

Connecting Telos Z/IP ONE and Zephyr iPORT

November, 2017

Products

- 2001-00305 Zephyr iPort
- 2001-00286 Z/IP ONE

This document assumes that you are familiar with port forwarding. If you are unsure how to do this, refer to the Z/IP ONE manual “When an IT Department is Not Available,” or contact Telos Alliance 24/7 support via support@telosalliance.com or +1 (216) 622-0247.

Z/IP ONE sending to iPort (one direction)

This one is the special case, so we’ll cover it first.

1. **Choose a codec.** On the Z/IP ONE, set up your codec and bit rate as you would for any other call. You must choose a codec compatible with the iPort:
 - AAC-HE
 - AAC-LD
 - AAC
 - MP2-AAC
 - aptX (except 16-bit mono)
 - 24-bit PCM
2. **Enable auto-redial.** This will ensure that if there is power loss or some other event that causes a reboot, the Z/IP ONE will continue streaming as soon as possible
3. **Configure the iPort.** Now, configure your iPort’s decoder channel and set up port forwarding so that it is accessible. If streaming over the internet, we recommend using a UDP port far away from the default of 9150 to prevent port scanners from finding the open audio port. iPort codec port numbers are always sequential, but you can define the base they count up from on the iPort’s Codec Configuration webpage, in the page accessed by the Global Options button.

On the Z/IP ONE, dial the iPort’s decoder port. Set the call type to RTP, and set the address and port of your iPort’s decoder instance. Click Connect, and verify that the audio flows as intended.

Phonebook	Server	History	Manual
Protocol	Address	Port	
RTP	192.168.0.161	22687	



4. **Save the connection info.** Once you verify the audio, switch to the History tab and save the call to your phonebook. This way, if you need to manually stop and restart the call sometime, you can do so easily.

Phonebook		Server	History	Manual
Protocol	Remote unit		Group	Status
out	rtp	192.168.0.161:22687		
out	rtp			
out	rtp			
out	tscpd			
out	tscp			
out	tscp	Telos Line	public	up

→ 

iPort sending to Z/IP ONE (one or two direction)

Sending from the iPort to the Z/IP ONE takes the same steps whether you want the final call to be one direction or two. The only difference is the port used on the Z/IP ONE.

1. **Configure the Z/IP ONE.** First, configure your Z/IP ONE’s RTP port and set up port forwarding so that it is accessible. If streaming over the internet, we recommend using a UDP port far away from the default of 9150 to prevent port scanners from finding the open audio port.

On the Z/IP ONE, there are four different RTP ports, which trigger different behavior on the Z/IP ONE. Look for the RTP Push Configuration section on the Z/IP ONE’s Streaming webpage

RTP Push Configuration

RTP push stream receive-only port (0=disabled):

Reply with G.722 if RTP stream is received on port 28001:

Reply with received stream mode if RTP stream is received on port 28002:

Reply with configured codec mode if RTP stream is received on port 28003:

If your Z/IP ONE will only receive audio from the iPort without sending a return stream (single direction, iPort to Z/IP ONE), then you will use the base RTP port (in this example, 28000). The other three “reply” ports will be discussed later.

2. **Configure iPort Codec.** Next, configure your iPort encoder channel. On the iPort's Codec Configuration webpage, find your codec channel, and on the far right side of the screen, click Options



On the next screen, set up the encoder Select a codec and bit rate as you would for any other connection. You must choose a codec compatible with the Z/IP ONE

- **AAC**
 - **AAC-LD**
 - **AAC-HE**
 - **AAC-HEv2**
 - **MP2**
 - **aptX Enhanced** (except 16-bit)
 - **Uncompressed**
3. **Configure iPort output stream.** While on this screen, also set up the iPort's output channel. Set the protocol type to UDP, and enter your Z/IP ONE's IP and port information. If you are sending a one-way stream from the iPort to the Z/IP ONE, use the Z/IP ONE's base RTP port, configured above.

If you want the Z/IP ONE to send a stream in return, you have 2 options.

- If you want to return the same codec as Z/IP One receives from the iPort, use the third RTP setting (two ports higher than the base RTP port).
- If you want to return a stream with the codec selected on the Z/IP ONE's codec page, use the fourth RTP setting (three ports higher than the base RTP port)

In both cases, you will want to consult the above lists and make sure that both ends of the connection are using a codec that the other end can decode.

Transmit

Encoder type: AAC
 Bitrate: 128 kbps
 Sample rate: 48 kHz
 Channel config: Stereo
 DSCP Class of Service: 46 Expedited Forwarding (recommended)

Output configuration

Protocol type: UDP IP: 192.168.1.87 Port: 28002
 Main output (path A): UDP 0.0.0.0

In this example, the Z/IP ONE's RTP base port is 28000. Send a stream here if you do not want a reply.

Send a stream to UDP port 28002 to make the Z/IP ONE return a stream of the same codec. If you send to 28003, the Z/IP ONE will reply with whatever it is configured for on its own codec page.

Note: In this example, a stream sent to the Z/IP One's first reply port, 28001 (the base port +1), will cause the Z/IP ONE to reply with G.722. The iPort cannot decode this, so this port should only be used with other streaming devices (for example, Luci Live Lite).

- 4. Start the Stream.** Finally, return to the iPort Codec Configuration page and enable the stream you just configured. There will be two checkboxes to the left of the codec channel in the list. Toggle each of these so that they both have checkmarks present. On the far right, click the Apply button associated with that channel. Soon, you should have audio in both directions. Refresh the Codec Configuration web page, and you should see two green indicators on this channel. This shows that the output stream is enabled, and the input stream has a decoder lock.

Codec 16	<input checked="" type="checkbox"/>	12621	From source	CITY-B	OK	<input checked="" type="checkbox"/>	OK	multicast	multicast	Options
	<input checked="" type="checkbox"/>	12616	Live Stereo	CITY-A	OK	<input checked="" type="checkbox"/>	OK	192.168.0.161 : 9165	192.168.1.87 : 28002	Apply

Encoder: MP2 (mpeg1 layer 2), 128 kbps, sampling 48 kHz, Stereo, DSCP-46 Decoder: buffering 500 ms, 128 kbps, sampling 48 kHz, Stereo, MP2 (mpeg1 layer 2), UDP, DSCP-00

You now should be successfully connected to your Z/IP One. If you need further assistance please reach out to Telos Alliance 24/7 support via support@telosalliance.com or +1 (216) 622-0247.