

FTP - FTP Server Connections Reference

1. Protocol in General

All communication between computers TCP/IP bases on the protocols, which are just something that people has agreed to use for transferring data over to another. Being just another agreement in the world of chaos, this has been working really nice, becoming standard, what ever that means, everything can be found in nice order on <http://www.networksorcery.com/enp/default0403.htm> RFC documented.

What's important on above is that, even everything is documented, clients and servers does have extensions that *does not follow the documentation nor even sometimes the basic functions* (example FireFox as an FTP client, but luckily we have <http://fireftp.mozdev.org/> extension on that). Home Series of products however follow these strictly (as the <http://www.indyproject.org> really strictly follows the RFCs).

2. Server Control Port (21)

Server will start listening connections to control port, which is **21** by default. Good example of this being default is that when you put your browser location to <ftp://someaddress> it automatically tries to connect to the server port 21. Port can be however altered by adding the port number behind the location as <ftp://someaddress:22>. All clients will communicate with the server using this same port for the basic communication (listed commands in the protocol).

To allow client to connect to server, client must have access directly to the server control port trough the firewall and router. Router must forward connections to this port directly to the PC running Home Ftp Server.

3. Data Connection (20)

Server or the client needs to open data connection to transfer files or the directory listings. Data port on the server is normally set to port **20**. Which one will open the connection, depends on the type of connection, which may be either active or passive. That is something that client decided on starting the transfer (client will send request for passive mode connection).

4. Active vs. Passive Connection

Active Mode:

In active mode, the client connects from port >1023 to the servers command port, which defaults to 21. When data connection is opened on active mode after this, it's done by the client. Client will send the port number to the server. Server will connect to data port opened by the client using server's defined data port, which defaults to 20.

On server side, control port and data port (21 and 20) must be opened on the client ports above 1023. These must be forwarded to the server PC directly.

Passive Mode:

In passive mode, the client connects to the server control port (21 by default) as in active mode, but then instead of opening port, the client sends out PASV command to request server to open port for the client. Server opens random port >1023 and sends the port number to connect to the client. Client then connects using port >1023 to server's port that was just opened for the connection (>1023) for data transfer.

To have server working with the passive connections, control port (21) and ports above 1023 must be opened on the firewall. All ports are opened by the server in passive mode. On router, passive might cause some trouble, because ports above 1023 must be forwarded directly to the server PC as the control port is.