StorageZones Controller 4.0

Apr 05, 2017

For a link to documentation for the most current release, see StorageZones Controller.

To download the latest version, see https://www.citrix.com/downloads/sharefile/. Sign in to your Citrix account to access all application downloads.

ShareFile Data on Microsoft Azure

What's new in StorageZones Controller 4.0

Feb 16, 2017

StorageZones Controller 4.3 (December, 2016) introduces these new features and enhancements:

- **Support for Windows Server 2016** - Click here for additional information.
- **Controller Login Improvements** - Users must now input the full account URL when signing into the Controller Logon Page. Click here for additional information.
- **Connectors Get a Link Improvements** - Users can now get a direct link from CIFS / Sp Connectors when using the latest version of the ShareFile iOS or Android apps. Click here for additional information.

Earlier Versions of 4.0

StorageZones Controller 4.2 (November 2, 2016) introduces these new features and enhancements:

- **Support for the use of ICAP Antivirus Scanners** - StorageZones Controller now supports the use of the ICAP protocol with antivirus scanning platforms that have been coded to the RFC standard for ICAP. Customers may still use the CLI method if they wish. Click here for additional information.
- **Connector Sharing IRM Support** - Connector Sharing now supports the sharing of protected (IRM) files. Click here for additional information.
- **Disaster Recovery help txt update** - The about_recovery_help.txt file has been updated with a link to Storage Center Recovery. Click here for additional information.

Important

Due to updates to the application code, some customers must update the permission level the tool runs at from local administrator to system network service. Failing to update permissions will result in antivirus scans failing to start.

Clients with existing scheduled tasks linking to SFAntivirus need to change the user level that the tool runs at from local administrator to system network service.

To obtain Network Service Rights, Use PSExec to launch PowerShell (x86) under the same user context as the StorageZone Controller and obtain Network Service Rights using the following command:

```
PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell
```

Administrators must also change log file location by editing log4net.config entry, if they were logging to a directory outside of the default SZC log directory, by modifying the following line:

```
<file value="..\..\SC\logs\avscantool-" />
```

StorageZones Controller 4.1 (July 14, 2016) introduces these new features and enhancements:

- **Support for Documentum Connector** - StorageZones Controller now supports using a Documentum Content Server as a Connector source. This feature requires an ECM-enabled ShareFile account, StorageZones Controller 4.1, and alterations to your NetScaler configuration. Click here for full feature documentation.
- **DLP Support for Customer-Managed Cloud Storage (Azure / S3)** - StorageZones configured to use Azure or S3-managed Storage can now leverage the Data Loss Prevention (DLP) Feature of StorageZones.
- **Improvements to the Delete Service** - The DeletePeriod value can now be modified by modifying the the FileDeleteService.exe.config file located at the following location: c:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config. Click here for additional information.
- **Improvements to the Copy Service** - The Copy service is now set to use 4 threads by default. This value can be modified via the FileCopyService.exe.config file located at C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCopySvc\FileCopyService.exe.config. Once opened, add the following key and customize the value accordingly: <add key="max-queue-processing-threads" value="4"/>

StorageZones Controller 4.0 (April 25, 2016) introduced these new features and enhancements:

- **Support for Protected Sharing** - ShareFile users can control file access and permissions even after a protected file has been downloaded. Once downloaded, protected files can only be accessed and opened with the FileSecure protected viewer, powered by Seclore. Users that attempt to access a protected file will be prompted to download the appropriate software if it is not already installed on their device. Click here for full feature documentation.
- **TLS V1.2 Support** - Administrators can limit inbound connections to a StorageZone Controllers to TLS v1.2. If protocols earlier than TLS V1.2 are disabled for inbound traffic to the StorageZone Controller, all client software components that interact with the StorageZone must also support TLS v1.2. Click here for additional information and configuration instructions.
- **Delete Service Default Period Change** - As of StorageZone Controller 4.0, the Delete Service timer will be set to 45 days. The 45 day default period will overwrite any previous settings. Click here for additional information.
- **Antivirus Log File Location** - The anti-virus log file location can now be configured. To modify the log locations, edit the SFAntiVirus.exe.config at C:\inetpub\wwwroot\Citrix\StorageCenter\tools\SFAntiVirus

Note: You can upgrade to StorageZones Controller 4.0 from version 3.0.1 or later. If your current StorageZones Controller version is 3.0.0 or earlier, you must upgrade to StorageZones Controller 3.0.1 before upgrading to 4.0. For details, see Upgrade.

System requirements

Feb 10, 2017

1. A dedicated physical or virtual machine with 2 CPUs and 4 GB RAM

- Windows Server 2012 R2 (Datacenter, Standard, or Essentials)
- Windows Server 2008 R2, 64-bit edition, SP1 (Datacenter, Standard, or Essentials)
- Windows Server 2016

For standard StorageZones:

2. Use a publicly-resolvable Internet hostname (not an IP address).

3. Enable SSL for communications with ShareFile.

- The SSL certificate on the StorageZones Controller must be trusted by user devices and ShareFile web servers. If you use SSL directly with IIS, refer to http://support.microsoft.com/kb/298805 for information about configuring SSL.

4. Allow inbound TCP requests on port 443 through your firewall.

5. Allow outbound TCP requests to the ShareFile control plane on port 443 through your firewall.

- Click here for a detailed list of IP ranges and domains.

For restricted StorageZones:

- Use an internal or external hostname.
- Enable SSL for communications with ShareFile.
  If you use an internal hostname, you can use a private certificate. The certificate must be trusted by user devices.

  If you use an external hostname, the SSL certificate on the StorageZones Controller must be trusted by user devices and ShareFile web servers.

- Provide outbound HTTP access from StorageZones Controller to one of the following service bus URIs:
  - ShareFile.com accounts: sf-zk-email-use.servicebus.windows.net
  - ShareFile.eu accounts: sf-zk-email-euw.servicebus.windows.net

  Be sure to arrange network dependencies with your networking team.

For the server health check used only for StorageZones for ShareFile Data:

- Open port 80 on the localhost.

For a high availability production environment:

- A minimum of two servers with StorageZones Controller installed.
- If you are not using DMZ proxy servers, install an SSL certificate on the IIS service.
  For information about supported certificates, see the certificate requirements for standard and restricted zones above.

For a DMZ proxy deployment:

- One or more DMZ proxy servers, such as Citrix NetScaler VPX instances
- For a DMZ proxy server that terminates the client connection and uses HTTP, install an SSL certificate on the proxy server.
  If communications between the DMZ proxy server and the StorageZones Controller are secure, you can use HTTP. However, HTTPS is recommended as a best practice. If you use HTTPS, you can use a private (Enterprise) certificate on the StorageZones Controller if it is trusted by the DMZ proxy. The external address exposed by the DMZ proxy must use a commercially trusted certificate. For information about supported certificates, see the certificate requirements for standard and restricted zones above.

Other requirements

- The StorageZones Controller installer requires administrative privileges.
- For remote administration of StorageZones Controller, use a remoting protocol, such as RDP or Citrix ICA, to connect to the server and then open the StorageZones Controller console.
- If you use User Management Tool to provision user accounts, User Management Tool 1.7.3 is required for restricted zones.

Supported third-party storage systems

- Amazon Simple Storage Service (Amazon S3)
- Microsoft Azure

Supported Data Loss Prevention solutions

- StorageZones Controller integrates with any ICAP-compliant DLP solution, including:
  - Symantec Data Loss Prevention
  - McAfee DLP Prevent
  - Websense TRITON AP-DATA
  - RSA Data Loss Prevention

StorageZones for ShareFile Data is an optional feature that you enable on a StorageZones Controller.

Requirements:

- ShareFile Enterprise account, with the StorageZone feature enabled
- A ShareFile user account that includes permission to create and manage zones
- A CIFS share for private data storage
  If you plan to store ShareFile files in a supported third-party storage system, the CIFS share is used for temporary files (encryption keys, queued files) and as a temporary storage cache.

- The Web Server (IIS) role and ASP.NET 4.5.2. For more information, see Prepare your server for ShareFile data.

Note: Access to a ShareFile account from an FTP client is not compatible with StorageZones for ShareFile Data.

StorageZone Connector for SharePoint is an optional feature that you enable on a StorageZones Controller.

Requirements:

- ShareFile Enterprise account, with the StorageZone feature enabled, or Citrix XenMobile
- Only **Microsoft SharePoint Server 2010 and newer** are supported.
- The StorageZones Controller server must be a domain member, in the same forest as the SharePoint server.
- The Web Server (IIS) role and ASP.NET 4.5. For more information, see Prepare your server for ShareFile data.
- SharePoint policies:
  - The default maximum upload file size for a Web application in SharePoint 2013 is 250 MB and in SharePoint 2010 is 50 MB. To change the default: In SharePoint Central Administration, go to the Web Application General Settings page and change the Maximum Upload Size. The upload file size limit for SharePoint is 2 GB.
  - ShareFile clients always attempt to check in a major version (publish) of a file. However, SharePoint policies determine whether a file is checked in as a major or minor version.
  - The SharePoint View-Only permission does not enable a user to download files. To read a file from a ShareFile client, a SharePoint user must have Read permission.
- User devices: For the latest information about user device support for StorageZone Connectors, refer to the ShareFile Knowledge Base.

StorageZone Connector for SharePoint authentication

After authenticating the user, the StorageZones Controller server makes connections to the SharePoint server on the authenticated user's behalf and responds to authentication challenges presented by the SharePoint server. StorageZone Connector for SharePoint supports the following authentication methods on the SharePoint server.

- Basic
  Requires that you add <add key="CacheCredentials" value="1" /> to C:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config.
- Negotiate (Kerberos)
- Windows Challenge/Response (NTLM)

ShareFile mobile clients use Basic authentication over HTTPS to authenticate to the StorageZones Controller or DMZ proxy. Single sign-on to SharePoint is governed by the authentication requirements set on the SharePoint server. To use Kerberos or NTLM authentication on the SharePoint server: Configure the domain controller to trust the StorageZones Controller for delegation.

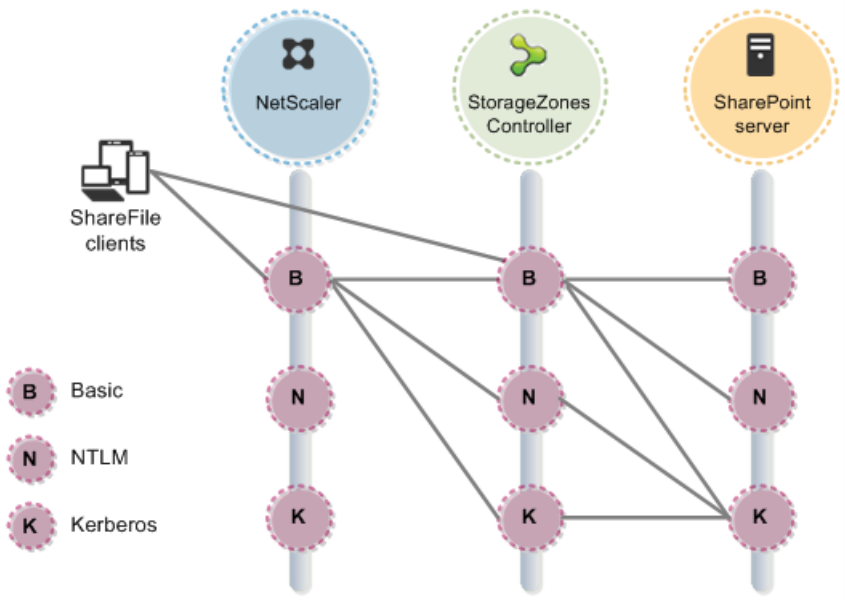
If your SharePoint server is configured for Kerberos authentication: Configure a service principal name (SPN) for the named user service accounts for the SharePoint server application pool. For more information, refer to "Configure trust for delegation for Web parts" in http://support.microsoft.com/kb/832769.

For deployments with NetScaler, it is possible to terminate Basic authentication at the NetScaler and then perform other types of authentication to the StorageZones Controller.

The following table indicates the supported scenarios when NetScaler is configured for Basic authentication.

Authentication method on StorageZones Controller	Authentication method on SharePoint server		
	Basic	Negotiate (Kerberos)	NTLM
Basic	Yes (1)	Yes	Yes
Negotiate (Kerberos)	No	Yes (2)	No
NTLM	No	Yes	No
(1) Requires that you add <add key="CacheCredentials" value="1" /> to C:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config. (2) To provide users with a single sign-on experience, configure the Connector for NTLM authentication.			

The following diagram summarizes the supported combinations of authentication types based on whether the user authenticates at NetScaler.



StorageZone Connector for Network File Shares is an optional feature that you enable on a StorageZones Controller.

Requirements:

- ShareFile Enterprise or Citrix XenMobile account
- The StorageZone Connector server must be a domain member, in the same forest as the network file servers.
- The Web Server (IIS) role and ASP.NET 4.5. For more information, see Prepare your server for ShareFile data.

- User devices: For the latest information about user device support for StorageZone Connectors, refer to the ShareFile Knowledge Base.

Connector for Network File Shares authentication

After authenticating the user, the StorageZones Controller server makes connections to the network file server on the authenticated user's behalf and responds to authentication challenges presented by the file server. StorageZone Connector for Network File Shares supports the following authentication methods on the file server.

- Negotiate (Kerberos)
- Windows Challenge/Response (NTLM)

To use Kerberos or NTLM authentication on the StorageZones Controller: Configure the domain controller to trust the StorageZones Controller for delegation.

For deployments with NetScaler: To provide users with a single sign-on experience when NetScaler is configured for Basic authentication, configure the Connector for both Negotiate (Kerberos) and NTLM authentication.

The StorageZones Controller installation includes several PowerShell scripts and commands, located in C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\.

- Run the scripts in the 32-bit (x86) version of PowerShell.
- For best results, upgrade to PowerShell 4.0, included with Windows Management Framework 4.0. PowerShell 2.0 causes significant problems due to compatibility issues with .NET Framework 4.

The ShareFile web application supports restricted StorageZones from the following web browsers:

- Internet Explorer 11
  To enable access from the ShareFile web application to folders and connectors in restricted zones:

  1. Open Internet Explorer, go to Internet Options, click the Security tab, and then click Trusted Sites.
  2. Click Sites and then add your subdomain and the external StorageZones Controller address.
  3. Click Close and then click Custom Level.
  4. For Miscellaneous > Access data sources across domains, select Enable.
  5. For User Authentication > Logon, select Prompt for user name and password.
- Chrome
- Firefox
- Safari
- WorxWeb

To support restricted StorageZones, ShareFile clients must be upgraded to the following versions or later:

- ShareFile Sync for Windows 3.1
- ShareFile Outlook Plugin 3.2.2
- ShareFile for iOS 3.3
- ShareFile for Android 3.4
- ShareFile for Windows Phone 2.3.10

These ShareFile clients and tools are not supported for use with restricted StorageZones as of the publication date of this article:

Note: For the latest information about ShareFile client capabilities, see the ShareFile support site or contact your ShareFile support representative.

- Off-domain use of ShareFile Desktop Sync for Windows 3.1 and ShareFile Outlook Plug-in
  The clients must be on a domain-joined Windows desktop that is in the same Active Directory forest as the StorageZones Controller server. Clients can use NTLM or Kerberos for silent authentication to a restricted zone.

- On-Demand Sync for Windows
- Sync for Mac
- ShareFile Enterprise Sync Manager
- WorxMail for iOS
- ShareFile Desktop Widget
- ShareFile for BlackBerry
- Sharefile mobile website

The following alternative account access methods are not supported for use with restricted StorageZones:

- FTP
- Powershell
- ShareFile Command Line Interface (SFCLI)
- HTTPS API (V1)
- WebDav
- SMTP

> ## Important
>
> ShareFile does not officially support and does not recommend utilizing **DFS replication** as it has been known to cause locking failures for larger files. If DFS replication must be used, please use separate backup solutions during off-peak hours when the zone is not actively in use.

About ShareFile StorageZones Controller

Apr 05, 2017

ShareFile is a file sharing service that enables users to easily and securely exchange documents. ShareFile Enterprise provides enterprise-class service and includes StorageZones Controller and the User Management Tool.

ShareFile StorageZones Controller extends the ShareFile Software as a Service (SaaS) cloud storage by providing your ShareFile account with private data storage, referred to as StorageZones for ShareFile Data. Managing your own data storage enables you to meet regulatory compliance requirements and to locate the storage close to users for optimized performance.

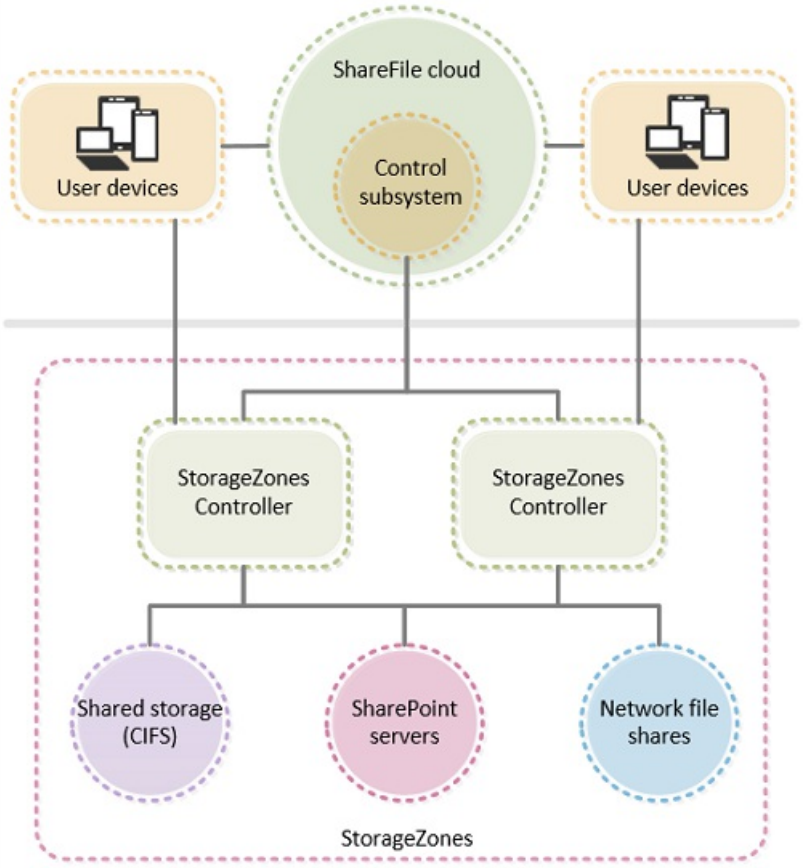
You can use the ShareFile-managed cloud storage by itself or in combination with storage that you maintain, called StorageZones for ShareFile Data. The StorageZones that you maintain can reside in your on-premises single-tenant storage system or in supported third-party cloud storage, such as Amazon S3 or Windows Azure.

StorageZones Controller also provides users with secure access to SharePoint sites and network file shares through StorageZone Connectors. Connected file shares can include the same network home drives used in Citrix XenDesktop or XenApp environments. StorageZone Connectors enable you to provide secure mobile access to data residing behind your corporate firewall without the need to migrate data to the cloud.

StorageZone Connectors enables ShareFile client users to browse, upload, or download documents. For documents stored in SharePoint, mobile users can download, check out, edit, and check in Microsoft Office documents and annotate Adobe PDF documents. The mobile content editor integrated with ShareFile provides mobile users with a secure, rich editing experience, even when working offline.

Quick links to topic sections:

The following diagram shows the key components in a high-availability deployment.



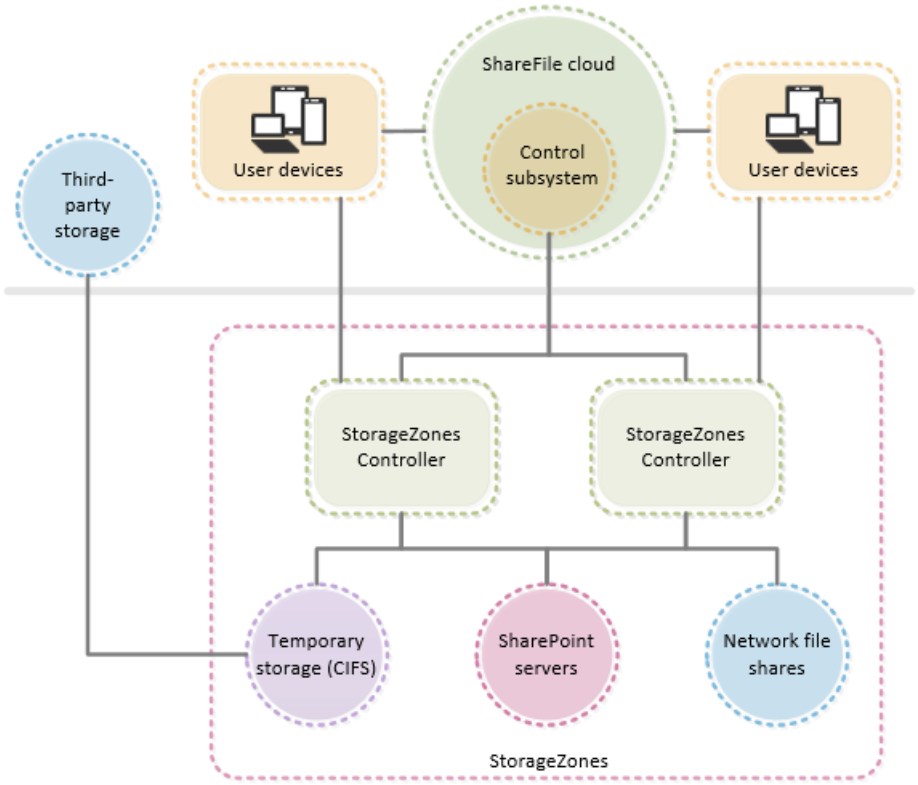
The components are:

ShareFile control subsystem — Maintained in Citrix Online data centers, the ShareFile control subsystem handles a variety of operations not related to file contents and performs StorageZones health checks.

StorageZones Controller — StorageZones Controller can host a private ShareFile storage subsystem for your data. StorageZones Controller has a Web service that handles all HTTPS operations from end users and the ShareFile control subsystem.

StorageZones for ShareFile Data — This feature provides private data storage: You can store data in an on-premises network file share that you manage or in a supported third-party storage system. Either storage option requires a network share for your private data such as encryption keys, queued files, and other temporary items. If you use third-party storage, the network share is used for your private data storage. Each StorageZones Controller in a StorageZone must use the same network share.

This figure shows the key components when third-party storage is used.



ShareFile Enterprise administrators can choose the per-folder storage location, either ShareFile-managed cloud storage or your private data storage. This feature enables you to optimize performance by locating data close to the users. It also enables you to address data sovereignty and compliance requirements.

StorageZone Connectors — StorageZone Connectors give mobile users secure access to documents on specified network file shares and to SharePoint sites, site collections, and document libraries.

StorageZone Connectors is enabled on a StorageZones Controller and integrates with ShareFile Enterprise subdomains. You can deploy StorageZone Connectors in the same zone as StorageZones for ShareFile Data. However, StorageZones for ShareFile Data is not required to use StorageZone Connectors.

StorageZones Controllers do not store any data for StorageZone Connectors. ShareFile.com stores the encrypted top level path for StorageZone Connectors.

StorageZone Connectors are available to sites using ShareFile Enterprise or Citrix XenMobile.

By default, ShareFile stores data in the secure ShareFile-managed cloud storage. StorageZones Controller provides private data storage, either an on-premises network share that you manage or a supported third-party storage system. With StorageZones Controller, you can optimize performance by locating data storage close to users and you control storage for compliance purposes.

High availability requires at least two StorageZones Controllers per StorageZone. A StorageZone must use a single file share for all of its StorageZones Controllers.

Based on your organization's performance and compliance requirements, consider the number of StorageZones you need

and where to best locate them. For example, if you have users in Europe, storing the files in a StorageZones Controller located in Europe provides both performance and compliance benefits. In general, assigning users to the StorageZone that is closest to them geographically is the best practice for optimizing performance.

Data storage security considerations

- In an enterprise environment where the network share for a StorageZone is already secured by third-party tools, we recommend that you do not encrypt the files on the share. Although this additional security is offered as an option for maximum security when required, encrypting files on the share will make the disk unreadable by third-party tools such as antivirus scanners and filer tools, including data deduplication tools. ShareFile uses a file encryption key to confirm the validity of download requests and encrypt the storage.
- Place the StorageZones Controllers inside the network, with DMZ tools protecting them.
- For maximum security, use Citrix NetScaler or NetScaler VPX.
- Use SSL-encrypted connections to ensure the security of information transmitted between your users and StorageZones. If you are not using DMZ proxy servers, install an SSL certificate on the IIS service of all StorageZones Controllers. For a DMZ proxy server that terminates the client connection and uses HTTP, install an SSL certificate on the proxy server. Public certificates are required for standard zones or for restricted zones that have an external hostname.
- To control connections to ShareFile, IP whitelisting is not a recommended security practice because connections originate from a number of servers in the ShareFile-managed cloud storage, as well as from each individual user device. IP blacklisting, however, is an effective network-level control if your site needs additional security.

Security best practices

Your organization may need to meet specific security standards to satisfy regulatory requirements. This topic does not cover this subject, because such security standards change over time. For up-to-date information on security standards and Citrix products, consult http://www.citrix.com/security/, or contact your Citrix representative.

Security best practices:

- Keep all computers in your environment up to date with security patches.
- Protect all computers in your environment with antivirus software.
- Protect all computers in your environment with perimeter firewalls, including at enclave boundaries as appropriate.
- Install a personal firewall on all computers in your environment.
- Secure and encrypt all network communications according to your security policy. You can secure all communication between Microsoft Windows computers using IPsec. Refer to your operating system documentation for information.
- Grant users only the capabilities they require.

As of StorageZones Controller 4.0, administrators can limit inbound connections to a StorageZone Controllers to TLS v1.2. If protocols earlier than TLS V1.2 are disabled for inbound traffic to the StorageZone Controller, all client software components that interact with the StorageZone must also support TLS v1.2.

- Click here for additional information and configuration instructions.

The authentication method configured for your ShareFile Enterprise account is used to authenticate users accessing data stored in your StorageZones and on network files shares or SharePoint servers made available through StorageZone Connectors.

If a user needs to use different credentials to access connected files, the user must log out of ShareFile and then log on using the alternate credentials.

ShareFile recommends that you integrate your ShareFile account with third-party authentication, such as Active Directory (AD), using one of the following methods.

- **Integrate ShareFile with Citrix XenMobile.** The recommended best practice is to integrate ShareFile with Citrix XenMobile Advanced Edition or XenMobile Enterprise Edition, a simpler alternative to configuring Security Assertion Markup Language (SAML)-based federation. When ShareFile is used with those XenMobile editions, XenMobile provides ShareFile with single sign-on authentication of Worx Mobile App users, AD-based user account provisioning, and comprehensive access control policies. The XenMobile console enables you to perform ShareFile configuration and to monitor service levels and license usage.
  For more information, refer to the XenMobile documentation.
- **Configure ShareFile to communicate with a SAML-based federation tool running in your network.** This configuration provides ShareFile users with single sign-on authentication when they log on to ShareFile using their AD credentials. User logon requests are redirected to AD. You can use the same SAML Identity Provider (IdP) that you use for other web applications.
  ShareFile supports the following SAML IdPs:

  XenMobile

  Microsoft Active Directory Federation Services (ADFS)

  Ping Federate

You can designate a StorageZone as standard or restricted.

- A standard StorageZone is intended for non-sensitive data and enables employees to share data with non-employees.
- A restricted StorageZone protects sensitive data: Only employees can access the data stored in the zone.

The following table summarizes the differences between standard and restricted zones.

Properties	Standard zones	Restricted zones
StorageZone servers can be managed by...	Citrix or you	you
User authentication is handled	ShareFile.com or ShareFile.eu	a combination of ShareFile.com or ShareFile.eu

Properties	Standard zones	Restricted zones
Files can be shared with...	employees and third party users (that is, anyone with an email address)	employees or other users who have a domain account
File and folder metadata stored in the ShareFile control plane is...	stored in clear text, visible to some Citrix employees	encrypted with your private keys, which are not available to Citrix
Email notifications are sent using...	ShareFile mail servers or your SMTP servers	your SMTP servers
An external address for the zone is...	required	not required

by... plus your on-premises StorageZones Controller

In a Citrix-managed zone, the ShareFile cloud performs all operations except for employee authentication, which is handled by StorageZones Controller. The following table indicates how operations are handled for standard and restricted zones.

Standard zone		Operation	Restricted zone	
Cloud	Controller		Cloud	Controller
✓		Website maintenance and updates	✓	
✓		Client and application updates	✓	
	✓	Employee authentication		✓
	✓	File storage and encryption		✓
✓		File metadata		✓
✓		Upload and download authorization		✓
✓		Email notifications (SMTP)		✓
✓		Third-party user authentication	No third-party access	
✓		Folder permissions	✓	

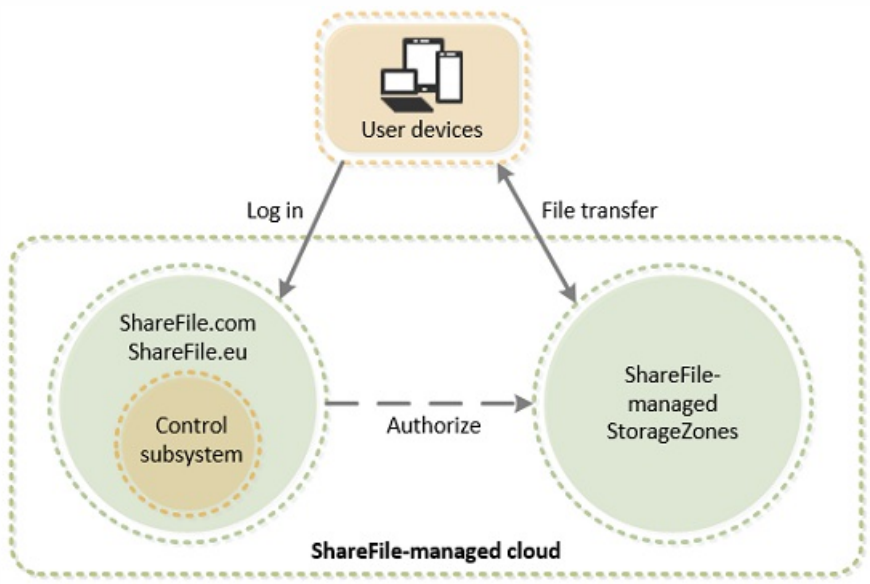
ShareFile supports a mix of standard and restricted zones within an account. You can create multiple restricted zones, each with their own unique authentication requirements. For example, if users in Domain A should not be allowed to share files with users in Domain B, install a separate restricted zone for each domain.

The rest of this section describes the workflow in ShareFile-managed, standard, and restricted zones.

ShareFile-managed StorageZones

When a ShareFile client interacts with a ShareFile-managed zone, all requests and traffic go through the ShareFile cloud and all of your ShareFile data is stored in the ShareFile cloud.

The following diagram summarizes the workflow for ShareFile-managed cloud storage.



Standard StorageZones

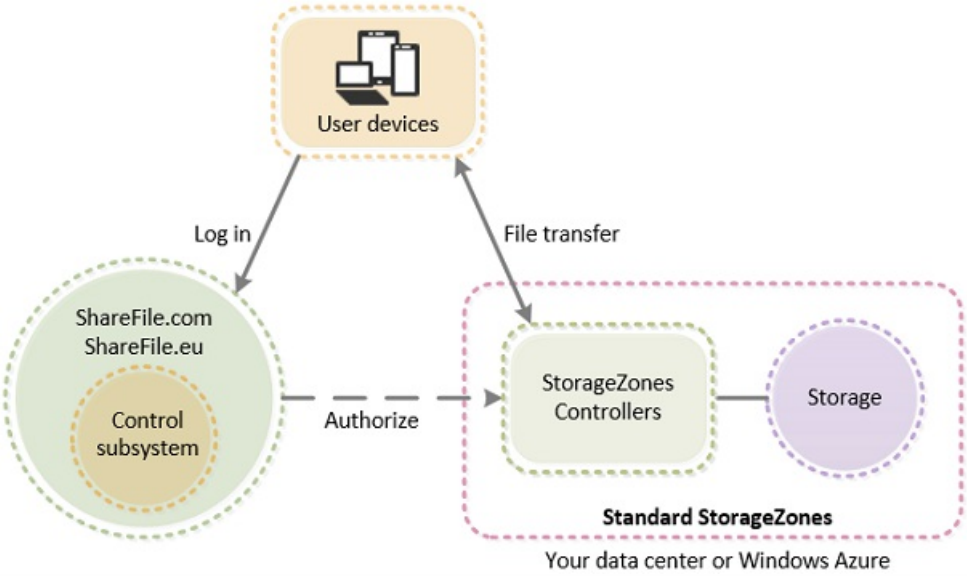
When a ShareFile client interacts with a standard zone, ShareFile handles user log on requests and then authorization occurs between the ShareFile cloud and StorageZones Controller. A StorageZones Controller that hosts standard zones must have an external address and external SSL certificate. The StorageZone SSL certificate must be trusted by user devices and ShareFile web servers.

The ShareFile client interacts with StorageZones Controller during file upload or download operations. The controller stores files in the storage location defined for the zone and sends unencrypted metadata to the ShareFile cloud.

Users can share files that reside in standard zones with anyone who has an email address.

When users share or download files from a standard zone, ShareFile uses ShareFile SMTP servers to send email notifications.

The following diagram summarizes the workflow for a standard zone.



Restricted StorageZones

When a ShareFile client interacts with a restricted zone, ShareFile handles user log on requests. Authorization occurs between the StorageZones Controller and ShareFile client instead of between StorageZones Controller and the ShareFile cloud.

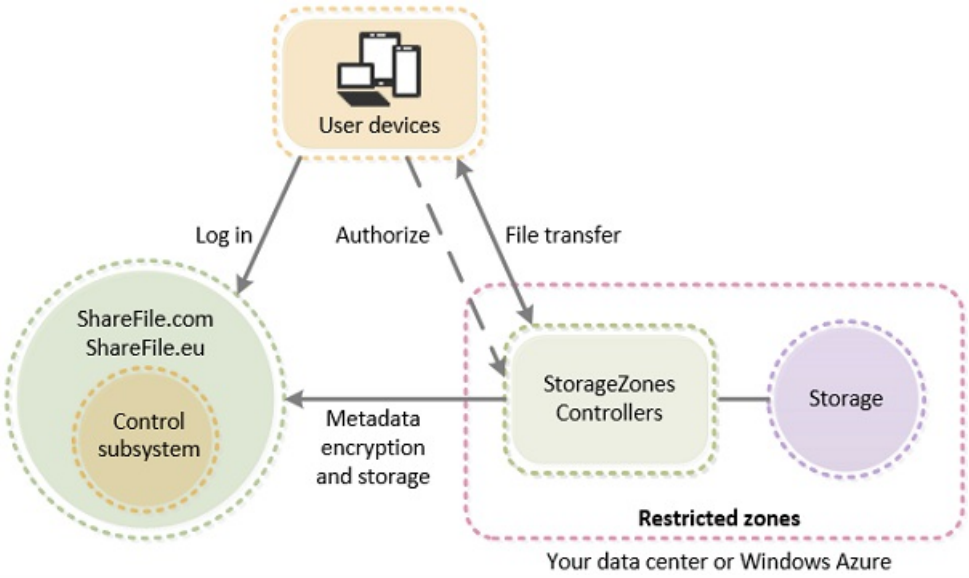
As a result, a StorageZones Controller that hosts restricted zones can reside behind your firewall and does not require an external address or external SSL certificate. The SSL certificate on the StorageZones Controller must be trusted by user devices. When StorageZones Controller is configured with an internal address, users must connect to your company network or a VPN to access documents in a restricted zone.

Access to data stored in a restricted zone has these authentication requirements:

- In addition to logging on to ShareFile, users must authenticate separately to the StorageZones Controller to access documents stored in a restricted zone. Directory lookup ensures that the same user logs on to ShareFile and the zone. This extra authentication requirement limits sharing so that documents can only be shared with users who have access to the StorageZones Controller, who authenticate using enterprise credentials, and who have permission to view the documents. Users cannot anonymously share files that are stored in a restricted zone.
- Access to encryption keys and metadata also requires enterprise authentication to StorageZones Controller. The controller uses an authenticated proxy service to read and store encrypted data in the ShareFile cloud and to exchange unencrypted metadata with ShareFile clients. StorageZones Controller encrypts your metadata with an encryption key that is unique to your organization and not available to Citrix. As a result, no one outside of your organization can see folder or file names in restricted zones.

When users share or download files from a restricted zone, your SMTP servers send the email notifications.

The following diagram summarizes the workflow for a restricted zone.



Architecture overview

Apr 25, 2016

This section provides an overview to deploying StorageZones Controller for proof-of-concept evaluations or high-availability production environments. High-availability deployment is shown both with and without a DMZ proxy such as Citrix NetScaler.

To evaluate a deployment with multiple StorageZones Controllers, follow the guidelines for a high availability deployment.

Each of the deployment scenarios require a ShareFile Enterprise account. By default, ShareFile stores data in the secure ShareFile-managed cloud. To use private data storage, either an on-premises network share or a supported third-party storage system, configure StorageZones for ShareFile Data.

To securely deliver data to users from network file shares or SharePoint document libraries, configure StorageZone Connectors.

Quick links to topic sections:

- StorageZones Controller proof of concept deployment
- StorageZones Controller high availability deployment
- StorageZones Controller DMZ proxy deployment

Caution: A proof-of-concept deployment is intended for evaluation purposes only and should not be used for critical data storage.
A proof-of-concept deployment uses a single StorageZones Controller. The example deployment discussed in this section has both StorageZones for ShareFile Data and StorageZone Connectors enabled.

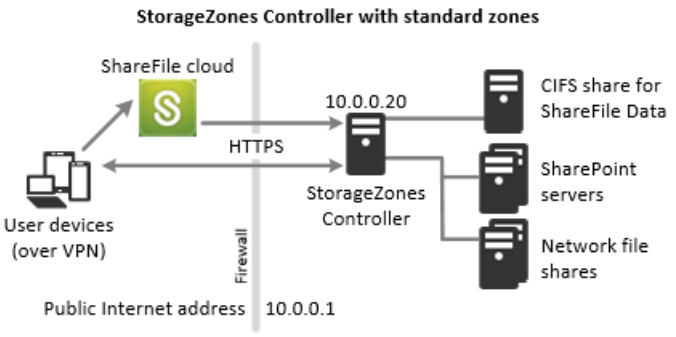
To evaluate a single StorageZones Controller, you can optionally store data in a folder (such as C:\ZoneFiles) on the hard drive of the StorageZones Controller instead of on a separate network share. All other system requirements apply to an evaluation deployment.

While you can use a mix of standard and restricted zones within your account, you must deploy separate StorageZones Controllers for standard zones (accessible to employees and non-employees) and restricted zones (accessible to employees only). After you configure a StorageZones Controller, you cannot change its zone type.

You can create multiple restricted zones, each with their own authentication requirements. For example, if users in Domain A should not be allowed to share files with users in Domain B, install a separate restricted zone for each domain.

Proof-of-concept deployment for standard StorageZones

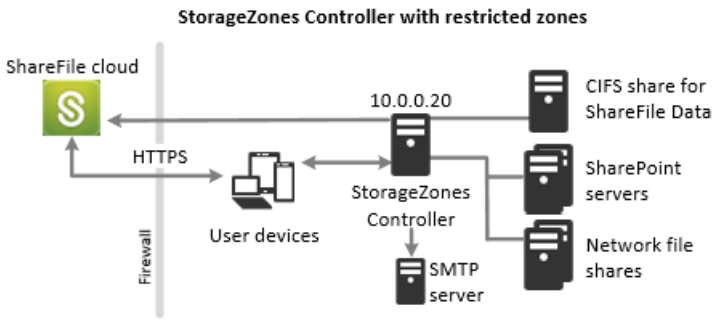
A StorageZones Controller configured for standard zones must accept in-bound connections from the ShareFile cloud. To do that the controller must have a publicly accessible internet address and SSL enabled for communications with the ShareFile cloud. The following figure indicates the traffic flow between user devices, the ShareFile cloud, and StorageZones Controller.



In this scenario, one firewall stands between the Internet and the secure network. StorageZones Controller resides inside the firewall to control access. User connections to ShareFile must traverse the firewall and use the SSL protocol on port 443 to establish this connection. To support this connectivity, you must open port 443 on the firewall and install a public SSL certificate on the IIS service of the StorageZones Controller.

Proof-of-concept deployment for restricted StorageZones

A StorageZones Controller configured for restricted zones does not need to accept in-bound connections from the ShareFile cloud: You can configure it with an internal address. The following figure indicates the traffic flow between user devices, the ShareFile cloud, and StorageZones Controller.



In this scenario, one firewall stands between the Internet and the secure network. StorageZones Controller resides inside the firewall to control access. User connections to ShareFile must traverse the firewall and use the SSL protocol on port 443 to establish this connection. To support this connectivity, you must open port 443 on the firewall and install an SSL certificate, which can be private, on the IIS service of the StorageZones Controller.

For restricted zones, StorageZones Controller sends email notifications from your local SMTP server instead of from ShareFile.

For a production deployment of ShareFile with high-availability, the recommended best practice is to install at least two StorageZones Controllers. When you install the first controller, you create a StorageZone. When you install the other controllers, you join them to the same zone. StorageZones Controllers that belong to the same zone must use the same file share for storage.

In a high availability deployment the secondary servers are independent, fully functioning StorageZones Controllers. The

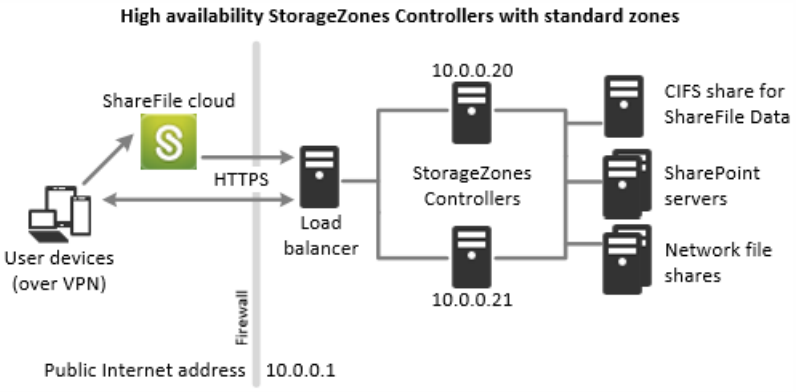
StorageZones control subsystem randomly chooses a StorageZones Controller for operations. If the primary server goes offline, you can easily promote a secondary server to primary. You can also demote a server from primary to secondary.

While you can use a mix of standard and restricted zones within your account, you must deploy separate StorageZones Controllers for standard zones (accessible to employees and non-employees) and restricted zones (accessible to employees only). After you configure a StorageZones Controller, you cannot change its zone type.

You can create multiple restricted zones, each with their own authentication requirements. For example, if users in Domain A should not be allowed to share files with users in Domain B, install a separate restricted zone for each domain.

High availability deployment for standard zones

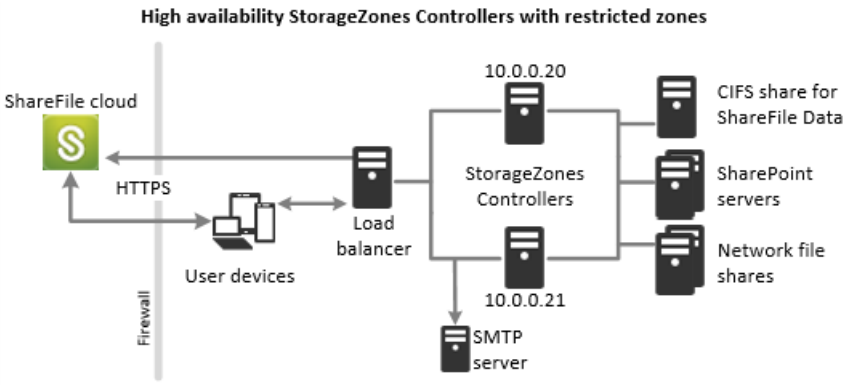
StorageZones Controllers configured for standard StorageZones must accept in-bound connections from the ShareFile cloud. To do that each controller must have a publicly accessible internet address and SSL enabled for communications with the ShareFile cloud. You can configure multiple external public addresses, each associated with a different StorageZones Controller. The following figure shows a high availability deployment for standard StorageZones.



In this scenario, one firewall stands between the Internet and the secure network. The StorageZones Controllers reside inside the firewall to control access. User connections to ShareFile must traverse the firewall and use the SSL protocol on port 443 to establish this connection. To support this connectivity, you must open port 443 on the firewall and install a public SSL certificate on the IIS service of all StorageZones Controllers.

High availability deployment for restricted zones

StorageZones Controllers configured for restricted zones do not need to accept in-bound connections from the ShareFile cloud: You can configure each one with an internal address. The following figure shows a high availability deployment for restricted zones.



In this scenario, one firewall stands between the Internet and the secure network. The StorageZones Controllers reside inside the firewall to control access. User connections to ShareFile must traverse the firewall and use the SSL protocol on port 443 to establish this connection. To support this connectivity, you must open port 443 on the firewall and install an SSL certificate, which can be private, on the IIS service of the StorageZones Controller.

For restricted zones, StorageZones Controller sends email notifications from your local SMTP server instead of from ShareFile.

Shared storage configuration

StorageZones Controllers that belong to the same StorageZone must use the same file share for storage. StorageZones Controllers access the share using the IIS Account Pool user. By default, application pools operate under the Network Service user account, which has low-level user rights. A StorageZones Controller uses the Network Service account by default.

You can use a named user account instead of the Network Service account to access the share. To use a named user account, just specify the user name and password in the StorageZones console Configuration page. Run the IIS application pool and the Citrix ShareFile Services using the Network Service account.

Network connections

Network connections varies based on the type of zone — Citrix-managed, standard, or restricted.

Citrix-managed zones

The following table describes the network connections that occur when a user logs onto ShareFile and then downloads a document from a Citrix-managed zone. All connections use HTTPS.

Step	Source	Destination
1. User logon request	Client	company.sharefile.com:443
2. (Optional) Redirect to SAML IDP logon	Client	SAML Identity Provider URL
3. File/folder enumeration and download request	Client	company.sharefile.com:443

Step	Source	Destination
4. File download	Client	storage-location.sharefile.com:443

Standard StorageZones

The following table describes the network connections that occur when a user logs onto ShareFile and then downloads a document from a standard StorageZone. All connections use HTTPS.

Step	Source	Destination
1. User logon request	Client	company.sharefile.com
2. (Optional) If using ADFS, redirect to SAML IDP logon	Client	SAML Identity Provider URL
3. File/folder enumeration and download request	Client	company.sharefile.com
4. File download authorization	company.sharefile.com	szc.company.com
5. File download	Client	szc.company.com

Restricted zones

The following table describes the network connections that occur when a user logs onto ShareFile and then downloads a document from a restricted zone. All connections use HTTPS.

Step	Source	Destination
1. User logon request	Client	company.sharefile.com
2. If using ADFS, redirect to SAML IDP logon	Client	SAML Identity Provider URL
3. File/folder enumeration and download request	Client	szc.company.com
4. File download authorization and get encrypted metadata	szc.company.com	company.sharefile.com
5. File download	Client	szc.company.com

A demilitarized zone (DMZ) provides an extra layer of security for the internal network. A DMZ proxy, such as Citrix NetScaler VPX, is an optional component used to:

- Ensure all requests to a StorageZones Controller originate from the ShareFile cloud, so that only approved traffic reaches the StorageZones Controllers.

StorageZones Controller has a validate operation that checks for valid URI signatures for all incoming messages. The DMZ component is responsible for validating signatures before forwarding messages.

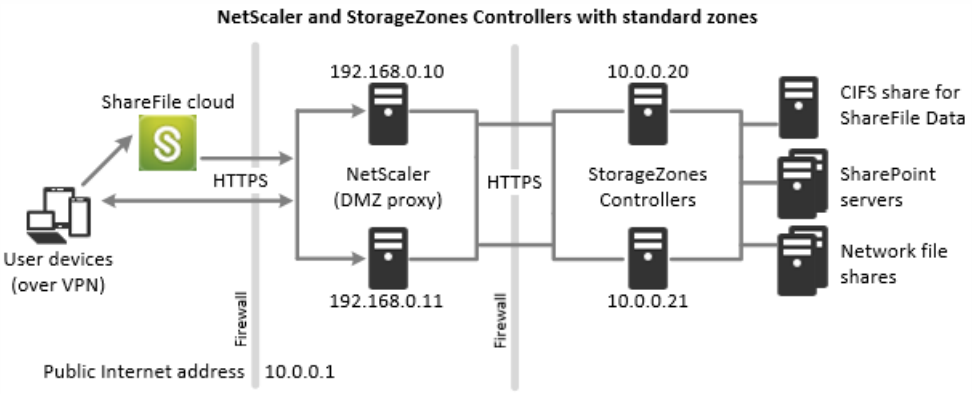
- Load balance requests to StorageZones Controllers using real-time status indicators.
  Operations can be load-balanced to StorageZones Controllers if they all can access the same files.
- Offload SSL from StorageZones Controllers.
- Ensure requests for files on SharePoint or network drives are authenticated before passing through the DMZ.

You must use separate deployments for standard StorageZones (accessible to employees and non-employees) and restricted StorageZones (accessible to employees only).

NetScaler and StorageZones Controller deployment

Deployment for standard StorageZones

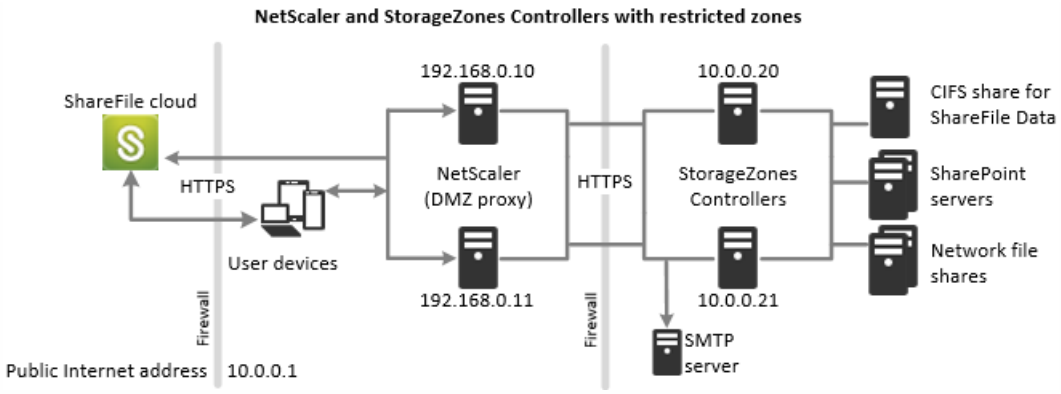
StorageZones Controllers configured for standard zones must accept in-bound connections from the ShareFile cloud. To do that the NetScaler must have a publicly accessible internet address and SSL enabled for communications with the ShareFile cloud. The following figure shows a NetScaler and StorageZones Controller deployment for standard zones.



In this scenario, two firewalls stand between the Internet and the secure network. StorageZones Controllers reside in the internal network. User connections to ShareFile must traverse the first firewall and use the SSL protocol on port 443 to establish this connection. To support this connectivity, you must open port 443 on the firewall and install a public SSL certificate on the IIS service of the DMZ proxy servers (if they terminate the user connection).

Deployment for restricted StorageZones

The following figure shows a high availability deployment for restricted zones.

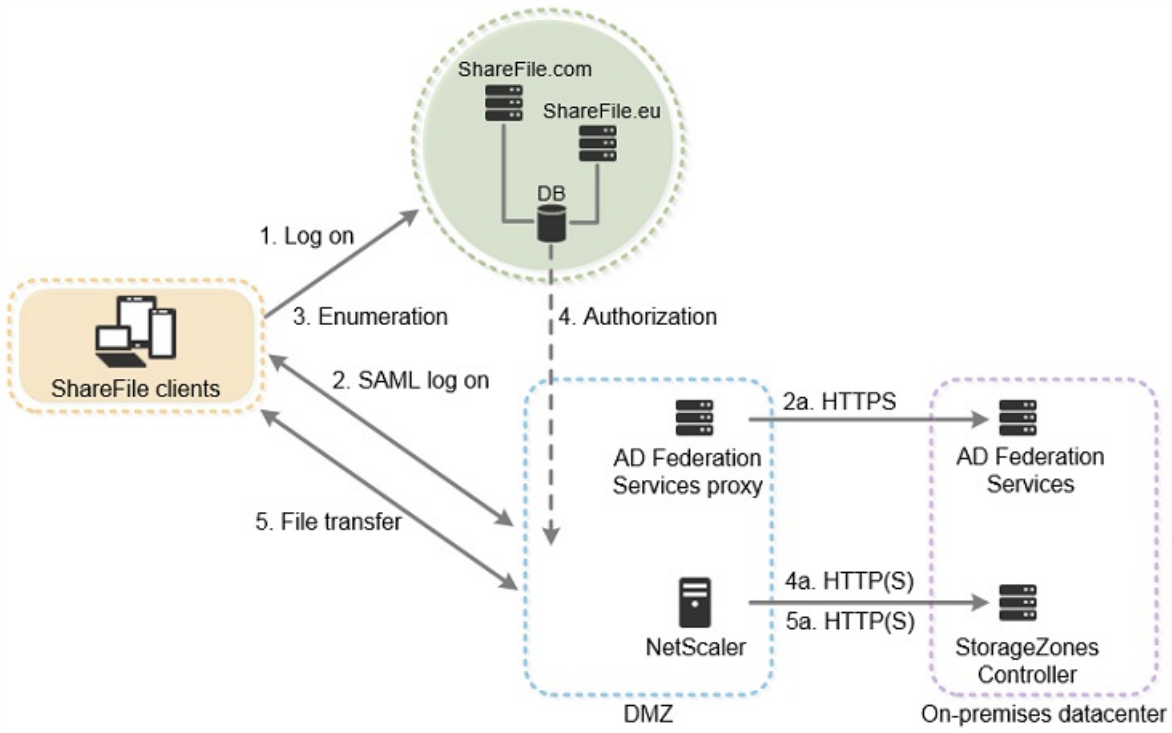


For restricted zones, StorageZones Controller sends email notifications from your local SMTP server instead of from ShareFile.

Network connections for standard zones

The following diagram and table describe the network connections that occur when a user logs onto ShareFile and then downloads a document from a standard zone deployed behind NetScaler. In this case, the account uses Active Directory Federation Services (ADFS) for SAML logon.

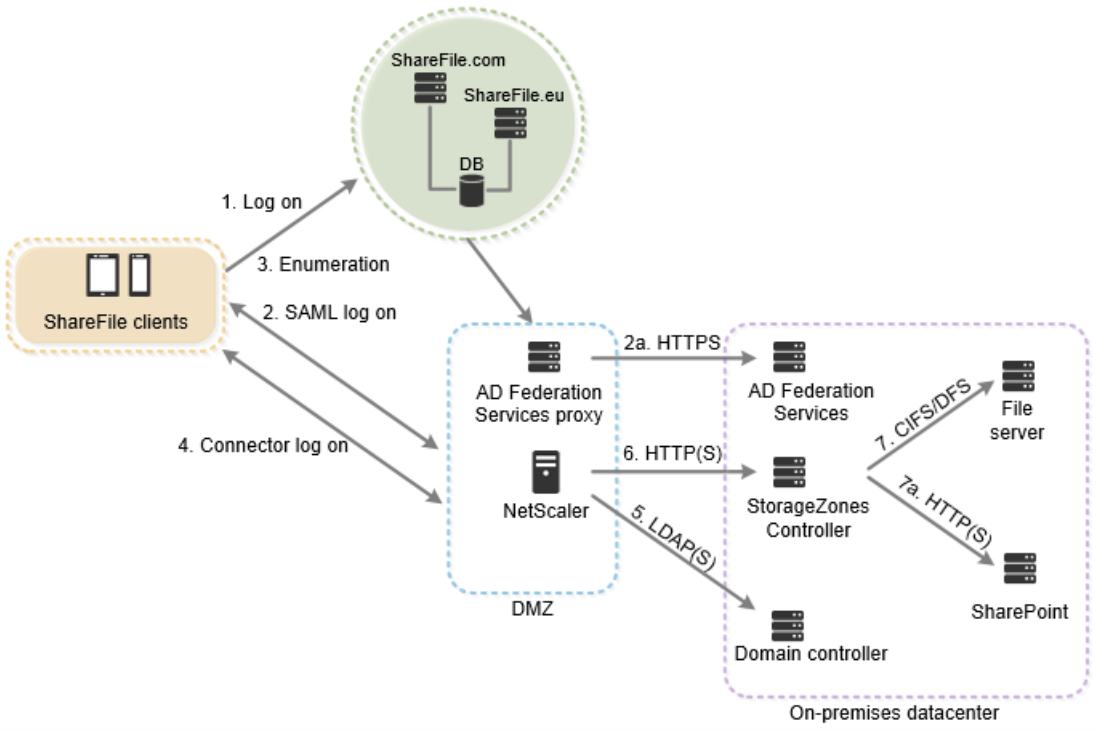
Authentication traffic is handled in the DMZ by an ADFS proxy server that communicates with an ADFS server on the trusted network. File activity is accessed via NetScaler in the DMZ, which terminates SSL, authenticates user requests and then accesses the StorageZones Controller in the trusted network on behalf of authenticated users. The NetScaler external address for ShareFile is accessed using the Internet FQDN szc.company.com.



Step	Source	Destination	Protocol
1. User logon request	Client	company.sharefile.com	HTTPS

Step	Source	Destination	Protocol
2. (Optional) Redirect to SAML IDP logon	Client	SAML Identity Provider URL	HTTPS
2a. ADFS logon	ADFS proxy	ADFS server	HTTPS
3. File/folder enumeration and download request	Client	company.sharefile.com	HTTPS
4. File download authorization	Sharefile	szc.company.com (external address)	HTTP(S)
4a. File download authorization	NetScaler NSIP	StorageZones Controller	HTTPS
5. File download	Client	szc.company.com (external address)	HTTPS
5a. File download	NetScaler NSIP	StorageZones Controller	HTTP(S)

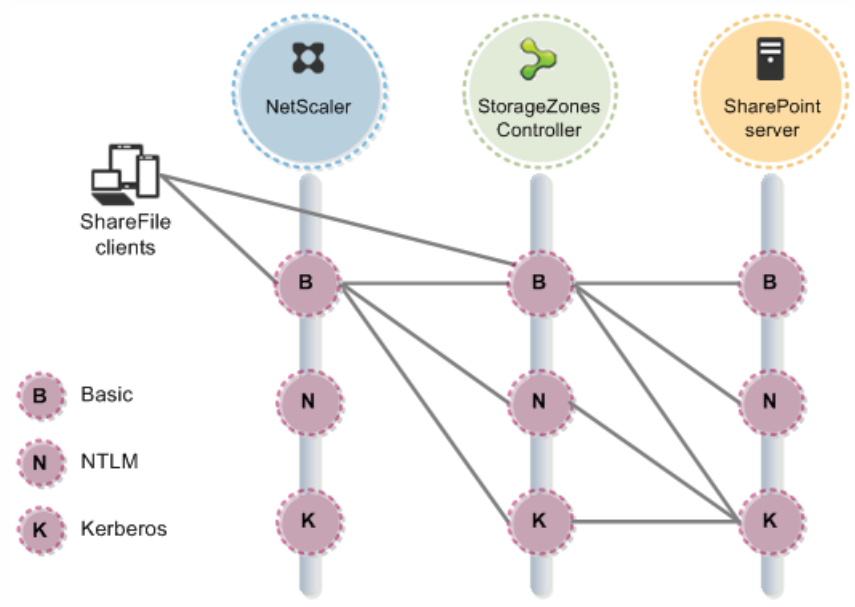
The following diagram and table extend the previous scenario to show the network connections for StorageZone Connectors. This scenario includes use of NetScaler in the DMZ to terminate SSL and perform user authentication for Connectors access.



Step	Source	Destination	Protocol
1. User logon request	Client	company.sharefile.com	HTTPS

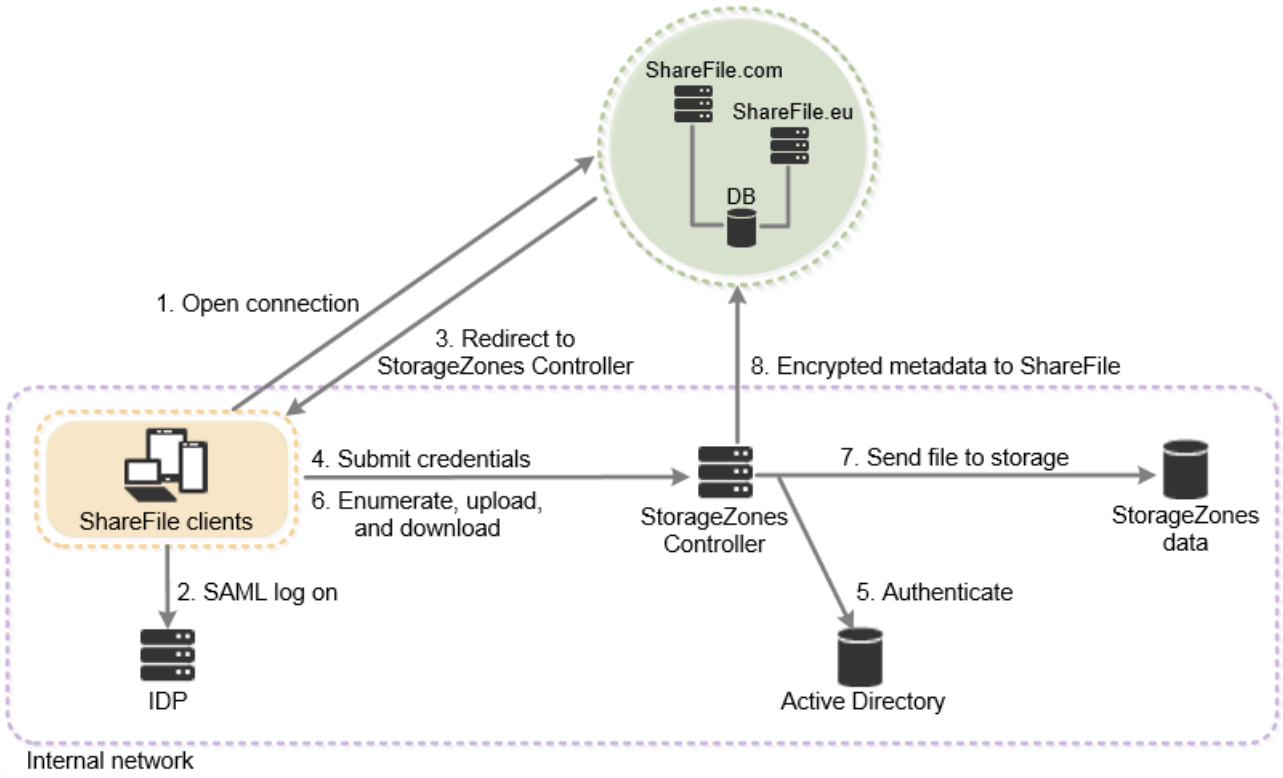
Step	Source	Destination	Protocol
2. (Optional) Redirect to SAML IDP logon	Client	SAML Identity Provider URL	HTTPS
2a. ADFS logon	ADFS proxy	ADFS server	HTTPS
3. Top-level Connector enumeration	Client	company.sharefile.com	HTTPS
4. User logon to StorageZones Controller server	Client	szc.company.com (external address)	HTTPS
5. User authentication	NetScaler NSIP	AD Domain Controller	LDAP(S)
6. File/folder enumeration and upload/download requests	NetScaler NSIP	StorageZones Controller	HTTP(S)
7. Network share enumeration and upload/download	StorageZones Controller	File server	CIFS or DFS
7a. SharePoint enumeration and upload/download	StorageZones Controller	SharePoint	HTTP(S)

The following diagram summarizes the supported combinations of authentication types based on whether the user authenticates at NetScaler.



Network connections for restricted zones

The following diagram and table describe the network connections that occur when a user logs onto ShareFile and then uploads a document to a restricted zone. In this case, the account uses Active Directory Federation Services (ADFS) for SAML logon. Authentication traffic is handled by an ADFS proxy server that communicates with an ADFS server on the trusted network.



Step	Source	Destination	Protocol
1. ShareFile client or browser opens connection	Client	company.sharefile.com or company.sharefile.eu	HTTPS
2. (Optional) Redirect to SAML IDP logon	Client	SAML Identity Provider URL	HTTPS
3. ShareFile redirects user to StorageZones Controller	Client	company.sharefile.com or company.sharefile.eu	HTTPS
4. Client submits Windows credentials to StorageZones Controller	Client	StorageZones Controller	HTTPS
5. StorageZones Controller verifies credentials and grants client access	StorageZones Controller	Domain controller	Kerberos
6. Client uploads a file to	Client	StorageZones Controller	HTTPS

Step	Source	Destination	Protocol
7. File is written to the storage repository for the restricted zone	StorageZones Controller	Local storage	CIFS
8. StorageZones Controller encrypts file metadata and sends it to ShareFile	StorageZones Controller	company.sharefile.com or company.sharefile.eu	HTTPS

Upgrade

Feb 16, 2017

When you upgrade a StorageZones Controller to the latest version, that controller will continue to use standard zones. You cannot upgrade a standard zone to a restricted zone.

To replace a standard zone with a restricted zone, you must install a new StorageZones Controller and configure a restricted zone.

Important: Be sure to read the known issues for a release before starting an upgrade.

To upgrade to the latest version of StorageZones Controller, you may upgrade directly from versions 3.0.1 or 3.1. Users on older Controller versions must first upgrade to version 3.0.1 before they can upgrade to the latest version. Please refer to the chart below:

If this version is installed:	Do this:
StorageZone Connectors 1.0	StorageZone Connectors 1.0 cannot be upgraded Please uninstall StorageZone Connectors 1.0 and Install the latest StorageZones Controller.
Storage Center 1.0	1. Upgrade Storage Center 1.0 to Storage Center 1.1. 2. To upgrade to version 1.1, see the Installation section in the archived document Storage Center 1.1. 3. Verify that Storage Center 1.1 is configured correctly and working before you proceed. 4. Upgrade Storage Center 1.1 to StorageZones Controller 2.0 Update 1. 5. Upgrade StorageZones Controller 2.0 Update 1 to StorageZones Controller 3.0.1 6. Upgrade to the latest StorageZone Controller
Storage Center 1.1	1. Upgrade Storage Center 1.1 to StorageZones Controller 2.0 Update 1. 2. Verify that Storage Center 2.0 Update 1 is configured correctly and working before you proceed. 3. Upgrade StorageZones Controller 2.0 Update 1 to StorageZones Controller 3.0.1

	4. Upgrade to the latest StorageZone Controller
Storage Zones Controller 2.x	1. Upgrade StorageZone Controller 2.x to StorageZones Controller 3.0.1 2. Upgrade to the latest StorageZone Controller
StorageZones Controller 3 Beta Program	**Please Note:** StorageZones Controller 3 is Beta Program Software and had to be a new installation of StorageZones. Otherwise, you may upgrade to the latest StorageZone Controller
StorageZones Controller 3.0.1	Upgrade to the latest StorageZone Controller
StorageZones Controller 3.1	Upgrade to the latest StorageZone Controller
StorageZones Controller 3.2	Upgrade to the latest StorageZone Controller
StorageZones Controller 3.3	Upgrade to the latest StorageZone Controller
StorageZones Controller 3.4	Upgrade to the latest StorageZone Controller
StorageZones Controller 4.x	Upgrade to the latest StorageZone Controller

You can directly upgrade from StorageZones Controller 3.1 or 3.0.1 to the latest version, as described in the following steps.

If you are using StorageZones Controller 2.x, you must first upgrade to version 3.0.1, as described in To upgrade to StorageZones Controller 3.0.1 from 2.x. To upgrade versions older than 2.x, please contact ShareFile Support.

1. From the ShareFile download page at http://www.citrix.com/downloads/sharefile.html, log on and download the latest StorageZones Controller installer.
   Note: Installing StorageZones Controller changes the Default Web Site on the server to the installation path of the controller.
2. On the server where you want to upgrade the primary StorageZones Controller:
   1. Run StorageCenter.msi to start the ShareFile StorageZones Controller Setup wizard.
   2. Respond to the prompts.
      When the installation completes, the wizard displays the message "Completed Citrix ShareFile StorageZones Controller Setup Wizard."
   3. Click Finish.

The StorageZones Controller console opens.

Important: If you plan to clone the StorageZones Controller, do not proceed with configuration. Capture the disk image and then configure each StorageZones Controller.
To return to the StorageZones Controller console at any time, open http://localhost/configservice/login.aspx or start the configuration tool from the Start menu.

After you click Finish or return to the StorageZones Controller console, the Logon page opens.

4. To change any of the displayed information, click Modify, make your changes, and then click Save.

3. Verify the registry settings on the primary StorageZones Controller:
   Not all upgrade paths add the registry settings needed to increase the number of files per zone. To enable that feature, verify that the settings are included in the registry. For details, see Increase the number of files per zone.

4. On each secondary StorageZones Controller:
   1. Run StorageCenter.msi to start the ShareFile StorageZones Controller Setup wizard.
   2. Respond to the prompts and then click Finish.
      The StorageZones Controller console Logon page opens.

   3. Log on. To change any of the displayed information, click Modify, make your changes, and then click Save.
5. Restart the IIS server of all zone members.

These steps upgrade standard zones created by prior versions of StorageZones Controller. To use restricted zones, install a new StorageZones Controller.

1. Back up your primary StorageZones Controller, as described in Back up a primary StorageZones Controller configuration.
2. From the ShareFile download page at http://www.citrix.com/downloads/sharefile.html, log on and download the latest StorageZones Controller 3 installer.
   Note: Installing StorageZones Controller changes the Default Web Site on the server to the installation path of the controller.
3. On the server where you want to upgrade the primary StorageZones Controller:
   1. Run StorageCenter.msi to start the ShareFile StorageZones Controller Setup wizard.
   2. Respond to the prompts.
      When the installation completes, the wizard displays the message “Completed Citrix ShareFile StorageZones Controller Setup Wizard.”

   3. Click Finish.
      The StorageZones Controller console opens.

      Important: If you plan to clone the StorageZones Controller, do not proceed with configuration. Capture the disk image and then configure each StorageZones Controller.
      To return to the StorageZones Controller console at any time, open http://localhost/configservice/login.aspx or start the configuration tool from the Start menu.

      After you click Finish or return to the StorageZones Controller console, the Logon page opens.

   4. To change any of the displayed information, click Modify, make your changes, and then click Save.
4. Verify the registry settings on the primary StorageZones Controller:
   Not all upgrade paths add the registry settings needed to increase the number of files per zone. To enable that feature,

verify that the settings are included in the registry. For details, see Increase the number of files per zone.

5. On each secondary StorageZones Controller:
   1. Run StorageCenter.msi to start the ShareFile StorageZones Controller Setup wizard.
   2. Respond to the prompts and then click Finish.
      The StorageZones Controller console Logon page opens.
   3. Log on. To change any of the displayed information, click Modify, make your changes, and then click Save.
6. Restart the IIS server of all zone members.
7. To upgrade to StorageZones Controller 3.4, see To upgrade to StorageZones Controller 3.4 from StorageZones Controller 3.1 or 3.0.1, earlier in this article.

Important: If you are upgrading to StorageZones Controller 3.0.1 from a version prior to 2.2.3 and previously customized the ProducerTimer or DeleteTimer settings, please contact ShareFile Support for help with configuring the ProducerTimerInterval and DeleteTimerInterval settings in FileDeleteService.exe.config.

Install

Apr 25, 2016

Complete the following tasks, in the order presented, to install and set up StorageZones Controller, StorageZones for ShareFile Data, and StorageZone Connectors.

1. Configure NetScaler for StorageZones Controller
   You can use NetScaler as a DMZ proxy for StorageZones Controller.
2. Create a network share for private data storage
   StorageZones for ShareFile Data requires a network share for your private data, even if you store ShareFile files in a supported third-party storage system.
3. Install an SSL certificate
   A StorageZones Controller that hosts standard zones requires an SSL certificate. A StorageZones Controller that hosts restricted zones and uses an internal address, does not require an SSL certificate.
4. Prepare your server for ShareFile data
   IIS and ASP.NET setup is required for StorageZones for ShareFile data and for StorageZone Connectors.
5. Install StorageZones Controller and create a StorageZone
6. Verify your StorageZones Controller setup
7. Change the default zone for user accounts
   By default, existing and newly provisioned user accounts use the ShareFile-managed cloud storage as the default zone.
8. Specify a proxy server for StorageZones
   The StorageZones Controllers console enables you to specify a proxy server for StorageZones Controllers. You can also specify a proxy server using other methods.
9. Configure the domain controller to trust the StorageZones Controller for delegation
   Configure the domain controller to support NTLM or Kerberos authentication on network shares or SharePoint sites.
10. Join a secondary StorageZones Controller to a StorageZone
    To configure a StorageZone for high availability, connect at least two StorageZones Controllers to it.

For a demonstration of configuring StorageZones Controller with Microsoft Azure Storage, click here.

For a demonstration of configuring ShareFile Enterprise to use a Microsoft Azure StorageZone, click here.

Additional Setup Instructions

Configure Multi-Tenant StorageZones

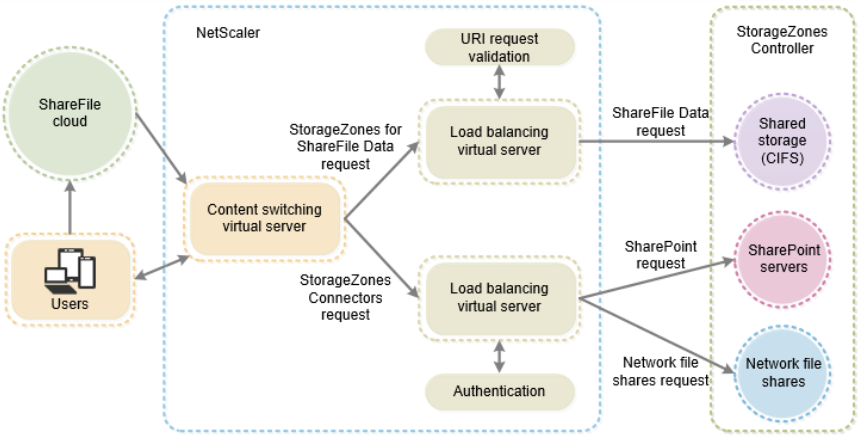
Configure StorageZones Controller for Web App Previews, Thumbnails, and View-Only Sharing

Configure NetScaler for StorageZones Controller

Jan 03, 2017

NetScaler, version 10.1 build 120.1316.e and above, includes a wizard that prompts you for basic information about your StorageZones Controller environment and then generates a configuration that:

- Load balances traffic across StorageZones Controllers
- Provides user authentication for StorageZone Connectors
- Validates URI signatures for ShareFile uploads and downloads
- Terminates SSL connections at the NetScaler appliance



The diagram shows these NetScaler components created by the configuration:

- **NetScaler content switching virtual server —** Sends user requests for data from ShareFile and from StorageZone Connectors to the appropriate NetScaler load balancing virtual server.
- **NetScaler load balancing virtual server —** Load balances the traffic for your StorageZones Controllers and also handles the following:
  - For requests for data from your private data storage, a load balancing virtual server performs hash validation, to ensure valid URI signatures are present on incoming requests.
  - For requests for data from StorageZone Connectors, a load balancing virtual server performs user authentication. It stops a user request at the NetScaler, authenticates the user, and then performs single sign-on of the user to StorageZones Controller.
    Although authentication to NetScaler is optional, it is a recommended best practice.

To support restricted zones or web access to Connectors, you must perform additional NetScaler configuration after you complete the wizard. The configuration ensures that ShareFile clients send credentials only when logged on to a trusted ShareFile domain. To support web access to Connectors, you also add a path (/ProxyService) to the content switching policy used for traffic to /cifs and /sp.

As of StorageZones Controller 4.0, administrators can limit inbound connections to a StorageZone Controllers to TLS v1.2. If protocols earlier than TLS V1.2 are disabled for inbound traffic to the StorageZone Controller, all client software components that interact with the StorageZone must also support TLS v1.2. Click here for additional information and configuration instructions.

Quick links to topic sections:

Note: To set up NetScaler versions prior to 10.1 build 120.1316.e, see Configure NetScaler manually.
The Set up NetScaler for ShareFile wizard does not handle the configuration required to use XenMobile as a SAML identity provider for ShareFile. For more information, click here.

- A working NetScaler configuration

- Security certificate: If one is not already available in NetScaler, the wizard enables you to install one on the content switching virtual server.
- Information about your Active Directory configuration (**The NetScaler for ShareFile Wizard cannot be completed without a NS Enterprise Edition License**):
  - IP address and port of your Active Directory server
  - Active Directory domain name
  - LDAP Base DN where users are stored
  - Account name and password for an administrator account that has permissions to communicate with Active Directory

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The following steps describe how to use the NetScaler for ShareFile wizard.

1. Log on to the NetScaler appliance and, on the Configuration tab, navigate to Traffic Management.
2. Under Citrix ShareFile, click Set up NetScaler for ShareFile.
   You can also access the wizard as follows: Under Mobility, click Configure XenMobile, ShareFile, and NetScaler Gateway.

3. Supply the information requested in the wizard.

Option	Description
Name	A display name for the content switching virtual server.
IP Address	The external (public or DMZ) IP address to be used for the content switching virtual server. If you use a DMZ IP address, you must define a Network Address Translation (NAT) mapping from your external firewall address to this DMZ IP address.
ShareFile Data	This option is enabled, indicating that you will use the NetScaler connection for StorageZones for ShareFile Data.
StorageZone Connectors for Network File Shares/SharePoint	If you use Connectors and you want to perform user authentication at the NetScaler, select the check box.
Certificate	Choose a certificate or install one for the content switching virtual server. If you choose to install a certificate, you are prompted to upload the certificate and private key. For standard zones or for restricted zones with an external hostname, certificates must be publicly trusted and not self-signed.
StorageZones Controller IP Address	The internal IP addresses for one or more StorageZones Controller servers. These IP addresses define the StorageZones Controller servers as entities inside of NetScaler. If you already added the servers to NetScaler, click Add From Existing and select the servers. To use NetScaler for load balancing, enter an internal IP address for each StorageZones Controller server. To use NetScaler only for SSL and authentication, enter just one IP address.
Port and Protocol	The port and protocol used for communication from the NetScaler to StorageZones Controllers.
AAA VServer IP Address	An unused internal IP address for the Authentication, Authorization, and Auditing (AAA) virtual server. NetScaler creates this virtual server for its own use. The server does not require outside access.
LDAP Server IP Address and Port	The IP address and port of your Active Directory server. If you already added an LDAP server to NetScaler, click the Choose LDAP tab and choose the server.
Time out	The maximum number of seconds that the NetScaler waits for a response from the LDAP server. Defaults to 3 seconds. The minimum value is 1 second.
Single Sign-on Domain	The Active Directory domain name.
Base DN (location of users)	The LDAP Base Distinguished Name (DN) where users are stored. Specify the DN using the general form: CN=Users,dc=domain, dc=Net
Administrator Bind DN and Password	An administrator account that has permissions to communicate with Active Directory.
Logon Name	An LDAP attribute, used by NetScaler to determine whether users log on with their user name or email address. Defaults to sAMAccountName, which enables users to log on with their user names. To require users to enter their email address to log on,

Option	Description
	change this field to userPrincipalName.

To support restricted zones or web access to StorageZone Connectors, you must perform additional NetScaler configuration after you complete the NetScaler for ShareFile wizard.

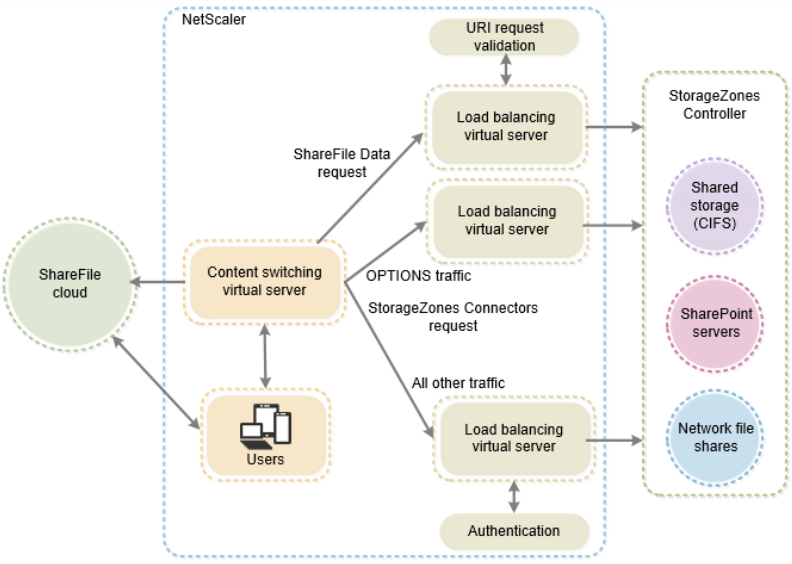
- Create and configure a third NetScaler load-balancing virtual server, used to ensure that ShareFile clients send credentials only when logged on to a trusted ShareFile domain.
  StorageZones Controller uses the Cross-Origin Resource Sharing (CORS) standard to provide the necessary security for requests to restricted zones and from the ShareFile web interface to StorageZone Connectors. CORS uses HTTP headers to allow the client and server to know enough about each other to determine if a request or response should succeed.

  As described in the following steps, you will configure the additional virtual server to allow anonymous access from clients for the HTTP OPTIONS verb. The OPTIONS request passes through to StorageZones Controller without being authenticated and without HTTPS callouts to validate the signature. The CORS preflight check validates domain trust before sending credentials.

  An understanding of CORS is not needed to perform the configuration. However, for more information about CORS, see http://enable-cors.org/.

  Use of Internet Explorer for web access to connectors in restricted zones requires Internet Explorer configuration. For details, see Client requirements for restricted StorageZones.
- To support web access to StorageZone Connectors, add a path (/ProxyService) to the content switching policy used for traffic to /cifs and /sp.

The additional configuration provides the NetScaler components shown in the following diagram.



Perform the following steps in NetScaler after you complete the NetScaler for ShareFile wizard.

1. Create a third load-balancing virtual server:
   1. Navigate to Traffic Management > Load Balancing > Virtual Servers.
   2. Click Add.
   3. Specify the following values:

Option	Value
Name	A policy name, such as SF_ZONE_OPTIONS
Protocol	SSL
IP Address Type	Non Addressable

   4. Click through to create the virtual server.
   5. To bind the same services to it as the load-balancing virtual servers created by the wizard: In the Load Balancing Virtual Server screen, across from Service, click >

and then click Save.

6. Add a certificate to the virtual server.

2. Create a policy for the virtual server you just added:
   1. Navigate to Traffic Management > Content Switching > Policies.
   2. In the details pane, click Add and then specify the following values:

Option	Value
Name	A name for the content switching action, such as OPTIONS
Target LB Virtual Server	The virtual server added in Step 1
Expression	Click Expression Editor and then build this expression: Select HTTP. Select REQ. Select METHOD. Select EQ(String) and type OPTIONS. The expression should read as follows: HTTP.REQ.METHOD.EQ("OPTIONS")

   3. Click Done.
   4. Click Create.
3. Bind the policy you just created to the new load-balancing virtual server:
   1. Navigate to Traffic Management > Content Switching > Virtual Servers.
   2. In the list, click the new virtual server.
   3. Click Bind.
   4. Select the check box for the policy you just created.
   5. Click Insert.
   6. Change the priority of the new policy so it has the lowest number of the three policies.
      The policy with the lowest value has the highest priority and so is handled first.
4. Update the policy used for traffic to StorageZone Connectors (_SF_CIF_SP_CSPOL):
   1. Navigate to Traffic Management > Content Switching > Policies.
   2. Select the _SF_CIF_SP_CSPOL policy.
   3. Add the following to the policy expression:
      || HTTP.REQ.URL.CONTAINS("/ProxyService/")

      The full policy expression should be as follows:

      HTTP.REQ.URL.CONTAINS("/cifs/") || HTTP.REQ.URL.CONTAINS("/sp/") ||
      HTTP.REQ.URL.CONTAINS("/ProxyService/")
5. Update the policy used for traffic to StorageZones for ShareFile Data (_SF_SZ_CSPOL):
   1. Navigate to Traffic Management > Content Switching > Policies.
   2. Select the _SF_SZ_CSPOL policy.
   3. Add the following to the policy expression:
      && HTTP.REQ.URL.CONTAINS("/ProxyService/").NOT

      The full policy expression should be as follows:

      HTTP.REQ.URL.CONTAINS("/cifs/").NOT && HTTP.REQ.URL.CONTAINS("/sp/").NOT
      && HTTP.REQ.URL.CONTAINS("/ProxyService/").NOT

To support View-Only Sharing, users must be able to access your Microsoft Office Web Apps Server (OWA). If your OWA server is externally accessible on its own address, no additional NetScaler configuration should be required for your StorageZones Controller.

If you wish to combine the StorageZones Controller and Office Web App Server onto a single external address using NetScaler content switching policies, you must perform additional NetScaler configuration after you complete the NetScaler for ShareFile wizard. NetScaler configuration is required to ensure that traffic is routed

to your externally accessible OWA Server properly.

Once the following NetScaler rules are configured, Administrators may re-use the existing External address of their StorageZones Controller zone, eliminating the need to create an additional external address for OWA.

To create and configure an additional NetScaler load-balancing virtual server:

1. Create an additional load-balancing service.
   - Navigate to **Traffic Management** > **Load Balancing** > **Services**.
   - Click **Add**.
   - Enter the required information to create a service that corresponds to your OWA server(s). Click **OK**.
2. Create an additional load-balancing virtual server:
   - Navigate to **Traffic Management** > **Load Balancing** > **Virtual Servers**.
   - Click **Add**.
   - Specify the following values:

Option	Value
Name	A policy name, such as SF_OWA_vServer
Protocol	SSL
IP Address Type	Non Addressable

   - Click through to create the virtual server.
   - To bind the virtual server to the OWA service you created in the previous step, click **Load Balancing Virtual Service Binding** > **Select Service**. Click the checkbox beside the service you created in the previous step.
   - Click **Select**.
   - Click **Bind**.
3. Create a new policy used to route traffic to your OWA server.
   - Navigate to **Traffic Management** > **Content Switching** > **Policies**.
   - Select **Add**.
   - Name the policy.
   - Add the following expression:
     - **HTTP.REQ.URL.CONTAINS("/hosting/discovery")**
       || HTTP.REQ.URL.CONTAINS("/x/")
       || HTTP.REQ.URL.CONTAINS("/wv/")
       || HTTP.REQ.URL.CONTAINS("/p/")

       The full policy expression should be as follows:

```
HTTP.REQ.URL.CONTAINS("/hosting/discovery") || HTTP.REQ.URL.CONTAINS("/x/") || HTTP.REQ.URL.CONTAINS("/wv/") ||
HTTP.REQ.URL.CONTAINS("/p/") ||
```

4. Update the priority of the new policy within the load-balancing virtual
   - Navigate to Traffic Management > Content Switching > Virtual Servers.
   - Click the load-balancing virtual server, then select Content Switching Policies.
   - Change the priority of the policies so that the (Example) "_SF_OWA" policy is third in priority.

Priority	Policy Name
90	SF_ZK_OPTIONS
95	_SF_CIF_SP_SPOL
99	_SF_OWA
100	_SF_SZ_CSPOL

- Click **Close**. Click **Done**

By default, NetScaler pings the StorageZones Controller server to determine if it is online. However, even if the controller is online, it might not be able to send heartbeat messages to the ShareFile web site. In that case, NetScaler will send traffic to StorageZones Controller although it is not communicating with ShareFile.

To verify StorageZones Controller outbound connectivity to ShareFile, you can create a monitor that checks heartbeat.aspx and bind it to the NetScaler service for each StorageZones Controller.

add lb monitor SZC_Heartbeat HTTP-ECV -send "GET /heartbeat.aspx" -recv "***ONLINE***" -secure YES bind service StorageZone_Svc -monitorName SZC_Heartbeat StorageZone_Svc is the NetScaler service that corresponds to a StorageZones Controller. That service name is automatically created by the NetScaler for ShareFile wizard. The service name includes the IP address of the controller, such as _SF_SVC_ip-address.

-secure YES is required if the service is listening on port 443.

After you complete the wizard, go to Traffic Management > Load Balancing > Virtual Servers to view the status of the load balancing virtual servers created by the wizard.

Throughput statistics can be found on the **Dashboard** menu.

Configure NetScaler manually

Apr 27, 2016

As of version 10.1 build 120.1316, NetScaler includes a wizard that configures the settings needed for StorageZones Controller data and connectors. To configure earlier versions of NetScaler for StorageZones Controller, we recommend that you watch the following video and use the information in this section to supplement the video instructions.

The steps in this section describe the NetScaler settings needed for StorageZones Controller. All links are for the NetScaler 10.1 documentation. Similar topics are available for earlier versions of NetScaler.

1. Create an HTTP callout named sf_callout:
   1. In the Configure HTTP Callout dialog box, click Virtual Server or IP Address and specify the address.
   2. Under Request to send to the server, click Attribute-based and then click Configure Request Attributes.
   3. Select Get Method.
   4. In Host Expression enter the virtual server IP address or the host IP address for any of the StorageZone Controllers.
   5. In URL Stem Expression enter:
      "/validate.ashx?RequestURI=" + HTTP.REQ.URL.BEFORE_STR("&h").HTTP_URL_SAFE.B64ENCODE + "&h="+ HTTP.REQ.URL.QUERY.VALUE("h")
   6. Click OK and then return to the Configure HTTP Callout dialog box.
   7. Under Server Response, choose a Return Type of Bool.
   8. In Expression to extract data from the response enter:
      HTTP.RES.STATUS.EQ(200).NOT
   9. Click Create.

   For more information, refer to HTTP Callouts in the NetScaler documentation.
2. Follow the preceding steps to configure an HTTP callout named sf_callout_y. Use the same settings except for the expression:
   - In URL Stem Expression enter:
     "/validate.ashx?RequestURI=" + HTTP.REQ.URL.HTTP_URL_SAFE.B64ENCODE + "&h="
3. Configure a responder policy:
   1. In the Configure Responder Policy dialog box: For Action, choose Drop.
   2. In Expression, enter:

http.REQ.URL.CONTAINS("&h=") && http.req.url.contains("/crossdomain.xml").not &&
http.req.url.contains("/validate.ashx?requri").not && SYS.HTTP_CALLOUT(sf_callout) ||
http.REQ.URL.CONTAINS("&h=").NOT && http.req.url.contains("/crossdomain.xml").not &&
http.req.url.contains("/validate.ashx?requri").not && SYS.HTTP_CALLOUT(sf_callout_y)

For more information, refer to Responder in the NetScaler documentation.

4. Bind the responder policy to the load balancer virtual server and configure SSL session-based persistence.

1. Configure token-based load balancing.
   Use the rule expression: "http.REQ.URL.QUERY.VALUE("uploadid")"

   Token-based load balancing is required for StorageZones Controllers in a high availability deployment. Round-robin load balancing will result in intermittent download or upload failures because a client request for an upload or download can get directed to a StorageZones Controller other than the one that received the authorization request from ShareFile.com.

2. Configure NetScaler to terminate SSL connections.
   For information, refer to Configuring SSL Offloading and its subtopics in the NetScaler documentation.

1. Enable content switching, as described in Enabling Content Switching in the NetScaler documentation.
2. Create a content switching policy for user requests for ShareFile data from your on-premises StorageZone:
   1. In the Configure Content Switching Policy dialog box: Enter a Name for the content switching policy. These steps use the name Data_Requests.
   2. Enter the Expression:
      HTTP.REQ.HOSTNAME.CONTAINS("StorageZonesControllerHostName") &&
      HTTP.REQ.URL.CONTAINS("/cifs/").NOT && HTTP.REQ.URL.CONTAINS("/sp/").NOT

   3. Click OK.
      For more information, refer to Content Switching in the NetScaler documentation.
3. Create a content switching policy for user requests for data accessed from StorageZone Connectors.
   1. In the Configure Content Switching Policy dialog box: Specify a Name for the content switching policy. These steps use the name Connector_Requests.
   2. Enter the Expression:
      HTTP.REQ.HOSTNAME.CONTAINS("StorageZonesControllerFQDN") && (HTTP.REQ.URL.CONTAINS("/cifs/") ||
      HTTP.REQ.URL.CONTAINS("/sp/"))

      Be sure to replace "StorageZonesControllerFQDN" with the FQDN of your controller.

   3. Click OK.
4. Create a content switching virtual server.
5. Set the content switching policy targets:
   - In the Configure Virtual Server (Content Switching) dialog box: For the Data_Requests policy, specify the load balancer virtual server for StorageZones for ShareFile data.
     This load balancer virtual server is the one to which you bound the responder policy in Step 4 of

— To check for valid URI signatures on all incoming messages and to load balance

.

- For the Connector_Requests policy, specify the load balancer virtual server for StorageZone Connectors.

6. Configure the authentication virtual server for StorageZone Connectors:
   Although authentication to NetScaler is optional, it is a recommended best practice.

   1. In the navigation pane, expand Load Balancing, select the name of the load balancer virtual server for StorageZone Connectors, and then click Open.
   2. In the Configure Virtual Server (Load Balancing) dialog box, click the Advanced tab and then expand Authentication Settings.
   3. Select the check box for 401 Based Authentication and then choose the Authentication VServer.
   4. Click the Method and Persistence tab.
   5. For Persistence, choose COOKIEINSERT.
   6. For Time-out (min), enter 240.
      A time-out value of 240 minutes is recommended. The minimum value should be greater than 10 minutes.

      For more information, refer to Configuring the Authentication Virtual Server in the NetScaler documentation.

7. Use the Configure Authentication Server dialog box to create and configure an authentication server.
   In SSO Name Attribute, enter userPrincipalName.

   For more information about other settings, refer to Authentication Policies in the NetScaler documentation.

8. Configure an authentication policy for the authentication server just created:
   1. In the Configure Authentication Policy dialog box: Enter a Name for the policy and then select the authentication Server configured in the previous step.
   2. Enter the Expression:
      ns_true

   For more information, refer to Configure an authentication policy in the NetScaler documentation.
9. Configure a session profile for single sign-on:
   1. In the Configure Session Profile dialog box, enter a Name for the profile.
   2. Select the check box for Single Sign-on to Web Applications.
   3. For Credential Index, select PRIMARY.
   4. In Single Sign-on Domain, enter the domain name for your StorageZones Controller.
   5. Select the Override Global check boxes for each of the preceding three items.

   For more information, refer to Session Profiles in the NetScaler documentation.
10. Configure a session policy for single sign-on:
    1. In the Configure Session Policy dialog box, enter a Name for the policy.
    2. For Request Profile, select the name of the session profile configured in the previous step.
    3. Enter the Expression:
       ns_true

    For more information, refer to Session Policies in the NetScaler documentation.
11. Create an authentication virtual server:
    1. In the Configure Virtual Server (Authentication) dialog box, enter a Name and the IP Address for the server.
    2. Click the Authentication tab and for Protocol, select SSL.
    3. Select the check box for Authenticate Users.
    4. Under Authentication Policies, click Primary and then choose the authentication policy you configured in Step 7.

5. Click the Policies tab, click Session, and then choose the session policy you configured in Step 9.

For more information, refer to Configuring the Authentication Virtual Server in the NetScaler documentation.

Create a network share for private data storage

Apr 25, 2016

StorageZones for ShareFile Data requires a network share for your private data. When multiple StorageZones Controllers are configured for high availability and load balancing within a zone, all Controllers access the same shared location for private data.

Even if you store ShareFile files in a supported third-party storage system, StorageZones Controller requires a network share for encryption keys, queued files, other temporary items, and a storage cache for file uploads to or downloads from that storage system. For more information about the storage cache, see Customize storage cache operations.

StorageZones Controllers access a network share using the IIS Account Pool user. By default, application pools operate under the Network Service user account, which has low-level user rights. StorageZones Controller uses the Network Service account by default. You can use a named user account instead of the Network Service account to access the share. However, you should run the IIS application pool and the Citrix ShareFile Services using the Network Service account.

1. If you want to use a named user account instead of the Network Service account to access the share, create a named user account in Active Directory. We will refer to that named user account as the ShareFile Service account.
   Note: When you configure StorageZones Controller, you will specify the Network Share User Name and Network Share Password, which are the credentials for the account you will use to access the share, either the ShareFile Service account or the Network Service account.

   To improve security, the admin will need to deny permissions to all other users to the particular folder containing the ShareFile storage repository and only give access to the storage location user that is being configured.

2. Connect to the server that will host the network share and create a folder for your ShareFile private data.
3. Right-click the folder and choose Share with specific people....
4. Add the account you will use to access the share (Network Service account or ShareFile Service account) and change the Permission Level to Read/Write.
5. Click Share and then click Done.
6. Right-click the folder and choose Properties.
7. On the Security tab, verify that the account you will use to access the share (Network Service account or ShareFile Service account) has Full Access permissions.

By default, a StorageZones Controller configured to use a CIFS share stores all zone files in a single folder. As a result, the maximum number of files supported for a zone is limited by the maximum number of files per folder supported by your storage array.

You can configure StorageZones Controller to divide the persistent storage layout. This increases the maximum number of files per zone for some types of storage arrays from less than a half million to ten million or more. If you need even more capacity, you can change the default.

To enable StorageZones Controller to store files in multiple folders

Caution: Editing the Registry incorrectly can cause serious problems that may require you to reinstall your operating system.

Citrix cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Be sure to back up the registry before you edit it.
On all StorageZones Controllers in the zone, update the value of the registry key HKLM\Software\Wow6432Node\Citrix\StorageZone\PathSelection from 0 to 1. If a StorageZones Controller registry does not include that key after an upgrade, add it.

Restart IIS on the StorageZones Controllers when you are finished editing the registry.

To increase the maximum number of folders

By default, divided storage layout has 256 top-level folders, each of which contains 256 folders. That configuration is represented in the primary StorageZones Controller registry key HKLM\Software\Wow6432Node\Citrix\StorageZone: PathSelectionParams=2,2. The first value constrains the number of top-level folders to "16 to the power of 2" or 256. The second value also constrains the number of child folders of the top-level folders to 256.

Using that same formula (16 to the power of N) you can determine the appropriate values for your site. For example, PathSelectionParams=3,4,4,4 constrains the number of top-level folders to 4096 (16 to the power of 3). The second value constrains the child folders of the top-level folders to 65536 (16 to the power of 4). The third value constrains the child folders of the second-level folders to 65536, and so on.

Restart IIS on the primary and secondary StorageZones Controllers if you are finished editing the registry.

To remove empty folders

When StorageZones Controller stores files in multiple folders, file deletion can result in empty folders. By default, StorageZones Controller removes empty folders. The file delete service will delete empty folders, starting at the bottom of the tree and continuing up until it reaches a non-empty folder.

However, some upgrade paths might not update your settings. After an upgrade, verify that the following key appears in C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config:

<add key="DeleteEmptyFoldersAfterFileDeletion" value="1"/>

If you need to add the key, restart the File Delete Service when you are finished.

Install an SSL certificate

Apr 25, 2016

If you do not use a wildcard certificate, you must create a Certificate Signing Request (CSR) for the StorageZones Controller server and submit your request to a Certificate Authority (CA). For help, refer to the documentation for your CA.

Follow these steps to install a certificate.

1. On the StorageZones Controller server, open MMC and then choose File > Add/Remove Snap-in.
2. Select Certificates and then click Add.
3. Select Computer Account, click Next, click Finish, and then click OK.
4. In the MMC console, expand Certificates > Personal.
5. Right-click Certificates, choose All Tasks > Import, and then click Next.
6. Click Browse and then from the file extension drop-down, choose Personal Information Exchange.
7. Browse to the certificate location and then click Open.
8. Click Next, enter the Password associated with your private key, click Next twice, and then click Finish.
9. When the message Import was Successful appears, click OK.

For a public certificate, make sure that the domain it is issued to resolves to the local IP address of StorageZones Controller. To do that, update the hosts file on the StorageZones Controller to map the domain associated with the certificate to the StorageZones Controller IP address. If the two addresses do not resolve, users will not be able to upload files from StorageZones Controller.

Prepare your server for ShareFile data

May 13, 2016

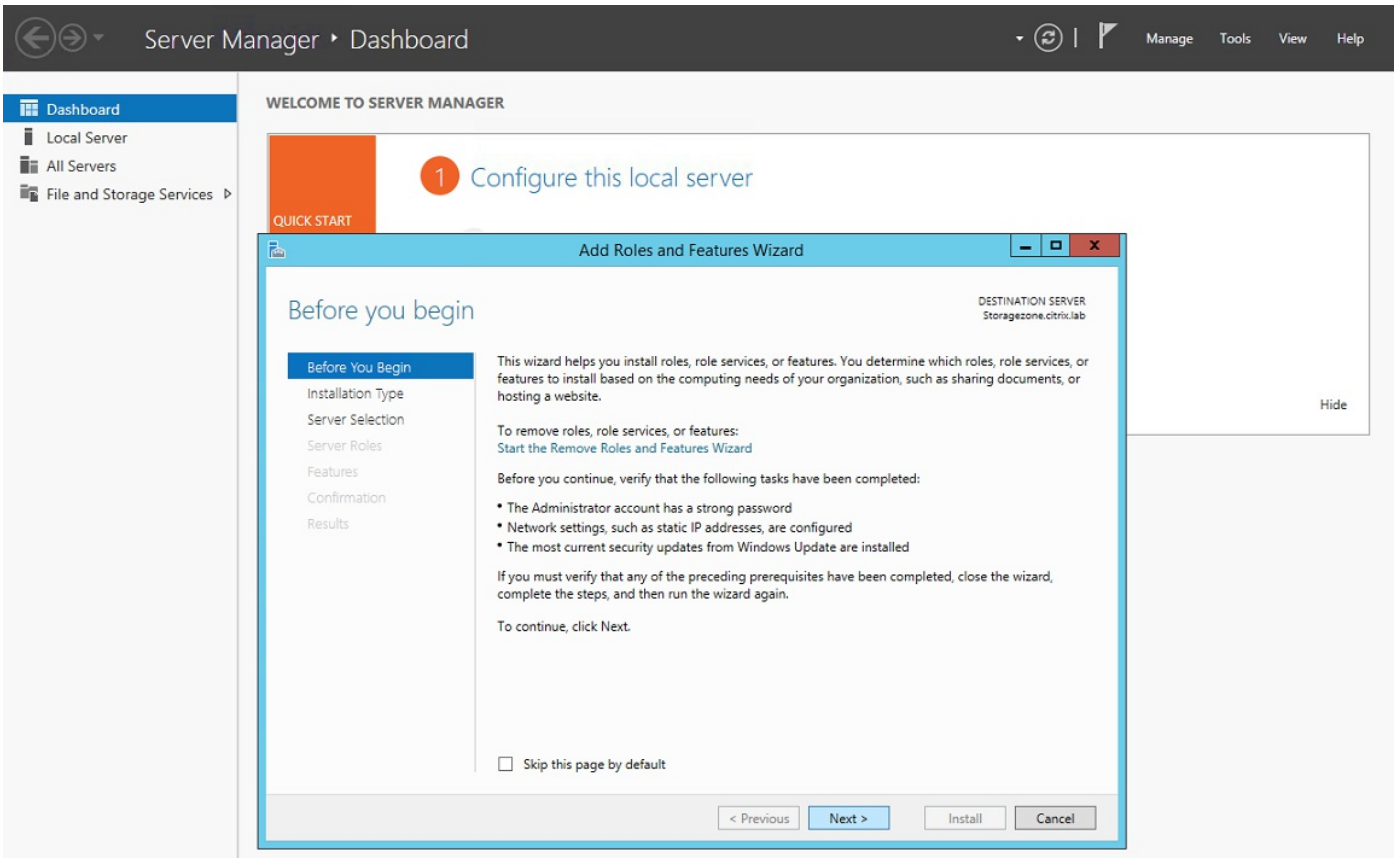
The IIS and ASP.NET setup described in this section is required for StorageZones for ShareFile data and for StorageZone Connectors. These instructions are based on Windows Server 2012. The instructions for Windows Server 2008 are provided in the earlier documentation for StorageZones Controller.

Before proceeding with StorageZones Controller installation, please ensure that you are using the appropriate version of Microsoft .NET Framework.

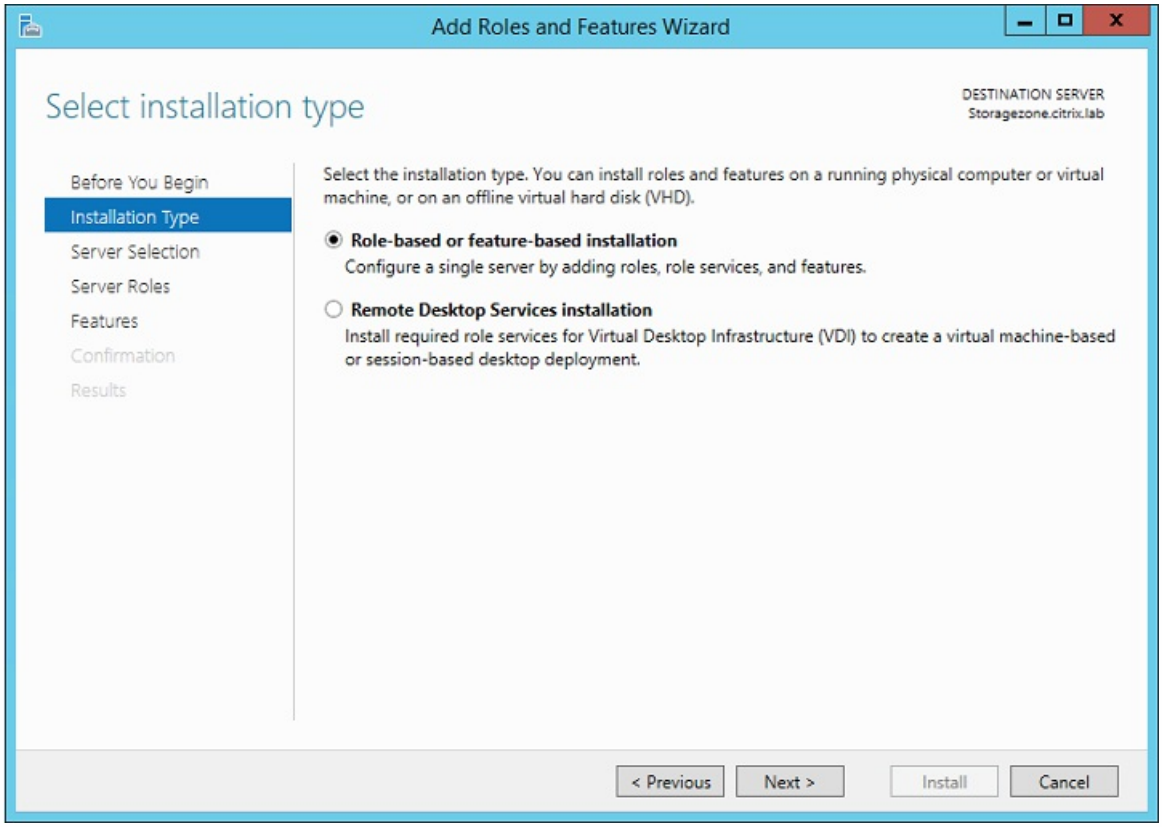
- **StorageZones Controller 4.0 requires .NET 4.5.2 or later.** Click here to download .NET 4.5.2

ShareFile recommends utilizing the latest version of Microsoft .NET when using ShareFile applications.

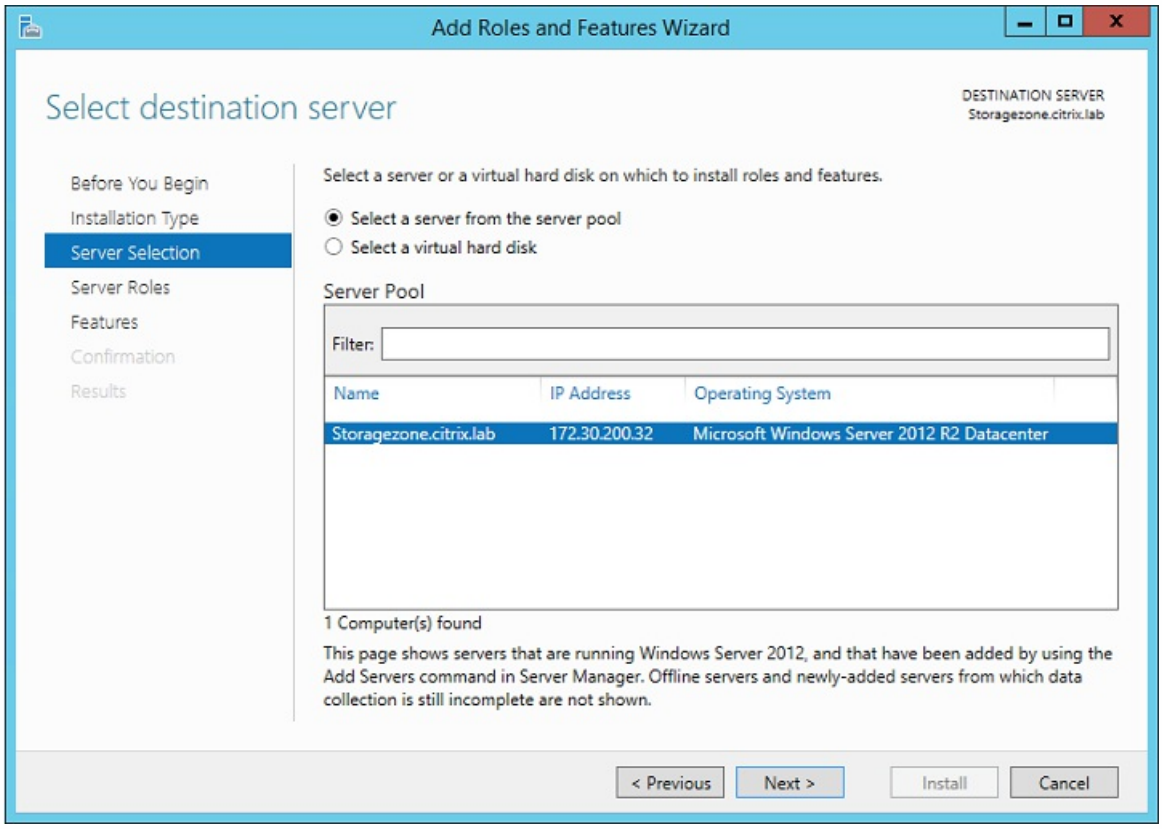
1. On the server where you will install StorageZones Controller, log on with an account that has local administrator privileges.
2. Open the Server Manager console Dashboard and then click Manage > Add Roles and Features to open the Add Roles and Features Wizard.
3. In the Add Roles and Features Wizard, click Next.



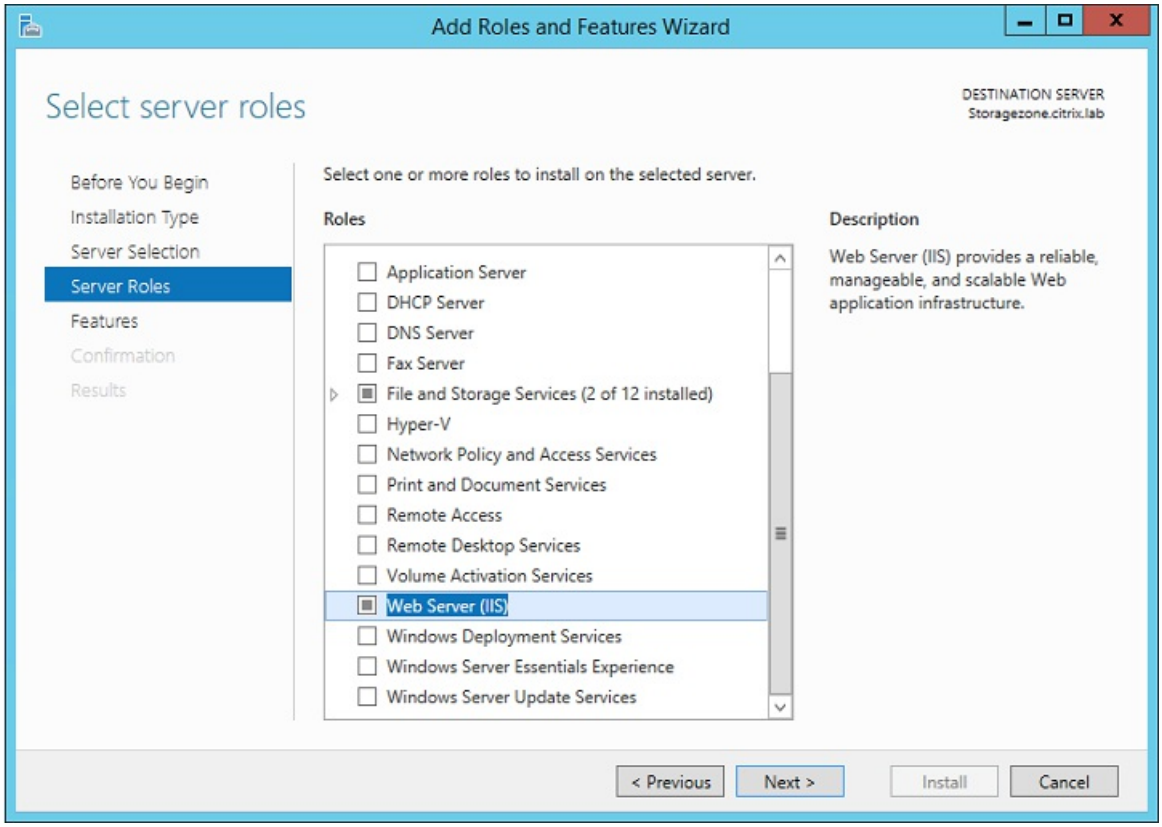
4. On the Select installation type page, click Role-based or feature-based installation and then click Next.



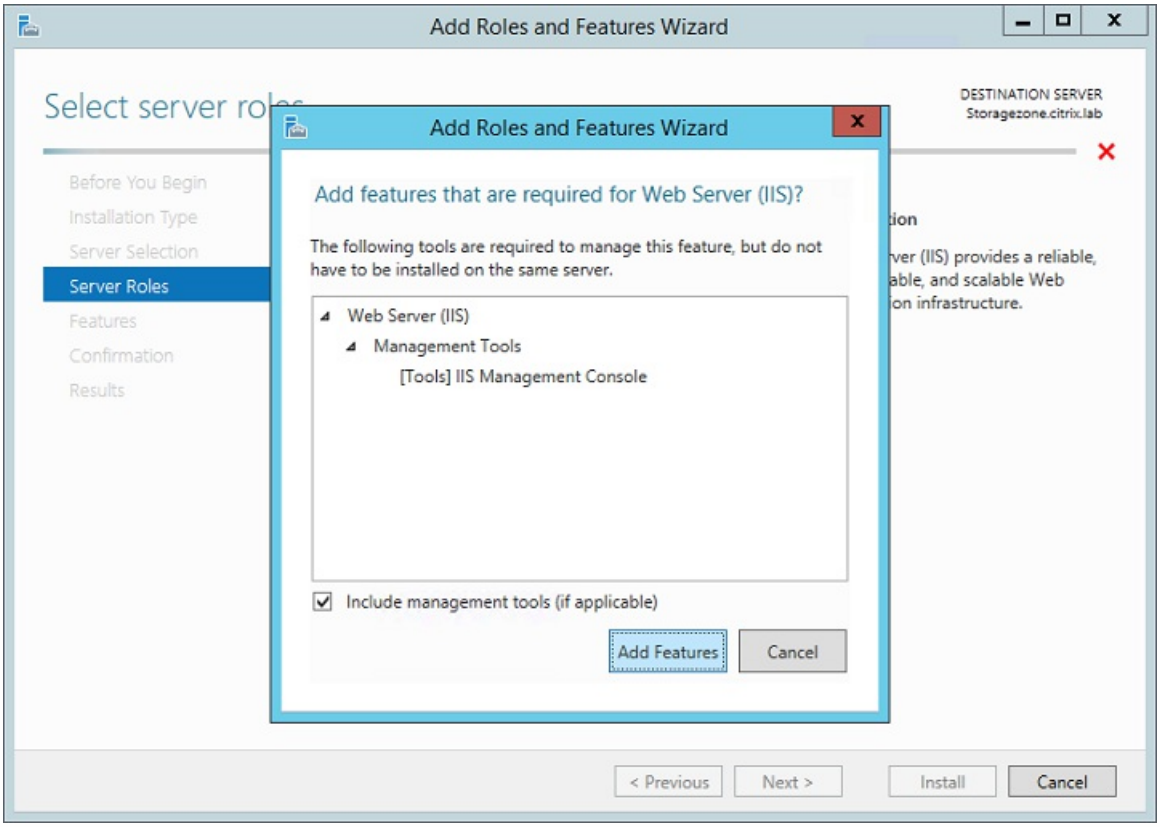
5. On the Select destination server page, choose your server from the server pool and then click Next.



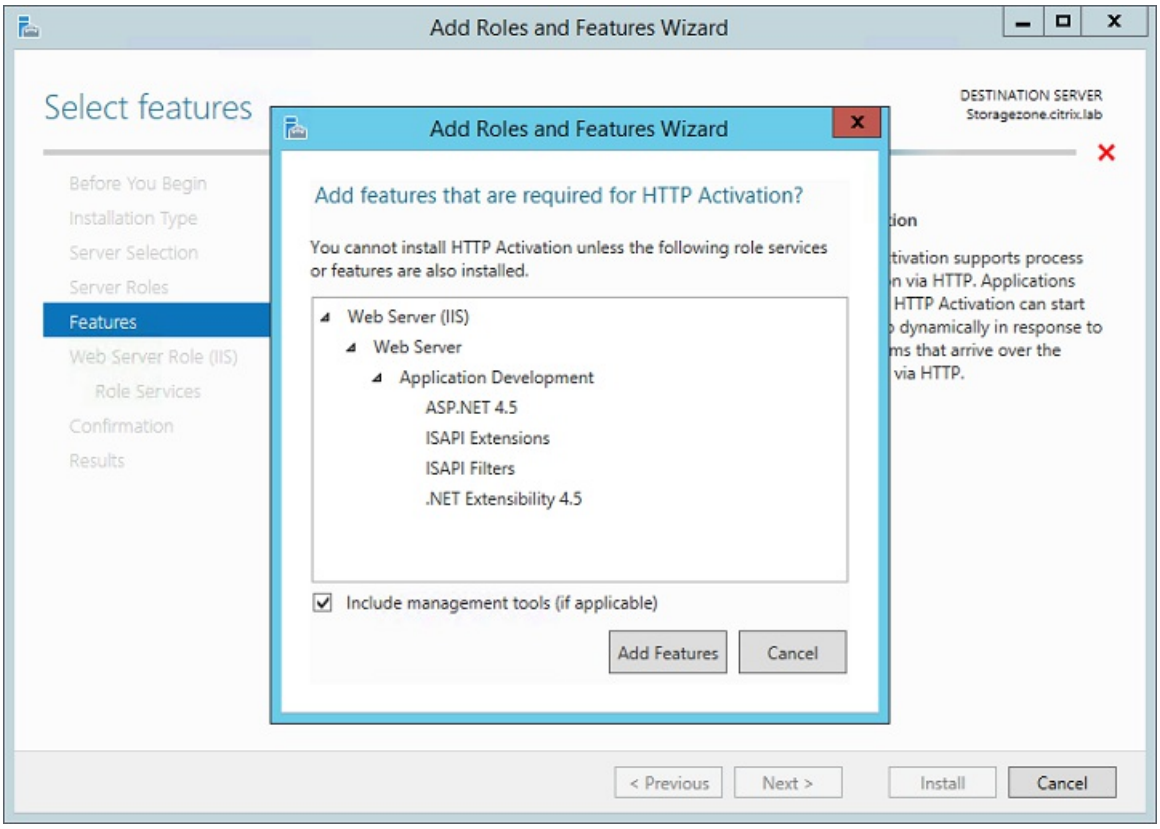
6. On the Select server roles page, select the Web Server (IIS) check box and then click Next.



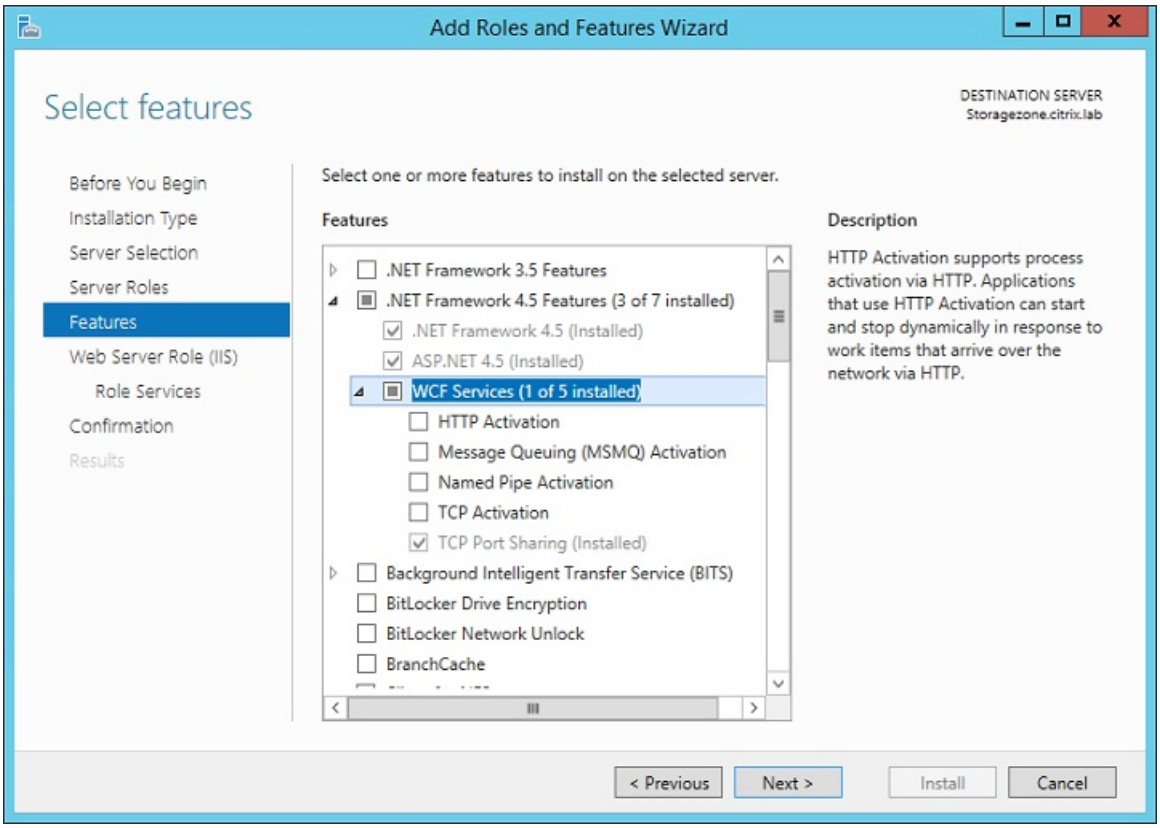
7. Click Add Features to add the features required for IIS.



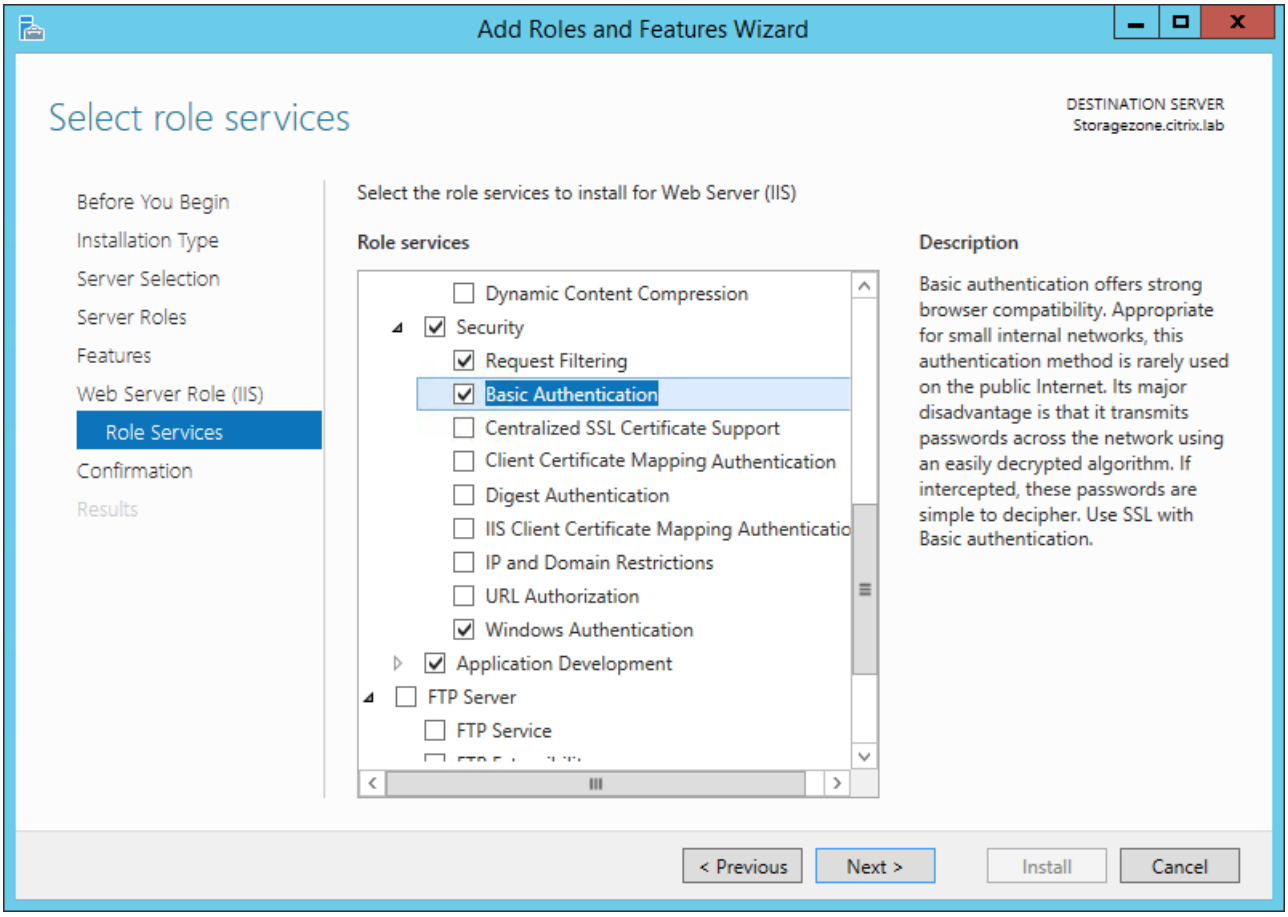
8. Click Add Features.



The Select features page appears. The required settings are shown in the following screen.



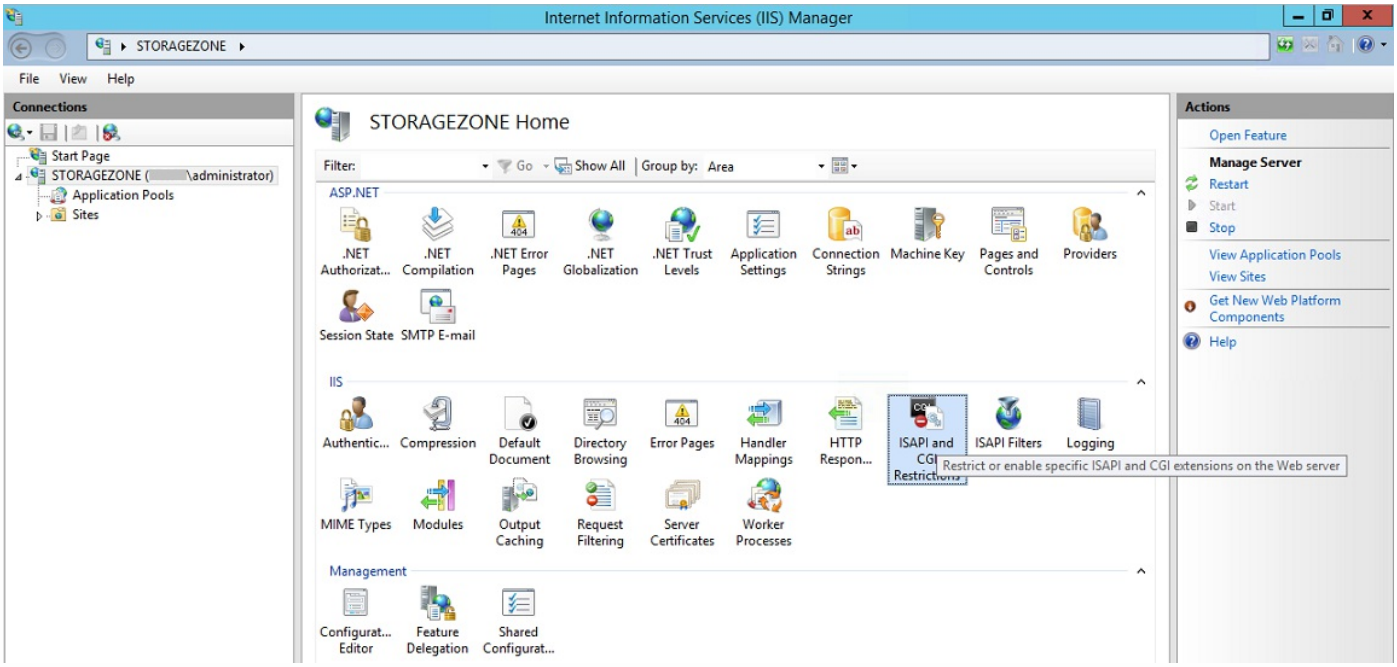
9. On the Web Server Role (IIS) page, click Next.
10. On the Select role services page, select the Basic Authentication and Windows Authentication check boxes, and then click Next.
    Windows Authentication enables Kerberos or Windows Challenge/Response (NTLM) authentication to a restricted zone. Domain-joined clients can authenticate silently when Kerberos or NTLM is used.



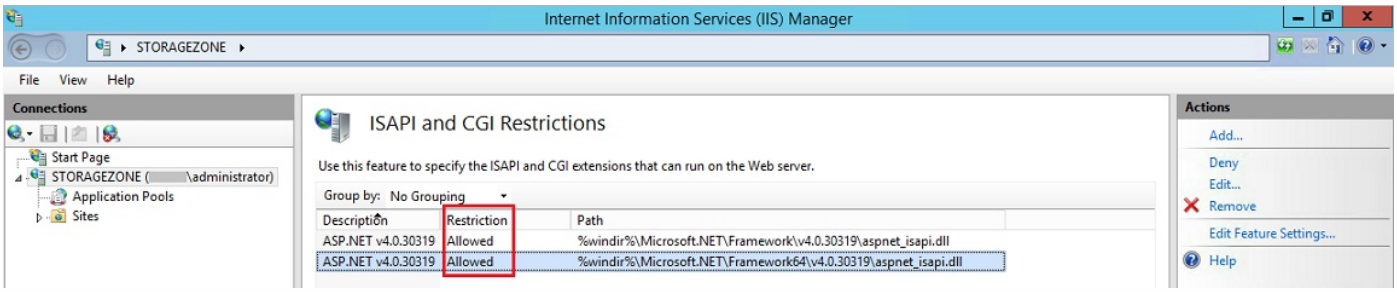
11. On the Confirm installation selections page, click Install.
12. When the installation completes, click Close and then restart the server.

After you enable the Web Server (IIS) role and the ASP.NET role service, configure IIS.

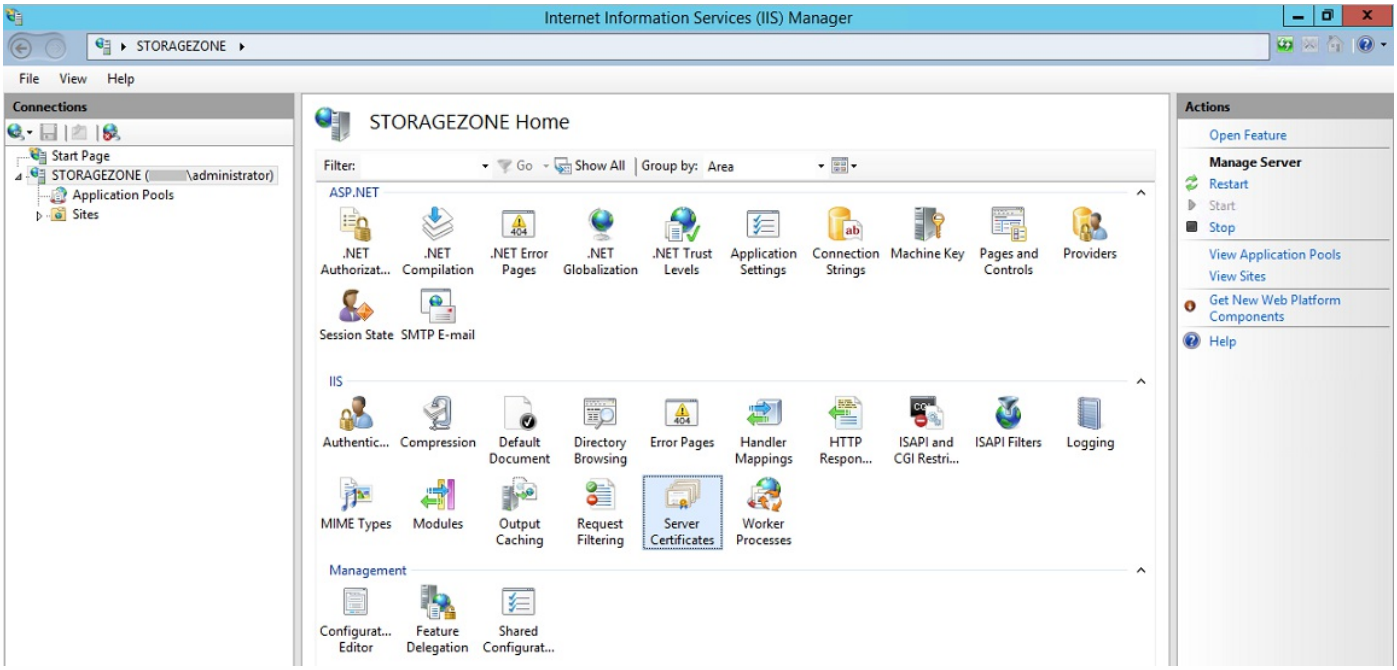
1. Open the IIS Manager console, click the StorageZone Controller server node, and then double-click ISAPI and CGI Restrictions.



2. Set each ASP.NET entry to Allowed.



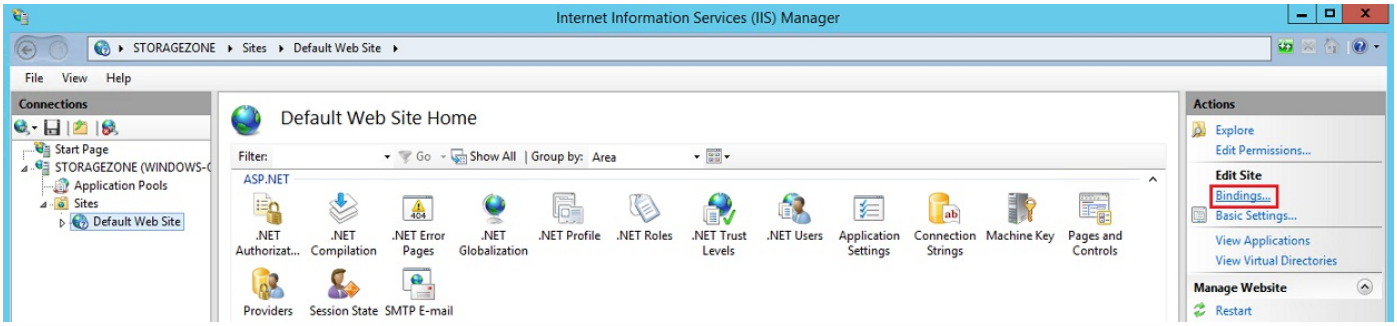
3. Verify that a domain server or public certificate is installed on the server: In the IIS Manager console, click the StorageZone Controller server node, and then double-click Server Certificates.



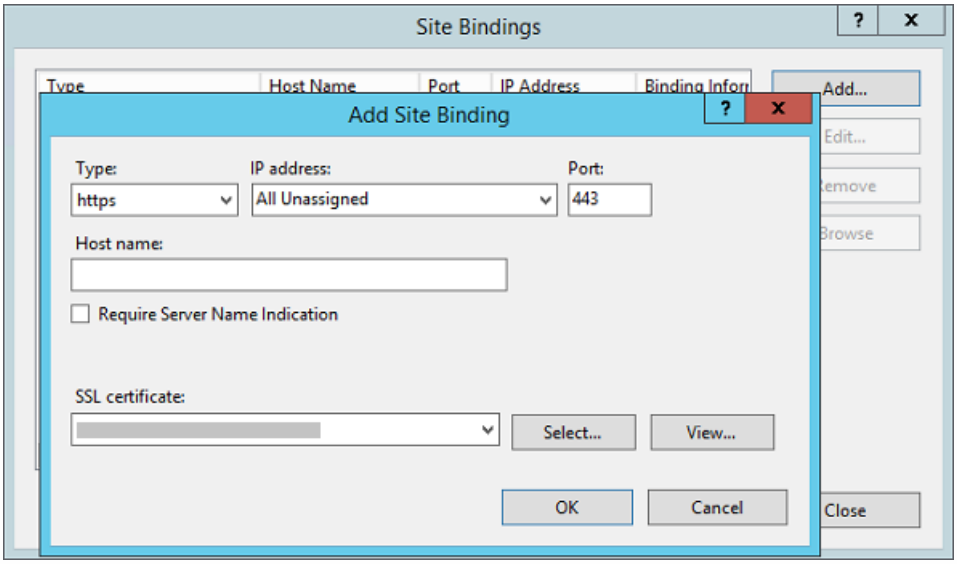
If there is no certificate associated with a public Certificate Authority, install a certificate on the server before proceeding. For more information, see Install an SSL certificate.

Note: If you are using a NetScaler Gateway or similar appliance with StorageZones Controller, you can use a domain server certificate. All Internet traffic for standard zones must be handled using a public certificate.

4. In the IIS Manager console, click Default Web Site and then click Bindings.



5. Click Add and configure the site binding as follows:
   - Type is https.
   - IP address is All Unassigned.
   - Port is 443.
   - SSL certificate is your installed certificate.



6. To test the web server connection, navigate to http://localhost/ and to https://localhost/. If the connection is successful, the IIS logo appears.
   HTTPS will display a message about the certificate not matching the localhost name in the URL header. This is expected and you can safely continue to the web site.

7. If you are installing StorageZones Controller on a VM, take a snapshot of the VM.

Install StorageZones Controller and create a StorageZone

Dec 19, 2016

Important: Verify that your environment meets the system requirements before you start the installation.
When you install a StorageZones Controller, you either create a zone and configure a primary StorageZones Controller or join secondary StorageZones Controllers to a zone.

While configuring a primary StorageZones Controller, you can enable either or both of these features:

- StorageZones for ShareFile Data, to specify private data storage, either a private network share or a supported third-party storage system.
- StorageZone Connectors, to give users access to documents on SharePoint sites or specified network file shares.

The following steps describe how to install StorageZones Controller, configure authentication for the IIS default web site, create a zone, and enable features.

1. Download and install the StorageZones Controller software:
   1. From the ShareFile download page at http://www.citrix.com/downloads/sharefile.html, log on and download the latest StorageZones Controller installer.

      Note: Installing StorageZones Controller changes the Default Web Site on the server to the installation path of the controller.

      Anonymous Authentication should be enabled on the default website.

   2. On the server where you want to install StorageZones Controller, run StorageCenter.msi.
      The ShareFile StorageZones Controller Setup wizard starts.
   3. Respond to the prompts. When installation is complete, clear the check box for Launch StorageZones Controller Configuration Page and then click Finish.
   4. Restart the StorageZones Controller.
2. To test that the installation was successful, navigate to http://localhost/. If the installation is successful, the ShareFile logo appears.
   If the ShareFile logo does not appear, clear the browser cache and try again.
3. Important: If you plan to clone the StorageZones Controller, capture the disk image before you proceed with configuring the StorageZones Controller.
4. To use an S3-compatible storage provider with ShareFile, perform the following steps before creating or configuring a StorageZone.
   1. Open Windows Registry Editor (**Run > regedit.exe**).
   2. Find the HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\StorageCenter registry key.
   3. Create a new REG_SZ value under this key:

- Value name: **S3EndpointAddress**
- Value type: **REG_SZ**
- Value data: Enter the HTTPS URL that corresponds to your S3-compatible storage endpoint.

4. If the storage provider supports only path-style container access (see http://docs.aws.amazon.com/AmazonS3/latest/dev/VirtualHosting.html), create another value under this key.
   - Value name: **S3ForcePathStyle**
   - Value type: **REG_SZ**
   - Value data: **true**
5. Restart the StorageZones Controller application pool (StorageCenterAppPool).
6. Gather the following information from your S3-compatible storage system:
   - The name of an S3 bucket to use for ShareFile dataAccess key ID
   - Access key ID
   - Secret access key
7. Continue with the following steps to create a new StorageZone and choose Amazon S3 as the persistent storage location. StorageZone Controller will use the custom endpoint address you entered instead of the actual Amazon S3 service. When configuring the S3 details, choose the bucket name you created above.

5. Navigate to the StorageZones Controller console: Open http://localhost/configservice/login.aspx or start the configuration tool from the Start screen or menu. For information about using the Start screen shortcut in Windows 8, refer to Manage StorageZones Controllers.

6. In the StorageZones Controller Logon page, enter the **email address**, **password**, and **full account URL FQDN subdomain**, such as subdomain.sharefile.com or subdomain.sharefile.eu, for your account. Click Log On.

7. To set up your primary StorageZones Controller, click Create new Zone and provide the zone information:

Option	Description
Zone	A name that appears in the ShareFile Administrator console.
Primary Zone Controller	Defaults to **http://localhost/ConfigService**. If you use SSL, change **http** to **https**. Keep in mind that ShareFile supports only valid, trusted public SSL certificates for standard zones. If you have problems configuring a secondary StorageZone host, ensure that you can resolve the ConfigService URL in a local browser on that server, with no SSL errors. **localhost** resolves to the server IP address. You can specify a server name instead (such as **https://servername.subdomain.com/ConfigService**). The server name must be resolvable by a secondary StorageZones Controller server.
Hostname	A unique identifier for your StorageZones Controller. ShareFile recommends that you use the server hostname as the identifier. This should be a friendly name and not the FQDN. This name appears in the ShareFile Administrator console.
External Address	The FQDN for this StorageZones Controller. If this StorageZones Controller will be used for standard zones, the URL must be accessible from the Internet. For use with restricted zones, you can specify an internal address instead. If you are using a load balancer, enter its address. When you submit the page, ShareFile validates the address.

Option	Description

8. To specify private data storage:
   1. Select the check box for Enable StorageZones for ShareFile Data.
   2. To configure a restricted zone, select the Create a restricted zone check box.
      To configure a standard zone, clear the check box.

      Note: After you configure a StorageZones Controller, you cannot change its zone type.
   3. If you selected Create a restricted zone and your user accounts are in a different, trusted Active Directory domain, select User accounts are in a trusted Active Directory domain and then enter the service account credentials for the Active Directory domain.
      StorageZones Controller uses the service account credentials to connect to the trusted Active Directory domain server for email address lookup.
   4. Choose a Storage Repository.
      For information about the storage repository settings and additional configuration required for restricted zones, see Configure StorageZones for ShareFile Data, in this section.

9. If you do not want to enable StorageZone Connectors:
   1. Click Register to register StorageZones Controller with ShareFile.
   2. Continue with Step 10.

10. If you are using S3-compatible storage, create these additional registry entries after the StorageZone registers:
    1. Open Windows Registry Editor (**Run > regedit.exe**).
    2. Find the HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\StorageZone\CloudStorageUploaderConfig registry key.
    3. Create a new REG_SZ value under this key:
       - Value name: **S3EndpointAddress**
       - Value type: **REG_SZ**
       - Value data: Enter the HTTPS URL that corresponds to your S3-compatible storage endpoint.
    4. If the storage provider supports only path-style container access (see http://docs.aws.amazon.com/AmazonS3/latest/dev/VirtualHosting.html), create another value under this key.
       - Value name: **S3ForcePathStyle**
       - Value type: **REG_SZ**
       - Value data: **true**
    5. Restart the StorageZones Controller application pool (StorageCenterAppPool).

11. To enable StorageZone Connectors:
    1. Select the check box for each connector type you want to use: Enable StorageZone Connector for Network File Shares and Enable StorageZone Connector for SharePoint.
       For information about the connector settings, see Configure StorageZone Connectors, in this section.
    2. Click Register. Your StorageZones Controller information appears.
    3. If you specified Allowed Paths or Denied Paths for StorageZone Connectors, restart the IIS server.

    Enabling the Connectors creates the IIS apps "cifs" (Connector for Network File Shares) and "sp" (Connector for SharePoint).

12. To configure secondary StorageZones Controllers, refer to Manage StorageZones Controllers.

13. **If creating a Restricted Zone using an internal-signed SSL certificate**, add the following key to the **C:\inetpub\wwwroot\Citrix\StorageCenter\ProxyService\AppSettingsRelease.config** file:
<add key="enable-zone-user-check" value="0"/>

    Once this is done, navigate into IIS and select the Application Pools. Recycle the StorageCenterAppPool for the above change to take effect.

    Also, if creating CIFS Connectors for the Restricted Zone, click on the CIFS webpage under the Default website. Select Authentication, right-click on Basic Authentication and select the Edit option. Enter the Active Directory domain containing the users who will authenticate to the CIFS share under the Default Domain option.

Important: A StorageZones Controller is installed on your local site and you are responsible for backing it up. To protect your deployment, you should take a snapshot of the StorageZones Controller server, back up the StorageZones Controller configuration, and prepare StorageZones Controller for disaster recovery.

Note: StorageZones for ShareFile Data is available for XenMobile Enterprise Edition and is not available for other XenMobile editions.
You can configure StorageZones for ShareFile Data from the StorageZones Controller wizard when you create a StorageZone or from the StorageZones Controller console. Use the ShareFile Data tab to configure settings for private network shares or supported third-party storage systems.

For restricted StorageZones, you must also configure your local SMTP server settings because email notifications are sent from your local SMTP server instead of from ShareFile.

Network share settings

Option	Description
Storage Repository	Choose Local network share. After you create the zone, you cannot change the Storage Repository option. For example, to switch from a local network share to third-party storage, you must create a new zone.
Network Share Location	The UNC path to the network share you will use for private data storage and for data such as encryption keys, queued files, and other temporary items. Specify the path in the form \\server\share. StorageZones Controllers belonging to the same StorageZone must use the same file share for storage. Caution: StorageZones Controller will overwrite any data in this path with a proprietary storage format. Never specify a path to a location with file data. Reserve this storage location for StorageZones for ShareFile Data only. StorageZones Controllers access the Network Share using the Network Share username/password supplied on the config page. If no Network Share username/password is supplied on the config page, then the Network Service account will be used by default. **The**

Option	Description
	Network Service account must have full access to this storage location. StorageZones Controller will also use the Network Service account by default fo the StorageCenterAppPool. It is important to note that the only supported configuration is to use the Network Service account.
Network Share Username and Network Share Password	The credentials for the UNC path of your network share location. To use a named user account instead of the Network Service account to access the share, specify those credentials. You can continue to run the IIS application pool and the Citrix ShareFile Services using the Network Service account.
Enable Encryption	Select the check box only if you want to encrypt the file content stored on your file share. In an enterprise environment where the network share is inside your network and already secured by third-party tools, we recommend that you do not encrypt the files on the share. This setting does not relate to metadata. Metadata is not encrypted for standard zones. StorageZones Controller always encrypts metadata for restricted zones. Although this additional security is offered as an option for maximum security when required, encrypting files on the share will make the disk unreadable by third-party tools such as antivirus scanners and filer tools, including data deduplication tools. ShareFile uses a file encryption key to confirm the validity of download requests and encrypt the storage.
Passphrase	A phrase used to protect your file encryption key. Be sure to archive the passphrase and encryption key in a secure location. You must use the same passphrase for each StorageZones Controller in a zone. The passphrase is not the same as your account password and cannot be recovered if lost. If you lose the passphrase, you cannot reinstall StorageZones, join additional StorageZones Controllers to the StorageZone, or recover the StorageZone if the server fails. Note: The encryption key appears in the root of the shared storage path. Losing the encryption key file, SCKeys.txt, immediately breaks access to all StorageZone files. Be sure to back up the encryption key file as part of your normal datacenter procedures.

Shared Cache Configuration settings

Option	Description
Shared cache location	The path to a network share that will contain your storage cache and data such as encryption keys, queued files, and other temporary items. Specify the path in the form \\server\share. StorageZones Controllers belonging to the same StorageZone must use the same file share for storage. Caution: StorageZones Controller will overwrite any data in this path with a proprietary storage format. Never specify a path to a location with file data. Reserve this storage location for StorageZones for ShareFile Data only. The Network Service account (or the account the Citrix ShareFile Management Service is configured to run as) must have full access to this storage location.

Option	Description
Shared cache Logon and Shared cache Password	The credentials for the UNC path of your shared cache location.
Enable Encryption	Select the check box to encrypt the files stored in your shared cache.

Windows Azure storage container settings

Option	Description
Storage Repository	Choose Azure storage container. After you create the zone, you cannot change the Storage Repository option. For example, to switch from a local network share to Azure-based storage, you must create a new zone.
Account Name	The name of your Azure storage account. These names are always lower case.
Access Key	The primary or secondary access key for your Azure storage. Copy the key from the Manage Access Keys screen of the Windows Azure Management Portal.
Validate	Click the button to validate the Azure access key. You cannot proceed with configuration until the validation is completed and the Container Name drop-down menu includes all available containers for the specified account.
Container Name	Select the Azure container to use for all StorageZones Controllers in this StorageZone. This list is empty until your Azure access key is validated.

Amazon S3 storage bucket settings

Option	Description
Storage Repository	Choose Amazon S3 storage bucket. After you create the zone, you cannot change the Storage Repository option. For example, to switch from a local network share to Amazon S3 storage, you must create a new zone.
Access Key Id	The access key ID for your Amazon S3 storage.
Secret Access Key	The secret access key for your Amazon S3 storage.
Validate	Click the button to validate the Amazon S3 secret access key. You cannot proceed with configuration until the validation is completed and the Bucket Name drop-down menu includes all available buckets for the specified account.
Bucket Name	Select the Amazon S3 bucket to use for all StorageZones Controllers in this StorageZone. This list is empty until your Amazon S3 secret access key is validated.

SMTP settings

Option	Description
SMTP server address and SMTP port number	Your local SMTP server hostname and port.
Use SSL	Select the check box to connect to the SMTP server over a secure connection.
Username and Password	The username and password for your local SMTP server.
Authentication mode	The Default authentication mode uses the most secure method available to connect from StorageZones Controller to the SMTP server.
Sender address	The email address that appears in the From field.

StorageZone Connectors give users access to documents on SharePoint sites or specified network file shares. You do not have to enable StorageZones for ShareFile Data to use StorageZone Connectors.

Note: StorageZones for ShareFile Data and the StorageZones Connectors features can share a zone. However, StorageZones Controller keeps the data and access rules for the two data types separate.
You can configure StorageZone Connectors when you create a zone using the StorageZones Controller wizard or from the StorageZones Controller console.

To control access to particular network file shares or SharePoint document libraries, specify a list of Allowed Paths and/or Denied Paths. After you save your changes, restart the IIS server.

In-bound connections to StorageZone Connectors are first checked against the allowed paths. If the connection is allowed, the path is then checked against the denied paths. For example, to provide access to \\myserver\teamshare and all of its subfolders except for \\myserver\teamshare\restricted, specify an allowed path of \\myserver\teamshare and a denied path of \\myserver\teamshare\restricted.

- All connections are allowed by default, indicated by an Allowed Paths value of *. The value * is not valid for Denied Paths.
- If the allowed and denied paths conflict with each other, the most restrictive path is enforced.
- Entries are comma-separated.
- For connectors to network file shares, specify the allowed UNC paths.
  Example with FQDN: \\fileserver.acme.com\shared

  You can use the following variables in the UNC path:

  - %UserName%
    Redirects to a user's home directory. Example path: \\myserver\homedirs\%UserName%

  - %HomeDrive%

Redirects to a user's home folder path, as defined in the Active Directory property Home-Directory. Example path: %HomeDrive%

- %TSHomeDrive%
  Redirects to a user's Terminal Services home directory, as defined in the Active Directory property ms-TS-Home-Directory. The location is used when a user logs on to Windows from a terminal server or Citrix XenApp server. Example path: %TSHomeDrive%

  In the Active Directory Users and Computers snap-in, the ms-TS-Home-Directory value is accessible on the Remote Desktop Services Profile tab when editing a user object.

- %UserDomain%

  Redirects to the NetBIOS domain name of the authenticated user. For example, if the authenticated user logon name is "abc\johnd", the variable is substituted with "abc". Example path: \\myserver\%UserDomain%_%UserName%

The variables are not case sensitive.

- For a connector to a root-level SharePoint site, specify the root-level path.
  Example: https://sharepoint.company.com
- For a connector to a SharePoint site collection:
  Example: https://sharepoint.company.com/site/SiteCollection
- For connectors to SharePoint 2010 document libraries, specify the URLs (not including path terminators, such as file.aspx or /Forms).
  Examples:
  - https://mycompany.com/sharepoint/
  - https://mycompany.com/sharepoint/sales-team/Shared Documents/
  - https://mycompany.com/sharepoint/sales-team/Shared Documents/Forms/AllItems.aspx

  The default SharePoint 2013 URL (when Minimal Download Strategy is enabled) is in the form: https://sharepoint.company.com/_layouts/15/start.aspx#/Shared%20Documents/.

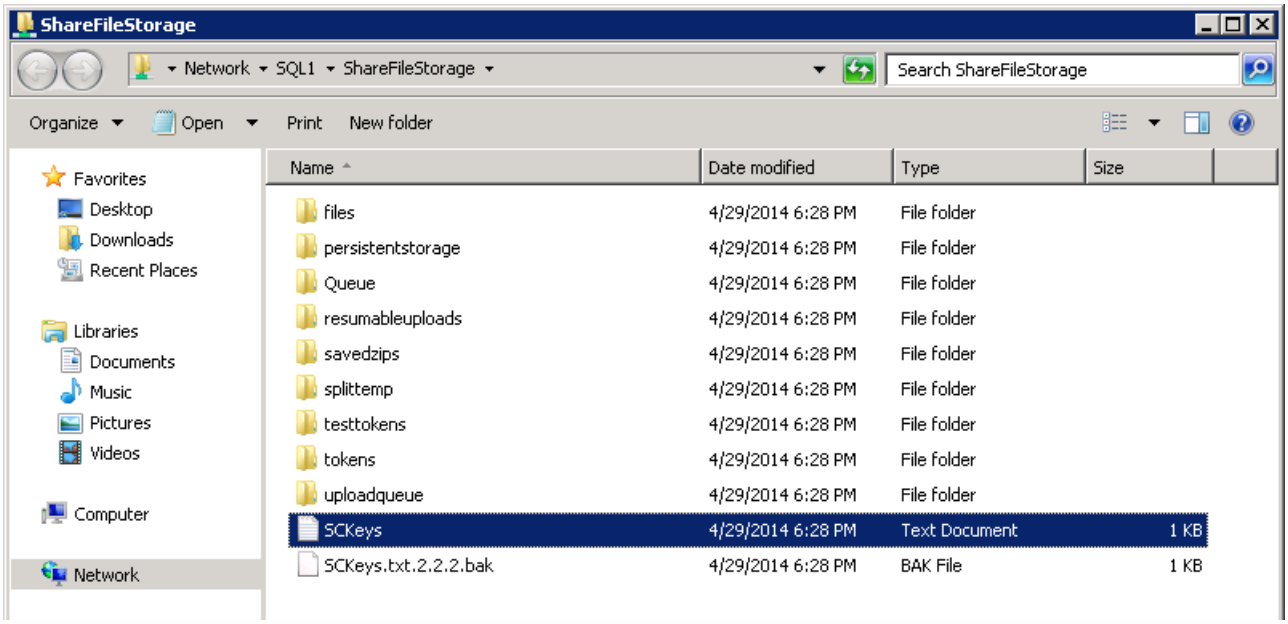
Verify your StorageZones Controller setup

Apr 25, 2016

Verify that a StorageZones Controller registered with ShareFile and then check for other configuration issues before you continue.

1. In the StorageZones Controller console, click the Monitoring tab.
2. Verify that Heartbeat Status has a green checkmark.
   A red icon indicates that ShareFile.com is not receiving the heartbeat messages. In that case, verify network connectivity from your StorageZones Controller to www.ShareFile.com and from an outside PC to the URL of your StorageZones Controller. For standard zones, StorageZones Controller must be accessible on port 443 with a valid, trusted public SSL certificate.

   After an upgrade, the Sharefile Connectivity from File Cleanup Services status might temporarily show a red icon. This occurs if Windows starts that service before StorageZones Controller establishes a network connection. The status will return to a green icon after the controller server is back on the network.
3. Check connectivity to your private zone: Navigate to the external URL (in the form of https://server.subdomain.com) of your private zone.
   If Internet traffic is allowed to pass to and from a StorageZones Controller, you will see the ShareFile logo. If StorageZones Controller is not configured correctly, you might see an IIS logo or a NetScaler logon screen. Make sure that inbound and outbound HTTPS traffic is allowed over port 443. If your external URL points to NetScaler, look for hits on the content switching and load balancing virtual server for data. For more information, see "StorageZones Controller does not upload data to ShareFile" in Troubleshoot installation and configuration.
4. Verify that the network share you created for private data storage has a folder structure and a few files created by StorageZones Controller, including SCKeys.txt, which must reside in the root folder of the shared storage.



SCKeys.txt is created when StorageZones Controller is installed, provided there are no credential or access rights issues. If SCKeys.txt is not present, verify the access control lists on your file share and then reinstall StorageZones Controller.

5. Check the status of StorageZone Connectors from the ShareFile interface:
   1. Log on to your ShareFile Enterprise account, navigate to Admin > Storage Zones, and verify that the Health column includes a green check mark.
   2. Click the site name and verify that the Heartbeat message indicates that the StorageZones Controller is responding.
6. Test a file upload: Log on to the ShareFile web interface, create a shared folder assigned to the zone you just configured, upload a file to that folder, and then verify that the file appears in the folder.

Change the default zone for user accounts

Apr 25, 2016

By default, existing and newly provisioned user accounts use the ShareFile-managed cloud storage as the default zone. Change the default zone as follows:

- To specify the default zone for user accounts provisioned from AD, open the User Management Tool and click the options icon.
- To select a zone for root-level folders, open the ShareFile administrator console and go to Manage Users. (Requires membership in the super user group.)
- To change the default zone for an individual user, open the ShareFile administrator console and go to Manage Users. (Requires membership in the super user group.) You can also create and manage zone permissions on the Manage Users page.

Specify a proxy server for StorageZones

Apr 25, 2016

The StorageZones Controllers console enables you to specify a proxy server for StorageZones Controllers. You can also specify a proxy server using other methods.

Primary and secondary StorageZones Controllers communicate with each other using HTTP. If all HTTP traffic is configured to go through an outbound proxy server that does not support connections back to an internal server, you must configure both the primary and secondary StorageZones Controllers to bypass the proxy server so they can communicate with each other, as described in the following steps.

Important: The bypass list settings appear only for the latest StorageZones Controller release. If you are using StorageZones Controller 2.2 through 2.2.2, you must manually add a bypass list to Web.config for each secondary server, as described in Web.config.

1. In the StorageZones Controller console (http://localhost/configservice/login.aspx), click the Networking tab.
2. Select the Enable Proxy check box and enter the proxy server Address and Port.
3. Select an Authentication Mode and specify your Windows account designated for ShareFile proxy access.
4. If your site proxies all outbound HTTP traffic and a zone has multiple StorageZones Controllers, configure bypass settings:
   - If all StorageZones Controller traffic is on the same subnet, select the Bypass proxy... check box so the controllers can communicate with each other.
   - If the StorageZones Controllers are on different subnets, enter the primary StorageZones Controller hostname or IP address in Bypass Address.
5. Restart the IIS server of all zone members.

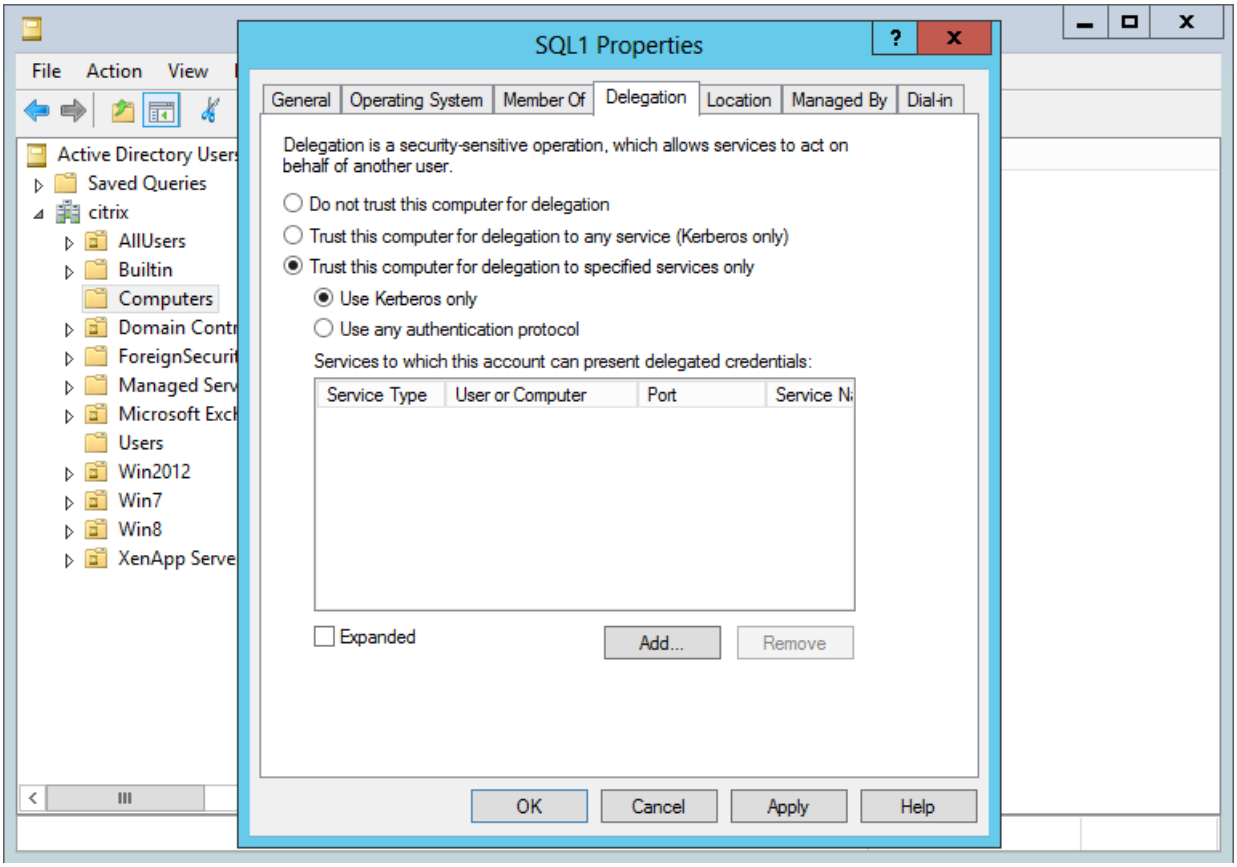
Configure the domain controller to trust the StorageZones Controller for delegation

Apr 25, 2016

Note: This section applies only to StorageZone Connectors.

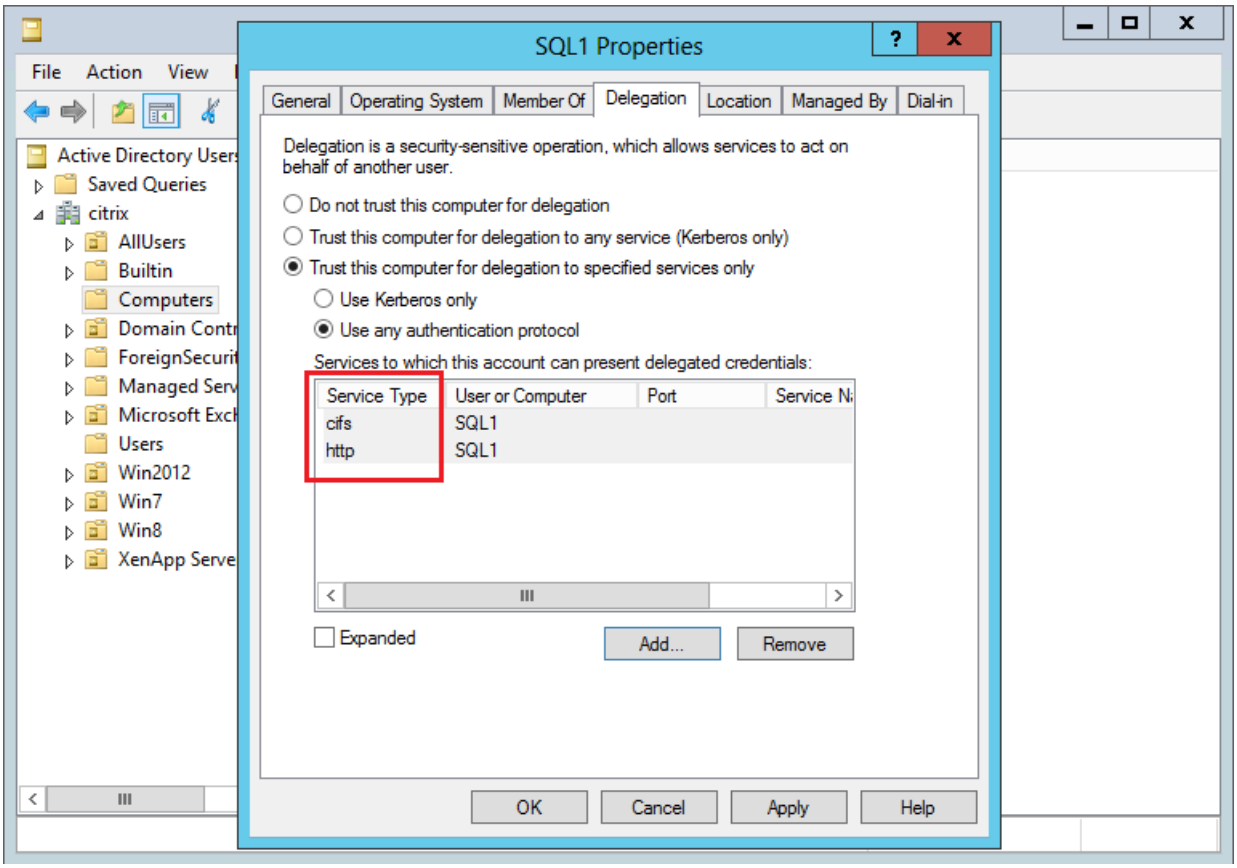
To support NTLM or Kerberos authentication on network shares or SharePoint sites, configure the domain controller, as follows.

1. On the domain controller for the StorageZones domain, click Start > Administrative Tools > Active Directory Users and Computers.
2. Expand domain, and expand the Computers folder.
3. In the right pane, right-click the StorageZones Controller name, select Properties, and then click the Delegation tab.
4. For Kerberos, select Trust this computer for delegation to specified services only.



5. For NTLM:
   1. Select Trust this computer for delegation to specified services only and Use any authentication protocol. Click OK.
   2. Click the Add button. In the Add Services dialog box, click Users or Computers and then browse to or type the hostname for the network share or SharePoint server. Click OK.
      If you have multiple file servers or SharePoint servers, add a service for each.
   3. In the Available Services list, select the services used: cifs (for Connector for Network File Shares) and http (for

Connector for SharePoint). Click OK.



Configure StorageZones Controller for Web App Previews, Thumbnails and View-Only Sharing

May 01, 2017

On-premise file previews are rendered by your on-premise Microsoft Office Web Apps (OWA) Server. When previewing files stored on a Citrix-managed StorageZone, previews will be rendered by Citrix-managed or Microsoft-managed OWA servers.

Supported Filetypes for On-Prem File Preview

- doc, .docm, .docx, .dot, .dotm, .dotx, .odt
- .ods, .xls, .xlsb, .xlsm, .xlsx
- .odp, .pot, .potm, .potx, .pps, .ppsm, .ppsx, .ppt, .pptm, .pptx
- .pdf
- Image Files (bmp, gif, jpg, jpeg, png, tif, tiff)

Supported File Types for On-Prem File Edit

- .docm, .docx, .odt
- .ods, .xlsb, .xlsm, .xlsx
- .odp, .ppsx, .pptx

Supported Environments

- Standard Zones
- Multi-tenant Zones
- Web Application

Server Compatibility

Microsoft Server 2016 supports the ability to both edit and preview files. Editing can also be disabled. Click here for more information.

Microsoft Server 2013 only supports the ability to preview files. Click here for more information.

Enable

To support in-browser document and image preview, thumbnails, View-Only sharing of data stored in customer-managed StorageZones, and on-prem file editing, configure the StorageZones controller as follows:

1. In the StorageZones Controller console, click the ShareFile Data tab.
2. In the Local Network Share Configuration section, enable Configure office web apps previews.
3. Enter the external URL of your Microsoft Office Web Apps (OWA) server.

1. Users must download and configure the OWA server software via their Microsoft Office MSDN subscription.

4. Select Enable Office Online Editing (if needed)

5. Verify that the OWA URL is externally accessible.

6. In the StorageZones Controller Console, click the Monitoring tab.

7. Verify that OWA Server Connectivity has a green checkmark.

Note: Editing on-prem files will require File Versioning to be enabled for the ShareFile account. If File Versioning is disabled for the account, On-Prem Editing will not work.

Configure Clock Synchronization

- Verify that the Time on your StorageZones Controller is synced with time.windows.com or another NTP server. Click here for information on configuring clock synchronization.

The following Zone types do not support in-browser previewing:

- Restricted StorageZones
- Connectors

The following Zone types do not support in-browser editing:

- Restricted StorageZones
- Mobile Apps

WOPI Previews are not supported for VDR accounts.

For information on how to configure your NetScaler for View-Only Sharing, see Configure NetScaler for StorageZones Controller.

If you are experiencing issues previewing or editing on-prem files, the following steps will assist in the identification and correction of specific problems.

Troubleshooting

To troubleshoot your configuration, first sign into the OWA or OOS machine.

1. Verify that the Office WebApps or OfficeOnline Windows services are running within services.msc.

2. In a new browser, open the http://localhost/hosting/discovery page. If this page successfully loads, an XML response

should be returned.

3. Run Powershell as an Administrator and execute the following command:

```
Get-OfficeWebAppsFarm
```

If you receive a WARNING or ERROR message in the response, please review your configuration settings for any errors or mistakes.

Configure Multi-Tenant StorageZones

Apr 17, 2017

A multi-tenant StorageZone is a ShareFile StorageZones Controller feature that enables Citrix Service Providers (CSPs) to create and manage a single StorageZone shared by all tenants.

If you are a CSP with a partner account provisioned by ShareFile, you can host on your subdomain, one multi-tenant standard StorageZone that supports an unlimited number of tenants. Using a multi-tenant zone enables you to:

- Provide each tenant with a unique ShareFile account and leverage all the great ShareFile features such as custom branding, file retention preferences, and security settings.
- Maintain a single storage repository for all of your tenants.
- Onboard new customers faster and reduce the cost and management complexity of creating a separate StorageZone for each customer account.
- Use the ShareFile Tenant Management dashboard to centralize tracking and reporting of resources consumed by each tenant.

Glossary

Partner account - A partner account, shown as partner.sharefile.com in the diagram above, is the ShareFile subdomain owned and operated by you, a CSP responsible for providing the ShareFile service to your customers. ShareFile provisions a partner account when you order a stocking SKU that entitles you to resell ShareFile (ShareFile Enterprise, XenMobile Enterprise, or Citrix Workspace Suite). The partner account becomes the holding account that hosts the multi-tenant StorageZone. You use the partner account to manage all of your tenants.

Tenant account - A tenant account is a unique ShareFile subdomain provided to each of your customers, represented by customer1.sharefile.com, customer2.sharefile.com, customer3.sharefile.com in the diagram above.

Multi-tenant StorageZone - A multi-tenant StorageZone provides a single zone shared by your tenants, with a central file storage location for all tenants and consolidated tracking and reporting.

Set Up a Multi-Tenant StorageZone

1. Create a partner account

You must have a partner account before you can register a multi-tenant StorageZone.

To create a partner account, you must register with the CSP program and order a stocking SKU that entitles you to offer ShareFile as a service. To apply to the CSP program, go to https://www.citrix.com/partner-programs/service-provider.html.

If you are already registered as a CSP and have a ShareFile account, please contact ShareFile support to convert your account to a partner account.

When you request a tenant account, you must also specify a CSP admin user. Please do not reuse the admin user email address, as **a user with this email address cannot exist on the tenant account. In that scenario, you will be unable to adequately manage the tenant storagezone.**

Citrix then creates a new user in each tenant account that you request. To simplify management of the tenant accounts, we recommend that you create a generic service account email address that is a user in your ShareFile account. For example, create management@domain.com, where "domain" is your company domain. Ensure that the service account has the Manage Tenants permission. You can then use management@domain.com rather than a different user for each tenant

account.

2. Install and setup a multi-tenant StorageZone

Create a new multi-tenant StorageZone and associate it with your partner account, as follows.

a. Download StorageZones Controller 4.0 or later from https://www.citrix.com/downloads/sharefile/product-software. For server, zone, and other requirements, see System Requirements.

b. Install StorageZones Controller in multi-tenant mode: Open a command prompt with elevated privileges (that is, right-click **cmd** and choose **Run As administrator**) and then type the following command: **msiexec /i StorageCenter_4.3.0.4299.msi MULTITENANT=1**

Configure the new StorageZone and associate it with your partner account:

- Log into your partner account where you want to register the new zone.
- ^ **Important:** This account must have the following ShareFile permissions: **Manage Tenants** and **Create and Manage Zones**.
- Specify the zone name, hostname, and the external address of your StorageZone Controller.
- Enable StorageZones for ShareFile Data and specify your network share location and access credentials. You can use a network file share or S3-based object storage with a multi-tenant zone. For detailed instructions on how to set up a ShareFile StorageZone, see Install. Note: Multi-tenant zones currently are not compatible with restricted zones and Data Loss Protection integration.
- Specify a passphrase for your zone and click Register.

You can repeat the installation for any secondary StorageZones Controller servers to join the zone.

You can now log in to your partner account and see the new multi-tenant zone linked to your partner account.

3. Request Tenant Accounts for the multi-tenant zone

To request tenant accounts, please fill out the form ShareFile End Customer Account Request.

To ensure the quickest turnaround, ensure that you provide the correct Org ID and the multi-tenant zone name that you want to use as the StorageZone for the tenant account. Be sure to enter in the partner admin field the service account email address that you created in Step 1.

You will receive an email after Citrix provisions the requested accounts. The email will include details on the tenant subdomain and an activation link to set up access. ShareFile will send you and your customers' administrative users separate emails.

Your customers can then begin using ShareFile. Any new users provisioned to a tenant's account will use the multi-tenant zone you specified as the default location for the user's files.

Manage Tenants

Your ShareFile console on the partner subdomain includes a Tenant Management page. This centralized dashboard enables you to check status on all the tenants linked to your partner account in the multi-tenant StorageZone. The dashboard includes the license consumption, default StorageZone, and storage consumption for each tenant.

Note: The dashboard is only available to users in your partner account that have the Manage Tenants admin role enabled.

Multi-Tenant Limitations

- A multi-tenant zone must be a standard, not a restricted, StorageZone.
- You cannot integrate Data Loss Protection with a multi-tenant zone.
- Connector Sharing is not supported for files stored in an MT zone.
- ICAP Antivirus is not supported for MT zones.
- Microsoft Office and PDF previews are not supported for files store din an MT zone.

Troubleshooting

Failed to Create Zone: Forbidden

Upon storagezone registration, if you receive the following error: "Failed to create zone: forbidden", check the Admin Privileges of your service account. Specifically, verify the service account has the the **manage tenant** privilege.

Manage StorageZones Controllers

Apr 25, 2016

After you install your primary and any secondary StorageZones Controllers, use the following procedures to manage the controllers and prepare them for disaster recovery.

- Join a secondary StorageZones Controller to a StorageZone
- Change the address or passphrase of a primary StorageZones Controller
- Demote and promote StorageZones Controllers
- Disable, delete, or redeploy a StorageZones Controller
- Transfer files to a new network share
- Back up a primary StorageZones Controller configuration
- Recover a primary StorageZones Controller configuration
- Replace a primary StorageZones Controller
- Prepare StorageZones Controller for file recovery
- Recover files and folders from your ShareFile Data backup
- Reconcile the ShareFile cloud with a StorageZone
- Configure antivirus scans of uploaded files

To open the StorageZones Controller console, go to http://localhost/configservice/login.aspx or start the configuration tool from the Start menu.

Note: **Windows 8 users**. If the message "This app can't open" appears when you select the StorageZones Controller configuration icon in the Windows 8 Metro interface on Windows Server 2012 R2, the built-in administrator account might not have the correct permissions. To open the configuration console, use any of these methods:

- Start the configuration tool from your browser.
- Log on as a custom local administrator.
- Log on as a domain user administrator.
- Change the built-in administrator account as follows: In Local Policies/Security Options, enable "User Account Control: Admin Approval Mode for the Built-in Administrator account" and then restart your computer.

Join a secondary StorageZones Controller to a StorageZone

Sep 13, 2016

To configure a StorageZone for high availability, connect at least two StorageZones Controllers to it. To do that, you must:

1. Install a primary StorageZones Controller and create a zone (as described in Install StorageZones Controller and create a StorageZone).
2. Install StorageZones Controller on a second server and join that controller to the same zone.

StorageZones Controllers belonging to the same zone must use the same file share for storage.

In a high availability deployment the secondary servers are independent, fully functioning StorageZones Controllers. The StorageZones control subsystem randomly chooses a StorageZones Controller to handle operation requests, including upload, download, copy, and delete operations.

If the primary server goes offline, you can easily promote a secondary server to primary. You can also demote a server from primary to secondary.

1. Open a Web browser on the server to be a secondary StorageZones Controller, open http://localhost/configservice/login.aspx and log on.
2. Click Join existing Zone and select the StorageZone.
3. Enter the requested information and then click Register.
   For Primary Zone Controller, you can enter just the hostname or IP address, and ShareFile will fill in the full URL. To test a URL, enter it into the browser's address field. If the URL is correct, a ShareFile banner page appears. For standard zones: If the URL is incorrect and you specified https, verify that you are using valid, trusted public SSL certificates.
4. If you are using a proxy server for the primary StorageZones Controller, specify the proxy server for the secondary controller, as described in Specify a proxy server for StorageZones.
5. Restart the IIS server of all zone members.
   A secondary StorageZones Controller inherits the configuration of the primary controller during startup.

Change the address or passphrase of a primary StorageZones Controller

Apr 25, 2016

You can change the external address of a primary StorageZones Controller by using this procedure or other server management tools.

1. In the ShareFile web interface, click Admin and then click StorageZones.
2. Click the zone name and then click the primary StorageZones Controller hostname.
3. Specify the new External Address or Local Address and then click Save Changes.
4. Restart the IIS server of all zone members.

1. Open the StorageZones Configuration page: http://localhost/configservice/login.aspx.
2. Click Modify.
3. Specify a Passphrase to be used to protect your file encryption key. Be sure to archive the passphrase and encryption key in a secure location.
   The passphrase is not the same as your account password and cannot be recovered if lost. If you lose the passphrase, you cannot reinstall StorageZones, join additional StorageZones Controllers to the StorageZone, or recover the StorageZone if the server fails.

   Note: The encryption key appears in the root of the shared storage path. Losing the encryption key file immediately breaks access to all StorageZone files.
4. If you changed the passphrase on the primary server: Log on to the StorageZones Configuration page for each of the other members and enter the passphrase when prompted.
   You must use the same passphrase for each StorageZones Controller in a zone.
5. Restart the IIS server of all zone members.

Demote and promote StorageZones Controllers

Apr 25, 2016

In a high availability deployment the secondary servers are independent, fully functioning StorageZones Controllers. To maintain or replace a primary StorageZones Controller, demote it first and then promote a secondary controller. If the primary server goes offline, you can promote a secondary server to primary.

Caution: Editing the registry incorrectly can cause serious problems that may require you to reinstall your operating system. Citrix cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Be sure to back up the registry before you edit it.

1. To demote a primary StorageZones Controller:
    1. Locate the Registry key: HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\StorageCenter
    2. Set isPrimaryConfigServer to false.
    3. Set PrimaryConfigServiceUrl to the URL of the server that will be the new primary StorageZones Controller, using the form http://ipAddress_or_hostname/ConfigService/.
    4. Restart the IIS server of all zone members.
2. To promote a secondary StorageZones Controller:
    1. Locate the Registry key: HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\StorageCenter
    2. Set isPrimaryConfigServer to true.
    3. Set PrimaryConfigServiceUrl to http://localhost/ConfigService/.
    4. Restart the IIS server of all zone members.

Disable, delete, or redeploy a StorageZones Controller

Apr 25, 2016

Note: Use this procedure if each StorageZones Controller has a different external address. Disable a controller from the NetScaler interface if you use the same external address for all StorageZones Controllers.
Disable a StorageZones Controller before taking the server off-line for maintenance.

1. In the ShareFile web interface, click Admin and then click StorageZones.
2. Click the zone name and then click the StorageZones Controller hostname.
3. Clear the Enabled check box and then click Save Changes.
4. Restart the IIS server of all zone members.

Deleting a StorageZones Controller does not delete the data or SCKeys.txt. If you are deleting a primary StorageZones Controller, demote it before continuing.

1. In the ShareFile web interface, click Admin and then click StorageZones.
2. Click the zone name and then click the StorageZones Controller hostname.
3. Click Delete.
4. Restart the IIS server of all zone members.

No information is lost when you redeploy a StorageZones Controller.

1. Uninstall StorageZones from the server.
2. In the ShareFile web interface, click Admin > StorageZones, and then select your zone. Do not delete the zone.
3. Select the StorageZones Controller and delete it.
4. Install StorageZones. Do not register it yet.
5. Run the StorageZones Controller configuration wizard to join the StorageZones Controller to a zone and complete the registration.
6. Restart the IIS server of all zone members.

Transfer files to a new network share

Oct 14, 2016

Before setting up a new network share for private data storage:

Requirements

- StorageZones Controllers belonging to the same StorageZone must use the same file share for storage.
- StorageZones Controllers access the share using the IIS Account Pool user. By default, application pools operate under the Network Service user account, which has low-level user rights. A StorageZones Controller uses the Network Service account by default.
- The Network Service account must have **full** access to this storage location.

---

1. Open the StorageZones Configuration page: http://localhost/configservice/login.aspx.
2. Click **Modify**.
3. In Storage Location, enter the UNC path to your network share, in the form \\server\share and then click **Save**.

   Caution: StorageZones Controller will overwrite any data in this path with a proprietary storage format. As a best practice, never specify a path to a location with file data. Reserve this storage location for StorageZones for ShareFile Data only.

4. If the credentials for the UNC path of your new network share location differ from the previous one, specify the Storage Logon and Storage Password.
5. Restart the IIS server of all zone members.
6. Log in to the configuration page of all zone members.
7. Copy the entire directory structure, including SCkeys.txt, to the new server.

Back up a primary StorageZones Controller configuration

Apr 25, 2016

A StorageZones Controller is installed on your local site and you are responsible for backing it up. To fully protect your deployment, you should take a snapshot of the StorageZones Controller server, back up your configuration, and Prepare StorageZones Controller for file recovery.

It is critical that you back up your configuration as described in this topic. For example, if you do not have a back up and someone accidentally deletes a zone, you cannot recover the folders and files in that zone.

Important: Be sure to use PowerShell 4.0 for this procedure. For more information about PowerShell requirements, refer to *— PowerShell scripts and commands* in StorageZones Controller system requirements.

The StorageZones Controller installer includes a PowerShell module with commands that back up and restore a primary StorageZones Controller configuration settings. Your backup will include configuration information for zones, StorageZones for ShareFile Data, StorageZone Connector for SharePoint, and StorageZone Connector for Network File Shares.

The backup and restore commands require that you run the 32-bit version of PowerShell under the same user context as StorageZones Controller. To set the user context, use the tool PSExec. That tool is available for download from http://technet.microsoft.com/en-us/sysinternals/bb897553.

Note: These steps do not apply to a secondary StorageZones Controller. To recover a secondary StorageZones Controller, reinstall StorageZones Controller on the server and then join the server to the primary StorageZones Controller.

1. The PowerShell script used in this procedure is unsigned, so you might need to change your PowerShell execution policy.
   1. Determine if your PowerShell execution policy allows you to run local, unsigned scripts: `PS C:\>Get-ExecutionPolicy`
      For example, a policy of RemoteSigned, Unrestricted, or Bypass allows you to run unsigned scripts.
   2. To change your PowerShell execution policy: `PS C:\>Set-ExecutionPolicy RemoteSigned`
2. Set the user context for this PowerShell session. In a command window, run one of the following commands.
   - If using the default Network Service account:
     `PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`
   - If using a named user for the StorageZones Controller application pool:
     `PsExec.exe -i -u "domain\username" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`

   A PowerShell window opens.
3. From the PowerShell prompt, import the module ConfigBR.dll: `Import-Module "C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SfConfigBR\ConfigBR.dll"`
   You must import the module each time you open a new PowerShell window.
4. From the PowerShell prompt, run the Get-SfConfig command: `Get-SfConfig -PrimaryZoneController "server" -Passphrase "passphrase" -FilePath "fullpath"`
   For example:

   `Get-SfConfig -PrimaryZoneController "https://myserver.domain.com/ConfigService/" -Passphrase "mypassphrase" -FilePath "c:\szc-backup.bak"`

Command parameters:

Parameter	Description	Examples
"server"	The primary StorageZones Controller server name or IP address. It can be in any of the following forms shown under Examples and must include the trailing slash.	Connect to a local server: "http://localhost/ConfigService/" Connect to a remote server: "http[s]://myservername.domain.com/ConfigService/" Connect to a remote server if DNS issues prevent connection to a server name: "http[s]://10.40.37.5/ConfigService/"
"passphrase"	The passphrase specified for StorageZones Controller.	"MyPassphrase"
"fullpath"	A location to save the backup file.	"c:\szc-backup.bak"

The Get-SfConfig command creates the backup file.
To restore a primary StorageZones Controller configuration, refer to Recover a primary StorageZones Controller configuration.

Recover a primary StorageZones Controller configuration

Apr 25, 2016

StorageZones Controller provides these options for disaster recovery when a primary StorageZones Controller is deleted or becomes unusable:

- If a secondary StorageZones Controller is available, promote the secondary controller to a primary one.
- If a secondary StorageZones Controller is not available and you backed up your primary StorageZones Controller configuration (as described in Back up a primary StorageZones Controller configuration), recover the primary StorageZones Controller from the backup file.
- If you do not have a backup of your primary StorageZones Controller configuration and all of your StorageZones Controllers are accidentally deleted or become unusable, only a partial recovery is possible. You can recover zones and the configuration for StorageZones for ShareFile Data, but not StorageZone Connectors.

Important: Be sure to use PowerShell 4.0 for this procedure. For more information about PowerShell requirements, refer to *— PowerShell scripts and commands* in StorageZones Controller system requirements.

Note: These steps apply only to a primary StorageZones Controller. To recover a secondary StorageZones Controller, reinstall StorageZones Controller on the server and then join the server to the primary StorageZones Controller.

1. The PowerShell script used in this procedure is unsigned, so you might need to change your PowerShell execution policy.
   1. Determine if your PowerShell execution policy allows you to run local, unsigned scripts: `PS C:\>Get-ExecutionPolicy`
      For example, a policy of RemoteSigned, Unrestricted, or Bypass allows you to run unsigned scripts.
   2. To change your PowerShell execution policy: `PS C:\>Set-ExecutionPolicy RemoteSigned`
2. Set the user context for this PowerShell session. In a command window, run one of the following commands.
   Note: Download PsExec.exe from http://technet.microsoft.com/en-us/sysinternals/bb897553.aspx and follow the installation instructions on that page.
   - If using the default Network Service account:
     `PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`
   - If using a named user for the StorageZones Controller application pool:
     `PsExec.exe -i -u "domain\username" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`

   A PowerShell window opens.
3. From the PowerShell prompt, import the module ConfigBR.dll: `Import-Module "C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SfConfigBR\ConfigBR.dll"`
   You must import the module each time you open a new PowerShell window.
4. From the PowerShell prompt, run the Set-SfConfig command: `Set-SfConfig -PrimaryZoneController "server" -Passphrase "passphrase" -FilePath "fullpath"`
   where:
   - server is the primary StorageZones Controller server name or IP address. It can be in any of the following forms and must include the trailing slash.
     http://localhost/ConfigService/

servername/ or serverip/ (if you use http)

http[s]://servername.domain.com/ConfigService/

http[s]://serverip/ConfigService/

- passphrase is the one specified for StorageZones Controller.
- fullpath is the backup file location and name. For example, c:\szc-backup.bak.

If you do not have a backup file, you can recover zones and the configuration for StorageZones for ShareFile Data, but not StorageZone Connectors.

1. Set the user context for this PowerShell session. In a command window, run one of the following commands.
   - If using the default Network Service account:
     PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell
   - If using a named user for the StorageZones Controller application pool:
     PsExec.exe -i -u "domain\username" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell

   A PowerShell window opens.
2. From the PowerShell prompt, import the module ConfigBR.dll: Import-Module "C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SfConfigBR\ConfigBR.dll"
   You must import the module each time you open a new PowerShell window.
3. From the PowerShell prompt, run the Join-SfConfig command:
   Important: The Join-SfConfig command currently does not work with Azure or Amazon S3 storage. Please contact ShareFile support if you need to use this command.
   Join-SfConfig -ShareFileUserName "ShareFileUserName" -ShareFilePassword "ShareFilePassword" -subdomain "subdomain.sharefile.com" -ZoneId "ZoneId" -SCID "StorageCenterId" -Passphrase "passphrase" [-StorageZoneLocation "StorageZoneLocation"] [-StorageUsername "StorageUserName"] [-Storagepass "StoragePassword"] [-AzureAccountName "StorageAccount"] [-AzureSecretKey "PrimaryOrSecondaryAccessKey"] [-AzureContainerName "Container"] [-S3AccessKey "S3AccessKey"] [-S3SecretKey "S3SecretKey"] [-S3ContainerName "S3ContainerName"] [-S3EndpointAddress "S3EndpointAddress"] [-S3ForcePathStyle]
   where:
   - ZoneID can be obtained as follows:
     1. In the ShareFile web interface, click Admin > StorageZones, right-click the site name, and then choose Properties.
        The address displayed ends with the zone ID that looks like this: zae4fb8c-8520-478f-8f87-aa589a8fd181.
     2. Copy and paste that ID into the Join-SfConfig command.
   - StorageCenterId can be obtained as follows:
     1. In the ShareFile web interface, click Admin > StorageZones, click the site name, right-click the hostname, and then choose Properties.
        The address displayed ends with the storage ID that looks like this: scd344cf-8043-4ce2-974b-8f9cd83e2978.
     2. Copy and paste that ID into the Join-SfConfig command.
   - StorageZoneLocation is needed only if StorageZones for ShareFile Data is enabled for the zone.
   - StorageUsername and StoragePassword are needed only if StorageZones for ShareFile Data is enabled for the zone

and your storage location requires authentication.

- AzureAccountName, AzureAccessKey, and AzureContainerName are needed only if StorageZones for ShareFile Data is stored in a Windows Azure storage container.

4. To recover StorageZone Connectors, use the StorageZones Controller console (http://localhost/configservice/login.aspx) to enable and configure Connectors.

Replace a primary StorageZones Controller

Apr 25, 2016

To replace a primary StorageZones Controller with one that is in a different location, such as on a different domain, use the backup and restore procedures. The following steps ensure that your configuration settings and all of your data is transferred.

1. Create a backup file for your existing StorageZones Controller configuration. Refer to Back up a primary StorageZones Controller configuration.
2. Install, but do not configure, a StorageZones Controller in the new network location.
3. Import the backed up configuration onto the new controller. Refer to Recover a primary StorageZones Controller configuration.
4. Copy your data to the new network share, log on to the Configuration console for the new StorageZones Controller, and enter the new storage path information. Refer to Transfer files to a new network share.
5. In the new StorageZones Controller Configuration console, update the external URL of the controller. Refer to Change the address or passphrase of a primary StorageZones Controller.

Prepare StorageZones Controller for file recovery

Sep 06, 2016

Before you proceed!

The ShareFile recovery feature does not automatically back up your persistent storage location. **You are responsible for choosing a backup utility and running it every 1 to 7 days.**

How you prepare for file recovery depends on where your data is stored:

- **A supported third-party storage system** — If you use a third-party storage system with StorageZones Controller, your third-party storage is redundant and a local backup is not required. However, be aware that a ShareFile user who deletes a file has the ability to recover the file from the Recycle Bin for a brief period. A file cannot be recovered from the ShareFile Recycle Bin after 45 days. After the recovery period, the file is removed from the zone and therefore from the redundant third-party storage. If that recovery time is not adequate, consider one of these solutions:
  - Increase the amount of time that a file remains in the ShareFile recycle bin. To do that, change the value of the **Period** setting in C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config. For more information, refer to Customize storage cache operations. Keep in mind that increasing the retention time also increases the amount of third-party storage needed.
  - Create a local back up your StorageZone files every seven days and determine the appropriate retention policy for the backups.
- **On-premises storage** — If you use a locally-maintained share for private data storage, you are responsible for backing up your on-premises StorageZones Controller local file storage and registry entries. ShareFile archives the corresponding file metadata that resides in the ShareFile cloud for 3 years.
  Important: To protect against data loss, it is critical that you take a snapshot of your StorageZones Controller server, back up its configuration, and back up your local file storage.

After you prepare your StorageZones Controller for file recovery as described in this topic, you can use the ShareFile Administrator console to:

- Browse your StorageZones for ShareFile Data records for a particular date and time and then tag any files and folders that you want to restore. ShareFile adds the tagged items to a recovery queue. You then run a recovery script to restore the files from your backup to the persistent storage location.
  For more information, refer to Recover files and folders from your ShareFile Data backup.

- Reconcile the metadata stored on the ShareFile cloud with your on-premises storage when you cannot recover data from your on-premises storage. The ShareFile reconcile feature permanently removes from the ShareFile cloud the metadata for files that are no longer in a StorageZone on a specified date and time.
  For more information, refer to Reconcile the ShareFile cloud with a StorageZone

Prerequisites

- Windows Server 2012 R2 or Windows Server 2008 R2
- Windows PowerShell (32-bit and 64-bit versions) must support .NET 4 runtime assemblies. For more information, refer to

"PowerShell scripts and commands" in StorageZones Controller system requirements.

- PsExec.exe - PsExec enables you to launch PowerShell using the network service account. You can also use PsExec to schedule recovery tasks. Download PsExec.exe from http://technet.microsoft.com/en-us/sysinternals/bb897553.aspx and follow the installation instructions on that page.

In this section

The following files, located in C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery, are used for disaster recovery.

File name	Description
DoRecovery.ps1	PowerShell script executed by Windows Task Scheduler to handle the recovery process. This file stores the file backup and storage locations.
Recovery.psm1	PowerShell module that handles the recovery queue operations.
recovery.log	Log file that stores the output of a recovery process.
recoveryerror.log	Log file that stores the errors in the recovery process.
LitJson.dll	A .Net library to handle conversions from and to JSON (JavaScript Object Notation) strings.

On the backup server, create the folder where you will back up the persistentstorage folder.

The StorageZones for ShareFile Data file backup should follow the same layout as the StorageZones Controller persistent storage.

If your backup location does not follow the same layout as the StorageZones Controller persistent storage, you must perform an additional step during the recovery process to copy files from the backup location to the location that you specify in the Recovery PowerShell script.

Storage layout	Backup layout
\\PrimaryStorageIP \StorageLocation \persistentstorage \sf-us-1 \a024f83e-b147-437e-9f28-e7d03634af42 \fi3d85dc_1d6c_49b0_8faa_1f36ef3d83b5 \fi7d5cbb_93c8_43f0_a664_74f27e72bc83 \fi47cd7e_64c4_47be_beb7_1207c93c1270	\\BackupStorageIP \BackupLocation \persistentstorage \sf-us-1 \a024f83e-b147-437e-9f28-e7d03634af42 \fi3d85dc_1d6c_49b0_8faa_1f36ef3d83b5 \fi7d5cbb_93c8_43f0_a664_74f27e72bc83 \fi47cd7e_64c4_47be_beb7_1207c93c1270

Important: The ShareFile recovery feature does not automatically back up your persistent storage location. You are responsible for choosing a backup utility and running it every 1 to 7 days.

This one-time setup is required. The following command examples use the default StorageZones Controller installation folder.

1. On the StorageZones Controller, run PowerShell as an administrator.
   For help, refer to Starting Windows PowerShell on Windows Server.

2. The PowerShell script used in this procedure is unsigned, so you might need to change your PowerShell execution policy.
   1. Determine if your PowerShell execution policy allows you to run local, unsigned scripts: PS C:\>Get-ExecutionPolicy
      For example, a policy of RemoteSigned, Unrestricted, or Bypass allows you to run unsigned scripts.

   2. To change your PowerShell execution policy: PS C:\>Set-ExecutionPolicy RemoteSigned
3. To verify that PowerShell has the correct CLRVersion, type:
   $psversiontable

   The value for CLRVersion must be 4.0 or higher to enable PowerShell to load .NET assemblies in scripts. If it is not, change it for both Windows PowerShell 32-bit and 64-bit versions as follows:

   1. Run NotePad as an administrator.
   2. Create a file with the following content.
      ```
      <?xml version="1.0"?>
      <configuration>
        <startup useLegacyV2RuntimeActivationPolicy="true">
          <supportedRuntime version="v4.0.30319"/>
          <supportedRuntime version="v2.0.50727"/>
        </startup>
      </configuration>
      ```
   3. Choose File > Save As, name the file powershell.exe.config, and save it to the following locations:
      C:\Windows\System32\WindowsPowerShell\v1.0

      C:\Windows\SysWOW64\WindowsPowerShell\v1.0

   4. Close the PowerShell window, open a new one as administrator, and type $psversiontable to verify that the CLRVersion is correct.
4. Close the PowerShell window and launch PowerShell using PsExec.exe as follows:

1. Open a Command Prompt window as administrator.
2. Navigate to the location of PsExec.exe and enter:
   PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell
3. Click Agree to accept the PsExec.exe license agreement.

5. Navigate to the Disaster Recovery tools folder in the StorageZones Controller installation folder:
   cd 'C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery'

6. Import the Recovery.psm1 module:
   Import-Module .\Recovery.psm1

7. To create the recovery queue, enter: New-SCQueue -name recovery -operation recovery
   The output of that command includes the name of the queue created. For example: Queue 92736b5d-1cff-4760-92c8-d8b04dc92cb2 created

   To view the new folder, open a file browser and navigate to:

   \\server\(*Your* Primary Storage Location)\Queue. You will see the Queue folder, such as 92736b5d-1cff-4760-92c8-d8b04dc92cb2.

8. Customize the recovery PowerShell script for your location, as described in the next section.

The DoRecovery.ps1 PowerShell script is executed by the task scheduler to handle the recovery process. This file includes the file backup and storage locations which you must specify for your site.

1. On the StorageZones Controller, navigate to the recovery PowerShell script:
   C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery\DoRecovery.ps1

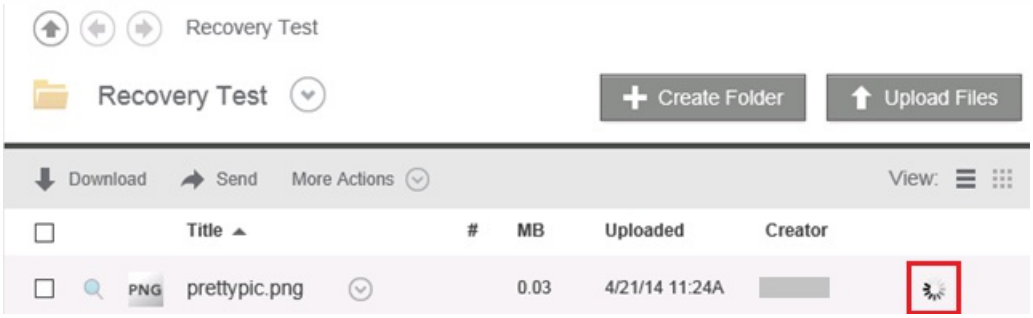
2. Edit the script as follows:
   1. Set the $backupRoot parameter to point to the UNC path of your backup location. For example: $backupRoot = "\\10.10.10.11\(*Your*BackupLocation)\persistentstorage"
   2. Set the $storageRoot parameter to point to the UNC path of your StorageZones Controller persistent storage. For example: $storageRoot = "\\10.10.10.10\StorageLocation\persistentstorage"

1. Create a test file and upload it to ShareFile.
2. After a hour or so, verify that the file appears in persistent storage (in the path specified for $backupRoot).
3. Delete the file from ShareFile: In the ShareFile administrator tool, click Recycle Bin, select the file, and then click Delete Permanently.
4. Delete the file from the persistent storage.
   This step recreates the action that ShareFile would perform 45 days after the file is deleted.

5. In the ShareFile administrator tool, go to Admin > StorageZones, click the zone, and then click Recover Files.
6. Click in the Recovery Date text box and select a date and time before the file was deleted and after it was uploaded.
   The file list for the StorageZone on the specified date and time appears.

7. Select the check box for the file and then click Restore.
8. Select the folder to contain the restored files and then click Restore.

The Folder list shows a spinning icon to indicate that the file is added to the backup queue and is ready to be restored.



9. Recover the file:
   1. Open a Command Prompt window as administrator.
   2. Navigate to the location of PsExec.exe and enter:
      PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell
   3. In the PowerShell window, navigate to:
      cd 'C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery'
   4. Run the recovery script:
      .\DoRecovery.ps1

   The PowerShell window will include the message "Item recovered". The file is added to the persistent storage location.
10. Download the restored file from the ShareFile web site.

The following PowerShell commands support disaster recovery.

- **Get-RecoveryPendingFileIDs**
  Gets the list of file IDs needed for recovery. For syntax and parameters, use this command:

  Get-Help Get-RecoveryPendingFileIDs -full
- **Set-RecoveryQueueItemsStatus**
  Sets a status for all or specified items in the recovery queue. This overwrites the existing recovery status in the queue. For syntax and parameters, use this command:

  Get-Help Set-RecoveryQueueItemsStatus -full

In the event a scheduled recovery task is needed, follow the steps below.

1. Start Windows Task Scheduler and in the Actions pane click Create Task.
2. On the General tab:
   1. Provide a meaningful Name for the task.
   2. Under Security options, click Change User or Group, and specify the user to run the task, either Network Service or a named user that has write permissions to the storage location.

3. From the Configure for menu, select the operating system of the server where the task will be run.
3. To create a trigger: On the Triggers tab, click New. Then, for Begin the task, choose On a schedule and specify a schedule.
4. To create an action: On the Actions tab, click New.
    1. For Action, choose Start a program and specify the full path to the program. For example: C:\Windows\System32\cmd.exe.
       For Add arguments enter: /c "c:\windows\syswow64\WindowsPowerShell\v1.0\PowerShell.exe -File .\DoRecovery.ps1" >> .\recovery.log 2>>.\recoveryerror.log
    2. For Start in, specify the Disaster Recovery folder in the StorageZones Controller installation location. For example: c:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery

---

Delete Service Default Period

As of StorageZone Controller 4.0, the Delete Service timer will be set to 45 days. The 45 day default period will overwrite any previous settings. To modify the default period, edit FileDeleteService.exe.config at C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc

<!--No. of days to keep data blob in active storage after deletion-->

<add key="Period" value="45"/>

Modify Delete Service Default Period After Upgrade

In some upgrade scenarios, the DeletePeriod value will be set to null in the “FileDeleteService.exe.config”. When set to null, the Delete Period will default to 45 days, the default number of days before a file that has been deleted from ShareFile is removed from physical storage.

To modify the DeletePeriod on the StorageZones Controller, edit the FileDeleteService.exe.config file at the following location: c:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config

Upon a clean installation of the StorageZones Controller, the Delete Service will run every 8 hours to clean up temporary files and folders. To modify the timer, edit the FileDeleteService.exe.config file at the following location: C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config

Recover files and folders from your ShareFile Data backup

Apr 25, 2016

The ShareFile Administrator console enables you to browse your StorageZones for ShareFile Data records for a particular date and time and tag any files and folders that you want to restore. ShareFile adds the tagged items to a recovery queue. You can then run the provided script to restore the files from a backup to the storage location.

Important: Be sure to use PowerShell 4.0 for this procedure. For more information about PowerShell requirements, refer to *— PowerShell scripts and commands* in StorageZones Controller system requirements.

Prerequisites

- Complete the setup and testing described in Prepare StorageZones Controller for file recovery. The setup includes instructions for creating a folder to contain the recovered files.

1. In the ShareFile web interface, click Admin and then click StorageZones.
2. Click the zone name and then click Recover Files.
3. Click in the Recovery Date text box and select a date and time.
   The file list for the StorageZone on the specified date and time appears.
4. Select the check box for each file to restore and then click Restore.
5. Select the folder to contain the restored files and then click Restore.
   The Folder list shows a spinning icon to indicate that the recovery is in process.
6. If your backup location does not follow the same layout as the StorageZone persistent storage, copy the files from the backup location to the location you specified when editing DoRecovery.ps1.
7. The DoRecovery.ps1 PowerShell script is unsigned, so you might need to change your PowerShell execution policy for this procedure.
   1. Determine if your PowerShell execution policy allows you to run local, unsigned scripts. In a PowerShell window: `Get-ExecutionPolicy`
      For example, a policy of RemoteSigned, Unrestricted, or Bypass allows you to run unsigned scripts.
   2. To change your PowerShell execution policy: `Set-ExecutionPolicy RemoteSigned`
8. Set the user context for this PowerShell session. In a command window, run one of the following commands.
   - If using the default Network Service account:
     `PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`
   - If using a named user for the StorageZones Controller application pool:
     `PsExec.exe -i -u "domain\username" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`

   A PowerShell window opens.
9. Recover the file:
   1. Open a Command Prompt window as administrator.
   2. Navigate to the location of PsExec.exe and enter:
      `PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell`
   3. In the PowerShell window, navigate to:
      `cd 'C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\Disaster Recovery'`

4. Run the recovery script:
   .\DoRecovery.ps1

The PowerShell window will include the message "Item recovered". Recovered files are copied from the backup to the persistent storage location. After you refresh the console, the spinning icons disappear from the ShareFile web interface for files successfully recovered.

If a file that is deleted from the ShareFile web application has not yet been deleted by the StorageZones Controller delete service, the file is still in the persistent storage location. In that case, file recovery is immediate and a spinning icon does not appear in the ShareFile web interface.

If you cannot recover a file, refer to the help file provided in the Disaster Recovery folder.

Reconcile the ShareFile cloud with a StorageZone

Apr 25, 2016

A problem, such as a disk failure, that causes data loss in your local storage results in an inconsistent state between your local storage and the metadata stored in the ShareFile cloud. You can automatically reconcile those differences so that metadata for files no longer in your StorageZone on a specified date and time are permanently removed from the ShareFile cloud.

Caution: Perform a reconcile only if you have irrecoverable data loss in your local file storage. A reconcile permanently erases the metadata from the ShareFile cloud for any files that are not found in your local file storage as of the date and time that you specify.

1. Click Admin and then click StorageZones.
2. Click the zone name and then click Reconcile Files.
3. Click in the Reconcile Date text box and select a date and time.
4. Click Reconcile. A confirmation dialog box appears.

Configure antivirus scans of uploaded files

Feb 28, 2017

Important

Due to updates to the application code in StorageZones 4.2, some customers must update the permission level the tool runs at from local administrator to system network service. Failing to update permissions will result in antivirus scans failing to start.

Requirements / Summary

- User utilizing StorageZones Controller 4.2 or later
- SFAntivirus must be run as a Network Service using PSExec
- Update log file location

Run SFAntivirus as a Network Service using PSExec

Clients updating to SZ 4.2 or later with existing scheduled tasks linking to SFAntivirus need to change the user level that the tool runs at from local administrator to system network service.

To obtain Network Service Rights, Use PSExec to launch PowerShell (x86) under the same user context as the StorageZone Controller and obtain Network Service Rights using the following command:

PsExec.exe -i -u "NT AUTHORITY\NetworkService" C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell

Update Log File Location

Administrators must also change log file location by editing log4net.config entry, if they were logging to a directory outside of the default SZC log directory, by modifying the following line:

```
<file value="..\..\SC\logs\avscantool-" />
```

StorageZones Controller installation includes several files that support antivirus scans. The files are installed by default in C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SFAntiVirus.

After you customize the configuration file and use Windows Task Scheduler to schedule the scans, as described in the following steps, each file upload request causes StorageZones Controller to queue the file for an antivirus scan. If issues are reported for a scanned file, the Folders view includes a warning icon for the file. If a user tries to download the file, a warning message appears.

As of StorageZones Controller 4.0, the antivirus log file location can be configured. To modify the log location, edit the SFAntivirus.exe.config file at C:\inetpub\wwwroot\Citrix\StorageCenter\tools\SFAntiVirus.

The antivirus scan does not remove the file.

Use of the ICAP protocol with antivirus scanning platforms that have been coded to the RFC standard for ICAP is supported on StorageZones Controller 4.2 or later. Information on configuring an ICAP AV can be found further down in this article.

Prerequisite

- If you will run virus scans (SFAntiVirus.exe) on the StorageZones Controller, make sure encryption is disabled on the controller: On the StorageZones console Configuration page, verify that the Enable Encryption check box is cleared.

---

1. To run virus scans on a server other than the StorageZones Controller:
   1. Copy the folder C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SFAntiVirus to the other server.
   2. On the StorageZones Controller, open C:\inetpub\wwwroot\Citrix\StorageCenter\AppSettingsRelease.config and set QueueSDKRestricted to 0: <add key="QueueSDKRestricted" value="0" />
2. On the server where you will run virus scans, edit SFAntiVirus.exe.config with the values for your StorageZones Controller configuration:
   1. For CommandFile: Specify the full path to the anti-virus software. That software must reside on the same server as the ShareFile antivirus folder.
   2. For CommandOptions and return codes: The command line settings provided in the configuration file are an example. Provide the appropriate settings for your anti-virus software and environment.
   3. For ScanFileTimeout: Larger files can take longer to scan. Tune this setting according to the file sizes expected in your storage. **Otherwise, this could increase the risk of a large file not getting scanned.**

3. In a command line window, run the following command to set up virus scans:

```
SFAntiVirus.exe -register SFusername SFpassword
```

StorageZones Controller 4.2 supports the use of the ICAP protocol with antivirus scanning platforms that have been coded to the RFC standard for ICAP. Customers may still use the CLI method if they wish.

To enable an ICAP AV scanner on your StorageZone Controller, navigate to the StorageZones Controller Configuration page.

Select the **Enable Antivirus Integration** checkbox and enter the address of your antivirus server in the ICAP RESPMOD URL field. This is the URL of the ICAP response modification service.

Example URL: ICAP://SERVER/RESPMOD.

Click **Test Connectivity** to confirm your setting.

---

1. Start Windows Task Scheduler and in the Actions pane click Create Task.
2. On the General tab:
   1. Provide a meaningful Name for the task.
   2. Under Security options, click Change User or Group, and specify a Windows user to run the task. The user must have full access permission on the storage location.
   3. Select Run whether user is logged on or not. Leave the Do not store password check box cleared.

4. Select Run with highest privileges.
5. From the Configure for menu, select the operating system of the server where the task will be run.

3. To create a trigger: On the Triggers tab, click New. Then, for Begin the task, choose On a schedule and specify a schedule.
4. To create an action: On the Actions tab, click New.
   1. For Action, choose Start a program and specify the full path to the program. For example: C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SFAntiVirus\SFAntiVirus.exe
   2. For Start in, specify the location of SFAntiVirus.exe: c:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SFAntiVirus
5. On the Settings tab, for If the task is already running, then the following rule applies, choose Do not start a new instance.

---

1. As of v3.4.1, antivirus scans are supported for files stored on Multi-Tenant StorageZones.
2. To configure an antivirus scan for Multi-Tenant StorageZones, complete Step 1, then:
3. Ensure all Tenant accounts are properly configured for AV support.
4. At Step 2a in the section above, replace the "**ShareFileURL**" key with "<**yourParnterSubdomainHere**>.sharefile.com", entering your Partner Subdomain where indicated. Do not include quotation marks or brackets.
5. Proceed with the standard configuration steps.

Enable FIPS 140-2 mode with StorageZones Controller Configuration

May 11, 2017

This feature requires StorageZones Controller version 5.0 or later. Click here for information.

Manage StorageZones for ShareFile Data

Apr 25, 2016

You can use StorageZones for ShareFile Data with or instead of the ShareFile-managed cloud.

Quick links to topic sections:

Use these steps to move home folders and File Boxes from the ShareFile-managed cloud storage to a private zone or between private zones. Alternatively, use the ShareFile User Management Tool to migrate users between zones. For details, see ShareFile User Management Tool.

1. Click Home and then navigate to the folder.
2. In the right navigation pane, click Edit Folder Options.
3. From the StorageZone menu, select a zone and then click Save.
4. Restart the IIS server of all zone members.

1. Click Home and then click Folders.
2. On the Folder tab, click Add Folder.
3. Specify folder information as usual and, for Storage Site, select the StorageZone where you want this folder and its contents to be stored. Click Create Folder.
4. Configure the folder as usual. When you create a folder, you can choose whether to use the ShareFile-managed cloud storage or your local StorageZone.
5. Restart the IIS server of all zone members.

Important: Before deleting a StorageZone, back it up. Deleting a zone erases all files and folders in that zone and you cannot undo the operation.

1. Click Admin and then click StorageZones.
2. Click the zone name.
   - To rename the zone: Click Edit Zone, type a new name, and then click Save Changes.
   - To delete the zone: Click the zone name and then click Delete Zone.
3. Restart the IIS server of all zone members.

ShareFile user requests for file uploads, downloads, and deletions are handled by StorageZones Controller, which then communicates with the connected storage. For example, if the connected storage is a supported third-party storage system and a ShareFile user uploads a file, the ShareFile client sends the file to the persistent storage cache. StorageZones Controller then uploads the file to the third-party storage system.

StorageZones Controller manages the persistent storage cache using configurable settings in C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe.config. The settings that are specific to a supported third-party storage system are noted in this discussion.

For uploaded files:

- StorageZones Controller places uploaded files in a persistent storage cache (the PersistentStorage folder).
- The following settings control the timing of delete service operations:
  - MinDeletionAge specifies the minimum time span between when a file was last accessed and when it can be deleted. Defaults to 1 day. Minimum setting is 8 hours.
  - OffPeakTimeOfDayStart and OffPeakTimeOfDayEnd specify the start and stop times for file deletion. Defaults to 2 a.m. and 4 a.m.
  - ProducerTimerInterval and DeleteTimerInterval control the frequency of delete service operations. Please contact support if the default values (1 day) are not appropriate for your site.
- The delete services also manages folders that contain temporary items such as encryption keys and queued files. The delete service removes those items 24 hours after they are created.
- For supported third-party storage systems only:
  - The delete service determines whether a file in the storage cache has a corresponding blob in the supported third-party storage.
  - By default, every 10 seconds (CheckSizeThreasholdTimer) the delete service determines if the storage cache has exceeded a disk threshold of 10 GB (DiskSpaceDropoutThresholdGB). If the threshold is exceeded, the delete service removes files that have not been accessed in the past hour (CacheCleanupFileThreasholdPeriodUnExpected). When the delete service runs as the result of normal scheduling (and not because the disk size reached the threshold), the service deletes files that have not been accessed in the past 24 hours (CacheCleanupFileThresholdPeriodNormal) if the blob is in supported third-party storage. If the blob is not in the third-party storage, the file remains in the storage cache.

For downloaded files:

- When StorageZones Controller receives a download request, it downloads the file from the persistent storage cache if the file is there. If the file is not in that cache, the controller downloads the file from the third-party storage system to the persistent storage cache. The delete service removes files that have not been accessed for the past 24 hours (CacheCleanupFileThresholdPeriodNormal).

For deleted files:

- The delete service gets from the ShareFile application a list of files that were deleted 45 days ago (Period).
- The delete service then removes the corresponding files from the storage location or the corresponding objects from the third-party storage.

As of StorageZone Controller 4.0, the Delete Service timer will be set to 45 days. The 45 day default period will overwrite any previous settings.

1. To modify the default period, edit FileDeleteService.exe.config at C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc
   - <!--No. of days to keep data blob in active storage after deletion-->
   - <add key="Period" value="45"/>

Create and manage StorageZone Connectors

May 01, 2017

StorageZone Connectors provide access to documents and folders in:

- SharePoint sites, site collections, and document libraries
- Network file shares
- Documentum Connector (requires SZC 4.1 or later)

Users with permission to view a connected resource can browse connected SharePoint sites, SharePoint libraries, and network file shares from the ShareFile web interface and ShareFile clients.

By default, connector browsing is disabled for the ShareFile web interface. To enable connector browsing, contact ShareFile Support.

Additional settings are available that allow users to specify which Domain Controller to use for Active Directory look-ups. Please refer to the Authentication section of this article. This setting requires SZ 4.1 or later.

Connector System Requirements

StorageZone Connectors do not support document sharing or folder sync across devices.

Connectors must have a unique display name. Users will be blocked from using a connector name that is currently in use elsewhere on the account.

Use the Manage Users page to set permissions that enable Administrators and employee users to create connectors, as follows:

- Administrators: Create and manage Connectors. Enables administrators to use the ShareFile administrator console to create and manage connectors and to use a supported ShareFile client to create connectors.
- Employee users: Create SharePoint Connectors; Create Network Share Connectors. Enables users of supported ShareFile clients to enter the URL of a SharePoint library or network file share and create a connector to it.

Pre-requisite

- If you are using StorageZones for ShareFile Data, create the zone to be used for the connector.

The following steps describe how to create a StorageZone Connector from the ShareFile web interface. ShareFile users can also create a connector from supported devices by typing the URL of the SharePoint site.

1. Log on to your ShareFile account as an administrator, click the Connectors tab, and then click Create Connector.
2. From the Type menu, choose SharePoint.
3. If you are using StorageZones for ShareFile Data, choose a Zone for the connector.
   The zone for a connector must either be in the same domain as the SharePoint server or must have a trust relationship with it. If you have SharePoint servers in multiple domains and cannot configure trusts between the domains, create a StorageZones Controller for each domain.
4. For Site, specify the URL of a SharePoint root-level site, site collection, or document library, in the following forms.
   - Example connection to a SharePoint root-level site: https://sharepoint.company.com
     A connection to a root-level site gives users access to all sites (but not site collections) and document libraries under the root-level. ShareFile hides SharePoint system folders from users.
   - Example connection to a SharePoint site collection: https://sharepoint.company.com/site/SiteCollection
     A connection to a site collection gives users access to all subsites within that collection.
   - Example connection to a SharePoint 2010 document library:
     - https://mycompany.com/sharepoint/
     - https://mycompany.com/sharepoint/sales-team/Shared Documents/
     - https://mycompany.com/sharepoint/sales-team/Shared Documents/Forms/AllItems.aspx
   - Example connection to a SharePoint 2013 document library:
     The default SharePoint 2013 URL (when Minimal Download Strategy is enabled) is in the form: https://sharepoint.company.com/_layouts/15/start.aspx#/Shared%20Documents/.
   - Example connection that redirects to the NetBIOS name of an authenticated user:
     Use the variable %UserDomain% to substitute the logon name of the authenticated user with the NetBIOS name of that user. The new variable enables you to create a site-level connector to a URL such as https://example.com/%UserDomain%_%UserName%/Documents.
   - Example connection when connecting to "My Site" or OneDrive for Business:

     Use the variable %URLusername% to automatically resolve select special characters when connecting to SharePoint personal sites. This variable replaces spaces with %20 and periods with underscores. Usage of the %URLusername% variable requires SZ v3.4.1.

     If the user's "domain\username" is "acme\rip.van winkle" then

     https://sharepoint.acme.com/personal/%URLusername%
     will be resolved to:
     https://sharepoint.acme.com/personal/rip van%20winkle
5. Type a user-friendly Name for the connector.
   The name is used to identify the SharePoint site to users. The name should be brief so it displays well on mobile devices with small screens.

6. Click Add Connector. The View/Edit Folder Access dialog box appears.
7. To make connectors visible to others: In View/Edit Folder Access, add users and distribution groups and then click Save Changes.
   This step determines only whether a connector is visible to users. StorageZone Connectors inherits access permissions from the SharePoint server.

When configuring the StorageZones Controller, ensure that SharePoint Connectors are enabled.

Metadata tagging is supported for SharePoint 2013 and later mobile clients. (en-US only).

Pre-requisite

- If you are using StorageZones for ShareFile Data, create the zone to be used for the connector.

The following steps describe how to create a connector from the ShareFile Web interface. ShareFile users can also create a connector from supported devices by typing the path of a file share.

1. Log on to your ShareFile account as an administrator, click the Connectors tab, and then click Create Connector.
2. From the Type menu, choose File Share.
3. If you are using StorageZones for ShareFile Data, choose a Zone for the connector.
   The zone for a connector must either be in the same domain as the file share or must have a trust relationship with it. If you have file shares in multiple domains and cannot configure trusts between the domains, create a StorageZones Controller for each domain.
4. For Path, type the UNC path.
   Example with FQDN: \\fileserver.acme.com\shared

   You can use the following variables in the UNC path:

   - %UserName%
     Redirects to a user's home directory. Example path: \\myserver\homedirs\%UserName%
   - %HomeDrive%
     Redirects to a user's home folder path, as defined in the Active Directory property Home-Directory. Example path: %HomeDrive%
   - %TSHomeDrive%
     Redirects to a user's Terminal Services home directory, as defined in the Active Directory property ms-TS-Home-Directory. The location is used when a user logs on to Windows from a terminal server or Citrix XenApp server. Example path: %TSHomeDrive%

     In the Active Directory Users and Computers snap-in, the ms-TS-Home-Directory value is accessible on the Remote Desktop Services Profile tab when editing a user object.
   - %UserDomain%

     Redirects to the NetBIOS domain name of the authenticated user. For example, if the authenticated user logon name is "abc\johnd", the variable is substituted with "abc". Example path: \\myserver\%UserDomain%_%UserName%

   The variables are not case sensitive.

   Important: Do not create a connector to the ShareFile Data storage location. Depending on user permissions, doing so can enable users to remove all ShareFile Data.
5. Type a user-friendly Name for the connector.
   The name is used to identify the file share to users. The name should be brief so it displays well on mobile devices with small screens.
6. Click Add Connector. The View/Edit Folder Access dialog box appears.
7. To make connectors visible to others: In View/Edit Folder Access, add users and distribution groups and then click Save Changes.
   This step determines only whether a connector is visible to users. StorageZone Connectors inherits access permissions from the network share. Permissions for read/write access are determined by the security settings of the network share and are also affected by the ShareFile plan.

   To change this setting later, click the Connectors tab and then click Edit/View Access for the connector you want to update.

To create a StorageZone Connector for Documentum

Note: Only Basic Authentication is supported for Documentum Connector setup. The Documentum Content Server is case sensitive, so the username entered during authentication should match the case-sensitive credentials, unless case sensitivity is disabled on the Documentum content server.

Prerequisites:

1. StorageZones Controller 4.1 or later
2. Documentum ECM Setting enabled by ShareFile Customer Support.
3. The Documentum Rest service must be deployed on your Documentum server. Click here for additional information on the Documentum Rest Service.
4. If using Netscaler, certain configuration changes are required. Those changes are detailed further down this article.

Once this feature has been enabled by ShareFile Customer Support, navigate to your StorageZone Controller and locate the StorageZones Connector menu. Click the checkbox for "Enable access to existing Enterprise Content Management (ECM) data sources". Save your changes.

Next, sign into the ShareFile web application and navigate to the Connectors menu.

Click the Create Connector button. Use the Type drop-down menu to select Documentum.

Specify the Path of your EMC server and enter a Name for your Connector. Click the Add Connector button.

Once created, the Connector will appear in the Connectors section of your account.

Once the Connector has been created, you can access it from the web and mobile apps.

Supported Actions:

Mobile (iOS/Android/Universal Windows Platform):

- Browsing
- File Uploads/Downloads
- File and Folder Creation/Deletion
- Offline editing

Web App

- Connector Creation
- Browsing
- File Uploads/Downloads
- Folder Creation/Deletion

Not supported:

- Sharing files stored within a Documentum Connector
- Whitelisting/Blacklisting of paths

NOTE: The Documentum Content Server is case sensitive, so the username entered during authentication should match the case-sensitive credentials, unless case sensitivity is

If utilizing a NetScaler with your environment, make the following change to your NetScaler configuration:

1. Append the following to the _SF_CIFS_SP policy under Content Switching -> Policies:

HTTP.REQ.URL.CONTAINS("/cifs/") || HTTP.REQ.URL.CONTAINS("/sp/") || HTTP.REQ.URL.CONTAINS("/documentum/") || HTTP.REQ.URL.CONTAINS("/ProxyService/")

2. Append the following to the _SF_SZ_CSPOL policy under Content Switching -> Policies:

HTTP.REQ.URL.CONTAINS("/cifs/").NOT && HTTP.REQ.URL.CONTAINS("/sp/").NOT && HTTP.REQ.URL.CONTAINS("/ProxyService/").NOT && HTTP.REQ.URL.CONTAINS("/documentum/").NOT

A connector name is used to identify a SharePoint site or network file share to users.

1. Log on to your ShareFile account as an administrator and then click the Connectors tab.
2. In the Title column, click the connector name.
3. Type a user-friendly Name for the connector and then click Save.

Deleting a connector does not remove data from SharePoint or a network file share.

1. Log on to your ShareFile account as an administrator and then click the Connectors tab.
2. Select the check box for the connector, click Delete, and then click OK.

Admin users can now utilize the following setting to specify which Domain Controller to use when performing AD look-ups for CIFS or SP authentication, or for Restricted Zone authentication.

<add key="DomainControllers" value="DC01,dc02.domain.com,123.456.789.1" />

The “Value=” above can be set to a single DC or multiple DCs identified by hostname, FQDN, or IP Address. Multiple DCs should be separated by commas or semicolons.

If multiple DCs are specified, the look-up will be executed against the first DC; if an error occurs, the second DC will be utilized, and so on.

The above property can be added to “C:\inetpub\wwwroot\Citrix\StorageCenter\AppSettingsRelease.config” so that it will be inherited by all SZC IIS apps (including CIFS, SP, and ProxyService).

If the new app setting is not present, the default behavior of automatically selecting a DC will continue.

Get a Direct Link from Network Share / SharePoint Connectors

Users can now "Get a Direct Link" from Network Share / SharePoint Connectors while using the latest version of the ShareFile app for iOS or Android.

If the Admin would like to disable this feature, they may do so by adding:

<add key="disable-direct-link" value="1"/>

The above can be added to "c:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config".

Basic Authentication does not support non-ASCII characters. If using localized usernames, it is suggested that users utilize NTLM and Negotiate.

Data Loss Prevention

Apr 25, 2016

Data Loss Prevention (DLP) features in ShareFile let you restrict access and sharing based on the content found within a file.

You can scan the documents uploaded to your StorageZone using any third-party DLP security suite that supports ICAP, a standard network protocol for inline content scanning. Then you adjust the sharing and access privileges based on the results of the DLP scan and your preferences for how strictly you want to control access.

Supported DLP systems

StorageZones Controller uses the ICAP protocol to interact with third-party DLP solutions. Using ShareFile with an existing DLP solution requires no changes to existing policies or servers, though you may want to dedicate ICAP servers for processing ShareFile data if you expect the load to be significant.

Popular ICAP-compliant DLP solutions include:

- Symantec Data Loss Prevention
- McAfee DLP Prevent
- Websense TRITON AP-DATA
- RSA Data Loss Prevention

Because ShareFile leverages your existing DLP security suite, you can maintain a single point of policy management for data inspection and security alerts. If you already use one of the solutions mentioned above for scanning outgoing e-mail attachments or web traffic for sensitive data, you can point the ShareFile StorageZones Controller to the same server.

Enable Data Loss Prevention

To enable DLP for ShareFile and StorageZones Controller, perform the following three actions:

1. Enable DLP capabilities on your ShareFile account.
2. Enable DLP on your StorageZones Controller server.
3. Configure the allowed actions for each file classification.

These actions are described in detail in the following sections.

Send an email to support@sharefile.com to request or confirm that your ShareFile subdomain is enabled for DLP. For some accounts, enabling DLP may also require enabling a newer end user experience for the ShareFile web site. After your account is enabled for DLP, you can proceed with enabling DLP on your StorageZones Controller server.

Use the following steps to configure DLP settings on your StorageZones Controller deployment:

1. Install or upgrade to StorageZones Controller 3.2 or later.
2. In the StorageZones Controller console (http://*localhost*/configservice/login.aspx), click the **ShareFile Data** tab. Click **Modify** if the zone already exists.
3. Select the **Enable DLP Integration** check box and enter the ICAP address of your DLP server in the **ICAP REQMOD URL** field. The address format is:

   icap://<*name or IP address of your DLP server*>:<*port*>/reqmod

   The default ICAP port is 1344.

   For example, if your DLP server is dlp-server.example.com, enter the following into the ICAP REQMOD URL field:

   icap://*dlp-server.example.com*:1344/reqmod
4. Click **Save** or **Register**.

After enabling DLP, confirm that the DLP server is reachable by checking the **DLP ICAP Server Status** entry on the **Monitoring** tab.

After DLP is enabled on the account and StorageZones Controller, every version of every file uploaded to the DLP-enabled StorageZone will be scanned for sensitive content. The results of the scan are stored in the ShareFile database as a data classification.

DLP settings constrain the normal permissions and sharing controls available for files based on their DLP classification. When sharing a document, a user could still choose to block anonymous access even if DLP settings would allow them to share it anonymously. But if the user attempts to share a file in a way that would violate DLP settings, ShareFile prevents them from doing so.

The data classifications are:

- **Scanned**: OK – Files that were scanned by a DLP system and passed OK
- **Scanned: Rejected** – Files that were scanned by a DLP system and were found to contain sensitive data
- **Unscanned** – Files that have not been scanned.

The **Unscanned** classification applies to all documents stored in Citrix-managed StorageZones or other StorageZones where DLP is not enabled. It also applies to files in a DLP-enabled StorageZone that were uploaded before DLP is configured, and files that are waiting to be scanned because the external DLP system is unavailable or slow to respond.

Each item's classification is determined by the ICAP server response rule. If the DLP ICAP server responds with a message that the content should be blocked or removed, the file is marked as **Scanned: Rejected**. Otherwise the file is marked as **Scanned: OK**.

For each data classification, you can set different access and sharing restrictions. For each of the three categories, the ShareFile administrator chooses which actions to allow:

- Employees can download or share the file
- 3rd-party client users can download or share the file
  - Client sharing is disabled by default but can be enabled under **Admin > Advanced Preferences > Allow clients to share files**.

- Anonymous users can download the file

When a user shares a file, it can be received only by users who have download permissions. Therefore when you enable the sharing permission for a data classification, you must also grant at least one class of user download permission.

To configure DLP settings in ShareFile

1. In the ShareFile web interface, click **Admin > Data Loss Prevention**.
2. Change the option for **Limit access to files based on their content** to **Yes**.
3. Configure the allowed actions for each data classification.

Important: The ShareFile On-Demand Sync tool requires download permissions for normal operation. You must enable employee downloads for all content classifications if your deployment includes ShareFile On-Demand Sync.

When StorageZones Controller sends a file to the DLP system, it includes metadata indicating the owner of the file and the folder path where the file resides in ShareFile. This allows the DLP server administrator to view ShareFile-specific details about files that contain sensitive content.

To adjust the DLP scanning process, edit the settings file found on your StorageZones Controller at wwwroot\Citrix\StorageCenter\SCDLPScanSvc\appSettings.config. The following table describes each setting related to DLP.

Setting	Description	Default value
scan-interval	How frequently the DLP service checks the DLP queue for new files and sends them to the DLP ICAP server for processing	30 seconds
icap-response-timeout	How long the StorageZones Controller waits for an ICAP response before marking the ICAP server as unavailable.	30 seconds
icap-exclude-extensions	Comma-separated list of file extensions to exclude from DLP scanning. Files with names ending in one of these extensions will not be processed by the DLP server but will be marked as Scanned: OK. Example value: “exe,jpg,bin,mov”	None
icap-max-file-size-bytes	Maximum size of file (in bytes) to send to the DLP server for processing. A value of 0 means there is no maximum and all file sizes will be sent. When configured with a non-zero value, files larger than the configured	31457280 (30MB)

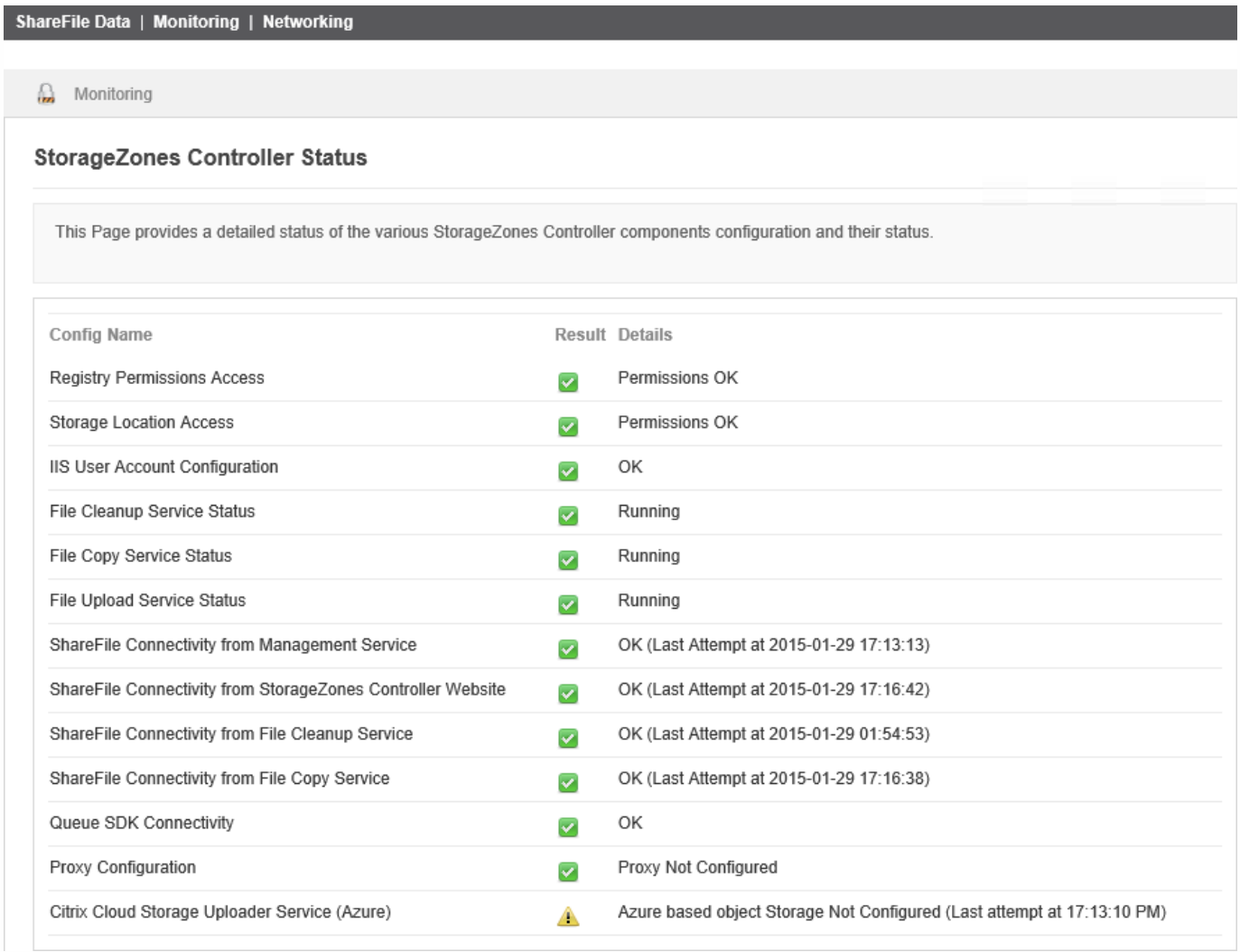
	size will not be processed by the DLP server but will be marked as Scanned: OK.	
max-queue-items-to-process	The maximum number of queued items to scan per each scan-interval iteration. Decrease this value to mitigate the impact on your DLP server when a large number of files is added to the StorageZone.	512
max-queue-processing-threads	Maximum number of concurrent processor threads to use for draining the DLP scan queue. Set this value based on the maximum number of simultaneous connections allowed to your ICAP server. It should be within reasonable limits to avoid blocking other network services that use the same ICAP server.	4
Icap-reqmod-http-request-verb	By default, network calls are made with the PUT verb. You may change this setting to POST if needed.	**PUT**

Monitor

May 03, 2016

StorageZones Controller and the ShareFile administrator interface include several resources to help you monitor StorageZones Controller activity and troubleshoot issues:

- **General component status** – The Monitoring tab on the StorageZones Controller console provides component status to help you start the troubleshooting process. Status is provided for items such as access permissions, service status, and Heartbeat Status, which indicates the StorageZones Controller outbound connectivity to the ShareFile control plane.



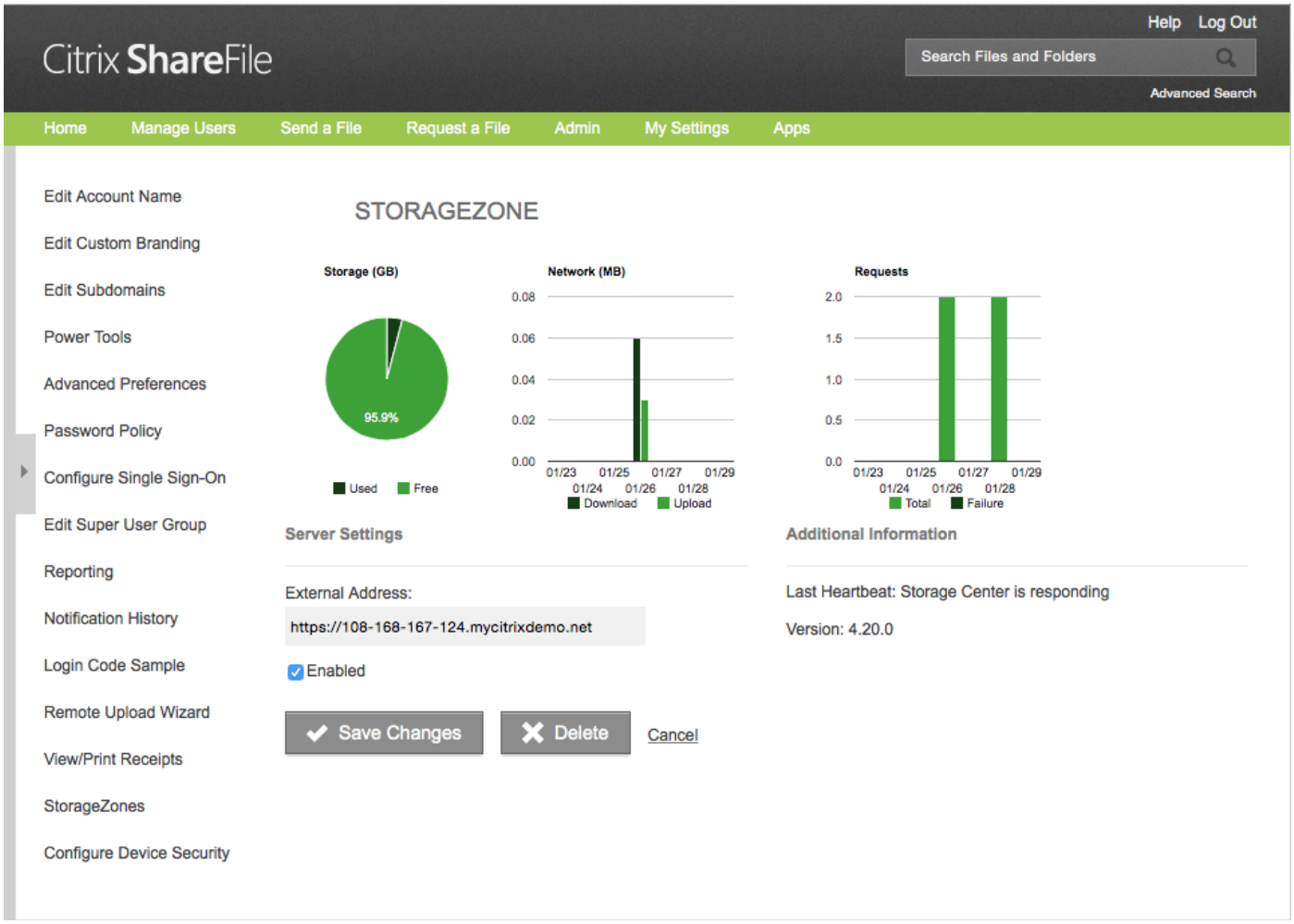
StorageZones Controller sends updates to the ShareFile web application every 5 minutes. If the ShareFile web application does not receive an update within 10 minutes, it marks the StorageZones Controller as offline.

For items on the Monitoring tab that appear in red, review the log files for detailed information.

Be aware that the Monitoring tab does not indicate whether a StorageZone is working in terms of connectivity, including whether the ShareFile control plane can reach the external StorageZones URL, or whether a client is able to reach the zone.

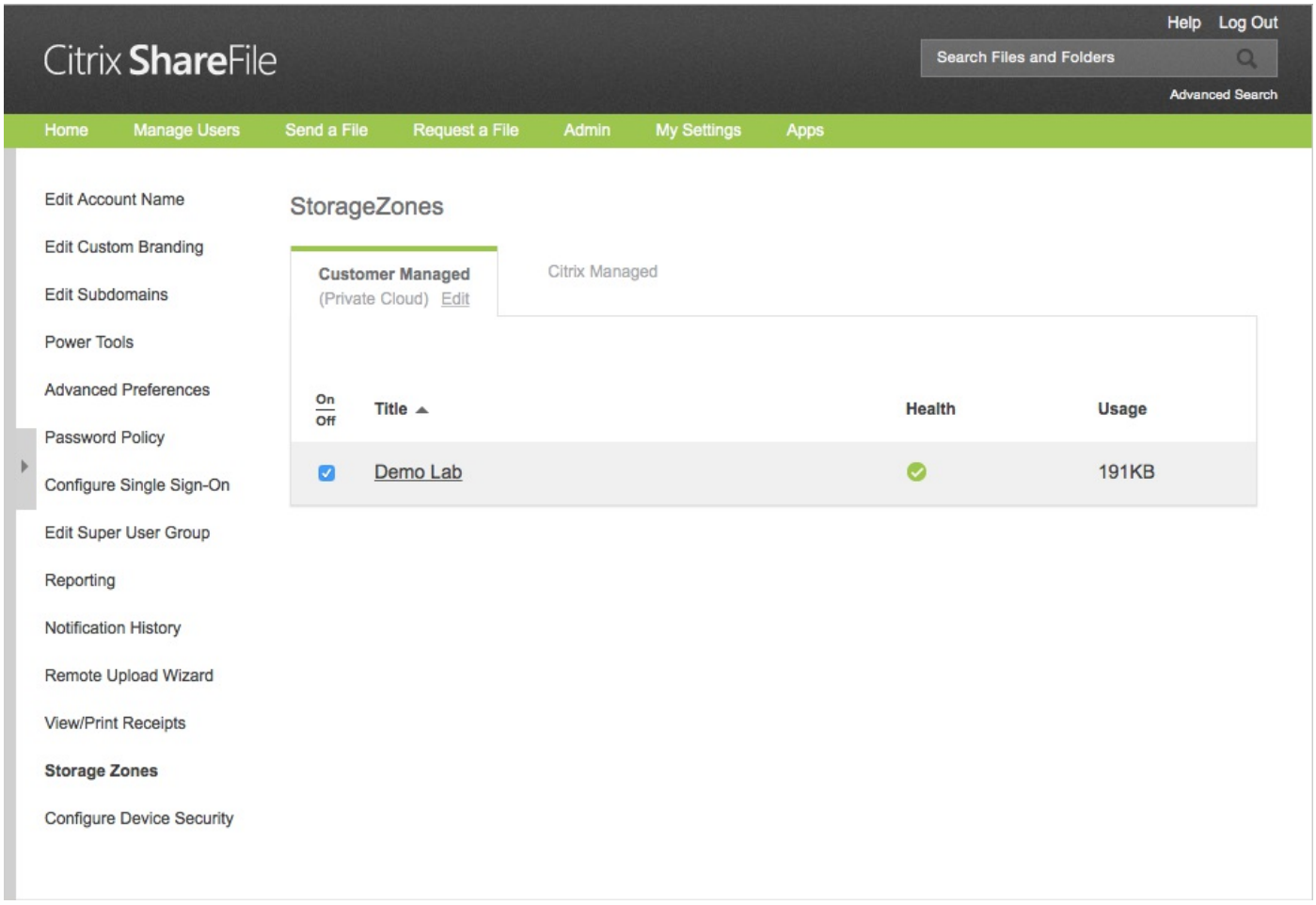
- **StorageZones Controller server information** – For information about the storage use, network use, and file activity of

the server: From the ShareFile interface, log on to your ShareFile Enterprise account, go to Admin > StorageZones, click the StorageZone, and then click a StorageZones Controller host name.



- **Zone information** – For information about the storage use, network use, and file activity for a zone: From the ShareFile interface, log on to your ShareFile Enterprise account, go to Admin > StorageZones, and click a zone name.

- **StorageZones Controller health status** – To determine whether ShareFile.com is receiving heartbeat messages from the StorageZones Controllers joined to the zone, view the Health status: From the ShareFile interface, log on to your ShareFile Enterprise account, go to Admin > StorageZones, verify that the Health column has a green check mark, and then click the site name to verify that the Heartbeat message indicates that the StorageZones Controller is responding.



- **Log files** – Log files provide detailed information about StorageZones Controller configuration and its components, as described in the next section.

The following log files for StorageZones Controller are located by default in C:\inetpub\wwwroot\Citrix\StorageCenter\SC\logs:

Log file name	Contains logging information for:
cfgsrv-%date%.txt	StorageZones Controller configuration actions, including modifying an existing StorageZones configuration, creating a new Storage Zone, and joining a new StorageZones Controller to an existing primary StorageZones Controller
sc-%date%.txt	ShareFile data upload and download activity for standard and restricted zones
CIFS-%date%.txt	StorageZone Connectors for Network File Shares upload and download activity
sharepoint-%date%.txt	StorageZone Connectors for SharePoint upload and download activity
cloudstorageuploader-%date%.txt	Cloud Storage Uploader Service (to a supported third-party storage system)

Log file name	Contains logging information for:
copy-%date%.txt	ShareFile Copy Service
delete--%date%.txt	ShareFile Cleanup Service, for the persistent storage cache
s3uploader--%date%.txt	ShareFile Management Service; includes heartbeat status messages
zkemail--%date%.txt	Email traffic sent to your SMTP server (for email notifications in restricted zones)

Extended logging is available for each of the following components. This is useful when you need to provide detailed information to support.

Component	Location of AppSettingsRelease.config
ShareFile Data	C:\inetpub\wwwroot\Citrix\StorageCenter
StorageZone Connectors for Network File Shares	C:\inetpub\wwwroot\Citrix\StorageCenter\cifs
StorageZone Connectors for SharePoint	C:\inetpub\wwwroot\Citrix\StorageCenter\sp

To enable extended logging

The following steps enable extended logging for all StorageZones Controller components and services:

1. On the StorageZones Controller server, open IIS.
2. Navigate to Default Web Site and then open Application Settings.
3. Change the value for enable-extended-logging from 0 to 1.
4. Restart the Citrix ShareFile Management Service.
5. After you have resolved the issue, we recommend that you turn off extended logging to reduce the amount of logging.

To enable extended logging for a particular component, edit its AppSettingsRelease.config file: Change the value of <add key="enable-extended-logging" value="0" /> from 0 to 1.

You can also check IIS logs to determine if traffic is reaching StorageZones Controller. IIS logs show all incoming requests. IIS logs for StorageZones Controller are in c:\inetpub\logs\LogFiles\W3SVC1.

To enable extended IIS logging, see http://support.microsoft.com/kb/313437.

StorageZones Controller includes a web page that helps you troubleshoot potential latency issues. The page provides the elapsed time and rate for a specified file upload. The time and rate values are provided for the upload to StorageZones Controller and for the upload to the storage cache. The test does not upload file metadata or change the uploaded file.

This feature is off by default. To enable it, add the key <add key="EnableTestUploadPage" value="1" /> to C:\inetpub\wwwroot\Citrix\StorageCenter\AppSettingsRelease.config.

To open the page, navigate to https://externalFQDN/UploadTest.aspx, where externalFQDN is the fully-qualified domain name of the StorageZones Controller. After you specify a file to download, the time and rate data appears. If you need help interpreting the data, contact your support representative.

If you are using NetScaler with HTTP callouts enabled for StorageZones, traffic to the upload test page will be blocked. Citrix recommends that you perform the latency test from your internal network and bypass the NetScaler by using a StorageZones Controller server address instead of the external zone address.

Issue	Description and resolution
"HTTP Error 404 - File or Directory not found" appears during StorageZones Controller configuration	The message typically results from an issue with IIS or ASP.NET. Make sure that the IIS role is enabled on the Windows installation and that the ASP.NET feature is enabled on IIS. For more information, see Prepare your server for ShareFile data.
"HTTP Error 404.2 – Not Found" appears when browsing localhost on the StorageZones Controller	The message indicates that ISAPI and CGI restrictions for ASP.NET are not set to Allowed. For more information, see Prepare your server for ShareFile data.
"HTTP Error 413 – Request entity too large" appears after an upload attempt	The message can appear on a network trace after a failed upload attempt to a StorageZone and can result from a client certificate setting in IIS. To work around this issue: 1. On the StorageZones Controller server, open IIS. 2. Navigate to Default Web Site and then open SSL Settings. 3. For Client certificates select Ignore. 4. Restart the Citrix ShareFile Management Service. For more information, see http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/7e0d74d3-ca01-4d36-8ac7-6b2ca03fd383.mspx?mfr=true.
IIS errors occur during StorageZones Controller configuration	IIS errors typically indicate that ASP.NET is not fully configured. • Verify in the IIS Manager, under ISAPI and CGI Restrictions, that Restriction is set to Allowed for all of the ASP.NET listings. • Verify that ASP.NET is registered in IIS: In IIS Manager, under Application Pools, verify that there are ASP.NET listings. To manually register ASP.NET, see the command lines following this table. If you continue to have issues, review your IIS and ASP.NET setup. For more information, see Prepare your server for ShareFile data.

Issue	Description and resolution
"Failed to Save Storage Center Binding" appears during StorageZones Controller configuration	The message indicates a permissions problem on the IIS Account Pool user. By default, application pools operate under the Network Service user account. StorageZones Controller uses the Network Service account by default. If you use a named user account instead of the Network Service account, the named user account must have full access to the network share used for private data storage.
"Access denied" appears during zone configuration	The message can occur if the ShareFile account you are logged on as does not have permission to create and manage zones. Use the ShareFile administrator console to set that permission.
Outbound requests are blocked	When outbound requests are blocked, the cfgsrv log includes System.Net.WebException: The remote server returned an error: (403) Forbidden. This issue is likely due to the proxy server blocking outbound requests. Verify that your firewall meets the requirements specified in StorageZones Controller system requirements.
"Unable to connect to remote server" appears when you log on to StorageZones Controller	The message typically indicates a proxy issue. Make sure that your proxy settings are configured, as described in Specify a proxy server for StorageZones. If the proxy settings are correct, verify that: • You can log into your ShareFile account from StorageZones Controller. • You have administrator-level permissions to configure StorageZones Controller. • Port 443 is open on the external firewall.
The folder named ShareFileStorage on your network share does not include SCKeys.txt after you enable and configure StorageZones for ShareFile Data	StorageZones Controller creates SCKeys.txt during installation unless the account you used to install StorageZones Controller is not in the access control list. Update the access control list and reinstall StorageZones Controller.
File uploads to a shared folder fail after you create a zone	This issue indicates a problem with your internal DNS. You must have both an internal and external DNS record for the StorageZones Controller FQDN unless the zone is a restricted StorageZone.
On the Monitoring tab, the Heartbeat Status is red	A red icon indicates that StorageZones Controller isn't able to send heartbeat messages to the ShareFile web site. • Check if the icons for other components are red. If so, refer to the logs for more information. • If the s3uploader log shows a failure to send the heartbeat, the StorageZones Controller server might not be able to contact the ShareFile web site unless it goes through a proxy server. To specify a proxy server for StorageZones Controller, open the controller console and go to the Networking tab. • If the StorageZones Controller server cannot access the ShareFile web site using a network service

Issue	Description and resolution
	user either allow the network service user to access the ShareFile web site or set up a Windows user account with outbound access to the proxy server.
A StorageZone does not appear in the ShareFile administrator interface	This issue can indicate a problem with the external address or firewall. First verify in the StorageZones Controller console that the External Address does not include the port. If it does, remove the port and then restart the controller. If the External Address does not include the port, make sure that your Windows firewall is configured correctly. By default, Windows firewall settings allow outbound traffic for the ShareFile services on port 443. StorageZones Controller requires that setting. Verify that Windows firewall allows outbound traffic on port 443 for the following processes: C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc\FileDeleteService.exe C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCopySvc\FileCopyService.exe C:\inetpub\wwwroot\Citrix\StorageCenter\s3uploader\S3UploaderService.exe C:\inetpub\wwwroot\Citrix\StorageCenter\CloudStorageUploaderSvc\CloudStorageUploaderService.exe C:\inetpub\wwwroot\Citrix\StorageCenter\SCProxyEmailSvc\ProxyEmailService.exe

StorageZones Controller does not upload data to ShareFile	• In the NetScaler console, right-click the load balancing virtual server for statistics, to verify whether traffic is reaching NetScaler from the ShareFile control plane, StorageZones Controller, and ShareFile clients. When you upload a file and the virtual server shows an increase in hits, then the traffic is passing through NetScaler.
	Verify the traffic for every point of the NetScaler connection:
	
	  • Content switching virtual server
	  • Load balancing virtual servers for Connectors and for ShareFile data
	  • HTTP callouts bound to one of the two virtual servers
	  • Responder policy bound to the ShareFile data virtual server
	  • Connectors virtual server binding to AAA
	• Test uploads for ShareFile data:
	  1. Unbind the responder policy in the load balancing virtual server for ShareFile data. (The responder policy drops incoming traffic that is not signed by the ShareFile control plane.)
	  2. From a web browser, type the external FQDN of StorageZones Controller. If there is connectivity, the ShareFile logo appears.
	  3. From a web browser, type the URL for a connector.
	• Test accessibility of StorageZone Connectors:
	If the following URLs are successful, you will be prompted for credentials even if the back-end server is down. Or, if you are logged on as a user, you will get an API response.
	
	  • https://szc-address/cifs/v3/Items/ByPath?path=\\path
	  • https://szc-address/sp/v3/Items/ByPath?path=http://sharepoint-server
	The API response is in this form:
	
	{“Name”:"ConnectorName",“FileName”:"FileName",
	“CreationDate”:"date",“ProgenyEditDate”:"date",
	“IsHidden”:false,“Path”:"“,"StreamID”:"id",

Issue	Description and resolution
	“odata.metadata”:"https://szc-address/cifs/v3/$metadata#Items/ShareFile.Api.Models.Folder@Element",“Id”:"id"} Other examples: • https://szc-address/cifs/v3/getItems(itemID) • https://szc-address/sp/v3/getItems(itemID) For iOS: • https://szc-address/cifs/v3/Items/(connector-folder-ID)?$select=Name,FileName,CreationDate,ProgenyEditDate... • Test devices from the external network. Device connectivity issues can result from DNS setup. You must have an external DNS record and you might also need an internal DNS record for the external StorageZones FQDN. • If you are having trouble with a particular device only, test that device. For more information, see “A mobile device won’t connect to a connector” in the table in "Troubleshoot ShareFile clients and web app", next.
The ShareFile Connectivity from File Cleanup Services status is a red icon after you upgrade StorageZones Controller	A red icon occurs if Windows starts the File Cleanup Service before StorageZones Controller establishes a network connection. The status will return to a green icon after the controller server is back on the network.
“Path exceeds max length (1024)” appears during connector creation	The message can occur if the external address configured for StorageZones Controller points to the ShareFile web site instead of the StorageZones Controller server FQDN.
“Invalid name” appears when configuring a new StorageZones Controller after deleting an old one	The message can occur if entities related to the old StorageZones Controller still exist. To resolve this issue: 1. Uninstall the new StorageZones Controller. 2. Delete the shared network folder. 3. Delete the folder c:\inetpub\wwwroot\Citrix. 4. Open regedit and delete this key: HKLM/Software/Wow6432Note/Citrix. 5. Install and configure a new StorageZones Controller. If the issue persists, contact your support representative.
Restricted Zone Error: HTTP Error 500 (internal server error)	This message occurs when StorageZone Servers cannot resolve the StorageZone FQDN via DNS or the local hosts file. Ensure you have a DNS record or hosts file entry in place so that client workstations and devices can successfully connect to the restricted zone servers.

To manually register ASP.NET

```
cd /d C:\Windows\Microsoft.NET\Framework\v4.0.30319
iisreset /stop
aspnet_regiis -i
iisreset /start
%systemroot%\system32\inetsrv\appcmd set config /section:isapiCgiRestriction
/[path='%windir%\Microsoft.NET\Framework\v4.0.30319\aspnet_isapi.dll'].allowed:True
%systemroot%\system32\inetsrv\appcmd set config /section:isapiCgiRestriction
/[path='%windir%\Microsoft.NET\Framework64\v4.0.30319\aspnet_isapi.dll'].allowed:True
```

A mobile device won't connect to a connector	• Verify connectivity. Many connectivity issues are covered in the preceding table. • Make sure that StorageZones Controller is on-line. • Upload a file to the zone. If the upload works, the issue is specific to connectors. • Try to connect from the mobile device using both the cellular and company network. • Check that the SharePoint server or file server is available.
"HTTP Error 401 – Unauthorized" appears when trying to access a connector	Any of the following issues can prevent a user from accessing a connector from ShareFile clients or the ShareFile web app: • Incorrect configuration of IIS: Verify that the Web Services (IIS) role has Basic Authentication and Windows Authentication enabled. If those options are not listed under Security, use Server Manager to install them and then restart IIS. • Incorrect user permissions: Verify that the AD user has access to the share. From Server Manager, go to Share and Storage Management, and add the user or change the user permissions as needed. • A problem with NetScaler AAA group access. For troubleshooting information, see http://support.citrix.com/article/CTX126589.
"HTTP Error 403 – Forbidden" appears when connecting to a SharePoint site	This message occurs if the SharePoint server is configured for Basic authentication but StorageZones Controller is not configured to cache credentials. To resolve this issue, add <add key="CacheCredentials" value="1" /> to C:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config.
"HTTP Error 503 – Service unavailable" appears when mobile apps try to access a Connector	Connectors are sending a response but are unable to handle the HTTP request. This can occur if content switching policies, load balancing VIPs, or the responder policy are incorrectly configured or bound on the NetScaler. To resolve this issue, review the NetScaler configuration for ShareFile and correct the configuration.

Restricted StorageZones

Apr 13, 2017

Customers utilizing StorageZones Controller (version 3 or later) can utilize Restricted Zones to better control employee access to data.

Note: Not all features and apps may be utilized with data stored on a Restricted Zone.

Additional RZ Info

Apps and Features Compatible with Restricted Zones

Zone Authentication: In addition to logging on to ShareFile, users must authenticate separately to the StorageZones Controller to access documents stored in a restricted zone. Directory lookup ensures that the user logging on to ShareFile is the same one authenticating to the zone. This extra authentication requirement limits sharing. Documents can be shared only with others who have access to the StorageZones Controller and who can authenticate using enterprise credentials. In a restricted zone, files cannot be shared anonymously. Users must be granted permission to view a file and must always log on to receive a shared file.

Metadata Encryption: All information about files and folders in the zone is encrypted with your key before being sent to ShareFile. As a result, no one outside of your organization can see folder or file names in restricted zones. Access to encryption keys, decrypted files, and metadata is available only through enterprise authentication to StorageZones Controller.

Internal address for StorageZones Controller: For a restricted zone, authorization occurs between StorageZones Controller and ShareFile clients instead of between StorageZones Controller and the ShareFile cloud. As a result, a StorageZones Controller that hosts restricted zones does not require an external address or external SSL certificate. When StorageZones Controller is configured with an internal-only address, users must connect to the company network or VPN to access documents in the restricted zone.

Email notifications from your mail server: When users receive e-mail notifications about shared files and folders in a restricted zone, the e-mail is sent from your internal mail server instead of a ShareFile server.

Properties	Standard zones	Restricted zones
StorageZone servers can be managed by...	Citrix or you	you

User authentication is handled by...	ShareFile.com or ShareFile.eu	a combination of ShareFile.com or ShareFile.eu plus your on-premises StorageZones Controller
Files can be shared with...	employees and third party users (that is, anyone with an email address)	employees or other users who have a domain account
File and folder metadata stored in the ShareFile control plane is...	stored in clear text, visible to some Citrix employees	encrypted with your private keys, which are not available to Citrix
Email notifications are sent using...	ShareFile mail servers or your SMTP servers	your SMTP servers
An external address for the zone is...	required	not required

Apps and Features Compatible with Restricted Zones

Apr 10, 2017

Support for restricted StorageZones affects all aspects of the ShareFile service. As a result of protocol changes required to support metadata encryption and zone authentication, **some ShareFile clients and features are not supported when working with documents in a restricted StorageZone.**

Contents:

Clients and Tools

Sync for Windows	3.1 and up
Plugin for Microsoft Outlook	3.2.2 and up
On-Demand Sync for Windows	Not supported
Drive Mapper	3.01.171.0 and up
ShareFile for iOS iPhone and iPad	3.3 – MDX Only
ShareFile for Android Phone and tablet	3.4 and up
ShareFile for Windows Phone 8	2.3.10 and up
Sync for Mac	Not supported
Desktop Widget	Not supported
XenMobile WorxMail for iOS	Not supported

- Attach from ShareFile	
XenMobile WorxMail for Android - Attach from ShareFile	Supported
ShareFile for BlackBerry	Not supported
Mobile web site	Not supported
Other account access methods	
Powershell	Not supported
SFCLI	Not supported
REST API(V3)	Supported
HTTPS API(V1)	Not supported
RSZ Test Coverage	Not supported
FTP	Not supported
E-mail files to a folder	Not supported
.Net SDK	Supported

Browsers

Windows	Internet Explorer 11 Firefox (latest version) Chrome (latest version)
MacOS	Safari (latest version) Firefox (latest version)

	Chrome (latest version)
iOS	Safari WorxWeb
Android	WorxWeb

Features

End user actions: Working with files	
Browse and download files	Supported
Upload files (uploader type)	HTML5: Supported Flash: Not supported Java: Not supported Standard HTML form: Not supported
Recycle Bin	Supported
Bulk download and delete	Supported
File Box	View: Supported Delete: Supported Upload: Supported Download: Not supported Send from Filebox: Not supported
File Preview (thumbnails)	Not supported
View documents in web browser	Not supported
File re-upload	Not supported

Multiple versions per file	Not supported
Search	Restricted Zone items not included in search results
Mark a folder as a favorite	Not supported
Copy or move files	Not supported
Edit Folder Options • Folder expiration date • File retention policy • Sort order	Supported

End user actions: Sharing and collaboration

Send a file • Requiring upload • Send email using ShareFile • Give me a link I can copy • Require user to log on • Limit number of downloads	Supported
Receive and download a shared file	Supported
Create a shared folder in a Restricted StorageZone	Supported
Add users to a folder • Control permissions for upload, download	Supported
Request a file • with “Require ShareFile Login” enabled	Supported Not Supported
E-mail notifications	Supported
Inbox: Files sent to me	Supported
Inbox: Sent messages	View: Supported Expire: Supported

	Resend: Supported Edit: Supported
View activity log	Supported
Get signature (via RightSignature)	Not supported

Administrative actions

Create a user in a restricted zone	Supported
Migrate user to a different zone	Not supported
Reporting • Access audit • Usage report • Messaging report • Bandwidth report • Storage report	HTML viewer: Supported Excel/CSV/PDF viewers: Encrypted metadata is shown

Zone Administration

Monitor storage usage	Supported
Monitor bandwidth usage	Supported
Monitor file activity	Supported
Recover Files	Not supported
Reconcile Files	Not supported
Delete Zone	Supported
High Availability	Supported

Sync for Windows

Minimum version - 3.1

Authenticate from a domain-joined client - NTLM or Kerberos	Supported
Authenticate from a non-domain client - User prompted for password	Supported
Sync “My Files and Folders” in a restricted zone	Supported
Sync shared folders from a restricted zone	Supported
Upload, download, sync	Supported
On-demand Sync for XenApp and XenDesktop environments	Not supported
View favorite folders	Not available for Restricted StorageZone folders
Right-click > Copy link	Supported
Right-click > Email file	Supported

Mobile Apps

Please refer to app-specific tables below:

iOS - Minimum version 3.3

Browse and download files	Supported
View content offline	Supported
Create a folder	Supported
Create or edit a file	Supported

Upload photo or video	Supported
Authenticate with username/password	Supported
Single sign-on with Worx MicroVPN	Supported
Share: Copy a link	Supported
Share: Share by email	Not supported
Add or edit folder notes	Not supported
Create a note or edit existing notes	Not supported
Add people to folder or edit existing folder permissions	Not supported
Mark/unmark a folder as a favorite	Not supported
Request a file	Not supported
Thumbnail previews	Not supported
Multi-item delete	Not supported
Make folder available offline	Supported except for root-level “Shared with me” folders
Share a folder	Supported except for root-level “Shared with me” folders
Create a new Connector in a restricted StorageZone	Not supported

Android - Minimum version 3.4

Browse and download files	Supported
View content offline	Supported

Send a file	Supported
Create a folder	Supported
Create or edit a file	Supported
Upload files	Supported
Authenticate with username/password	Supported
Single sign-on with Worx MicroVPN	Supported
Request a file	Not supported
Create a note	Not supported
Overwrite existing file after upload	Not supported

Windows Phone 8 - Minimum version 2.3.10

Browse and download files	Supported
View content offline	Supported
Send a file: - Copy a link - Send using ShareFile Email	Supported
Create a folder	Supported
Upload files	Supported
Authenticate with username/password	Supported

Outlook Plugin

Authenticate from a domain-joined client - NTLM or Kerberos	Supported
Authenticate from a non-domain client - User prompted for password	Supported
Browse and select files from ShareFile	Supported
• With “Require recipients to log in” enabled	Not Supported
Convert attachment to ShareFile link	Supported
• With “Require recipients to log in” enabled	Not Supported
Request a file	Supported
• With “Require recipients to log in” enabled	Not Supported

Reference: StorageZones Controller configuration files

Apr 25, 2016

This reference provides an overview to the StorageZones Controller configuration files:

- AppSettingsRelease.config
- FileDeleteService.exe.config
- SFAntiVirus.exe.config
- Web.config

The StorageZones Controller installer creates those files. Changes you make in the StorageZones Controller console are saved to the files.

To use or configure certain features, you must manually add or update some settings in the configuration files. This reference lists those settings and provides links to related information.

AppSettingsRelease.config

AppSettingsRelease.config files are contained in the following folders in the StorageZones Controller installation path (C:\inetpub\wwwroot\Citrix\):

- StorageCenter
  Defines global settings for StorageZones Controller.
- StorageCenter\cifs
  Defines settings for StorageZone Connectors for Network File Shares.
- StorageCenter\sp
  Defines settings for StorageZone Connectors for SharePoint.

Before editing an AppSettingsRelease.config file, verify that you are working in the correct location. The following table includes only the settings that might require manual intervention to enable certain features.

For details about DLP settings, see Data Loss Prevention.

Setting	Description
<add key="RenameFileOnUploadConflict" value="0"/>	After an upgrade, this setting might require manual intervention. This setting controls what happens when a user attempts to upload a file that is locked by another user. When the value is "0", the upload attempt is denied. When the value is "1", a copy of the file is created with "- Copy(1)" appended to the name. Add the key to the <appSettings> section of the AppSettingsRelease.config file in C:\inetpub\wwwroot\Citrix\StorageCenter\cifs and C:\inetpub\wwwroot\Citrix\StorageCenter\sp.
<add key="CacheCredentials"	To use StorageZone Connectors for SharePoint with a SharePoint server that is

Setting	Description
value="1" />	configured for Basic authentication, add the CacheCredentials key to: C:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config For more information, see *— StorageZone Connector for SharePoint* in StorageZones Controller system requirements.
<add key="QueueSDKRestricted" value="0" />	To run antivirus scans on a server other than the StorageZones Controller, set the QueueSDKRestricted key to "0" in: C:\inetpub\wwwroot\Citrix\StorageCenter\sp\AppSettingsRelease.config For more information, see Configure antivirus scans of uploaded files.
<add key="EnableTestUploadPage" value="1" />	To enable a page that displays upload performance for a specified file, add the EnableTestUploadPage key to: C:\inetpub\wwwroot\Citrix\StorageCenter\AppSettingsRelease.config For more information, see Increase the number of files per zone.

FileDeleteService.exe.config

FileDeleteService.exe.config provides controls used by StorageZones Controller to manage the persistent storage cache. This configuration file is located in:

C:\inetpub\wwwroot\Citrix\StorageCenter\SCFileCleanSvc

For more information, see Customize storage cache operations.

SFAntiVirus.exe.config

SFAntiVirus.exe.config provides the scanner software with information about your StorageZones Controller configuration, the location of the scanner software, and various command options. This configuration file is located in:

C:\inetpub\wwwroot\Citrix\StorageCenter\Tools\SFAntiVirus

For more information, see Configure antivirus scans of uploaded files.

Web.config

In general, C:\inetpub\wwwroot\Citrix\StorageCenter\ConfigService\Web.config contains controls that typically should not be changed. You will, however, need to update it if you are using older StorageZones Controllers with a proxy server.

For StorageZones Controller 2.2 through 2.2.2 only: If a zone has multiple StorageZones Controllers and all HTTP traffic uses a proxy server, you must add a bypass list to Web.config for each secondary server.
Note: As of release 2.2.3, the bypass setting is included in the Network page of the StorageZones Controllers console.

1. Open the file in a text editor and locate the <system.net> section. Here is a sample of that section after a proxy server is configured:
   <system.net>

```
    <defaultProxy enabled="true">
      <proxy proxyaddress="http://192.0.2.0:3128" />
    </defaultProxy>
  </system.net>
</configuration>
```

2. Add a bypass list to that section, as shown:

```
<system.net>
    <defaultProxy enabled="true">
      <proxy proxyaddress="http://192.0.2.0:3128" />
      <bypasslist>
        <add address="primaryServer" />
      </bypasslist>
    </defaultProxy>
  </system.net>
</configuration>
```

   The primaryServer is either an IP address or hostname (servername.subdomain.com).

   If you later change the primary StorageZones Controller IP address or hostname, you must update that information in ConfigService\Web.config for each secondary server.

3. Restart the IIS server of all zone members.