

nboard Player

HELP FILE



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OVERVIEW

Onboard Player is a GPS geolocation triggering plugin for the QSC Q-SYS ecosystem. With built-in audio player and selectable routes Onboard Player is capable of many location based control and audio use cases.

Onboard Player requires a license key to function but can be used in demo mode for 10 minutes to evaluate the plugin. The 10-minute period can be restarted by restarting the Q-SYS™ design. Use of the plugin in demo mode for commercial purposes is prohibited.

Onboard Player downloads and license keys can be obtained from Forward Thinking Designs at ForwardThinkingDesigns.com.

The screenshot shows the Onboard Player interface with the following components:

- Control Panel:** Includes tabs for 'Control', 'GPS', and 'About'. The main display shows 'onboardPlayer by Forward Thinking Designs'.
- GPS Data:** Latitude: 28.246008, Longitude: -81.612488, Course: 2.3. There is an 'Enable' checkbox and a 'Directory' field set to 'Audio/'.
- Route Selection:** A row of buttons numbered 1 through 16, with button 1 highlighted.
- Triggers Table:** A table with columns for Label, Position, Route, Radius ft, Release ft, In Range, Distance ft, Active, Trigger, Course, Threshold, In Range, Target Diff, Active, Trigger, Playing, Filename, and Gain. It lists 16 triggers with various parameters.

Label	Position	Route	Radius ft	Release ft	In Range	Distance ft	Active	Trigger	Course	Threshold	In Range	Target Diff	Active	Trigger	Playing	Filename	Gain
1	28.306909, -81.568085	1	100	50	●	26403	Active	Trigger	120	45	●	118	Active	Trigger	●	-None-	0dB
2	28.332571, -81.567977	1	100	50	●	34666	Active	Trigger	0	45	●	2.30	Active	Trigger	●	-None-	0dB
3	28.362730, -81.553912	1	100	50	●	46553	Active	Trigger	73	45	●	70.7	Active	Trigger	●	-None-	0dB
4	28.369335, -81.529668	1	100	50	●	52267	Active	Trigger	78	45	●	75.7	Active	Trigger	●	-None-	0dB
5	28.367338, -81.519431	1	100	50	●	53409	Active	Trigger	88	45	●	85.7	Active	Trigger	●	-None-	0dB
6	28.373103, -81.512989	1	100	50	●	56312	Active	Trigger	30	45	●	27.7	Active	Trigger	●	-None-	0dB
7	28.377441, -81.505486	1	100	50	●	58992	Active	Trigger	203	45	●	159	Active	Trigger	●	-None-	0dB
8	28.371253, -81.510429	1	100	50	●	56233	Active	Trigger	218	45	●	144	Active	Trigger	●	-None-	0dB
9	28.362724, -81.526519	1	100	50	●	50749	Active	Trigger	275	45	●	87.3	Active	Trigger	●	-None-	0dB
10	28.382840, -81.555175	1	100	50	●	53204	Active	Trigger	233	45	●	129	Active	Trigger	●	-None-	0dB
11	28.369144, -81.563813	1	100	50	●	47564	Active	Trigger	181	45	●	179	Active	Trigger	●	-None-	0dB
12	28.332561, -81.568147	1	100	50	●	34640	Active	Trigger	180	45	●	178	Active	Trigger	●	-None-	0dB
13		0	609	10	●	0	Active	Trigger	0	180	●	0	Active	Trigger	●	-None-	0dB
14		0	858	10	●	0	Active	Trigger	0	180	●	0	Active	Trigger	●	-None-	0dB
15		0	609	10	●	0	Active	Trigger	0	180	●	0	Active	Trigger	●	-None-	0dB
16	28.37805, -81.505839	0	5280	50	●	47842	Active	Trigger	0	180	●	2.30	Active	Trigger	●	-None-	0dB

How it works

Q-SYS receives GPS location data. Onboard Player receives the GPS location data and compares it to the list of triggers. If the GPS location falls within the boundaries of a trigger, that trigger fires. Additional functionality includes heading calculation, audio playback, grouping by routes, release area around triggers, and more.

CONFIGURATION

Properties

Property	Function	Choices
License Key	Enter the license key here to activate the plugin.	
Triggers	Sets the number of active triggers.	2 – 256
GPS	Sets the input method of the GPS receiver.	Serial External
Units	Sets the unit of measurement.	Feet Meters
Routes	Enables multiple Routes (grouping for Trigger).	Yes No
Heading	Enables Heading (direction) conditions for Triggers	Yes No
Audio Player	Enables the built-in Audio Player.	Yes No
Audio Channels	Sets the maximum number of Audio Channels on the built-in audio player.	1 – 64

Properties	
Onboard Player Properties	
License Key	
Triggers	16
GPS	Serial ▼
Units	Feet ▼
Routes	Yes ▼
Course	Yes ▼
Audio Player	Yes ▼
Audio Channels	1
Show Debug	No ▼

Setup

To configure Onboard Player, follow these steps:

1. Enter your License Key in the Properties window. Without a license the plugin will only function for 10 minutes before your design must be restarted.
2. Set the Triggers property to the appropriate number of location-based triggers desired.
3. Set the GPS property for the intended use case. Serial is used for RS-232 NMEA 0183 receivers which support the Recommended Minimum Specific GPS/Transit Data (RMC) NMEA Sentence. External is for use with control pin to connect a GPS source using another method. Garmin 18x 5Hz is the recommended GPS receiver for Onboard Player.
4. Set the Units Property to the desired Units: Meters or Feet.
5. Enable the Routes property if needed. Routes allow the user to define different routes a vehicle can drive, only triggers in the currently selected route will be triggered when enabled.
6. Enable the Heading property if needed. Heading allows the user to define a Heading (direction of travel) for each trigger. The trigger will only be activated if the current location is within the Position zone and the Heading is within the Heading Threshold.
7. Disable the built-in Audio Player if desired. The built-in audio player makes triggering one audio file at a time based on location and heading extremely user friendly. If the use case does not require an audio player or has more complex requirements, the built-in audio player can be disabled.
8. The offline plugin settings are now finished, and the plugin should be run on an active Q-SYS™ Core using *Save to Core & Run*.
9. Congratulations, Onboard Player is now ready to be programmed!

CONTROLS

Control

Onboard Player is modular and different functions will be turned on based on which properties are enabled.

Status Bar

Latitude – Current latitude reported by GPS input.

Longitude – Current longitude reported by GPS input.

Heading – Current heading calculated and reported by the GPS puck.

Enable – Enables GPS and Heading triggers in the plugin.

Directory – The directory from which to retrieve audio playback files.

Route Selection

Route (for each) – If Routes are enabled, allows selecting which route is being followed. This allows for assigning triggers to different routes. Useful for bus and tram systems, for example.

GPS Triggers (for each)

Label – Assign a user-friendly name for each trigger.

Position – GPS coordinates for this trigger. May be either a single pair for the center point of a circular region, or three or more pairs defining a polygonal region.

Route – Assign this trigger to a route (group).

Radius [unit] – Define the radius for a circular trigger region. Not applicable for polygonal regions.

Release [unit] – The release distance, measured from the edge of the active region. Release distance defines a buffer around the trigger region, and the trigger cannot be fired again until the GPS input has exceeded the release distance.

In Range – Indicator for whether the trigger is active.

Distance [unit] – Distance from the GPS input data to the trigger location.

Active – Indicates whether the trigger is actively triggered via GPS. Can also be activated manually for testing purposes.

Trigger – Manually triggers the audio file to play.

+Heading Trigger (for each)

Heading – The base directional heading constraint for the trigger.

Threshold – Tolerance for deviation from exact heading.

In Range – Indicator to show whether the GPS is in range of the associated trigger.

Offset ° – Displays the live value of the difference between the trigger heading and the GPS input heading.

Active – Indicates whether the trigger is actively triggered via GPS. Can also be activated manually for testing purposes.

Trigger – Manually triggers the audio file to play.

Audio Playback (for each)

Playing – Indicator for whether the audio file for this trigger is currently playing.

Filename – Drop-down to select the audio file for this trigger.

Gain – Adjusts the gain for the selected audio file.

Stop – Stops the audio playback.

GPS

For additional information on the recommended GPS device, the Garmin GPS 18x please follow this link: https://static.garmin.com/pumac/GPS_18x_Tech_Specs.pdf

Serial Status – Indicator for the status of the connection to the GPS receiver.

GPS Data

Serial Baudrate – Select the bit rate for the GPS receiver from the drop-down menu.

Latitude – The current latitude from the GPS receiver.

Longitude – The current longitude from the GPS receiver.

True Course – Heading or course relative to the geographic north pole.

Magnetic Course – Heading or course relative to the magnetic north pole.

Speed Knots – Speed calculated in knots or nautical miles per hour.

Speed KPH – Speed calculated in kilometers per hour.

Speed MPH – Speed calculated in miles per hour.

Altitude M – Altitude in meters.

Altitude FT – Altitude in feet.

Satellites – Number of satellite signals currently being received.

Quality – 0 = Fix not available, 1 = Non-differential GPS fix available, 2 = Differential GPS (WAAS) fix available, 6 = Estimated.

Lock – Indicates if the GPS receiver has a valid lock onto the satellites.

UTC Time – Coordinated Universal Time, relative to the GMT time zone.

UTC Date – The current date, relative to the GMT time zone.

UTC Raw – Coordinated Universal Time, unadjusted.

Local Time – The local time in *24 hour* format, based on time zone.

Local Date – The local date, based on time zone.

Time Zone – The local time zone, relative to GMT.

DST – Whether Daylight Savings Time is active.

GPS Logging

Logging – Button to engage logging and indicator to show status of logging.

Directory – Location where log files will be written.

Log Name – Filename prefix for log files.

Output Filename – The complete filename of the output log file.

Auto Delete – Choose whether to automatically delete log files after a period of time.

Days to Keep – How many days of logs to retain, if Auto Delete is enabled.

APPENDIX A: CONTROL PINS

GPS (Serial)

Pin Name	Control Type	Value Range	Pin Direction
DST	Indicator – LED		Output
Heading	Knob – Float	0 – 360	Output
Heading Magnetic	Knob – Float	0 – 360	Output
Height FT	Knob – Float	0 – 40000	Output
Height M	Knob – Float	0 – 40000	Output
Latitude	Knob – Float	-180 – 180	Output
Local Date	String		Output
Local Time	String		Output
Lock	Indicator – LED		Output
Longitude	Knob – Float	-90 – 90	Output
Quality	String		Output
Satellites	String		Output
Serial Status	Indicator – Status		Output
Speed Knots	Knob – Float	0 – 300	Output
Speed KPH	Knob – Float	0 – 300	Output
Speed MPH	Knob – Float	0 – 300	Output
Timezone	String		Output
UTC Date	String		Output
UTC Raw	String		Output
UTC Time	String		Output

GPS (External)

Pin Name	Control Type	Value Range	Pin Direction
Latitude	Knob – Float	-180 – 180	Input / Output
Longitude	Knob – Float	-90 – 90	Input / Output

Logging

Pin Name	Control Type	Value Range	Pin Direction
Auto Delete	Button – Toggle		Input / Output
Days To Keep	Knob – Integer	0 – 365	Input / Output
Directory	String		Input / Output
Enable	Button – Toggle		Input / Output
Name	String		Input / Output

Route

Pin Name	Control Type	Value Range	Pin Direction
Select 1-16	Button – Toggle	0 – 16	Input / Output
Selected	Knob – Integer	0 – 16	Input / Output

Trigger ->#N

Pin Name	Control Type	Value Range	Pin Direction
Label	String		Input / Output
Position & Heading Active	Button – Toggle		Output
Position & Heading Trigger	Button – Trigger		Output

Position Only Active	Button – Toggle		Output
Position Only Trigger	Button – Trigger		Output
Route	Knob – Integer	0 – 16	Input / Output

Audio

Pin Name	Control Type	Value Range	Pin Direction
Filename	String		Input / Output
Gain	Knob - dB	-100 – 10	Input / Output
Playing	Indicator – LED		Output

Heading

Pin Name	Control Type	Value Range	Pin Direction
In Range	Indicator – LED		Output
Offset	Knob – Float	0 – 180	Input / Output
Target	Knob – Integer	0 – 359	Input / Output
Threshold	Knob – Integer	0 – 180	Input / Output

Position

Pin Name	Control Type	Value Range	Pin Direction
Distance	Knob – Float	0 – 40075000 (Meters) 0 – 131480000 (Feet)	Output
In Range	Indicator - LED		Output
Position	String		Input / Output
Radius	Knob – Integer	1 – 2000 (Meters) 1 – 5280 (Feet)	Input / Output
Release	Knob – Integer	1 – 2000 (Meters) 1 – 5280 (Feet)	Input / Output

General

Pin Name	Control Type	Value Range	Pin Direction
Audio Directory	String		Input / Output
Configuration	String		Input / Output
Disable	Button – Toggle		Input / Output
Enable	Button – Toggle		Input / Output
Stop Audio	Button – Trigger		Input / Output

SUPPORT

For plugin support and feedback please contact us at:

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