

Managing Multiple Savoy Servers behind Routers and Firewalls

When multiple servers are located behind a router, they are generally assigned a local IP address such as 192.168.0.N where N is unique to the server.

External clients (Savoy Console) are given an external IP address of the router which is common to all servers behind the router.

Since both the Savoy Server Application and the FTP server Application are running in each physical server, the client connection must provide additional routing information to perform two functions:

1. to connect to the Savoy Server application for live video and control,
2. to connect to the FTP server application for file retrieval.

This routing information comes in two forms, appropriate for the Savoy Server application and the FTP Server application, respectively.

Savoy Server Application

For the Savoy Server application, a 'port offset' number (0,1...) is supplied which is added to the standard port 1984. There are two possible ways to deal with this offset on the server/router side:

1. configure each Savoy Server application to receive clients on its offset (server Setup dialog) and then simply portmap 1984, 1985... to the appropriate server IPs, or
2. portmap and translate the port from 198N to port 1984 on the appropriate server [note: many low end routers do not have this translation capability].

FTP Server Application

Normally, FTP servers run in 'active mode', meaning that once a client connects to it on port 21, the server then connects back to the client on port 20 for data transfers. If we were to install multiple FTP servers behind a common router, we'd have to give them unique port numbers, and the clients would carry the burden of receiving the data port connection – usually blocked except for the standard port 20.

To avoid this problem, we run the server in what is termed 'passive mode'. This mode is set by the client, and while most clients don't set passive mode, the Savoy Console application provides the option. In passive mode the server still listens for the connection on port 21 (or whatever), but upon connection, tells the client to perform the connection for data transfer and provides the port number to do so. This shifts the burden of port mapping and firewall management from the client to the server, where we can manage it more effectively.

Consequently, for the FTP Server application, the client connection sets a ‘passive’ mode option together with an FTP port which is unique to each physical server.

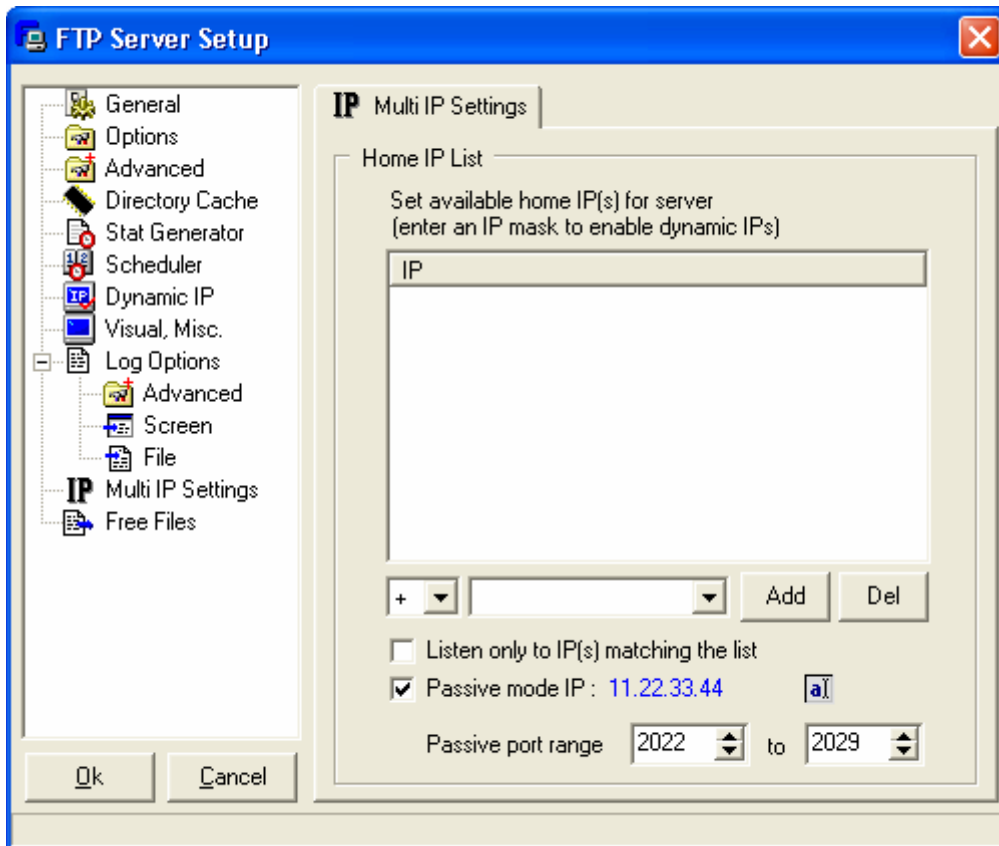
Assuming we have N servers behind a router, we, by convention, set up N sets of port ranges:

- 2020-2029 for server 1
- 2030-2039 for server 2
- 2040-2049 for server 3
- ...

In the port forwarding section of the router, we forward these ranges to the respective local server IP addresses.

Then, on each server, configure the FTP Server application. Run the Setup dialog and select ‘Multi IP Settings’ tab.

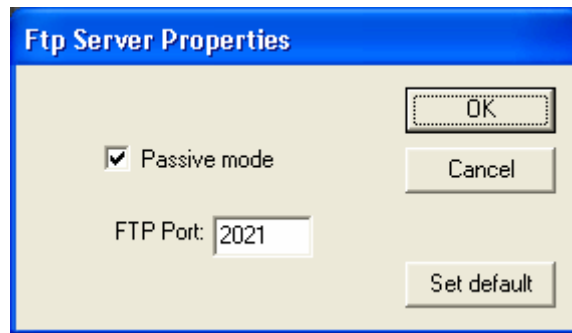
- 1) check ‘Passive mode’
- 2) Set Passive mode IP to router’s external IP address
- 3) Set Passive port range to 2022-2029, 2032-2039, 2042-2049...



Note that each server has ten ports assigned to it: 20X0-20X9. However, the above entries only span 8 of the ten: 20X2-20X9. The reason for this is that the control port will be assigned 20X1 and the data channel will be 20X0. This allows for eight concurrent connections, enough for our application.

After setting up the FTP server and the router, you must also specify the mode and port to be used from a Console connection. Although these parameters are set by a Console, they are maintained in the server, and so it need only be set once; all other Consoles will automatically derive the settings when they connect.

To set these parameters, run the Savoy Console and connect to the server. Right click on a video window and select 'Server.../File Transfer (FTP) Service...' which will run the following dialog:



Of course, the FTP Port must be unique for each server behind the same router, as specified above, and by convention, 2021, 2031, 2041...