

Using SFTP to Transfer TEXAS GRANT Year End Reports

Over the years the Texas Higher Education Coordinating Board has utilized various methods to collect the required educational reports. Initially, paper forms and round reel tapes were used to transport these reports. As the internet grew, so did the use of the FTP protocol as a means to transfer these reports. FTP is almost universally deployed on every computing platform from mainframe to PC. FTP has served quite well for this purpose; however, the Internet is becoming increasingly hostile and many organizations are adopting policies that prohibit the transfer of data over unencrypted channels. Secure methods of transferring data must be implemented to satisfy these demands.

The Coordinating Board now requires and distributes reports with the Secure Shell (SSH) and Secure FTP (SFTP) combination. SFTP is a logical replacement for FTP. The SFTP user interface will be familiar for FTP users. SFTP provides a secure channel for file transfer without the overhead and complexity of separate public key-based encryption. In SSH/SFTP transfers, all username/password and data transfer occurs over an encrypted channel. SFTP will be implemented using usernames and passwords similar to the current FTP system. SSH/SFTP provides some flexibility for authentication; in the future username/password-based authentication can be supplemented with shared host keys permitting script driven transfers if needed.

Instructions for Usernames and Passwords

In order to submit TEXAS Grant files, you must log into the SFTP server with a username and password.

TEXAS GRANT Username

If you are a TEXAS Grant user, your username will be 'fasNNNNNN00' where 'NNNNNN' is your FICE code. For example, if your FICE code is 123456, then your SFTP username will be 'fas12345600'.

TEXAS GRANT Password

Your TEXAS Grant reporting official may already have your institution's password for the sftp.thecb.state.tx.us server. If you require your initial password, you should contact the THECB official in the contact information section below. You may request your password through e-mail; however, passwords will only be distributed by voice call or postal mail. If you are requesting your password through mail, specify your name, phone, institution, and head reporting official. The THECB contact staff (below) will then call you to deliver your password.

Contact Information

The THECB staff contact for obtaining your password is:

Tanya Trevino (Sifuentes) at tanya.trevino@thecb.state.tx.us or 1-800-242-3062, x6123

OR

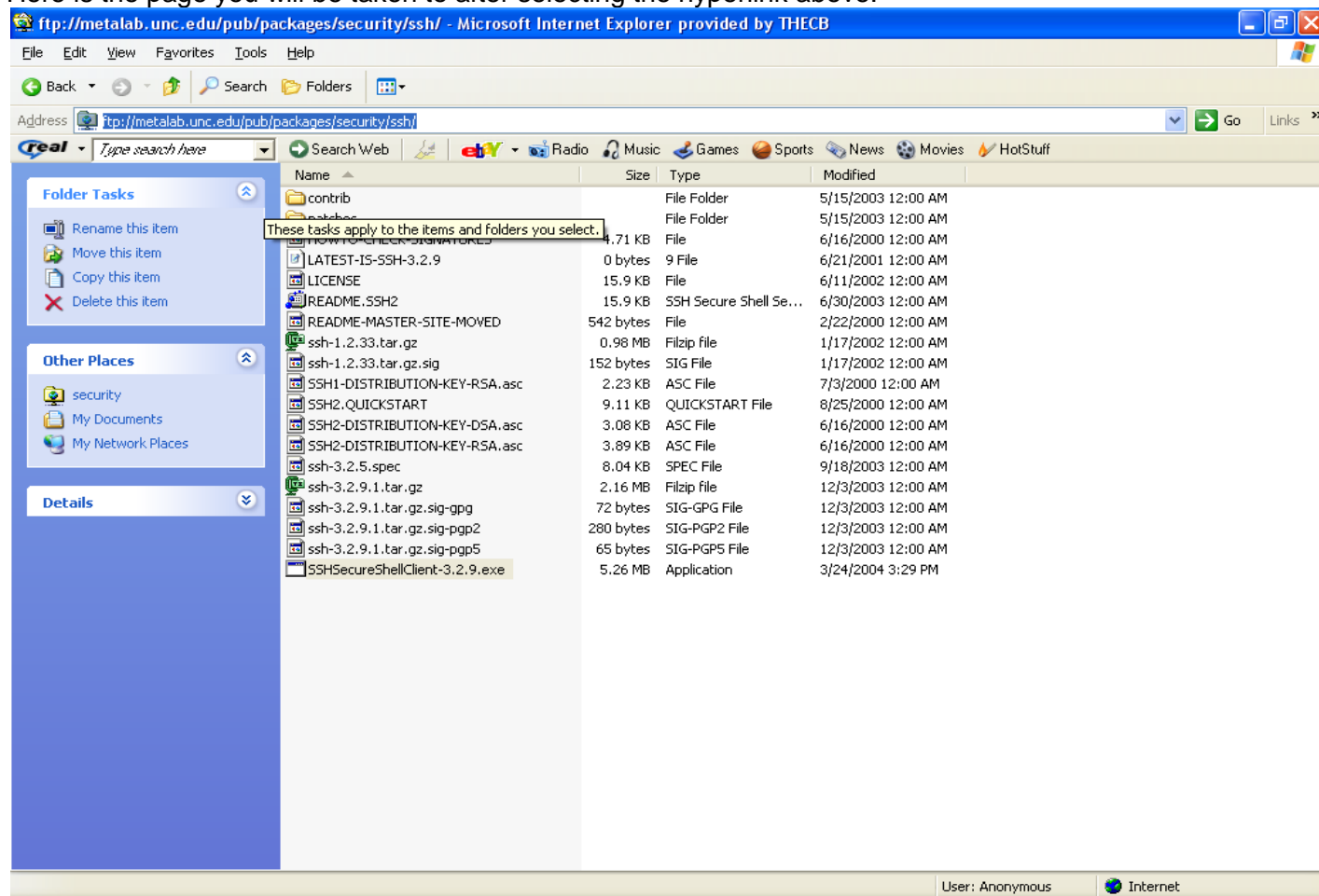
Torca Bunton at torca.bunton@thecb.state.tx.us or 1-800-242-3602, x6532.

The requirements for connecting to the SFTP server are an SSH/SFTP client and an internet connection that permits SSH connections to internet servers. There are excellent commercial and free implementations of SSH/SFTP available for use on windows platforms. Your ability to connect to SSH servers on the internet is going to be contingent upon your network security policies. You may need to contact your technical staff to determine if outbound SSH is permitted from your network. The following is the suggested downloadable SSH client to use for connecting to THECB SFTP.

SSH Secure Shell for Workstations – SSH Communication Security

SSH Secure Shell is an easy-to-use graphic SFTP client similar to the popular WS_FTP client for FTP servers. At the time of writing, the SSH Secure Shell license agreement allows use of the non-commercial version (3.2.9) available at the FTP site for educational institutions, non-profit organizations, and individuals for non-commercial use free of charge. Review the license agreement to determine if this is suitable for your environment. SSH.com has downloads for several operating systems on their FTP site. Windows users will require the installation file [SSHSecureShellClient-3.2.9.exe](#). Please note that the latest version of this software (4.0) does not have a non-commercial version available. Non-commercial versions of the SSH.com client can be found at <ftp://metalab.unc.edu/pub/packages/security/ssh/>

Here is the page you will be taken to after selecting the hyperlink above:



After linking to this web page, double-click the SSHSecureShellClient-3.2.9.exe application file to begin the automatic download of the SFTP client. After the download is complete, you will notice that 2 desktop icons have been installed on your PC. **You will only be interested in the icon entitled “SSH Secure File Transfer Client”**. You can disregard the other icon entitled “SSH Secure Shell Client”.

SSH Secure File Transfer Client

If you are using SSH.com’s SSH Secure Shell for Windows Workstations, execute the following steps to connect to the server.

1. Start the “**SSH Secure File Transfer**” client by clicking on the desktop icon or selecting it from the start menu.
2. You must enter the Host Name, Username, Port Number and Authentication method as described in the **SSH First Time Setup** below.
 - a. Then, a “message from server” dialog box appears; select OK
 - b. Then, enter your password in the password dialog box.

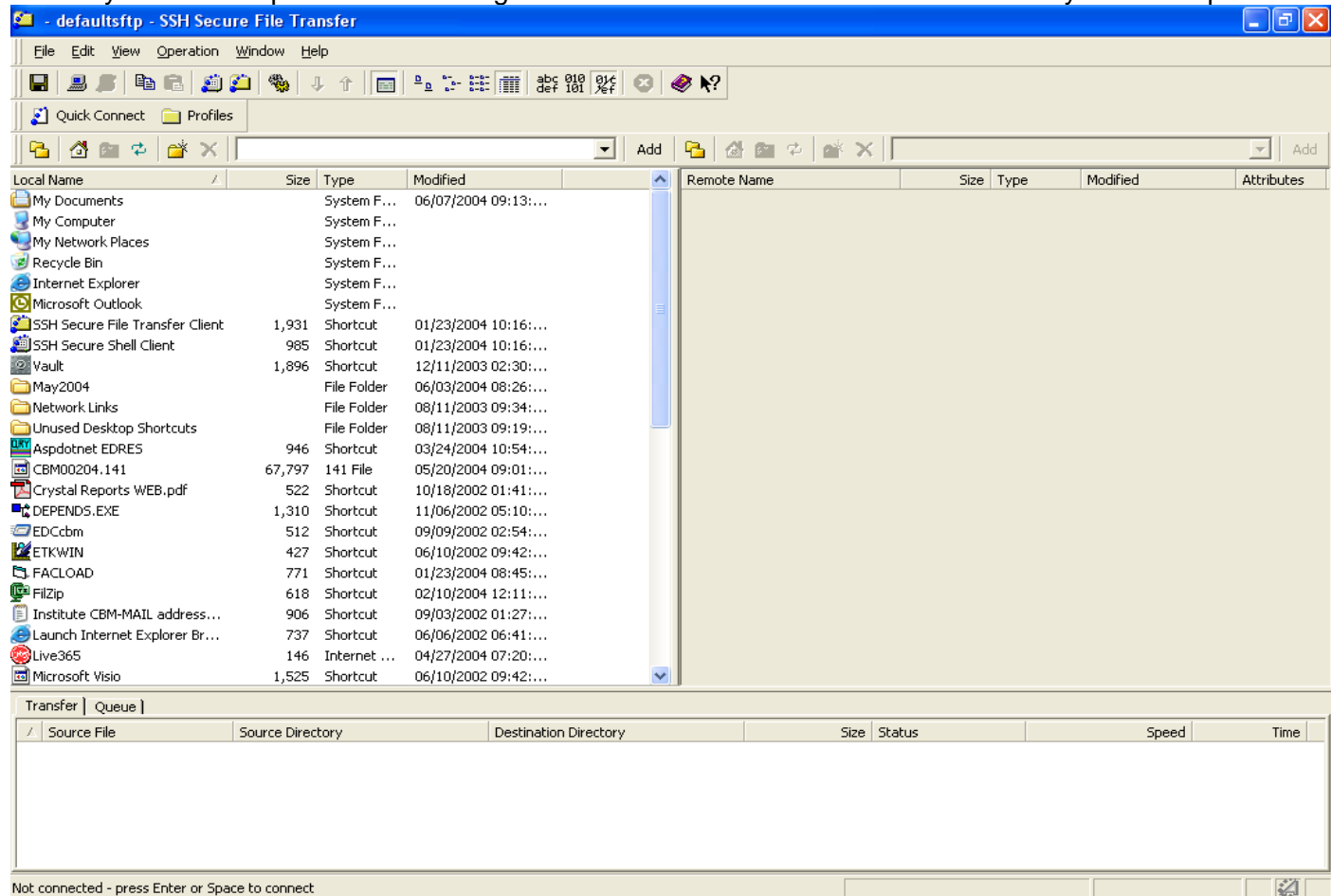
- At this point you should be connected. Your local files will appear on the left and files on the remote SFTP server will appear on the right. You will need to browse the files on your local machine and drag them to the right to transfer them to the SFTP server. When a transfer is in progress, a transfer progress display will appear at the bottom.

SSH First Time Setup

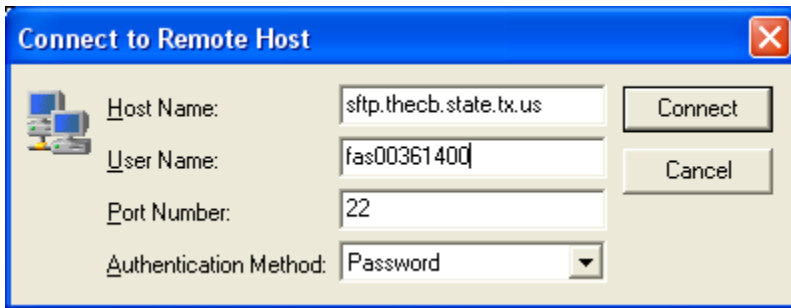
- Open SSH Secure File Transfer Client (icon)
- Click on Quick Connect
 - Enter Host Name: sftp.thecb.state.tx.us
 - Username: fas12345600 (Replace 123456 with your FICE code)
 - Port Number: 22
 - Authentication Method: <Password>
- After the initial connection you will want to add the connection to the profile to simplify future connection. You should see a blinking 'Add to Profile' in the dialogue box above the OUTPUT folder in the right pane. Click it, change the name to something like "thecb-sftp," and click 'add to profile.' After this you should be able to connect by clicking the Profiles tab on the menu bar, then selecting your saved "thecb-sftp" profile, then entering your password directly without re-entering the hostname, username, port, authentication method.

Transfer Files

The picture below is the first in the series of steps described above to log into the SFTP server. This picture is of what you will see upon double-clicking the SSH Secure File Transfer Client icon on your desktop.



Next, select the "Quick Connect" tab on the menu bar and you will be prompted with a "Connect to Remote Host" dialog box, as seen below. At this point, enter the host name just as you see it below. Then, enter your user name as "fas" followed by your institution's FICE code plus two zeroes. Be sure to include the leading zeroes in your FICE code. Example: if your FICE code is 003614, then your username will be "fas00361400." Leave the port number and Authentication method selections as you see them below.



Connect to Remote Host

Host Name: sftp.thecb.state.tx.us

User Name: fas00361400

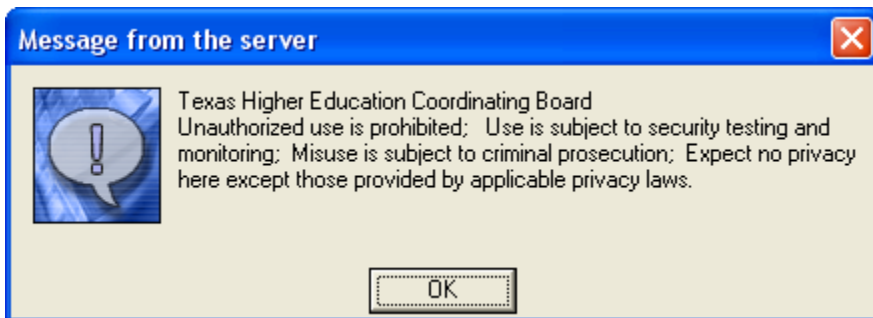
Port Number: 22

Authentication Method: Password

Connect

Cancel

After successfully navigating the "Connect to Remote Host" dialog box (hit the "Connect" button), you will be prompted with an informational dialog box as seen below. Select "OK."

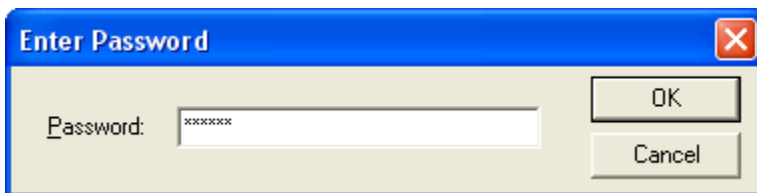


Message from the server

Texas Higher Education Coordinating Board
Unauthorized use is prohibited; Use is subject to security testing and monitoring; Misuse is subject to criminal prosecution; Expect no privacy here except those provided by applicable privacy laws.

OK

Now, you will be prompted for your password as seen in this next dialog box. If you need this password, call Tanya Trevino at 1-800-242-3062, x6123 or Torca Bunton at 1-800-242-3062, x6532 and they will provide it to you.



Enter Password

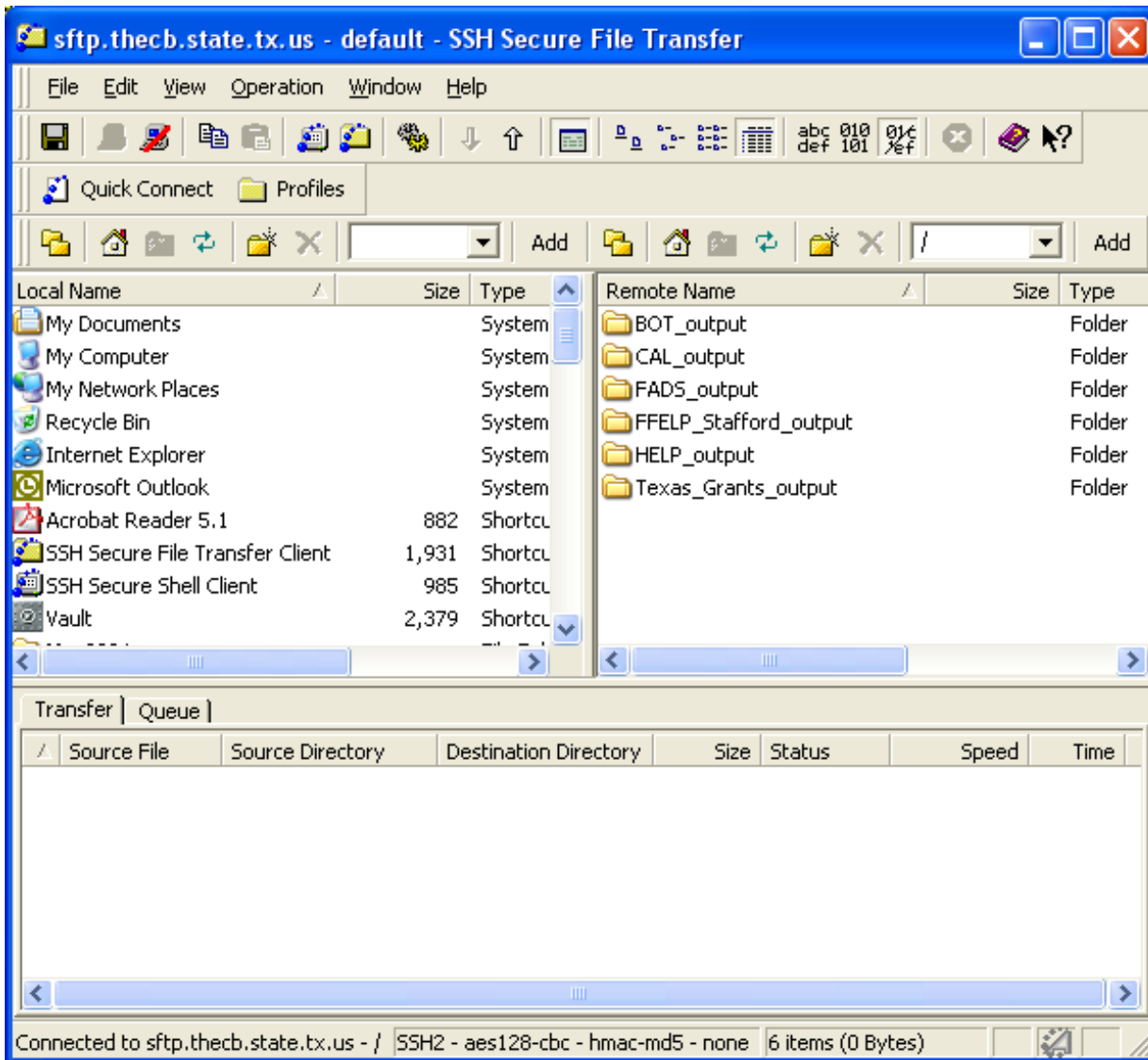
Password: [masked]

OK

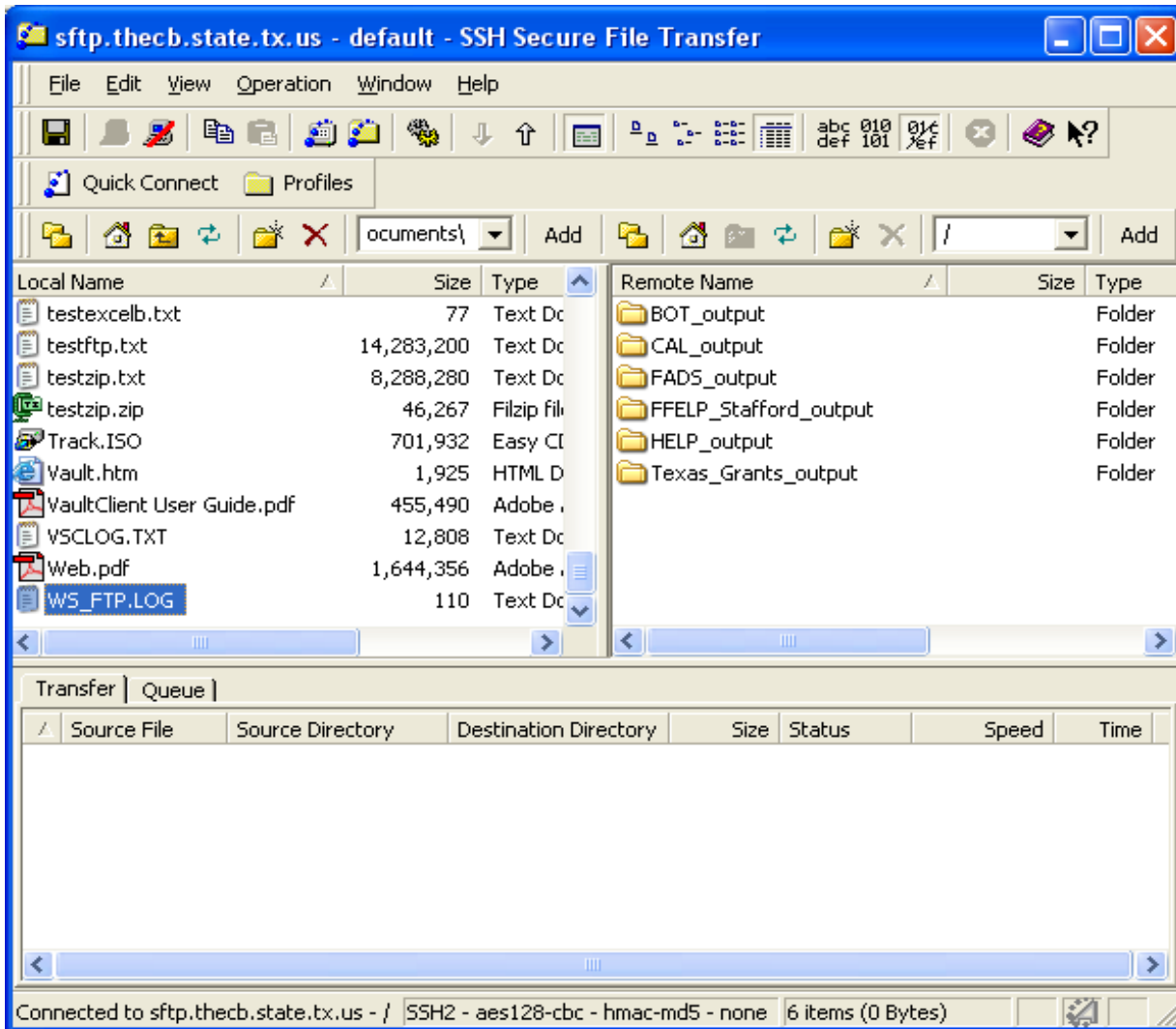
Cancel

NOTE: The key exchange process of secure shell provides some protection against spoofing and man-in-the-middle attacks. If you attempt a transfer and get a message indicating that the server's key has changed without prior notification from THECB, you should treat the connection as suspicious and contact **network security.**

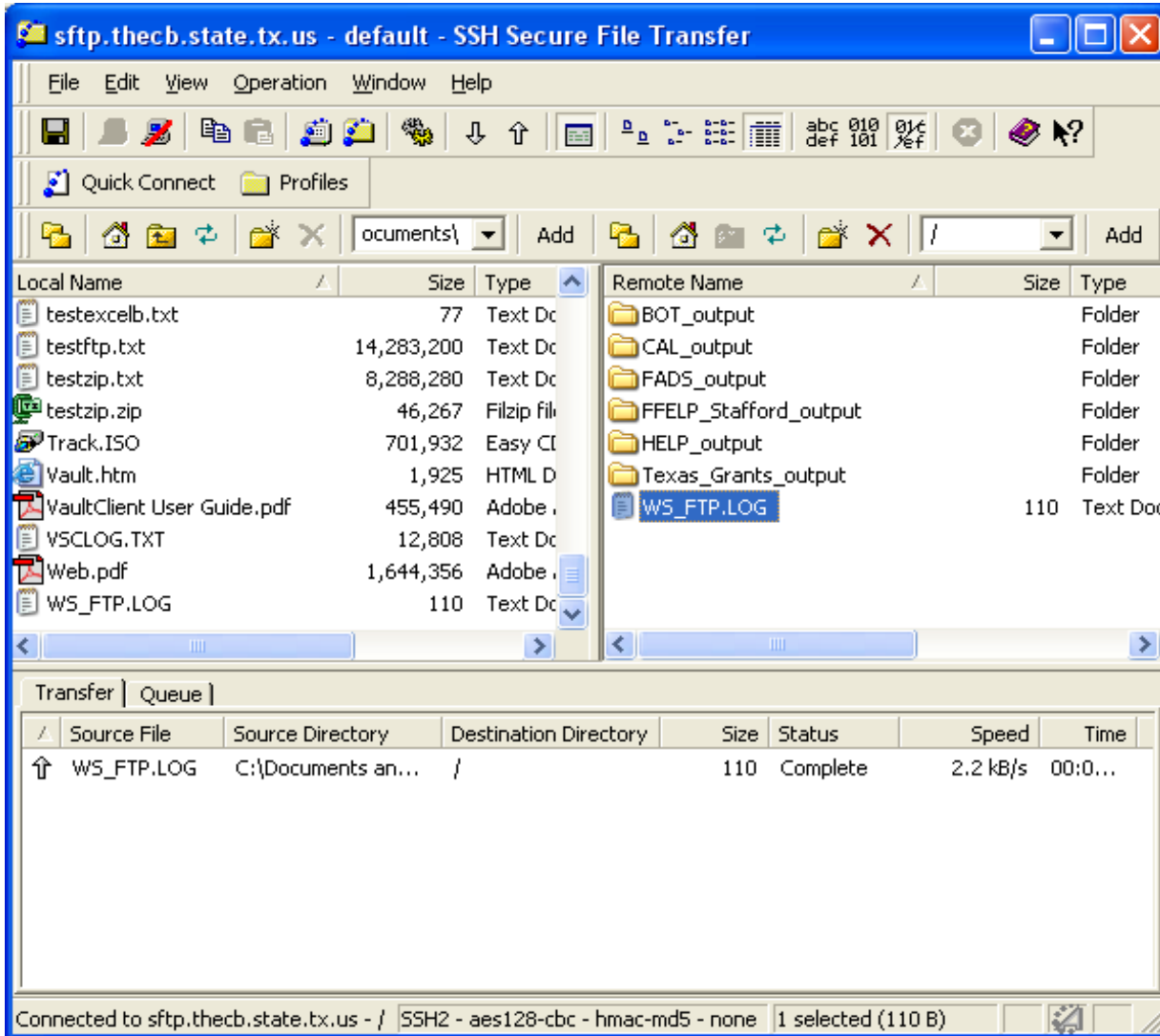
After successfully entering your password, you will see the next screenshot. Notice the "/" in the far right "drop down" list box above the OUTPUT folder in the right pane. This represents your INPUT folder on the SFTP server. You are automatically logged into the INPUT folder each and every time you log in to the SFTP server, regardless of which folder you intend to access (i.e., INPUT or OUTPUT). What you are looking at in the right pane of this screenshot is similar to a Windows Explorer view. The "/" represents a top-level folder (INPUT in this case) and the OUTPUT folders you see below that in the right pane represents varying financial accounts subordinate folders. Thus, if you intend on "submitting" a file to the THECB, then you will drag your file from the leftmost pane of this view and drop it onto the empty white space of the right pane. If you drop this file on top of the OUTPUT folders, you will be inadvertently placing your submission in your OUTPUT folders, whereby it will not be picked up and processed by our pre-edit application.



As depicted below, the highlighted file at the bottom of the left pane in this screenshot represents a file which is intended to be "submitted" to the THECB SFTP server. NOTE: You are still in your INPUT folder at this point (notice the "/" in the drop down list box above your OUTPUT folders). The highlighted file below must be dragged (with the left mouse button depressed) over to the empty white space in the right pane. This will place a copy of the file in your INPUT folder on the SFTP server. It will then be picked up and processed by the pre-edit application. Also, within 30 minutes of placing your file on the SFTP server, you should receive a "file receipt notification" email. If you notice that you have not received this notification email, please call your data analysts to discuss this with them.

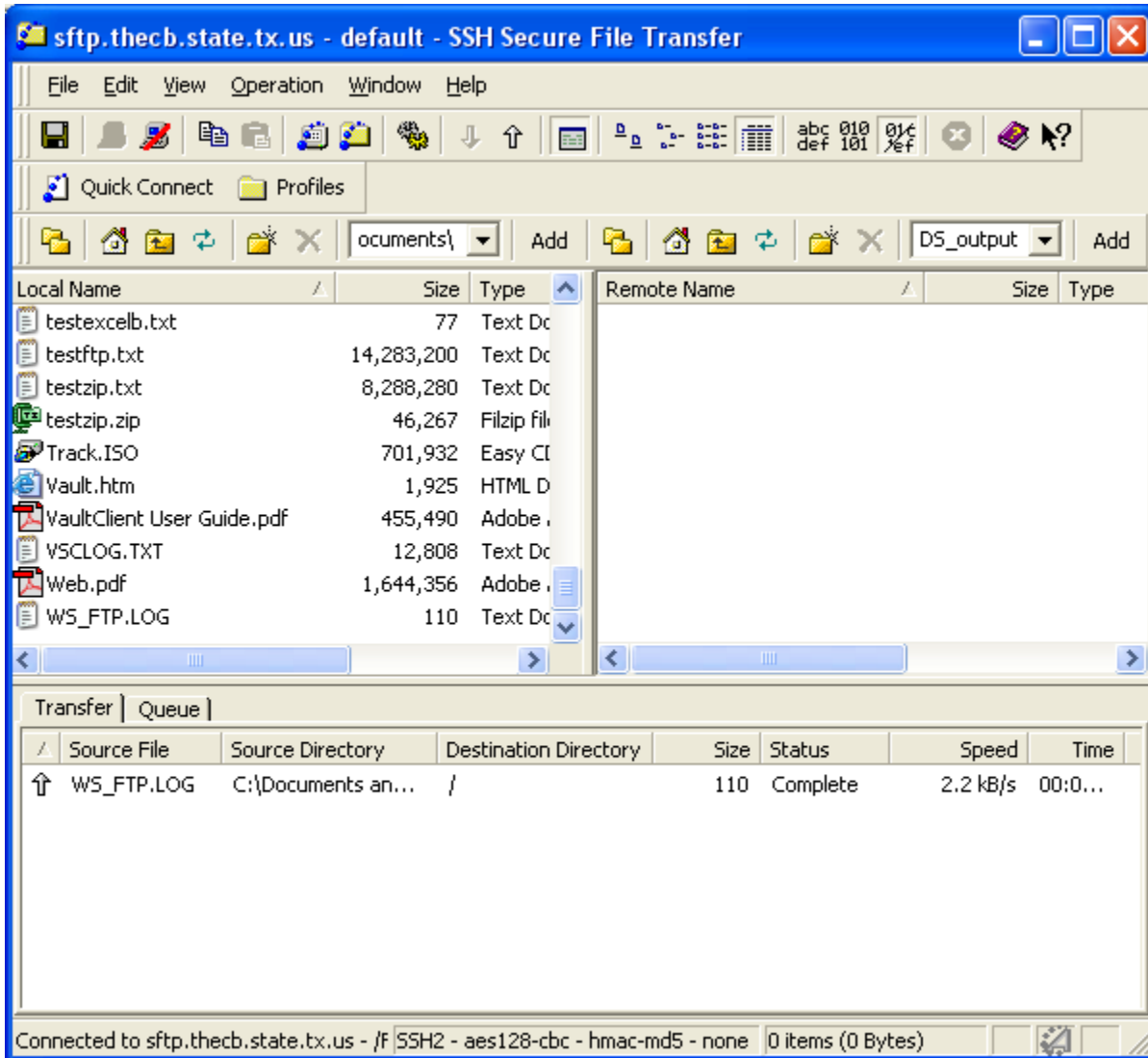


As seen below, you will notice that the file you selected and highlighted has been placed in your INPUT folder after dragging and dropping it into the right pane. You are still in your INPUT folder at this point. The file submission is complete and if you have no other files to transfer, then you can select the "disconnect" icon in the menu bar to exit this SFTP application. The disconnect icon will be the third button from the left under the "File" menu. It looks like a computer monitor with a red line through it.



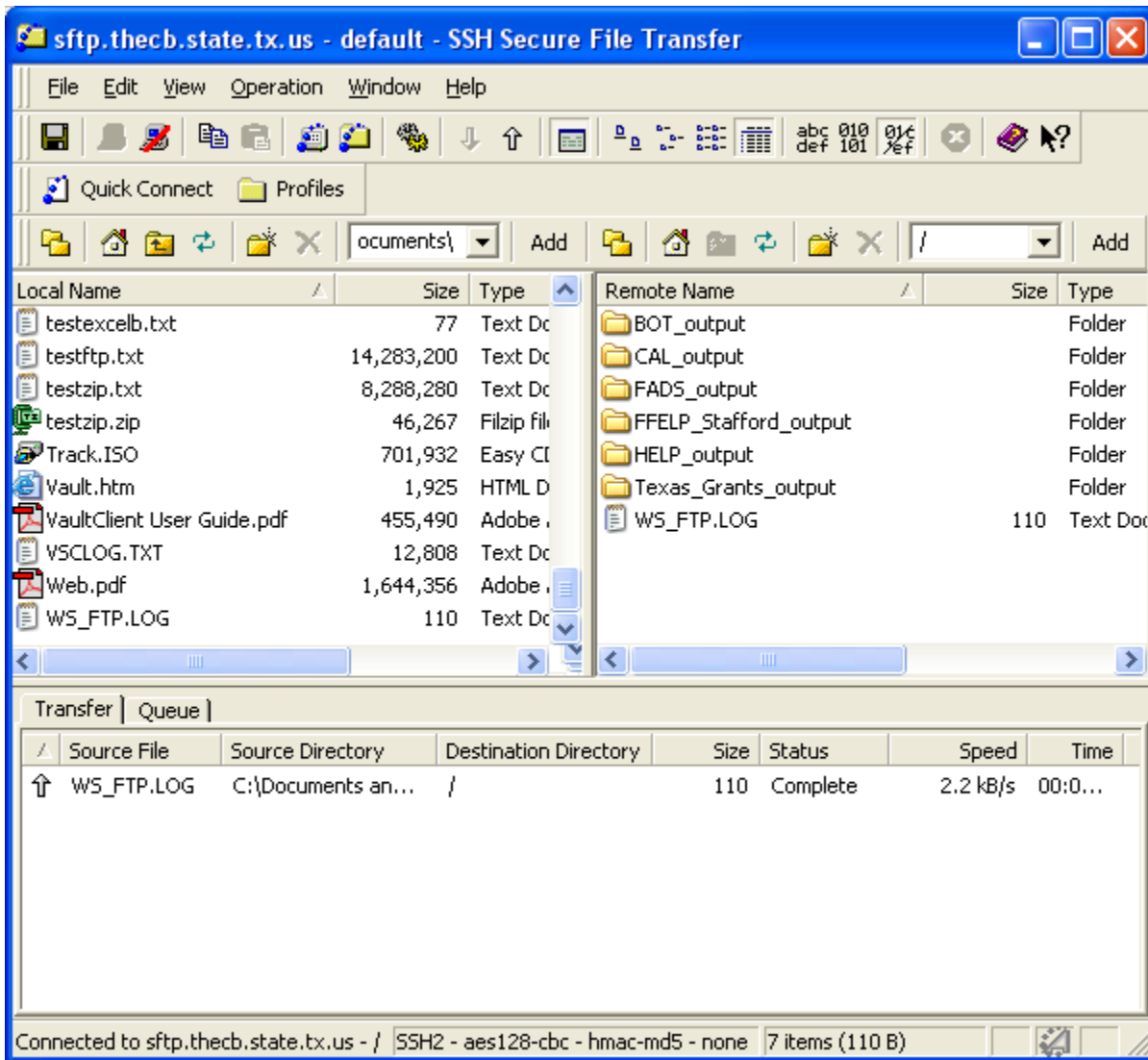
Retrieve Files

As seen below, if you wanted to go to your OUTPUT folders to retrieve reports, then you would double click the OUTPUT folder you intend to see (e.g. Texas_Grants_OUTPUT in this case) in the right pane. The drop down dialog box above the right pane would change to "/Texas_Grants_OUTPUT". At this point, you would be looking at all the output reports that have been placed in your Texas Grants OUTPUT folder by the pre-edit application (none in this case at this time).



If you have been in your OUTPUT folder on the SFTP server and would like to get back to the INPUT folder, then you would select the "up arrow folder" icon located just above the right pane and four icons to the left of the drop down dialog box.

As seen below, you are now back in your INPUT folder after coming from the OUTPUT folder.



At this point, if you are finished transferring files to/from THECB's SFTP server, just disconnect and exit the application.

NOTE: Please disconnect promptly from the SFTP session after successfully transferring your files. Staying connected to the SFTP server will cause your transferred files to be inadvertently deleted off the server by a synchronization process that runs on the server. Also, please do NOT log into the SFTP server at the :03 minute and :33 minute times of the hour because that is when the synchronization process runs; it will definitely delete your transferred files at that precise moment if you are logged into an SFTP session at those two times.