that you have backed up the existing database as described in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

- Section 9.4.1, “VMware,” on page 113
- Section 9.4.2, “Xen,” on page 120
- Section 9.4.3, “Hyper-V,” on page 127

9.4.1 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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 Lucene search index 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 *Novell Filr 1.1 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 9.2, "Copying the Appliance Data Storage Location to Prepare for the Upgrade," on page 110.)

If the data storage location for the Filr system you are upgrading from is on NFS, you need to migrate the data storage (/vastorage) to a hard disk before you can continue with the upgrade, as described in Appendix B, "Migrating /vastorage from NFS to a Hard Disk," on page 147.

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 9.2, "Copying the Appliance Data Storage Location to Prepare for the Upgrade," on page 110.) Then click *OK*.

12f Click *Next*.

12g In the *Virtual Device Node* section, select *SCSI (1:0)* from the drop-down list.

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

12i 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 "Filr Appliance Storage" on page 18.

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 are upgrading the MySQL database appliance, or if you are upgrading the Filr appliance in a small deployment, attach the disk that contains the backup of the original Filr database to the new Filr system:

(You should have already backed up the Filr database on the source Filr system, as described in Section 9.3, "Backing Up the Filr MySQL Database to Prepare for the Upgrade," on page 110.)

14a Use the Datastore Browser to copy the hard disk to the location where the 1.1 system is installed. (This is the hard disk that you created in Step 4 in Section 9.3, "Backing Up the Filr MySQL Database to Prepare for the Upgrade," on page 110.)

This provides a failsafe that allows you to restart the old Filr system if there is a failure with the new Filr system.

14b In a **small deployment**, add a new hard disk for the Filr appliance, then browse to the disk that you copied in Step 14a.

In a **large deployment**, add a new hard disk for the MySQL database appliance, then browse to the disk that you copied in Step 14a.

IMPORTANT: When creating the hard disk, consider the following:

- The hard disk must be large enough to store the existing Filr database.
- Select *SCSI (3:0)* as the device controller.

---

15 (Conditional) If you added an additional Network Interface Controller (NIC) when you installed the Filr appliance, point the new appliance to the secondary NIC.

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

15a In the Virtual Machine Properties window, on the *Hardware* tab, click *Add*.

The Add Hardware dialog box is displayed.

15b Select *Ethernet Adapter*, then click *Next*.

15c In the *Network Label* drop-down list, select the name of the secondary NIC.

15d Click *Next* > *Finish*.

16 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 *Novell Filr 1.1 Administration Guide*, and in Section 6.1, "Configuring the Search Index Appliance," on page 97.

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.

16a In the Virtual Machine Properties window, select *Memory*, then increase the setting to a suitable size for your environment.

16b Click *OK* to exit the Virtual Machine Properties window.

17 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 1.1 System)	/vastorage (Disk 2) (Copied from original system)	/var (Disk 3) (Created new in Filr 1.1 System)	Database Backup (Disk 4)
MySQL	Required	Required	Required	Required
	New	Copied	New	Temporary use
		See Step 12.	See Step 13.	See Step 14.
Search Index	Required	Required	Required	N/A
	New	Copied	New	
		See Step 12.	See Step 13.	
Filr	Required	Required	Required	N/A
	New	Copied	New	
		See Step 12.	See Step 13.	

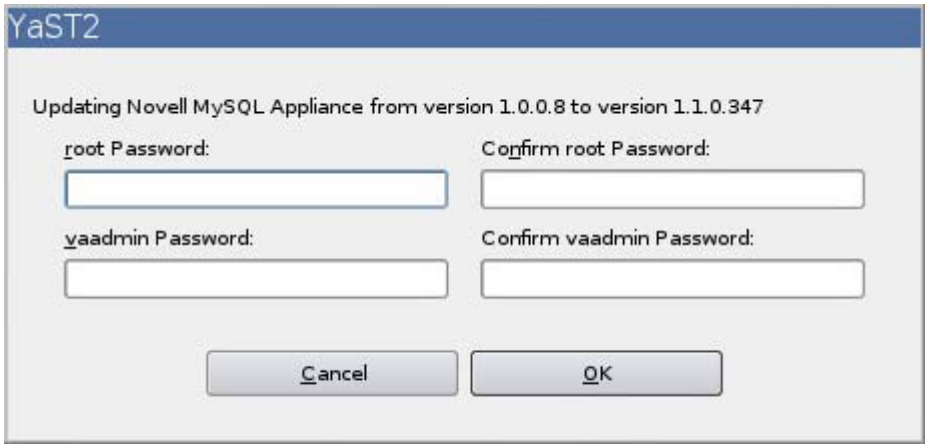
18 Power on the appliance (virtual machine).

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.

19 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.



20 Specify and confirm the root and vaadmin passwords for the appliance you are upgrading from, then click *OK*.

When using a non-English keyboard, specify `1234` as the passwords (or use another simple password that uses the same keys regardless of the keyboard language). Passwords are recorded as if you were using an English keyboard even when another keyboard language is being used. After the system is successfully upgraded, change the password as described in "Changing Administrative Passwords" in the *Novell Filr 1.1 Administration Guide*.

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.

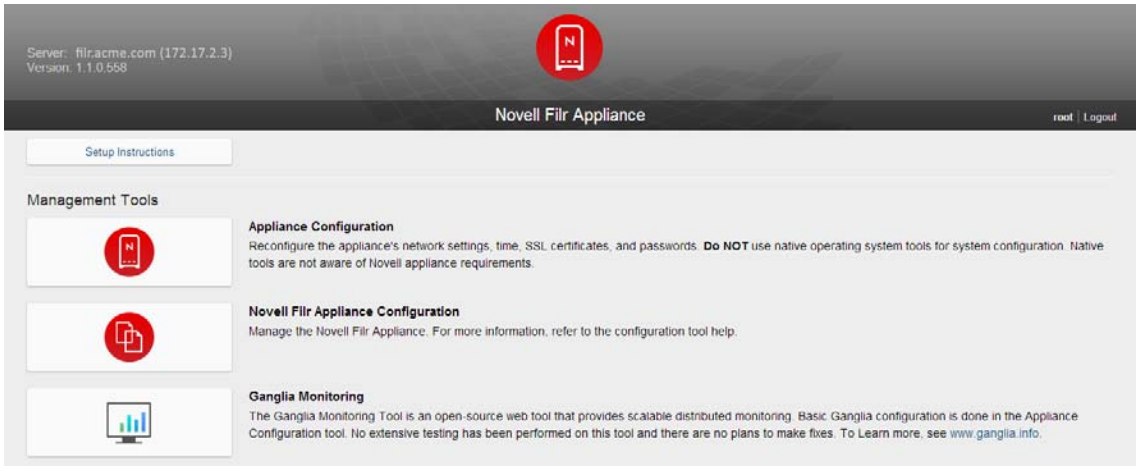
21 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

22 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.



23 (Conditional) If you are upgrading the **search appliance**:

23a Click the *Filr Search Appliance Configuration* icon.

The Search Settings page is displayed.

23b (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.

23c Ensure that all of the settings are set to your desired specifications.

24 (Conditional) If you are upgrading the **database appliance**:

24a Click the *phpMyAdmin* icon.

24b Verify that the database is populated.

24c The Filr database user does not carry over from the 1.0.1 system.

IMPORTANT: You need to add the same Filr database user that was used for the system that you are upgrading from. For information about how to create this user, see Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

You also need to change the root user’s password that you used in the previous Filr system, because the password gets reset to the default password during the upgrade.

If any upgraded Filr appliances are currently running in the 1.1 system, you need to restart them in order for the database user to be recognized.

24d (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

24e (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.

25 (Conditional) If you are upgrading the **Filr appliance in a large 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.

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.
- The Filr database user did not carry over from the 1.0.1 system. You need to create another Filr database user, as described in Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

25c Ensure that all of the settings are set to your desired specifications.

26 (Conditional) If you are upgrading the **Filr appliance in a small deployment**:

26a Click the *Filr Appliance Configuration* icon.

The Filr Settings page is displayed.

26b (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.

26c Ensure that all of the settings are set to your desired specifications.

26d Click *Home*, then click the *phpMyAdmin* icon.

26e Verify that the database is populated.

26f (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

26g (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.

27 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 35.

28 Continue with Section 9.5, “Performing Post-Upgrade Tasks,” on page 135.

9.4.2 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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (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 *Novell Filr 1.1 Administration Guide*, and in Section 6.1, "Configuring the Search Index Appliance," on page 97.

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 *Disk*s.

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 Lucene search index 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 *Novell Filr 1.1 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 9.2, "Copying the Appliance Data Storage Location to Prepare for the Upgrade," on page 110.)

If the data storage location for the Filr system you are upgrading from is on NFS, you need to migrate the data storage (/vastorage) to a hard disk before you can continue with the upgrade, as described in Appendix B, "Migrating /vastorage from NFS to a Hard Disk," on page 147.

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 “Filr Appliance Storage” on page 18.

Create Sparse Image File: Select this option.

Read-Only Access: Do not select this option.

17 (Conditional) If you are upgrading the MySQL database appliance, or if you are upgrading the Filr appliance in a small deployment, attach the disk that contains the backup of the original Filr database to the new Filr system:

(You should have already backed up the Filr database on the source Filr system, as described in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.)

17a Use the Datastore Browser to copy the hard disk to the location where the 1.1 system is installed. (This is the hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.)

This provides a failsafe that allows you to restart the old Filr system if there is a failure with the new Filr system.

17b In a **small deployment**, add a new hard disk for the Filr appliance, then browse to the disk that you copied in Step 17a.

In a **large deployment**, add a new hard disk for the MySQL database appliance, then browse to the disk that you copied in Step 17a.

IMPORTANT: When creating the hard disk, consider the following:

- The hard disk must be large enough to store the existing Filr database.
- Select *SCSI (3:0)* as the device controller.

---

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.

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

18a From the virtual machine page, click *Add Hardware*.

18b Select *Network*.

18c In the *Host device* drop-down list, select the name of the secondary NIC.

18d Click *Finish*.

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 1.1 System)	Database Backup (Disk 4)
MySQL	Required	Required	Required	Required
	New	Copied	New	Temporary use
		See Step 15.	See Step 16.	See Step 17.
Search Index	Required	Required	Required	N/A
	New	Copied	New	
		See Step 15.	See Step 16.	
Filr	Required	Required	Required	N/A
	New	Copied	New	
		See Step 15.	See Step 16.	

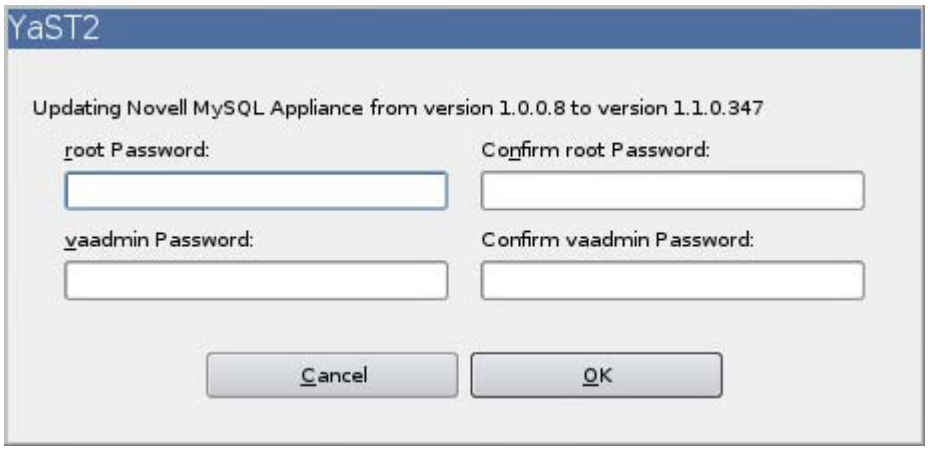
20 Power on the appliance (virtual machine).

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*.

When using a non-English keyboard, specify `1234` as the passwords (or use another simple password that uses the same keys regardless of the keyboard language). Passwords are recorded as if you were using an English keyboard even when another keyboard language is being used. After the system is successfully upgraded, change the password as described in "Changing Administrative Passwords" in the *Novell Filr 1.1 Administration Guide*.

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 Click *Configure*.

A message indicating that the installation was successful is displayed.

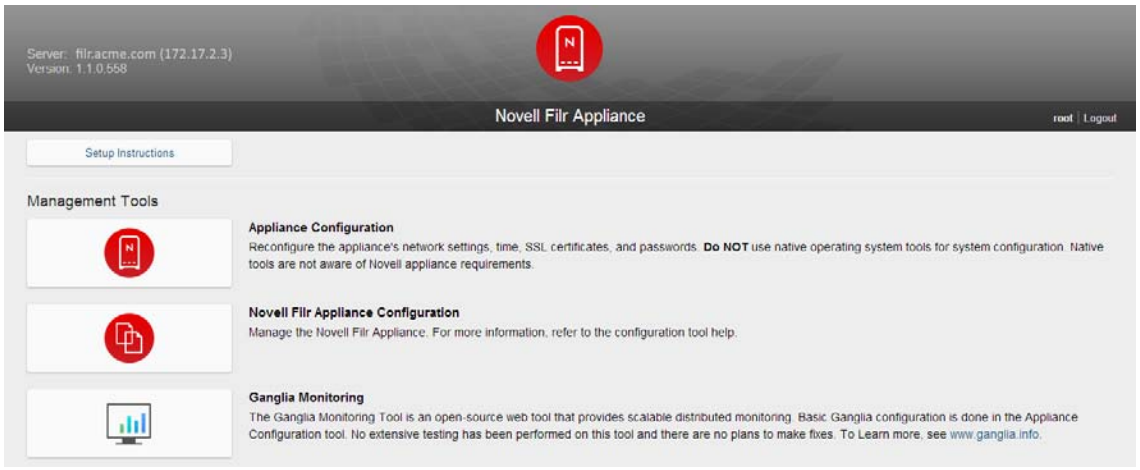
24 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

25 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.



26 (Conditional) If you are upgrading the **search appliance**:

26a Click the *Filr Search Appliance Configuration* icon.

The Search Settings page is displayed.

26b (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.

26c Ensure that all of the settings are set to your desired specifications.

27 (Conditional) If you are upgrading the **database appliance**:

27a Click the *phpMyAdmin* icon.

27b Verify that the database is populated.

27c The Filr database user does not carry over from the 1.0.1 system.

IMPORTANT: You need to add the same Filr database user that was used for the system that you are upgrading from. For information about how to create this user, see Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

You also need to change the root user’s password that you used in the previous Filr system, because the password gets reset to the default password during the upgrade.

If any upgraded Filr appliances are currently running in the 1.1 system, you need to restart them in order for the database user to be recognized.

27d (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

27e (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.

28 (Conditional) If you are upgrading the **Filr appliance in a large 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.

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.
- The Filr database user did not carry over from the 1.0.1 system. You need to create another Filr database user, as described in Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

28c Ensure that all of the settings are set to your desired specifications.

29 (Conditional) If you are upgrading the **Filr appliance in a small deployment**:

29a Click the *Filr Appliance Configuration* icon.

The Search Settings page is displayed.

29b (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.

29c Ensure that all of the settings are set to your desired specifications.

29d Click *Home*, then click the *phpMyAdmin* icon.

29e Verify that the database is populated.

29f (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

29g (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.

30 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 35.

31 Continue with Section 9.5, “Performing Post-Upgrade Tasks,” on page 135.

9.4.3 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). Or, you can access an evaluation version of the software from this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (http://download.novell.com).

4 Extract the file that you downloaded in Step 3 to a 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 *Novell Filr 1.1 Administration Guide*, and in Section 6.1, "Configuring the Search Index Appliance," on page 97.

   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 Lucene search index 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 *Novell Filr 1.1 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 9.2, "Copying the Appliance Data Storage Location to Prepare for the Upgrade," on page 110.)

If the data storage location for the Filr system you are upgrading from is on NFS, you need to migrate the data storage (/vastorage) to a hard disk before you can continue with the upgrade, as described in Appendix B, "Migrating /vastorage from NFS to a Hard Disk," on page 147.

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 18.

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 18.

17i Click *Next*.

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

18 (Conditional) If you are upgrading the MySQL database appliance, or if you are upgrading the Filr appliance in a small deployment, attach the disk that contains the backup of the original Filr database to the new Filr system:

(You should have already backed up the Filr database on the source Filr system, as described in Section 9.3, "Backing Up the Filr MySQL Database to Prepare for the Upgrade," on page 110.)

18a Use the Datastore Browser to copy the hard disk (that you created in Step 4 in Section 9.3, "Backing Up the Filr MySQL Database to Prepare for the Upgrade," on page 110) to the location where the 1.1 system is installed.

This provides a failsafe that allows you to restart the old Filr system if there is a failure with the new Filr system.

18b In a **small deployment**, add a new hard disk for the Filr appliance, then browse to the disk that you copied in Step 18a.

In a **large deployment**, add a new hard disk for the MySQL database appliance, then browse to the disk that you copied in Step 18a.

IMPORTANT: When creating the hard disk, consider the following:

- The hard disk must be large enough to store the existing Filr database.
- Select *SCSI (3:0)* as the device controller.

---

19 (Conditional) If you added an additional Network Interface Controller (NIC) when you installed the Filr appliance, point the new appliance to the secondary NIC.

An additional NIC should be used only if you have multiple networks associated with the Filr installation; bonding or teaming NICs is not supported with Filr. For example, if your NFS mount is on a separate network from the main Filr appliance, you can configure an additional NIC for the second network.

19a In Hyper-V Manager, right-click the virtual machine for which you want to create a new hard disk, then click *Settings*.

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

19c In the *Virtual Switch* drop-down list, select the name of the secondary NIC.

19d Make any other relevant configuration changes, then click *OK*.

20 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 1.1 system)	Database Backup (Disk 4)
MySQL	Required	Required	Required	Required
	New	Copied	New	Temporary use
		See Step 16.	See Step 17.	See Step 18.
Search Index	Required	Required	Required	N/A
	New	Copied	New	
		See Step 16.	See Step 17.	
Filr	Required	Required	Required	N/A
	New	Copied	New	
		See Step 16.	See Step 17.	

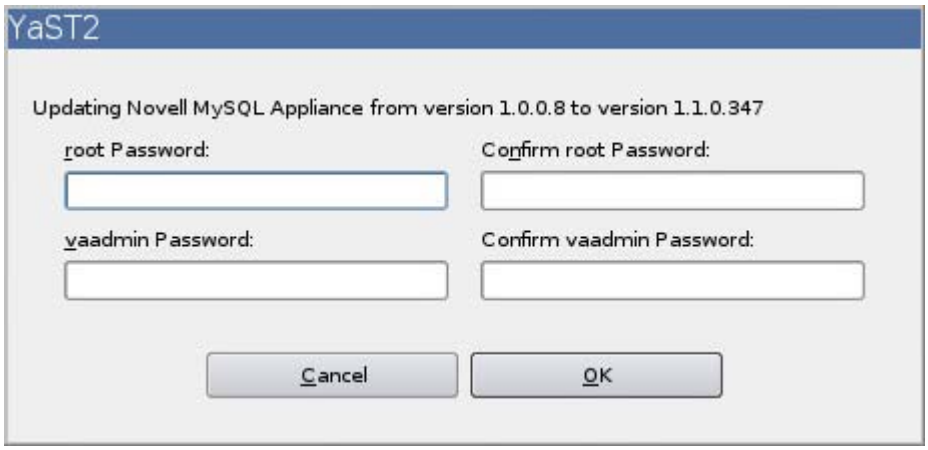
21 Power on the appliance (virtual machine).

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.

22 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.



23 Specify and confirm the root and vaadmin passwords for the appliance you are upgrading from, then click *OK*.

When using a non-English keyboard, specify `1234` as the passwords (or use another simple password that uses the same keys regardless of the keyboard language). Passwords are recorded as if you were using an English keyboard even when another keyboard language is being used. After the system is successfully upgraded, change the password as described in "Changing Administrative Passwords" in the *Novell Filr 1.1 Administration Guide*.

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.

---

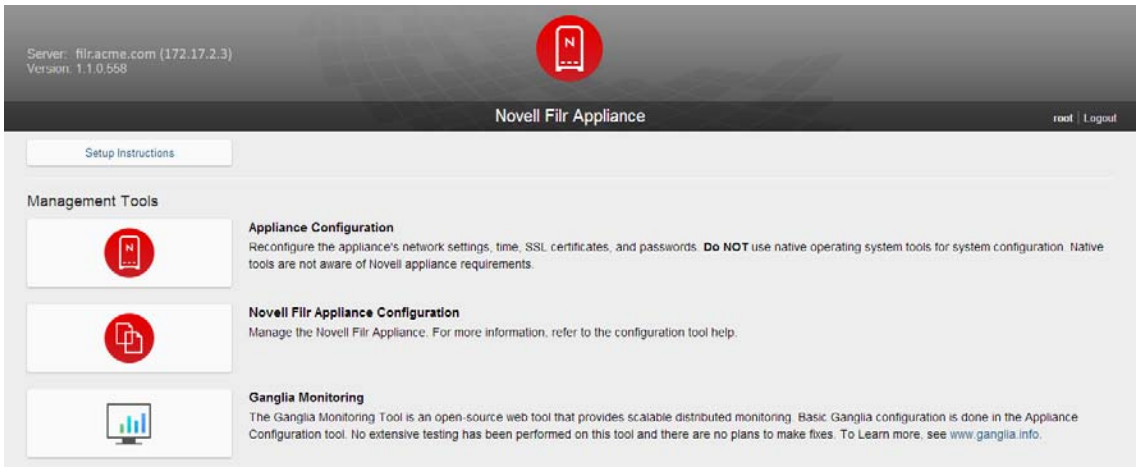
24 In a browser, navigate to the following URL:

`https://ip_address:9443`

Use the IP address or DNS name of the server that you specified during the appliance installation.

25 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.



26 (Conditional) If you are upgrading the **search appliance**:

26a Click the *Filr Search Appliance Configuration* icon.

The Search Settings page is displayed.

26b (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.

26c Ensure that all of the settings are set to your desired specifications.

27 (Conditional) If you are upgrading the **database appliance**:

27a Click the *phpMyAdmin* icon.

27b Verify that the database is populated.

27c The Filr database user does not carry over from the 1.0.1 system.

IMPORTANT: You need to add the same Filr database user that was used for the system that you are upgrading from. For information about how to create this user, see Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

You also need to change the root user’s password that you used in the previous Filr system, because the password gets reset to the default password during the upgrade.

If any upgraded Filr appliances are currently running in the 1.1 system, you need to restart them in order for the database user to be recognized.

27d (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

27e (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.

28 (Conditional) If you are upgrading the **Filr appliance in a large 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.

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.
- The Filr database user did not carry over from the 1.0.1 system. You need to create another Filr database user, as described in Step 5 in Section 7.1, “Configuring the MySQL Database Appliance,” on page 99.

28c Ensure that all of the settings are set to your desired specifications.

29 (Conditional) If you are upgrading the **Filr appliance in a small deployment**:

29a Click the *Filr Appliance Configuration* icon.

The Filr Settings page is displayed.

29b (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.

29c Ensure that all of the settings are set to your desired specifications.

29d Click *Home*, then click the *phpMyAdmin* icon.

29e Verify that the database is populated.

29f (Optional) On the source Filr system, delete the original hard disk that you created in Step 4 in Section 9.3, “Backing Up the Filr MySQL Database to Prepare for the Upgrade,” on page 110.

29g (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.

30 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 35.

31 Continue with Section 9.5, “Performing Post-Upgrade Tasks,” on page 135.

9.5 Performing Post-Upgrade Tasks

After upgrading to Filr 1.1, you should perform the following tasks to ensure a fully functional Filr system:

- Section 9.5.1, “Reconfiguring Net Folder Servers,” on page 135
- Section 9.5.2, “Moving the Memcached Service to the Search Index Appliance,” on page 136
- Section 9.5.3, “Rebuilding the Search Index,” on page 136
- Section 9.5.4, “Granting Users the Ability to Share via a File Link,” on page 136

9.5.1 Reconfiguring Net Folder Servers

After upgrading to Filr 1.1, you need to designate the server type (Windows, OES, or NetWare) and authentication type (NMAS, Kerberos, NTLM) for each Net Folder Server in your system. You then need to restart the FAMT service.

1. Set the server type and authentication type for each Net Folder Server in the Filr system by reconfiguring the Net Folder Servers.

   For information about how to reconfigure a Net Folder Server, as well as more information about these new options, see “Modifying Net Folder Connections” in the *Novell Filr 1.1 Administration Guide*.

2. Restart the FAMT service on the Filr appliance, as described in “Changing System Services Configuration” in the *Novell Filr 1.1 Administration Guide*.

9.5.2 Moving the Memcached Service to the Search Index Appliance

On a new Filr 1.1 large clustered installation (multiple Filr appliances), Memcached runs on the Lucene search index appliance. When upgrading to Filr 1.1, it is recommended that you move Memcached from the Filr appliance to the Lucene search index appliance, as described in Appendix E, “Moving the Memcached Service to the Search Index Appliance,” on page 159.

Memcached is used only in large clustered deployments (when the Filr system includes multiple Filr appliances).

9.5.3 Rebuilding the Search Index

Because of changes made to the search index since the previous release, you should re-index your Filr site.

For information about how to re-index the Filr site, see “Rebuilding the Lucene Index” in the *Novell Filr 1.1 Administration Guide*.

9.5.4 Granting Users the Ability to Share via a File Link

New in Filr 1.1 is the ability for users to distribute a link (URL) to a file. When users distribute a link to a file, any user with the link can access the file. However, the file is not displayed in the Public area, so users must have direct access to the link in order to access the file. (For more information, see “Added Ability to Share a File Link” in the *Novell Filr 1.1 Web Application User Guide*.)

Users that existed in the Filr system prior to upgrading to Filr 1.1 do not have the ability to share via a File Link by default. Users that are added to the Filr system after upgrading to Filr 1.1 already have the ability to share via a File Link.

To enable existing users to share via a File Link after upgrading to Filr 1.1:

1. Log in to the Filr site as the Filr administrator.

   For example, `https://filr_hostname:8443`
2. Click the *admin* link in the upper-right corner of the page, then click the *Administration Console* icon .
3. Under *Management*, click *Users*.

   The Manage Users page is displayed.
4. Select the users in the system who you want to grant rights to share via a File Link, then click *More* > *Workspace Share Rights*.

   The Set User Workspace Sharing Rights dialog box is displayed.

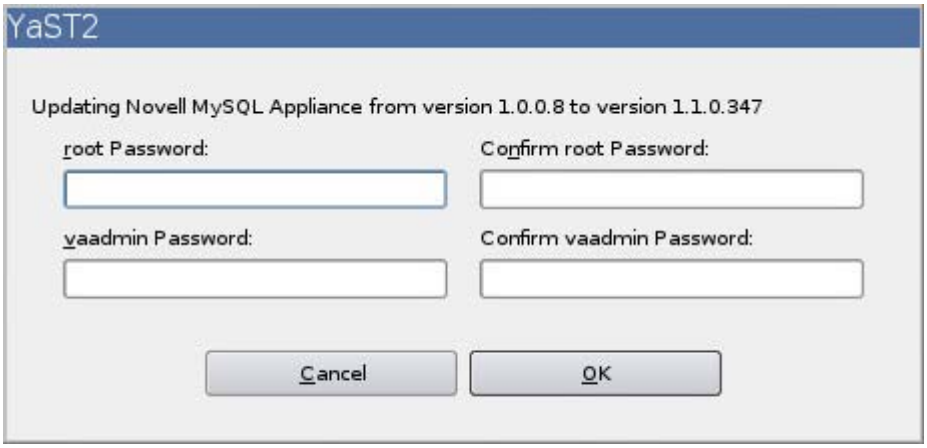
   TIP: To set this for all users simultaneously, you can configure all users to be displayed on one page by changing the value of the *Items per Folder Page* option in the personal preferences to be greater than the number of users in your system (as described in “Configuring the Number of Files to Display on a Folder Page” in the *Novell Filr 1.1 Web Application User Guide*), then select the check box in the column header to select all users.
5. Next to *File Link*, select *Allow*, then click *OK*.

10 Troubleshooting the Filr Installation and Upgrade

- Section 10.1, “The Upgrade Dialog Box Is Not Displayed during an Upgrade,” on page 137
- Section 10.2, “Rolling Back to the Previous Version after an Unsuccessful Upgrade,” on page 137

10.1 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.



10.2 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 10.2.1, “Rolling Back a Small or Non-Clustered Filr System,” on page 138
- Section 10.2.2, “Rolling Back a Clustered Filr System,” on page 138

10.2.1 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 9.2, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 110).

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.

10.2.2 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 138
- “Rolling Back the Shared Storage Location (/vashare)” on page 138

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 9.2, “Copying the Appliance Data Storage Location to Prepare for the Upgrade,” on page 110).

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)

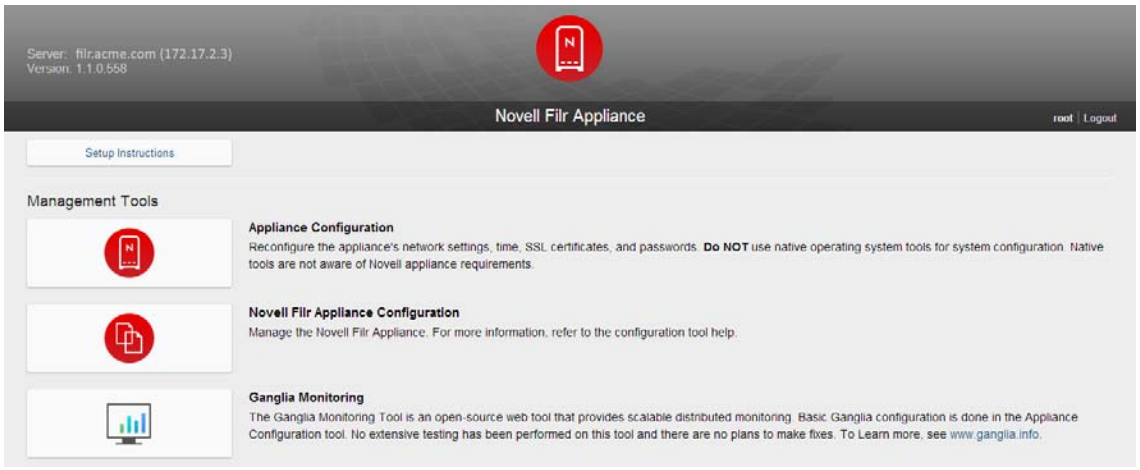
After an unsuccessful upgrade, you can roll back the shared storage location (`/vashare`) to the previous version by reconfiguring clustering on the Filr server:

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 143
- Appendix B, “Migrating /vastorage from NFS to a Hard Disk,” on page 147
- Appendix C, “Migrating the Filr Database from MySQL to Microsoft SQL,” on page 149
- Appendix D, “Setting Up Remote NFS or Remote CIFS for the Filr Shared Storage Location,” on page 157
- Appendix E, “Moving the Memcached Service to the Search Index Appliance,” on page 159
- Appendix F, “Troubleshooting the Filr System,” on page 161
- Appendix G, “Documentation Updates,” on page 163
- Appendix H, “Third-Party Materials,” on page 165

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 143
- Section A.2, “Upgrading Filr in Silent Mode,” on page 146

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 4.1.2, “Installing the Filr Appliance,” on page 48.)

  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 *Novell Filr 1.1 Administration Guide*.

  2. SSH to the Filr appliance.
  3. Change to the following directory and copy the `/etc/sysconfig/novell/NvlVAinit` file to your workstation.
  4. Copy each configuration setting that contains a value from the `NvlVAinit` 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 4.1.2, “Installing the Filr Appliance,” on page 48.

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 5.2, “Installing the MySQL Database Appliance,” on page 66.

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 4.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 39.

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 8, “Setting Up the Filr Site,” on page 105 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 4.1.1, “Downloading the Filr Appliance and Configuring the Virtual Environment,” on page 39.

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 /vastorage from NFS to a Hard Disk

If your Filr 1.0.1 data storage location (`/vastorage`) is on an NFS mount-point rather than a hard disk, you need to move the data storage location (`/vastorage`) to a hard disk when upgrading to Filr 1.1. This is necessary because of potential data loss with the MySQL and Filr appliances.

1. (Recommended) Before beginning the migration, it is a good idea to set Ganglia monitoring to unicast mode, if it is not already. In the *Publish to* field, specify either the URL of the database or search index appliance. For more information, see "Changing the Ganglia Configuration" in the *Novell Filr 1.1 Administration Guide*.

   If Ganglia is not in unicast mode, the process for copying files from NFS takes a considerable amount of time.

2. Power off the Filr or MySQL appliance in the Filr 1.0.1 system.

3. Attach a new hard disk to the appliance, then power on the appliance.

4. At the appliance console, create a temporary directory where you will copy the `/vastorage` from NFS:

   ```
   mkdir /vastoragetemp
   ```

5. Use the YaST Partitioner to partition, format, and mount the new disk to the directory that you created in Step 4.

   5a At the appliance console, launch YaST:

   ```
   yast
   ```

   5b Select *System* > *Partitioner*, then press Enter.

   5c Press Enter to ignore the warning.

   5d Tab to the *Available Storage* section, select the new disk that you created in Step 3, then press Enter.

   5e In the *Partitions* section, select *Add*, then press Enter.

   5f In the *Mounting Options* section, select *Mount Partition*, then specify the name of the directory that you created in Step 4.

   For example, specify `/vastoragetemp`.

   5g Select *Finish* > *Finish*.

6. On each MySQL and Filr appliance, update the `/etc/sysconfig/novell/NvlVAinit` file and cause the updated `NvlVAinit` file to be written to the `vaconfig.zip` file:

   6a Locate the following lines in the `/etc/sysconfig/novell/NvlVAinit` file:

   ```
   CONFIG_VAINIT_STORAGE_TYPE="nfs"
   CONFIG_VAINIT_DEVICE_STORAGE=""
   ```

   And change them to:

   ```
   CONFIG_VAINIT_STORAGE_TYPE="device"
   CONFIG_VAINIT_DEVICE_STORAGE="type:existing drive:auto name:auto
   format:auto"
   ```

   6b Cause the new `NvlVAinit` file to bewritten to the `vaconfig.zip` file.

You can use the following command:

```
python /opt/novell/base_config/zipVAConfig.py
```

7 At the appliance console, copy the files from NFS to the new disk that you created by using the following command:

```
cp -vaR /vastorage/* /vastoragetemp
```

The data storage location (`/vastorage`) is now copied to the new hard disk.

Now when you install the new Filr 1.1 system, you point the secondary hard disk to this existing hard disk. You are now ready to upgrade the Filr system to version 1.1, as described in Section 9.4, “Upgrading the Filr, Search, or Database Appliances,” on page 113.

C 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 C.1, “Prerequisites,” on page 149
- Section C.2, “Configuring the Existing Microsoft SQL Database Server,” on page 150
- Section C.3, “Connecting to the MySQL Database Server,” on page 150
- Section C.4, “Connecting to the Microsoft SQL Server,” on page 151
- Section C.5, “Customizing Data Types,” on page 151
- Section C.6, “Migrating the Database Schema,” on page 152
- Section C.7, “Migrating Data,” on page 153
- Section C.8, “Running Post-Migration Scripts,” on page 153
- Section C.9, “Post-Migration Steps,” on page 154
- Section C.10, “Modifying Liquibase Tables,” on page 155

C.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/).

  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).
- 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 *Novell Filr 1.1 Administration Guide*.

C.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 C.3, “Connecting to the MySQL Database Server,” on page 150.

C.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*.

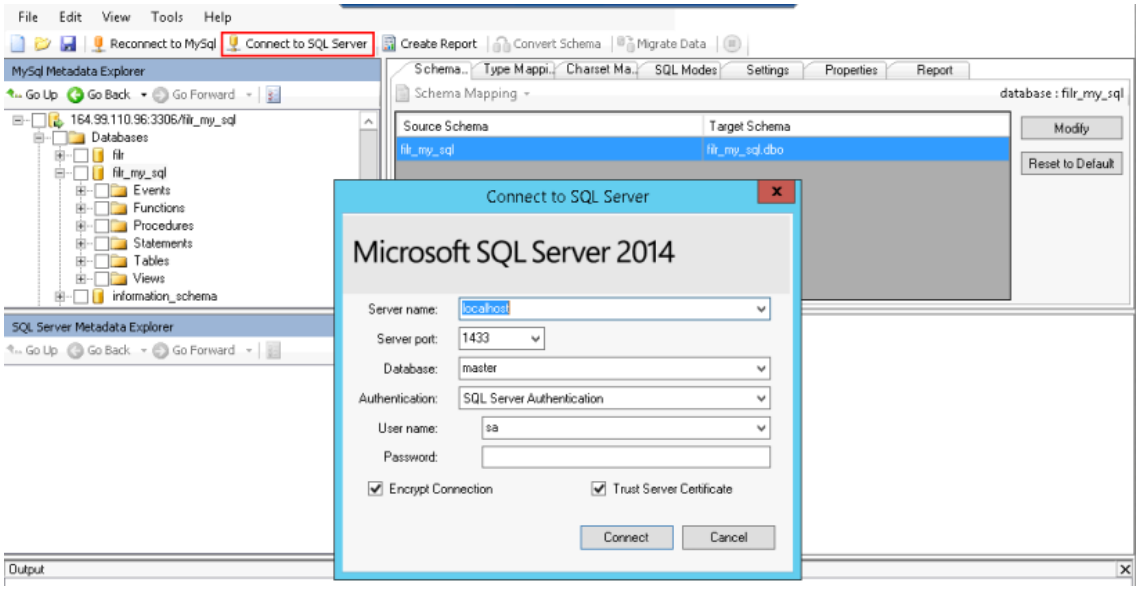
A connection to the MySQL server is established.

8 Continue with Section C.4, “Connecting to the Microsoft SQL Server,” on page 151.

C.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 C.5, “Customizing Data Types,” on page 151.

C.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*.

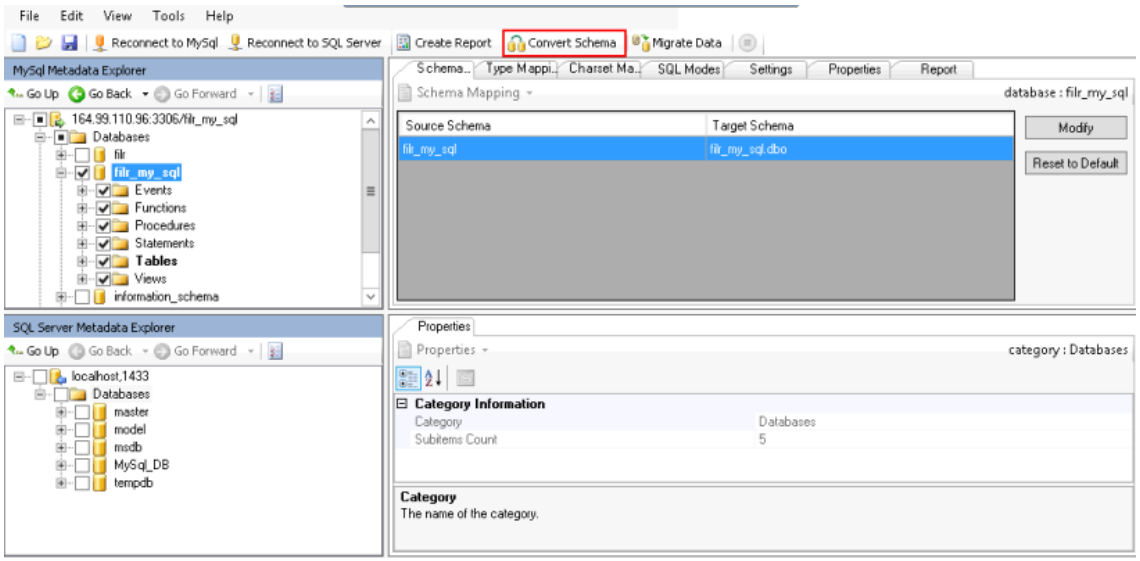
9 Click *Apply* > *OK*.

10 Continue with Section C.6, “Migrating the Database Schema,” on page 152.

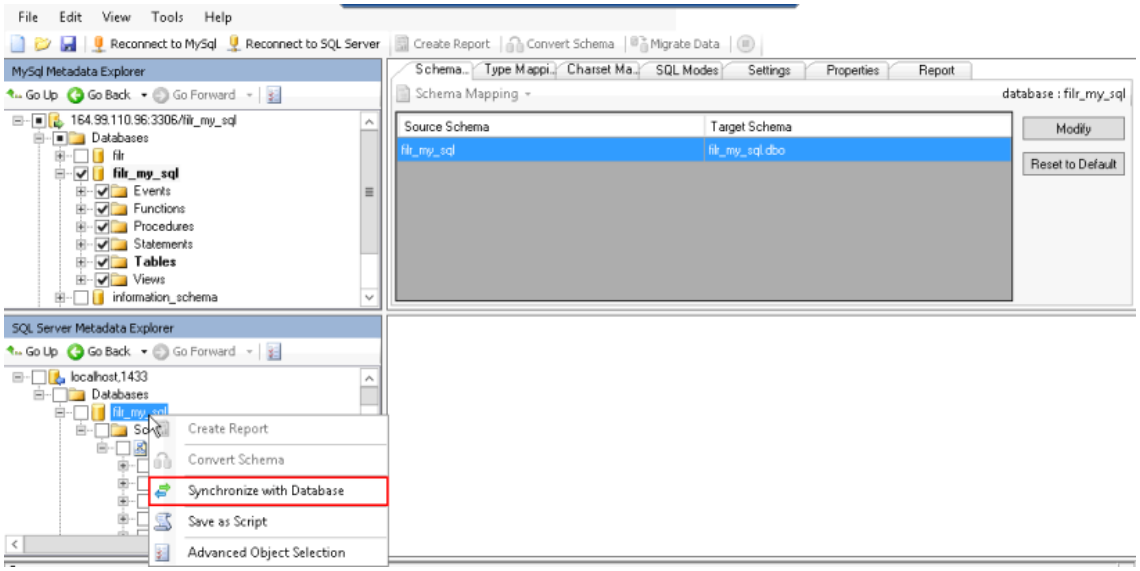
C.6 Migrating the Database Schema

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 C.7, “Migrating Data,” on page 153.

C.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, then click *Migrate Data*.

   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 C.8, “Running Post-Migration Scripts,” on page 153.

C.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_1_1_0.sql` file from the Novell Customer Center (NCC) (https://www.novell.com/center). Or, you can access it from the Filr 1.1 evaluation page at this location (https://download.novell.com/Download?buildid=SjqIZZ28ka8~) on the Novell Downloads page (http://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 C.9, “Post-Migration Steps,” on page 154.

C.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.

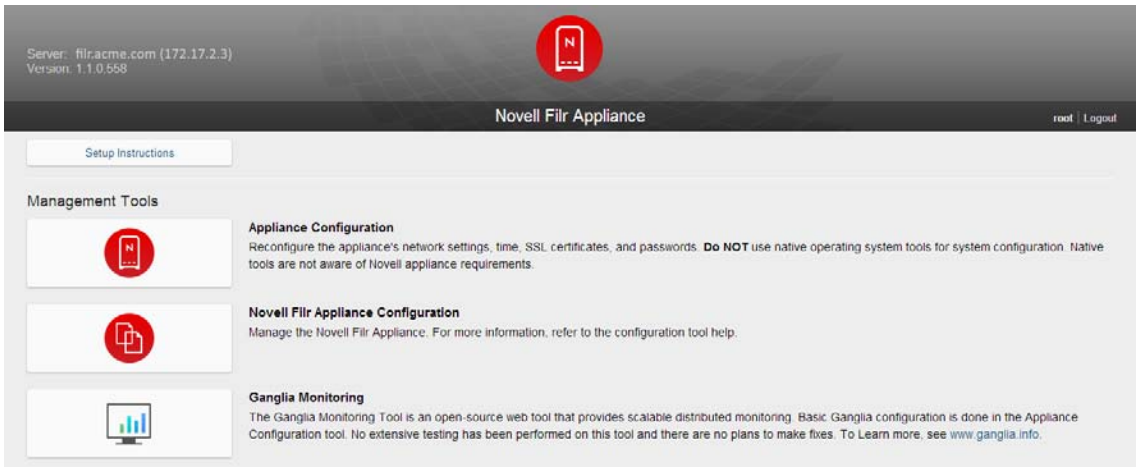
1 Access the Novell Filr appliance at port 9443.

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 C.10, “Modifying Liquibase Tables,” on page 155.

C.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. Stop the Filr service on any Filr appliances in the Filr system, as described in "Changing System Services Configuration" in the *Novell Filr 1.1 Administration Guide*.
2. Delete the Liquibase tables (`databasechangelog` and `databasechangeloglock`) from the migrated MSSQL database.
3. 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:
   - **3a** SSH to the Filr appliance and log in to the appliance as the root user.
   - **3b** In the console of the Filr appliance, change to the `/filrinstall/db` directory.
   - **3c** Make a copy of the `sqlserver-liquibase.properties` file.

     For example, to copy the file to the root partition:

     ```
     cp sqlserver-liquibase.properties /
     ```
   - **3d** 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
     ```
   - **3e** Change the password value to the password of the Microsoft SQL database.
   - **3f** Save and close the `sqlserver-liquibase.properties` file.

     In the vi Editor, you can type the following command when in command mode:

     ```
     :wq
     ```
4. 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:
   - **4a** SSH to the Filr appliance and log in to the appliance as the root user.
   - **4b** Run following command:

     ```
     sh /filrinstall/db/manage-database.sh sqlserver markDatabaseAsUpdated
     ```
5. Perform the final validation by running `manage-database.sh` with the `updateDatabase` switch.

   To run the `manage-database.sh` script with the `updateDatabase` switch:
   - **5a** SSH to the Filr appliance and log in to the appliance as the root user.
   - **5b** Get Executable permission to the `manage-database.sh` script by running the following commands:

     ```
     cd /filrinstall/db/
     ```

     ```
     chmod x manage-database.sh
     ```
   - **5c** 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.

6 Replace the `sqlserver-liquibase.properties` file that you edited in Step 3d with the one that you copied in Step 3c.

7 Start the Filr service on any Filr appliances in the Filr system, as described in "Changing System Services Configuration" in the *Novell Filr 1.1 Administration Guide*.

8 Users can now access the Filr site at port 8443.

For example, `https://`*`ip_address_or_DNS`*`:8443`

D 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 D.1, “Setting Up Remote NFS for the Filr Shared Storage Location,” on page 157
- Section D.2, “Setting Up Remote CIFS for the Filr Shared Storage Location,” on page 158

D.1 Setting Up Remote NFS for the Filr Shared Storage Location

IMPORTANT: Filr does not support remote NFS with Novell Storage Services (NSS).

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*.
6. Click *Yes* to confirm creating the directory.
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, repeat Step 4 through Step 9 for each Filr appliance in the cluster.
11. Click *Finish*.
12. Configure each Filr appliance in the cluster to reference this NFS server, as described in Section 5.4, “Installing the Filr Appliance,” on page 81.

D.2 Setting Up Remote CIFS for the Filr Shared Storage Location

- Section D.2.1, “Setting Up Remote CIFS,” on page 158
- Section D.2.2, “Modifying the Credentials for the CIFS Share,” on page 158

D.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 5.4, “Installing the Filr Appliance,” on page 81.

   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.

D.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.

E Moving the Memcached Service to the Search Index Appliance

On a new large clustered deployment of Filr 1.1, Memcached runs on the Lucene search index appliance instead of the Filr appliance. When upgrading to Filr 1.1, it is recommended that you move Memcached from the Filr appliance to the Lucene search index appliance.

Memcached is used only in large clustered deployments (when the Filr system includes multiple Filr appliances).

To move Memcached so that it runs on the Lucene search index appliance after the Filr 1.1 system is running:

1. If a firewall exists between any Filr appliances and Lucene search index appliances in the Filr deployment, ensure that port 11211 is open.
2. Configure each Filr appliance in the cluster to use Memcached running on the search index appliance.

   You do this by logging in to each Filr appliance in the cluster, selecting *memcached* as the hibernate caching provider, and specifying the server address for any search index appliances in the cluster in the *Server Address* field.

   For more detailed information about how to do this, see "Changing Clustering Configuration Settings" in the *Novell Filr 1.1 Administration Guide*.
3. Stop Memcached on any Filr appliances by running the following command from the console of the Filr appliance:

   ```
   rcmemcached stop
   ```
4. Disable Memcached on the Filr appliance so that it is not re-enabled the next time the server is restarted by running the following command from the console of the Filr appliance:

   ```
   chkconfig memcached off
   ```

F Troubleshooting the Filr System

For general troubleshooting information, see “Troubleshooting the Filr System” in the *Novell Filr 1.1 Administration Guide*.

For troubleshooting information related to Filr installation or upgrade, see Chapter 10, “Troubleshooting the Filr Installation and Upgrade,” on page 137.

G Documentation Updates

The following changes have been made to the guide since the initial release of Novell Filr 1.1.

February 2015

Chapter or Section Changed	Summary of Changes
Section C.8, “Running Post-Migration Scripts,” on page 153	Updated the name of the MySQL to Microsoft SQL post migration script file.

January 2015

Chapter or Section Changed	Summary of Changes
Chapter 4, “Creating a Small Deployment,” on page 39	Removed recommendation to create the VMware virtual appliance in *Independent* and *Persistent* mode.

December 2014

Chapter or Section Changed	Summary of Changes
Section 1.2, “Filr System Requirements,” on page 13	Changed the format of the system requirements information for improved readability.

November 2014

Chapter or Section Changed	Summary of Changes
Section 5.3, “Configuring an Existing Database Server,” on page 79	Made it more clear that you should allow the Filr configuration wizard to create and configure the Filr database when using an existing database server; you should not create the Filr database manually.

H Third-Party Materials

- Section H.1, “Growl License,” on page 165
- Section H.2, “Oracle Outside In Technology,” on page 166
- Section H.3, “ANTLR 3 License,” on page 166
- Section H.4, “Colt License Agreement,” on page 167
- Section H.5, “Dom4j License,” on page 167
- Section H.6, “iCal4j License,” on page 168
- Section H.7, “ICU4J license (ICU4J 1.3.1 and later),” on page 168
- Section H.8, “JAXEN License,” on page 169
- Section H.9, “Jung,” on page 169
- Section H.10, “ASM,” on page 170
- Section H.11, “Firebug Lite,” on page 171

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`/opt/novell/filr/stellent-converter`

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H.11 Firebug Lite

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