

# Z/IPStream R/1

Encoder for Streaming



## Quick Start Setup Guide

Software Version v2.1

For part number: 2001-00254

### ATTENTION!

This quick start guide is intended to aid with basic deployment of the Z/IPStream R/1.

For further support and/or questions please contact [support@telosalliance.com](mailto:support@telosalliance.com)

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# Creating the Most Exciting and Engaging Audio Experiences Imaginable

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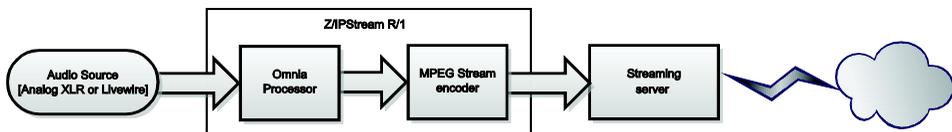
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**The Telos Alliance**

# Quick Start Setup Guide

Streaming with Z/IPStream R/1 involves the following primary tasks:

1. select the audio input,
2. configure the network settings,
3. select an audio processing preset,
4. select the codec used to encode the stream, and
5. select a destination server to distribute the stream to the end-listeners.



This section walks you through a simple setup where the Z/IPStream R/1 is fed analog audio, the network settings are configured via DHCP, and the stream is sent to a ShoutCAST v2 server. If your setup is different, you may safely skip this section. If this is the first time you have used a Z/IPStream R/1, you may want to have a look at the [Front Panel] and [Entering Text] sections in the back before you proceed.

## Settings

From the front panel of the Z/IPStream R/1, set the following menu options.

### Audio



- Connect an audio source to the XLR inputs and select Audio Input: XLR.



- Verify Input Gain Setting is 0.0 db.



Audio signal should now be visible on the input metering.



Increase INPUT gain by pressing the encoder knob, turning, and then pressing again to set the value.

## Network

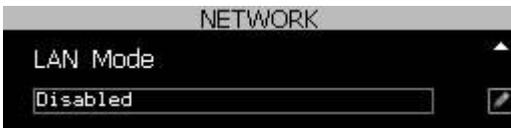


The Z/IPStream R/1 offers WAN and LAN/Livewire network ports. In most configurations you only need to connect the WAN port to the network and the LAN port is set as “disabled”. When using Livewire, the LAN port is connected to the Livewire network and the WAN port is connected to the public/outside network.

### NOTE:

**Do not connect both ports to the same network!**

**Unless you are using the LAN port with Livewire Audio over IP, configure it as “disabled”.**



Connect the WAN Ethernet port to the network. Under Network -> WAN Mode, set the WAN port to Auto (DHCP).

After a reboot, the Network -> WAN IP Address should now show a valid IP address for the connected network.

## Omnia Processing



In the Omnia Processing dialog, select a processing preset best suited to the audio source material. If unsure, use **Normalize**. If no audio processing is desired, select the processing preset as **[none]**.

Only processing preset selection is available on the front panel interface. Preset adjustment can be done via Z/IPStream R/1’s internal web configuration by means of a web browser.

### Note:

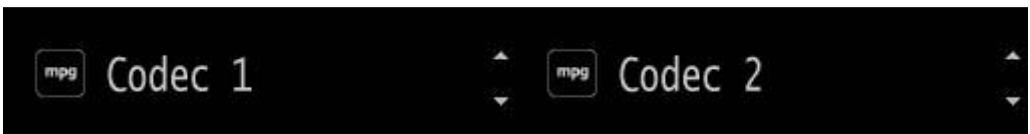
**All Z/IPStream R/1 local outputs (XLR, Livewire, and headphone output) are post-process and pre-encode. The post-process audio can be monitored via the output metering of the Status display.**



Processing adjustments will be heard real-time on local outputs, but will be heard with a certain amount of delay in the encoded stream. A small portion of this delay is introduced by the encoder while a much larger portion is introduced by buffering in the server and the client used to listen to the stream.

Note: Switch headphone monitoring between pre-processed audio and post-processed audio by pressing the headphone volume knob and selecting “Listen to [input|output] audio.”

## Codec 1 & 2



Choices are MP3, AAC, or None. Common output settings are as follows:

### MP3

- Sample Rate: **44100 Hz**
- MP3 Channels: **Stereo**
- MP3 Bitrate (16-320 kbps): **128**

### AAC

#### Low Complexity

(Good for 3G networks)

- AAC Format: **AAC-LC**
- AAC Channels: **Stereo**
- AAC Bitrate(24-320 kbps): **96**
- AAC Transport: **ADTS**

#### High Efficiency V2

(Good for Edge/2G networks and lower bit-rates)

Sample Rate: **44100 Hz**

- AAC Format: **HE-AAC v2**
- AAC Channels: **Stereo**
- AAC Bitrate (14-56 kbps): **48**
- AAC Transport: **ADTS**

Once the Codec encoders are configured, it should be possible to monitor the encoded audio streams via a connected network audio player. Each codec can be monitored separately via the Z/IPStream R/1's internal Stream Server. In the table below, “ip.address” represents the IP address assigned to the Z/IPStream R/1.

### Test Stream Connection URL's

Codec 1	Codec 2
PLS: <a href="http://ip.address/play.pls">http://ip.address/play.pls</a>	PLS: <a href="http://ip.address/play2.pls">http://ip.address/play2.pls</a>
M3U: <a href="http://ip.address/play.m3u">http://ip.address/play.m3u</a>	M3U: <a href="http://ip.address/play2.m3u">http://ip.address/play2.m3u</a>
ASX: <a href="http://ip.address/play.asx">http://ip.address/play.asx</a>	ASX: <a href="http://ip.address/play2.asx">http://ip.address/play2.asx</a>
RAW: <a href="http://ip.address:8000">http://ip.address:8000</a>	RAW: <a href="http://ip.address:8010">http://ip.address:8010</a>

#### Note:

The Z/IPStream R/1's playlist links are for testing only and should NEVER be deployed as public connection points. Always use a streaming server.

## Stream Configuration

Stream configurations are provided by the stream relay provider or set in the stream server configuration files. Z/IPStream R/1 has four (4) configurable stream uplinks which can be set to push audio from either of the two (2) available encoded codecs.

### SHOUTcast DNAS v2.0 Example

The free SHOUTcast DNAS software is a good example of a streaming server. SHOUTcast DNAS is available at <http://www.shoutcast.com/broadcast-tools>. A single SHOUTcast instance is capable of relaying both Z/IPStream R/1 codecs, and will require the configuration of 2 of the available 4 stream configurations.

#### SHOUTcast configuration file

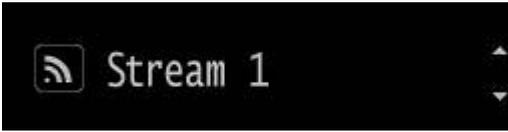
SHOUTcast operates by means of specifying a configuration file at launch, typically, **sc\_serv.conf**. The following parameters are needed from the SHOUTcast configuration file.

```
portbase=8010
password=streampwd
adminpassword=adminpwd
```

At least two stream ID's should be specified.

```
streamid_1=1
streamid_2=2
```

## Stream 1



- Stream Type: SHOUTcast
- Codec: Codec 1
- Server Address: *SHOUTcast.ip:{portbase}* [example: 192.168.2.200:8010]
- Server Password: *{password}* [example: **streampwd**]
- Stream Name: *Name of Stream* [sent to clients]
- Stream Genre: *Genre of Stream* [[SHOUTcast guidelines](#)]
- Stream URL: URL of Station Website [sent to clients, example: <http://TelosAlliance.com>]
- Server version: **version 2**
- Stream ID: 1
- Stream Availability: **public**

 A screenshot of a web browser window showing the SHOUTcast DNAS Status page. The browser's address bar shows the URL "http://192.168.2.200:8010/index.html?sid=1". The page title is "SHOUTcast DNAS Status" in large yellow font. Below the title is a navigation bar with links: "Status", "Song History", "Listen", "Stream URL", and "Admin Login". The "Listen" link is circled in blue. To the right of the navigation bar, it says "SHOUTcast Server v2.0.0.29/posix(linux x86)". Below the navigation bar is a section titled "Current Stream Information" with a dark background. The information is displayed in two columns:
 

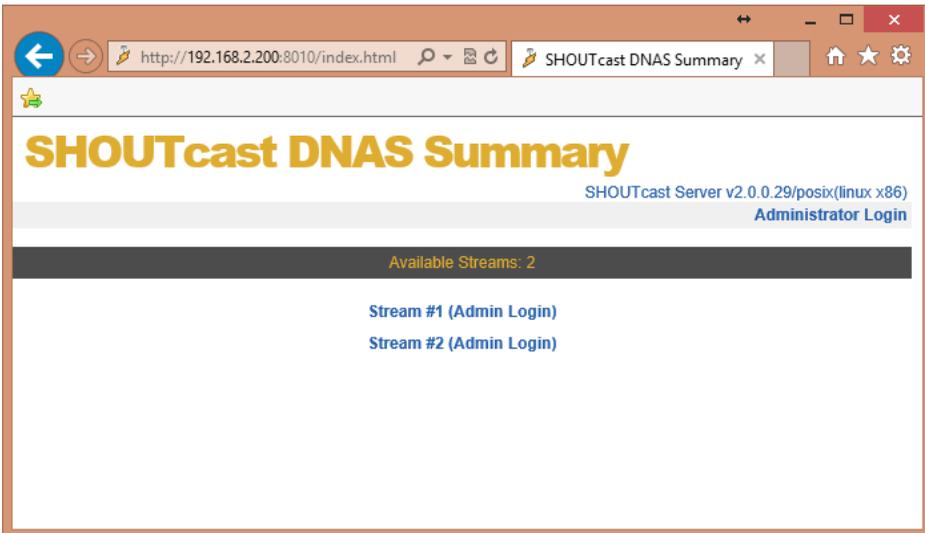
Server Status:	Server is currently up and public (no YP connection)
Stream Status:	Stream is up at 96 kbps with 0 of 128 listeners (0 unique)
Listener Peak:	0
Stream Name:	Name of Stream
Content Type:	audio/aac
Stream Genre:	livewire
Stream URL:	<a href="http://TelosAlliance.com">http://TelosAlliance.com</a>

The **Listen** link now provides a stream listen URL for client deployment.

## Stream 2



- Stream Type: SHOUTcast
- Codec: Codec 2
- Server Address: *SHOUTcast.ip*:{portbase} [example: **192.168.2.200:8010**]
- Server Password: {password} [example: **streampwd**]
- Stream Name: *Name of Stream* [sent to clients]
- Stream Genre: *Genre of Stream* [[SHOUTcast guidelines](#)]
- Stream URL: URL of Station Website [sent to clients, example: <http://TelosAlliance.com>]
- Server version: **version 2**
- Stream ID: 2
- Stream Availability: **public**



Two streams are now available from the SHOUTcast DNAS server.

## ICEcast Example

Icecast is a free stream relay software available from <http://www.icecast.org/>.

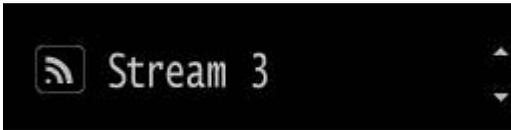
### ICEcast Config file

ICEcast must be launched with a configuration file specification, typically, **icecast.xml**. The following parameters are required from the ICEcast configuration file.

```
<authentication>
  <source-password>streampwd</source-password>
  <relay-password>relaypwd</relay-password>
  <admin-user>admin</admin-user>
  <admin-password>adminpwd</admin-password>
</authentication>
<listen-socket>
  <port>8000</port>
</listen-socket>
```

ICEcast per-stream configuration is un-needed. Streams are distinguished by the mount point configuration which is specified in the source device [ Z/IPStream R/1 ].

### Stream 3



- Stream Type: ICEcast
- Codec: Codec 1
- Server Address: *ICEcast.ip:{port}* [example: **192.168.2.200:8000**]
- Mount Point: **hifi** [can be any URL compatible string]
- Server Username: **source** [can be overridden in icecast.xml config]
- Server Password: <source-password> [example: **streampwd**]
- Metadata Username: <admin-user> [example: **admin**]
- Metadata Password: <admin-password> [example: **adminpwd**]
- Stream Name: *Z/IPStream R/1 HiFi* [sent to clients]
- Stream Genre: *livewire*
- Stream URL: URL of Station Website [sent to clients, example: <http://TelosAlliance.com>]
- Server version: **version 2**
- Stream Availability: **public**

## Stream 4



- Stream Type: ICast
- Codec: Codec 2
- Server Address: *ICast.ip:{port}* [example: **192.168.2.200:8000**]
- Mount Point: **lofi** [can be any URL compatible string]
- Server Username: **source** [can be overridden in icecast.xml config]
- Server Password: <source-password> [example: **streampwd**]
- Metadata Username: <admin-user> [example: **admin**]
- Metadata Password: <admin-password> [example: **adminpwd**]
- Stream Name: *Z/IPStream R/1 LoFi* [sent to clients]
- Stream Genre: *livewire*
- Stream URL: URL of Station Website [sent to clients, example: <http://TelosAlliance.com>]
- Server version: **version 2**
- Stream Availability: **public**

The screenshot shows the Icecast2 Status page with the following details for the two streams:

Mount Point	Stream Title	Stream Description	Content Type	Mount started	Bitrate	Current Listeners	Peak Listeners	Stream Genre	Stream URL	Current Song
/hifi	ProSTREAM HiFi	ProSTREAM HiFi	audio/aacp	Sat, 04 May 2013 20:08:43 -0500	96	0	0	livewire	<a href="http://TelosAlliance.com">http://TelosAlliance.com</a>	
/lofi	ProSTREAM LoFi	ProSTREAM LoFi	audio/aacp	Sat, 04 May 2013 20:08:48 -0500	48	0	0	livewire	<a href="http://TelosAlliance.com">http://TelosAlliance.com</a>	

## Front Panel



1. **Power LED:** The blue power LED is located to the upper left of the display. When the unit is first powered, the power LED will flash until the unit is fully booted. When booted, the power LED will light solid.
2. **Display Screen:** The OLED display screen displays audio meters and configuration information. Use the display, control knob, and return button to navigate the Z/IPStream R/1's options and settings.
3. **Control Knob:** The main control knob, next to the display, works as a selector. Rotate the knob until the desired option is displayed, then press the control knob to select the option. The control knob is also used in similar fashion for character selection in text entry fields.
4. **Back Button:** The back (or escape) button is adjacent to the control knob. Pressing it steps back, or exits, from a selected option or dialog. Pressing it repeatedly, will return you to the main screen (and will also toggle between the main and status screens).
5. **Headphone Jack:** 1/4" Stereo TRS Jack for monitoring the input and post-process output audio.
6. **Headphone Volume Knob:** The headphone volume knob controls the output level of the audio being sent to the headphone jack. Pressing the headphone volume knob will toggle the headphone output between monitoring the input audio and the post-process output audio.

## Entering and Editing Text in the Front Panel UI

Since the Z/IPStream R/1's user interface consists of a selector knob and back button, the method for entering text or numeric information may not be immediately obvious. This section describes how text entry and editing is accomplished. The task seems complex at first, especially when described in words, but it is very simple once you have a chance to practice it a bit; similar to learning to tie one's shoe laces.

When a text field is displayed, the pencil icon  indicates that the field is changeable. Press the main knob to enter one of the edit modes. The edit mode is indicated by the cursor shape: a solid cursor indicates text entry mode, while a rectangle outline cursor indicates erase mode.

### text entry mode (solid cursor)



In text entry mode, turning the knob cycles through all available characters. Press the main knob to select the current character; the cursor will move to the next character position. While in text entry mode, pressing the Back button once switches the cursor to erase mode.

### erase mode (hollow rectangle cursor)



In erase mode, turning the knob erases (or restores) characters. While in erase mode, press the main knob to return to text entry mode or press the Back button to exit field editing altogether.

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