StorageCraft ShadowStream User Guide

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StorageCraft ShadowStream User Guide

Understanding ShadowStream

Welcome to the StorageCraft ShadowStream User Guide. This guide will help you understand how to install, configure and use ShadowStream to perform ImageManager replication jobs.

⚠️ **Important:** ShadowStream is a premium feature which requires a license. Each ShadowStream license supports one Remote Replication (off-site) job.

The new StorageCraft ShadowStream is a high-performance transfer tool (for off-site replication) that lets you send backup image files to a destination system. In some situations (bad network traffic-high latency or heavy loss) ShadowStream is considerably faster than legacy ShadowStream and much faster than using traditional FTP.

ShadowStream greatly reduces the time needed to replicate data over noisy or high latency (>150-200ms) networks even when replicating full backup images. It is also simpler to configure and maintain than conventional FTP.

ShadowStream has two parts:

- ShadowStream service (server)
- Administrator console (client)

🟢 **Note:** ShadowStream currently installs both the service and the client with a single installer. There is not a separate installer for the client (console). The capability to install the client separately may be added in the future.

Creating ShadowStream Replication Jobs in ImageManager

When you are finished configuring ShadowStream you can use ImageManager to create ShadowStream replication jobs.

⚠️ **Important:** Multiple ImageManager agents can use the same ShadowStream service.

See Configuring Locations in the ImageManager User Guide for additional details.

ShadowStream User Guide document version 2.0
April 23, 2015

1 ShadowStream System Requirements

Supported Operating Systems for the ShadowStream service and administrator console:

- Windows Server 2003
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

Note: ShadowStream can be installed on a 64-bit or 32-bit version of Windows Server. However, StorageCraft recommends installing on a 64-bit operating system. On a 64-bit OS, the 64-bit version of ShadowStream will be installed. This allows access to more memory and a higher number of concurrent file transfers.

Source and Destination Ports

Shadowstream replication communicates bi-directionally. This requires that the UDP ports are opened on both the source and destination networks for both the incoming and outgoing direction.

ShadowStream uses these UDP ports by default:

Port	Purpose
4366	UDP data connection control port
4367	UDP Admin connection port

Confirm access to these UDP ports through your firewalls to successfully run ShadowStream.

Maximum Transmission Unit (MTU) Size

The Maximum Transmission Unit (MTU) size needs to be a static setting. It also needs to be the same on both the source and destination network.

Warning: Having different MTU sizes causes packet fragmentation in UDP packets and will cause replication to fail.

StorageCraft has determined that the default MTU, in many cases is 1500. Some items require a specific MTU (for example PPOE requires an MTU of 1492). StorageCraft recommends analyzing your environment and evaluating what the specific settings for your network should be. This will help you properly select the right MTU.

Customers with Different MTU Size

If you have multiple customers who replicate to your system with different MTU sizes, you need to setup multiple receiving servers to match the MTU size for each specific customer.

2 Install ShadowStream

To install the ShadowStream service:

The Administrator password is required when installing the service.

Note: The older version of ShadowStream (legacy ShadowStream) and the new ShadowStream can coexist on the same system. You can continue using legacy ShadowStream until all your old ImageManager legacy replication jobs are complete

1. Run the ShadowStream setup program. ShadowStream are configured and working. See the [FAQ](FAQ) for additional upgrade
   and your new replication jobs to the new ShadowStream are configured and working.
   The installation file can be found on the StorageCraft Updates page.

2. Select the Installation Language for your location then click **Next**.
   This displays the ShadowStream Setup Wizard window.

3. Click **Next** to continue.
   This displays the End-User License Agreement.

4. Check the box next to "I accept the terms in the License Agreement", then click **Next**.

5. Click **Next** to accept the default destination folder or click **Change** to select a custom destination folder.

6. Click **Next** to accept the DefaultShare location or click **Change** to select a custom share location folder.

7. Set the administrator password for the ShadowStream database in the Enter Password field. Retype the password in the Verify Password field then click **Next**.

   💡 **Note:** The ShadowStream admin user password can be changed with the ShadowStream Admin Tool.

8. On the Ready to install StorageCraft ShadowStream page, Click **Next** to start the installation.

9. If Windows displays a User Account Control dialog "Do you want to allow the following program to make changes to this computer?" click **Yes**.

10. Click **Finish** to exit the Setup Wizard when the installation is complete.

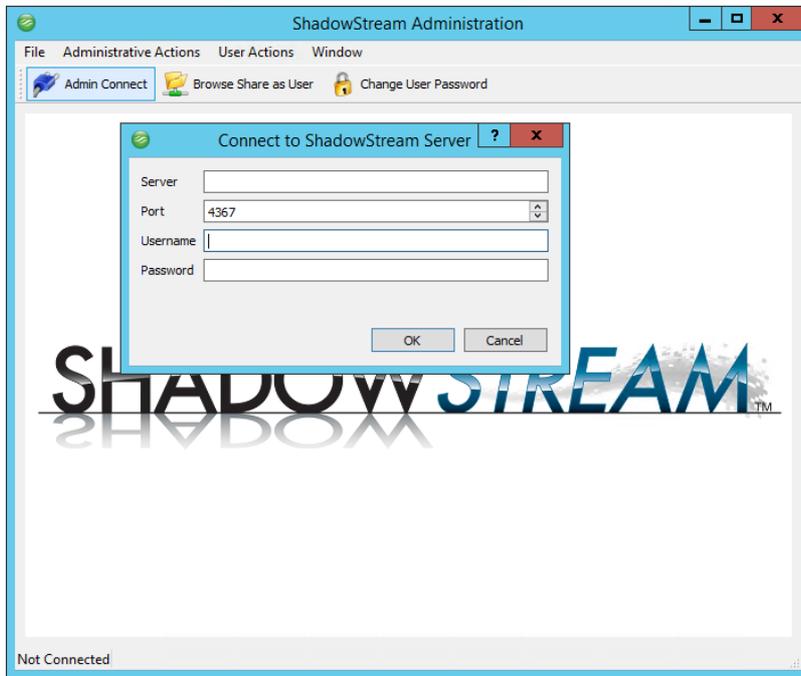You can now configure the new ShadowStream for use with ImageManager.

3 Connect to ShadowStream

Connect to ShadowStream before configuring or using it.

1. Run ShadowStreamAdmin from the Start menu or Task Bar.
2. Click **Admin Connect**.
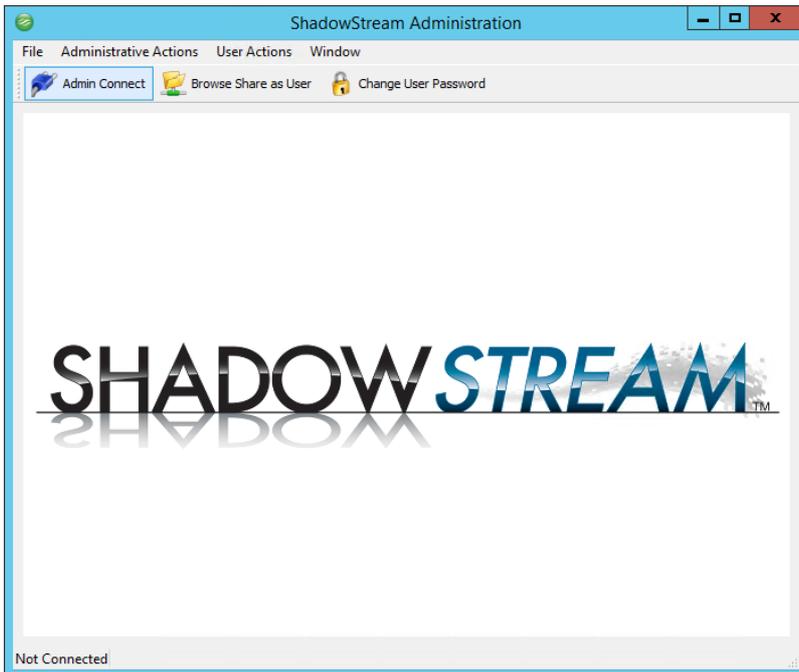
3. Fill in the information on the *Connect to ShadowStream Server* dialog.

Information Descriptions

Server

Enter the name of the server where you installed ShadowStream. This can be either the IP address or the Fully Qualified Domain Name (FQDN).

Port

Accept the default port (4367).

🟢 **Note:** You can change the port number only with the admin tool. If you change the port with the admin tool, you must also change the port number in the *Connect to ShadowStream Server* dialog.

Username

Use the "admin" account username when you connect the first time. The default administrator username is 'admin'. You cannot change (rename) or delete the default "admin" account name. You cannot change the admin permissions.

Password

Enter the password that you selected/created during installation.

4 Configure ShadowStream

While running the ShadowStream Admin Tool you can:

1. Select ShadowStream user roles
2. Add a ShadowStream user to execute replication jobs
3. Create a ShadowStream share as the destination file folder
4. Configure the port settings for access through the firewall

5. [Change a User Password](#)

4.1 ShadowStream User Roles

There are 2 ShadowStream "user" roles:

- User
- Administrator

User

The User role only has the rights that allow ImageManager to process replication jobs.

Administrator

The Administrator role is required to administer the ShadowStream service. Administrators also have rights to process replication jobs.
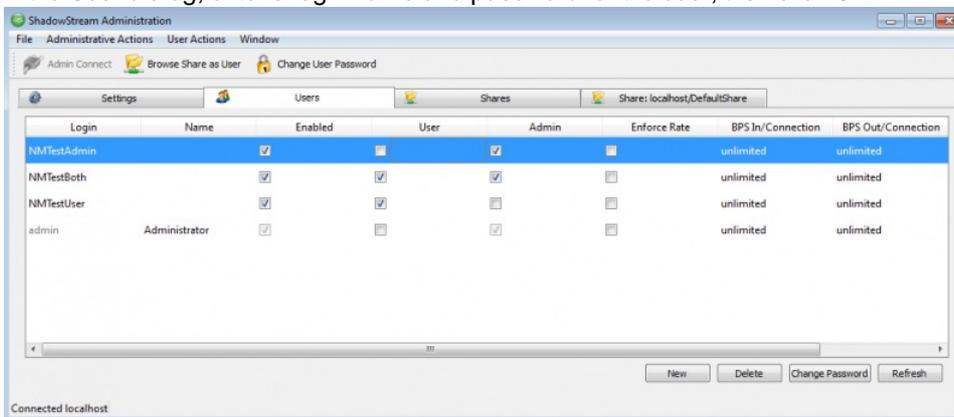
See **Add a New User** for information on adding a new user or changing the role for an existing user.

4.2 Add and Configure Users

To add a new ShadowStream user:

1. Click the **Users** tab.
2. Click **New.**
3. In the User dialog, enter a login name and password for the user, then click **OK**.

Configure Users

You can also change settings for new or existing users:

Setting	Description
Enabled	(Default: Enabled). Enables the ShadowStream user.
User	The user is not a ShadowStream administrator.
Admin	The user is a ShadowStream administrator.
Enforce Rate	Enforces the bandwidth limit for this user.
BPS In	Specifies the maximum (per connection) bitrate (in Mbps) available to this user for downloads. The range is from 1 to 1000Mbps or unlimited.
BPS Out	

Specifies the maximum (per connection) bitrate (in Mbps) available
to this user for uploads. The range is from 1 to 1000Mbps or
unlimited. ShadowStream automatically updates the list on the Users tab after you make the changes.

The refresh button syncs the client with the server.

⚠️ **Important:** Throttling is enforced per connection in the new ShadowStream, not per user. For example: If any given user has throttling maximum (BPS) set to 1 MB and that user has 10 replication jobs, up to 10 MB of bandwidth could be used by that user.

To Change ShadowStream user passwords:

1. Click the **Users** tab.
2. Select the user.
3. Click **Change Password**.
4. Enter a new password for the user, then click **OK**.

4.3 Create and Configure Shares

With ShadowStream installed, ImageManager can replicate data to a shared ShadowStream folder. ShadowStream creates a default folder:

- **Name:** DefaultShare
- **Location:** `ProgramData/StorageCraft/ShadowStream/DefaultShare`
- **Permissions:** Share (all)

ImageManager can use this `DefaultShare` folder as its target, but you may want to add one or more additional shares in order to:

- Better differentiate between and organize jobs.
- Restrict users to a specific share rather than to the general DefaultShare folder.

To add a share

1. Create the destination folder(s) on the target ShadowStream server.
2. In the ShadowStream console, click the **Shares** tab.
3. Click **New**. This displays the Share dialog.
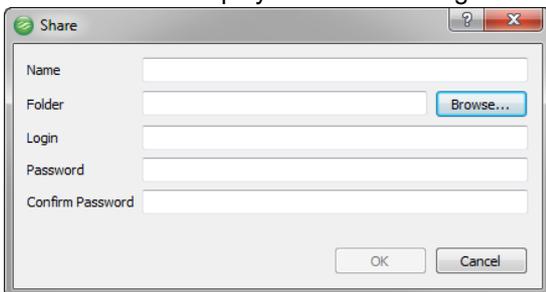
4. In the Share dialog specify the share Name.
5. Click **Browse** to locate the destination folder for this share.

   💚 **Note:** Browse to the destination only if you are running the Administration tool from the ShadowStream server because it only browses the file system on the local machine. If you run the Administration tool from a remote system, type the path instead of browsing to the folder.

6. Click on the folder to highlight it.
7. Click **Select Folder**.
8. (Optional) If the selected shared folder is on a remote system or a NAS (any location that requires credentials), enter the username in the Login field, the password in the Password field, and the same password in the Confirm Password field (the data is stored in an encrypted database). If the selected folder doesn't require credentials you can leave the Login, Password and Confirm Password fields blank.
9. Click **OK**. ShadowStream adds this new share and displays the list in alphabetical order.
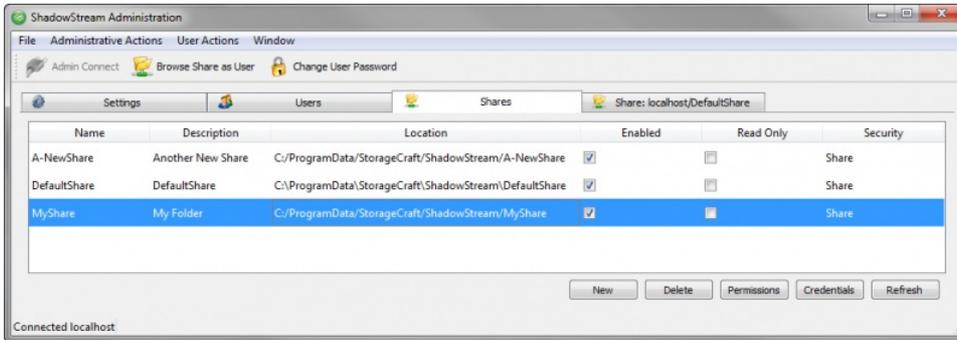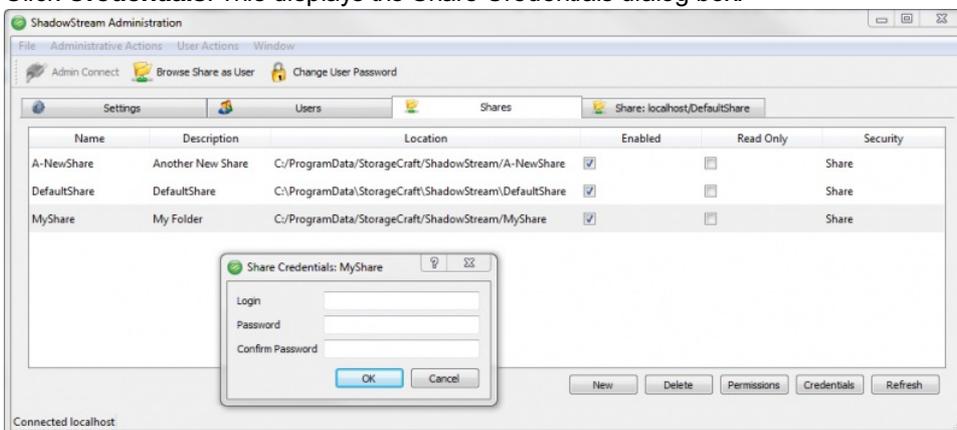
Configure Share Credentials (Optional)

Use this option only if the selected shared folder is on a remote system or on a NAS (any location that requires credentials). If the selected folder doesn't require credentials you don't need to configure share credentials.

To modify the Share credentials:

1. Click **Credentials**. This displays the Share Credentials dialog box.

2. In the Share Credentials dialog, enter the share Login name and the password. Confirm the password, then click **OK**.

    🟢 **Note:** These are the login credentials used to access the share location. They may be Windows credentials required to access the share or NAS credentials if the share is on a NAS.

Share Settings

These options can be used to configure settings for the new share:

Setting	Description
Name	Double-click on the name to modify it. Keep in mind that ImageManager might use this name in a replication job. Changing the name when it is in use by a job causes the job to fail.
Description	Double-click on the Description to enter descriptive information about the share.
Location	Displays the path selected for this share. Modifying this lets you change the destination folder for this share. If you change the location, StorageCraft recommends that you move the contents of the previous destination folder to the new path so the ImageManager replication jobs are not affected by the change and will run normally. This prevents ImageManager from re-sending all the contents intended for the folder instead of only the updates.
Enabled	(Default: Enabled) Unchecking the "Enabled" box disables a share. (Click **Delete** to permanently remove a ShadowStream share.)
Read Only	Makes a share read-only.
Security	Displays the Permissions setting for this share. The settings are Share, and User. (Click **Permissions** to modify the setting.)

Configure Share Permissions

🟢 **Note:** ShadowStream maintains its own database of users and shares. These users and shares are unique to ShadowStream and are not the same as a Windows user or Share (even if there are existing Windows shares on the target server).

To modify the Share permissions for the highlighted share:

1. Click **Permissions**. This displays the Share Permissions dialog box.
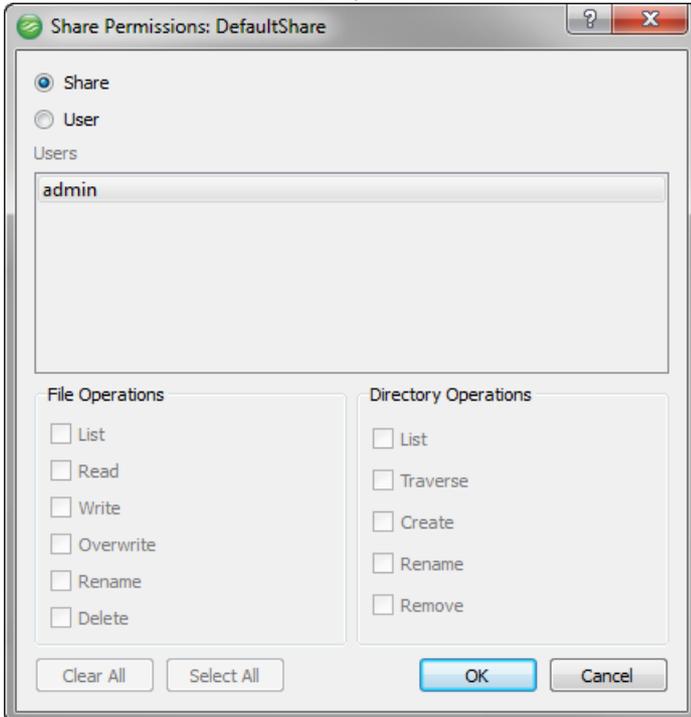
2. In the Share Permissions dialog, select the desired permission setting, then click **OK**.

Permission Description

Share	This is the default setting. Grants all rights for the Share to ShadowStream users. (This does not include the right to change folder permissions. Only administrators can change folder permissions.)
User	Click the **User** radio button to grant specific users permissions to this share. Grant the permissions by checking the box in the File Operations and Directory Operations panels.

ShadowStream automatically updates the Shares tab to reflect changes in permissions.

4.4 Configure Settings

The ShadowStream Settings tab allows you to configure the Control Port and the Administration Port.

🟢 **Note:** New ShadowStream uses UDP ports 4366 and 4367 (different ports than used by Legacy ShadowStream). You need to modify your firewall and router configurations to allow traffic on these ports.

Configuration Port Options

Setting	Value
Control Port	Default: UDP 4366. Use the default unless your firewall policy requires a different port.

Administration

Remote access is always enabled. Use the default port setting if possible.

Setting	Value
Administration Port	Default: UDP 4367. The port that the ShadowStream server uses for the administrative connection. Leave this at the default unless your firewall policy requires a different port.

4.5 Change a User Password

Password Management

To change a ShadowStream user password:

1. Click **Change User Password**.
2. Enter these details, then click **OK**.

Field	Comment
Server	Enter the name of the local ShadowStream server.
Control Port	Default: 4367. Leave this default unless your administrator specifically changed it.
Username	Enter your ShadowStream username.
Password	Enter your current password.
New Password	Enter the new password.
Confirm New Password	Repeat the new password.

ShadowStream asks for the new password the next time you log into the administrator tool.

🟢 **Note:** Changing the password of a user (used by ImageManager during replication) will cause the replications to fail unless the ImageManager settings for the replication job are updated to match the new password. If you forget your ShadowStream password contact StorageCraft support for assistance.

5 Browsing a Shared Folder

The primary purpose of ShadowStream is to perform ImageManager replication jobs. The ShadowStream administrator tool can also be used to:

- Confirm that remote site backup image replications have completed
- Download backup image files from remote sites to the workstation.
- Upload backup image files to a remote server's shared folder.

Accessing the console

1. Click **Start>StorageCraft>ShadowStream Admin Tool**.
2. Click **Browse Share as User**. The Connect to Share dialog box will be displayed.
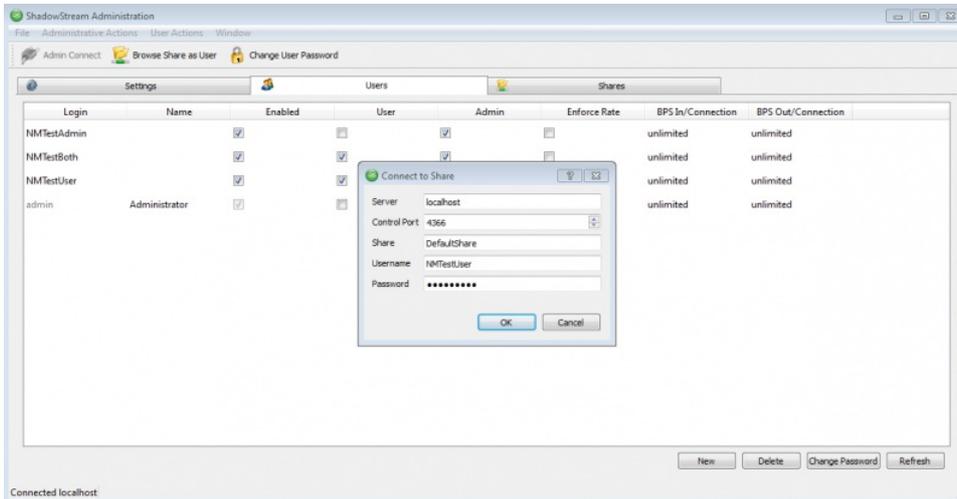
3. In the *Connect to Share* (user login) dialog:
   - Enter the Server name
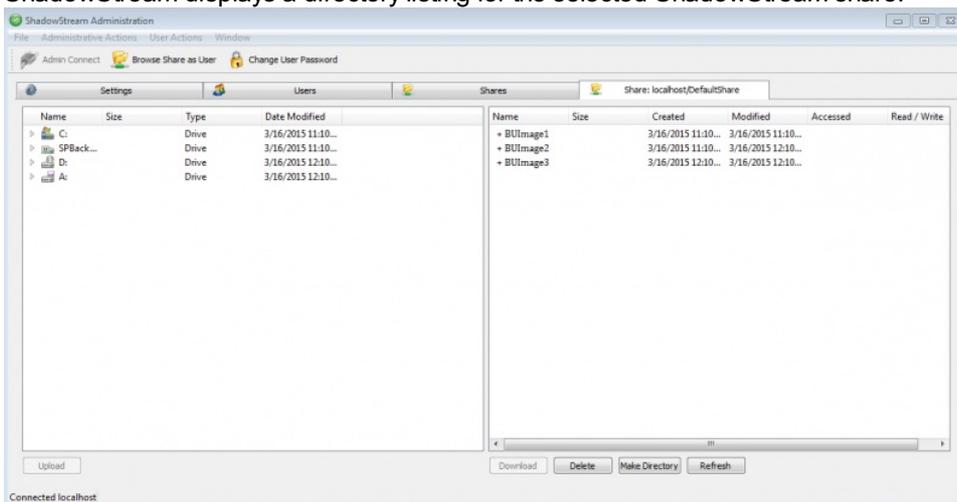   - Verify the Control Port is correct
   - Verify the Share is correct
   - Enter the Username
   - Enter the Password

   Then click **OK**.

4. ShadowStream displays a directory listing for the selected ShadowStream share:

   In the directory listings page (the image shown above):

   - The left panel shows the local file system
   - The right panel shows the ShadowStream "share" file system.

Folder and File Actions

You can perform various actions on the files or folders based on user permissions set by the administrator.

🟢 **Note:** By default, all ShadowStream users have the full permission to the ShadowStream shares. They do not, however, have permission to change permissions.

Action	Result
Double-click a folder	Opens the folder and displays a list of its contents.
Click **Delete**	Deletes the highlighted files/folders.
Click **Download**	Opens a local directory dialog so you can select where you want to download the selected files to.
Click **Refresh**	Refreshes the listing to show the changes you've made.

6 FAQ and Examples

This page covers the most commonly asked questions about ShadowStream. If the information you need isn't here, you can also check the StorageCraft user forum and Knowledge Base articles.

Question

How do I upgrade from the original (legacy) ShadowStream to the new ShadowStream?

Answer

This is a manual 2-part process. Follow these steps to complete the upgrade process:

In ImageManager

   Pause all ShadowStream jobs.

In ShadowStream

1. Stop the legacy ShadowStream service (ShadowStream Service).
2. Copy the old (legacy) ShadowStreamServer.db file from the C:\Program Files (x86)\StorageCraft\ShadowStream folder.
3. Uninstall the legacy ShadowStream.

   🟢 **Note:** You can alternately uninstall legacy ShadowStream after you finish configuring all ImageManager replication settings for the new ShadowStream. This is the prefered method if you have a large number of managed folders, across multiple machines which are replicating to the ShadowStream server. If you keep legacy ShadowStream running it will prevent replication failures that could be caused by uninstalling the legacy ShadowStream server before the new ShadowStream is fully configured.

4. Install the new ShadowStream.
5. Stop the new ShadowStream service (StorageCraft ShadowStream Server).
6. Paste the legacy ShadowStreamServer.db into the C:\ProgramData\StorageCraft\ShadowStream folder and replace the new ShadowStreamServer.db.

   🟢 **Note:** The ProgramData folder is hidden by default.

7. Restart the new ShadowStream service.

   🟢
   Note 1: If you modified the credentials used to run the legacy ShadowStream service to connect with network devices, you have two options to continue using those network resources:

   Option 1: In the new ShadowStream Admin Tool modify the shares for the NAS and add credentials. See Create and Configure Shares in the ShadowStream user guide.

   or

   Option 2: Configure the new ShadowStream service with the same credentials used to run the legacy ShadowStream service.

   Note 2: If you are waiting to uninstall legacy ShadowStream (as described in step 3) then restart the legacy ShadowStream service and the new ShadowStream service.

8. Login to the admin tool using the password for the legacy ShadowStream database.
   🟢 **Note:** Admin passwords created during the new ShadowStream installation are overwritten if the database is copied. If you don't remember the admin password that was used in Legacy ShadowStream try 'password' which was the default password.

The new ShadowStream will adjust the Control and Data ports to their new default ShadowStream values of 4366 (control) and 4367 (admin). It will also use the shares and users from the legacy database.

In ImageManager

You also need to make the following ImageManager changes to take advantage of the new ShadowStream:

1. Install ImageManager 6.6.0 (or newer) if it hasn't already been installed.
2. After starting ImageManager, delete any existing ShadowStream replication jobs that use the Legacy ShadowStream replication type.
3. Create a new replication jobs by selecting the "StorageCraft ShadowStream Server" type.
4. Configure the new replication jobs with the same settings as in the original (deleted) jobs.

🟢 **Note:** New ShadowStream uses UDP ports 4366 and 4367 (different ports than used by Legacy ShadowStream). You need to modify your firewall and router configurations to allow traffic on these ports.

Question

What is Storm Control and how does it affect the new ShadowStream transfer rates?

Answer

If Storm control is turned on, it regulates the rate used by ethernet switches to forward broadcast and multicast traffic. Storm Control is typically OFF by default on most switches. It is normally possible to configure Storm Control throughput (packets per second) or turn it on and off on a per-port basis.

StorageCraft recommends that you review the switch configuration used at both the Source and Destination locations to make sure you have the appropriate Storm Control settings in place when using the new ShadowStream.

Question

If I click on a filename that is currently being downloaded with the new ShadowStream Admin Tool, why does it show the file size as 0 (zero)?

Answer

The new ShadowStream doesn't determine the changing file size (the increasing file size) during the download so it reports 0 bytes. To see the correct file size after the download is finished:

1. Close the browse session.
2. Click on the Browse button to open a new browse session.
3. Click on the filename again. ShadowStream now reports the correct file size.

🟢 **Note:** StorageCraft recommends that you don't click on a filename in the new ShadowStream Admin Tool until the file is completely downloaded. Taking this precaution will prevent the problem described here from happening.

Question

We need to backup to a secondary site over the internet using ShadowStream. The client has many GBs of data (which is obviously too much to send over the internet for an initial backup). Can you tell us the best way to facilitate the initial data transfer to the secondary site?

Answer

With the latest version of ImageManager you can configure a ShadowStream replication job so it doesn't replicate the large, Full (base) back-up file. To do this, keep the default "Do not replicate base image" option selected. ImageManager then immediately allows you to start replicating all incremental files to the remote site. To complete this process you need to physically transport the Full backup file to the remote site and copy it into the managed folder containing the other replicated files for that backup chain.

StorageCraft recommends this process:

1. Open ImageManager and create a new ShadowStream replication job.
   If you don't want to replicate the large Full (base) backup file, leave the "Do not replicate base image" option selected.
2. ImageManager will start replicating all incremental backup image files to the target site.
3. Copy the base Full backup file to a locally-attached external drive.
4. Physically take the external drive to the secondary site.
5. Connect the external drive to the ShadowStream replication target computer.

6. Copy the base Full backup file from the locally-attached external drive to the directory specified when the ShadowStream replication target was created.

Question

Do the backup files get verified by ShadowStream with an MD5 check at the target server running the ShadowStream service?

Answer

The ShadowStream Service checks to verify that file data was transferred correctly but doesn't use an MD5 file. To do an MD5 check, you need to use ImageManager on the machine running the ShadowStream service in order to periodically verify the backup image files. You can also use ImageManager to consolidate chains, and perform recurring MD5 checksum verifications.

Question

We are currently using ShadowStream server for many servers. I am upgrading the server that is running ShadowStream and wanting to know what files etc I need to bring over from the old server so that I do not have to recreate all of the users/shares and permissions. Any and all help would be appreciated.

Answer

Currently there is no way to export settings from the ShadowStream Admin Console. There are also no registry keys to export for this application. If you need to move it to a different machine where you are starting fresh, you need to rebuild the Users/Shares/Settings.

If all the share paths on the new server are the same as on the old server, then after ShadowStream is installed you can:

1. Stop the StorageCraft ShadowStream Server service.
2. Copy the ShadowStream.db file from the old server over the top of the file that was created during the install to the new server
3. All the settings will be present.

To submit a feature request follow [this link](#).

Question

ShadowStream saves the original default password. Clicking **OK** lets you log in. However, if you change the password, why doesn't ShadowStream remember, where the password is stored so we can update with the current version?

Answer

ShadowStream does not store the password in plain text. For security reasons StorageCraft does not pre-populate the password field.

Question

ShadowStream Monitoring

Is there a way to see what sources are currently replicating to a target ShadowStream server? We have more than one ImageManager replicating to a single ShadowStream server in a colocation facility - but would like to see who is currently replicating at any given time. Is this possible and how can it be done?

Answer

ShadowStream doesn't currently have this functionality. *To submit a feature request follow [this link](#).*

Question

What is the best way to configure throughput throttling for the new ShadowStream?

Answer

Per Connection Throttling
Throughput Throttling in the new ShadowStream is enforced per connection (not per user). For example: If your throttling maximum (BPS in) is set to 1 MB, and you have 10 replication jobs, you could use up to 10 MB of bandwidth.

Client Throttling
StorageCraft recommends that you adjust throttling on the ImageManager (client) side and that you keep the default (maximum) Throttling level on the ShadowStream Server side. This generally provides better and more consistent results and makes it easier to manage throttling.

Throttling for the Highest Throughput
StorageCraft recommends adjusting ImageManager (client) throttling slightly lower than the throughput of the slowest connection. For example: If you have a 1Gbps connection into the ShadowStream Server side and just 10Mbps on the ImageManager (Client) side, you'll get the best throughput by setting the ImageManager "ShadowStream Replication Job throttle" to 9Mbps.

ShadowStream automatically throttles up and down to make use of available bandwidth, however, in some tests StorageCraft has determined that the highest throughout is achieved when the ImageManager throttling is set to just below speed of the slowest link.

On a slow ADSL connection where the client has an average upload speed of about 250kbps you can set the ImageManager throttling close to this value and increase it later if you want. However, the speed won't exceed the throughput of the slowest link.

7 ShadowStream 6 Error Codes

General Errors

Error Code: (-1)
Error Message: QTP_PENDING
Description: Command is still in progress.
Common Causes: The operation isn't complete and the status is pending.

Error Code: 0
Error Message: QTP_SUCCESS
Description: Command succeeded.
Common Causes: The operation was successful.

Error Code: 1
Error Message: QTP_FAILURE
Description: Command failed for unknown reason.
Common Causes: Unknown failure.

Error Code: 2
Error Message: QTP_UNKNOWN_COMMAND
Description: No command matching the active Command ID provided was found.
Common Causes: The command may have completed and its status read previously. It may have been a bad Comand ID.

Error Code: 3
Error Message: QTP_MISSING_SOURCE_FILE
Description: The source file for the file transfer does not exist.
Common Causes: A bad filepath might have been provided or the file may have been deleted after the command was queued.

Error Code: 4
Error Message: QTP_INVALID_ARGUMENT
Description: An invalid argument was passed to a command.
Common Causes: An invalid value may have been passed to a parameter.

Error Code: 5
Error Message: QTP_PACKET_ERROR
Description: A corrupt packet was received at the destination and could not be processed.
Common Causes: This could be caused by data corruption on the wire.

Error Code: 6
Error Message: QTP_COULD_NOT_SEND_PACKET
Description: A command packet could not be sent.
Common Causes: This can be caused by not being connected to the server.

Error Code: 9
Error Message: QTP_CONNECT_ERROR
Description: A connection to the server could not be established.
Common Causes: The network might be down or a firewall might be interfering with UDP traffic.

Error Code: 10
Error Message: QTP_CONNECTION_BROKEN
Description: Connection to the server was lost.
Common Causes: The network might have gone down or the firewall might have interfered. The admin tool could have been running on localhost for unknown reason the connection sometimes drops.

Error Code: 11
Error Message: QTP_RENDEZVOUS_ERROR
Description: Error when attempting to connect the data socket.
Common Causes: The network might have gone down or firewall might have interfered.

Error Code: 12
Error Message: QTP_LOGIN_ERROR
Description: Login attempt to server failed.
Common Causes: An invalid user name or password may have been used.

Error Code: 13
Error Message: QTP_CHANGE_DIRECTORY_ERROR
Description: Changing the directory on the server failed.
Common Causes: Could be caused by either a ShadowStream or file system permission issue.

Error Code: 14
Error Message: QTP_REMOVE_FILE_ERROR
Description: Deleting a file on the server failed.
Common Causes: Could be caused by either a ShadowStream or file system permission issue.

Error Code: 15
Error Message: QTP_GET_FILE_ERROR
Description: Failed to retrieve file from the server.
Common Causes: This might be either a ShadowStream or file system a permission issue or a read error on the server or a write error on the client.

Error Code: 16

Error Message: QTP_PUT_FILE_ERROR
Description: Failed to send file to the server.
Common Causes: either a ShadowStream or file system a permission issue or a read error on the client or a write error on the server which could indicate insufficient disk space.

Error Code: 17
Error Message: QTP_RENAME_ERROR
Description: Failed to rename file on server.
Common Causes: This might be either a ShadowStream or file system a permission issue.

Error Code: 18
Error Message: QTP_REMOVE_DIRECTORY_ERROR
Description: Failed to remove directory on server.
Common Causes: This might be either a ShadowStream or file system a permission issue.

Error Code: 19
Error Message: QTP_MAKE_DIRECTORY_ERROR
Description: Failed to create directory on server.
Common Causes: This might be either a ShadowStream or file system a permission issue.

Error Code: 20
Error Message: QTP_LIST_ERROR
Description: Failed to get file list on server.
Common Causes: This might be either a ShadowStream or file system a permission issue.

Error Code: 200
Error Message: QTP_COMMAND_OK
Description: Command finished successfully.
Common Causes: It worked.

General Protocol Errors

Error Code: 506
Error Message: QTP_ABORT
Description: Command was aborted by the user.
Common Causes: The abort was initiated by user input.

Error Code: 507
Error Message: QTP_INVALID_FILE_SIZE
Description: Send file command with Resume option was received where the source file is smaller than the destination file.
Common Causes: The file is not the same one that was originally transferred on either the source or the destination.