



TECHNICAL DOCUMENTATION

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

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Overview

WheatNet-IP brings added convenience and simplicity to the configuration of a PC-based automation system such as RCS Zetta. Where once it was necessary to employ a specialized sound card, discrete analog or digital audio wiring, a logic interface, and control cabling, with WheatNet-IP's PC Driver, we can accomplish all of this over a single Ethernet cable. The driver effectively acts as a WheatNet-IP BLADE, and lets the PC enjoy full access to all aspects of the WheatNet-IP intelligent network.

The driver is available in versions that offer one, four, eight, twelve, and twenty-four stereo input and output channels. For situations where discrete outputs from Zetta players are desired, we recommend at least the four-channel version of the driver.

It is assumed for the purpose of this document that your station has a WheatNet-IP network and a Wheatstone control surface in operation, although much of this is applicable to other situations as well. Should you run into trouble, please call Wheatstone technical support at (252) 638-7000 or email techsupport@wheatstone.com.

What You'll Need

Before you get started, it's a good idea to make sure you have all of the needed hardware and materials on hand. Here's a rundown.

Computer (PC)
8 GB RAM or higher
Gigabit Ethernet NIC
Second Gigabit Ethernet NIC (if using Zetta networking)
Minimum 1024 x 768 display with 16 or 32-bit color
Windows 7 Professional with Service Pack 1 32-bit or 64-bit supported

Wheatstone Software
WheatNet-IP PC Driver with license for appropriate channel count
WheatNet-IP Navigator software for configuration and setup

RCS Zetta software (minimum needed for basic setup)
Zetta version 3.0 or higher

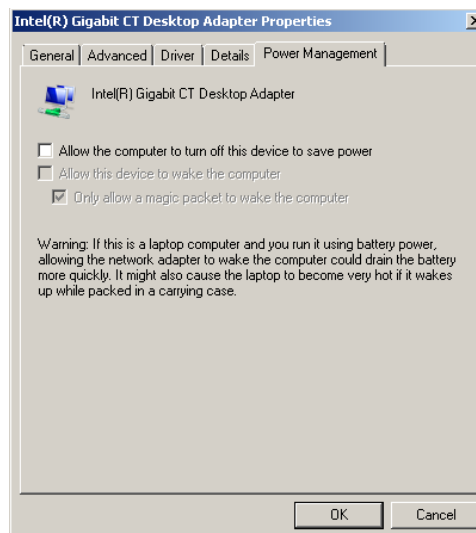
Hardware
At least one WheatNet-IP I/O BLADE
A WheatNet-IP native control surface such as the Wheatstone LX-24
A Gigabit Ethernet switch, if not already part of your WheatNet-IP network
Cat 6 cabling to tie everything together

Operating System & NIC Setup

Several Windows networking settings can affect the operation of the WheatNet-IP PC driver, and therefore should be configured before installing anything. The instructions below will apply to Windows 7 systems. Windows 8 settings are similar with slight differences in navigation.

Power

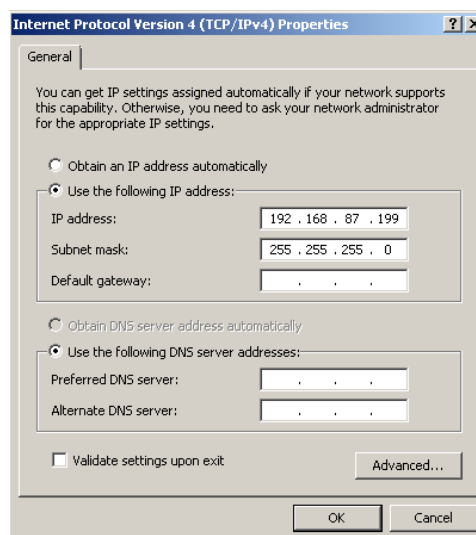
From the device manager, disable any features that allow the operating system to turn off either of the NICs to save power.



Address

Navigate to START -> Control Panel -> Network and Sharing Center. Click "Change Adapter Settings." Right-click the adapter that will be used for WheatNet-IP and select "Properties." Select "Internet Protocol Version 4" and click "Properties."

Here you will set the adapter's IP address. Generally this will be of the form 192.168.87.x, but you may use any private network address space. Since for this example we will be installing a WheatNet-IP PC driver we will add an IP address that is unused in our network. For this example we will use 192.168.87.219. The mask will fill itself in, and the default gateway and DNS addresses should be left blank. Keep this window open for the next step. The Network link must be up and IP assigned before running the driver setup program.



Installing and Licensing the Driver

Our first step is to install the WheatNet-IP PC driver onto the computer.

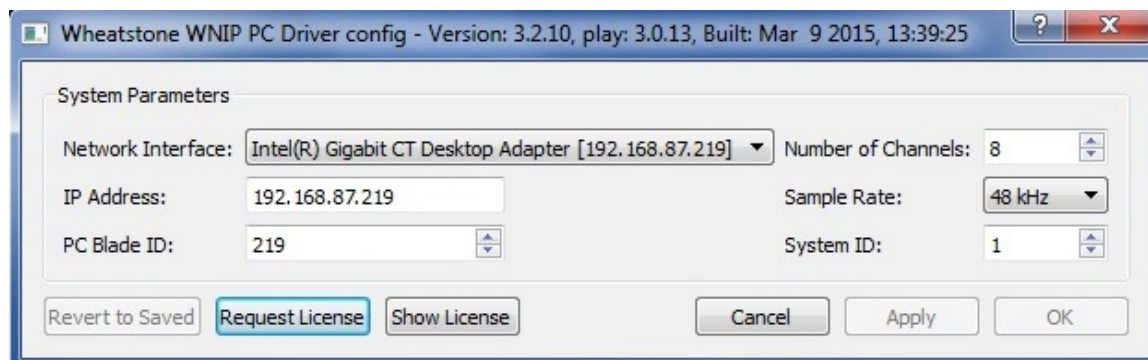
First, ensure that the computer's Gigabit Ethernet NIC is connected to a switch, either standalone or part of your existing WheatNet-IP network. If the network adapter is not actively connected it will not be displayed in the configuration window below.

Now, simply run the installer and follow the directions carefully.

There are now two methods for licensing the WheatNet-IP PC driver. The first is the traditional USB hardware dongle. This dongle sets the number of channels licensed for the PC. The second method is a license file acquired from Wheatstone technical support.

If using the physical dongle for licensing, DO NOT plug the license “dongle” into the computer's USB port until instructed to do so during the installation.

When the installation is complete, you will be asked if you wish to run the configuration utility, and you should answer YES. You'll then see the driver configuration dialog:



In the “Network Interface” drop-down, select the Gigabit Ethernet adapter that will be connected to your WheatNet-IP network. You will see the IP address you assigned previously under “Address” section of this document. With PC BLADEs, we generally set the PC Blade ID to the last octet of the IP address you selected.

Set the “Sample Rate” to match the rest of your system.

The System ID should be left at 1.

Under “Number of Channels,” you should set the number of channels your license dongle is authorized for. There will be a label on the dongle. If you are not using the dongle licensing method, then you can get this channel number from the license key file provided by Wheatstone technical support.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

To license the PC Driver using the license file, click the “Request License” from the configuration screen. You will see the License Key dialog:



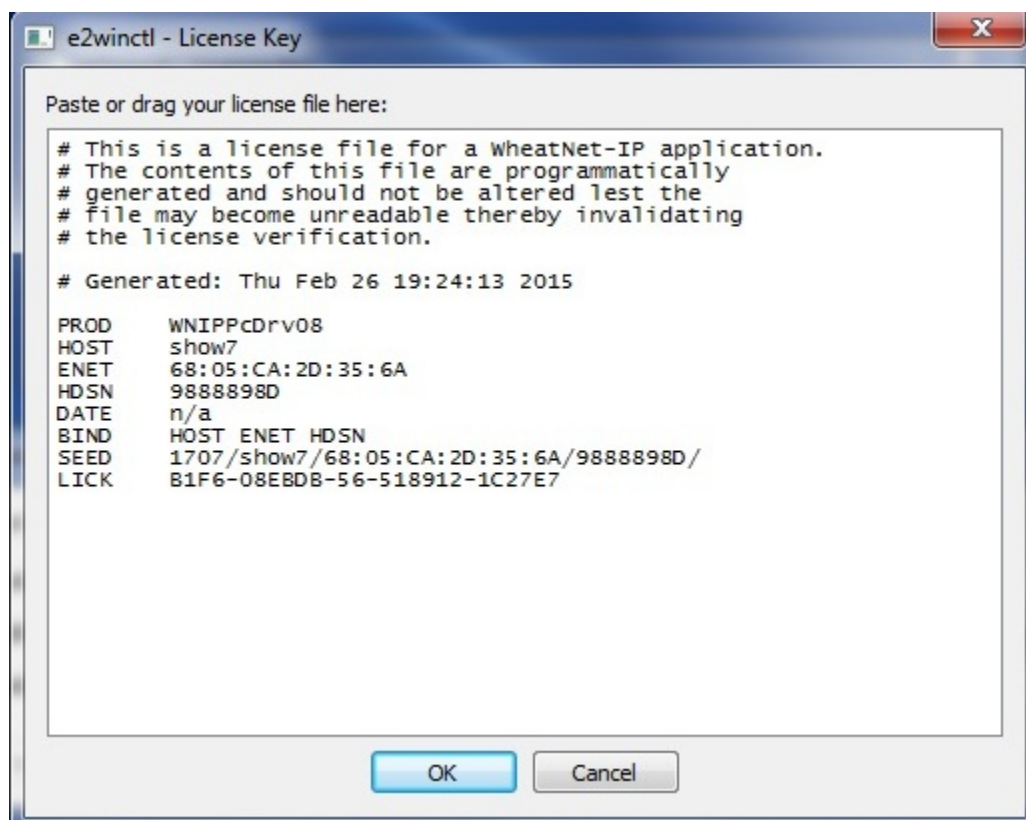
Click the “Obtain a License Key” Button.



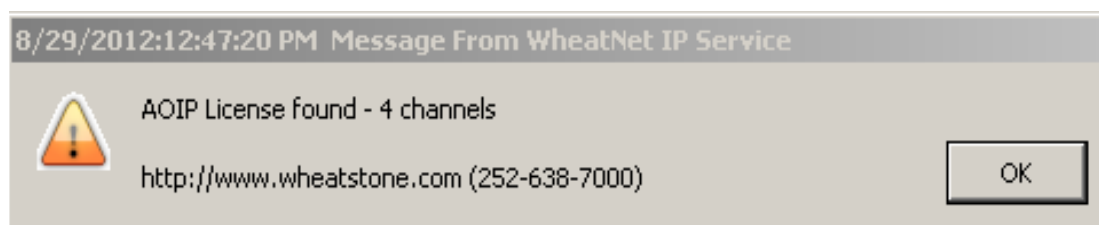
Confirm the proper NIC card is selected in the first drop-down. Now copy the license seed key from the dialog box and click close. Paste the seed key into an email and send the email to techsupport@wheatstone.com.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

Once you have received the license file from technical support click the “Enter a License Key” button. This will open the license Key dialog. Copy the text from the license file that you received from Wheatstone Technical Support and paste in the box a seen below.



When you complete the configuration and click OK, you'll see the following confirmation:



You can close this dialog; the driver is now installed and should be functioning correctly.

Installing WheatNet-IP Navigator

WheatNet-IP Navigator is a software application that serves as an all-in-one tool for setting up, managing, monitoring and controlling a WheatNet-IP network. You'll want to have it available so that you can set up audio routing, logic, and other features. You will probably wish to install Navigator on a machine other than the automation PC, such as a laptop that is connected to the WheatNet-IP network. Again, simply insert the disc and follow the directions. The software itself requires no configuration or setup.

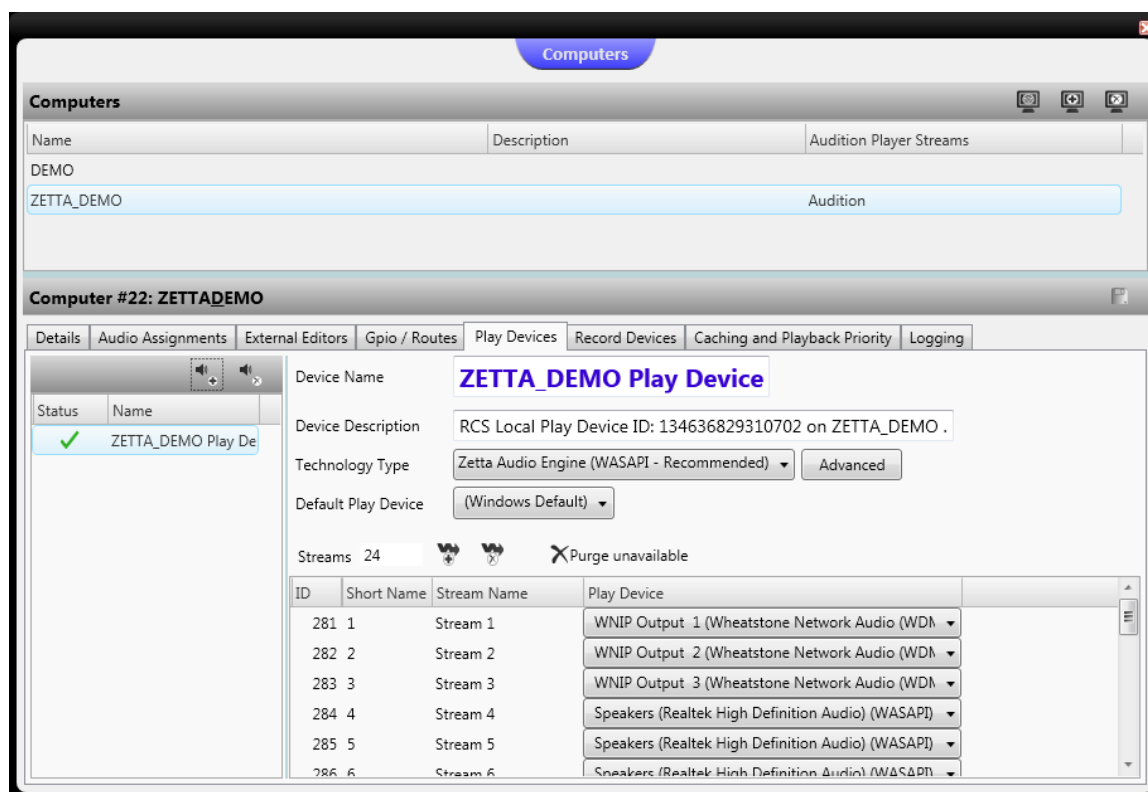
Zetta Audio Device Setup

We need to set Zetta to send its audio through the WheatNet-IP PC driver. To do that, we'll need to run the Zetta application and access its settings.

First, ensure that no audio is playing, and click "Configuration" from the Zetta tool bar.

Now, click "Computers" from the drop-down. This will display the Computers configuration screen. Now click the Play Devices tab.

If this is an existing install you likely already have at least one computer defined. Configurations will vary from station to station and you should consult RCS Technical support for custom configurations. For our demo setup we have selected the "WASAPI Zetta Audio Engine" for the technology type. This is the recommended setup.

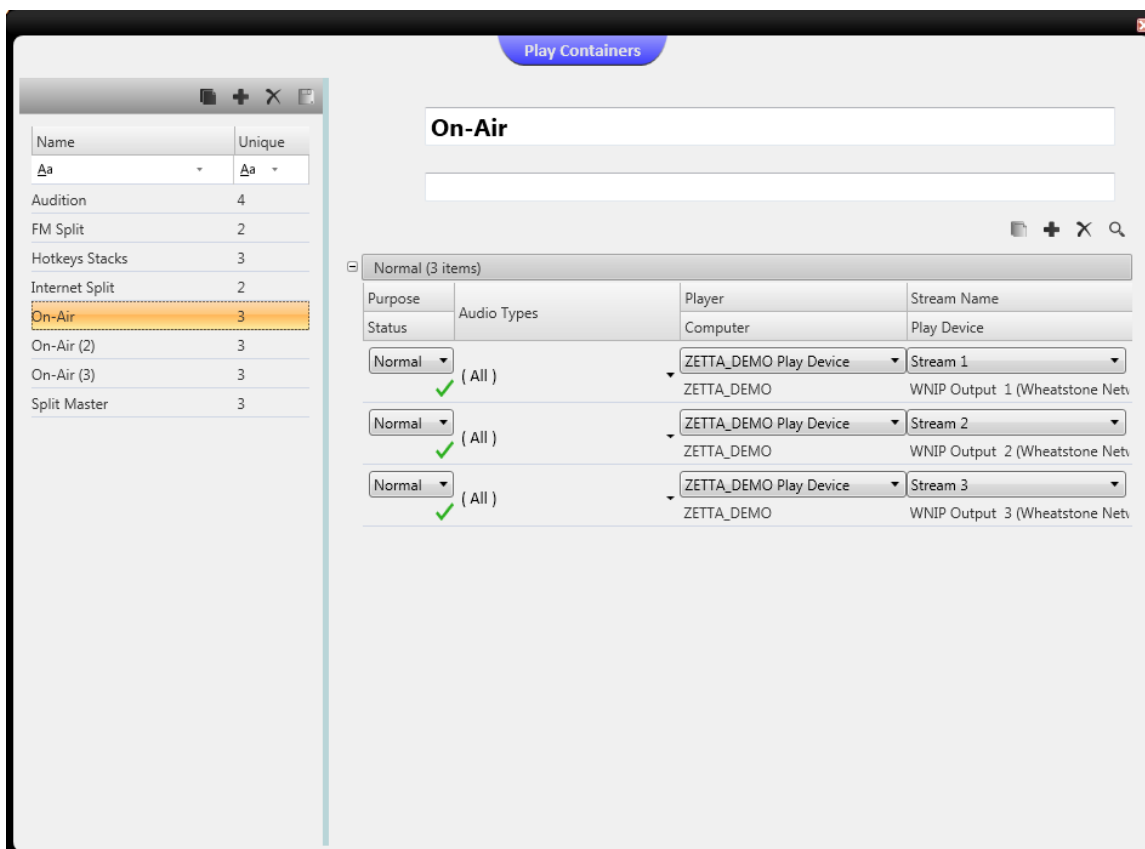


For the Play Device you should now see the WheatNet-IP PC Driver devices available for selection in the drop-down. For our demo we have selected to use the first 3 playback devices available from the WheatNet-IP PC driver.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

The “Short Name” is the label that appears next to the sequencer channel for the On Air Screen. This short name can be three characters. The “Stream Name” is how you would like to identify the stream to the system. This is useful to allow you to uniquely identify streams on a room-by-room basis. For our purposes we have named the streams Stream 1, Stream 2, and Stream 3. You may also want to add an additional play device for the Audition stream.

Now we need to set up the play containers. Click “Configuration” from the Zetta tool bar. From the drop-down select “Play Containers”. There should be at least two play containers set up by default. We will focus on the “On Air” play container.



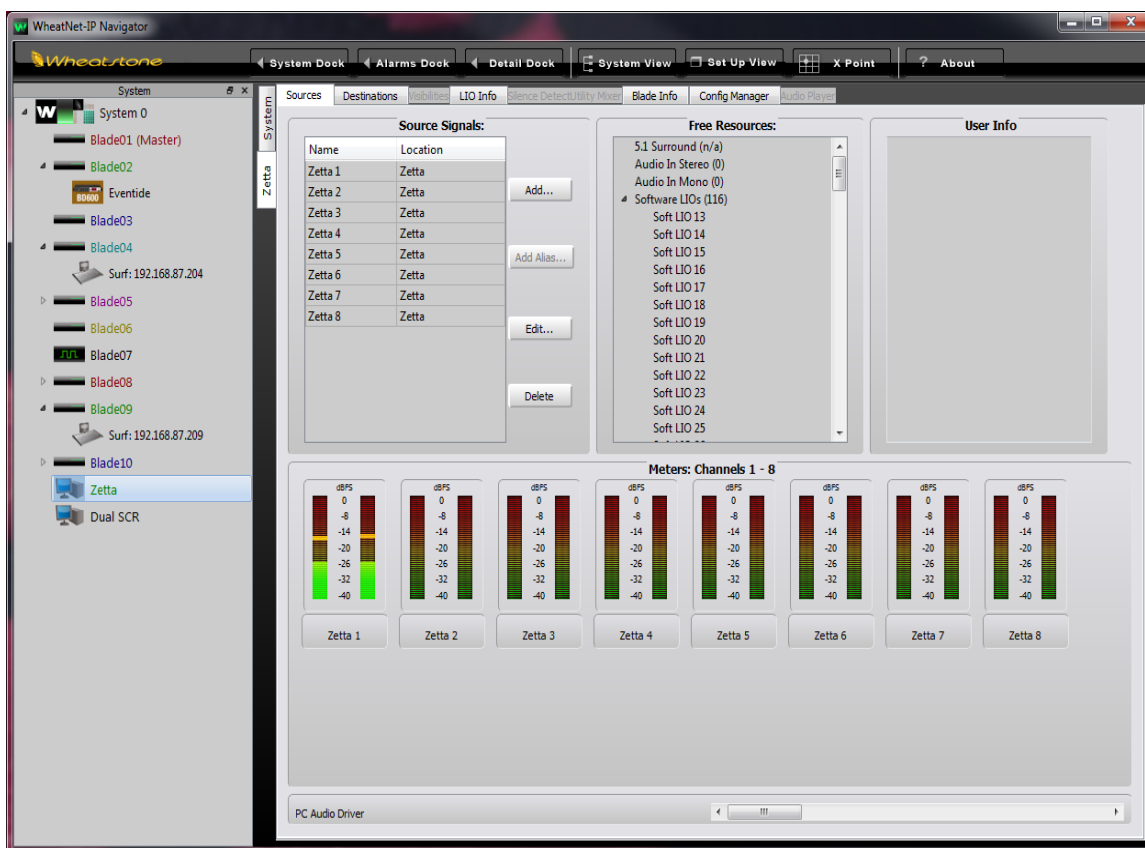
If you need to add playback stream mappings press the plus icon in the upper right of the dialog box. We need at least 3 playback stream mappings for our demo. In the “Player/Computer” column you will select the play device we created in the previous screen. It should now be available in the drop-down.

In the “Stream Name/Play Device “ column you will need to select the appropriate streams for each mapping. These are the streams we created under the play devices previously. We have selected Stream 1, Stream 2, and Stream 3. Once you are done save your settings and exit the play containers dialog.

You may wish to add an Audition play container for cueing and editing cuts. For the “Audition” play container we used output 4 of the WheatNet-IP PC Driver. Save your changes and exit the Play Containers configuration.

Naming Sources

To make our new RCS Zetta outputs easy to find, we'll give them names using WheatNet-IP Navigator. When we start the program, we'll go directly to the PC Driver Blade. The label "BLDxxx" will identify the PC Blade. Once you have located the PC Blade click the "Sources" tab:

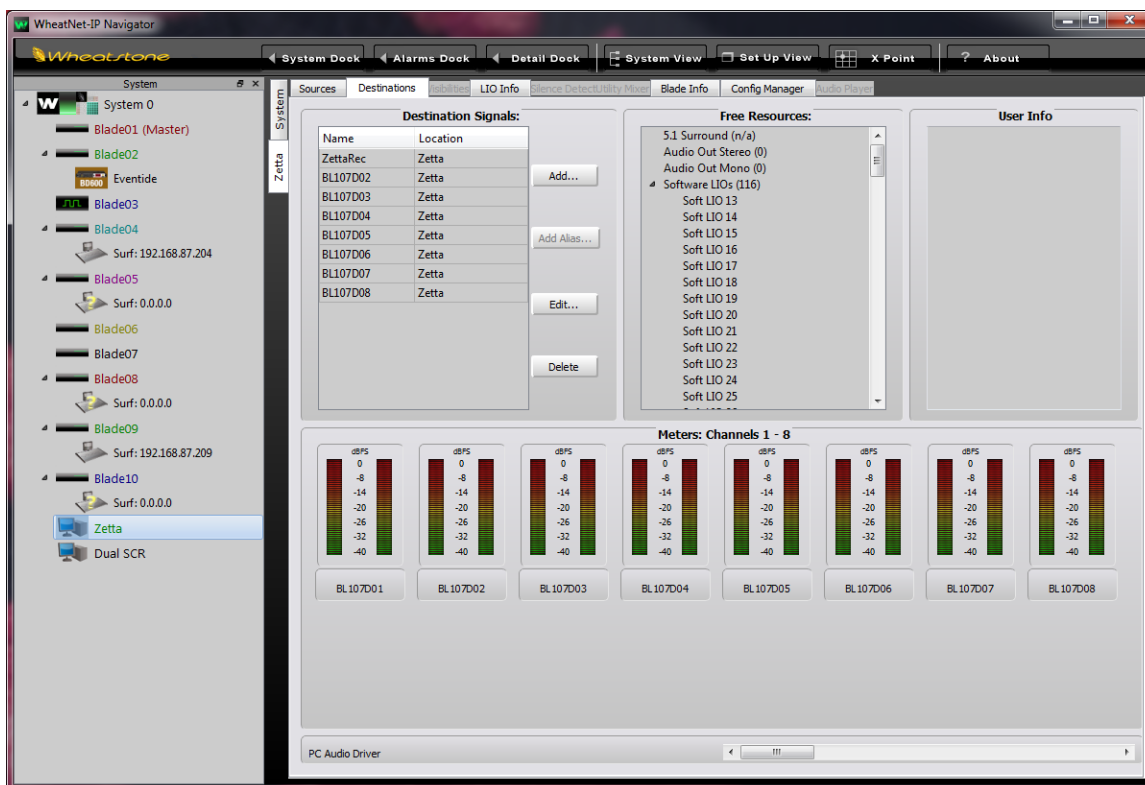


As you can see, under the "Name" column we set the signal names to Zetta 1, Zetta 2, Zetta 3, etc., by just clicking to highlight the old name and typing in the new one. These names are required to be eight characters or less in order to fit into the source name displays of control surfaces, X-Y panels, and other hardware devices on the WheatNet-IP network.

You will also see a location field next to the source name field. This location field can be changed to something that identifies where the PC is located or what location the audio source is dedicated to. For instance, you might set the location of the source for an on air studio to "On Air". This will help the operator locate the source signals easier when using control surface that can display our signal tree.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

While we're at it, we can go to the Destinations tab and name the record inputs:



Now that we've named these sources and destinations, we'll be able to easily find them in Navigator's cross point routing displays.

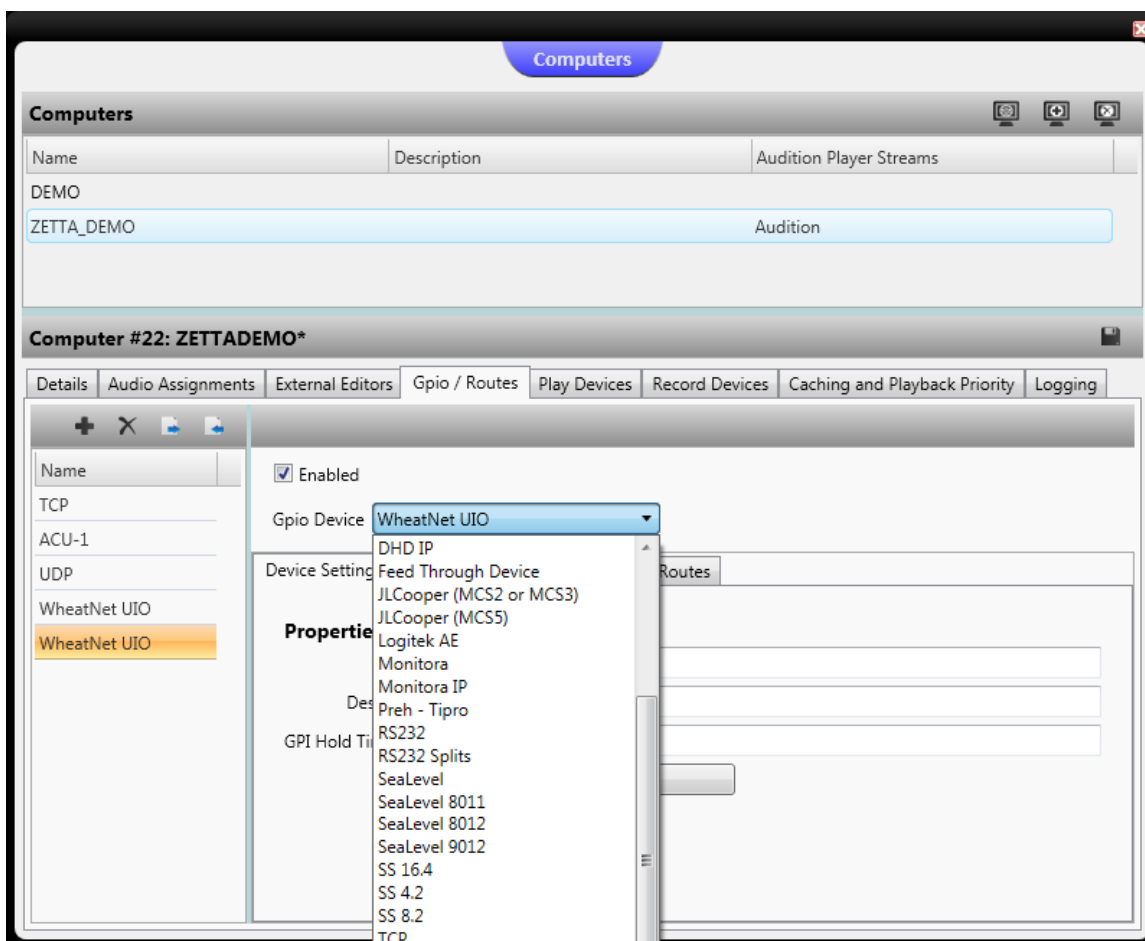
Logic Configuration in RCS Zetta

So we don't leave three faders open all the time, we'd like the automation system to switch its own control surface faders on and off as the sequencer starts and stops. We can do this by adding settings for GPIO communication to and from Zetta.

Connecting to a Blade

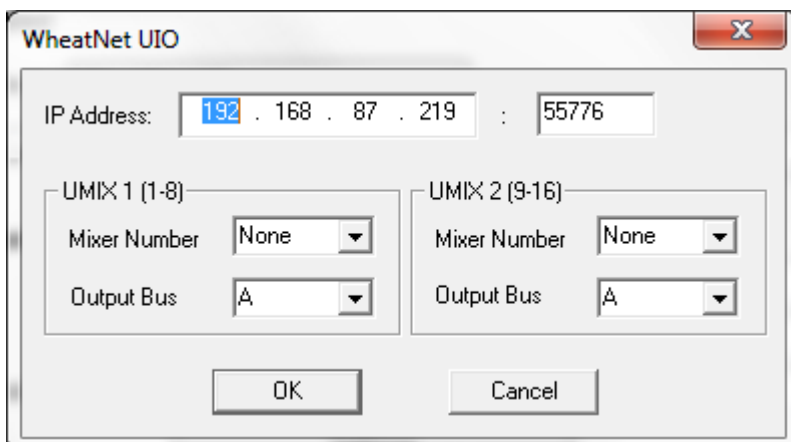
First, let's enable communication to the WheatNet-IP PC Driver. Open Zetta and click "Configuration" from the Zetta tool bar. Click "Computers" from the drop-down. Now click on the "Gpio/Routes" tab where we will configure the logic inputs and outputs required. We will start by adding the Wheatstone GPIO device, clicking the plus icon on the left side of the configuration window. This will create the new GPIO device.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation



The first thing we need to do is select the GPIO Device type. This list is in alphabetical order. Scroll to the bottom of the list where you will find the “Wheatstone UIO” entry. You can now name this device and add a description to help you identify it later if configuration changes are required.

Now we need to fill in the IP address of the BLADE we wish to communicate with for logic control. In this case, it’s the WheatNet-IP PC driver installed on the automation computer. To set up the communication to the WheatNet-IP PC Driver click the “Settings” button.

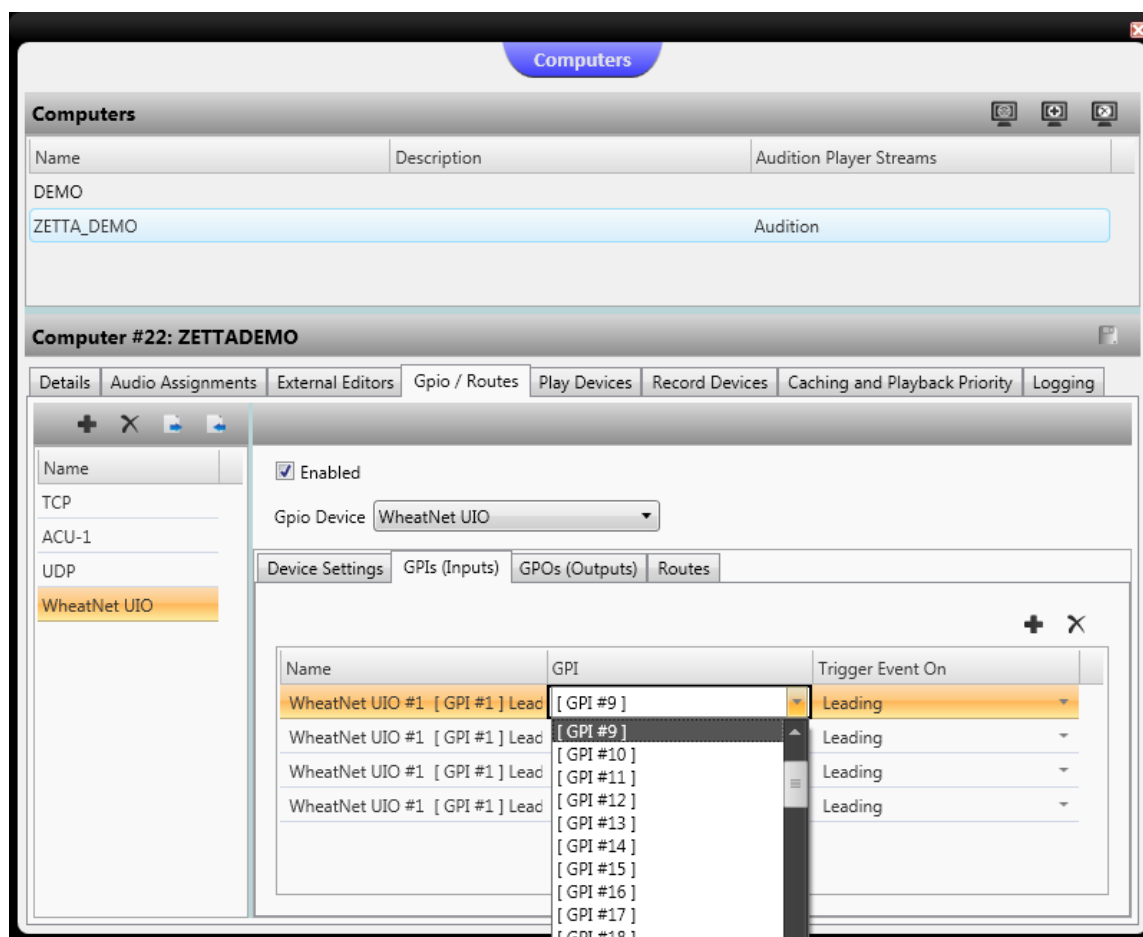


Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

Here we'll put in this computer's own IP address, leaving the default port number (55776) already defined. You can leave the Umix settings as default. These are not used for the control functions we are currently setting up. Clicking the "OK" button will apply the changes.

Setting up GPIO

Next, we need to define the GPIO Inputs needed to remotely start playback of each of the sequencer channels. Click the "GPIO (Inputs)" tab. To add the logic inputs click the plus in the right corner of the GPIO (Inputs) dialog. Here you will add each Input the sequencer needs to receive a start signal when the control surface channel is turned on.



For our demo we need three GPIO inputs. They have been set up as GPI #9, GPI #10, and GPI #11. These GPI numbers are directly related to the SLIOs you will set up later in Navigator. You may want to make notes of what GPI you are using for each. This will help you when we move to the Wheatstone part of the configuration.

You should name these so that they are easy to find later in the setup process. Simply click in the Name box to edit the name.

The GPI Inputs are typically triggered on the leading edge. If triggering on the trailing edge is desired you can select this from the "Trigger Event On" column.

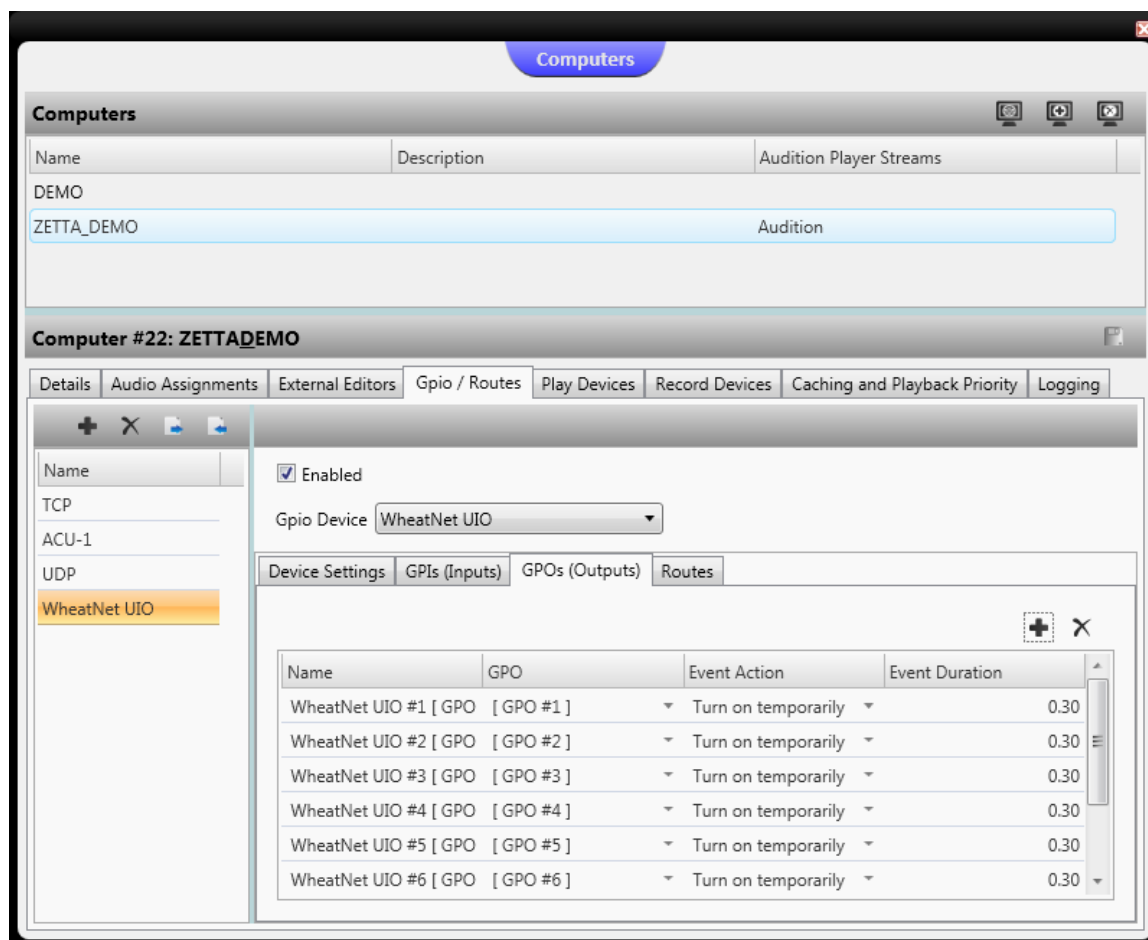
Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

We now need to set up the GPO device that will turn the control surface channels on as the sequencer channels start playback. Start by clicking on the “GPOs (Outputs)” tab located next to the Input tab you just used.

For our setup we need to define two GPOs per sequencer channel. One will turn the control surface channel “On” and the other will turn it “Off”. As you can see we have defined 6 GPOs in the configuration below.

Add the GPOs by clicking the plus sign in the right section of the configuration window.

You can now set the name, again keeping it simple to make it easy to identify these later in the setup process. Select the GPO you wish to use in the drop-down in the GPO column, making notes of which GPOs you are using for each function.

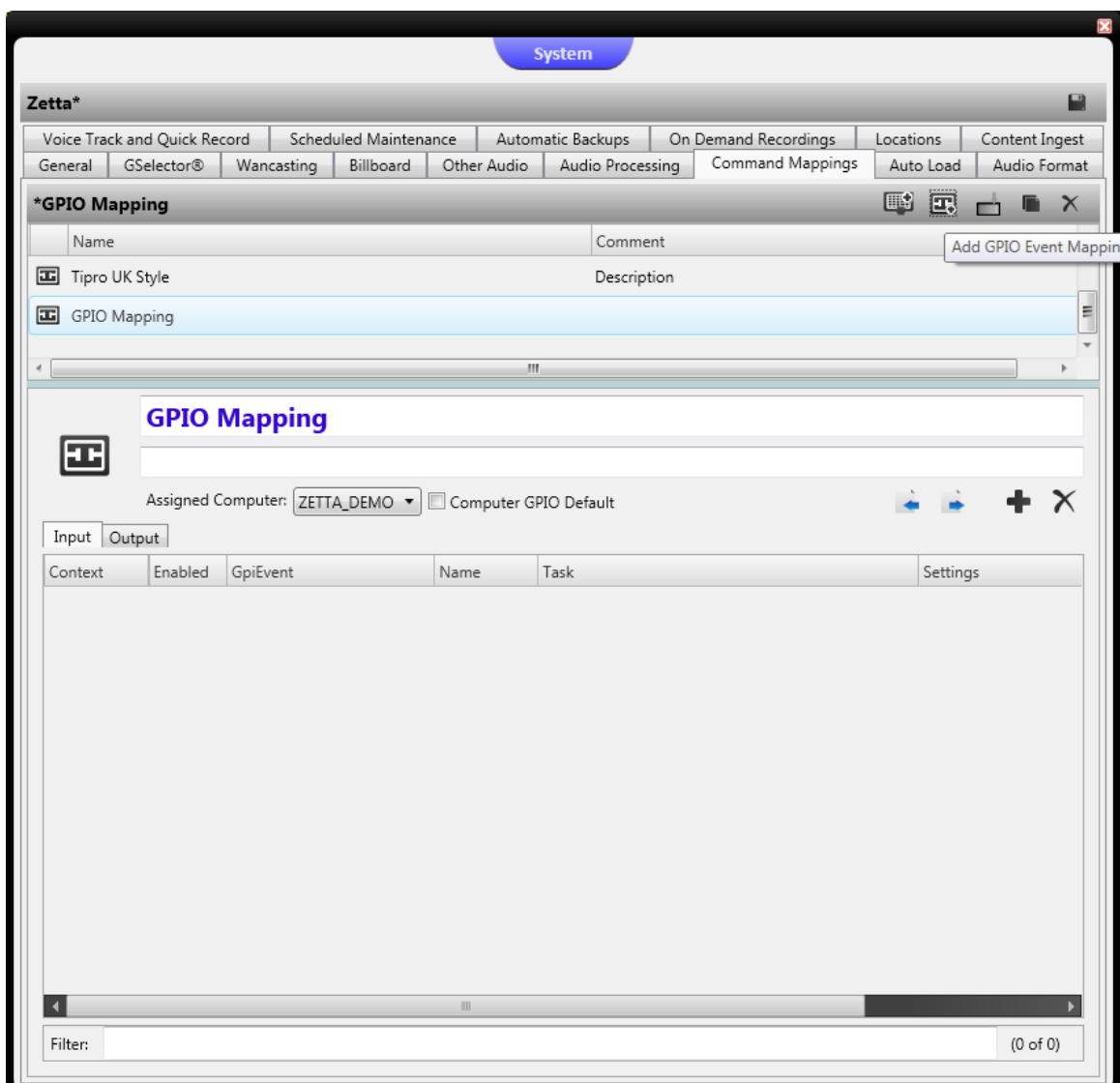


The “Event Action” drop-down allows you to choose how the GPO will behave as it is triggered. For our setup we need to use the “Turn on temporarily” action. This will pulse the GPO for the duration selected in the “Event Duration” column. The default duration is sufficient for our needs so we have left it as is.

You can now exit the Computers configuration screen making sure to save the new settings.

Command Mapping

Now that we have both our GPI and GPO devices defined we must associate them with the appropriate sequencer play out channels. We do this by selecting “Configuration” from the main Zetta tool bar. From the drop-down select “System”. From here click the “Command Mappings” tab. This is where we will associate the newly created GPI and GPO settings with a command that Zetta will process.



From the Input tab click the plus symbol to add the command mapping to start playback of the sequencer channel. This is where the naming we spoke of helps. In the drop-down list you should see the GPIs you created in the previous section.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

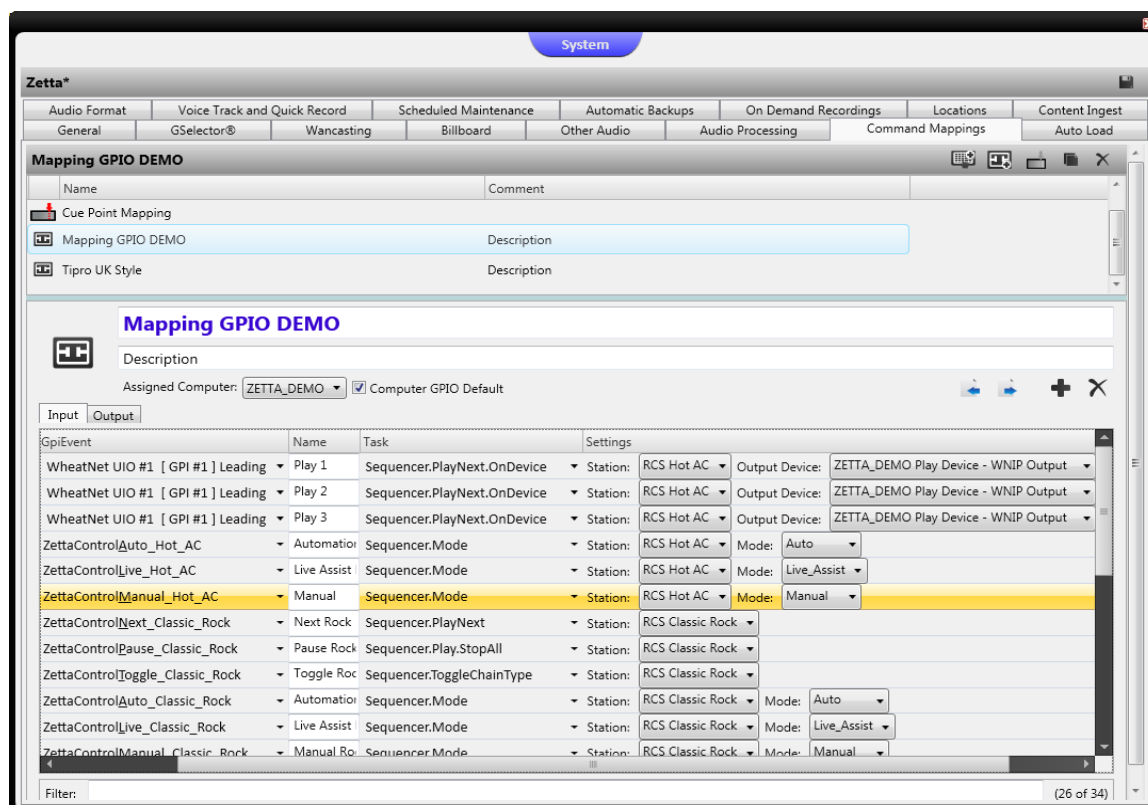
As you can see in the configuration below, the first 3 entries are the Inputs we created previously. Here we will define the GPI Event, Name, Task, and Settings for each.

The GPI Event is defined based on the configuration you have already done. The name should be something that helps identify it later.

The task drop-down presents you with many options. For our purposes we are going to use the “Sequencer.PlayNext.OnDevice”. This task allows us to tell the next event to play on a specific sound device. You may want to use one of the many other options in the drop-down. If you are unsure, you should contact RCS Zetta technical support to discuss your options.

The “Settings” section will vary based on the task you have selected. Again, if you are unsure please contact RCS technical support for assistance.

Select the station we would like to apply these settings to and select the audio output device we would like to associate this GPI with.



After you have created the Inputs, click the “Output” tab to continue.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

Add the outputs by again clicking the plus symbol on the right hand side of the configuration window. Here we can enable or disable a command, as well as give it a name, Task, etc.

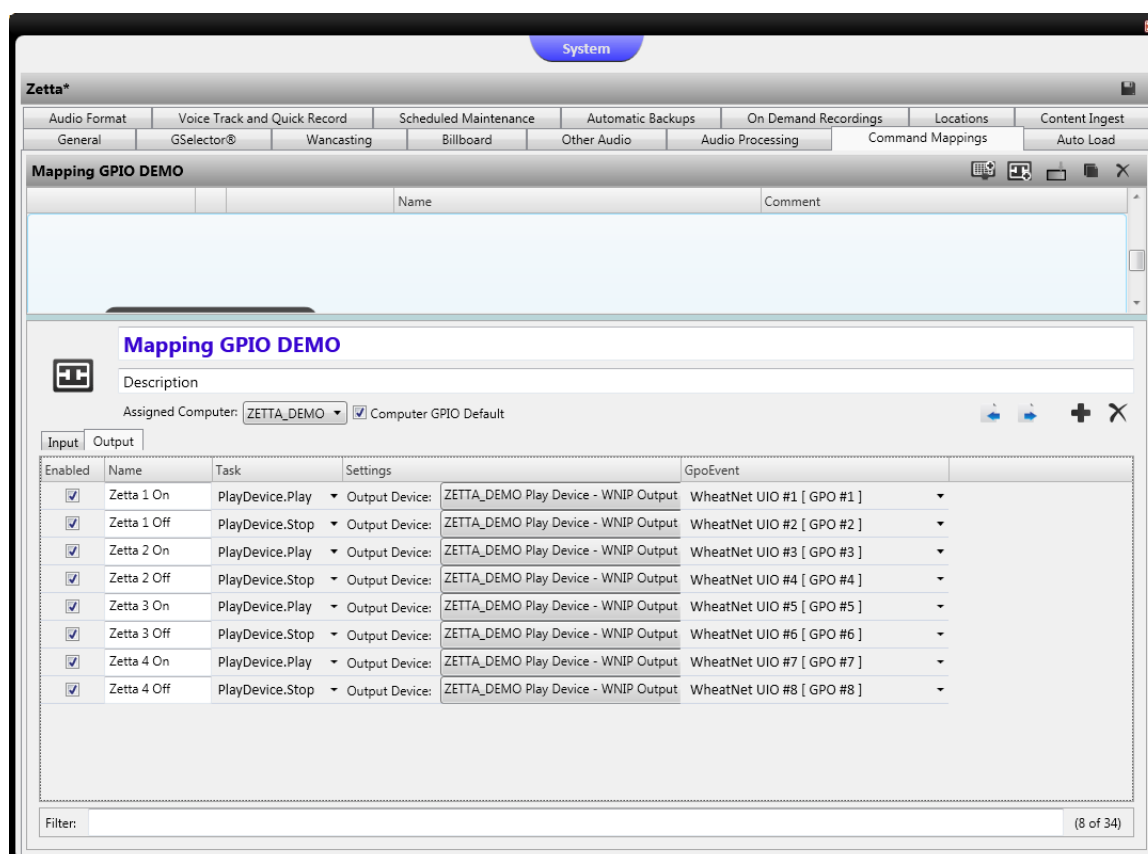
By default all new outputs will be enabled.

Name the output using the same naming convention you have been using. Now select a task. Again, the list of tasks is extensive and offers many options. If you are unsure please contact RCS technical support to discuss the options.

For our setup we are going to use “PlayDevice.Play” and “PlayDevice.Stop”. These tasks are used to tell Zetta to trigger the associated GPO when playback is started and another when it stops, thus turning the control surface channel “On” and “Off”.

Under “Settings”, select the audio device you would like to map this command to. In our setup it is the first three audio channels of the WheatNet-IP PC Driver.

In the “OptoEvent” drop-down select the GPOs you created earlier in the setup process. This is again where the naming helps you find the GPOs needed in a large system. We used GPO 1-6. Assigning GPO #1 for playback of device 1, and GPO #2 for stop. Following that pattern for the remaining two devices.



Exit the screen saving your configuration.

Logic Configuration in WheatNet-IP Navigator

Now that we've got Zetta sending and receiving start and stop signals, all we need to do is associate those signals with the "Remote On", "Remote Off", and "Machine Start" functions of our WheatNet-IP sources.

Let's go back to the sources tab in WheatNet-IP Navigator, and look at our PC driver sources tab, select the Zetta 1 source, and click "Edit." Selecting the "LIO Info" tab will get us to this window:

	Blade	Wire	Invert	Direction	Function
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Signal is not connected

Add Edit Delete Finish

This screen shows all logic signals currently associated with the Zetta 1 source. Currently there aren't any; we need to add two functions. Begin by clicking "Add."

The "Add" button will be greyed out if the signal is connected anywhere in the system. This is indicated in the lower left of the Edit dialog box. If the signal is not connected you will see "Signal is not connected". If the signal is connected you will see "Signal is connected". If it is the latter, you will need to go to the crosspoint and disconnect that source from any destinations. You will want to make a note of what destinations may be using this source. This will allow you to re-establish those connections once you are done.

Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

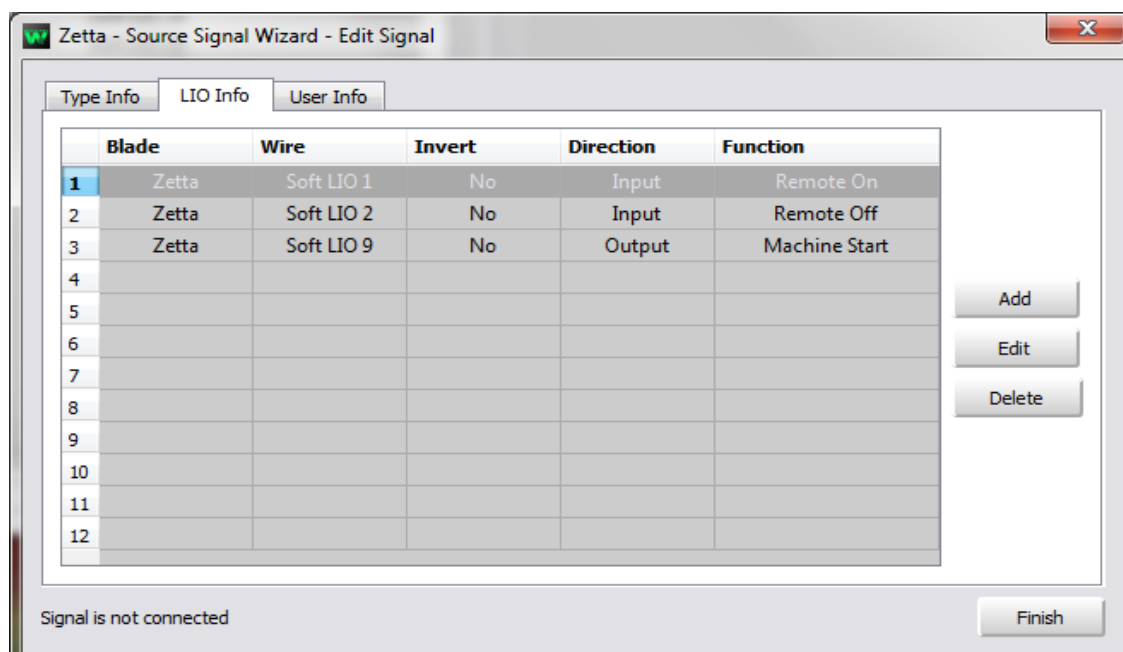
Remember during the Zetta configuration we said make a note of what GPI and GPO you assigned? This is where you will need it.

We've selected SLIO 1 on the right side of the window, we'll set the direction to "Input" since we're receiving this signal from Zetta, and we'll select "Remote On" as the function because SLIO1 is the start signal. Click Apply.

That takes care of the start, now for the stop. We'll select SLIO 2, Direction Input, and function "Remote Off". Click Apply.

Now let's finish up by selecting SLIO 9, Direction Output, and function name " Machine Start". Click Apply.

Looks good. Let's click "Close" and have a review of what we've set up.



That is indeed what we wanted to set up: Soft LIO 1 triggers a Remote ON, and Soft LIO 2 triggers a Remote Off. We can click "Finish," which will bring us back to the sources window; we can then proceed to set up the logic for the other two automation sources.

These WheatNet-IP settings take effect immediately; there is no need to restart anything. You can shut down Navigator when you're done, too, since it doesn't take part in these logic actions once they're set up.

To confirm everything is correct, click the LIO Info tab in Navigator. This will give you a look at the entire SLIO configuration at one glance. Once you have confirmed everything is correct you should now be able to assign your three sources to faders on your control surface, run the automation, and watch the faders switch ON and OFF as the three players play their various materials. You will want to also test the remote start while you're at it.

Done!

Troubleshooting

Having trouble? Here's a list of things to check.

Have you changed the IP address of the Gigabit NIC used for the PC driver since you installed the PC driver software? You may need to restart the PC.

Are you receiving a message when installing the PC driver that says “No valid network adapter found?” Make sure you have the NIC connected to something – preferably a switch – before starting the installation process.

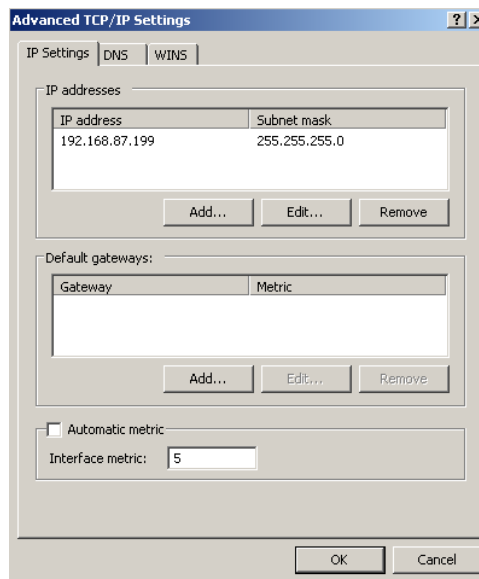
Is your audio stuttering? Make sure you have installed Windows 7 Service Pack 1. Note that Windows Update will not automatically install this service pack!

Are you unable to assign logic to a source because the “Add” button in the LIO dialogue is grayed out? Check for a message in the lower left corner of the window that says “Signal is connected.” If you see it, you need to disconnect that source from any outputs or console faders before you'll be able to make any logic changes.

If you are having connectivity issues it could be one of the following. Please try the steps below to see if the problem is corrected.

Metric

Click the “Advanced” button. On the “IP Settings” tab, ensure that “Automatic metric” is unchecked, and enter a metric of 5. Click OK, OK, and OK.

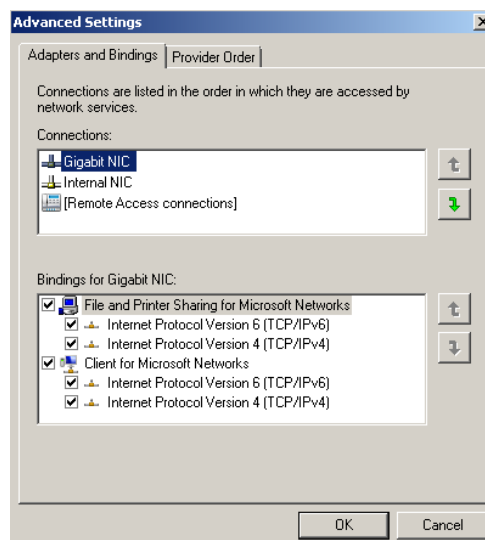


Configuring the WheatNet-IP PC Driver with RCS Zetta Automation

Binding Order

Setting the proper binding order ensures that the WheatNet-IP driver finds the correct adapter each time it starts. To set the binding order, navigate back to the network and sharing center. Click “Change adapter settings,” then tap the “Alt” key, and select Advanced -> Advanced Settings from the menu that appears.

If the adapter you’re using for WheatNet-IP networking is not at the top of the list in the upper box, move it there using the arrow tools to the right. Click OK all the way out to the desktop, then restart the PC to activate the new network settings.



Need help with something not listed here? Contact your Wheatstone technical support representative and/or your RCS technical support engineer.

