# Configuring SFTP Connections in PowerCenter®

# Abstract

This article describes how to set up an SFTP workflow connection in PowerCenter and configure the SFTP connection properties to achieve secure transfer of files and protection against attacks such as IP spoofing, IP source routing, and DNS spoofing.

# Supported Versions

- PowerCenter 10.1.1

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# Overview

The traditional FTP protocol sends commands and data without any form of security over the network. This FTP data could be intercepted by an attacker, which could then be viewed and altered before sending it onto the receiver.

If you are sending sensitive data over a network, you can use Secure File Transfer Protocol (SFTP) for securing data. The PowerCenter Integration Service creates an SSH2 transport layer that enables a secure connection and access to the files on an SFTP server.

SFTP creates an encrypted channel between two computer systems and protects against the following attacks:

- IP spoofing. A remote host sends out packets that pretend to come from another trusted host.
- IP source routing. A host can pretend that an IP packet comes from another trusted host.
- DNS spoofing. An attacker forges name server records.
- Interception of clear text passwords and other data by intermediate hosts.
- Manipulation of data by attackers in control of intermediate hosts.

SFTP uses a combination of asymmetric (public key) cryptology and symmetric cryptology to provide strong encryption and optimal performance. Most commercial servers and many open source servers support SFTP. SFTP is also an effective protocol to use for transmitting large files as it compresses the data stream before encryption.
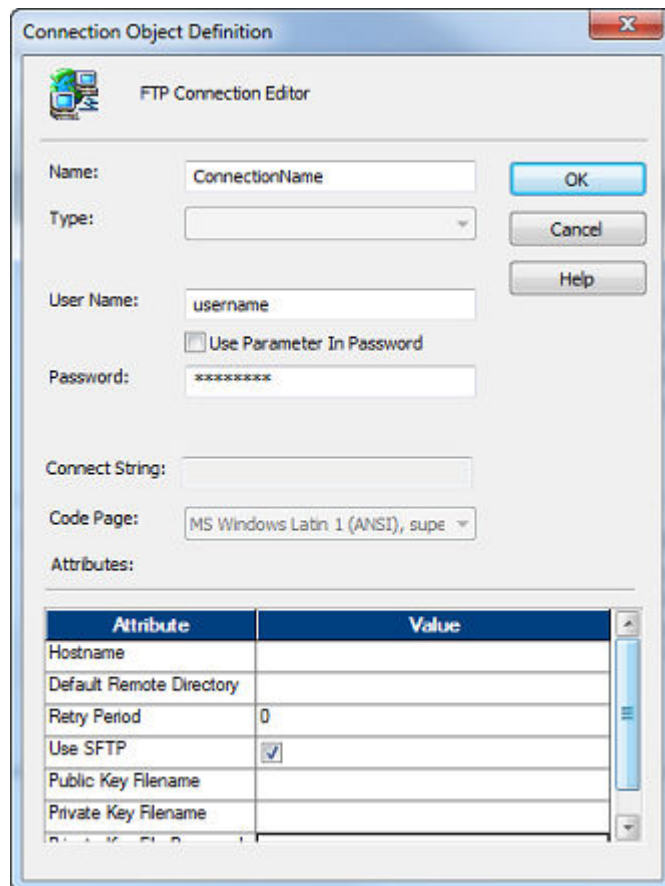
To use SFTP file sources and targets in a session, perform the following tasks:

1. Create an FTP workflow connection and configure the FTP connection object for SFTP.
2. Select and configure an SFTP connection object in the session properties.
3. Configure source file properties.
4. Configure target file properties.

# Creating an FTP Workflow Connection and Configuring the FTP Connection Object for SFTP

The traditional FTP protocol sends commands and data without any form of security over the network. You can use an SFTP connection to securely transfer files using SSH File Transfer Protocol (Version 3). To connect to an SFTP server, create an FTP connection and enable SFTP.

1. In the Workflow Manager, click **Connections** > **FTP**.

   The **FTP Connection Browser** dialog box appears.

2. Click **New** in the **FTP Connection Browser** dialog box.

   The **Connection Object Definition** dialog box appears.

3. Configure the following attributes to create an SFTP connection object:

| Property | Description |
| --- | --- |
| Name | Connection name used by the Workflow Manager. Connection name cannot contain spaces or other special characters, except for the underscore.<br><br>**Tip:** Include SFTP in the connection name for connections that use SFTP. |
| User Name | User name required to access the host machine. Must be in 7-bit ASCII only. Required to connect to an SFTP server with password based authentication.<br><br>To define the user name in the parameter file, enter session parameter $Param*Name* as the user name, and define the value in the session or workflow parameter file. The Integration Service interprets user names that start with $Param as session parameters. |
| Use Parameter in Password | Indicates the password for the user name is a session parameter, $Param*Name*. Define the password in the workflow or session parameter file, and encrypt it by using the *pmpasswd* CRYPT_DATA option. Default is disabled. |
| Password | Password for the user name. Must be in 7-bit ASCII only. Required to connect to an SFTP server with password based authentication.<br><br>**Note:** When you specify *pmnullpasswd*, the PowerCenter Integration Service authenticates the user directly based on public key without performing the password authentication. |
| Host Name | Host name or dotted IP address of the FTP connection.<br><br>Optionally, you can specify a port number between 1 and 65535, inclusive. Default for FTP is 21. Use the following syntax to specify the host name:<br><br>`hostname:port_number`<br><br>Or,<br><br>`IP address:port_number`<br><br>When you specify a port number, enable that port number for FTP on the host machine.<br><br>If you enable SFTP, specify a host name or port number for an SFTP server. Default for SFTP is 22. |
| Default Remote Directory | Default directory on the FTP host used by the Integration Service. Do not enclose the directory in quotation marks.<br><br>You can enter a parameter or variable for the directory. Use any parameter or variable type that you can define in the parameter file.<br><br>Based on the FTP server you use, you might have limited options to enter FTP directories.<br><br>In the session, when you enter a file name without a directory, the Integration Service appends the file name to this directory. This path must contain the appropriate trailing delimiter. For example, if you enter c:\staging\ and specify data.out in the session, the Integration Service reads the path and file name as c:\staging\data.out.<br><br>For SAP, you can leave this value blank. SAP sessions use the Source File Directory session property for the FTP remote directory. If you enter a value, the Source File Directory session property overrides it. |
| Retry Period | Number of seconds the Integration Service tries to reconnect to the FTP host if the connection fails. If the Integration Service cannot reconnect to the FTP host in the retry period, the session fails. Default value is 0 and indicates an infinite retry period. |
| Use SFTP | Enables SFTP. |

| Property | Description |
| --- | --- |
| Public Key File Name | Public key file path and file name. Required if the SFTP server uses public key authentication. Enabled for SFTP. |
| Private Key File Name | Private key file path and file name. Required if the SFTP server uses public key authentication. Enabled for SFTP. |
| Private Key File Password | Private key file password used to decrypt the private key file. Required if the SFTP server uses public key authentication and the private key is encrypted. Enabled for SFTP. |

4. Click **OK**.

   The FTP connection object appears in the list of FTP connections in the **FTP Connection Browser** dialog box.

5. Click **Close**.

# Selecting and Configuring an SFTP Connection in a Session

Select an FTP connection for a source or target instance that uses SFTP and configure connection options in the Connections settings on the Mapping tab.

1. In the Workflow Manager, click **Tools** > **Workflow Designer** to open the Workflow Designer.

2. Open the session properties by double-clicking the session icon in the workspace.

   The **Edit Tasks** dialog box appears.

3. On the **Mapping** tab, select the source or target instance in the Transformation view.

   The following image shows the Connections settings of the Sources node on the **Mapping** tab:
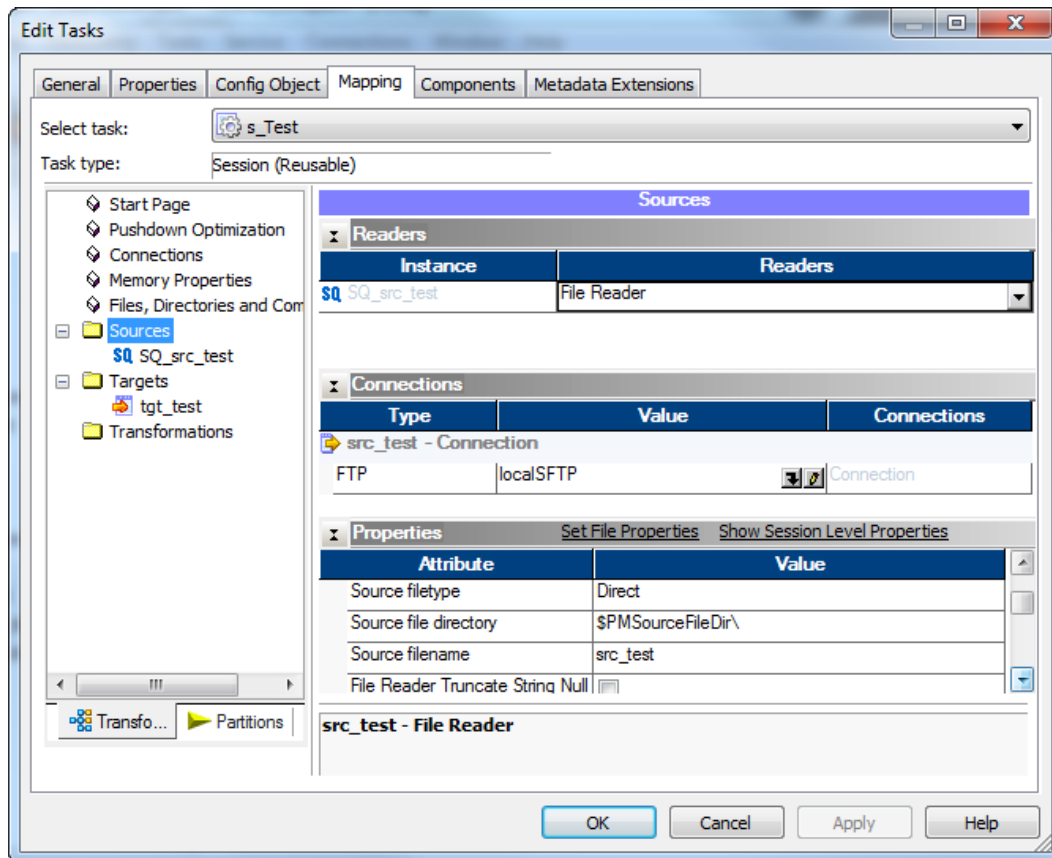
4. Select the FTP connection type.

5. Click the **Open** button in the Value field.

   The **FTP Connection Browser** dialog box appears with the list of FTP connection objects.
   The following image shows the **FTP Connection Browser** dialog box:
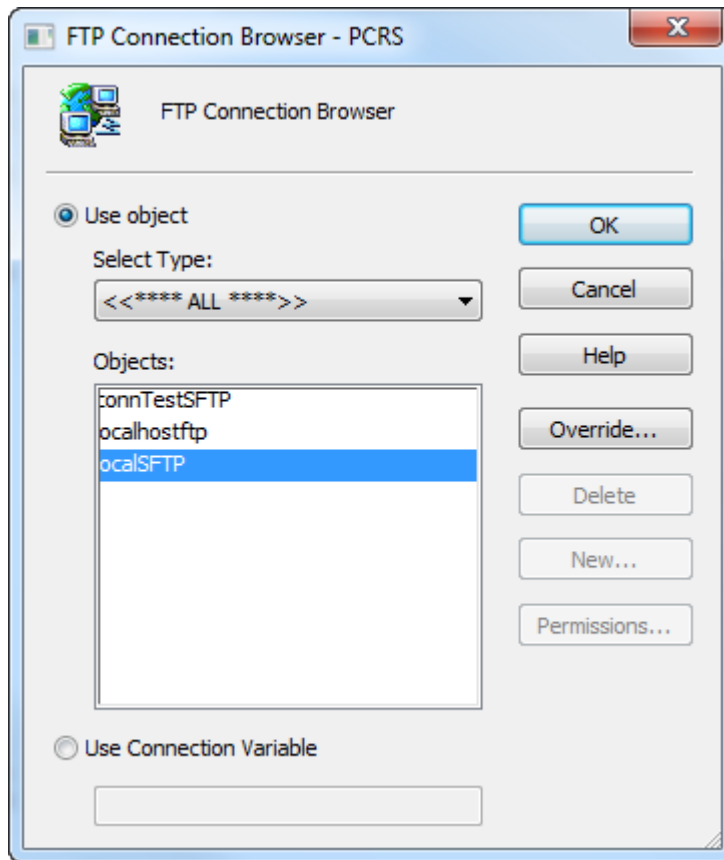
6.  Select a connection object or variable:

    - **Use object.** Select an FTP connection object configured for SFTP. Click the Override button to override connection attributes.

    - **Use connection variable.** Use the $FTPConnection*Name* session parameter, and define the parameter in the parameter file. Override connection attributes in the parameter file.

7. Click **Override** to override the following attributes on the **FTP Connection Editor** dialog box:

| Attribute | |
| --- | --- |
| Remote Filename | The remote file name**Description** for the source or target. If you use an indirect source file, enter the indirect source file name.<br><br>You must use 7-bit ASCII characters for the file name. The session fails if you use a remote file name with Unicode characters.<br><br>If you enter a fully qualified name for the source file name, the PowerCenter Integration Service ignores the path entered in the Default Remote Directory field. The session will fail if you enclose the fully qualified file name in single or double quotation marks.<br><br>You can use a parameter or variable for the remote file name. Use any parameter or variable type that you can define in the parameter file. For example, you can use a session parameter, $ParamMyRemoteFile, as the source or target remote file name, and set $ParamMyRemoteFile to the file name in the parameter file. |
| Is Staged | Stages the source or target file on the PowerCenter Integration Service. Default is not staged. |
| Is Transfer Mode ASCII | Changes the transfer mode. When enabled, the PowerCenter Integration Service uses ASCII transfer mode. You can use ASCII mode when transferring files on Windows machines to ensure that the end of line character is translated properly in text files. When disabled, the PowerCenter Integration Service uses binary transfer mode. Use binary transfer mode when transferring files on UNIX machines. Default is disabled. |

The following image shows the **Connection Object Definition** dialog box:
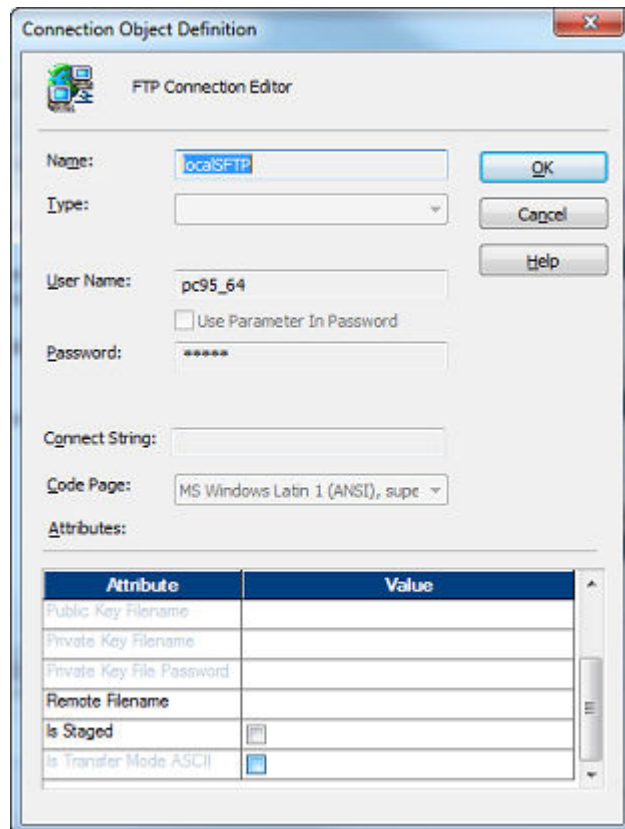


8. Click **OK**.

# Configuring Source File Properties

If you access source files with SFTP, configure the source file properties after you choose the SFTP connection for the source instance. The source file properties determine the source file type and the staging location. You can configure source file properties in the Properties settings on the Mapping tab.

If you want to stage the source file, select the source file name, directory, and file type.

If you do not want to stage the source file, specify the source file type. The PowerCenter Integration Service uses the remote file name and directory from the FTP connection object and ignores the source file name and directory.

1. In the Workflow Manager, open the Task Developer and click **Tasks** > **Create**.
2. Select Session for the task type.
3. Enter a name for the session task. Do not use the period character (.) in task names. Workflow Manager does not allow a task name with the period character.
4. Click **Create**.

   The Task Developer creates the session task.
5. In the **Mappings** dialog box, select the mapping you want to use in the Session task and click **OK**.
6. Click **Done**.
7. Open the session properties by double-clicking the icon in the workspace.

   The **Edit Tasks** dialog box appears.
8. Configure the following source file properties in the Properties settings of the Sources node on the **Mapping** tab:

| Attribute | Description |
|---|---|
| Source File Type | Indicates whether the source file contains the source data or a list of files with the same file properties. Choose Direct if the source file contains the source data. Choose Indirect if the source file contains a list of files. |
| Source File Directory | Name and path of the local source file directory used to stage the source data. By default, the PowerCenter Integration Service uses the service process variable directory, $PMSourceFileDir, for file sources. The PowerCenter Integration Service concatenates this field with the Source file name field when it runs the session. |
| | If you do not stage the source file, the PowerCenter Integration Service uses the file name and directory from the FTP connection object configured for SFTP. |
| | The PowerCenter Integration Service ignores this field if you enter a fully qualified file name in the Source file name field. |
| Source File Name | Name of the local source file used to stage the source data. You can enter the file name or the file name and path. If you enter a fully qualified file name, the PowerCenter Integration Service ignores the Source file directory field. |
| | If you do not stage the source file, the PowerCenter Integration Service uses the remote file name and default directory from the FTP connection object configured for SFTP. |

The following image shows the Properties settings of the Sources node on the **Mapping** tab:
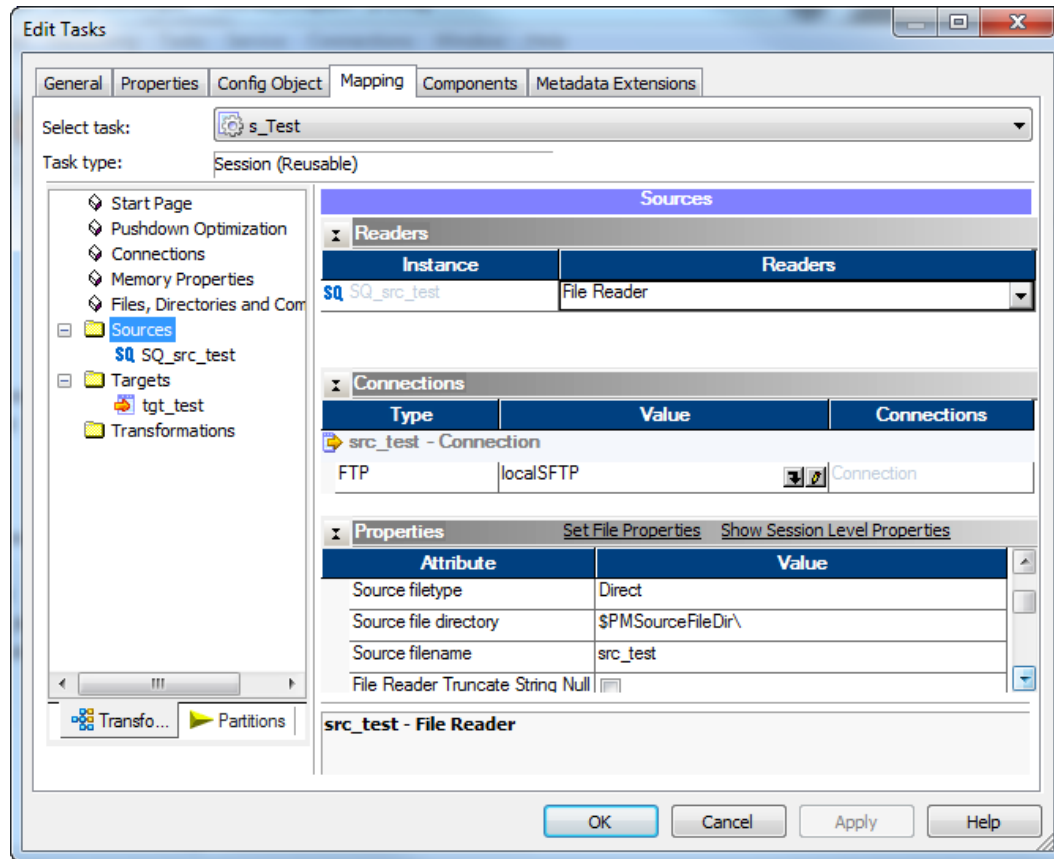


9.  Click **Apply**.

10. To close the **Edit Tasks** dialog box, click **OK**.

# Configuring Target File Properties

If you write to target files with SFTP, specify the target file properties after you specify the SFTP connection for the target instance. The target file properties determine the reject file and directory and staging location. Specify target file properties in the Properties settings on the Mapping tab.

If you want to stage the target file, configure the target file name and directory and the reject file name and directory. If you do not stage the target file, configure the reject file and directory. The PowerCenter Integration Service uses the remote file name and directory from the SFTP connection object.

If you have the Partitioning option, you can also select merge file properties.

1.  In the Workflow Manager, open the Task Developer and click **Tasks** > **Create**.

2.  Select Session for the task type.

3.  Enter a name for the session task. Do not use the period character (.) in task names. Workflow Manager does not allow a task name with the period character.

4.  Click **Create**.

    The Task Developer creates the session task.

5.  In the **Mappings** dialog box, select the mapping you want to use in the Session task and click **OK**.

6.  Click **Done**.

7. Open the session properties by double-clicking the icon in the workspace.

   The **Edit Tasks** dialog box appears.

8. Configure the following target file properties in the Properties settings of the Targets node on the **Mapping** tab:

| Attribute | Description |
|---|---|
| Output File Directory | Name and path of the local target file directory used to stage the target data. By default, the PowerCenter Integration Service uses the service process variable directory, $PMTargetFileDir. The PowerCenter Integration Service concatenates this field with the Output file name field when it runs the session.<br><br>If you do not stage the target file, the PowerCenter Integration Service uses the file name and directory from the FTP connection object.<br><br>The PowerCenter Integration Service ignores this field if you enter a fully qualified file name in the Output file name field. |
| Output File Name | Name of the local target file used to stage the target data. You can enter the file name, or the file name and path. If you enter a fully qualified file name, the PowerCenter Integration Service ignores the Output file directory field.<br><br>If you do not stage the source file, the PowerCenter Integration Service uses the remote file name and default directory from the FTP connection object. |

The following image shows the Properties settings of the Targets node on the **Mapping** tab:
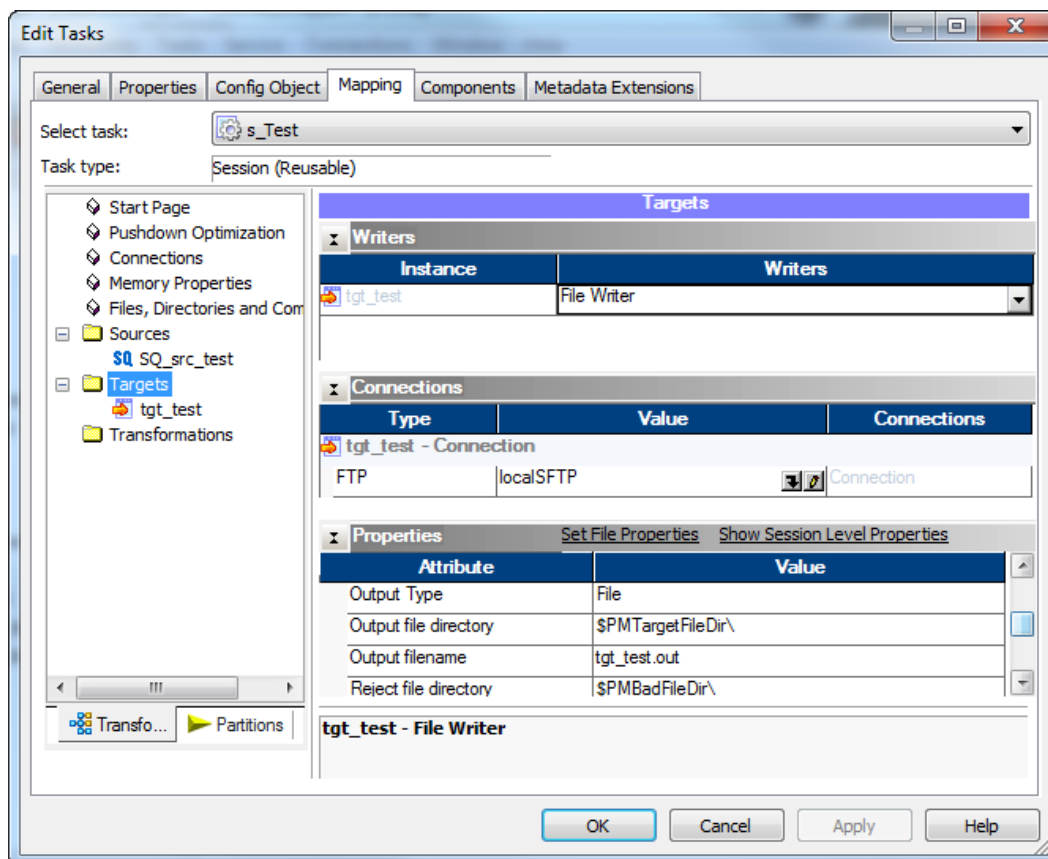


9. Click **Apply**.

10. To close the **Edit Tasks** dialog box, click **OK**.

11. To save the changes in the target file properties, click **Repository** > **Save**.

## Author

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