

How To Multi-Hop SSH into FreeNAS

<https://forums.freenas.org/index.php?threads/howto-multi-hop-ssh-into-freenas.38242/>

Since a FreeNAS server is meant to be run behind the firewall of the router, you have two options to gain access to the server and/or its WebGUI remotely, either a VPN or a multi-hop SSH

A Multi-Hop SSH is a SSH tunnel over **WAN** to the router, with a second SSH tunnel through it to FreeNAS over **LAN**

- Remote device -> **WAN SSH** -> Router -> [multi-hop begins] -> **LAN SSH** -> FreeNAS

Utilizing PuTTY, the router & client profiles below will be required:

- SFTP via **pscp.exe** in the PuTTY root directory
 - Add **C:\Program Files (x86)\PuTTY** to your environment path to allow access to **pscp** from any PowerShell/command prompt
 - **System - Advanced System Settings - Environment Variables - System Variables – Path**

JuiceSSH [Android] automates the multi-hop by setting **Connection - Advanced Settings - Connect Via** to Router's Remote SSH connection

Router (your.ddns.com)

- **Edit Lines:**
 - (5) "HostName"="your.ddns.com"
 - (6) "LogFileName"="C:\\Path\\To\\PuTTY\\Logs\\SSH.OpenWRT.Remote.log"
 - Log set to "All Session Output" [Session - Logging]
 - (15) "PortNumber"=dword:00000016
 - Hex value for SSH Port # ([hex] 00000016 = [dec] 22)
 - Windows Calculator has a "Programmer" mode with hex <-> dec
 - (58) "PublicKeyFile"="C:\\Path\\To\\PuTTY\\SSHkeys\\OpenWRT.SSH.ppk"

FreeNAS (192.168.1.20)

- **Edit Lines:**
 - (5) "HostName"=root@192.168.1.20
 - (6) "LogFileName"="C:\\Path\\To\\PuTTY\\Logs\\SSH.FreeNAS.Remote.log"
 - Log set to "All Session Output" [Session - Logging]
 - (15) "PortNumber"=dword:00000016
 - Hex value for SSH Port # ([hex] 00000016 = [dec] 22)
 - Windows Calculator has a "Programmer" mode with hex <-> dec
 - (58) "PublicKeyFile"="C:\\Path\\To\\PuTTY\\SSHkeys\\FreeNAS.SSH.ppk"
 - **plink** creates the multi-hop
 - (32) "ProxyTelnetCommand"="plink -v -load SSH.OpenWRT.Remote -nc %host:%port"
 - If Router's profile name changed, update it here too
 - Profile **cannot** contain spaces
 - Once each profile has been edited, save as a **.reg** & merge into registry
 - Once merged, you should immediately see them as profile options in PuTTY

[Incorporate Existing Profiles]

- **Existing Remote Router Profile**
 - Merge FreeNAS profile **after** also editing the profile name on line:
 - (32) "ProxyTelnetCommand"="plink -v -load Remote.Router.Profile -nc %host:%port"
- **Existing FreeNAS Profile**
 - Create a copy of it
 - Under **Settings - Connection - Proxy - Telnet Command** add:
 - **plink -v -load Remote.Router.Profile -nc %host:%port**

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- *Initiate Multi-Hop by opening SSH.FreeNAS.Remote profile*
 - *If utilizing a password on PKI key:*
 - *First password request: SSH.OpenWRT.Remote*
 - *Second password request: SSH.FreeNAS.Remote*

- **Push**
 - `pscp -r -i "C:\Path\To\PuTTY\SSHkeys\FreeNAS.SSH.ppk" -2 -scp -P 22 "D:\Path\To\File.txt" root@192.168.1.20:/path/to/directory`
 - **Without utilizing PKI**
 - `pscp -r -scp "D:\Path\To\File.txt" -P 22 root@192.168.1.20:/path/to/directory`
- **Pull**
 - `pscp -r -i "C:\Path\To\PuTTY\SSHkeys\FreeNAS.SSH.ppk" -2 -scp -P 22 root@192.168.1.20:/path/to/file.txt "D:\Path\To\Directory"`
 - **Without utilizing PKI**
 - `pscp -r -scp root@192.168.1.20:/path/to/directory -P 22 "D:\Path\To\File.txt"`

-1/-2 *[force use of particular SSH protocol version]*

-scp *[force use of SCP protocol]*

- **GPG4Win** ([website](#))
 - PKI & SSL certificate management
 - Seamlessly interfaces with PuTTY & autoloads keys into pageant via Kleopatra
- **-P port** [connect to specified port]
- **WinSCP** ([website](#))
 - GUI for transferring files over SSH
 - Explorer like drag & drop
 - Interfaces seamlessly with PuTTY
- **Pageant** ([part of PuTTY](#))
 - Keeps PKI keys active for a specified amount of time
 - GPG4Win auto loads keys into pageant
 - pageant only operates on the backend with Kleopatra
 - Best compromise between security & convenience
 - **While using, with or without GPG4Win, do not leave PC unsecured**
 - Kleopatra [GPG4Win] will kick you out after ~30 min of terminal inactivity, pageant will not
 - **Load Keys**
 - **pageant** "D:\Path\To\PuTTY\SSHkeys\FreeNAS.ppk" "D:\Path\To\PuTTY\SSHkeys\Router.ppk"
 - **Load Key & Start PuTTY**
 - **pageant** "D:\Path\To\PuTTY\SSHkeys\FreeNAS.ppk" "C:\Program Files\PuTTY\putty.exe"
 - x64: "C:\Program Files (x86)\PuTTY\putty.exe"