

Using Rumpus On Private Networks

How to use "Port Forwarding" to make your Rumpus server accessible to the Internet.

Many networks are connected to the Internet using a single IP address, even though the network might link many computers. This is done to reduce connectivity costs and as an effective security measure, but it does present special problems when you are first setting up an FTP server.

Networks configured this way typically use IP addresses that begin "192.168." on each local computer, although addresses that begin "172.16." or "10." can also be used. Addresses in this range are reserved for private (not directly Internet connected) use, and are not routable across the Internet. In other words, if the computers on your network have TCP/IP addresses that begin "192.168.", then those addresses can be used only for local connections. No one on the Internet will be able to connect directly to any computer on your LAN.

Fortunately, it is still possible to run an FTP server and make it accessible to the outside Internet, using a common feature available in most routers called "Port Forwarding".

How Port Forwarding Works

Since your router is the only device on your network with a "real" Internet IP address, you tell your clients to connect to that address to establish FTP connections. Different Internet services run on different ports, numbered 1 through 65536. The Web, for example, usually runs on port 80, while FTP uses port 21 (by default) for its primary connections. When the router receives a connection request, it checks the port number the client is connecting to, and forwards the request to a computer on the local network as needed.

To make all of this work, you will need to configure your router to forward incoming FTP connections to the local IP address assigned to the Macintosh running Rumpus. Since FTP uses multiple connections (each of which runs on a different port) to perform data transfers, there will be several ports you will need to configure for forwarding. Also, Rumpus will sometimes need to tell clients what address to make new connections on, so you will need to specify the "real" Internet address of the router in Rumpus.

Configuring Your Router

Specific setup instructions will vary depending on the router, so the following instructions are fairly general. If you have detailed questions about configuring port forwarding on your router, contact the router manufacturer.

Open the router setup software, or setup URL if your router is configured by Web browser. Go to the "Port Forwarding" setup area. This is also sometimes called "Virtual Servers", "Pinholes", "Port Mapping", "Inbound Port Mapping" or "Relays". Add an entry to the setup so that port 21 is forwarded to the local IP address of the Rumpus server. Next, add an entry so that ports 3000 through 3XXX are also forwarded to the Rumpus server. The upper bound of this port range ("3XXX") is based on the number of maximum simultaneous connections you have set in Rumpus. The value is $3000 + \text{Max Simultaneous Connections}$. For example, to support the default maximum number of simultaneous connections (which is 8), the port range to be forwarded is 3000 through 3008. Note that this range is the Rumpus default passive mode port range, but can be changed if needed. See the "Advanced Options" section of the "FTP Settings" help page in the Rumpus control application for details.

If you are using the Rumpus Web File Manager (WFM), you will also need to set up a port forwarding entry for the defined Web Services port. The WFM default port is 8000, but we recommend changing this to the HTTP default of 80 unless another Web server on your network is already using that port. In any case, be sure to set up a forwarding entry on your router so that the WFM port specified on the "Web Server" tab of the "Web Settings" window is forwarded to the local IP address of the Rumpus server.

Of course, any security restrictions on these ports put in place on the router or on an external firewall need to be lifted as well. In addition, you must allow outbound connections on port 20, which is the FTP Active Mode connection port. For more details, see the "FTP Overview" article in this package.

Rumpus Setup

The last step is to tell Rumpus what the router's "real" IP address is. In Rumpus, open the FTP Settings window and switch to the "Advanced" tab. Enter the IP address of the router into the "Passive Mode Connect Address" field, and click OK.

Important Note: Some router/firewalls will automatically perform the "Passive Mode Connect Address" translation for the server, and in fact will not function correctly if the server does this itself. The most notable example of this is the Apple Airport router, in at least some firmware versions. When using these routers, you must leave the "Passive Mode Connect Address" blank, and let the router perform the address conversion, or the router will incorrectly alter, or block completely, passive mode connections.

On Networks With A Dynamic IP Address:

When possible it is best to supply an IP address, not a domain name, in the "Passive Mode Connect Address" field, because Rumpus must provide an address, not a name, when telling clients to establish passive connections. However, you may supply a domain name that maps to the address if you wish. This allows you to use Rumpus even when your Rumpus network address is dynamic. If the network address assigned to the server can change, and your ISP updates the domain name so that it always points to the correct address, then enter the domain name instead of the address. Each time it is needed, Rumpus will look up the address by the domain name, allowing FTP services to continue working even after your dynamic IP address is reset.

Testing And Troubleshooting Your Server

After setting up Rumpus and your router, have someone outside your network use an FTP client to connect to your server. We strongly recommend that you test with a dedicated FTP client, not a Web browser. An FTP client will provide you with much better diagnostic information and various connection options not available in Web browsers.

If external users can't connect at all, check the "Port 21" forwarding entry, make sure Rumpus is running, and make sure that Rumpus is serving on port 21. If you still have problems, try launching Rumpus with "factory default" settings by opening the "Install Server" window and clicking the "Remove Daemon" button to delete the Rumpus server daemon and configuration files. When you re-launch Rumpus, use the Setup Assistant to perform a basic installation and to create a secure user account, then click the "Start Server" button. In this default state, Rumpus should be ready to accept connections.

If users are able to make a connection (in the FTP client, open the "Transcript Window" and watch for connection activity) but can't get directory listings or transfer files, you are halfway there. Port 21 is correctly forwarded and Rumpus is accepting connections, but data connections can't be established. Most FTP clients allow you to choose between "Active Mode" and "Passive Mode" connections. Try both to see where the problem lies. In Fetch, for example, the option is called "Use passive mode transfers" and is on the "Firewalls" tab of the main Preferences window.

If "Active Mode" connections don't work, check your router and firewall, and have the client do the same. In this case, the server is unable to open a connection with the client on port 20, the defined FTP data port. Many client networks will have firewalls that block incoming connections on this port (and many others), so Active Mode connections may not be possible. Most clients, including Web browsers, therefore default to Passive Mode connections...

If "Passive Mode" connections don't work, then the problem is either your port forwarding setup for ports 3000 through 3008 (the upper bound may be different, as described above) or there is a firewall that is denying connections from the client to the server on these ports. Check your router's port forwarding setup for this port range, make sure that the maximum number of simultaneous users is set in Rumpus so that the forwarded range is correct, and check to make sure there isn't another firewall or router on your network blocking these ports. Also, have your client ask their network administrator or ISP if their network is restricted from making connections to these ports.

If you are still having problems, send an e-mail to "support@maxum.com". Please send the address of your server (or rather, of the router that forwards to your server) and a sample username and password. Maxum Technical Support staff will be happy to attempt to connect to your server, and check to see if it is accessible from the Internet.