RTI Driver Manual

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Revision History			
Version Number	**Date (dd/mm/yy)**	**Author**	**Description**
1.2	23/11/2015	R. Pan	Initial release.
1.3	16/02/2016	R. Pan	Updated UI, Added event support / friendly name / presets function.
1.4	15/03/2016	R. Pan	Updated Introduction to add keypad support.
1.5	07/04/2016	R. Pan	Added supported BluOS version and schema URL support.
1.6	13/04/2016	R. Pan	Added locale support.
2.0	28/06/2016	R. Pan	Added grouping feature.
2.2	21/07/2016	R. Pan	Added search, queue save, driver information
2.6	26/09/2016	R. Pan	Changed minimum BluOS firmware requirement; Removed events for selected player; Updated grouping notes.
2.7	22/12/2016	R. Pan	Changed minimum required BluOS firmware to v2.8.0.
2.9	26/01/2017	R. Pan	Changed minimum required ID to 9.9.
2.10	21/02/2017	R. Pan	Added supported maximum players and groups in section 1.0.
2.12	06/03/2017	R. Pan	Updated section 2.2 player configuration; added sections for support and known issues.
2.14	27/03/2018	R. Pan	Updated manual to more accurately reflect all BluOS players.
2.16	30/07/2018	R. Pan	Updated to support APEX
2.18	08/01/2019	R. Pan	Updated to support Bluesound Gen 2i and Bluesound Pro players; Added authentication notification in sect 4.6
2.20	17/12/2019	R. Pan	Added section 2.7 and 3.4 for direct input access; updated sect 4.3 to add buttons on top of queue.
2.22	06/02/2020	R. Pan	Added more module support; updated sect 2.7 for direct input access.
2.24	03/06/2021	R. Pan	Added NODE, POWERNODE, and SOUNDBAR+ support. Added section 2.5 for max number of requests. Added presets note in section 4.2. Added queue pagination in section 4.3. Added known issue in section 7.0
2.26	08/12/2021	R. Pan	Added BSP200 and B170S support; Updated minimum ID version BluOS version.
2.28	20/01/2023	R. Pan	Updated section 1.0 with new models support; section 2.2 for HUB input; section 2.5 max number of request; section 4.0 and 5.2 for new UI with album art.
2.30	14/02/2023	R. Pan	Updated minimum BluOS version and Integration Designer version.
2.32	14/08/2023	R. Pan	Updated minimum BluOS version, and supported direct input. Added NODE X support.
2.34	22/12/2023	R. Pan	Updated minimum BluOS version to 4.2.0; updated direct input access. Added M66, Cyrusaudio ClassicStream and StreamXR support.

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1.0 Introduction

This document describes how to configure and use the BluOS RTI driver. This driver currently supports iPad, RK1+8 button in-wall keypad, and Virtual Panel.

The required BluOS firmware is 4.2.0 or higher. This driver supports Integration Designer 9.21 or higher and Integration Designer APEX or Integration Designer 11.5 or higher.

The driver package also includes a BluOS Source Bundle for APEX.

The driver supports maximum 64 players and 32 groups. One group can have maximum of 16 players.

The following Bluesound and NAD players are supported with this driver:

- Bluesound Node (N100)
- Bluesound Node 2 (N110)
- Bluesound Node 2i (N125)
- Bluesound NODE (N130)
- Bluesound NODE X (N131)
- Bluesound Powernode (N150)
- Bluesound Powernode 2 (N180)
- Bluesound Powernode 2i (N225)
- Bluesound POWERNODE (N330)
- Bluesound POWERNODE EDGE (N230)
- Bluesound Flex (P100)
- Bluesound Flex 2i (P125)
- Bluesound Pulse Mini (P200)
- Bluesound Pulse Mini 2i (P225)
- Bluesound Pulse (P300)
- Bluesound Pulse 2 (P310)
- Bluesound Pulse 2i (P325)
- Bluesound PULSE M (P230)
- Bluesound Soundbar (P400)
- Bluesound Soundbar 2i (P425)
- Bluesound SOUNDBAR+ (P430)
- Bluesound Vault (V500)
- Bluesound Vault 2 (V510)
- Bluesound Vault 2i (V525)
- Bluesound HUB (CB130)
- PSB Alpha iQ (AM7v2)
- NAD M33
- NAD M10, M10v2
- NAD M50
- NAD M50.2
- NAD CI580
- NAD CI720
- NAD C3050

- NAD C389 / C399
- NAD C390
- NAD C390v2
- NAD C658
- NAD C700
- NAD VM130
- NAD VM300
- NAD VM310
- NAD M66
- Bluesound BSP125
- Bluesound B100S
- Bluesound B160S
- Bluesound B170S
- Bluesound B400S
- Bluesound BSP200
- Bluesound BSP500
- Bluesound BSP1000
- Monitor Audio IMS-4
- Roksan Attessa
- CyrusAudio ClassicStream
- CyrusAudio StreamXR

2.0 Configuration (Integration Designer 9)

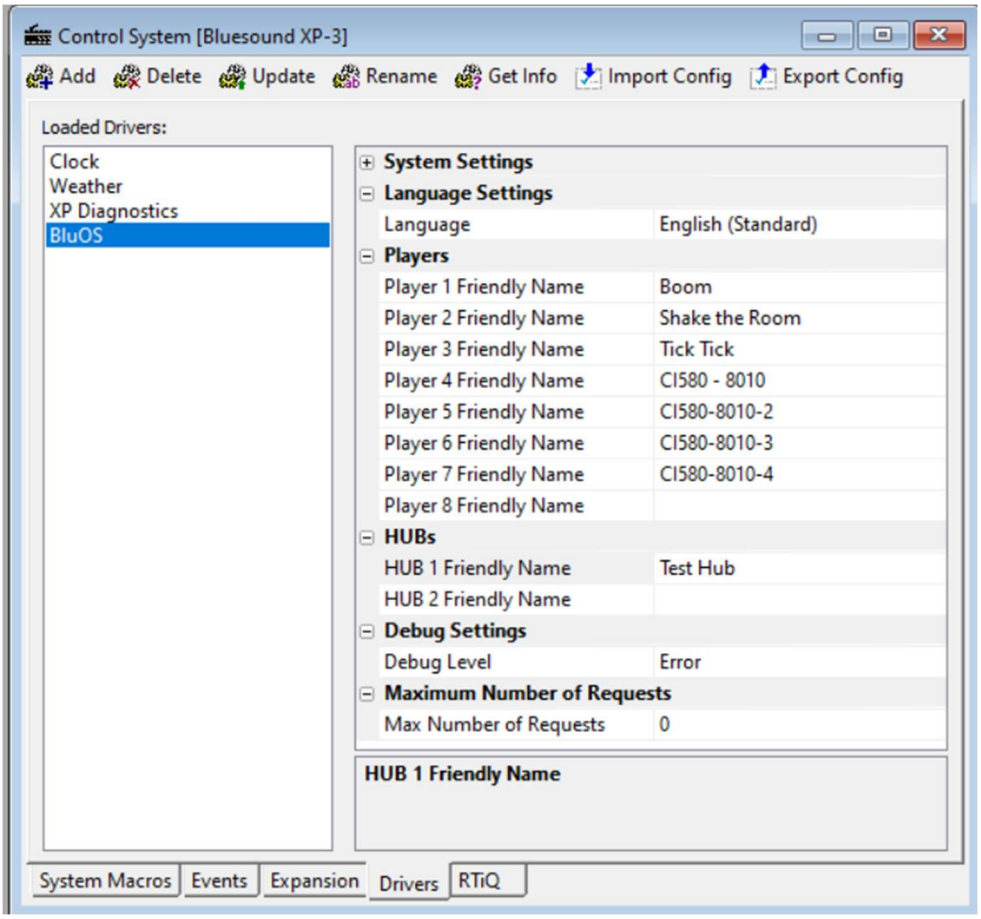
BluOS RTI driver has to be configured properly in order for BluOS players to work.

2.1 Network Configuration

This driver has the capability to automatically discover all BluOS players on the same network. No network configuration is required.

2.2 Player Configuration

Enter the friendly name for each player and HUB in the same network. MAKE SURE the friendly name matches the player name discovered in the BluOS Controller native apps. Otherwise, the driver may not work properly.



2.3 Language Settings

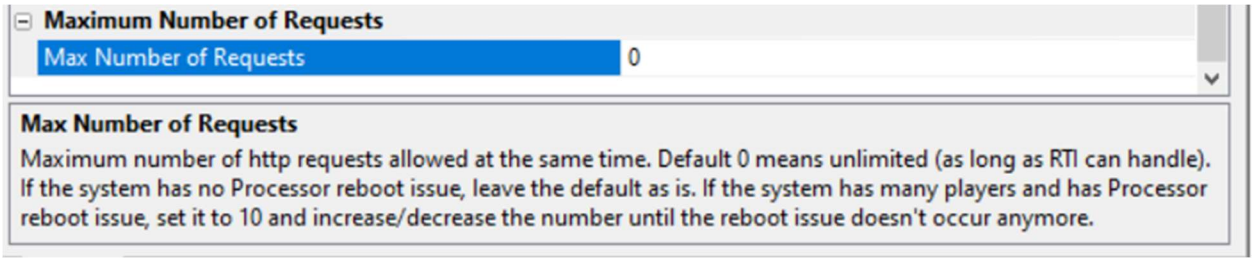
This driver supports multiple languages. The default is English (Standard).

2.4 Debug Settings

This driver has five debugging levels: None, Error, Info, Debug, and Trace. The default level is Error.

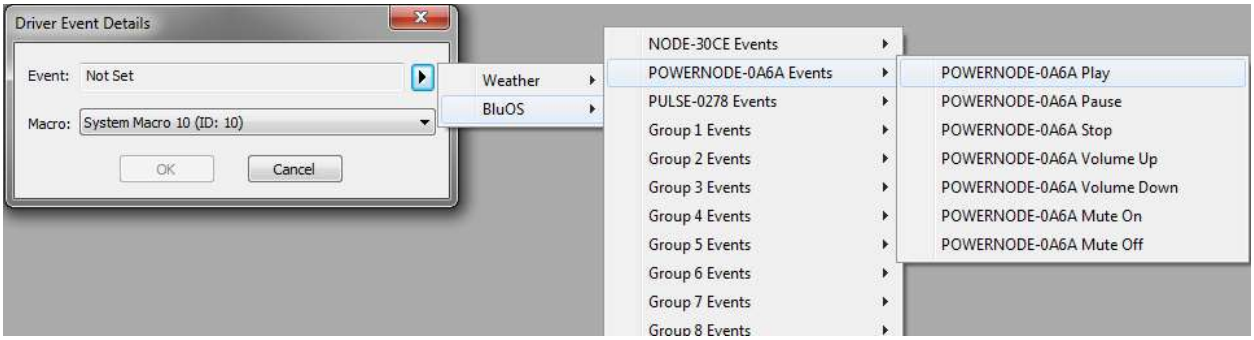
2.5 Maximum Number of Requests

This configurable parameter is to set maximum number of active requests happen at the same time. This is to eliminate the potential issue of Processor rebooting when the system has many players and grouping / ungrouping all players happens frequently. The default is 0 meaning unlimited. Recommend to use multiple RTI processors when there are too many players.



2.6 Event Support

This driver supports player events “Play”, “Pause”, “Stop”, “Volume Up”, “Volume Down”, “Mute On”, “Mute Off”, and group events “Player in Group”, “Player not in Group”.



2.7 Player Binding

All the functions except “Browse Players” and “Select Player” can be bound to a specific player. By default, the currently selected player is bound to the functions.

2.8 Direct Input Access

The driver provides direct input access for player inputs such as analog input, optical input, coaxial input, HDMI ARC, Microphone Input, Phono Input, and Bluetooth. The command for direct input access is “Set Direct Input”.

1) **Keep the input names as they are from factory**. That is, Analog Input is Analog Input, Optical Input 1 is Optical Input 1 etc. – This is required **ONLY IF** BluOS firmware is older than 4.2.0

2) The available choices for direct input access are: Analog Input 1, Analog Input 2, Optical Input 1, Optical Input 2, Coaxial Input 1, Coaxial Input 2, HDMI ARC, Bluetooth, and etc. **Make sure they are mapped to the right input on the player.**

- When the player has only one input of the same type (e.g. 1 analog input), select Analog Input 1. When the player has two inputs of the same type (e.g. 2 analog inputs), select Analog Input 1 for Analog Input 1 and Analog Input 2 for Analog Input 2.
- HDMI ARC and eRAC are always for the HDMI ARC or eARC on Bluesound players or BluOS card.
- HDMI 1A/2A/3A/ARCA and HDMI 1B/2B/3B/ARCB are the inputs on extended MDC HDM-2 module.

3.0 Configuration (Integration Designer 10+)

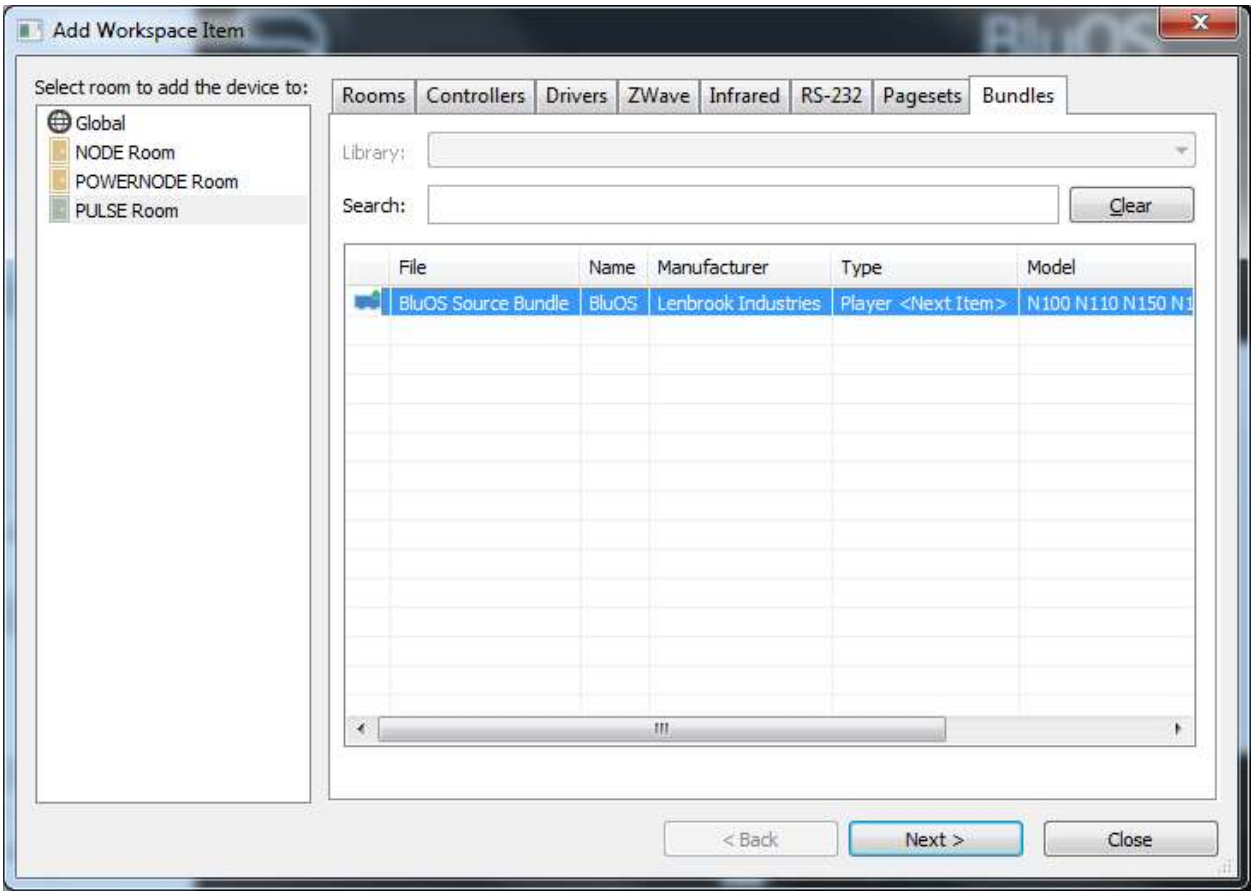
The BluOS RTI driver v2.16 and later supports Integration Designer APEX.

3.1 Network Configuration

Network configuration is same in Integration Designer 10 as in ID 9. The driver has the ability to automatically discover all BluOS players on the same network. No network configuration is required.

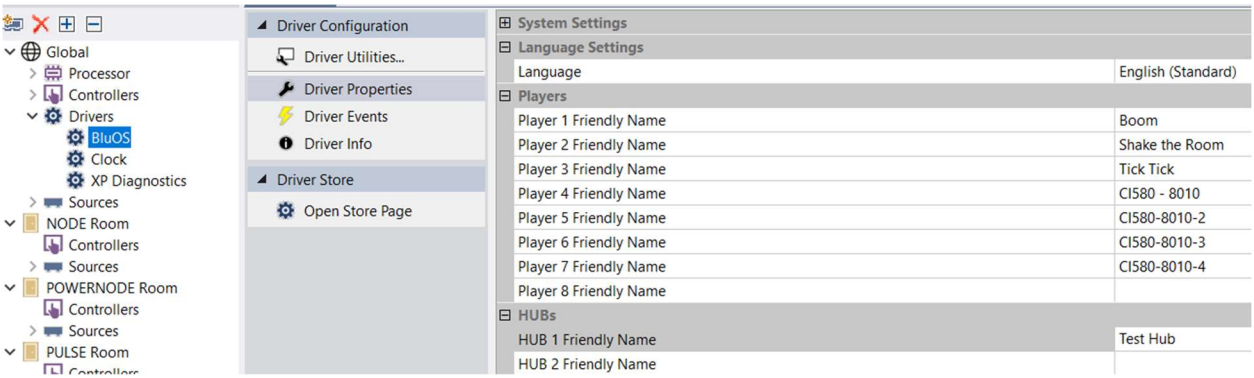
3.2 Add Sources

The driver package includes a source bundle “BluOS Source Bundle.apexbundle” that integrators can put in the folder “Documents\Integration Designer\Templates” and import to any room to save time on programming.

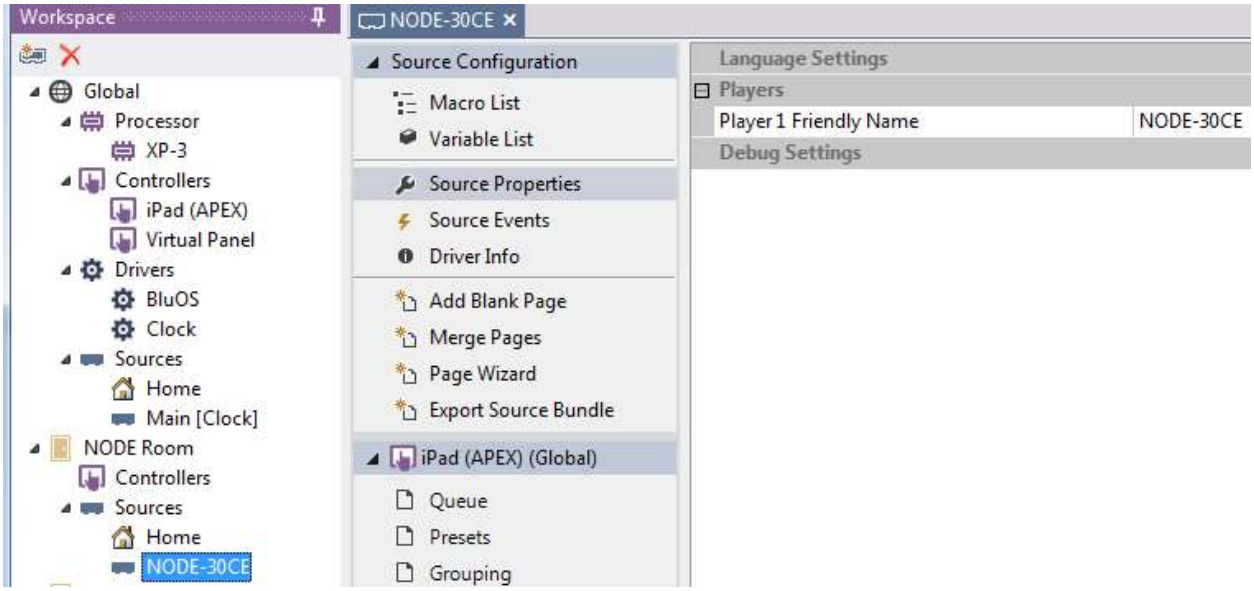


3.3 Player Configuration

In Driver Properties, enter the friendly name for each player and HUB in the same network. MAKE SURE the friendly name matches the player name discovered in the BluOS Controller native apps. Otherwise, the driver may not work properly.



Also, enter player friendly name in Source Properties for each source player. Make sure the friendly name matches the right name discovered in BluOS native apps.



3.4 Direct Input Access

The driver provides direct input access for player inputs such as analog input, optical input, coaxial input, HDMI ARC, and Bluetooth. The command for direct input access is “Set Direct Input”.

1) **Keep the input names as they are from factory**. That is, Analog Input is Analog Input, Optical Input 1 is Optical Input 1 etc. – This is required **ONLY IF** BluOS firmware is older than 4.2.0

2) The available choices for direct input access are: Analog Input 1, Analog Input 2, Optical Input 1, Optical Input 2, Coaxial Input 1, Coaxial Input 2, HDMI ARC, and Bluetooth etc.. **Make sure they are mapped to the right input on the player.** When the player has only one input of the same type (e.g. 1 analog input), select Analog Input. When the player has two inputs of the same type (e.g. 2 analog inputs), select Analog Input 1 for Analog Input 1 and Analog Input 2 for Analog Input 2.

4.0 Using BluOS (Integration Designer 9)

The driver UI Queue, Presets, and Players pages contain 3 panels. The center panel is Now Playing metadata, the right panel is services browsing, and the left panel is Queue, Presets, or Players depending on which page it is in.

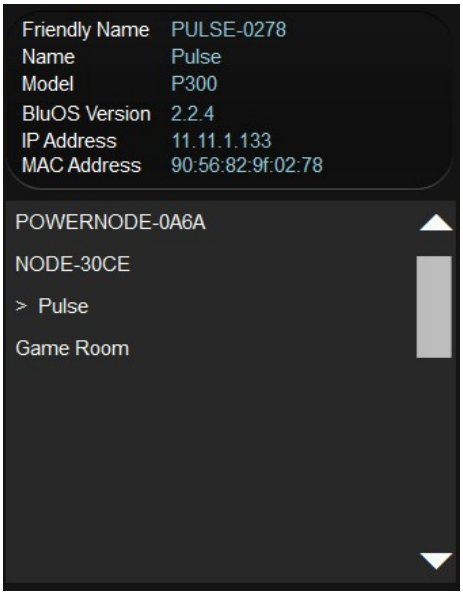
The driver UI grouping page contains 8 groups and group volume controls, currently selected group queue, all players in the same network and their individual volume controls, and ungroup/group functions.

4.1 Launching BluOS

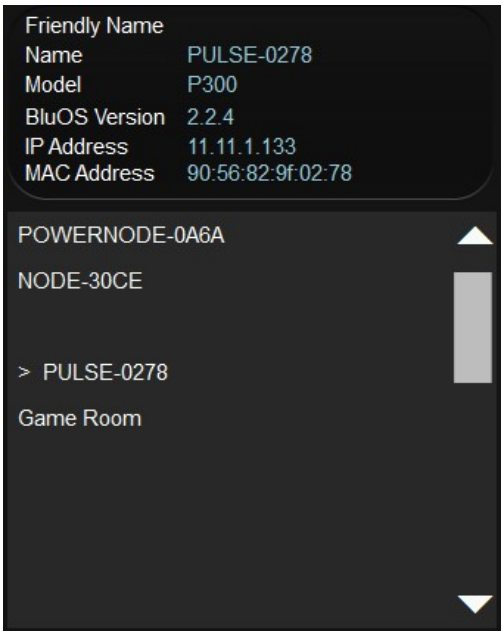
After the driver is loaded into RTI Controller and starts to run, the first page is the “Players” page. This shows all the BluOS players on the same network. Select the player to be operated. By default, the player on the top of the list is selected.

Note 1: If end users added a new player to the network but it’s not configured in Integration Designer with a friendly name, the driver will automatically append the player to the end of the list.

Note 2: If end users changed a player name from BluOS Controller native App while the driver is running (**strongly not recommended**), the player list will show the Friendly Name and the real player Name as below.



Note 3: If a player's friendly name does not match the real player name discovered in the BluOS Controller native App **(strongly not recommended**). Player list will show the real player name as a new player and append it to the player list, and leave the list item with friendly name empty. For example, "Player 3 Friendly Name" is "Pulse" but the real player name is "PULSE-0278". The player list will leave the 3rd list item empty but append "PULSE-0278" at the end of the list. See the empty Friendly Name below.

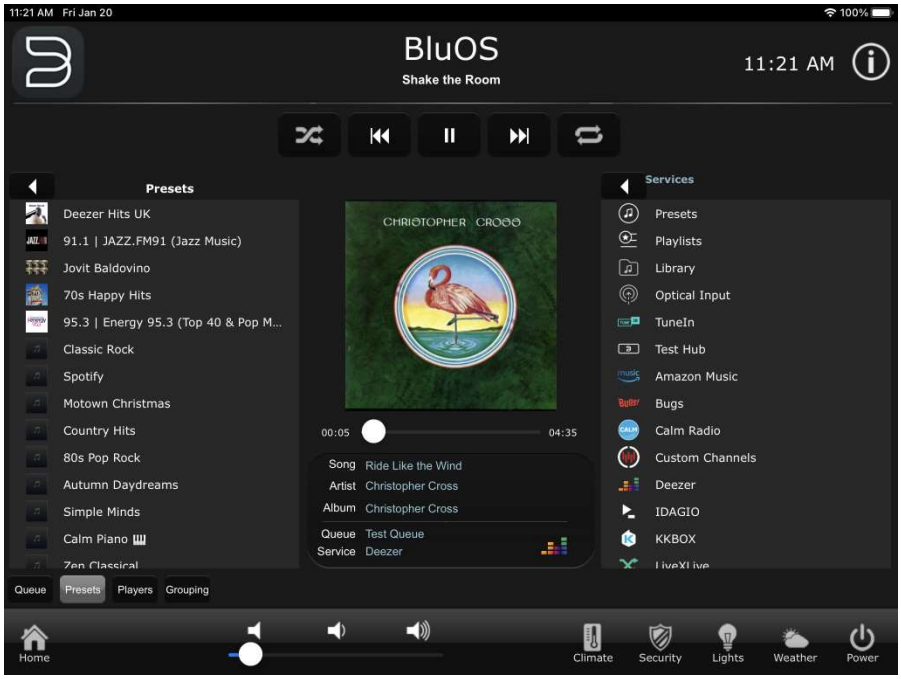


Note 4: Always wait for few seconds when selecting a player from the player list for the **FIRST TIME**.

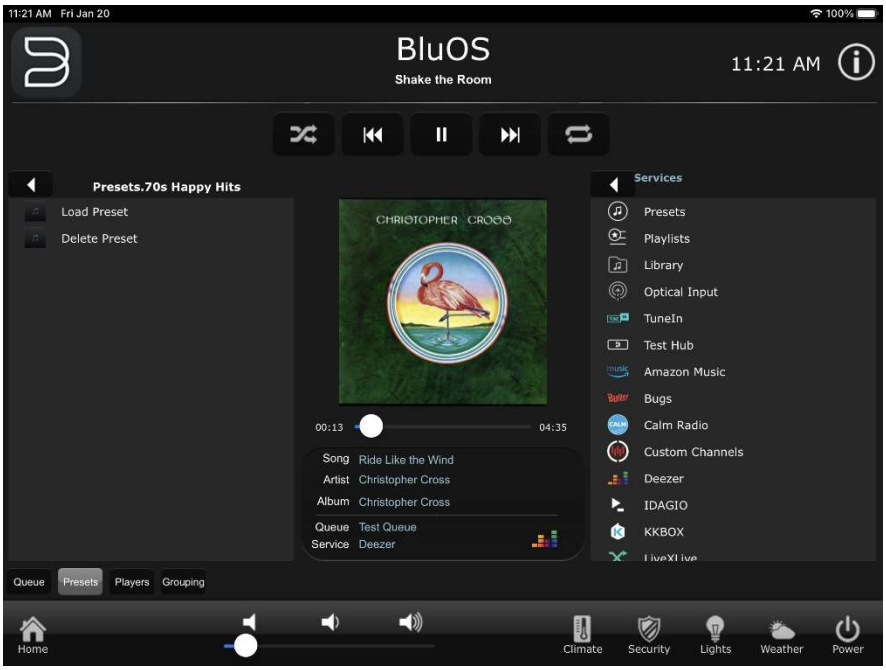
Note 5: For RTiPanel iOS version, clicking on the BluOS logo "B" at the top left will switch to the BluOS Controller iOS app (schema URL support).

4.2 Presets

The “Presets” page displays a list of the presets created for the player. Click on “Presets” button to load a list of the presets the player has.



Select any preset will pop up a window with two options “Load Preset” and “Delete Preset”. Click on “Load Preset” to load the preset or “Delete Preset” to delete the preset.

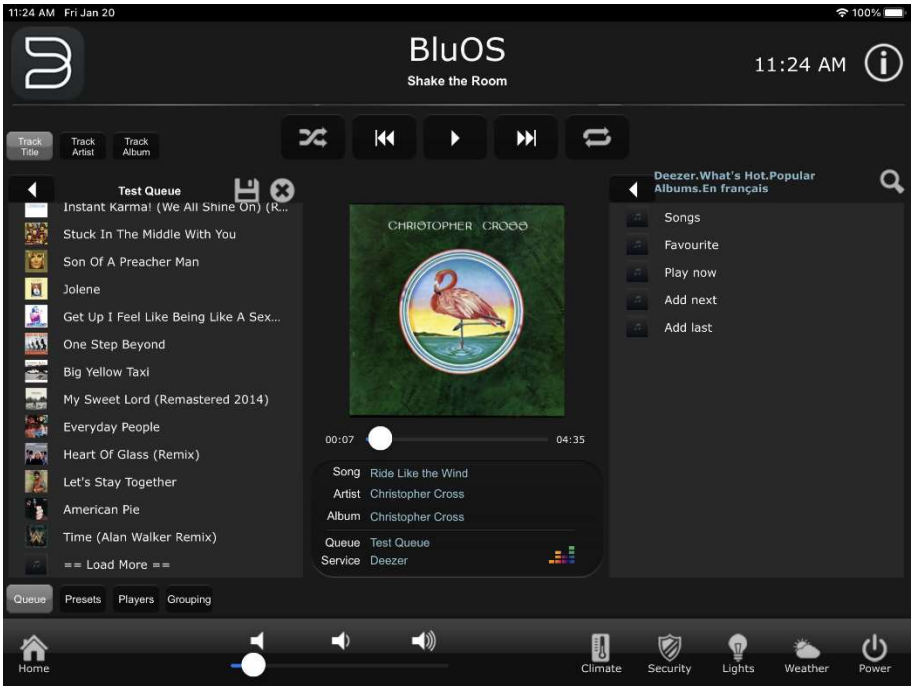


Note: The driver provides Preset Name feedback for the first 10 presets. Presets is also accessible from Services list.

4.3 Play Queue

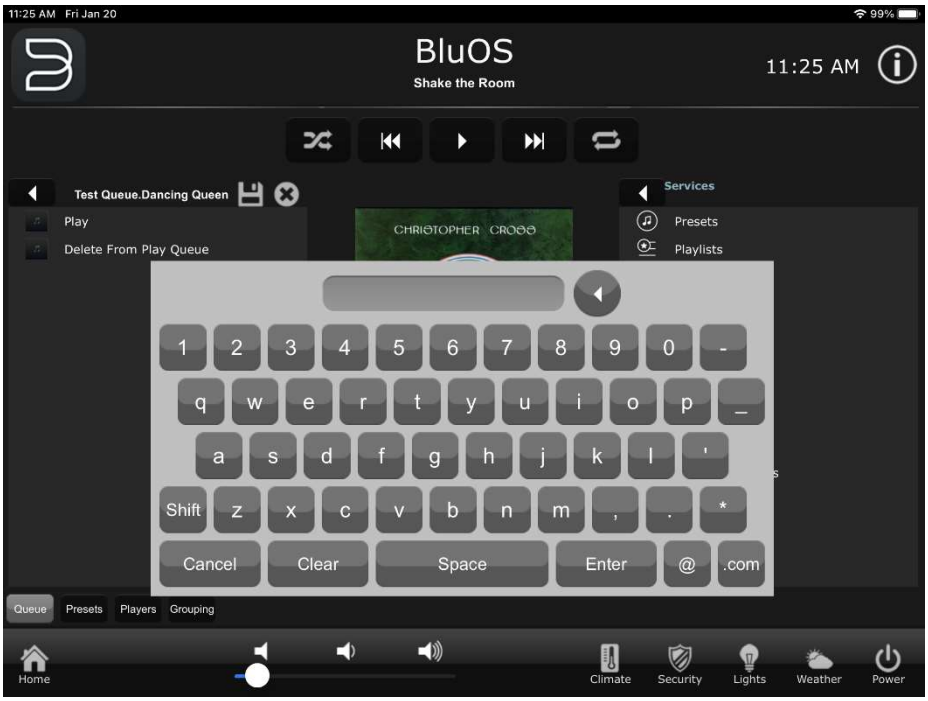
Clicking on “Queue” button will show the tracks in the queue (current playlist) at the left panel. Click on “cross” sign on top right of the track list clears the queue. On top of the queue, there are three buttons to display queue track title, artist, and/or albums.

Queue has pagination with 50 tracks per page. Click “== Load More ==” at the bottom of the page can load the next page.



Select any track on the Queue brings up a list of actions for the current track. Click on “Back” icon to go back to queue.

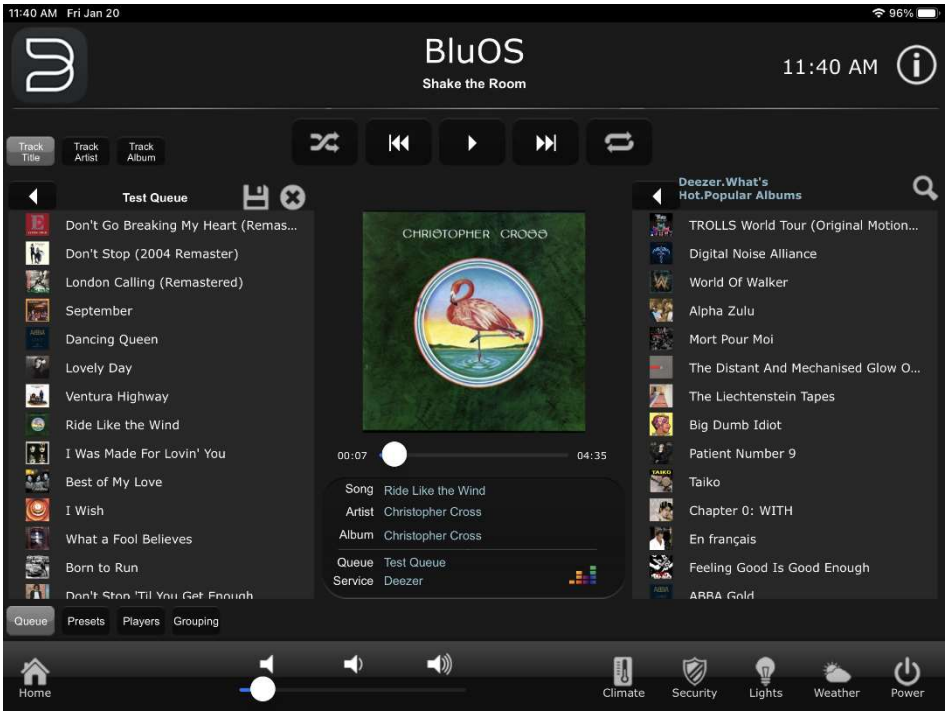
Clicking on “Save” icon pops up keypad to enter a new queue name.



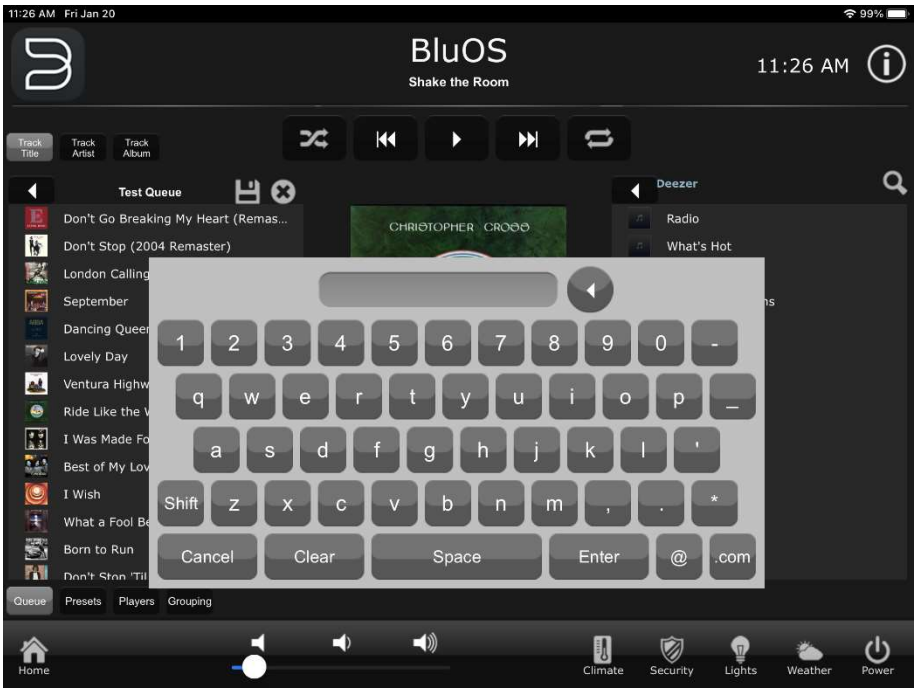
Clicking on “Clear” (cross) icon clears the queue.

4.4 Music Services

Services always appear at the right panel. Click on any service (e.g. Deezer) to browse the categories of the service.



“Search” is available on the top right corner after a service is clicked (if the service has search functionality).



For most of the streaming audios, there are “shuffle” and “repeat” buttons in Now Playing. The “shuffle” button controls shuffle on/off, and “repeat” button controls repeat states which in turn is “repeat playlist” (blue), “repeat track” (repeat one), and “repeat off” (white). For some streaming services like Slacker, “ban” and “love” are available instead of “shuffle” and “repeat” (see screenshot below).

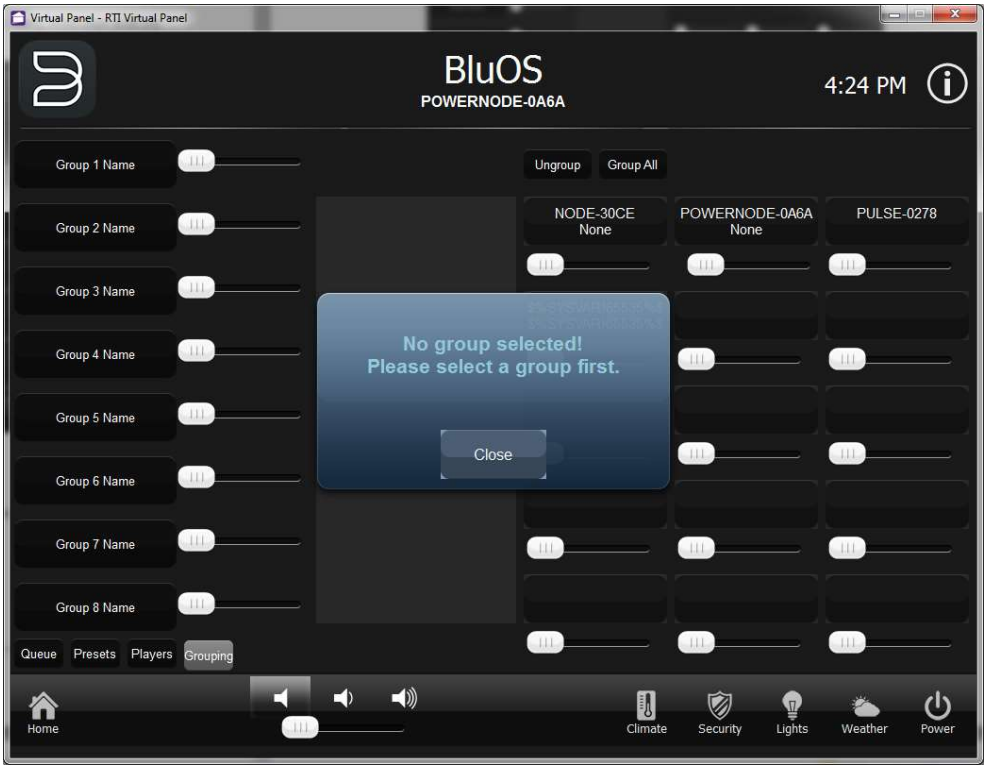
4.5 Grouping

Driver v2.0 introduced grouping feature. It has grouping players, grouping all players, ungrouping a player from selected group, ungrouping all players from a group, and ungroup all players commands. **But in order to experience smooth grouping feature, please use driver v2.16 or newer, which requires minimum BluOS firmware v2.20.0.**

Also, a player has to be selected at least once or bound to a device before its grouping state is shown in 'Grouping' page."

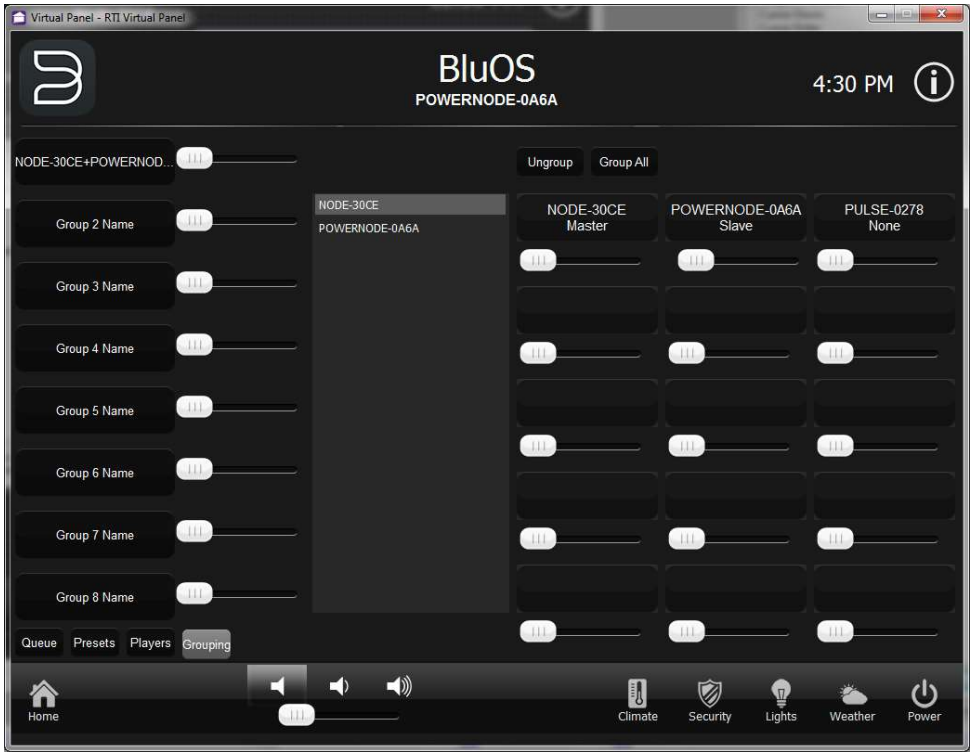
4.5.1 Select a group

Select a group before grouping any players within RTI system. If no group is currently selected, clicking on any player would pop up “No Group Selected” warning.



4.5.2 Add players to selected group

Once a group is selected, click on the players one by one to add the player to group. The first player added to the group will be the master and the rest will be slaves.



4.5.3 Remove player from selected group

To remove a player from a group, the group should be selected first. Clicking on the player from the group queue list will ungroup the player from the group immediately. If the master player (the first one in group queue list) is clicked from within the group queue list, the entire group will be ungrouped.

The driver also provides a way to remove a specified player from selected group.

4.5.4 Remove all players from selected group

The driver provides a way to ungroup all players from selected group. “Ungroup” button in RTiPanel shows as an example (ungroup all players from selected group).

4.5.5 Group all players

The driver provides the functionality to group all players in the same network to be a group. “Group All” button in RTiPanel shows as an example. If groups exist before “Group All Players” command is issued, it’ll use the most recently grouped master as the master, the rest as slaves.

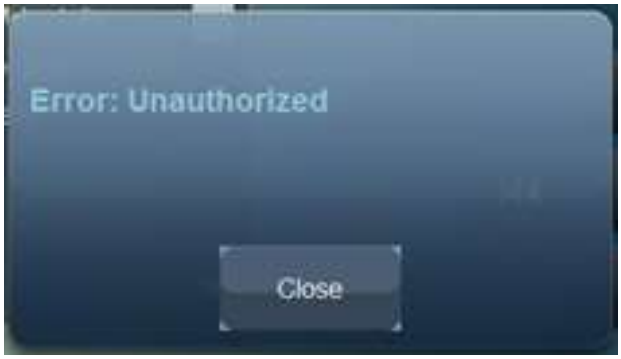
4.5.6 Ungroup all players

Ungroup all players is to ungroup all players that are previously grouped by “Group All Players” command.

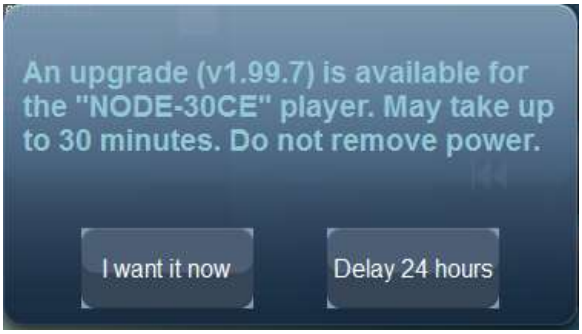
4.6 Notifications

The driver supports several notifications from the player. Note that many notifications are delivered by the streaming music service.

When there is something wrong with the service authorization, an error window will pop up with the error message.

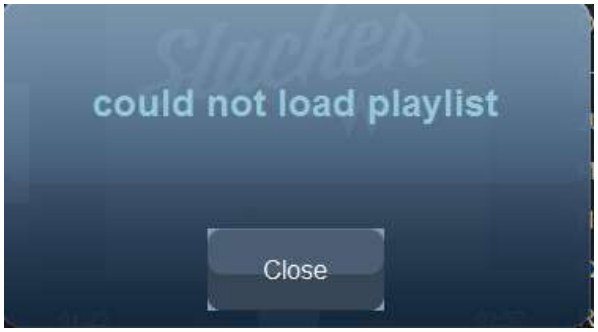


When a newer version of BluOS is available, an upgrade notification will pop up.

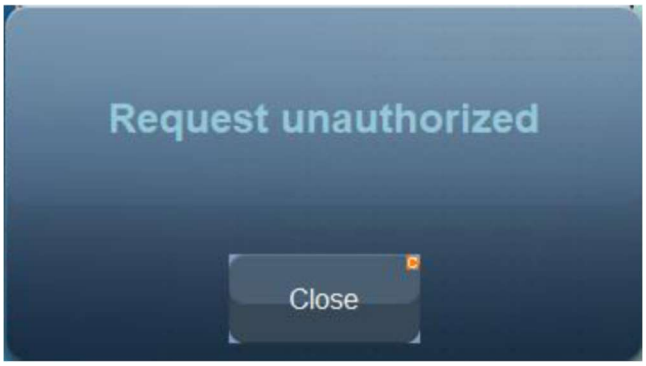


When a CP is inserted in M50.2, a notification for Play or Rip will pop up.

When service data unavailable or playlist unloadable, “could not load playlist” will pop up.



Bluesound Professional players support authentication. If users set up authentication for a Bluesound Professional player, any unauthorized requests will pop up “Request Unauthorized” error.


Request unauthorized
Close

4.7 Driver Information

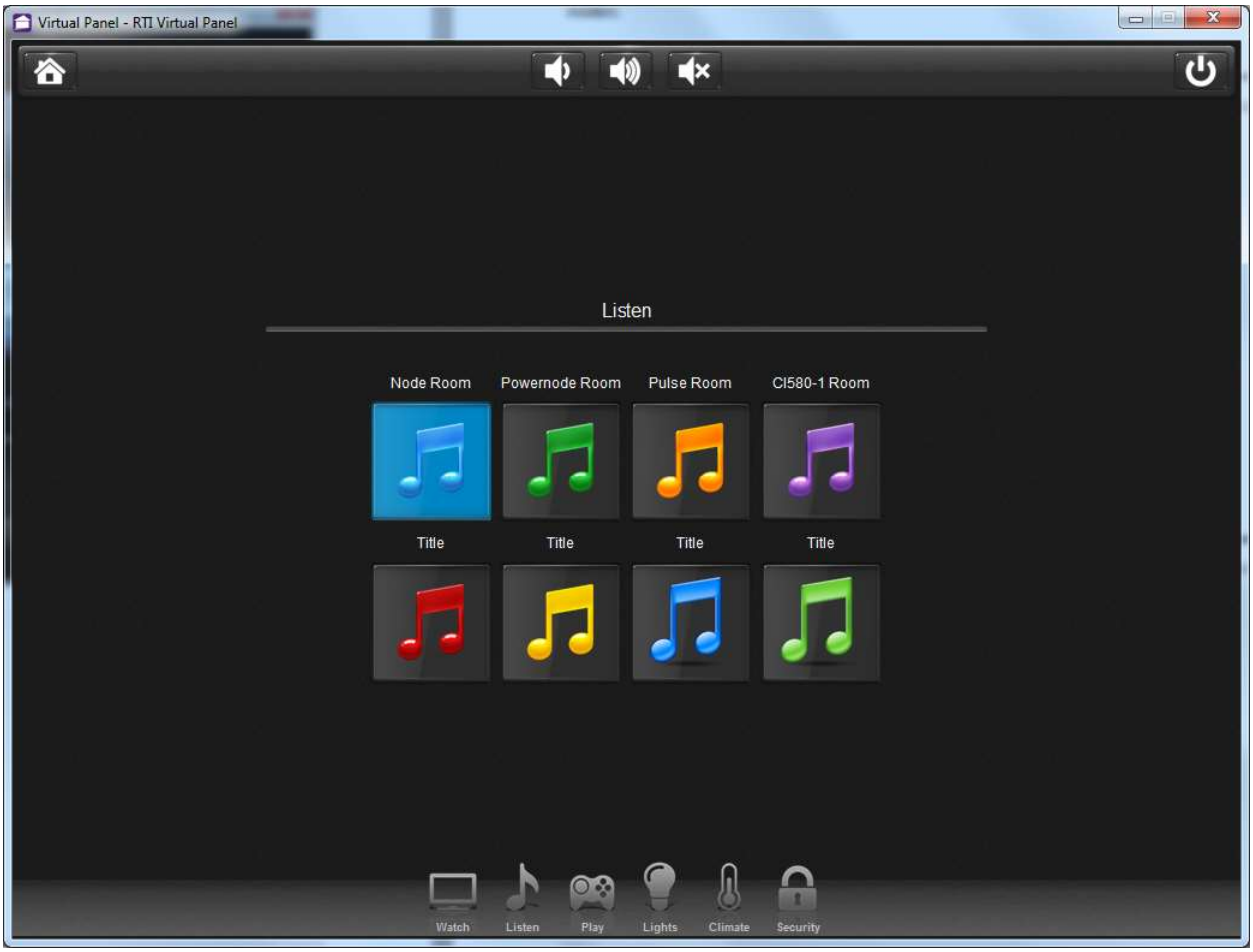
Clicking on the “i” icon on top right corner pops up the driver information including the driver version and minimum required BluOS firmware version.

5.0 Using BluOS (Integration Designer 10+)

The driver for APEX is source based. Each source has Queue, Presets, and Grouping pages. The UI pages are nearly the same as that in Integration Designer 9 except that APEX has home page and doesn't have UI for Players. However, it's all configurable and up to installers.

5.1 Launching APEX

Here is an example of the released driver. The home page is set to be "Listen" with multiple rooms. Each room has a player inside (icon configurable).



5.2 Using BluOS

Clicking on each room, BluOS UI pages will appear. Each player has 3 UI pages: Queue, Presets, and Grouping. The UI pages are same as that in ID 9. But all of these are configurable and up to installers.

6.0 Support

For technical support issues, contact BluOS technical support at http://support.bluos.net or email support@bluos.net.

7.0 Known Issues

The following issues are known to exist.

Driver Version	Issue	Workaround
All	In RTiPanel, when a group has many players, moving the volume slider of the group volume or secondary players may bounce back the slider to the original position before moving to the new position. This is due to RTiPanel timeout for slider is shorter than the time when the driver receives volume command and writes the value to the slider.	No workaround. Users may move the slider and **hold** it for a second or two before releasing the slider.
All	The driver doesn't provide UI for fixed grouping. The Grouping page can show fixed groups and ungroup fixed groups.	None unless new UI for fixed grouping is added.
All	If multiple views (RTI apps) operates on the same player on the same page (presets or queue), navigating presets or queue or services list on one view will also reflect on other views.	The issue rarely happens. It may be fixed in the future, but may cause memory issue (each driver is allocated with limited memory in RTI).
All	If the system has many players and grouping / ungrouping all the players too frequently, the system may reboot.	Set the configurable "Max Number of Requests" in ID to 10. Increase / decrease the number until the reboot doesn't occur anymore. Add extra RTI processor to the network.