

Streaming Video Notes

Definitions

Unicast: A unicast is point to point communication between two computers on a network. Most traffic on networks is Unicast, and Unicast is supported on today's Internet.

Multicast: A multicast is point to multi-point communication. One computer sends information to a multicast address. Multiple clients can tune in on the multicast. In this way multicast is similar to broadcast radio or television. Multicast traffic must be supported on the network and today's Internet does not support multicast traffic (Internet 2 does).

sdp: Session Description Protocol is an IETF (Internet Engineering Task Force) standard for describing a network media stream. Clients access sdp files from streaming servers to view and listen to live webcasts.

rtsp: Real Time Streaming Protocol is an IETF (Internet Engineering Task Force) standard for setting up a streaming session.

rtp: Real Time Protocol is an IETF (Internet Engineering Task Force) standard for transferring streaming media data.

Automatic Unicast: The broadcast encoder can authenticate to the streaming server and negotiate broadcast settings. This method requires some setup. However, once set up, Automatic Broadcasts provide automatically negotiate network settings, providing improved ease of use for the user of the broadcast encoder.

Manual Unicast: With a manual unicast, the broadcast encoder sends the stream to the server on specific ports. This method requires generation of a sdp (session description protocol) file on the broadcast encoder. This file can be copied to the streaming server via file sharing or ftp protocols.

Multicast

With a multicast, the broadcast encoder sends the stream to a multicast address. The streaming server can reflect the multicast as unicast streams.

Various ways of streaming live video are:

1. Using a Quicktime Streaming Server (Mac OS X Server must be installed), with another computer capturing a live video feed using Quicktime Broadcaster or another broadcast encoder, like Wirecast or Abstract Plane Uplink Broadcaster...
2. Using a Quicktime Streaming Server that also broadcasts the live feed

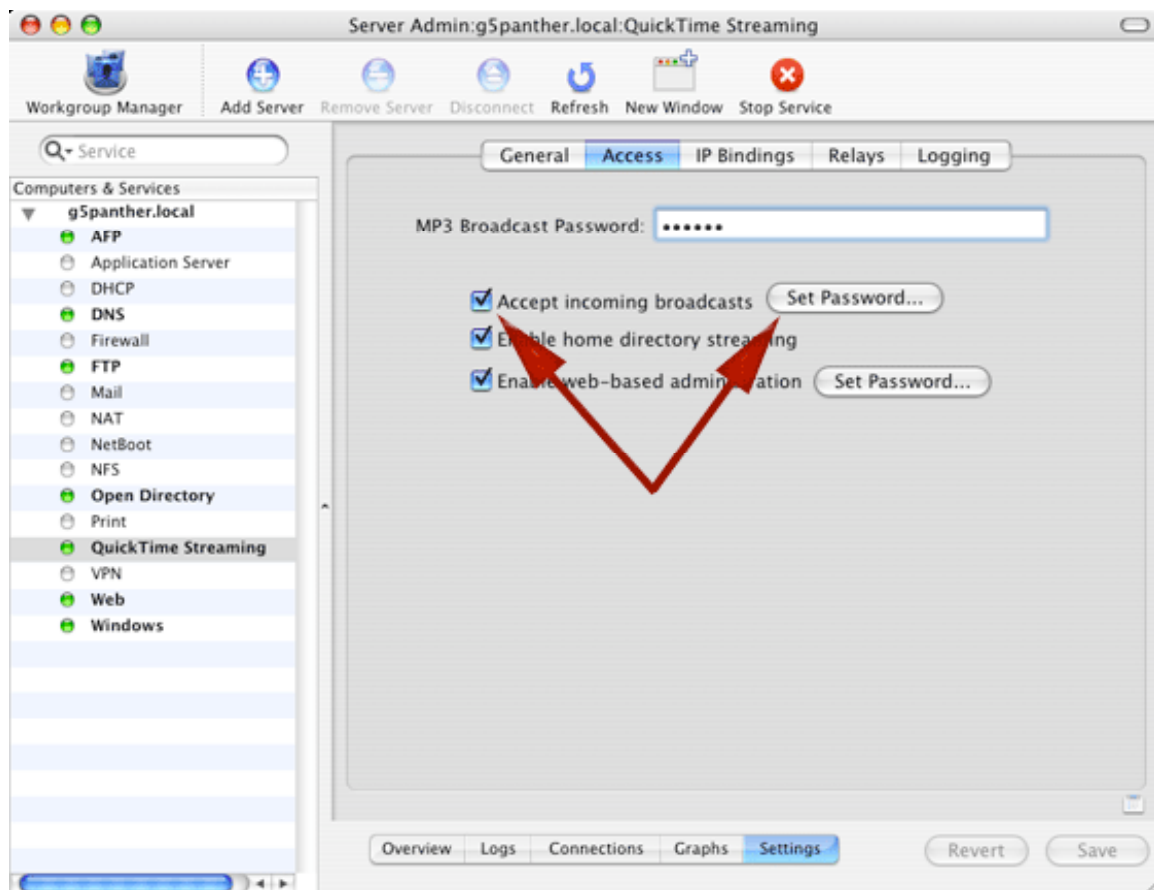
- (using Quicktime Broadcaster)
- Using Darwin Streaming Server to broadcast from the same computer capturing the live feed (using Quicktime Broadcaster); *to administer the Darwin Server open a web page to the address 127.0.0.1:1220*

The Advantage of using a QT Streaming Server is the ability to broadcast to thousands of clients.

Webcasting with Automatic Unicast

With **Mac OS X Server** – using the **Server Admin** application

Launch **Server Admin** and connect to your server; then click on **QuickTime Streaming** in the **Computers & Services** Pane on the left; Click **Settings** at the bottom of the window and the **Access** tab near the top; Check **Accept Incoming Broadcasts** and click **Set Password**



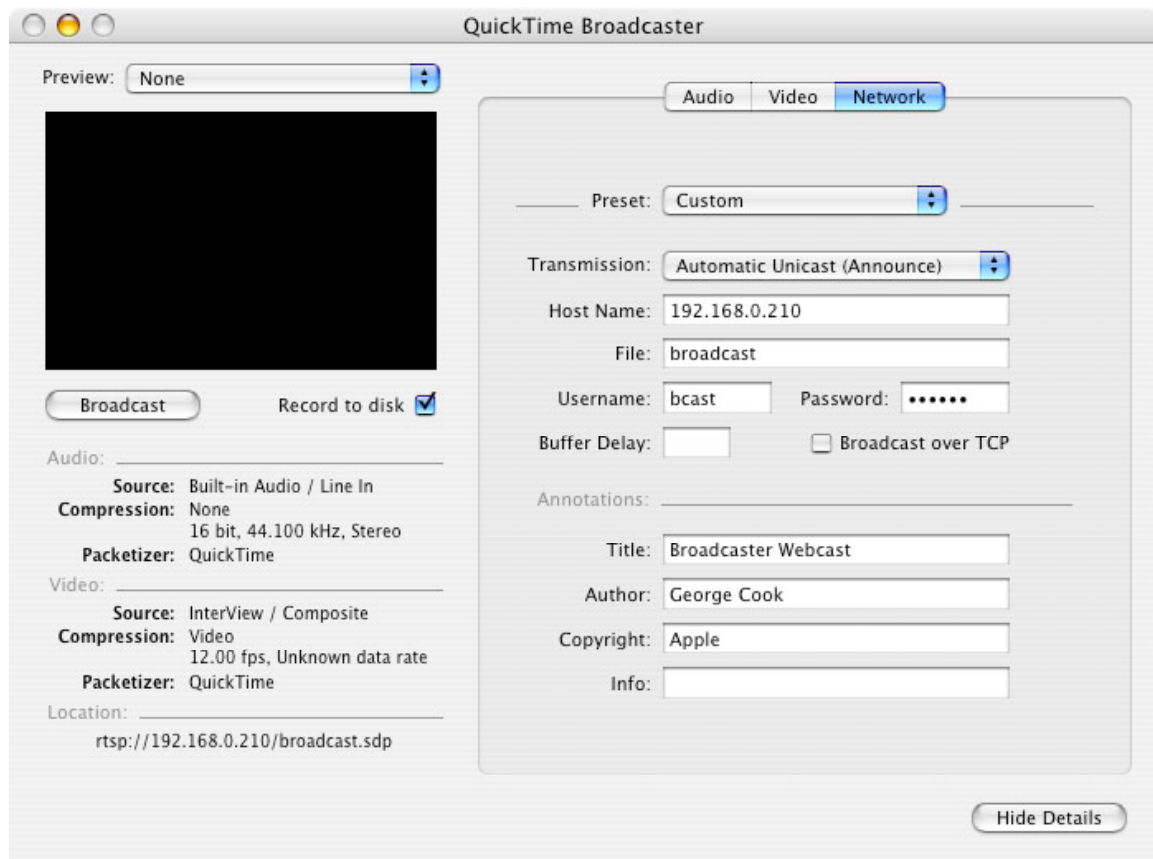
Now you are ready to accept **Automatic Unicasts**.

For **Darwin Streaming Server** and **Manual Unicasts**:

Go to <http://127.0.0.1:1220> in a browser to administer the streaming server.

The **Broadcasting Computer** – using **QuickTime Broadcaster**

At the computer running QuickTime Broadcaster, configure the Automatic Unicast under the **network tab** in **QuickTime Broadcaster**:



In **QuickTime Broadcaster** set your Network settings to correspond with the Streaming Server settings (or the local computer's settings if using Darwin Streaming Server). ABOVE, the Streaming Server configured for automatic unicast is at the IP address, 192.168.0.210. The .sdp file is named "broadcast.sdp" on the server. The broadcast and creation of the .sdp file will begin when the Broadcast button is clicked. Once the broadcast starts, you can tune in on it by opening a url in QuickTime Player:

rtsp://<ServerIP>/<BroadcastName>.sdp

In the example above, this would be rtsp://192.168.0.210/broadcast.sdp

If you are running Broadcaster and Streaming Server on the same system, you can just configure Broadcaster to send the Automatic Unicast to the loopback address (127.0.0.1) and leave the username and password blank.

Broadcasting Steps for Quicktime Broadcaster:

Audio Tab – recommended settings

preset: lan music; no play through speaker; mpeg compression; 16 bit; stereo

Video Tab – recommended settings

lan: high motion
source: (automatically detects the camera)
with 320 height 240
compression: H.264
frames per second: 15, or 30, depending on bandwidth
key frame: 90
limit data: untick

Network Tab:

preset: custom
transmission: unicast
IP address: (depends on server/ streaming computer's IP address)
audio port: aut
video port: aut
buffer delay: 5
title: (title of the stream).sdp

For Streaming Server set the **Transmission** to **Automatic Unicast**; while for Darwin (broadcasting and streaming from one computer) you may have to switch to **Manual Unicast**.

Set the **Host Name** to the IP address of the Streaming Server if broadcasting via the server or the local computer if using Darwin (To find out the remote IP address of a computer go to www.whatsmyip.org but for the local IP address of the Darwin server go to the network settings).

Save your Network settings as a preset.

To set the broadcast file name and location go to **File > Export > SDP** (the default location for this file for Darwin is /Library/QuickTimeStreaming/Movies/) Click the broadcast button to **Broadcast**.

Open the stream in **Quicktime Player**: **File > Open URL** – then type in `rtsp://XXX.XXX.XX.XX/filename`

You can also open the stream in **VLC Player**, which allows full-screen playback (In VLC go to **File > Open Network**; then Video > Fullscreen).

* If using QuickTime Streaming Server version 5 or later you must give full read-write permission to the Movies directory to the user, “qtss”