Install and configure SSH server

| What this exercise is about | 1 |
|---|----|
| What you should be able to do | 1 |
| Introduction | 1 |
| Part 1: Install and configure freeSSHd server | 2 |
| What you did in this exercise | 15 |

What this exercise is about

The objective of this lab is to guide you through the installation and configuration of SSH server that supports SFTP and generate the key-pair (public-private) using PuTTy key generator.

What you should be able to do

At the end of this lab you should be able to:

- Install freeSSHd server
- Create users in freeSSHd server
- Install PuTTYgen and generate key pair (public and private) using it

Introduction

SSH over FTP (SFTP) is a network protocol that provides a mechanism for file transfer over a reliable data stream. SFTP runs on a secure SSH channel on port 22 and encrypts all traffic using either user name and password authentication or public key authentication. Public key authentication uses a pair of computer generated keys, one public and one private.

You will install the freeSSHd server and configure it to create users as a prerequisite for the **FTP Adapter** – **SFTP support** lab.

Part 1: Install and configure freeSSHd server

This part of the lab describes the steps for installing the SSH server, freeSSHd, and then guides you with the configuration setup.

- 1. Go to the <u>http://www.freesshd.com/?ctt=download</u> and download the latest stable version of freeSSHd onto your local machine
- 2. Double click the downloaded **freeSSHd.exe** file to start the installation
- _____3. Follow the instructions on the Welcome screen and click Next

| 😽 Setup - freeSSHd SSH/Telnet Server 📃 🖂 🗙 | | | |
|--|---|--|--|
| | Welcome to the freeSSHd SSH/Telnet Server Setup Wizard | | |
| | This will install freeSSHd 1.2.1 on your computer. | | |
| | It is recommended that you close all other applications before continuing. | | |
| | Click Next to continue, or Cancel to exit Setup. | | |
| | | | |
| | Cancel | | |

4. Accept the default value or Browse and select the location of your choice for and click Next

| 🖶 Setup - freeSSHd SSH/Telnet Server | _ 🗆 🗡 |
|--|--------|
| Select Destination Location Where should freeSSHd SSH/Telnet Server be installed? | |
| Setup will install freeSSHd SSH/Telnet Server into the following folder. | |
| To continue, click Next. If you would like to select a different folder, click Browse. | |
| C:\Program Files\freeSSHd Browse | |
| | |
| | |
| | |
| | |
| At least 1.6 MB of free disk space is required. | |
| < Back Next > | Cancel |

5. Ensure that the **Full Installation** is selected and click **Next**

| 🖶 Setup - freeSSHd SSH/Telnet Server | _ 🗆 🗙 |
|---|-------|
| Select Components Which components should be installed? | |
| Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue. | _ |
| Full installation | • |

_____6. Click **Next** on the next screen to accept the default start menu folder

| 🖶 Setup - freeSSHd SSH/Telnet Server | |
|--|-----------------|
| Select Start Menu Folder Where should Setup place the program's shortcuts? | |
| Setup will create the program's shortcuts in the following Start M | enu folder. |
| To continue, click Next. If you would like to select a different folder, click | Browse. |
| [freeSSHd | B <u>r</u> owse |
| | |
| | |
| | |
| | |
| Don't create a Start Menu folder | |
| | |
| < <u>B</u> ack <u>N</u> ext 大 | Cancel |

_____7. Accept the defaults on the next screen to create a desktop icon and click Next

| 🚏 Setup - freeSSHd SSH/Telnet Server | _ 🗆 🗙 |
|--|--------|
| Select Additional Tasks Which additional tasks should be performed? | |
| Select the additional tasks you would like Setup to perform while installing freeSSHd SSH/Telnet Server, then click Next. | |
| Additional icons: | |
| Create a <u>desktop icon</u> | |
| < <u>B</u> ack Next > 2 | Cancel |

8. Verify and click **Finish** on the summary screen. The installation takes less than a minute depending upon the system resources

| 🖶 Setup - freeSSHd SSH/Telnet Server | |
|---|----------|
| Ready to Install Setup is now ready to begin installing freeSSHd SSH/Telnet Server on your computer. | |
| Click Install to continue with the installation, or click Back if you want to review change any settings. | N OI |
| Destination location: C:\Program Files\freeSSHd | - |
| Setup type: Full installation | |
| Selected components: Executable | |
| Start Menu folder: freeSSHd | |
| Additional tasks: | ▼ |
| < Back | Cancel |
| | |

9. Click Close in Try Other Product screen



____ 10. Select **Yes** from the Setup pop-up window to create Private keys



____ 11. Click **No** in the next Setup window shown below:



- _____ 12. Click **Finish** to exit setup
- 13. Select Start > Programs > freeSSHd > freeSSHd
- _____ 14. Click the FreeSSHDService (³²⁵) icon at the bottom tray
- 15. The freeSSHd settings window is opened:



_____16. Click **SFTP** tab from the top. Browse and select **C:\Labfiles62\SFTPHome** as SFTP home.

Note: Make a note of this directory as this is going to be the home directory for all the users that you will define later in this lab.

| _ | | | _ |
|---|--|-------------------|---|
| | 📅 freeSSHd settings | | 1 |
| | | | |
| | Users Host restrictions Logging Online users | Automatic updates | |
| | Server status Telnet SSH Authentication Encryption | Tunneling SFTP | |
| | | 5 | |
| | SFTP home path: C:\Labfiles62\SFTPHome | | |

_____17. Click **Telnet** tab from the top and ensure that the **Port** number is **22**

| Users Host re | strictions Logging Online users | Automatic updates |
|--------------------------|---|-------------------|
| Server status Telno | et SSH Authentication Encryption | Tunneling SFTP |
| Listen addre | ss: 0.0.0.0 (All interfaces) | |
| P | ort: 22 | |
| Max number connection | ns: 0 | |
| Idle timeo | out: 0 seconds | |
| Banner messag | ge: | |
| Command sh | nell: C:\WINDOWS\system32\cmd.exe | |
| | Start Telnet server on freeSSHd startup Use new console engine | |

18. Click the Authentication tab. Browse and select or accept the default Public key folder. Make a note of this folder as you are going to use this while generating the public/private key later in this lab.

| Server status Telnet SS | 5H Authentication | Encryption Tunneling SFT |
|------------------------------|--------------------|--------------------------|
| | | |
| | | |
| Public key folder: C:\Progra | am Files\freeSSHd\ | |
| C Disabled | Allowed | C Required |

- _____19. Add a user without public key authentication: sftpuser1
 - ____a. Click Users tab from the top of the settings window
 - ___ b. Click Add…

- ____ c. Provide the values as shown below in the User properties window:
 - 1) Login: enter any value, for Ex: **sftpuser1** (This is the user name to connect to your FTP server)
 - 2) Authentication: select Password stored as SHA1 hash from the drop down menu
 - 3) Password: enter any value, for Ex: password
 - 4) Password (again): enter the same value
 - 5) Select the box next to SFTP

| 🤰 sftpuser properti | es | _ 🗆 🗡 |
|---------------------|--------------------------------------|---------|
| General | | |
| | | |
| | | <u></u> |
| | | |
| Login: | sftpuser1 | |
| Authorization: | Password stored as SHA1 hash | |
| Password: | Start typing here to change password | |
| Password (again): | | |
| Domain: | | |
| | _ | |
| User can use: | Shell | |
| | SFTP | |
| | 🔲 Tunneling | |
| | | |
| | | |
| | [] | |
| | Cancel | Apply |

6) Click OK

____d. You should now see sftpuser1 added under Users tab



- 20. Add another user with public and private key authorization: sftpuser2
 - ___a. Under Users tab, click Add...
 - ____b. Provide the values as shown below in the User properties window:
 - 1) Login: enter any value, for Ex: **sftpuser2** (This is the user name to connect to your FTP server)
 - 2) Authentication: select Public key (SSH only) from the drop down menu
 - 3) Select the box next to SFTP

| 🔏 User properties | | _ 🗆 × |
|-------------------|-----------------------|-------|
| General | | |
| | | |
| | | 🥭 📗 |
| Login: | sftpuser2 | |
| Authorization: | Public key (SSH only) | |
| Password: | | |
| Password (again): | | |
| Domain: | | |
| User can use: | Shell | |
| | SFTP | |
| | 🗖 Tunneling | |
| | | |
| | | |
| | Cancel | Apply |

4) Click OK

____ c. You should see one more user, **sftpuser2**, added under Users tab

| Login | Shell | SFTP | Tunnel | |
|-------------|-------|------|--------|----------|
| 🤱 sftpuser1 | ٠ | 0 | ٠ | A |
| ▲ sftpuser2 | • | ۲ | • | |

- 21. Use PuTTY generator to generate public-private key pair
 - ____a. Go to the http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html and download the PuTTYgen (puttygen.exe) file onto your local machine.
 - ____b. Double click the downloaded **puttygen.exe** file to start the key generation
 - ____ c. You should see the 'PuTTY Key Generator' window:

| 🚰 PuTTY Key Generator | | × |
|--|-----------------|------------------|
| <u>File K</u> ey Con <u>v</u> ersions <u>H</u> elp | | |
| - Keu | | |
| No key. | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Actions | | |
| Generate a public /private key pair |] | Generate |
| denerate a public/private key pair | L | |
| Load an existing private key file | | Load |
| Save the generated key | Save public key | Save private key |
| | | |
| Parameters | | |
| Type of key to generate: | C. cou | 12.004 |
| • SSH-2 <u>R</u> SA | U SSH | HOOL |
| Number of bits in a generated key: | | 1024 |

____ d. Click Generate and keep moving your curser inside the window to create some randomness

| 2 | PuTTY | Key Generat | or | | | 2 |
|--------------|--|-----------------------------|------------------|-------------|-------------------|--------------------------|
| <u>F</u> ile | <u>K</u> ey | Conversions | Help | | | |
| | <ey—< th=""><th></th><th></th><th></th><th></th><th></th></ey—<> | | | | | |
| | Please g | generate some | randomness by mo | ving the mo | use over the blar | nk area. |
| | | | | | | |
| | | | R | | | |
| | | | | | | |
| | | | | | | |
| | | | | • • • | | |
| | | | | \searrow | . | |
| | | | | k | J | |
| Γ | Actions | | | | | |
| | Generat | e a public/priv | ate key pair | | | <u>G</u> enerate |
| | Load ar | existing privat | e key file | | | Load |
| | Save th | e generated ke | y. | Sav | e pyblic key | <u>S</u> ave private key |
| | Paramet | ers | | | | |
| | Type of O SSH | key to generat [-] (RSA) | e: © SSH-2 | <u>R</u> SA | C SSF | 1-2 <u>D</u> SA |
| | Number | of <u>b</u> its in a ger | erated key: | | | 1024 |

____e. You should see the generated key as shown below:

| 🚰 PuTTY Key Generat | or | | > |
|--|--|--|---|
| <u>File K</u> ey Con <u>v</u> ersions | Help | | |
| _ Key | | | |
| Public key for pasting i | nto OpenSSH authorize | ed_keys file: | |
| ssh-rsa AAAAB3NzaC1yc2EA wE6dPyVJvDdLPyhN: 0MFUVr2/aezy0W8N rsa-key-20080619 | AAABJQAAAIEAh3m6h xs6jheHIWu5SDwe2H6 FinMDuQ6FJsgNg4i671 | nKFBCD/BlckilBG6zaG J/x5ab+U27rP2g8gd5Gi Qnq6ftK4EGEBty/hsRP | w8owvofT2xM76 FdfX/AG1XBcnKa H5Bhl9iYYiiaz88= |
| Key fingerprint: | ssh-rsa 1024 67:56:5a | e3:8c:d3:3e:b0:54:52: | af:6f:56:6e:4f:df |
| Key <u>c</u> omment: | rsa-key-20080619 | | |
| Key p <u>a</u> ssphrase: | | | |
| Confirm passphrase: | | | |
| Actions | | • | |
| Generate a public/priv | ate key pair | 2 | <u>G</u> enerate |
| Load an existing privat | e key file | | Load |
| Save the generated ke | y. | Save p <u>u</u> blic key | <u>Save private key</u> |
| Parameters | | | |
| Type of key to generat C SSH- <u>1</u> (RSA) | e: | A O SSI | H-2 <u>D</u> SA |
| Number of <u>b</u> its in a ger | nerated key: | | 1024 |

____f. Enter any value for Key Passphrase, for Ex: passphrase

____g. Enter the same value for Confirm Passphrase, for Ex: passphrase

| -Key | | | | | | |
|---|---|--|--|--|--|--|
| Public key for pasting into OpenSSH authorized_keys file: | | | | | | |
| ssh-rsa AAAAB3NzaC1yc2E/ wE6dPyVJvDdLPyhN 0MFUVr2/aezy0W8r rsa-key-20080619 | AAAABJQAAAIEAh3m6hfXFBCD/BlckilBG6zaGw8owvofT2xM76 Ixx6jheHIWu5SDwe2H6/x5ab+U27rP2g8gd5GFdfX/AG1XBcnKa NFinMDuQ6FJsgNg4i67Qnq6ftK4EGEBty/hsRPH5BhI9iYYiiaz88= | | | | | |
| Key fingerprint: | ssh-rsa 1024 67:56:5a:e3:8c:d3:3e:b0:54:52:af:6f:56:6e:4f:df | | | | | |
| Key <u>c</u> omment: | rsa-key-20080619 | | | | | |
| Key p <u>a</u> ssphrase: | •••••• | | | | | |
| Confirm passphrase: | •••••• | | | | | |

____h. From the main menu, select **Conversions > Export OpenSSH key**

| E | ile | <u>K</u> ey | Con <u>v</u> ersions | <u>H</u> elp | |
|---|-----|-------------|----------------------|--------------|----|
| | -ĸ | ey— | Import key | | |
| | P | ublic k | Export Ope | enSSH key | N |
| | S | sh-rsa | Export <u>s</u> sh | .com key | hg |

____ i. Browse and select any location to save this private key and provide any name for the file, for Ex: location - C:\Labfiles62\SFTP and file name – PrivateKey.ppk

Note: Make a note of this file name and the path provided here.

_____j. Open a windows explorer and browse to your Public key folder, C:\Program Files\freeSSHd, and create a file with exactly same as the user name, sftpuser2, without any file extension

Note: The file name should match the user name that you created with public key authorization in the previous steps of this lab.

____ k. Copy the public key from PuTTY Key Generator window

Key Public key for pasting into OpenSSH authorized_keys file: ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAh3m6hfXFBCD/BlckilBG6zaGw8owvofT2xM76 wE6dPyVJvDdLPyhNxs6jheHIWu5SDwe2H6/x5ab+U27rP2g8gd5GFdfX/AG1XBcnKa OMFUVr2/aezyOW8NFinMDuQ6FJsgNg4i67Qnq6ftK4EGEBty/hsRPH5BhI9iYYiiaz88= rsa-key-20080619

I. Open the created file, sftpuser2, (using word pad or note pad) and paste the public key into that file

| 🗉 sftpuser2 - WordPad |
|---|
| Elle Edit View Insert Format Help |
| |
| ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAh3m6hfXFBCD/BlckiIBG6zaGw8owvofT2xM76wE6dPyVJvDdLPyhNxs6jheHlWu5SDwe2H6/x5ab+U2 |

___ m. Save changes into that file and close it

- _____ 22. Make sure that the server is running:
 - ____a. Click Server status tab and you should see 'SSH server is running':

| Users | Host restri | otions | Logging | Or | line users | Automatic u | ipdates |
|--------------|-------------|---|---|-----------|------------|-------------|---------|
| Server statu | IS Telnet | SSH | Authenticat | ion | Encryption | Tunneling | SFTP |
| | × | Telnet serv Click here | ver is not runnin to start it. | ıg. | | | |
| | | SSH serve There are i <mark>Click here</mark> | r is running. no users curren to stop it. | itly onli | ne. | | |

What you did in this exercise

In this lab, you installed the freeSSHd server and created two users. Then you continued to install and configure the PuTTYgen to generate key pair as a prerequisite for the FTP Adapter – SSH support lab.