

### Network music streaming

#### Overview

The Stream Magic product is a UPnP AV Client. Being a UPnP Client means the it can connect to UPnP AV servers on a network and browse and playback their music content. A connection to the internet is not strictly needed for this. The Stream Magic product just needs to be able to connect to the server to access its content.

Most operating systems and/or music playback software now feature UPnP server facilities built in.

These allow you to share the music on the computer's hard-drive with Clients such as the Stream Magic product. Your music library can include digital music located anywhere on your home network such as shared folders on your own computer, shared folders on another computer on your network, or music stored on a Network-Attached Storage (NAS) device on your network. Using UPnP, the Stream Magic product can connect to these devices and play back, or 'stream' this music via the network.

Many NAS drives support a built-in UPnP server that can automatically serve any content stored internally, so that having a computer switched on is no longer necessary.

When connecting to a UPnP server it is actually the server that tells the client what content it has and categorises it into folders. Typically, UPnP servers support browsing by Album, Artist, Genre, etc.

When you connect to a UPnP server, the menus you then see are actually coming from the server and not from client. It is often possible to customise these via the server's own setup procedure.

**Note:** If a computer or NAS on your network is turned off or is in *standby* mode, the music folders on that computer/NAS will be unavailable to the Stream Magic product until the computer/NAS is switched back on.

**If you have trouble connecting the Stream Magic product to your network, these steps may help to resolve the problem:**

- Confirm that a connected PC can access the Internet (i.e. can browse the web) using the same network
- Check that a DHCP server is available, or that you have configured a static IP address on the Stream Magic product. You can configure a static IP address on the radio using the menu item 'Settings -> Network Config -> Edit Config', and then select 'No' for 'Auto (DHCP)'. DHCP is however, the recommended method.
- Check that your network's firewall is not blocking any outgoing ports. A firewall is a dedicated appliance, or software running on a computer or router, which inspects network traffic passing through it, and denies or permits passage based on a set of rules. It is a software or hardware that is normally placed between a protected network and a non-protected network and acts like a gate to protect assets to ensure that nothing private goes out and nothing malicious comes in.
- As a minimum, the Stream Magic product needs access to UDP and TCP ports 80, 554, 1755, 5000, 6000 and 7070. You will need to enter your router's setup to check these firewall settings and also the settings in any additional firewall software running on your computer will need to be checked.
- Check your access point does not restrict connections to a particular MAC addresses. You can view the Stream Magic product's MAC address using the menu item 'Settings -> Network Config -> View Config -> MAC address'.
- If you have an encrypted Wi-Fi network, check that you have entered the correct key or passphrase into the Stream Magic product. Remember that text-format keys are case sensitive. If, when attempting to connect to an encrypted network, your Stream Magic product displays: 'Wireless error' followed by a 5-digit number, then please ensure that you enter the correct passphrase for the network. If the problem persists, then you may need to consult your network configuration.

**If you have problems with UPnP playback always check the following:**

- Ensure your chosen UPnP server software is capable of serving the file type you are trying to access. Some servers do not serve FLAC for instance.
- The Stream Magic product can only play non DRM files. Files that have DRM controls cannot be played by the Stream Magic product. Some servers may be able to authorise and de-crypt Microsoft Playsforsure before then serving the content to the Stream Magic product but this operation is not guaranteed as it is purely a function of the server.
- If attempting to play 24-bit WAV or FLAC content note a wired Ethernet connection is normally required for reliable operation due to bandwidth considerations.
- Check the Stream Magic product is capable of playing back the file type you are trying to access. WMA, AAC, MP3, Vorbis, FLAC and WAV can currently be played. The Stream Magic product does not support ALAC, WMA Pro, WMA lossless, RAW, AU or other file types not mentioned.