

QRS

SINCE 1900



DISCOVER THE LEGEND
DISCOVER THE FUN

QRS PNO³

User Guide

File System Version .412

Adds support for the latest PNO³ controller PNO³WB
with Wi-Fi, Bluetooth MDI and Audio Card Integration

Manual Revision: July 20, 2017

Latest Revision Available With The Latest OS Update On Your System



Table of Contents

Major Components	4	PNO3 Solenoid Driver Brd Set up & LED Ind	12
Introduction To PNOmation ³	5	PNO3 Power Supply LED Status Lights & Fuse	12
The Pin Light Port Extender (PLx)		Network Setups	
Initial Start Up LED Status	6	PNO3 WB Stand Alone Network Setup (no internet)	13
Operating System Updating Status	6	PNO3WB WiFi Client Network Setup	14
Button Push (s)	6	PNO3 Bluetooth Setup	15
The Pin Light Port Extender (PLx)		Setting Up Bluetooth MIDI on your iPad	16
Power/Status—LED 1	7	Setting up a PNOcloud Account	17
System Activity Status—LED 2	7	Setting up Piano Marvel Account	18
Network Status—LED 3	7	Some Recommended 3rd party Apps	19
Operating Mode/Source—LED 4	8	Connecting in Stand Alone Mode	20
MIDI Activity & Record Status—LED 5	8	Connecting in Network Mode	21
System & Prompt Statuses—LED 6	8	The Playback Screen Basic Understanding	22
Infrared Remote Control		Volume Controls	23
Batteries—is it working?	9	Creating a Playlist	23
Source Selection	9	Activating Your Trial	24
Volume Control	9	Verify Trial, Music Plans & Purchases	25
Transport Buttons	9	System Setup of Piano Performance	
Second Row Special Functions	9	Global Playback Parameters	26
Light 6 AMI, PNO3 WB card present and Voice Prompt	9	Key Adjust—Min Note Volumes	27
PNO3 Main Processor/Controller Buttons & LEDs		Sustain Pedal Adjust and Dynamics	28
Button LED 1 MIDI and AMI activity	10	Playback Dynamics of File Types	29
Button LED 1 Press, >2s, <2s, 8s,...	10	Master Volume Mapped to File Type	30-31
Button LED 2 Indexing, Playback Status	10	Record Setup	
Button LED 2 Press, >2s, <2s, 8s,...	10	Global Record Parameter Setups	32
Button LED 3 Network	11	PNOscan Setup	33
Button LED 3 Press, >2s, <2s, 8s,...	11	PNOscan Advanced Setting	34
All LEDs flashes, and what they mean	11	PNOscan Pedal Setup	35
		PNOcloud Account Setup	36

Table of Contents

Routing and Delay Settings

Mixed Outs–Background with Piano	36
Unmixed Outs - Background only	36
Analog MIDI In Delay and Detect Setup	37
MIDI Routing and Control Setups	38
MIDI Upgrade Kits Key Adjust	39

Operating System Music/Media Updates

Manual Upload OS, Playlists, Content	40
Auto Updates / Check For Updates	40
Update when there is no network “StandAlone” Mode	41

Network Setups, Status & Schedules

Setting up network capabilities PNO3WB	42
Network Setups PNO3 DHCP - Static	43
Clock Setup	43
Scheduling On/Off and Volumes	44

Other Setups

Language and Voice Prompt Language	45
Color Theme	45
LED Intensity	45
Amazon Echo—Dot—Reverb Setup	46

The Service Menu

View Setting of Your System	47
View System Logs	47
Advanced Tech Supported Applications	47

Purchasing Music

Purchasing An All Access Music Plan	48
Purchasing Music by Song, Album or Playlist	
Creating A Cart of Content	49
Auto Unlock and Manual Unlock	50-51

Recording

Recording a Track	52
Saving, Deleting Adding to Playlists	52
Open file in a 3rd Party App	52

Practice & Perform

Selecting Sounds	53
Silent Practice	53
Performing	53
The Learn Button	53

Playback Video Stream Setup Options 54—58

PNO3 Wi-Fi Setup Reference units without built in WiFi Bluetooth Cards (pre 5/2017)	
Netgear Wi-Fi Ext - Buttons and LEDs	59
Netgear Status and Buttons	60
Netgear Stand Alone Mode - Steps	61-62
Netgear Network Mode Setup -Steps	63-64

Misc—Echo commands—User Notes 65-66

Warranty 67-68

Troubleshooting 69



PNOmation³ Major Components

QRS Part Number	Description	QTY	Image
80308s	PM3 Processor/Controller	1	
NEW 80308sWB	Integrates WiFi and BT 		
70050A	Solenoid Rail Assembly Grand	1 x 80 note	
84122	Smart PNO3 Note Driver Boards	5	
75210	Power Supply Rev 2 (PMM)	1	
70130S	Pedal Solenoid	1	
79211	WiFi Extender Netgear Not required if using new 80308sWB	1	
76140	QRS Q35 PNOspeaker with Bracket	1	
83124	PNO3 PLx (Pin Light Port Extender)	1	
73398	PNOmation IR remote control	1	

Introduction To PNO³

QRS is revolutionizing the player-piano industry with the introduction of its latest player technology, PNO³. PNO³ is the most advanced player-piano system available on the market today. Just take a glance at some of its great features, and you will see why new and current customers are installing and upgrading to the latest in player technology:

BETTER AESTHETICS [HEARD, NOT SEEN]

PNO³ is an invisible player. With PNO³, there is only a Pin Light Port Extender (PLx) which can be mounted out of sight for no visible front-end controller or under the piano keyboard where you have the choice of turning on or off any lights. Enjoy the benefits of a player without altering the appearance of your piano.

BETTER USER EXPERIENCE [USER FRIENDLY / PLEASANT USER EXPERIENCE]

PNO³ offers the industry's best user experience. PNO³ not only functions as a stand-alone player system, but also as a node on your home network. With PNO³'s web-enabled user interface, the possibilities are endless: create playlists and control your player piano with an iTouch, iPod, iPhone, or any web-enabled phone; or use a PC or Mac on your home network. PNO³ is also designed to support QRS's new single-song purchase capability. Now there is no need to deal with the hassle of CDs or with the inconvenience of having to buy an entire album to get the one song you really want. Let PNO³'s player radio feature play songs from the industry's largest library of music software so you can sit back, relax, and enjoy.

BETTER PERFORMANCE [IMPROVED PERFORMANCE]

PNO³ features enhanced playback abilities with superior execution of dynamics. The softest pianissimos and loudest fortissimos offer extremes of expression and produce more convincing musical performances. PNO³ also dramatically improves the control over the sustain pedal solenoid which allows for quieter sustain pedal operation and more accurate performance.

BETTER DESIGN [IMPROVED DESIGN]

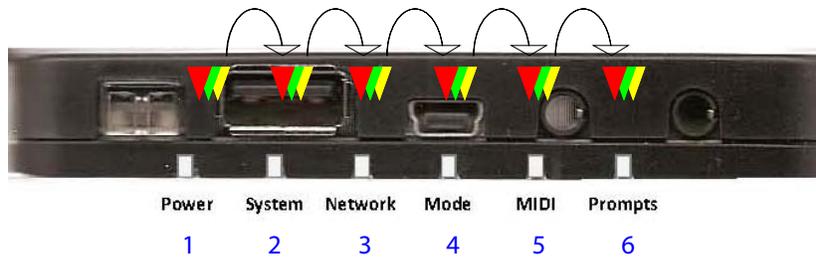
PNO³ incorporates PNOscan, the player industry's leading MIDI recording tool. Also included are tools for the user to refine the performance of the system.

BETTER NOW, BETTER LATER [NEVER LEFT BEHIND]

PNO³ is a simple and easy upgrade. It only takes four screws to swap the PNO³ processor into your existing player system, and it has been designed from the ground up to integrate with your existing system while offering the latest, cutting-edge technology. PNO³ is also prepared for the future, as it is high-bandwidth ready for next-generation MIDI standards.



Pin Light Port Extender (PLx) LED Light Status and Start Up



Start Up	Start Up Sequence	On Power Up—Lights cycle from right to left, each light blinks and cycle through each of its colors
	Voice Prompts (light #6 blinks amber)	<ol style="list-style-type: none"> 1. Welcome to Pianomation 2. Announces Operating Software Version 3. Announces Your System Is Ready 4. Announces if a Network Cable is Detected 5. Announces IP Address
	Start Up Sequence Complete	Lights will indicate their status (ref descriptions below)
	To hear status again plus your system's serial number	Using the IR Remote pointed at the IR receiver (button on PLx): Select Shift (let go) then 3 (let go) or Hold PLx button down for 4 to 6 seconds
Operating System Updating	Green (5)	PNOscan optical record sensor strip is connected
	Lights Gradually Light Up from Left to Right	All lights gradually light up based on update completion percentage, all lit at completion, then reboot
	Voice Prompts	<ol style="list-style-type: none"> 1. Update 2. Please do not remove media or disturb power until update is complete 3. Update in Progress (depends on size of update) 4. Update Complete 5. (system now reboots and you will lose connection, this is normal and connection will be automatically restored if you are in network mode) 6. Voice Prompts will follow the start up prompts
Button Push	Button Push	Starts and stops playback of the default playlist you have set
	Button Push 4 to 6 sec	Voice prompt information
	Button Push >16 sec	Reboots piano first 3 lights turn amber and last light is red

Pin Light Port Extender (PLx) LED Light Status



Power System Network Mode MIDI Prompts
1 2 3 4 5 6

Power/Status	led1	Green Solid	Power to the solenoid rail is on, the high power light on the power supply is on, system is ready to be used.
		Green Blink	MIDI Control Data is being sent to the piano as a PWM (pulse width modulated) signal. The piano should be playing.
		Amber Solid	The piano is in Stand By Mode, power to the solenoid rail is off, the high power light on the power supply is off, the piano is awaiting a signal to wake up before playing.
		Amber Blink	NA
		Red Solid	There is a Key Solenoid or Pedal Solenoid Over-Current status which will shut the high power to the system down.
		Red Blink	NA
System Activity	led 2	Green Solid	The Pin Light Port Extender (PLx) has initialized, the controller under the piano has successfully initialized, and the low power light is on on the power supply.
		Green Blink	NA
		Amber Solid	NA
		Amber Blink	The light will blink when the system receives an IR remote control signal.
		Red Solid	There is a power issue/failure on the solenoid rail.
		Red Blink	There is a power issue/failure on the pedal solenoid.
Network Status	led 3	Green Solid	The system is in Stand-Alone Mode, which means it is acting as a router (hands out IP addresses) and belongs to its own network (QRSPNOxxx), no network cable or wireless client present.
		Green/ Red Blink	The system is setup to be in Stand-Alone Mode but there is no network device or cable connected or turned on.
		Amber Solid	The system is in Network Mode, which means it is acting as a client on an existing network (typically your home's). In this case the home router will assign an IP address to the PNO3 system. As well as the PNO3WB built in card (post 5/2017)
		Amber/Red Blink	The system is in Network Mode but there is no network device or cable connected and/or PNO3WB is not on client network.

Pin Light Port Extender (PLx) LED Light Status



Power System Network Mode MIDI Prompts
1 2 3 4 5 6

Operating Mode/ Source	4	Green Solid	Internal Memory is source of content
		Green Blink	1 Blink (per second): External SD Card as Source 2 Blinks: Recorded Files are the Source 3 Blinks: When an External USB Drive is the Source
		Amber Solid	External Source is external Analog MIDI Source (Bluetooth, AirPlay etc.)
		Amber Blink	1 Blink (per second?): MIDI IN Network 2 Blinks: External: MIDI IN USB Client or 5 Pin MIDI In 3 Blinks: External: Analog MIDI In from Audio Port
		Red Solid	Error Selecting Playlist or Source - stays red until source is changed and the error is cleared.
		Red/color Blink	Indicates error with one of the above color dependent statuses
MIDI Activity & Record Strip Status	5	Green Solid	PNOscan record sensor strip is installed and detected
		Green Blink	MIDI activity is coming in from the PNOscan strip
		Amber Solid	5 Pin or USB MIDI Record system is installed
		Amber Blink	MIDI activity is coming in from a third party MIDI record system
		Red Solid	NA
		Red Blink	NA
System and Voice prompt status	6	Green Solid	Analog MIDI is being decoded
		Green Blink	The system is busy
		Amber Solid	Bluetooth Wi-Fi card is installed and on
		Amber Blink	A Voice Prompt is being announced
		Red Solid	NA
		Red Blink	NA

IR (Infrared) Remote Basics



IR Remote Basics

1. If the remote has batteries the remote's lights will light up when a button is pushed.
2. To select menu items highlighted in black: Push the Shift Button (then let go - the red led on top left will stay lit). Select the option you would like (button lights will go out after 6 seconds)
3. The upper left red LED will light up when transmitting a signal.
4. The IR receiver is the button on the PLx.
5. The top two rows of keys (white, square) represent the source you would like to play from.
6. The second set of rows of keys represent volume controls (white triangular and circular).
7. Transport Buttons are the bottom two rows of buttons (white circular and record red) Stop—Play—Pause— next track—back— record.
8. Controls including On/Off are discreet allowing for learner remotes and misc. home integration.
9. To change the system from Stand Alone to Network select "Shift" then "B" (Master Down)
10. To change the system from Network to Stand Alone select "Shift" then "A" (Master Up) (not necessary if you have a WiFi Bluetooth card built in—light 6 on PLx is amber)
11. Playlists you create are automatically numbered; selecting PList then a number will cue that list.
12. The default playlist on startup is assigned as your demo playlist.
13. Radio (shift + SD) will cue up the last radio station you had set.



PNO3 Controller - Buttons and Lights



Button/LED 1		
Mode	Precedence	Meaning
Flashes on each event		Flashes with MIDI Data
Solid --- Reliable AMI	If DISPLAY AMI ON LED is enabled	Flashes with AMI notes

Button/LED 1 - Button Presses		
Operation	Function	Requirement
Press	Information (Audio IP Address, Serial #, Version)	
Pressed for > 2 seconds	Volume Increase	If Playing
Pressed for < 2 seconds	Go to Previous Track	If Playing
Hold for 8 seconds	Standby (Low power)	
Hold 1 and 3 on Power Up	Factory Reset	On Boot Up

Factory Reset Proc Light 3 then light 1 then you can let go

Button LED 2		
Mode	Precedence	Meaning
Solid		During Playback
1 Flash Per Sec		Indexing Music

Button/LED 2- Button Presses		
Operation	Function	Requirement
Pressed for < 2 seconds	Play/Stop	Track playing
Pressed for < 2 seconds	High Power Turn On	If in Standby
Hold for 8 seconds	Reboot	

PNO3 Controller - Buttons and Lights



Button/LED3		
Mode	Precedence	Meaning
2 Flash Per Sec		Network Static IP with Connection
1 Flash Per Sec		Network Client with Connection
Solid		Standalone Server with Connection
Off		No Network Connection

Button/LED3 - Button Presses		
Operation	Function	Requirement
Press (2 seconds)	Announce IP Prompt	
Pressed between 2 to 4 seconds (release)	Change network mode	
Hold for 8 seconds	Power off unit	
Press when off (to Start up)	Reboot	
Pressed for > 2 seconds	Volume Decrease	If Playing
Pressed for < 2 seconds	Go to Next Track	If Playing
Hold 1 and 3 on Power Up	Factory Reset	On Boot Up

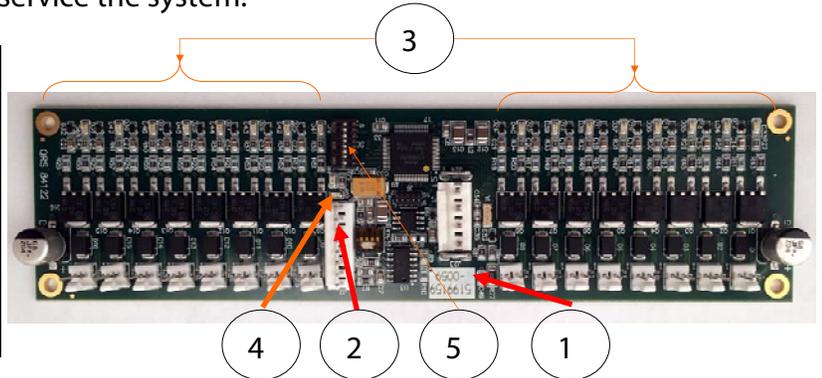
Proc Light 3 then light 1 then you can let go

All LEDs		
Mode	Precedence	Meaning
Blink 70/30		Major Error(failed software patch?)
Rapid Flash (3 flashes per second on all.)		Updating software
Rapid Flash (3 flashes per second Scrolling through each.)		Boot Up (Not Ready Yet)

QRS PNOmation Solenoid Driver Board (cat #: 84122)

The information below is provided for your convenience and varies depending on the version of driver board you have. The Solenoid driver boards are located under a cover and typically not seen. We recommend a certified QRS technician service the system.

Dip	5	1	2	3	4	5	6	7	8
Board 1	1	0	0	0	0	0	0	0	0
Board 2	0	1	0	0	0	0	0	0	0
Board 3	1	1	0	0	0	0	0	0	0
Board 4	0	0	1	0	0	0	0	0	0
Board 5	1	0	1	0	0	0	0	0	0

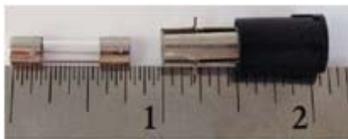


Smart Solenoid Driver Board LED Status (req ver .311) units shipped from QRS after 8/1/2016

1. Power Led	Solid Amber	The High Power Light on the power supply is on, PLx power light is green, Solenoids are ready to go
2. Logic LED	Solid Green	Control data line is connected and all is good
	No light	Driver Board is bad or cable is out
3. Solenoid Activity LED	1 Blink Green	A solenoid is bypassed—run test
	Blinks either amber or green	When control signal is received
4. Programming Boot Up LED	No Lights –	Something Wrong with Driver Board or No bootloader (must be programmed)
	Fast Blinking –	Test Mode, Dip switch 0 position.
	Slow Blinking –	Has bootloader but needs programmed
	Fast Blink number of times then stops to indicate board position	

QRS PNOmation Power Supply (cat #:75210)

The power supply is typically located under the piano on a grand, inside on an upright



Fuse: 7Amp - 250V

Power Toggle: Turns On and Off the power to the system—same result as pulling the plug.

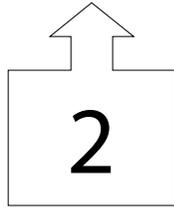
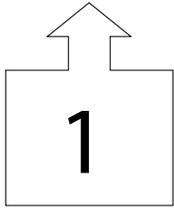
Hi and Low Power Lights - Low means that the processor is receiving power, Hi means that there is power going to the solenoid driver boards and the PLx power light is solid green.



ACCESSING PNO3WB'S WI-FI IN STAND ALONE MODE (NETWORK DIRECT), FOR INITIAL SETUPS

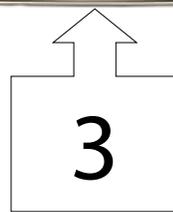
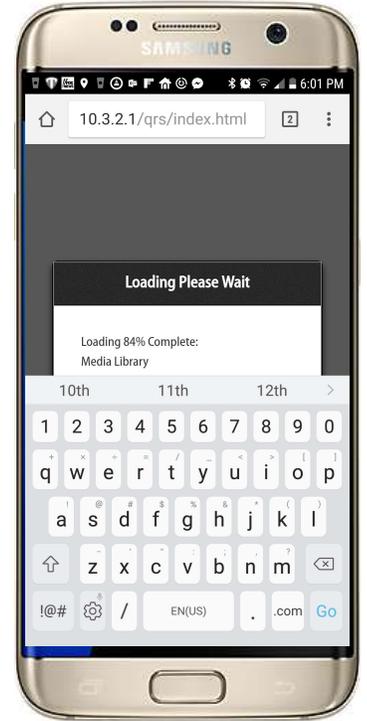
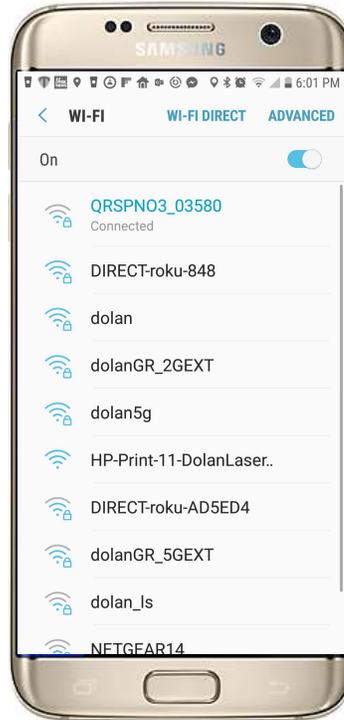


Special Note: There are 3 slots for antennas labeled W (for WiFi) C (for Cellular), B (for Bluetooth). The system ships standard with two antennas, these antennas should be attached to the W and B connectors (the two outside connectors) leaving C open.

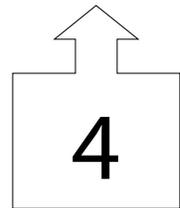


Open Settings On Device

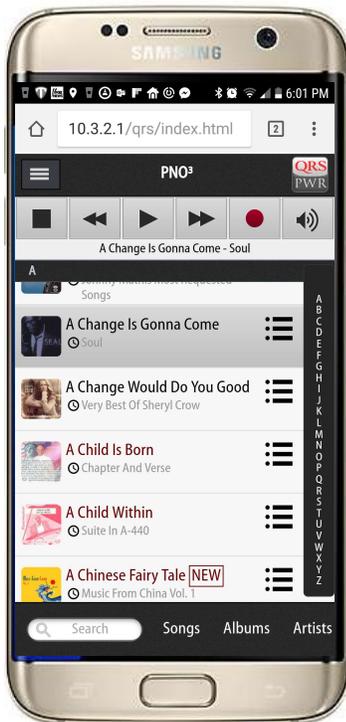
Open Wi-Fi



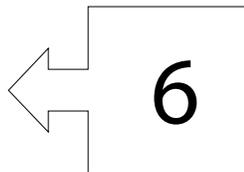
Select the QRSPNO_xxxx Network



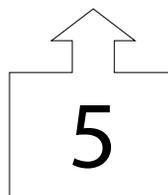
Open Web Browser and enter the IP Address for QRSPNO Networks home page 10.3.2.1



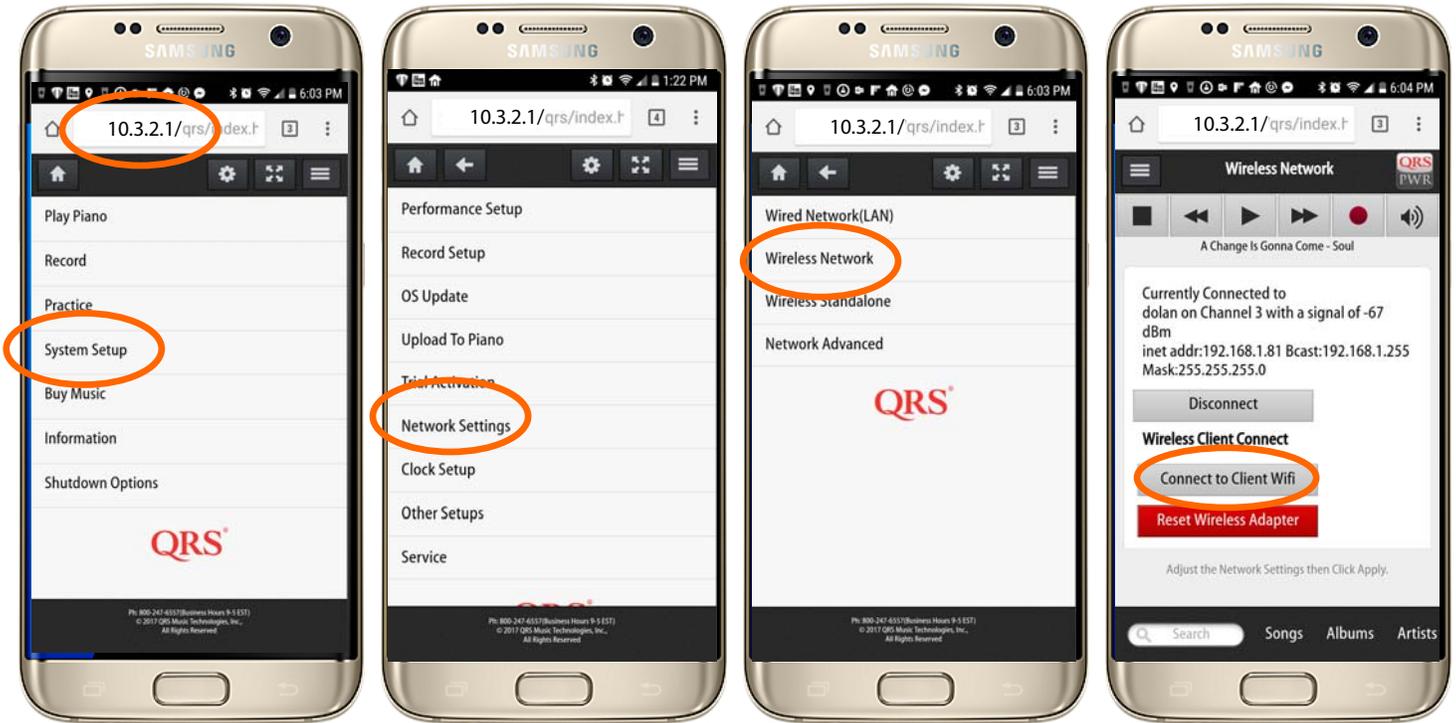
The Window to your QRSPNO's start up screen appears



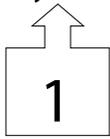
Enter the Password *qrsmusic*



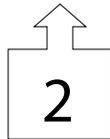
SETTING UP PNO3WB'S WI-FI AS A CLIENT ON YOUR HOME'S NETWORK—NETWORK MODE



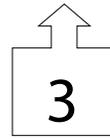
Make sure you are in Stand Alone Mode then Select "System Setup"



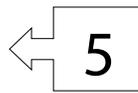
Select "Network Settings"



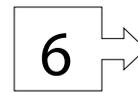
Select "Wireless Network"



Select "Connect to Client Wi-Fi"



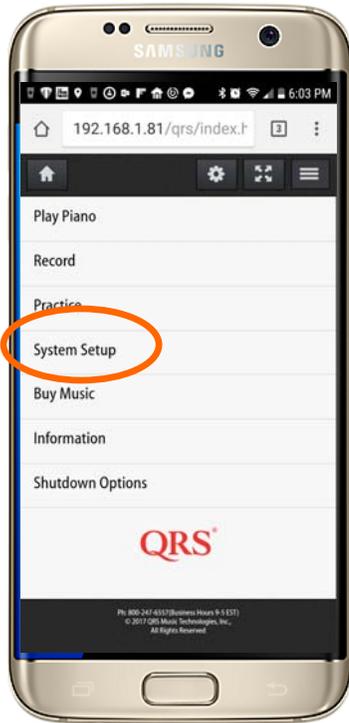
The Wi-Fi adaptor will scan for available client networks to join. Select the network that is typically used by the customer for internet access. It can not be a guest network.



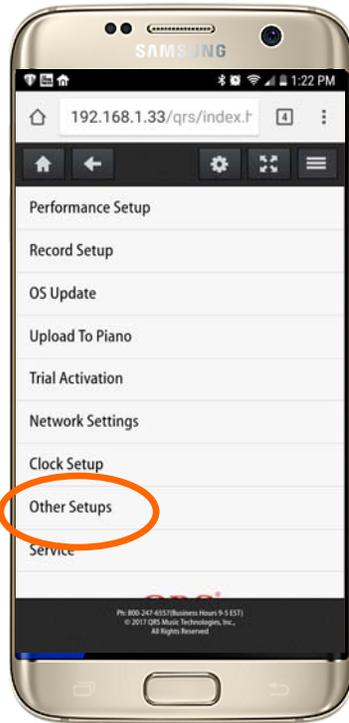
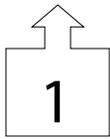
Enter the password for the network. That's it. Now when you use the QRSFinder App you will see two IPs that you can access it with—choose either one.



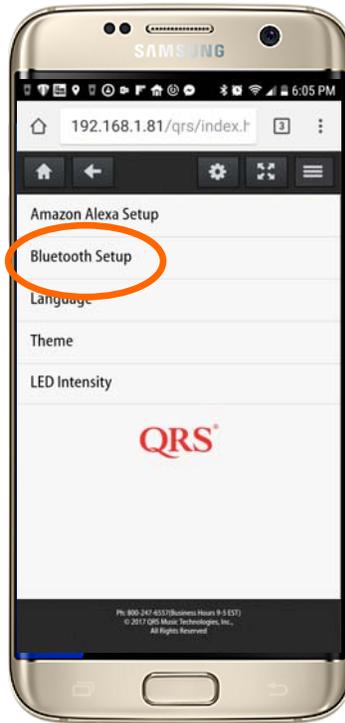
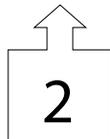
SETTING UP PNO3WB'S BLUETOOTH AND BLUETOOTH AUDIO CLIENT



Select "System Setup"



Select "Other Setups"



Select "Bluetooth Setup"



Enable Bluetooth



Select "Scan" to scan for available Bluetooth devices to connect to.



Select the device you would like to connect to



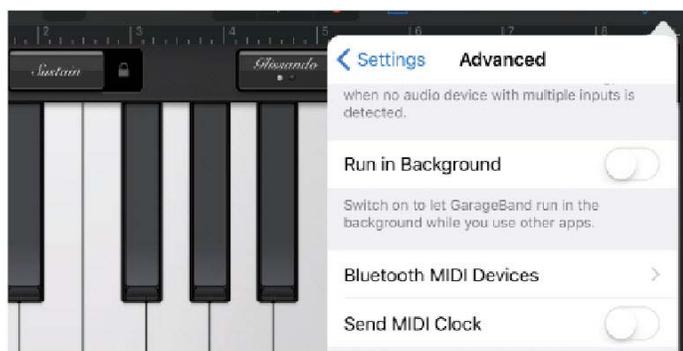
SETTING UP YOUR BLUETOOTH MIDI TO WORK WITH 3RD PARTY APPS



1

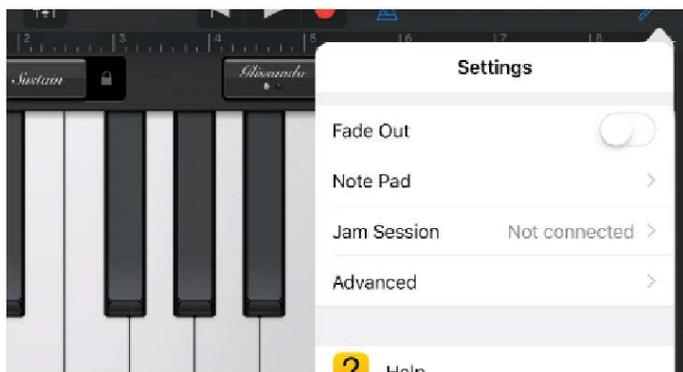
Bluetooth MIDI is primarily used by and developed by Apple. Hence setup of Bluetooth MIDI is best done through an Apple App such as "Garage Band"

Download the Garage Band App on your iPad or Mac.



2

Select "Settings"



3

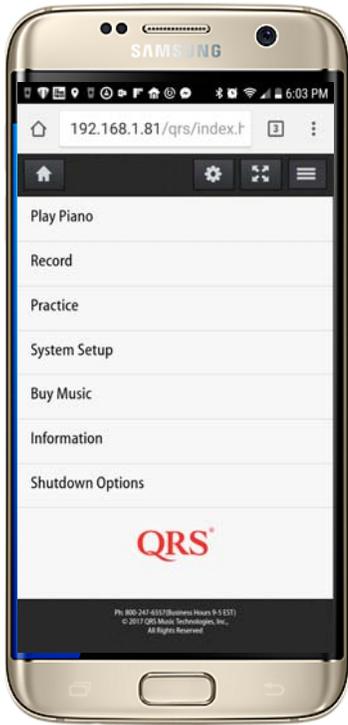
Select "Advanced"



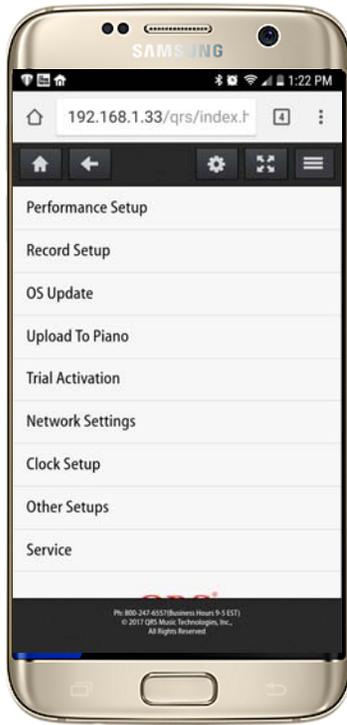
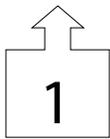
4

Select QRSPNO3_xxxx
Once chosen all of your Apps will default to Bluetooth MIDI coming from the QRS System

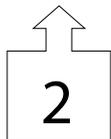
SETTING UP PNOCLOUD ACCOUNT



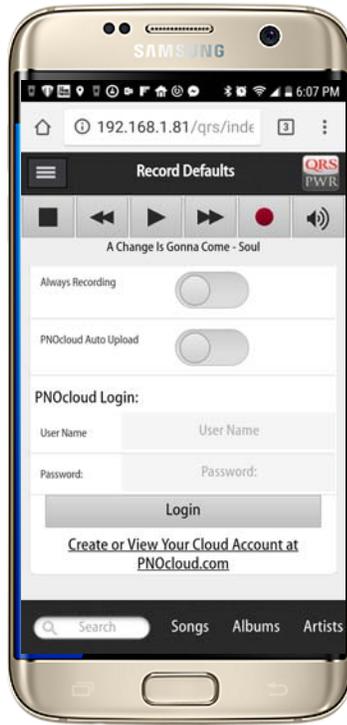
Select "System Setup"



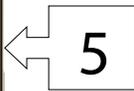
Select "Record Setup"



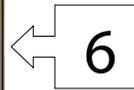
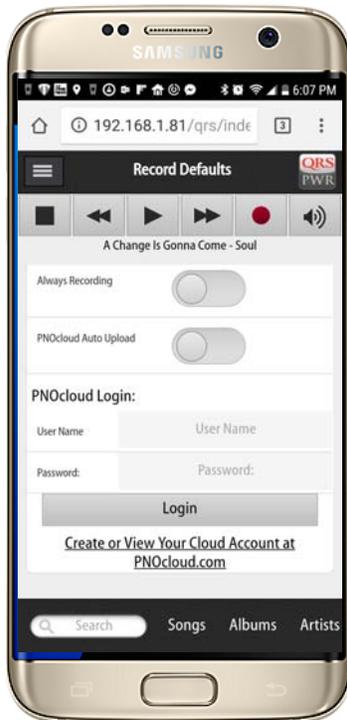
Select "Record Defaults"



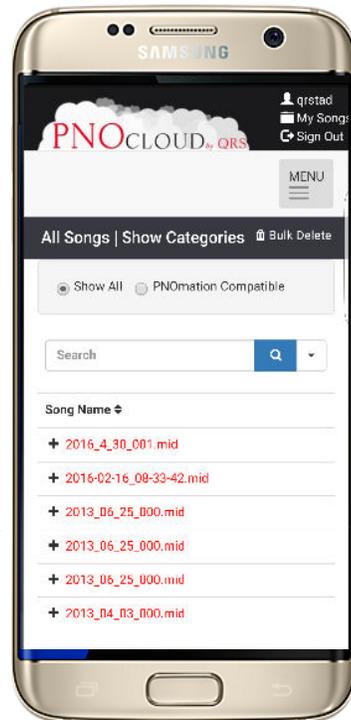
Select "Create or View Your Cloud Account at PNOcloud.com"



Create your online PNOcloud account.



Create your online PNOcloud account.



SETTING UP YOUR PIANO MARVEL ACCOUNT REQUIRES AN IPAD, MAC OR PC



1

Select "Practice" from the home screen.

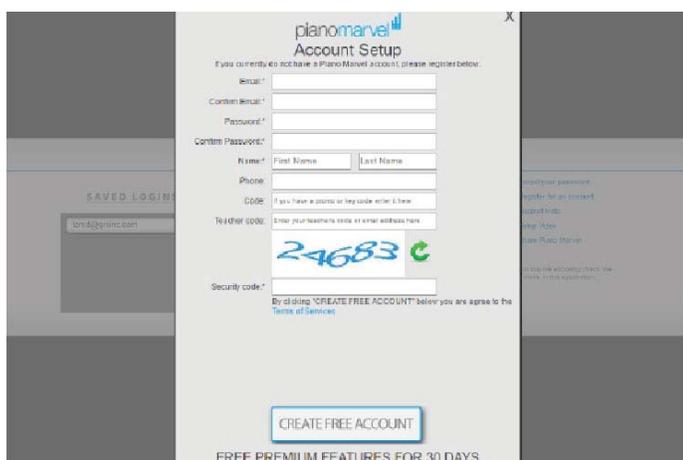
Then Select "Learn"

If the PNO system is connected to an iPad or computer with internet access you will be rerouted to the App or Web Browser with a sign up screen.



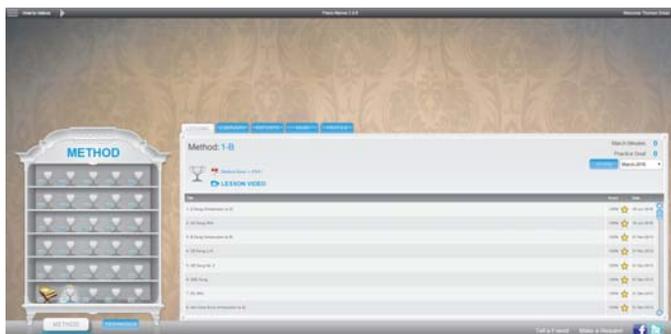
2

Select "Create free account now"



3

Fill out information requested. If you have a PNOscan account a gift card with a release code was included in your package. Insert that code for you 1 year of free lessons.



4

Enjoy

SOME RECOMMENDED APPS



QRS Finder:
Locates and opens your QRSPNO App when it's on your network. Also enables Apple Watch Control.



Garage Band:
Used for Bluetooth MIDI setup. Also terrific for producing, creating, collaborating and sharing.



PianoMarvel:
The very best app for learning, teaching and practicing piano. When installed on your system will automatically launch from the learn button.



SUPERSCORE™ SuperScore:
Sheet music that follows you while you play
Powerful.



Notion:
A terrific program to transcribe your performances into music notation.



Symphonix Evolution:
A nice program to transcribe your performances into music notation, record tracks and share.



Amazon Alexa:
When QRS Music's Skill Set is set up, all you have to do is "Ask PNO to Play"



Amazon Reverb:
When QRS Music's Skill Set is set up, all you have to do is "talk into your phone"



Amazon Echo or Dot: enables you to control the QRS PNO skill set



Enables watch control of your PNOmation 3 system

Connect to PNO³ System In Stand Alone Mode

What you will need:

- A Wi-Fi Enabled Device = iPod / iPad / iPhone / Android Phone / Android Tablet / Desktop or Laptop Computer
- A Web Browser on your device = Apple Safari / Android Browser / Google Chrome
- If you are using a tablet or smart phone you can download the optional QRSFinder App

If you have a PNO3WB (with Wi-Fi Bluetooth built in) you always have Stand Alone mode available to you. Go to your devices "Settings" - "Wi-Fi" and you see QRSPNO_xxxx you can log in, third light will stay yellow, and the sixth light will be yellow, indicating that you indeed do have a card installed and turned on. (first introduced to market 5/2017)

Select QRSPNO_xxxx—open web browser and enter 10.3.2.1 in address bar or use QRSFinder.

With a PNOmation 3 without the Wi-Fi Bluetooth (PNO3WB) card built in you are in "Stand Alone Mode" if any of the below occur

- The third PLx LED is green or,
- Using the IR remote and selecting "Shift" then "3" and the Voice Prompts will tell you or
- The third light on the Processor is a steady green or
- On your device you go to your devices "Settings" - "Wi-Fi" and you see QRSPNO####_2GEXT



Logging In to Systems Without the Wi-Fi Bluetooth card built in

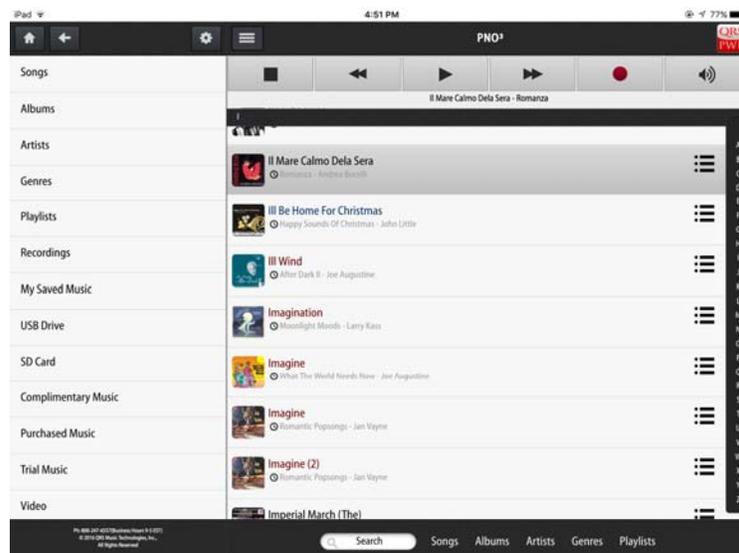
On your device go to "Settings" then "Wi-Fi"

Select the network named "QRSPNO####_2GEXT"

Then Either:

Use the QRSFinder App or

Enter 192.168.1.1 in your browser.



Connect to PNO³ System In Network Mode

What you will need:

- A Wi-Fi Enabled Device = iPod / iPad / iPhone / Android Phone / Android Tablet / Desktop or Laptop Computer
- A Web Browser on your device = Apple Safari / Android Browser / Google Chrome
- If you are using a tablet or smart phone you can download the optional QRSFinder App

You are in "Network Mode" if any of the below occur:

- The third PLx LED is Amber or,
- Using the IR remote and selecting "Shift" then "3" and the Voice Prompts will tell you your mode and the IP Address assigned to your PNOmation The third light on the Processor is a Blinking green or
- Go to your device's "Settings" - "Wi-Fi" and you see "yournetworkname_2GEXT"



Logging In:

On your device go to "Settings" then "Wi-Fi"

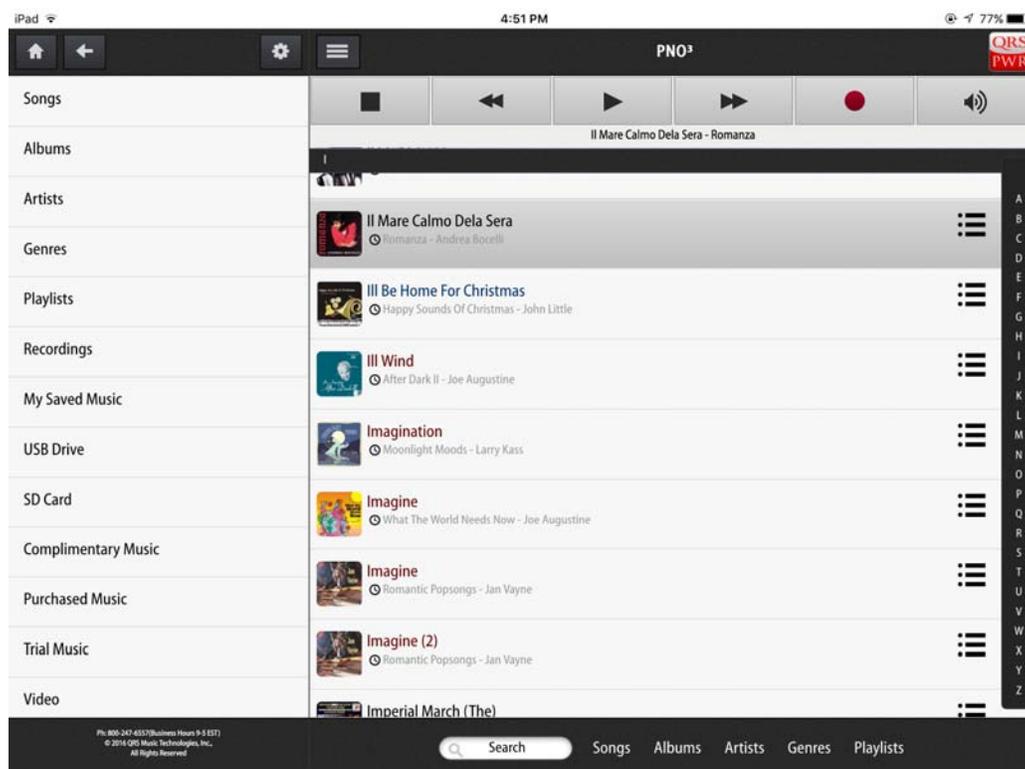
Select your home's network

Then Either:

Use the QRSFinder App or



Note the IP Address announced by the voice prompts, and enter it into your web browser

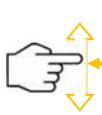


QRS PNO³ USER GUIDE

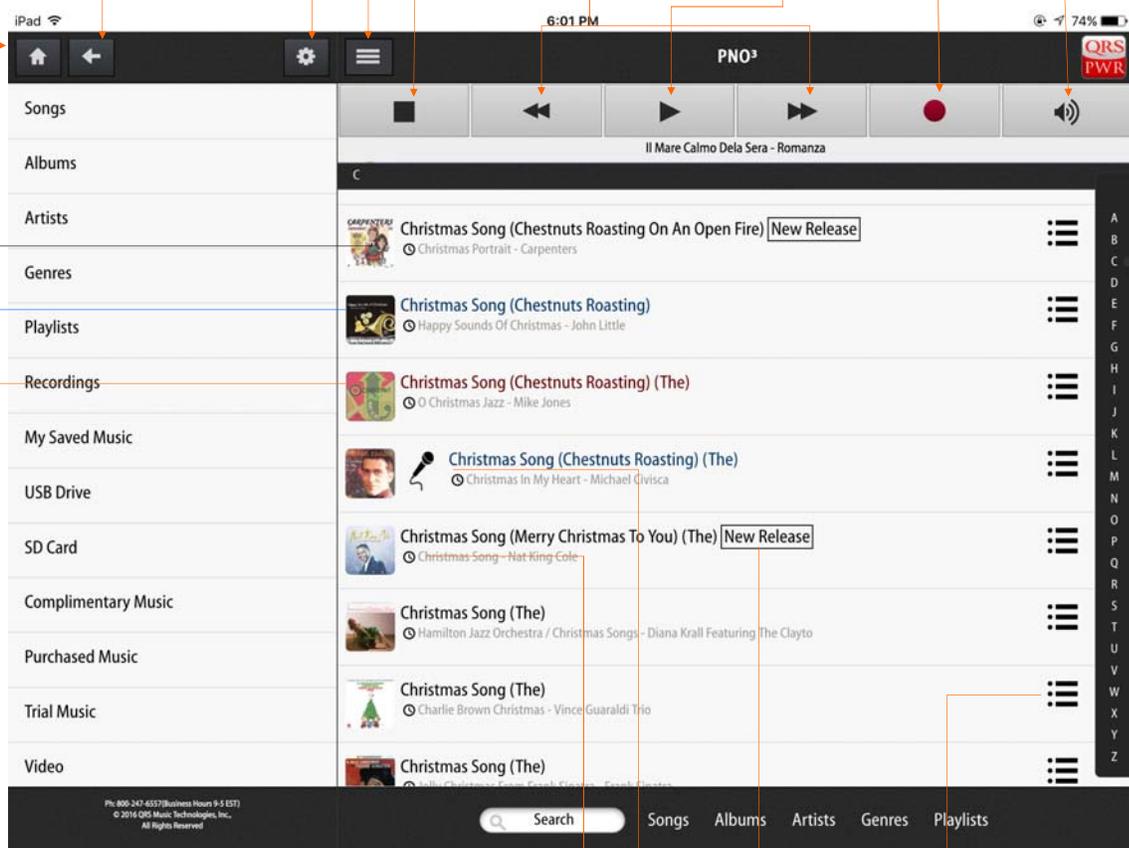
Understanding The Playback Screen



 Touch/Click on a song name to play that song.

 To scroll through the list:
Use finger or PC Mouse
[Click & Hold left button
then drag mouse up/down].

Jump to Home Screen Go back one screen Jump to System Setup Displays Menu Stops Playback Back & Forward Track Play/Pause Playback Record Menu Volume Controls



Black Songs	Piano with Audio Accompaniment - Original Artist's Audio	Sync Along Series
Blue Songs	Piano with Audio Accompaniment - QRS Produced	Concert Series
Red Songs	Piano Only - QRS Produced	Nostalgic/ Performance

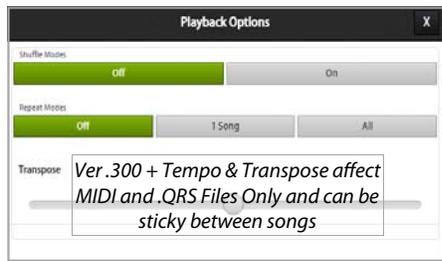
	Music trial or subscription time is active.
	Indicates Complimentary song.
New Release	Newly released song within last year
	Sing-Along Song. Select Microphone icon to display lyrics.

Playlist Popup Jump To Letter

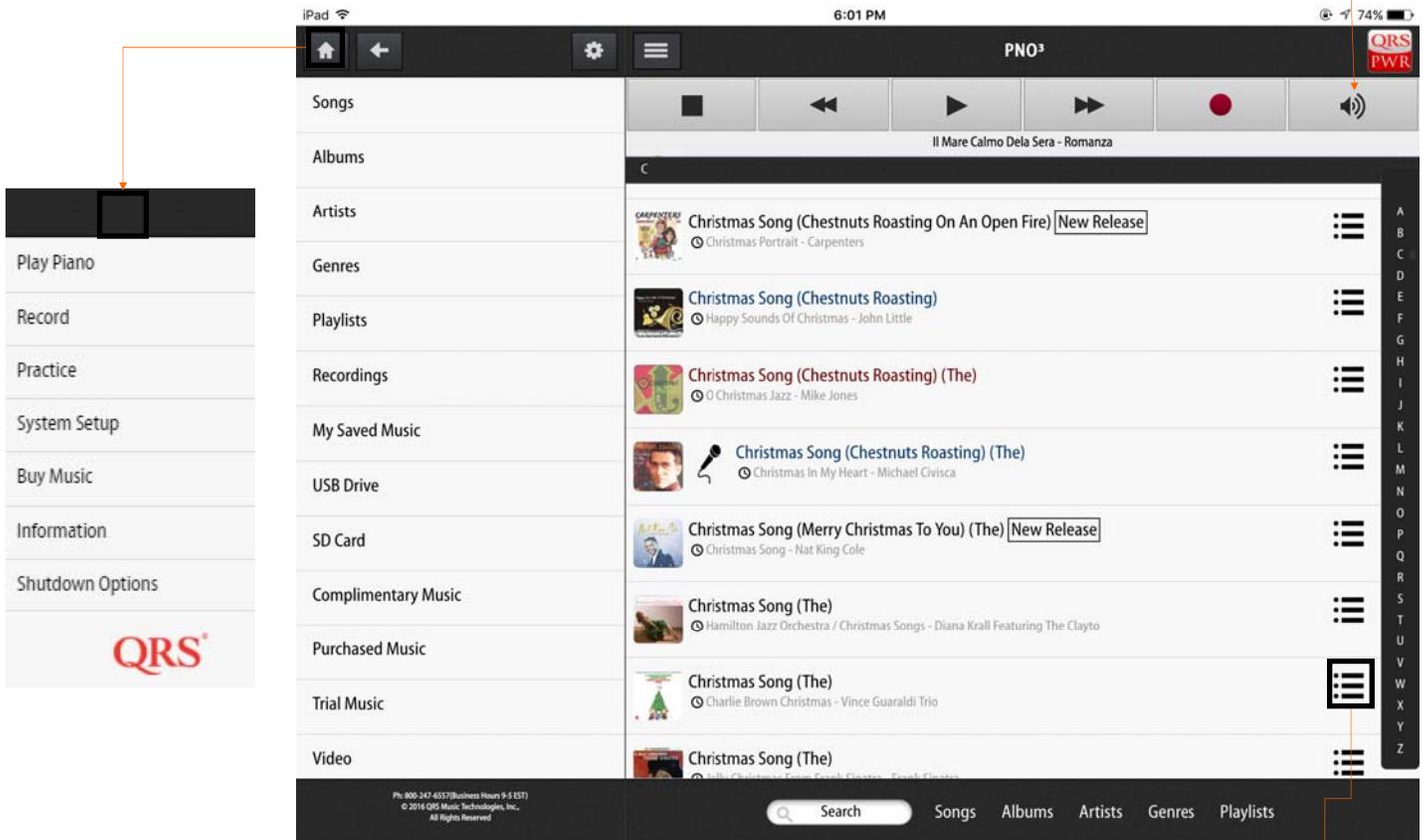
Add Song To Playlist
Add Album To Playlist
Go To Album
Go To Artist
Track Status
Temporary Unlock
Expires on 1/20/2017

QRS PNO³ USER GUIDE

Controlling Volumes & Creating Playlists



Volume Controls

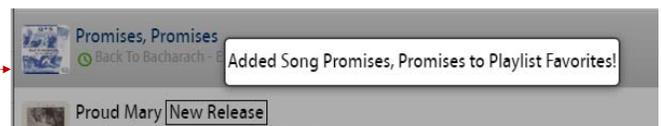


Search by:
 Song
 Artist
 Album
 Genre
 QRS Catalog Number
 40 = Solo "Nostalgic" series
 80 = Solo "Performance" & "Tribute"
 66 = Original Artist "Sync Along"
 86 & 87 = Concert Series



Add Song To Playlist
 Add Album To Playlist
 Go To Album
 Go To Artist
 Track Status
 Temporary Unlock
 Expires on 1/20/2017

Open Playlist Options



QRS PNO³ USER GUIDE

Trial Activation / My Account

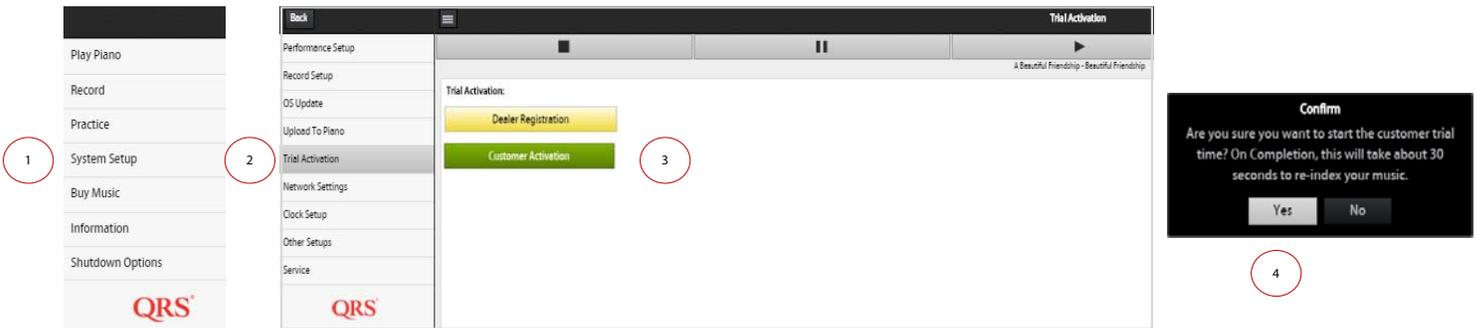
With the purchase of a QRS PNO³ system, or one of the QRS PNO³ Upgrade Kits, you will receive trial access to the QRS Music Library for a predetermined length of time. The trial period begins after you complete the Trial Activation Form.

When the trial period expires you will have access to over 318 complimentary songs, chosen by QRS. See the Complimentary Song list in the back of this manual.

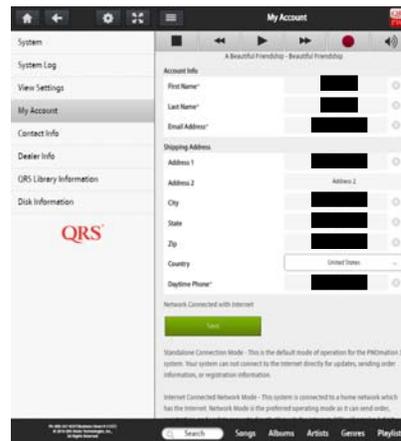
To purchase additional music after the trial period, see the Purchasing Music section of this manual.

To activate the trial;

- 1) Select "System Setup"
- 2) Then "Trial Activation"
- 3) Select the "Customer Activation" button.
- 4) Press "Yes" to confirm that you want to start your trial.
- 5) Enter your account information - (*This is the information that will be used for warranty and ordering*)
- 6) Select "Register and Activate"



You can go to [Information / My Account](#) to update this information.



Verify Trial, Access Plan and Purchased Music Status

To view the status of the music on the system, go to; System Setup / Service / View Settings.

Permanent Unlock represents Complimentary and Purchased Music.
Temporary represents a Dealer or Customer trial or a purchased QRS Access Plan

Complimentary Music

Purchased music: Playlist and Orders.
QRS catalog number 620538 has been purchased

Dealer Trial

Customer Trial

Special Trial

Expired Trial or QRS Access Plans.
Available QRS Access Plans are for Two, Four or Ten year periods

The screenshot displays a web-based interface with a dark header bar containing a menu icon. Below the header, there are three buttons: 'Copy', 'Email', and 'Sync to Server'. The main content area is divided into sections:

- Network Settings:**
 - IP Address: 192.168.1.104
 - Gateway: 192.168.1.1
 - Subnet: 255.255.255.0
 - DNS: 75.75.76.76 75.75.75.75
- DRM Information:**
 - Permanent Unlock : 318
 - Temporary Unlock : 6000
 - Active DRM:
 - DRM ID: 0
 - Description: Complimentary Music Release
 - Expires : Never
 - DRM ID: 620538
 - Description: Playlist or Order Unlocked
 - Expires : Never
 - DRM ID: 771008
 - Description: 90 Day Dealer Trial Time
 - Expires : Thu Dec 08 2016 13:23:41 GMT-0500 (Eastern Standard Time)
 - DRM ID: 771007
 - Description: 90 Day Customer Trial
 - Expires : Fri Sep 09 2016 14:23:41 GMT-0400 (Eastern Daylight Time)
 - DRM ID: 773005
 - Description: Release songs for 1 year
 - Expires : Sat Jun 11 2016 14:23:41 GMT-0400 (Eastern Daylight Time)
 - Expired DRM:
 - No Expired DRM
- View Settings**
- Min PNOScan Note

QRS PNO³ USER GUIDE

1. The name that appears in the finder App, default is the system serial #

2. The number of notes your system plays. Default is 80 notes

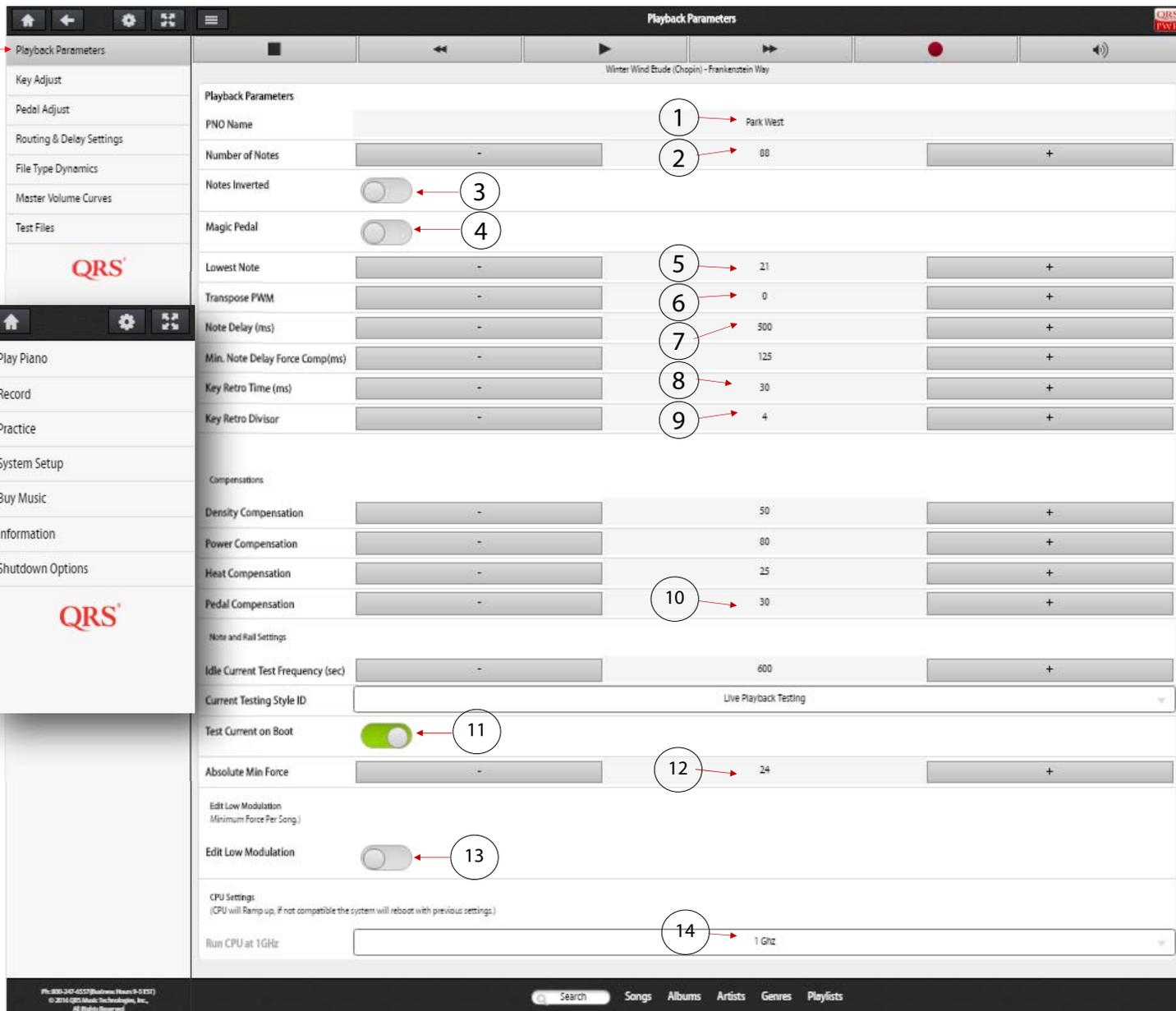
3. Notes should start playing from bass end to treble if not flip this switch.

4. Magic Pedal is used when you have no sustain pedal actuator or temporarily unplugged it. Holds notes for sustain event.

5. On an 88 note piano lowest MIDI note number is 21, on an 80 note playback system lowest note will be 25 (default)

6. If you want your piano to play in a different key, this is where you can transpose. Default is zero (0)

7. Time the note plays from the time it is told to play from the controller. This Syncs with background music



8. Retro Key Timing adjusts the amount of time taken for your key to be juiced prior to drop for a soft landing and help in repeats

9. Retro Divisor adjusts the performance algorithm. Default is 4. values 1- 5, 1 being most force not recommended

10. Misc. Compensation We recommend this not be touched. Defaults are 50, 80, 25, 30, 600

11. The system will take a bit longer to boot up while it does a safety check.

12. Absolute Min Force raises the min amount of force to all keys from where it was set under key setup. Default is 20

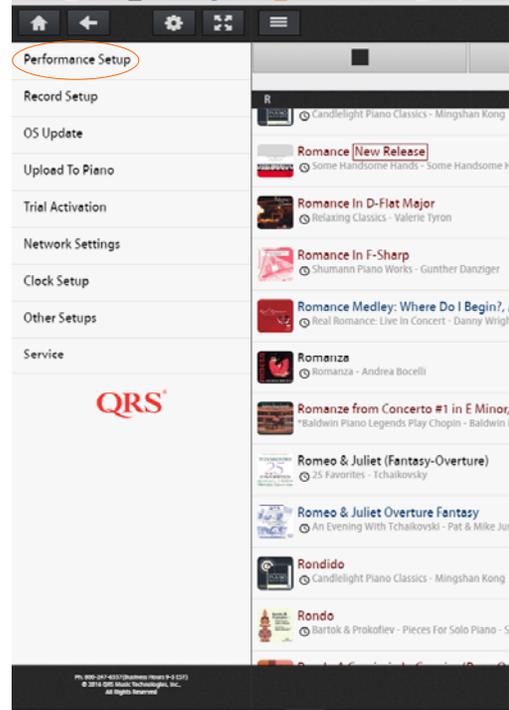
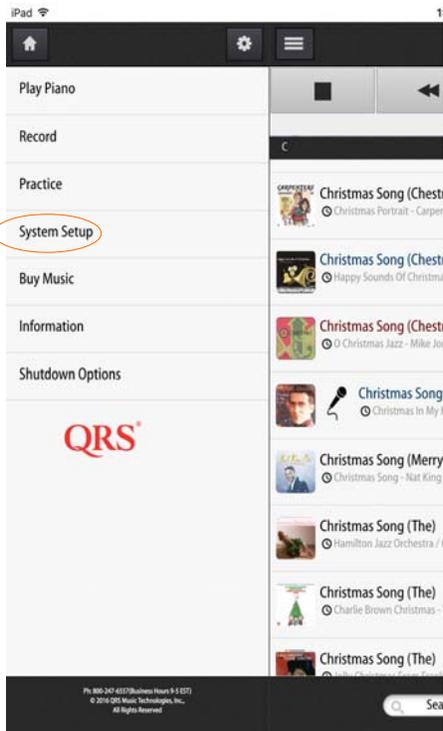
13. If there is a particular song not performing as well as you think it should, this adjust may help. Stored for each song you adjust it for.

14. The speed of the processor. Default is 1Ghz. Earlier system (serial # <330) only support lower)

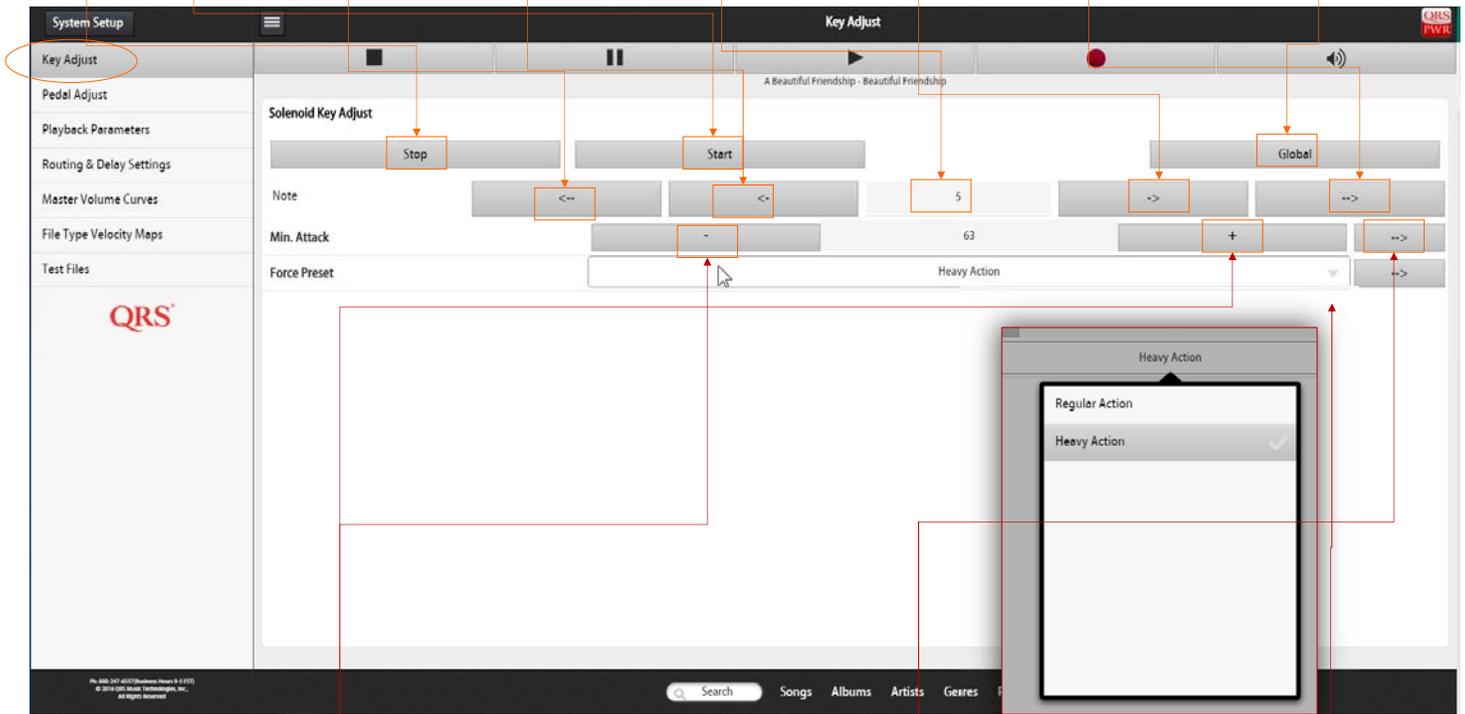
QRS PNO³ USER GUIDE

Performance Setup

Set How Quiet Each Note Can Play



- Stop Test
- Start Test
- Play Each Note right to left
- Go Back One Note
- Enter A Specific Note # to change
- Go Forward One Note
- Play Each note left to right
- Change All Notes Min Attack increment



Increment Min Attack Force to how quiet you want that note to play a when Master volume = 1

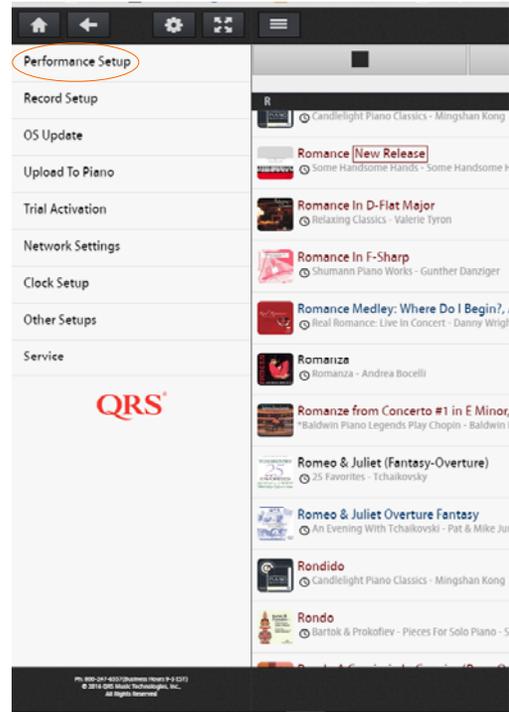
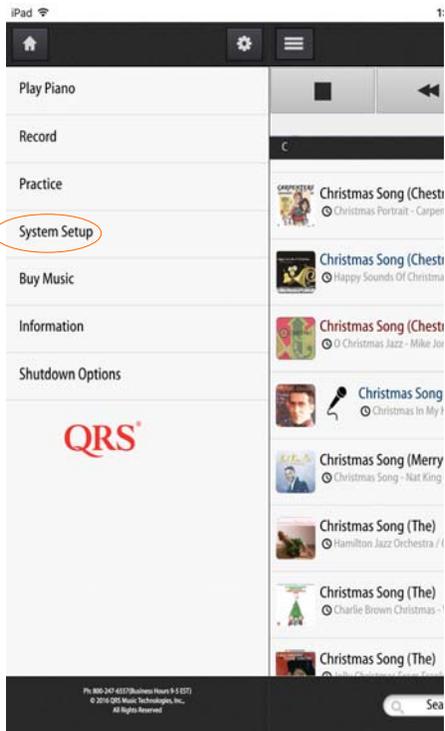
Sets all notes to the right of the note you are adjusting to the value you are adjusting

If the action or key on the action feels heavy

QRS PNO³ USER GUIDE

Performance Setup

Set Your Pedals Dynamics



- Start Test
- Stop Test
- Preplay Time Default 0
- Pedal Attack What it takes to move the pedal
- Pedal Hold - What it takes to hold the pedal down
- Pedal Retro - controlled release

This screenshot shows the 'Pedal Adjust' settings screen. The screen is divided into a left sidebar with menu items (Key Adjust, Pedal Adjust, Playback Parameters, etc.) and a main content area. The main area contains a 'Pedal Adjust' section with a play button and a 'Start' button. Below this are four rows of settings, each with a minus button, a value field, and a plus button:

Setting	Value
Pedal Pre-Play Time (ms)	0
Pedal Attack Percent (hundreths percent)	3100
Pedal Hold Percent (hundreths percent)	1800
Pedal Retro Percent (hundreths percent)	800

Red callout lines connect the labels from the list above to the corresponding controls on the screen: 'Start Test' to the Start button, 'Stop Test' to the Stop button, 'Preplay Time Default 0' to the Pre-Play Time field, 'Pedal Attack...' to the Attack Percent field, 'Pedal Hold...' to the Hold Percent field, and 'Pedal Retro...' to the Retro Percent field.

Increment Attack so the dampers raise above the strings without noise.

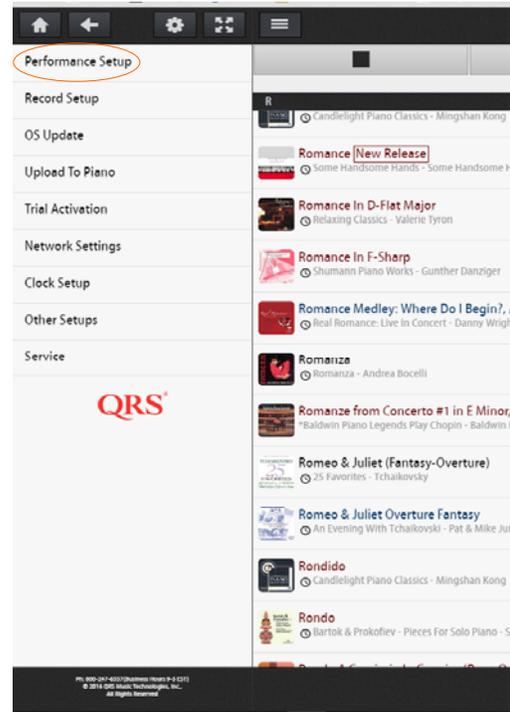
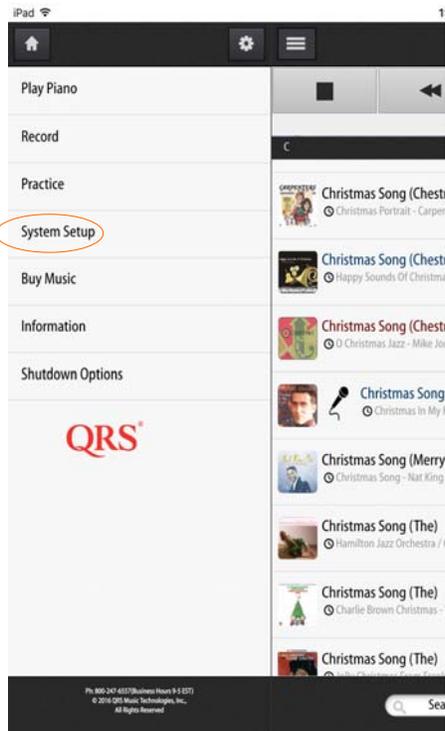
Adjust Hold only enough so dampers stay raised - it should be close to default

Retro can be as high as the hold but should be used only to quiet the drop

QRS PNO³ USER GUIDE

Performance Setup

Set Pianos Dynamics



PNO3 can be installed on any type of piano with virtually any type of action, each with its own characteristics. PNO3 has the unique ability to give you control of the dynamics of playback to maximize how a performance is heard on your instrument. By playing the sample and adjusting the dropdowns you can fine tune the playback to your liking and your instrument.

.MID File represents a random music file type not edited by QRS

.QRS is a secured QRS edited piano file

MP3/AMI represents a QRS edited piano file with background music, typical use is with Video

MP3/.QRS sets dynamic for SyncAlong & Concert Content

Grand Record: Allows you to assign a playback curve to what was recorded

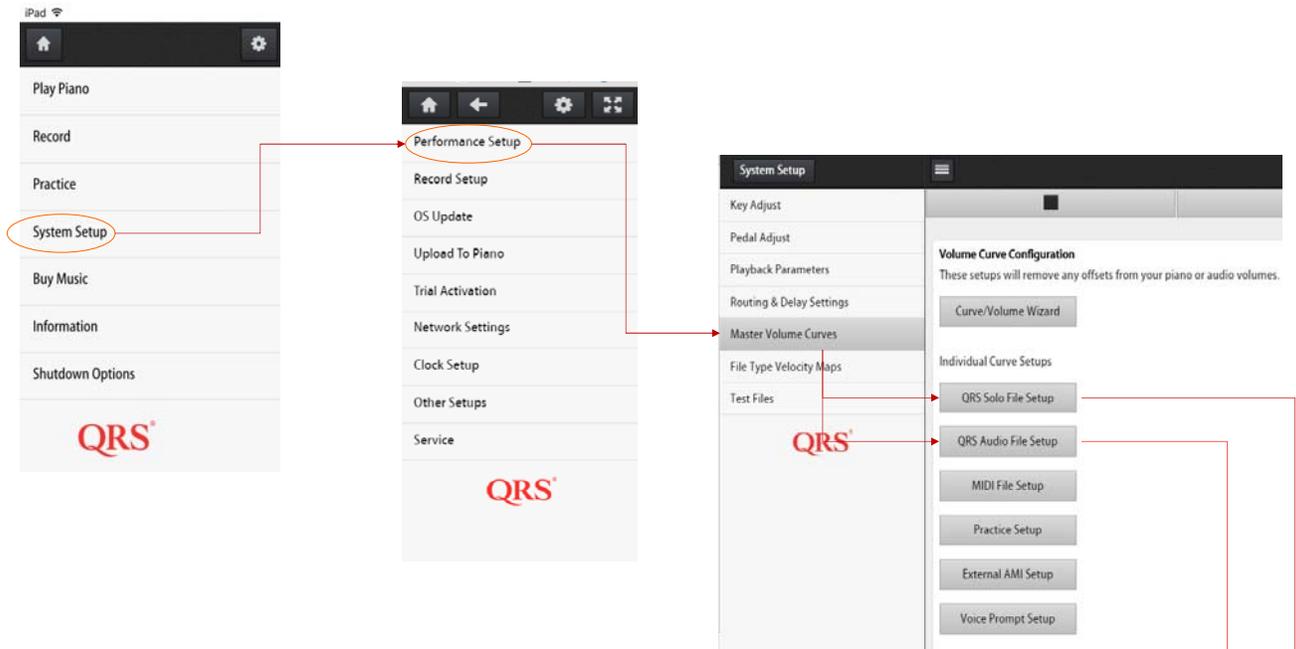
Grand Library: Allows you to assign a playback curve that sounds good to you on your piano

Linear-velocities in file (no mapping) go out, Flat is no dynamic

QRS PNO³ USER GUIDE

Performance Setup

Master Volume Curves: What your systems different outputs sound like as you move your master volume slider



There are primarily two main types of files. Solo Piano and Piano with accompaniment. How they sound when you go from one type in a playlist to the next relative to where the Master Volume is set is done here. First set the Solo Piano Volumes. Note when setting up piano solo Master Volume to 50% this relates to the quick button "Full Expression", you can leave it or bring it down. Also when setting what the piano sounds like at 100% you may opt to have that full dynamic as well. Or cap how loud the piano will ever play. When setting up Audio and Piano in the second stage you'll more than likely want the Audio to dominate and the piano to compliment hence the piano will more than likely have a lower dynamic range. When adjusting the audio with piano curves, unmute the piano prior to moving your sliders.

1

2

3



1. What the piano and/or Piano with background sounds like when Master Volume is set to its lowest volume. Push play sample and move the slider(s), Select "Next" 2. Represents what the piano will sound like when master volume is set to 50% (full dynamic button) adjust sliders. Select "Next" for 3. setting piano sound at full volume.

1

2

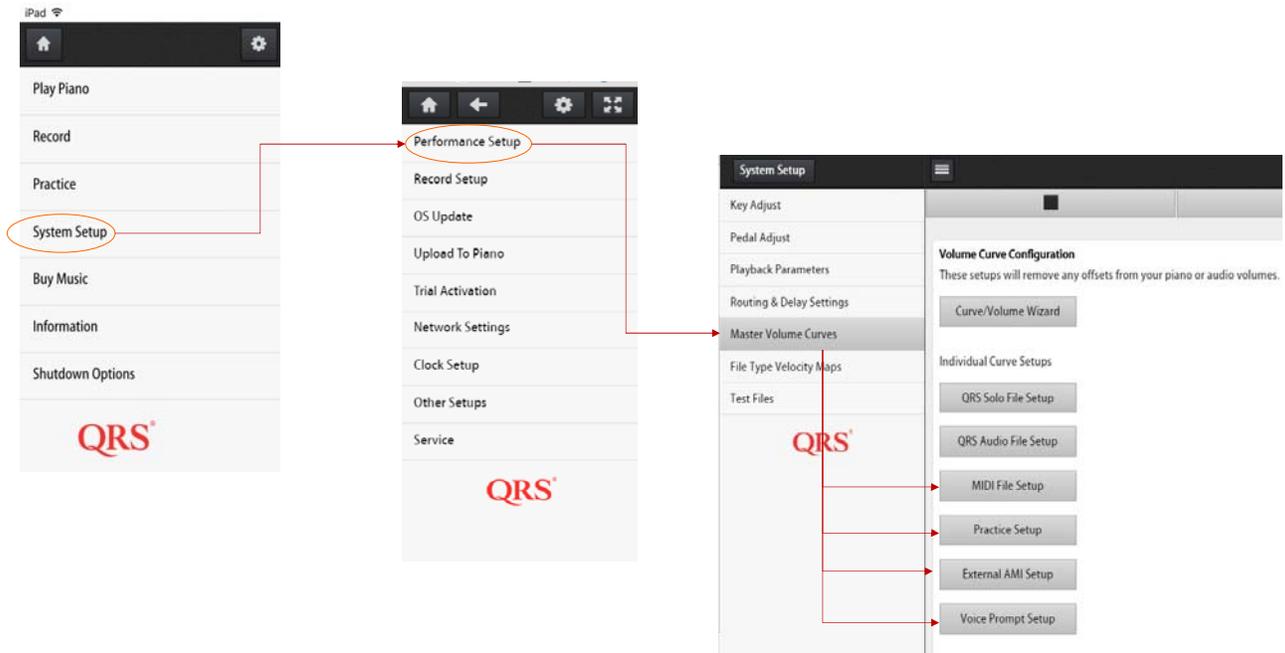
3



QRS PNO³ USER GUIDE

Performance Setup

Master Volume Curves: What your systems different outputs sound like as you move your master volume slider



MIDI File Setup—is done the same way as QRS Solo File Setup is done, but represents how an off the shelf MIDI file will be treated relative to Master Volume setting.

Practice Setup—is how the Synth Piano or other General MIDI sound will sound relative to the Master Volumes setting. Setup is done similar to the three step process.

External AMI—is how the Piano and background will sound from an external input similar to SyncAlong DVD and performance Videos.

Voice Prompts—This is where you can set the voice prompt volume you hear when updating the system, boot up or "Shift Info" on the remote

1



2



3



1



2



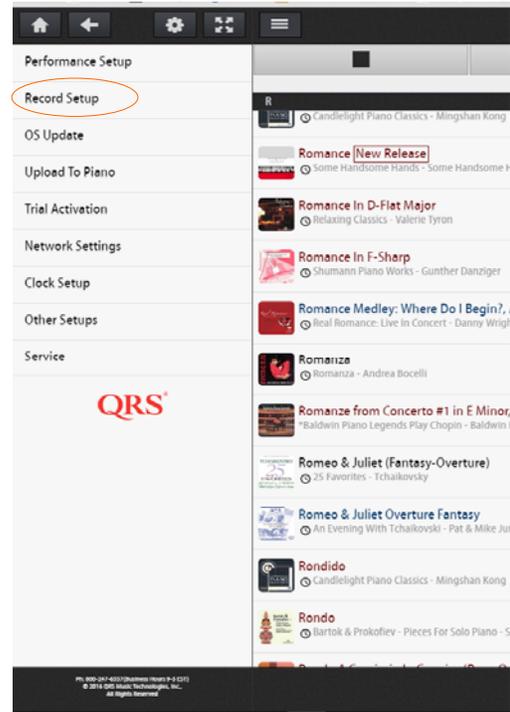
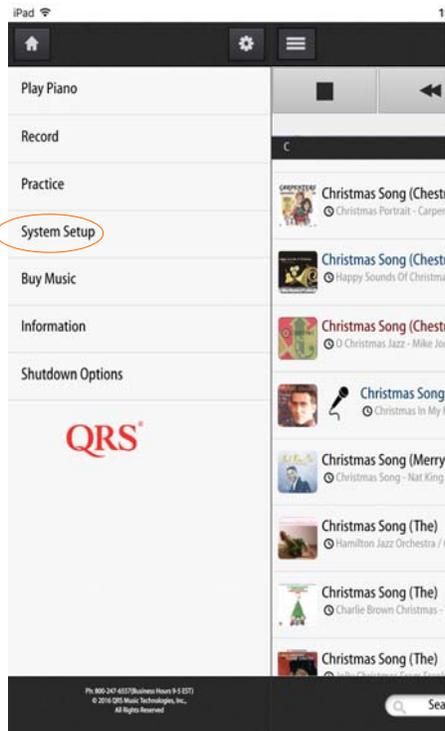
3



QRS PNO³ USER GUIDE

Record Setup

Set Record Parameters



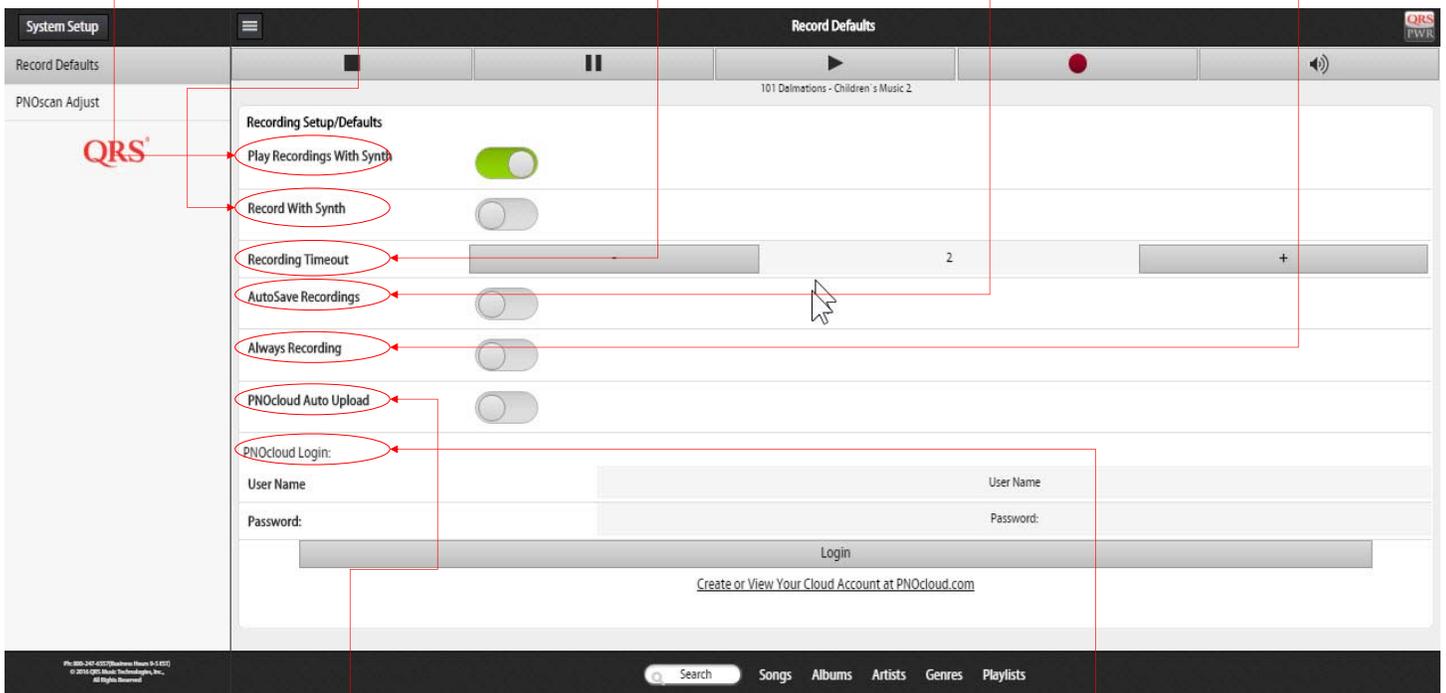
Plays back your recording with background synth sound out of the piano's speaker.

Listen to and record the synth instrument heard out of pianos speakers while recording.

When auto record and auto save is turned on there is no need to start record or stop, recording. Time out is how long the system waits before it saves your recording.

AutoSave Recordings will automatically save recordings without selecting save from dropdown menu after recording

Always Recording will automatically record your performance without having to start or stop record, log in...



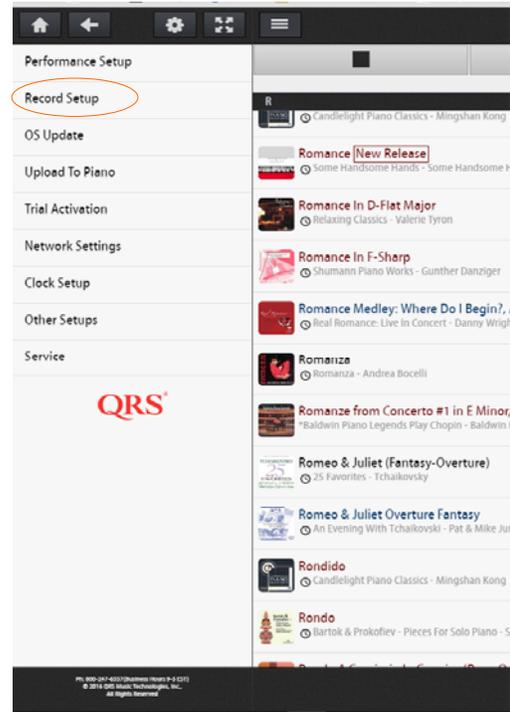
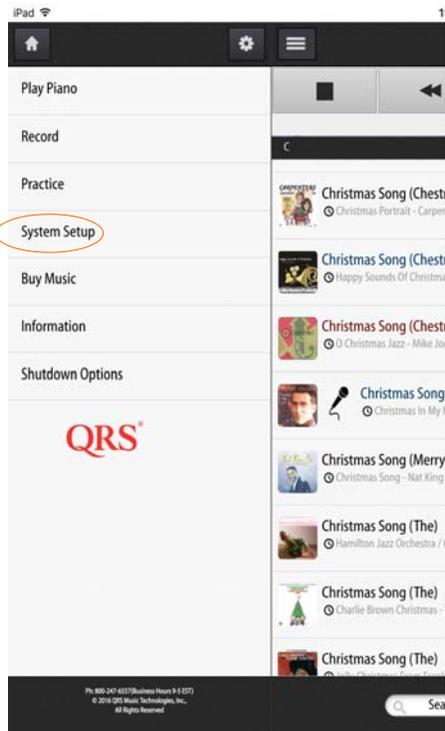
PNOcloud will save your performance to the cloud in your free PNOcloud account.

PNOcloud Login: This is where you set up your PNOcloud account, setting its username and password

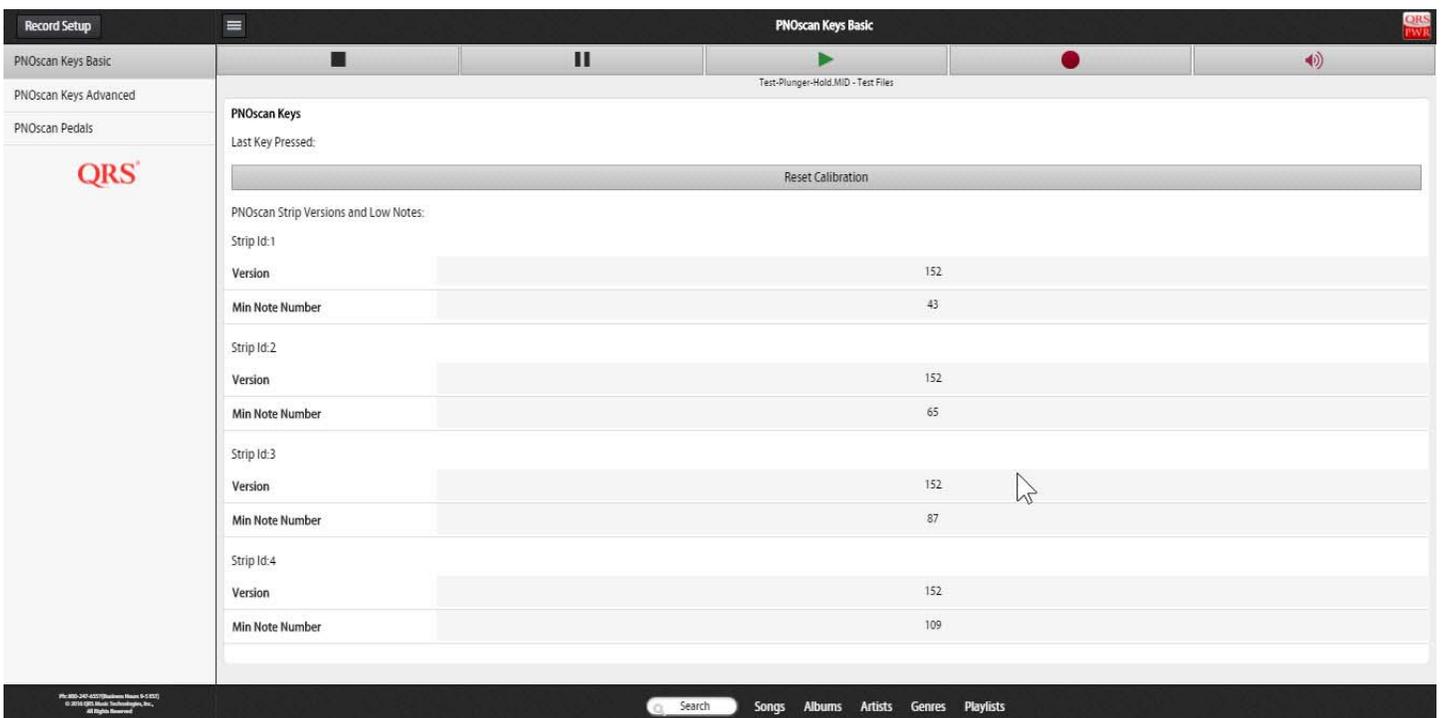
QRS PNO³ USER GUIDE

Record Setup/PNOscan Adjust

Set Record Parameters



The PNOscan Optical Recording Strip comes standard with four x 22 sensor strips. This gives you a total of 88 notes which fits the typical piano allowing for alignment adjustments. Each sensor has its own MIDI address and number. The MIDI number is associated with the General MIDI note assignment specification that ranges from 0-127. The optical sensor reads the movement of the key over 1000 times per second and creates a profile of its movement. It then creates an associated MIDI note on/off plus velocity over that profile. The measurement window is set here.



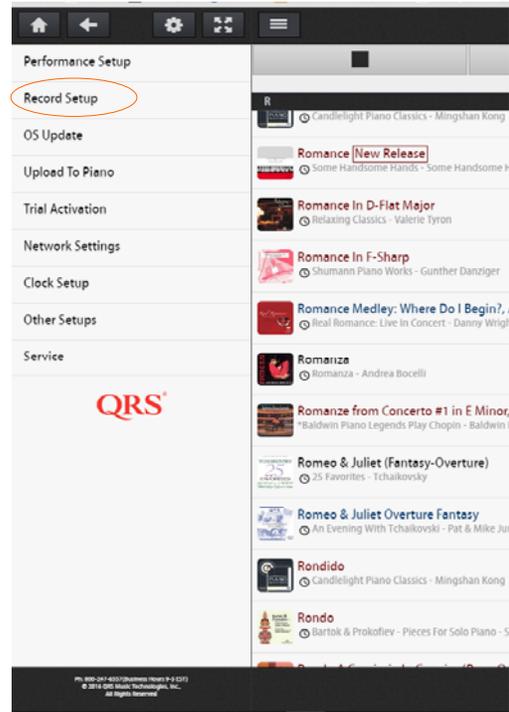
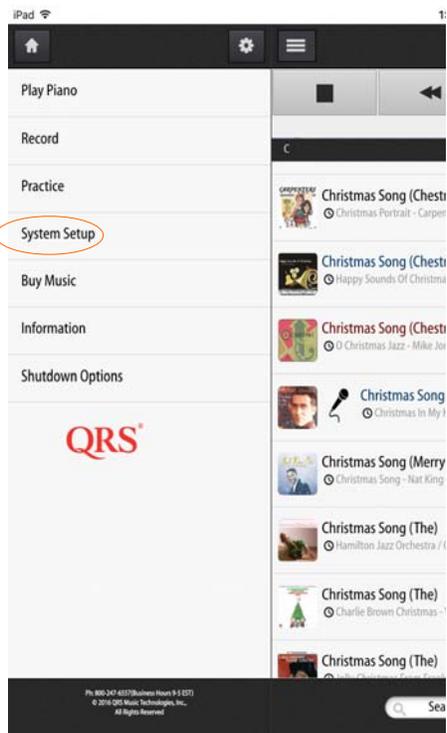
1. Select Reset Calibration

2. Play every note on your keyboard one at a time.
Then you are done

QRS PNO³ USER GUIDE

Record Setup/ PNOscan Adjust

Set Record Parameters



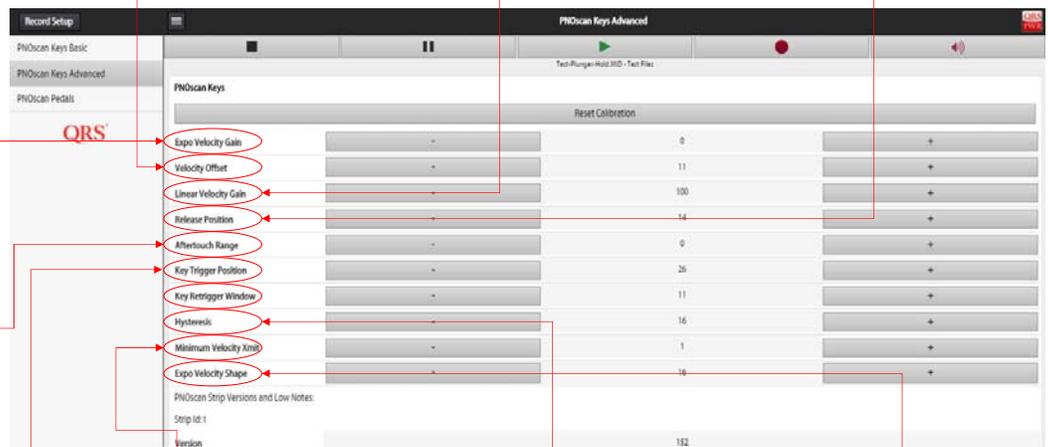
Velocity Offset:

Expo Velocity Gain:
Do not touch

Linear Velocity Gain:
Represents how the optical sensor profile is mapped to MIDI.

Release Position allows you to set the retrigger position, when the off/on occurs.

Aftertouch range talks to how far you can push the key down past the profile.



Key Retrigger Window represents the size of your profile sensing window, wider more accurate velocity, smaller more accurate trills.

Min Velocity Transmitted: will always send a note on and velocity of 1 regardless of how slow the key is depressed.

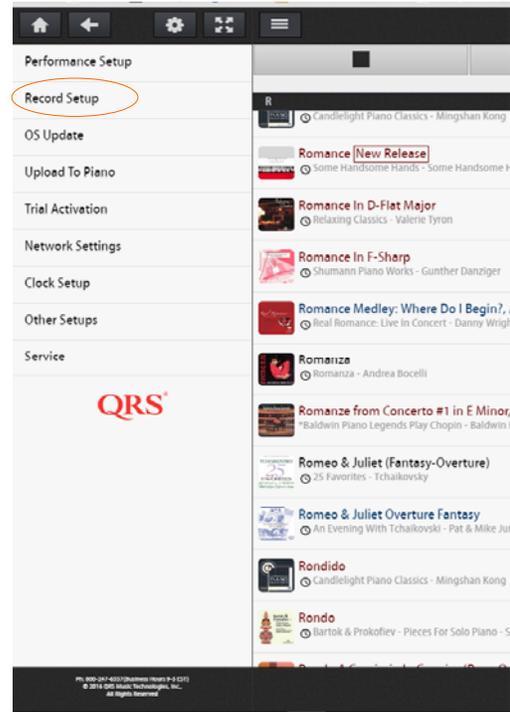
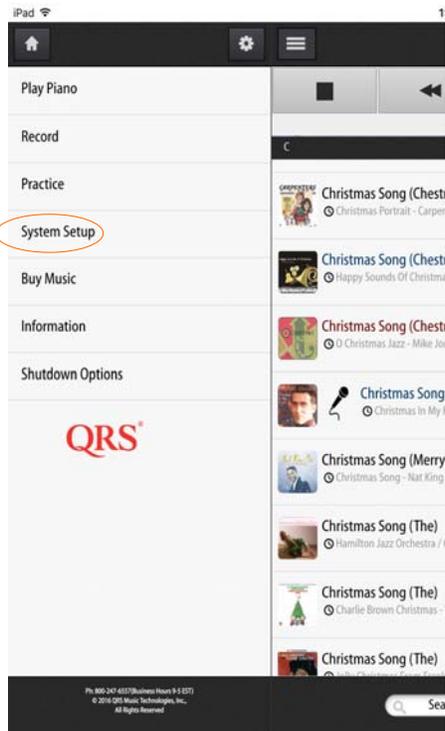
Hysteresis - filters out any anomalies in response time in the sensors: we recommend not to touch it.

Expo Velocity Shape works with Expo Velocity Gain—we recommend leaving it alone.

QRS PNO³ USER GUIDE

Record Setup

Set Record Parameters



Rest: When your foot is not on the pedal - Select Rest

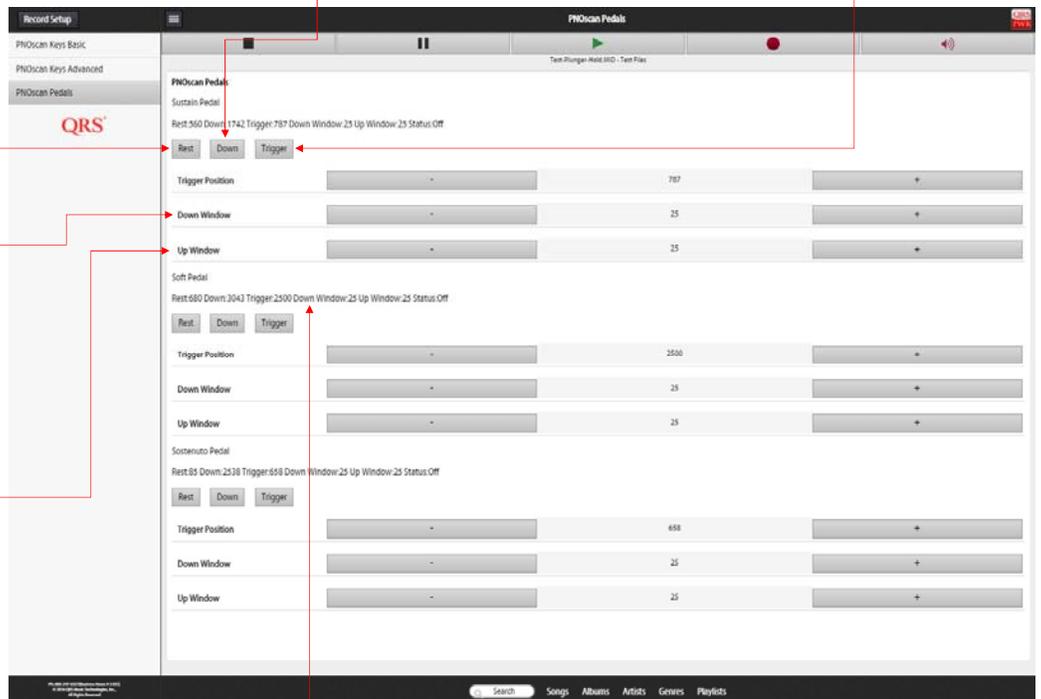
Down: Press the pedal down, then Select Down.

Trigger: Press the pedal down until the dampers, damper or soft shift begins to move.

Down Window: How wide the profile window is from the time the trigger is activated.

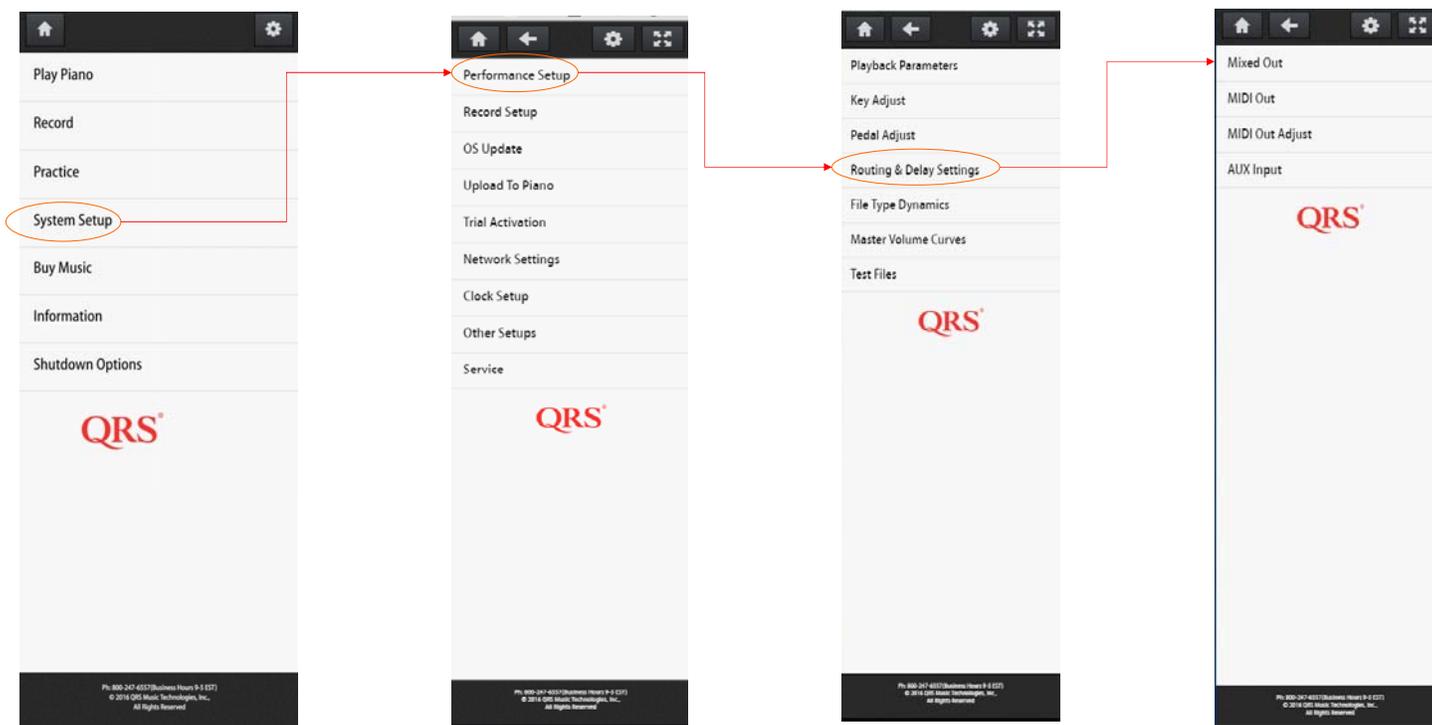
Up Window: How wide the profile window is from the time the pedal is released.

Summary of the parameters that are set.



Routing & Delay Settings

For setting up the Mixed Audio Out, MIDI Out Settings, MIDI Out Adjust, and Aux Input

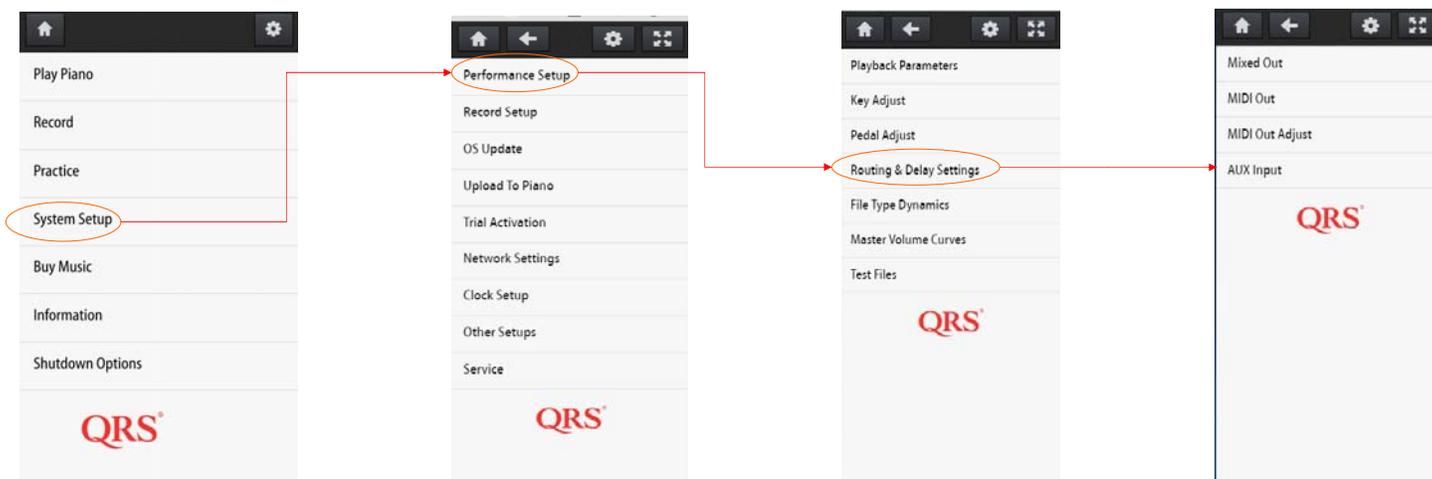


There are four analog ports—similar to the kind you see on your headphones. Port 1 and Port 4 are routed to the Pin Light Port Extender, Port 1 is for your Microphone Input, and Port 4 is for use with headphones. The setup page allows you to designate if you would like the audio output to include a Piano Sound created by a Sound Module to replicate what the piano is playing as a solo or mixed with background music.

- Piping the music through your home without a Mic and Mixer: **Set Upper Right to On** and send that output to your home speaker.
- The **lower left is off** by default, sending only background music to the speaker under the piano.
- If the piano is setup with PNOscan and has a Key Stop rail **Lower Right Port 4 output set to on** will allow you to practice in silence.
- Synth Delay is used when the system is set up as an upgrade to a third party player system or there are some delay issues when sending through another audio system.

Routing & Delay Settings

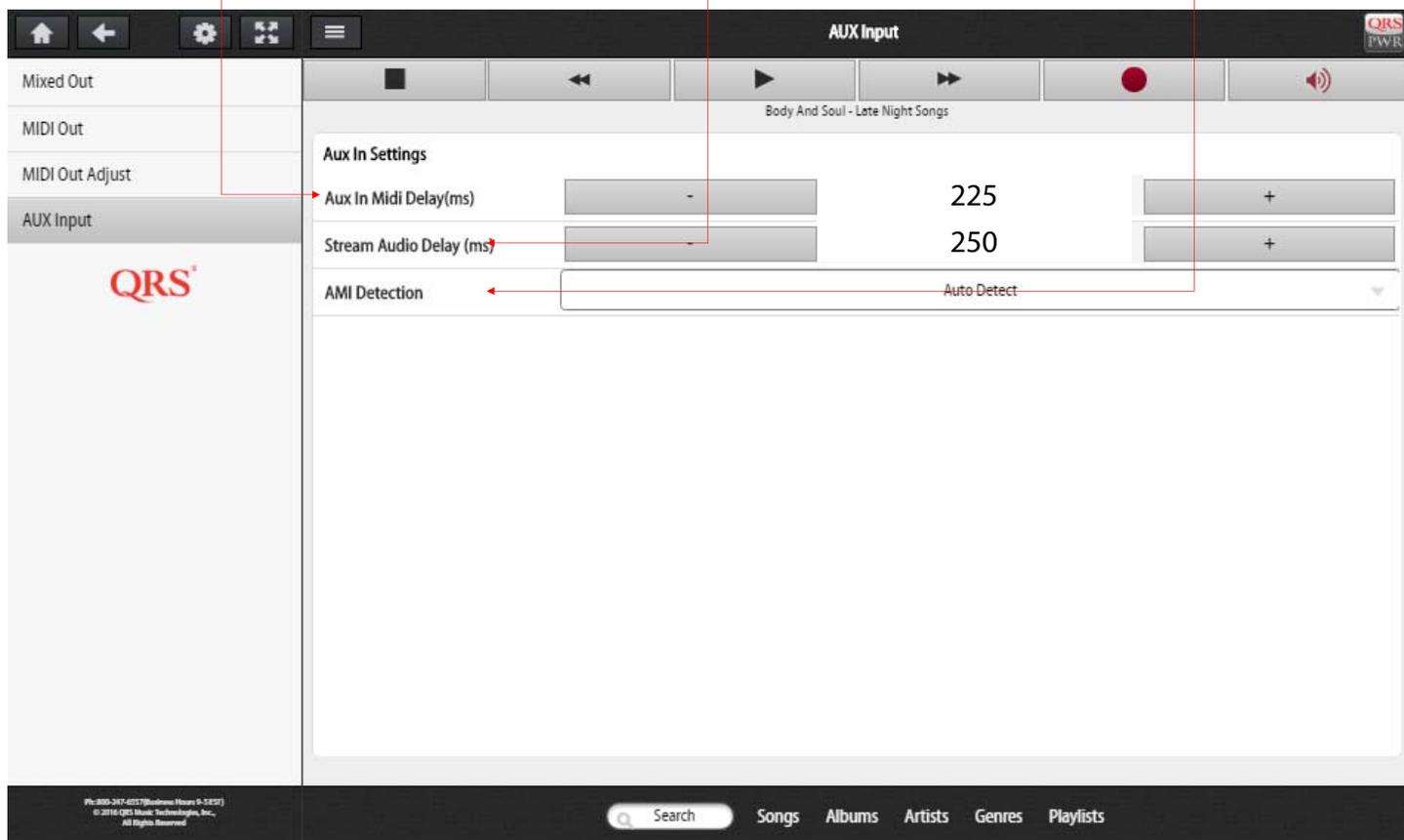
For setting up the Mixed Audio Out, MIDI Out Settings, MIDI Out Adjust, and Aux Input



Aux In MIDI Delay (ms)—Holds onto the MIDI Input from an Analog MIDI source before sending it to the piano to play the keys. Used primarily for Synchronizing Video Sources.

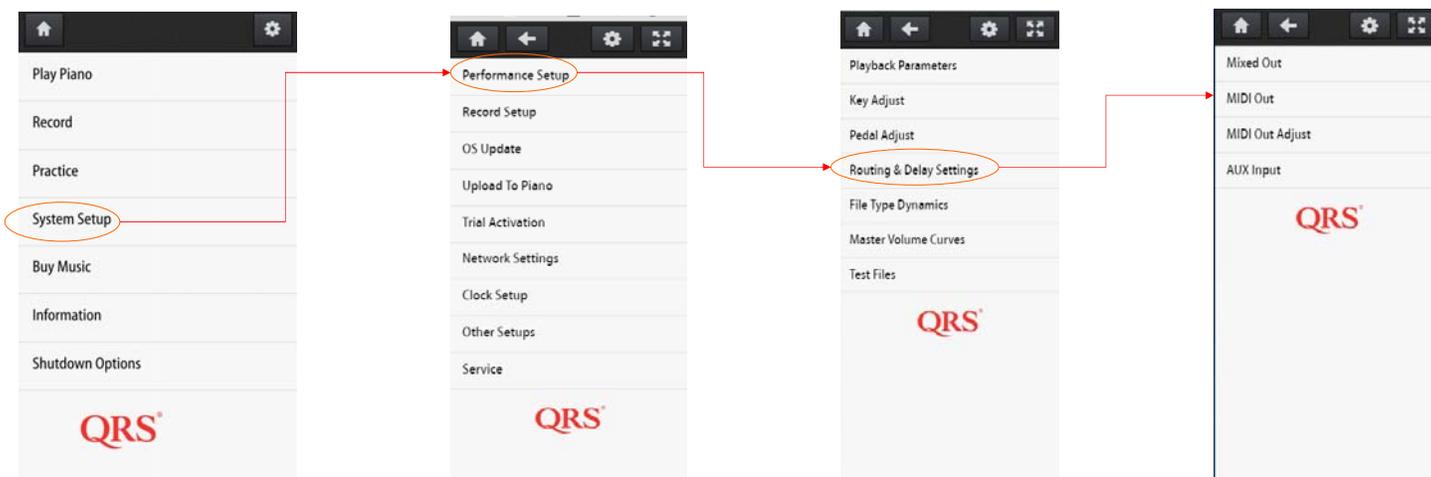
Stream Audio Delay (ms) - Holds onto the Audio signal from an Analog MIDI source before sending it to the piano to play the keys. Used primarily for Synchronizing Video Sources.

AMI Auto Detection - will poll the audio input for an Analog MIDI signal.



Routing & Delay Settings

For setting up the Mixed Audio Out, MIDI Out Settings, MIDI Out Adjust, and Aux Input



MIDI Out Volume Control—Allow MIDI Volume Curves to be done thru App

Per Channel Controller 7 Enabled—select channels that will be controlled by the Master Volume Setting

Apply Minimum Velocities—there will be a minimum out velocity for every note on event.

Number of MIDI Out Notes— How many notes are being controlled on your keyboard

Lowest MIDI Out Note— Where does the first MIDI note occur—listed as the standard MIDI note number

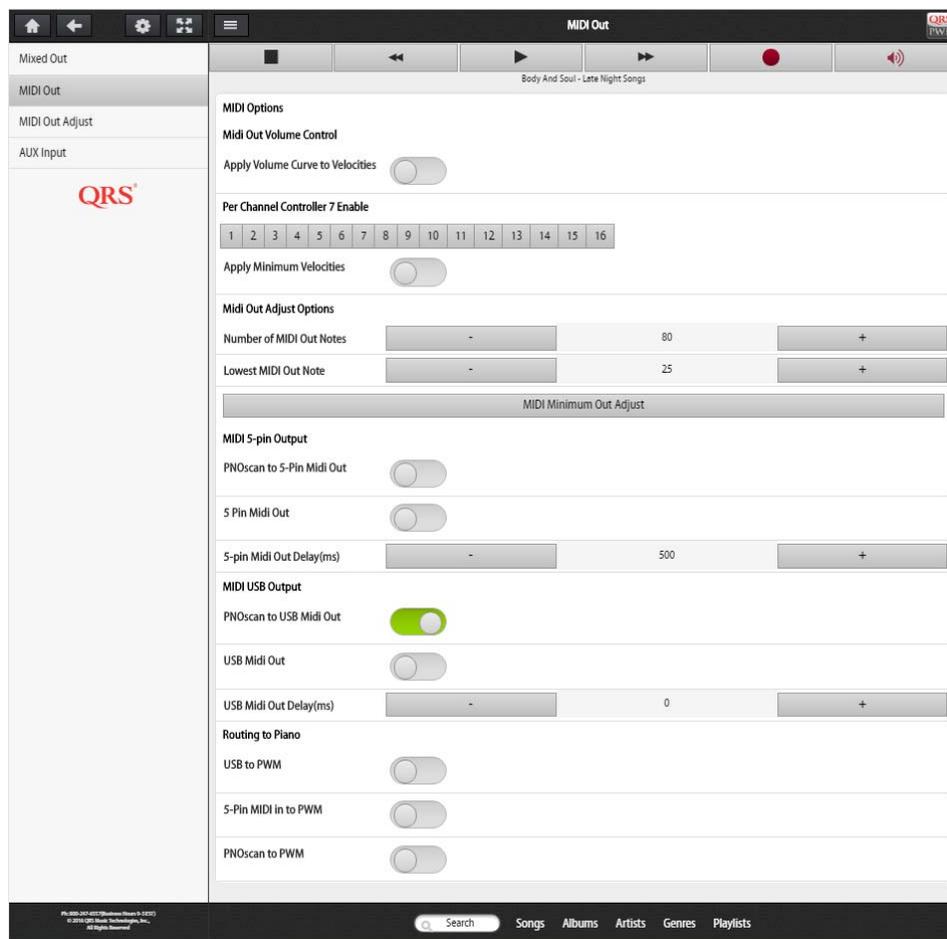
PNOscan to 5 Pin MIDI Out— Send your PNOscan's MIDI output to the 5 Pin MIDI Din

PNOscan to USB MIDI Out— Send your PNOscan's MIDI output to your USB MIDI Out

USB MIDI Out Delay (ms)— Allows for synchronization to external instruments and backgrounds

USB MIDI Out Delay (ms)— Allows for synchronization to external instruments and backgrounds

MIDI USB In to PWM (pulse width modulated signal)—Plays the Piano Keys

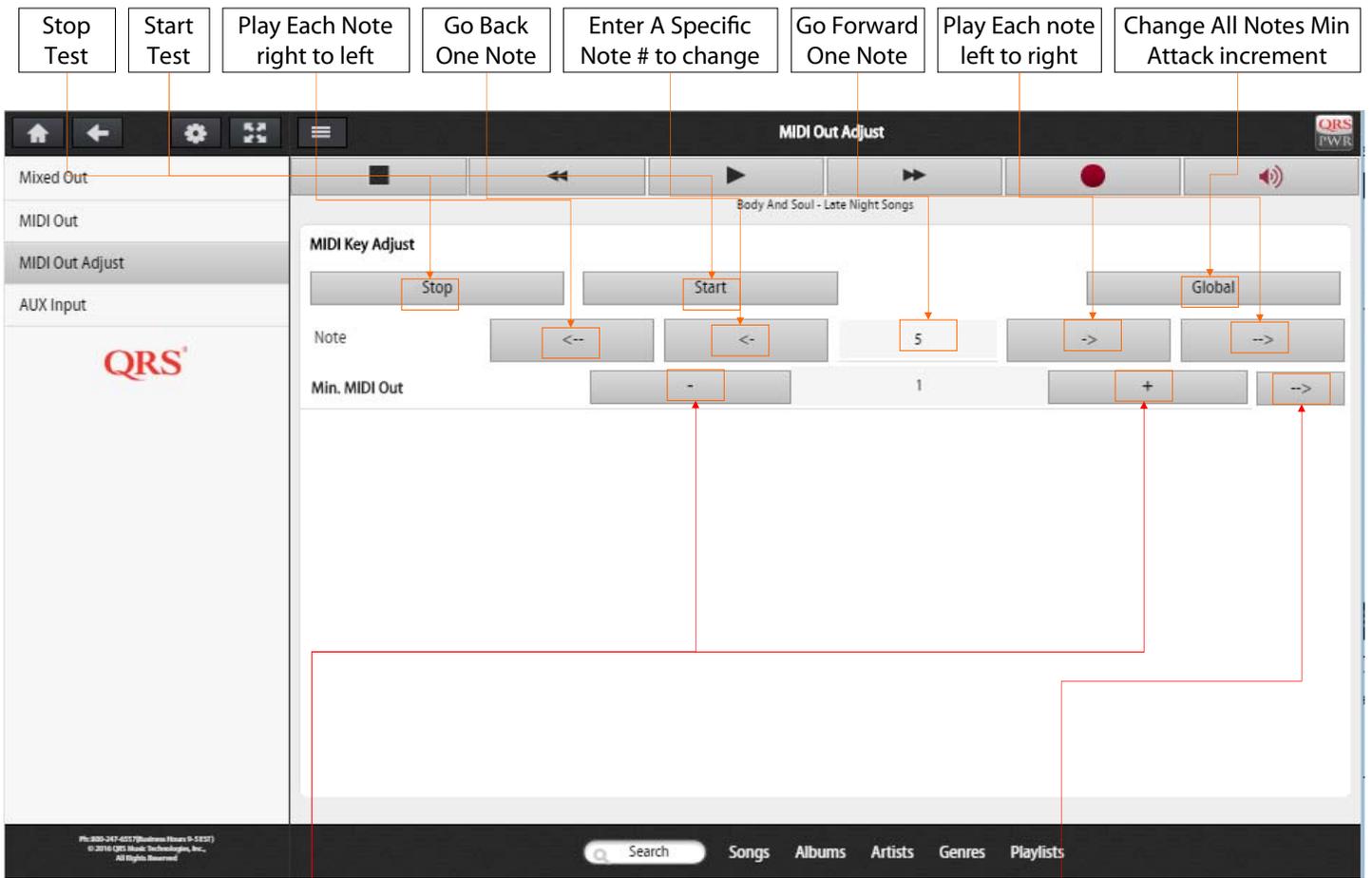
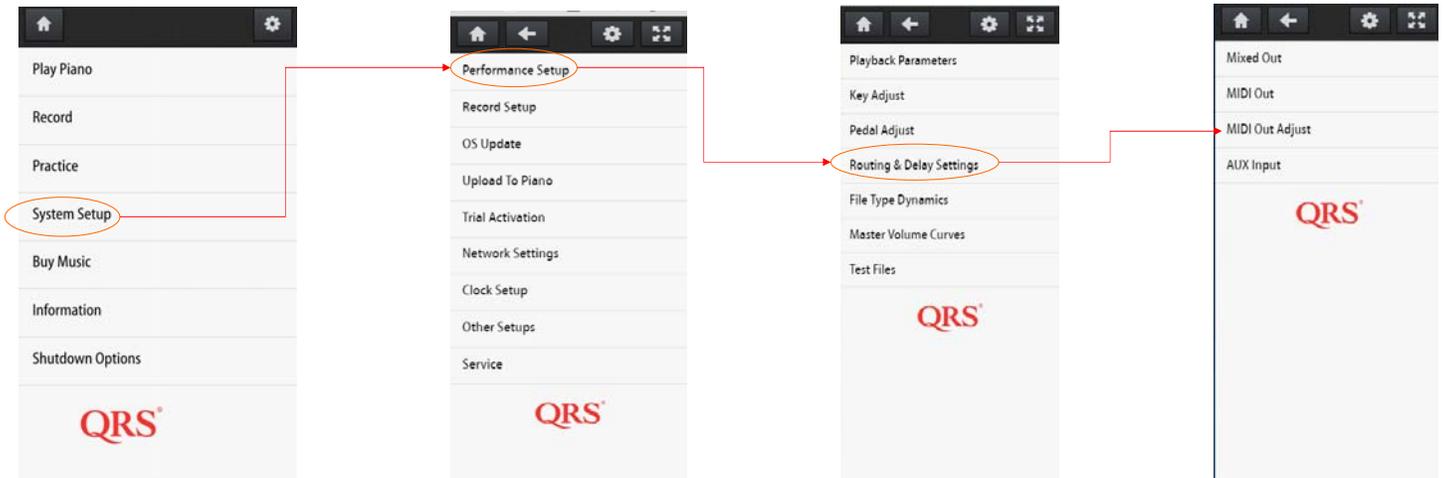


5 Pin MIDI to PWM - Plays the Piano Keys from a 5 Pin MIDI Cable Input

PNOscan to PWM— Plays the Piano Keys from a 5 Pin MIDI Cable Input

Routing & Delay Settings

For setting up the Mixed Audio Out, MIDI Out Settings, MIDI Out Adjust, and Aux Input

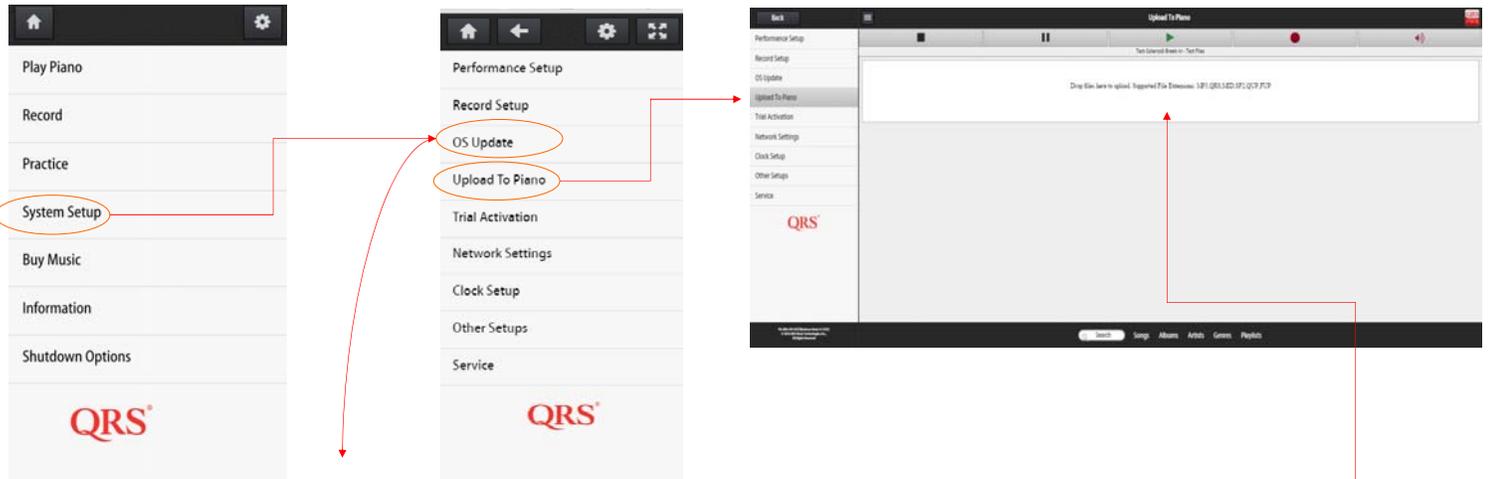


Increment Min Attack Force to how quiet you want that note to play when Master volume = 1

Sets all notes to the right of the note you are adjusting to the value you are adjusting

MIDI Out Adjust - allows you to set up PNO3 to serve as the main controller for a 3rd party player system. This sets each note to where the 3rd parties player system plays each note at its quietest level.

Operating System (OS) & Media Updates



Check For System Updates
Allows you to check for system updates manually.

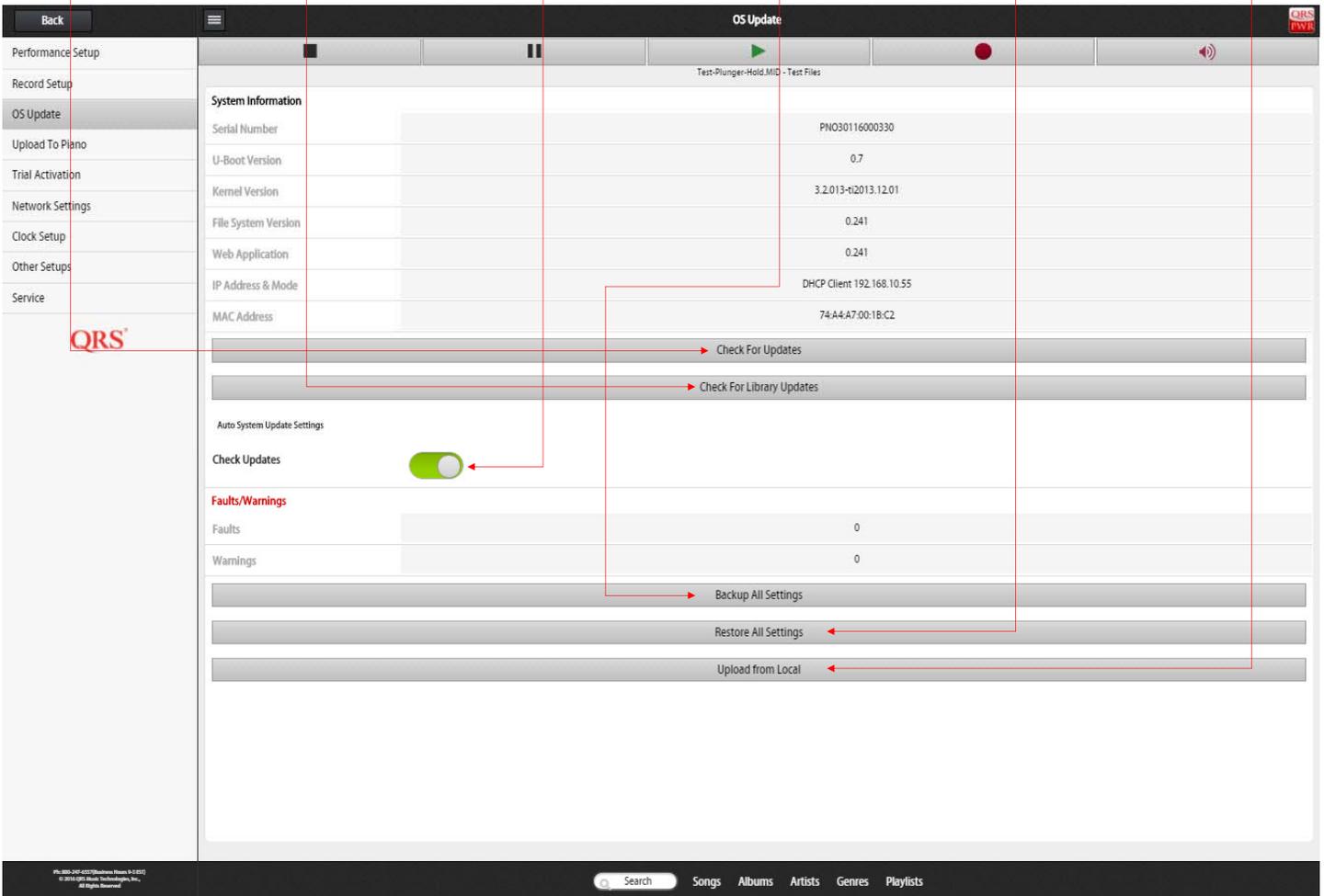
Check For Library Updates
Allows you to check for music content updates manually.

Check Updates
Allows for the system to update automatically. Requires an internet connection.

Backup All Settings
Sends your current settings to the PNO3s cloud as a backup for system restores.

Restore All Settings
Restores your settings to the previous days settings.

Upload From Local
Brings you to a manual upload page where you can upload an OS update or your own content..



Updating a PNO3 OS or music that is only in StandAlone.

There are several ways to transfer a file to the system when not on a network (BTW you really want to be on a network) Below I try to describe the process.

From A PC

1. Download the latest update from the QRSmusic.com website "Support" - "Software Updates" - "PNO3"
2. Transfer it to a USB stick
3. Insert the stick into the PLx's USB port.

Or

1. Download the latest update from the QRSmusic.com website "Support" - "Software Updates" - "PNO3"
2. Open your WiFi settings on your PC or laptop and select the QRSPNOxxxx network
3. Open the web browser and select either 192.168.1.1 (PNO3) or 10.3.2.1 (PNO3WB) in the address bar to open the PNOmation App
4. Goto "System, Setup" - "Upload to Piano" and drag and drop the update file or do a find after clicking on the white space.

From an Android Tablet or Phone

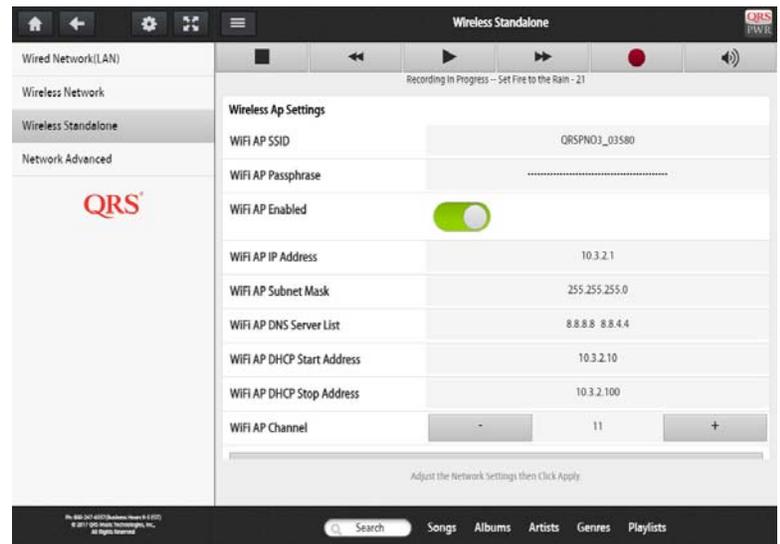
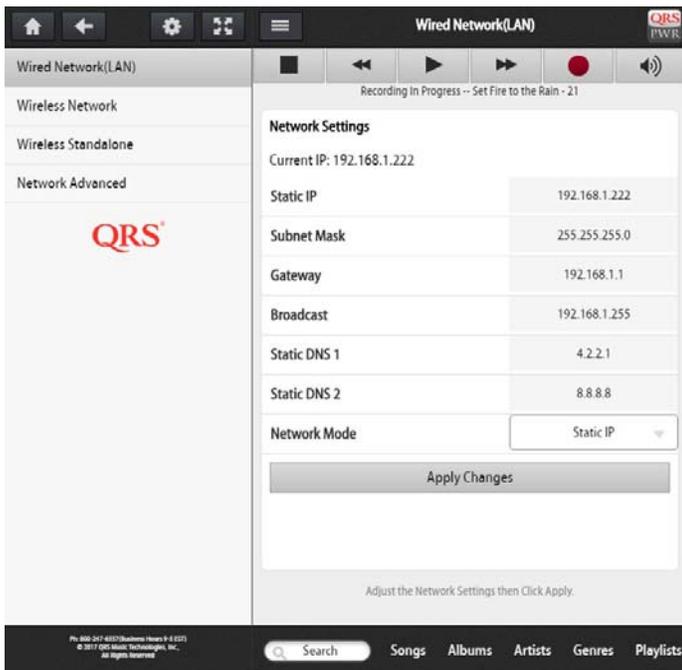
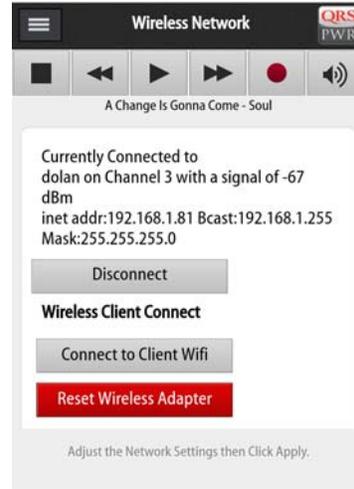
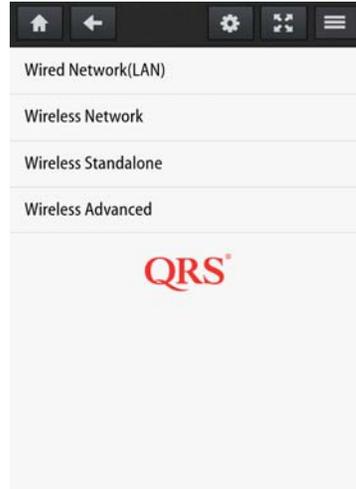
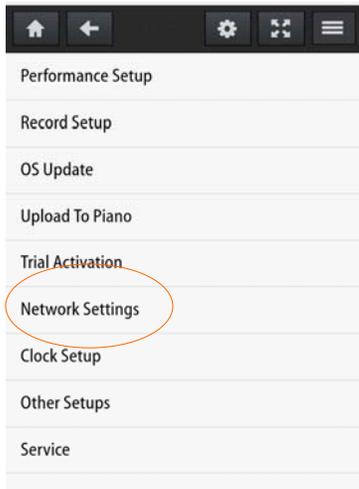
3. Using your devices browser download the latest update from the QRSmusic.com website. "Support" - "Software Updates" - "PNO3"
4. Log into the PNO3 system and touch "System Setup" - "Upload to Piano" page
5. Tap on the white landing page space
6. Find the file on your phone—it will have a suffix of .qup and it will transfer to the piano

From an Apple Product - Apple does not make it easy to move files around so be patient. (another reason to be in network mode)

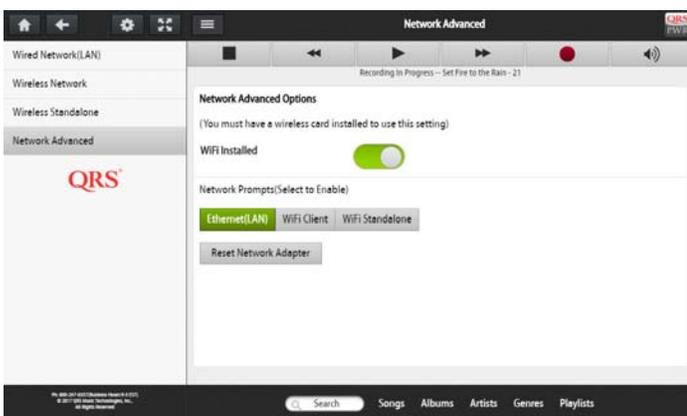
1. Go to the App Store (you'll need your password for the App Store)
2. Search for an App Called "Documents 5" and download it—its free
3. Open the App once downloaded
4. Open the Browser that is in the App
5. Go to the QRSmusic.com Website - "Support" - "Software Updates" - "PNO3"
6. Select the latest software update
7. Documents 5 will ask you where you want it and what to name it
8. Just select done and wait for it to download
9. Once downloaded select the edit button (top right of screen)
10. A circle signifying that you can select a file for editing appears next to each file—select the update file you just downloaded
11. Then Select "rename" (bottom of screen if you are using a phone—left panel on an iPad)
12. Change the .gz to a .qup
13. Select the home button on the device to go back to the home screen
14. Go To "Settings" - "Wi-Fi" and select QRSPNOxxxx
15. Open Safari and type in the address bar either 192.168.1.1 (PNO3) or 10.3.2.1 (PNO3WB) and the QRSPNO app will open
16. Go to "System Setup" - "Upload to Piano" and touch the white space
17. A pop up will appear asking where the file is—you will select "More" then turn on "Documents" as a source (that's because we just downloaded this as a source—you only have to do it once)
18. Then go back to the white space and do it again—now documents will show up as a source (no need to select "more")
19. Open Documents—find the file and select it—it will then transfer to the piano—once transferred the piano will update.

QRS PNO³ USER GUIDE

Network Settings Pages



There are 3 network modes that can work independently of each other or all together. If the PNO3 system has an integrated Wi-Fi Bluetooth board (PNO3WB) then it will need to be turned on in order for it to be seen (advanced screen). PNOmation is shipped with it on by default (PLx light 6 will be a steady amber). We recommend leaving it on. Wireless Standalone and Wireless Network work off of the Wi-Fi Bluetooth Board. The wired Network LAN is a hard wire from a network adaptor or straight from a router. Passwords, Static IPs and the such can be assigned for each mode. Defaults should work fine.



Network Settings

The screenshot shows the 'Network Settings' screen. On the left is a sidebar menu with 'System Setup' circled in red and 'Network Settings' highlighted. The main area displays network configuration: Current IP: 192.168.1.34, Static IP: 192.168.1.34, Subnet Mask: 255.255.255.0, Gateway: 192.168.1.1, Broadcast: 192.168.1.255, Static DNS 1: 192.168.1.1, Static DNS 2 (highlighted in red), and Network Mode: DHCP Client. A red arrow points from the 'Static IP' field to the 'IP Address' callout box. Another red arrow points from the 'DHCP Client' dropdown to the 'DHCP Client' callout box. The 'Apply Changes' button is at the bottom.

IP Address
The network address of your PNO³ system. Enter this number into your browser to call up your user interface.

DHCP Client
This drop down allows you to set the IP address to never change or change it to a address outside of your routers assignable addresses.

Clock Settings

The screenshot shows the 'Clock Settings' screen. The left sidebar has 'On/Off Scheduling' and 'Clock' (highlighted). The main area shows 'Clock Settings' with 'PM³ Current Time: America/New_York 07-20-2016 09:38:46 AM'. There are two buttons: 'Client Time' and 'Server Time'. Below them is a 'Select Timezone' dropdown menu showing '(GMT-05:00) Eastern Time (US & Canada)'. Red arrows point from the 'Client Time' and 'Server Time' buttons to their respective callout boxes. The bottom navigation bar includes a search bar and buttons for 'Songs', 'Albums', 'Artists', 'Genres', and 'Playlists'.

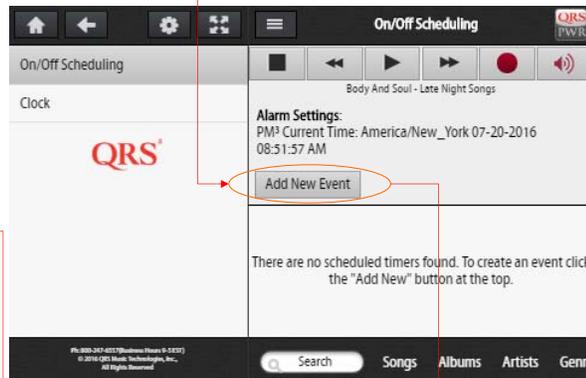
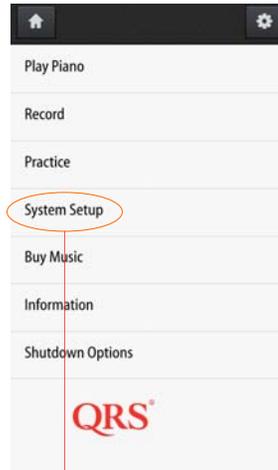
Set the time that is used as a reference for your schedules, logs, backups and auto updates.

Client Time
Pulls time from your device

Server Time
Pulls time from the internet if you are in network mode

Scheduling Events

- Scheduling Events enables the PNO³ player system to turn on and play a selected playlist on a schedule.
- An almost unlimited number of schedules and events can be programmed.
- The most recent event will prevail if there is a conflict.



Event Enabled
Turns on the event schedule

Event Name
Name your event schedule

Day Of Week
Select the day(s) you would like event to

Hour(24) of day
Hour of day to turn on

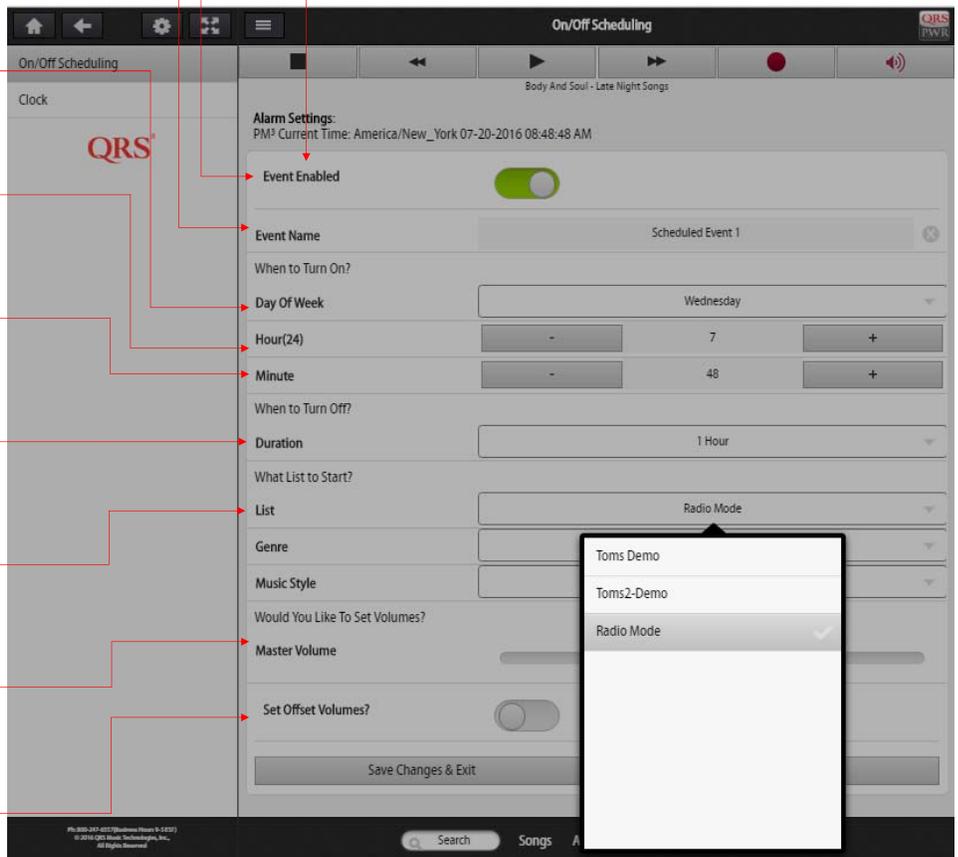
Minute
Part of hour of day to turn on

Duration
How long does event stay on

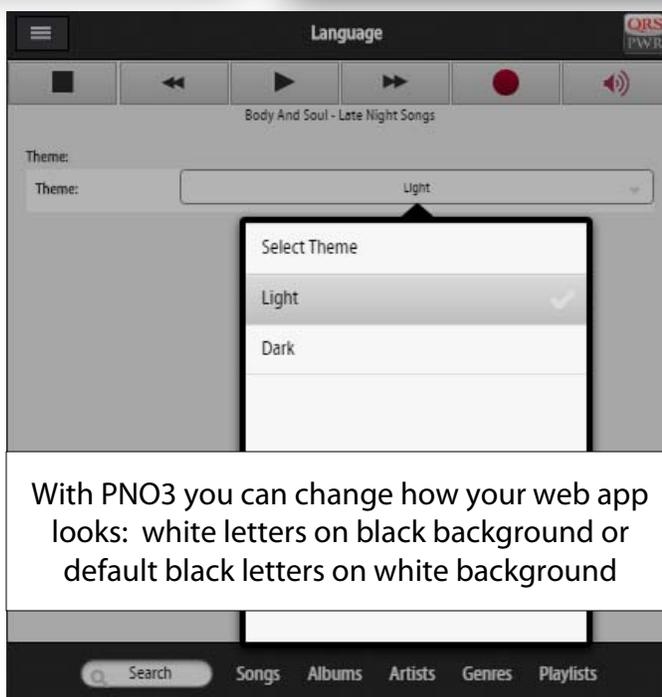
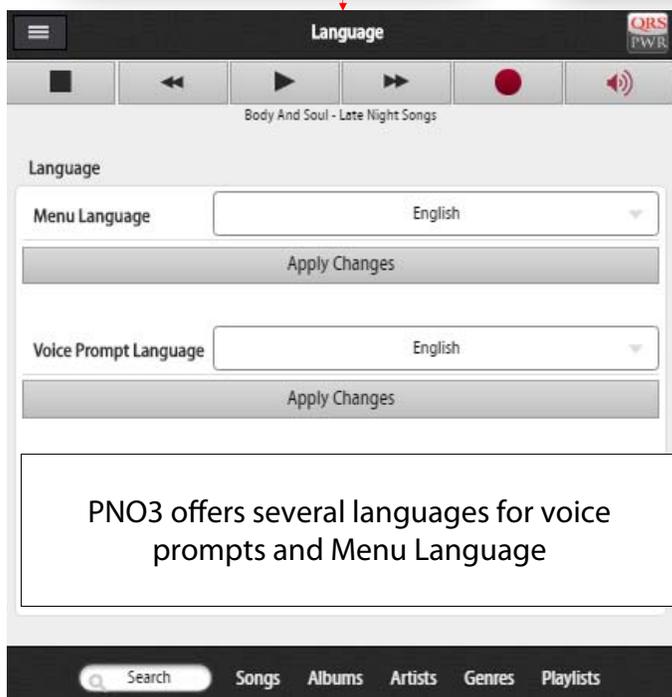
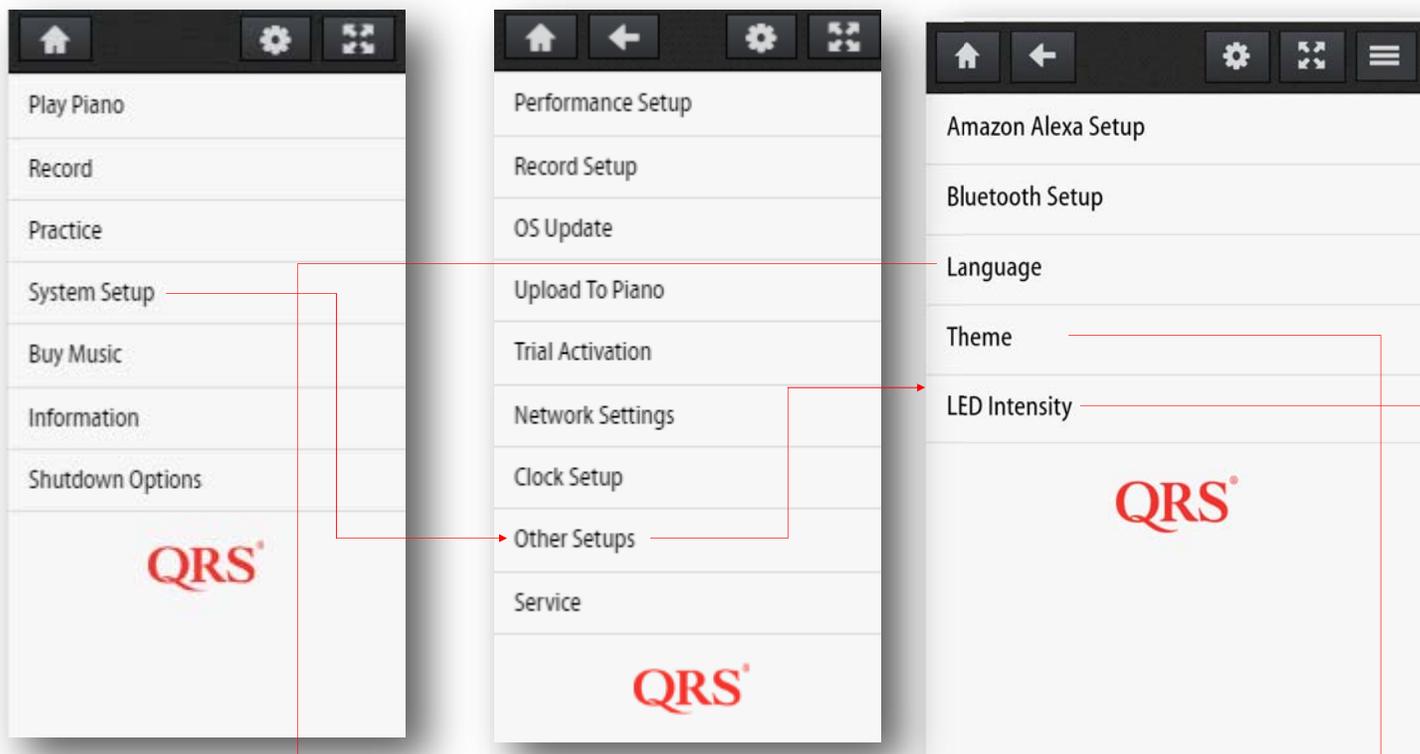
List/Genre/Music Style
Pick from a playlist or set the radio up

Master Volume
What volume will event playback at

Offset Volumes
Enables you to adjust audio vs piano for the event



Other Setups - Language - Theme - LED Intensity

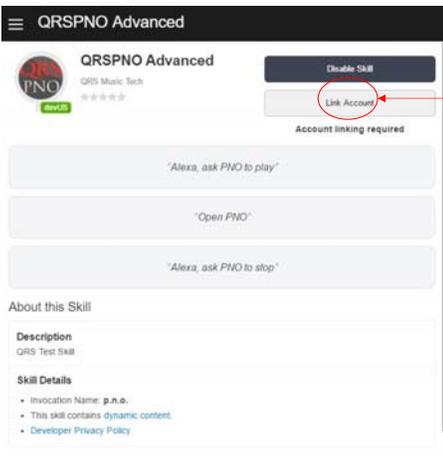
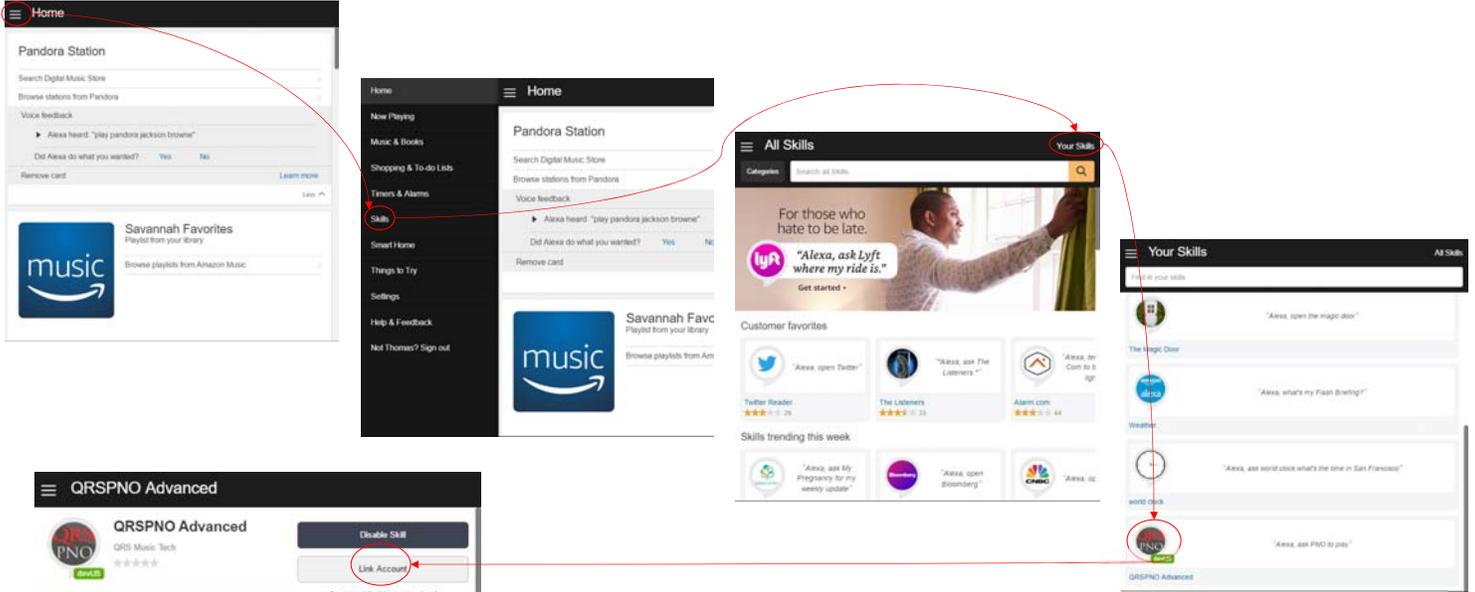


The LEDs on the Pin Light Port Extender can be turned off here.

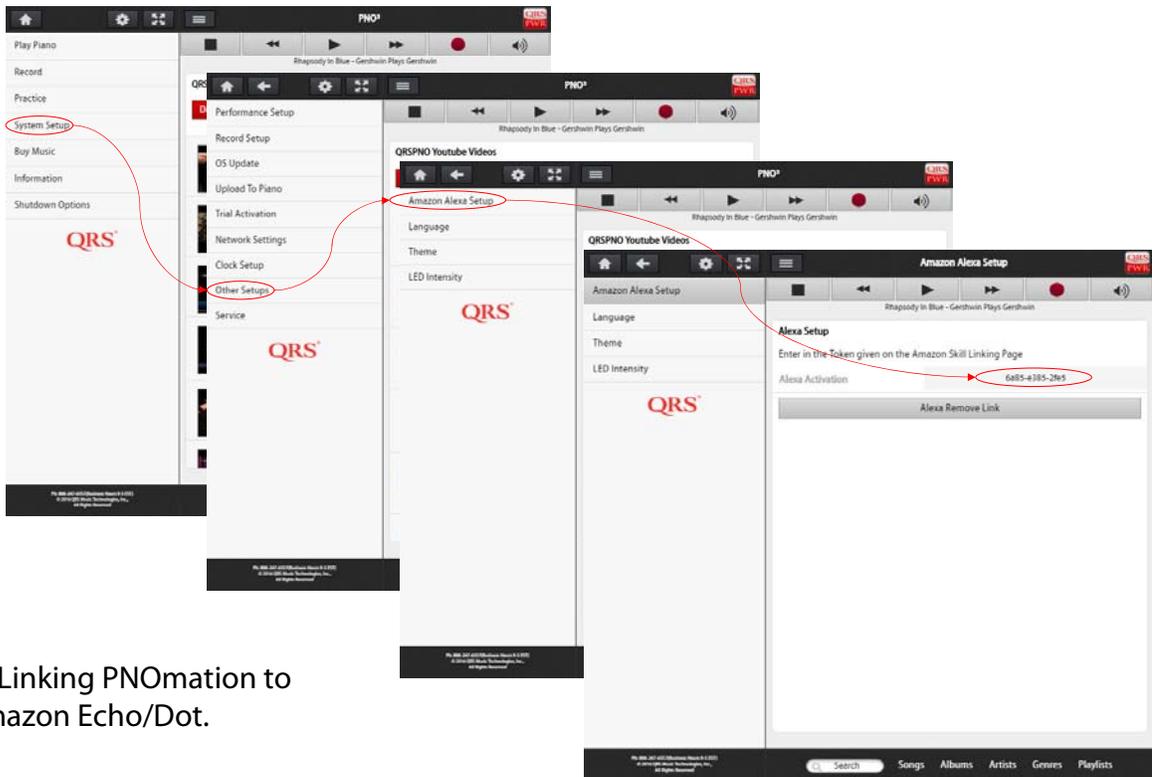


QRS PNO³ USER GUIDE

SETTING UP YOUR PNOMATION SYSTEM TO WORK WITH YOUR AMAZON ECHO/DOT

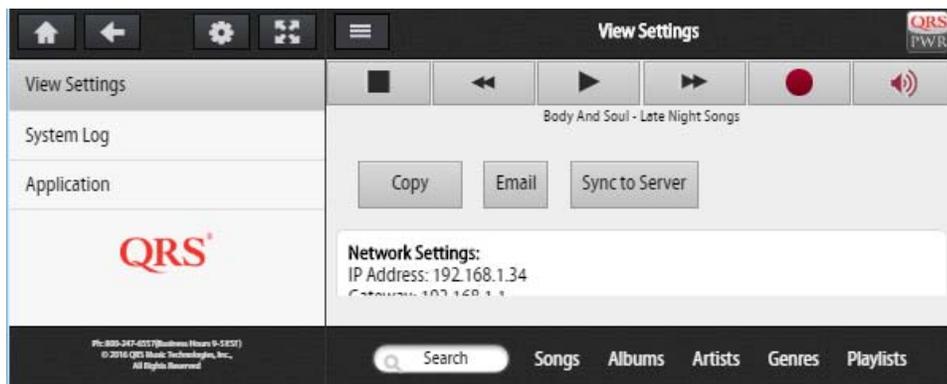
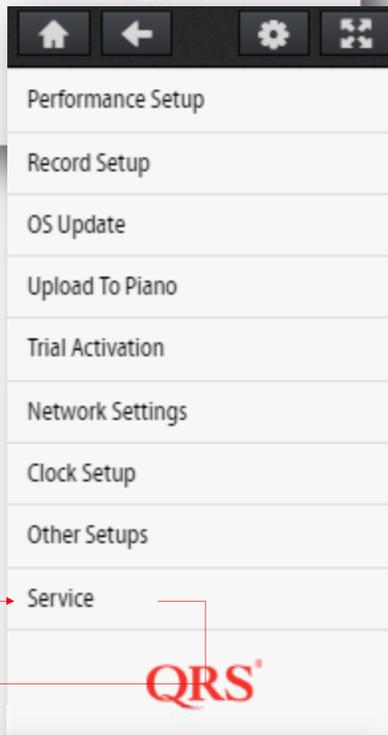
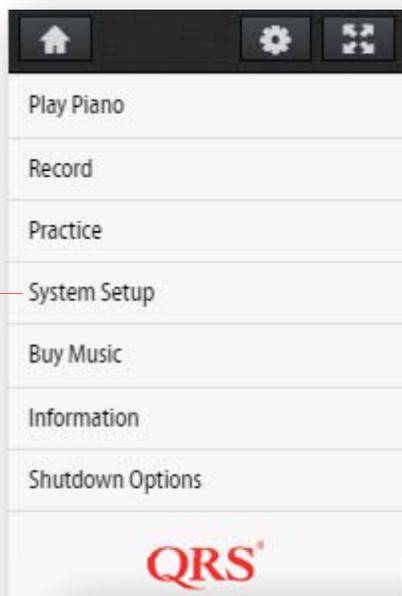


Step 1. Alexa App Setup - Provides a linking token to place in your PNOmation Systems setup pages.

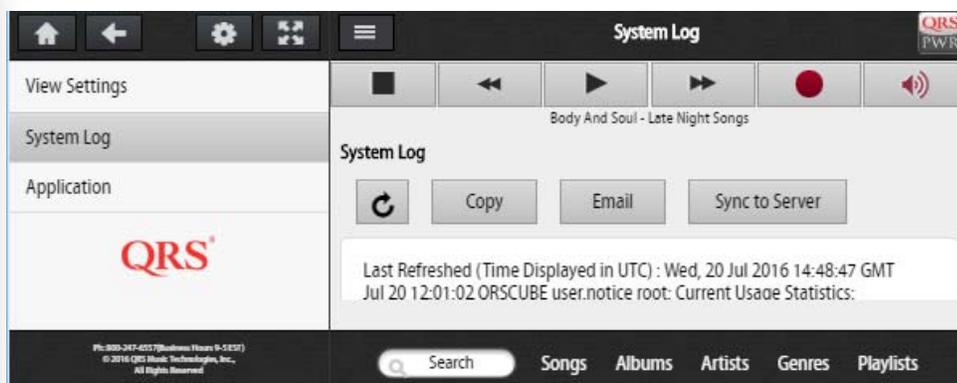


Step 2. Linking PNOmation to your Amazon Echo/Dot.

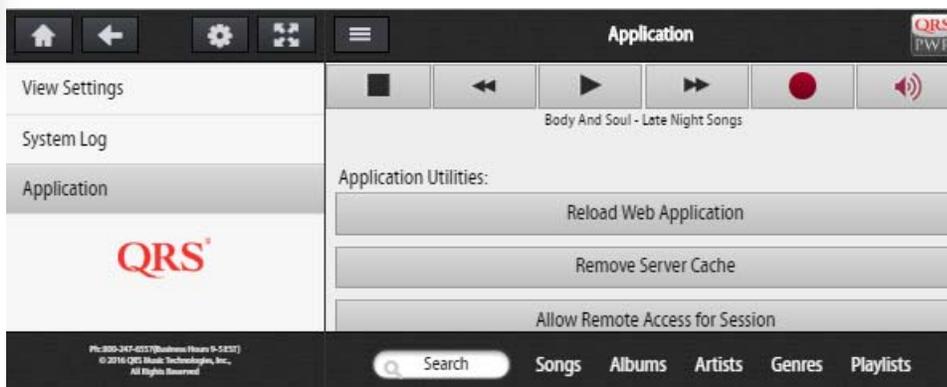
The Service Menu - Used for tech support



View Settings will display all of the systems parameters in one place. When calling tech support we will review this page first. Sending Email and Sync will allow you to send a copy of it to the cloud for us to view.



View System Log will display activity of the system. When calling tech support we will review the logs for anomalies. Sending Email and Sync will allow you to send a copy of the log to the cloud for us to view.



Application is a list of tools that tech support may ask you to use should the need arise.

Purchase Music Access Plan

There are two ways to purchase music or access to the music:

Individually purchasing each song or album. This is done by creating a playlist or cart of content you would like to purchase. Selecting purchase will notify QRS of your purchase, if we have a credit card on file we will unlock your content remotely. If you do not have a card on file we will call you to set up your account. This will require your system to be on the internet. Or we will email you a release key.

QRS All Access Plan. All Access Plans can be in 2 Year or 4 Year increments. Where at the end of the time period the system will unlock permanently the most frequently played tracks. 75 for the 2 Year and 150 for the 4 Year. Complimentary tracks are added on a regular basis as well. The system must be online to participate. Call 800-247-6557 to order.

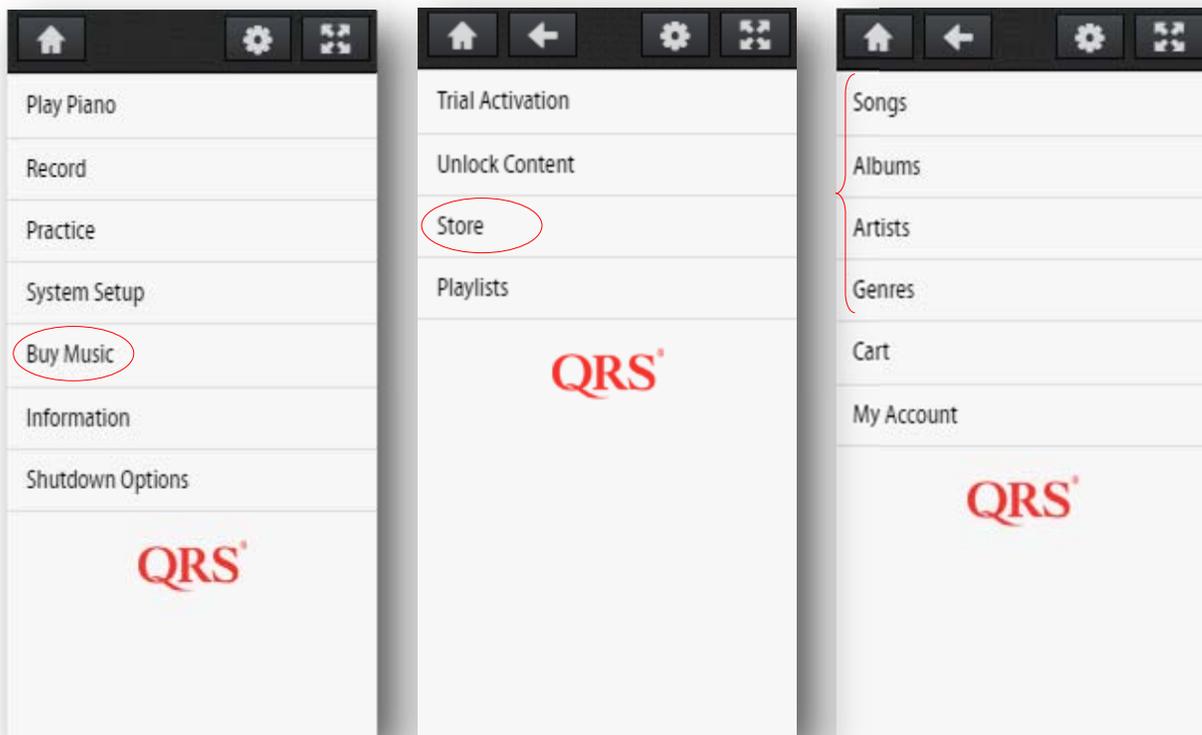
The image displays three screenshots of the QRS PNO³ interface. The first screenshot shows the main menu with 'Buy Music' circled in red. The second screenshot shows the 'Unlock Content' screen with 'Unlock Content' circled in red. The third screenshot shows the 'Unlock Content' screen with a form to enter a catalog number and code.

After Entering a Key or Cart any List that has not had a valid key will appear below. Lists Awaiting Unlock. You can then tap the Catalog/Feature/or Cart for more info on what is in that list. Then there is a enter unlock button when pressed it fills in that field for Catalog with feature/catalog/or cart id and asks for Release Key.

FYI - Entering the wrong key 5 times will lock the list out for a period of 5 Minutes.

Each All Access Plan or special release has a Catalog #. When you call to order, we will release your content remotely or we can do the release over the phone with an unlock code specific to your serial number.

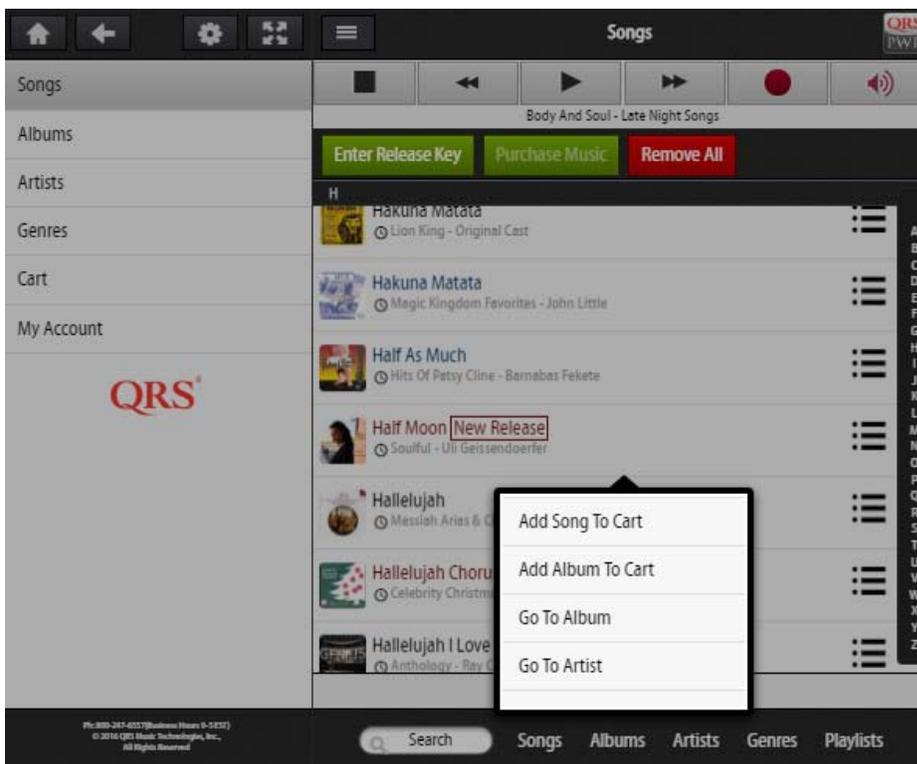
Purchase Music - Individually



Create a cart of tracks you would like to purchase. This is done by selecting the Menu icon to the right of the track or album and selecting "Add Song/Album To Cart"

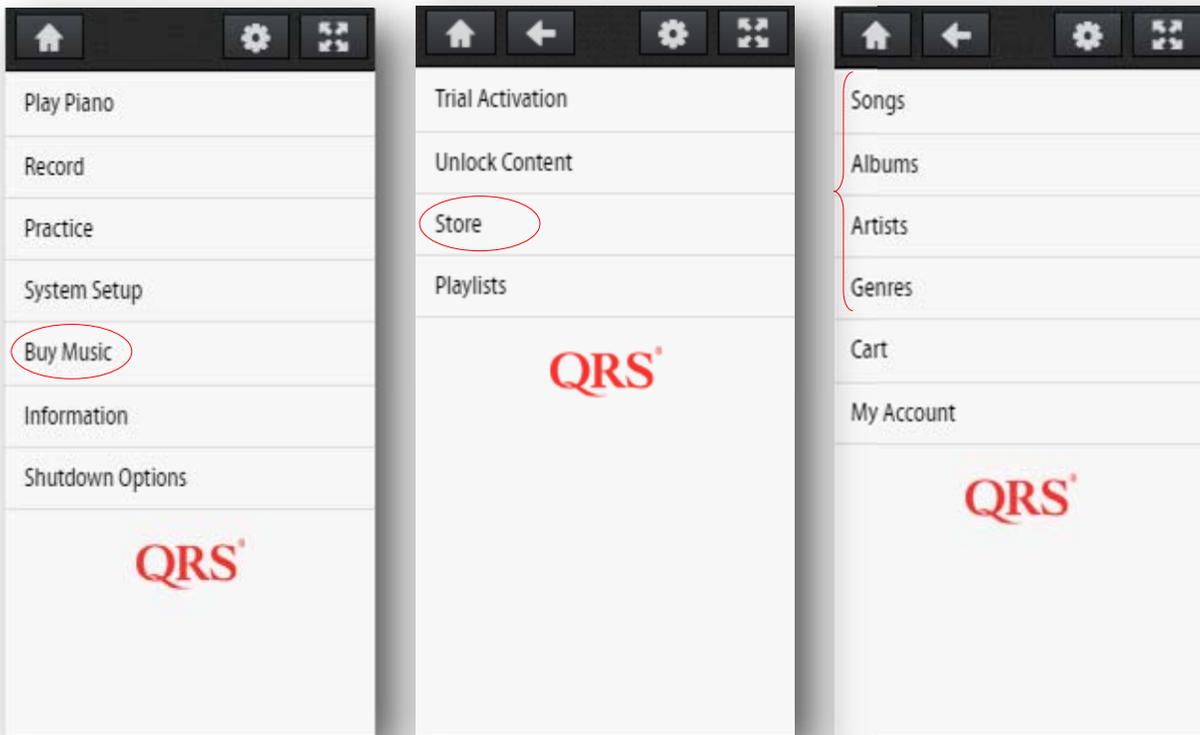
Select the "-" sign to remove a track from the cart.

Selecting Artist or Genre will require layer to further selections to get to the album or track.



QRS PNO³ USER GUIDE

Purchase Music - Individually



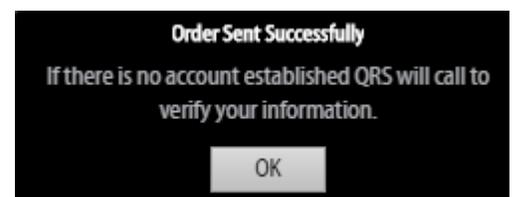
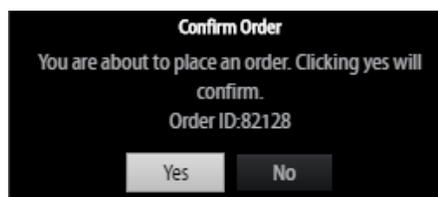
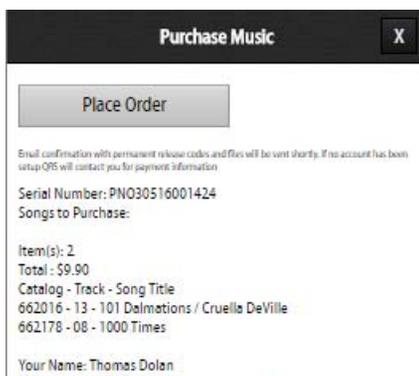
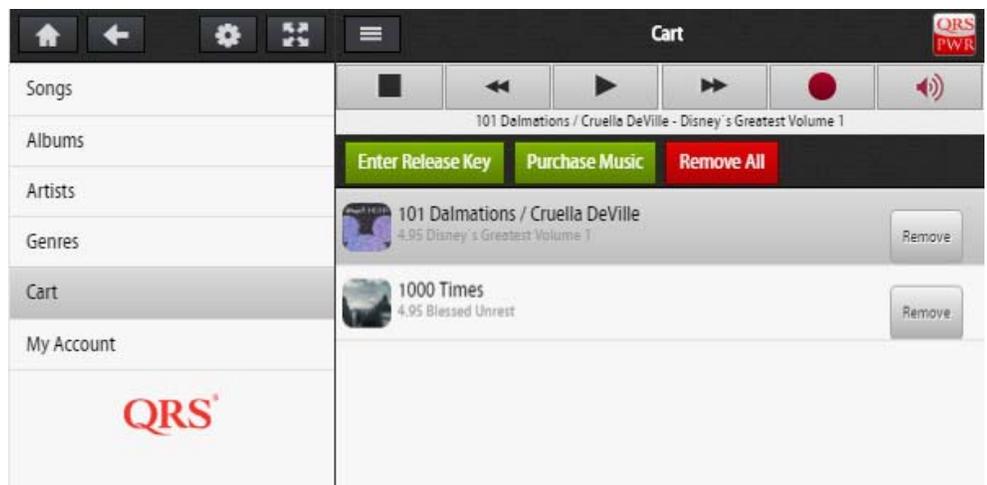
When selections are complete, select "Cart" from the "Buy Music" "Store" Menu

Select "Purchase Music"

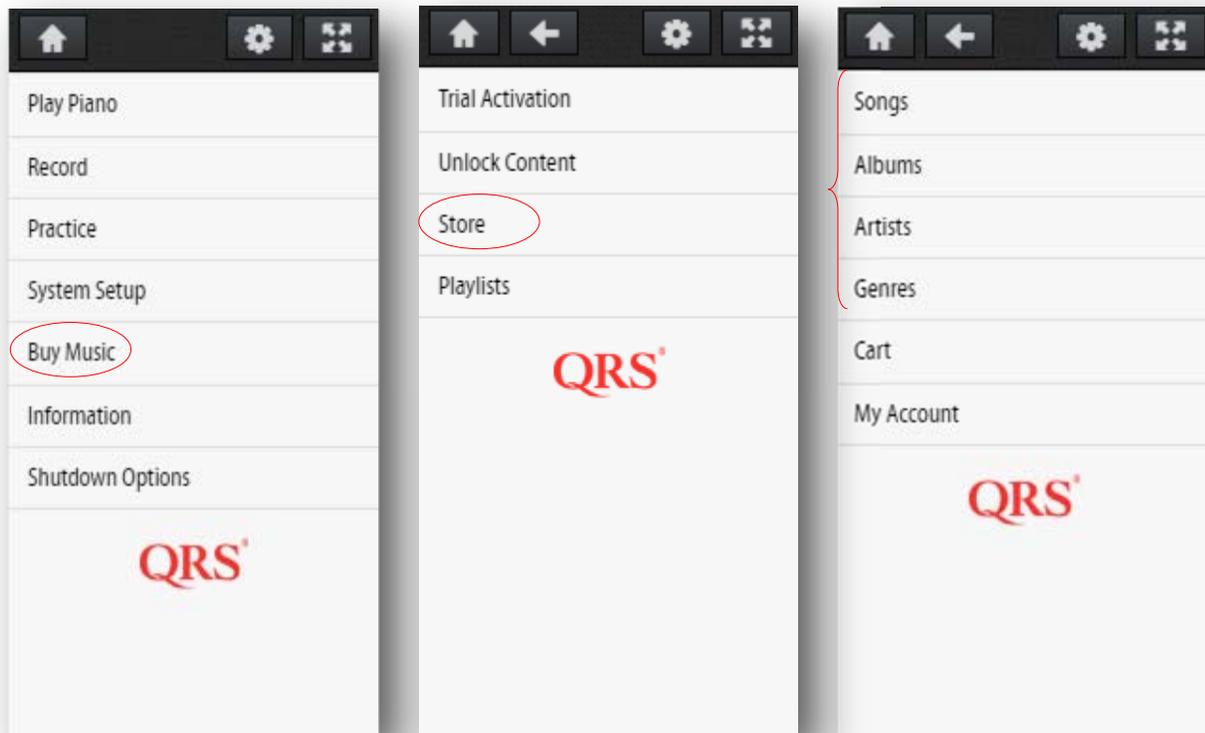
Select "Place Order"

Confirm you would like to go forward with the order by selecting "Yes"

Select "OK"



Purchase Music - Individually



Notes:

If you're controlling PNO³ with a device that has an **Email account** then Press the "Place Order" button. This will place the order in your Outbox.

If PNO³ is in Network Mode the Email will be sent to QRS immediately.

If PNO³ is in Stand Alone Mode the Email will be sent to QRS the next time your device is connected to your home network and the Internet.

The Cart ID that is generated in the above page is what is used to unlock. So changing your cart after order won't effect the unlock

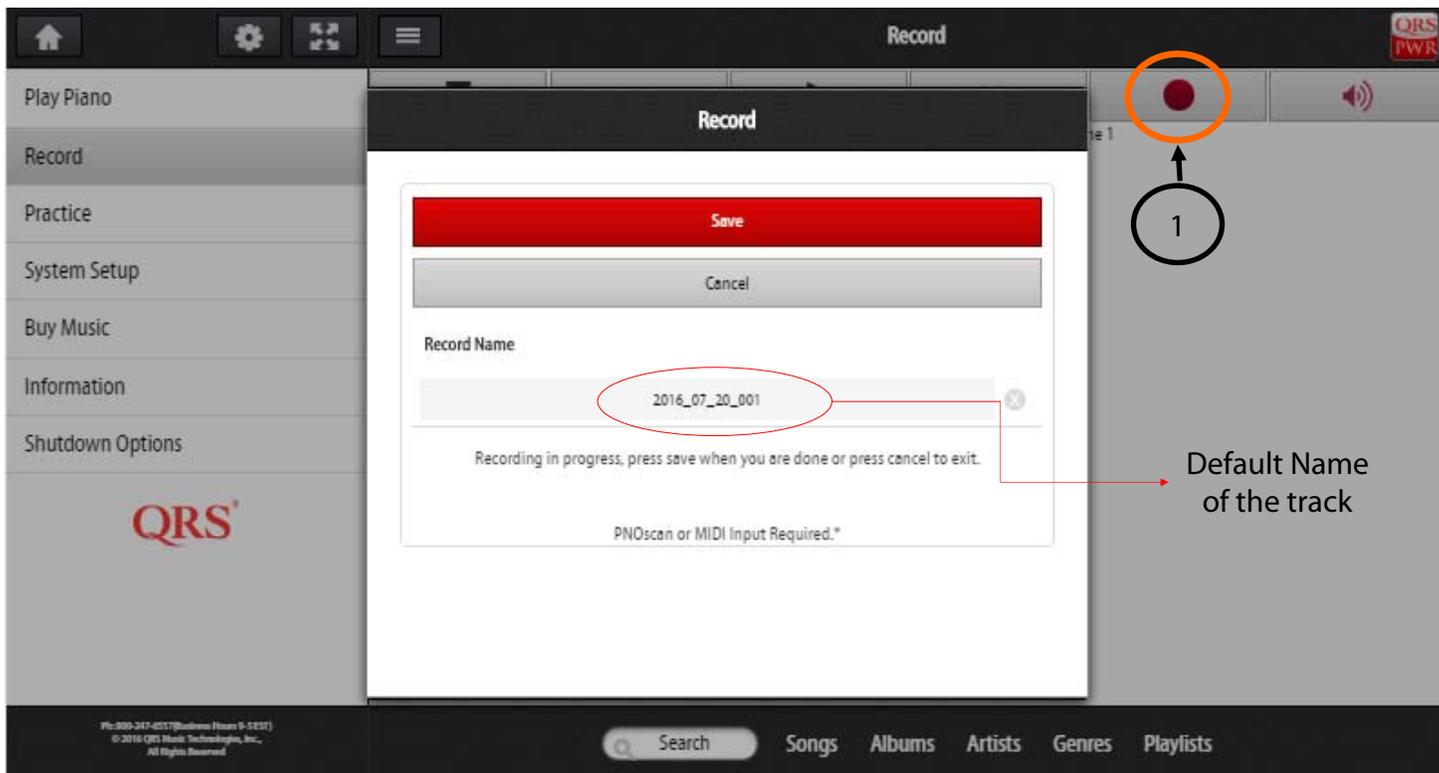
Notice the QRS Catalog - Track Numbers

662110-99 [662100 = the album # and 99 indicates All Tracks]

662111-25 [Only Track #25 for album 662111]

QRS PNO³ USER GUIDE

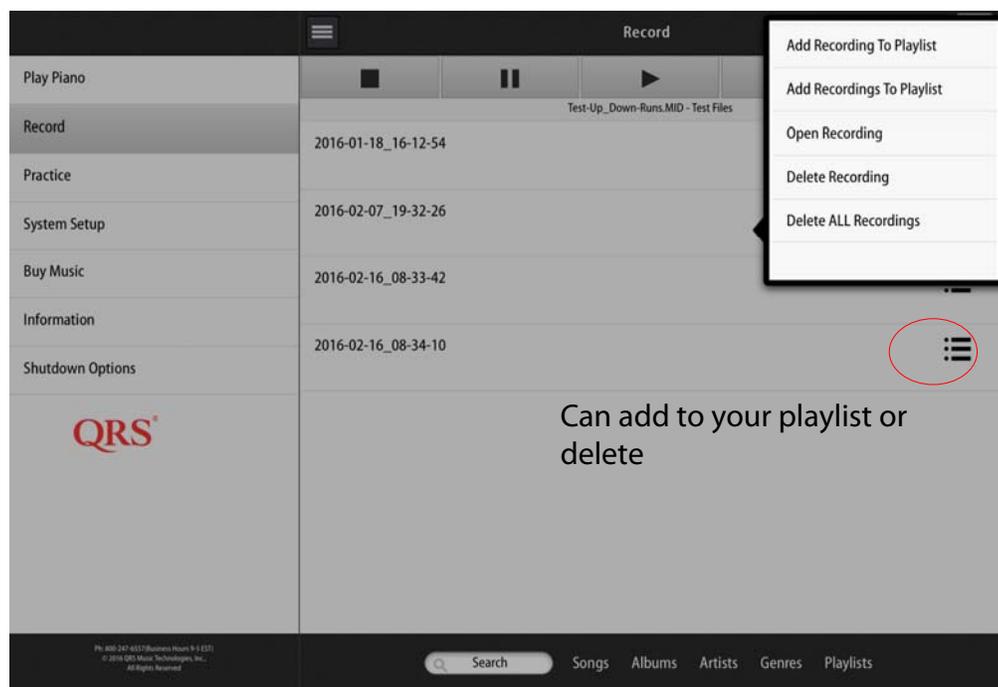
Recording A Track



1. Select Record from the main transport menu *Assumes Auto Record and Auto Save is not turned on*
2. Play the piano
3. When done performing select "Save"

What to do with your recorded track.

1. Select the Menu Icon to the right of the recorded track
2. Select from the list - Add to Playlist, Play the track, Delete the track, or delete all tracks.

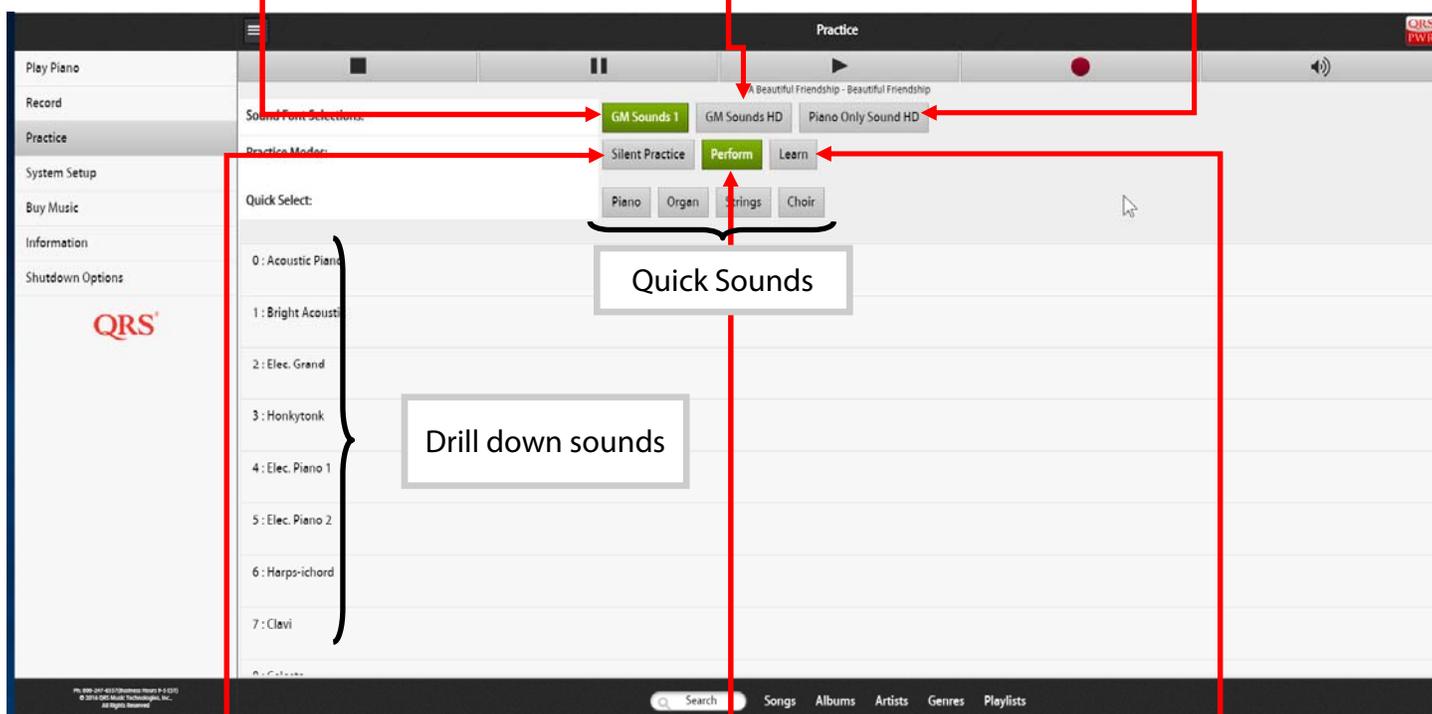


Practice & Perform

Standard General MIDI Sound Font - good balance with all sounds

General MIDI HD Sound Font - More memory devoted to Piano sound

Piano Only Sound HD All the memory is devoted to a high end piano sound sample



Selecting **Silent Practice** will mute the audio going to your speakers and route a piano sound to your headphone outputs.

1. Select Silent Practice
2. Engage the Key Stop Rail
3. Plug in your headphones
4. Play the piano

Requires a sensor strip like PNOscan

Selecting **Perform** will route a live performance using a sensor strip similar or QRS's PNOscan. This will route the MIDI note events from PNOscan to the sound set built into the system and out to the speaker. Selecting a sound can convert your piano to the selected sound source instrument.

1. Select Perform
2. Engage or not engage (your choice) the Key Stop Rail
3. Select a Sound
4. Play the Piano

Selecting **Learn** will launch your free year of Piano Marvel Lessons. Requires an iPad or Web Browser and an internet connection on your piano. Any sounds will come from the device you connect, internal PNO3 sounds will be muted

1. Select Learn - If you have set up your free account now is the time. If you have done so the PianoMarvel site will log you in.
2. Connect your PC, Mac, or iPad to the USB output on the Pin Light Port Extender (PLx)
3. Take your lesson—Enjoy

QRS PNO³ USER GUIDE

SETTING UP YOUR PNOMATION SYSTEM TO PLAY STREAMING VIDEO CONTENT

Step 1: Determine how you would like the streamed signal to get to the PNOmation system. There are many options we will quickly go over the most popular.

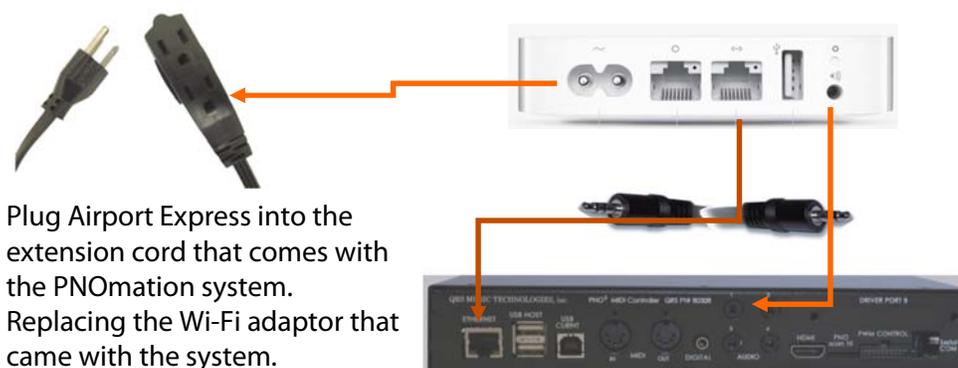
1. Apple Airport Express through the iPad or iPhone (the video stays on device) or through Apples TV via an iPad or iPhone (the video is sent to big screen and audio is then sent from Apple TV to the Airport Express. Best option if you have a big screen. Also the Airport Express can replace the network adaptor that comes with the system.
2. Logitech Bluetooth Audio Adapter any device playing the video will use Bluetooth to send the Audio from the video's audio to the piano through the Logitech adapter. Sending video to a big screen as well as to the Bluetooth adapter depends on your device. For example some Samsung phone can mirror on Samsung TVs
3. Hard wire - Instead of transmitting the audio signal out of your device to the piano via one of the options above you can simply run a cable from the headphone out on your device to the audio in on your pin light box
4. Coming soon—PNOmation 3 will include a wireless card with Bluetooth MIDI and Audio built in. There will be no need to add any third party devices in order to enjoy video.

OPTION 1: APPLE AIRPORT EXPRESS

Description	Catalog #	Notes	
Apple Airport Express	500262	This can be purchased through QRS or any reseller. Important to note that if you use Apple products like iPad and iPhone with Airplay - this is a very good solution.	
1/8th inch male to 1/8th inch male cable.	50128	QRS Catalog Same size head as your headphone jack.	

IF YOU WANT THE BIG SCREEN TO SHOW THE PERFORMANCE

Apple TV	500266	In this situation you are sending (Air Playing) the video and audio from your device (iPhone, iPad) to your TV through the Apple TV, and the Apple TV then AirPlay's the audio to the Airport Express under the piano.	
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Plug Airport Express into the extension cord that comes with the PNOmation system. Replacing the Wi-Fi adaptor that came with the system.

1. Set the Airport Express on the shelf above the back leg.
2. Plug the cables in as shown.
3. Set up your Airport Express as an extension on your home network using your Apple Software tools. (Assumes your PNO3 system is in network mode.
4. Select Video to play and Airplay to the Airport Express or Apple TV

QRS PNO³ USER GUIDE

SETTING UP YOUR PNOMATION SYSTEM TO PLAY STREAMING VIDEO CONTENT

Step 1: Determine how you would like the streamed signal to get to the PNOmation system. There are many options we will quickly go over the most popular.

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4. Coming soon—PNOmation 3 will include a wireless card with Bluetooth MIDI and Audio built in. There will be no need to add any third party devices in order to enjoy video.

OPTION 2: LOGITECH BLUETOOTH ADAPTOR

Description	Catalog #	Notes	
Logitech Bluetooth Adaptor	50075	This can be purchased through QRS or any reseller. .	
1/8th inch male to twin RCA Male	990026	Same size head as your headphone jack. To the twin RCAs on the Logitech.	



1. Set the Logitech on the shelf above the back leg.
2. Plug the cables in as shown.
3. Pair your Logitech to your devices Bluetooth
4. Select Video to play and Bluetooth the audio to the piano

QRS PNO³ USER GUIDE

SETTING UP YOUR PNOMATION SYSTEM TO PLAY STREAMING VIDEO CONTENT

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4. Coming soon—PNOmation 3 will include a wireless card with Bluetooth MIDI and Audio built in. There will be no need to add any third party devices in order to enjoy video.

OPTION 3: HARD WIRED

Description	Catalog #	Notes	
1/8th inch male to 1/8th inch male cable.	50128	Same size head as your headphone jack.	



Run the Audio cable from the headphone output on your device to the Aux Input on the front of the piano.



QRS PNO³ USER GUIDE

SETTING UP YOUR PNOMATION SYSTEM TO PLAY STREAMING VIDEO CONTENT

Step 1: Determine how you would like the streamed signal to get to the PNOmation system. There are many options we will quickly go over the most popular.

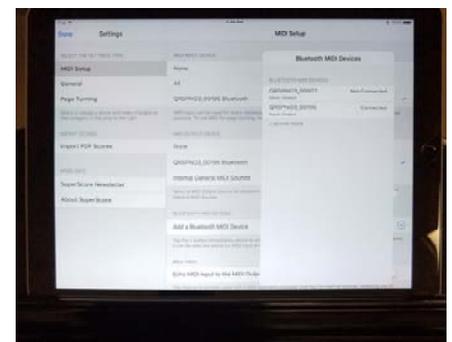
1. Apple Airport Express through the iPad or iPhone (the video stays on device) or through Apples TV via an iPad or iPhone (the video is sent to big screen and audio is then sent from Apple TV to the Airport Express. Best option if you have a big screen. Also the Airport Express can replace the network adaptor that comes with the system.
2. Logitech Bluetooth Audio Adapter any device playing the video will use Bluetooth to send the Audio from the video's audio to the piano through the Logitech adapter. Sending video to a big screen as well as to the Bluetooth adapter depends on your device. For example some Samsung phone can mirror on Samsung TVs
3. Hard wire - Instead of transmitting the audio signal out of your device to the piano via one of the options above you can simply run a cable from the headphone out on your device to the audio in on your pin light box
4. Coming soon—PNOmation 3 will include a wireless card with Bluetooth MIDI and Audio built in. There will be no need to add any third party devices in order to enjoy video.

OPTION 4: BUILT IN BLUETOOTH AUDIO OUT -

Description	Catalog #	Notes
QRS PNOmation Processor with Wireless Card Built In	80308WB	Shipped with new systems

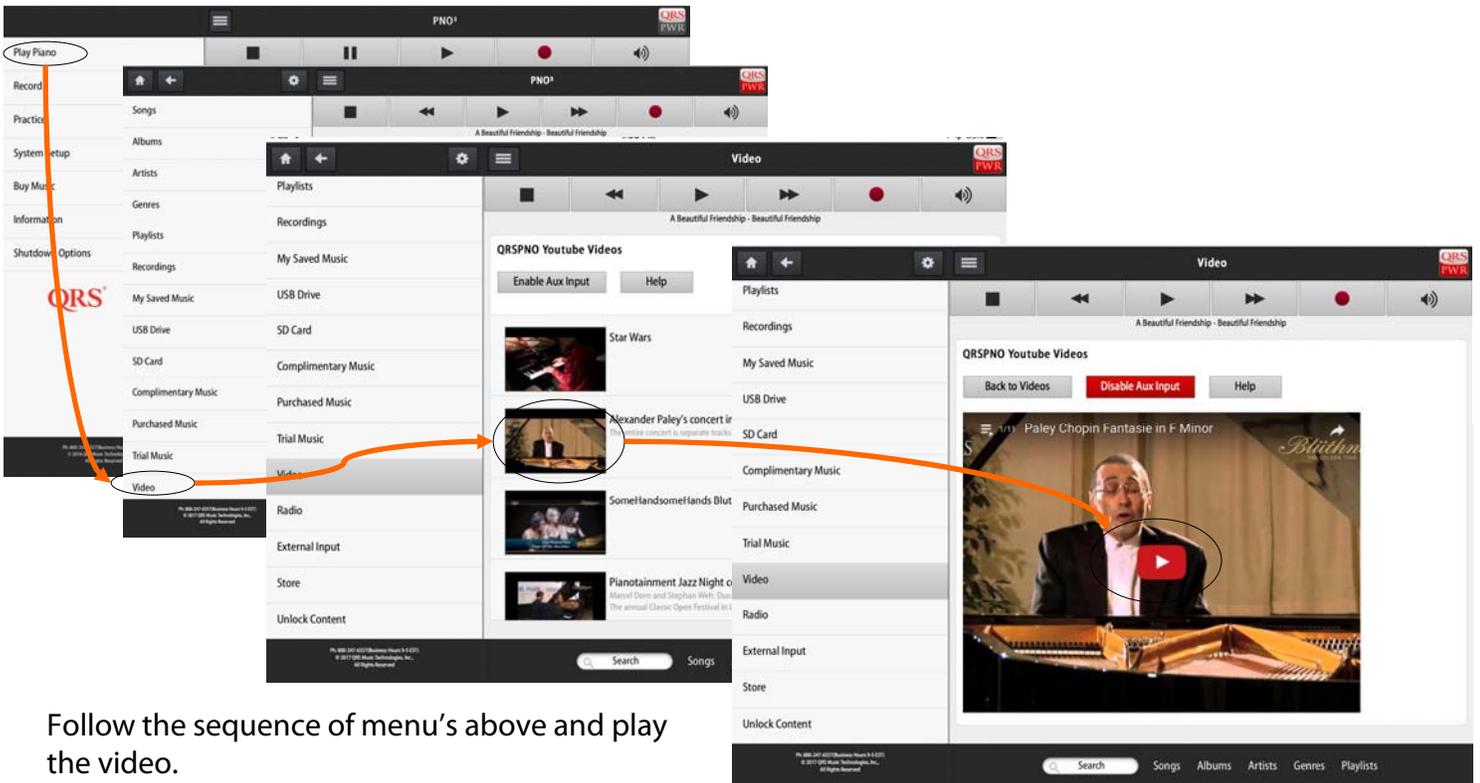


No cables are required in this application just send thanks audio from video via Bluetooth to the piano.



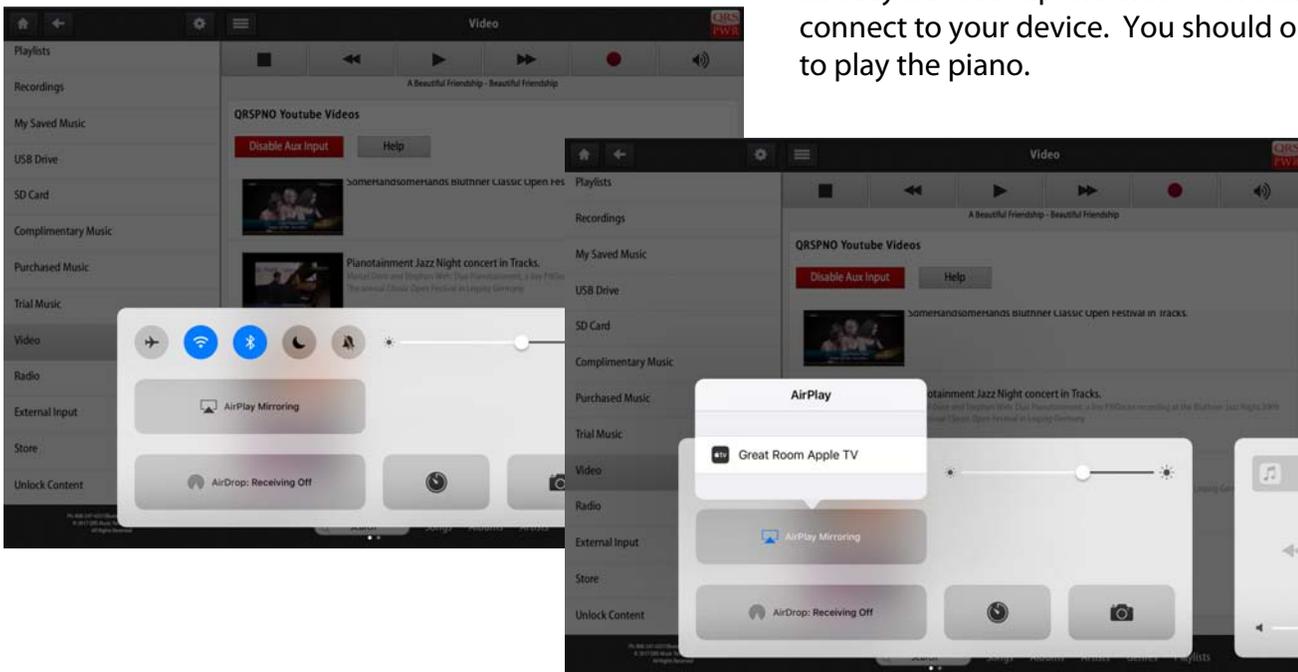
Setup in the PNOmation controller for Bluetooth Audio

PLAY STREAMING VIDEO CONTENT



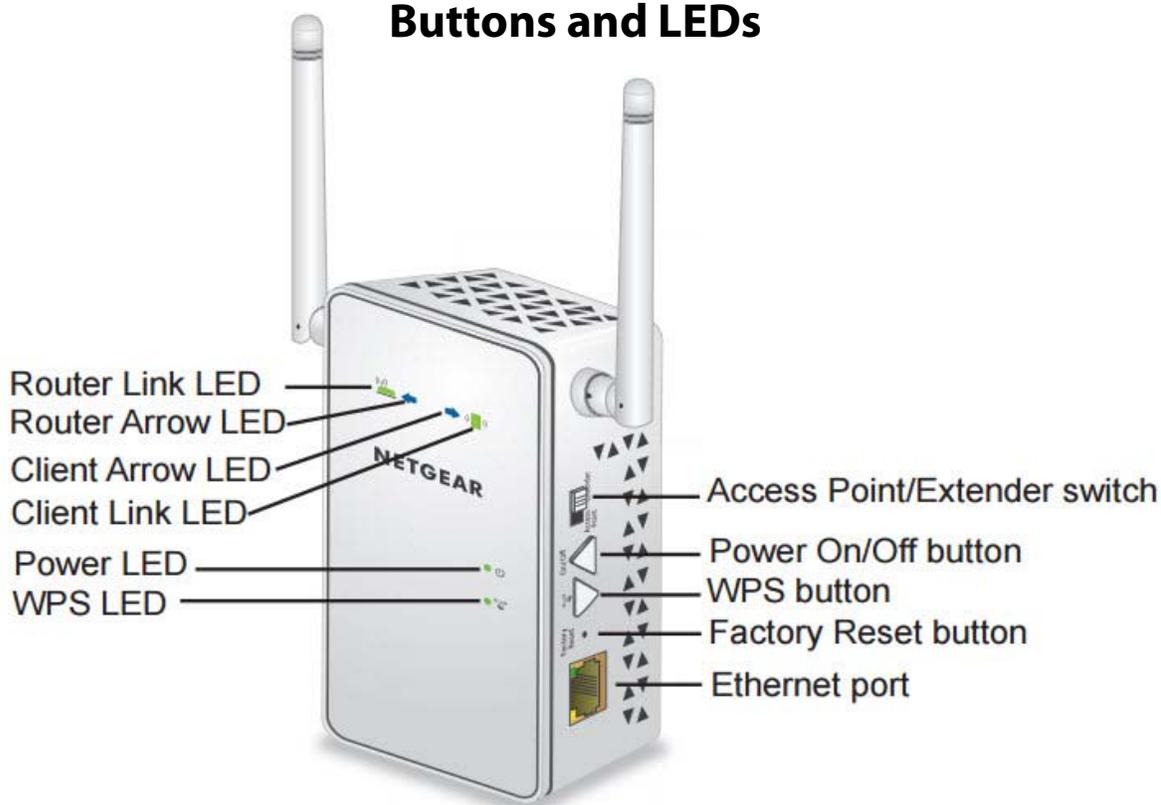
Follow the sequence of menu's above and play the video.
 Swipe from below to send the signal to the piano or Apple TV if you are using an Apple device.

If you are using an Android device you should already have set up the Bluetooth adaptor to connect to your device. You should only have to play the piano.



NETGEAR EX6100 WI-FI EXTENDER (AC750)

Buttons and LEDs

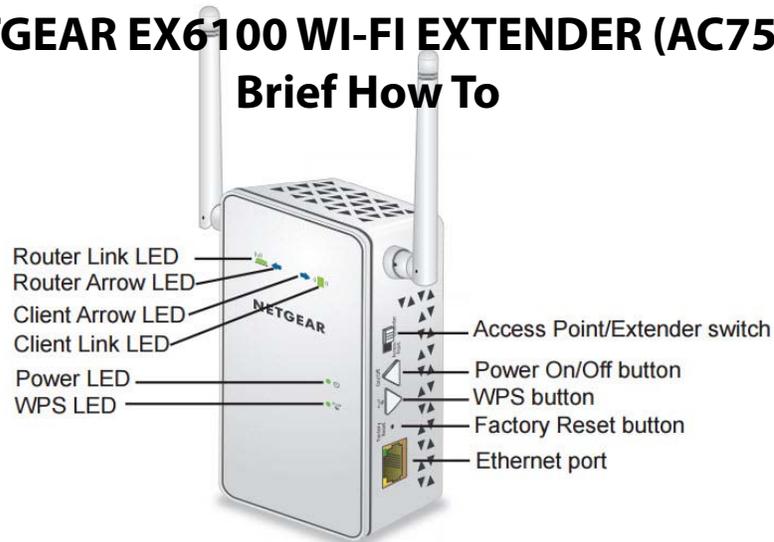


NETGEAR EX6100 WI-FI EXTENDER (AC750)

LED above the N in Netgear is the Router Link LED - this indicates status between the extender and the router or access point	Solid Green Solid Amber Solid Red Off	Best Connection Good Connection Poor Connection No Connection	When green it is talking to your home network, when amber it has a weak connection to your WiFi Network
LED above the R in NETGEAR is the Client Link LED. It indicates the connection between the extender and a computer or mobile device.	Solid Green Solid Amber Solid Red Off	Best Connection Good Connection Poor Connection No Connection	When Green a device is logged into the Netgear, usually PNO3 will be logged into your homes network.
Power LED	Solid Amber Solid Green Off	The extender is booting The extender is powered on The extender is powered off	
WPS LED	Solid Green Blinking Green Off	Wi-Fi security is enabled (WPA or WPA2) A WPS connection is in progress Wi-Fi security is not enabled	
Blinking Arrows		Indicate that the extender or client are not in an optimal reception location.	

NETGEAR EX6100 WI-FI EXTENDER (AC750)

Brief How To



The QRS PNOmation system ships with a NETGEAR EX6100 set to AP (as an Access Point). In order to play all content available, receive auto updates, maximize ease of use and your investment, we recommend the player system be set up as an extension of your homes network (network mode). To do this there are three steps:

1. Configure NETGEAR to extend your home network: Unplug the NETGEAR from the system, reset it and configure it to extend your home's network as you would if you purchased the product separately. Refer to the NETGEAR manual. The steps we use are below.
 - Unplug the NETGEAR from the PNOmation system and flip the switch on the side to Extender
 - Plug into a wall outlet convenient to you and close to your router
 - You will need
 - Your network password (Case Sensitive)
 - Wi-Fi device
 - A paperclip to do a factory reset
 - Reset the NETGEAR using the paperclip (hold until power light flashes 3 times and restarts unit)
 - Log into Wi-Fi Network NETGEAR EX6100_2GExt once connected a network Genie should appear
 - In the Genie—Select your homes network—continue
 - Enter your password— continue
 - Select Skip for the 5G setup
 - Select Private Network—continue
 - Select Continue on the next setup page
 - Select Ok on the pop up box - Wait for reboot— Verify connections with device LEDs -Done
2. Put your piano in Network mode - so it is set to receive an IP address from your router ("Shift" "B" on your remote, or hold button 3 on the processor down for 4 sec)
3. Plug the NETGEAR back where it was prior to unplugging. Log into your home's network and use the QRSFinder App from the App Store or Play Store, to open the system. Voice Prompts will also tell you what the IP address is if you want to go directly to it using your web browser.

How to Configure Stand Alone Mode

Using the **Net gear Extender EX6100 / AC750** [iPad Example]

Both PNO³ AND the Piano's Wi-Fi device must be programmed to change modes.

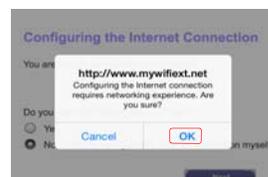
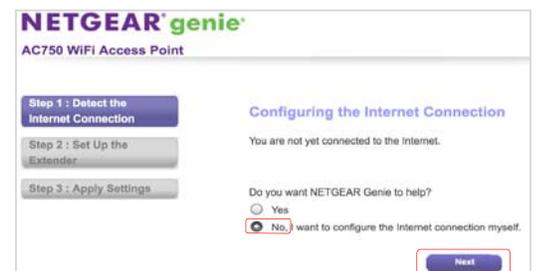
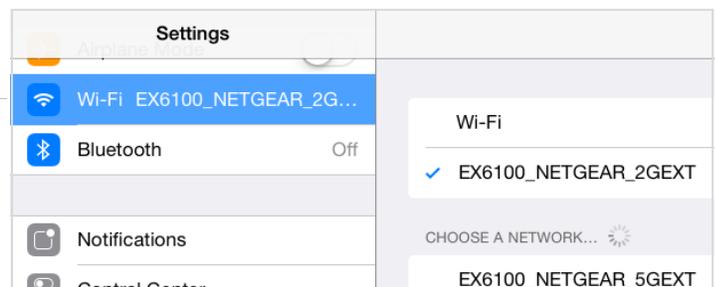
Stand Alone
Mode:
192.168.1.1

NOT connected to the Internet.
PNO³ is its own wireless network QRSPNO_2GEXT.
PNO³ hands out IP addresses to your devices that are logged into it, Android, IOS...
PNO³ delivers control for Android, Google Chrome or Safari web browsers.
Connect to PNO³ by entering **192.168.1.1** in the address bar of the web browser.

Netgear EX6100/AC750

PNO³ Stand Alone mode programming Steps

1. Flip the "Access Point/Extender" switch to the "Access Point" position.
2. Plug the Extender into an outlet - wait for the Power LED to turn green.
3. Use a paper clip to Press and Hold the "Factory Reset" Button until power light flashes 3 times (~10s)
4. The reset EX6100 will broadcast two SSID names; EX6100_Netgear...2GEXT & 5GEXT (You may want to turn the Wi-Fi OFF and then ON to refresh the Wi-Fi list.)
5. Go to your device's Wi-Fi settings and Select "EX6100_Netgear_2GEXT".
6. The Netgear "genie" should appear within one minute. Or, go to your web browser - Safari or Chrome & enter: **www.mywifext.net**
7. A splash screen will appear stating device is set to Access point, wait a moment and Configuration Screen will appear
8. Select "No" on the configuration screen, then the "Next" button, A pop up asking you to confirm manual setup. Select OK
9. Authentication Required Pop Up will appear Enter username: "admin" and "password" as the Password then select "Log In" button.



How to Configure Stand Alone Mode (Cont.)

Using the **Net gear Extender EX6100 / AC750** [iPad Example]

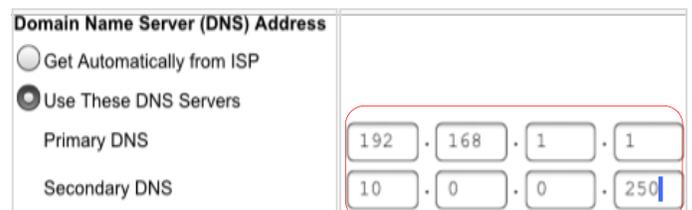
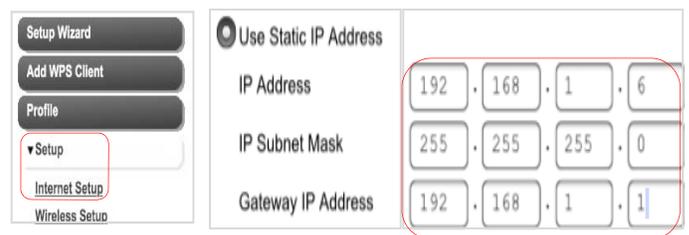
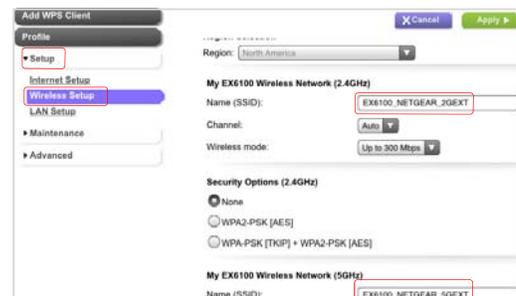
Both PNO³ AND the Piano's Wi-Fi device must be programmed to change modes.

<p>Stand Alone Mode: 192.168.1.1</p>	<p>NOT connected to the Internet. PNO³ is its own wireless network QRSPNO_2GEXT. PNO³ hands out IP addresses to your devices that are logged into it, Android, IOS... PNO³ delivers control for Android, Google Chrome or Safari web browsers. Connect to PNO³ by entering 192.168.1.1 in the address bar of the web browser.</p>
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Netgear EX6100/AC750

PNO³ Stand Alone mode programming Steps Cont.

10. Go to "Setup / Wireless Setup"
Enter the new "2GEXT & 5GEXT" SSID Names
QRSPNO_2GEXT & QRSPNO_5GEXT
Press the "Apply" Button, wait for reboot
11. Reconnect to QRSPNO_2GEXT & QRSPNO_5GEXT
12. Go to "Setup / Internet Setup"
13. Select "Use Static IP Address"
IP Address = 192.168.1.6
IP Subnet Mask = 255.255.255.0
Gateway IP Address = 192.168.1.1
14. Select "Use These DNS Servers"
Primary DNS = 192.168.1.1
Secondary DNS = 10.0.0.250
Press the "Apply" button at the top of page and wait for the Netgear to update & reboot.
15. Reconnect to QRSPNO_2GEXT & log-in again.
Go to Setup / LAN Setup
Un-Check "Enable NAT" and press "Apply"
An Ethernet cable must now be attached to the QRSPNO_2GEXT to wireless connect.
16. Using a QRS remote control:
Press the following buttons in sequence SHIFT, A



17. Go to your device's Wi-Fi settings and Select "QRSPNO_2GEXT". (Do not use the QRSPNO_5GEXT).
Open your web browser and enter "192.168.1.1" in the address bar. This will take you to the QRS PNO³ menu.

QRS PNO³ USER GUIDE

How to Configure Network Mode

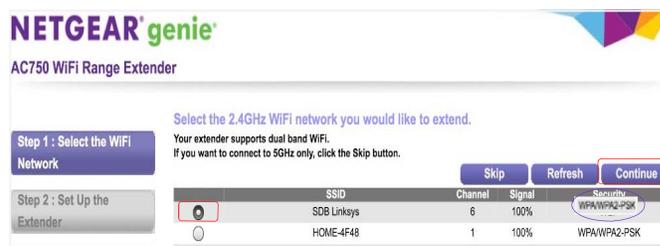
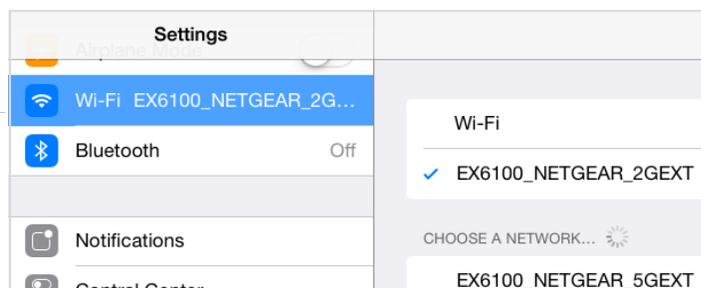
Using the **Net gear Extender EX6100 / AC750** [iPad Example]

Both PNO³ and the Piano's Wi-Fi device must be programmed to change modes.

Network Mode:	NOT connected to the Internet. PNO ³ is a node on your homes wireless network "homeroutersid_2GEXT." PNO ³ hands receives its IP addresses from your router.
IP address given out by your home router	PNO ³ delivers control for Android, Google Chrome or Safari web browsers. Connect to PNO ³ by entering given out IP address in the address bar of the web browser.

Netgear EX6100/AC750 PNO³ Stand Alone mode programming Steps

1. Flip the "Access Point/Extender" switch to the "Extender" position.
2. Plug the Extender into an outlet - wait for the Power LED to turn green.
3. Use a paper clip to Press and Hold the "Factory Reset" Button until power light flashes 3 times (~10s)
4. The reset EX6100 will broadcast two SSID names; EX6100_Netgear...2GEXT & 5GEXT (You may want to turn the Wi-Fi OFF and then ON to refresh the Wi-Fi list.)
5. Go to your device's Wi-Fi settings and Select "EX6100_Netgear_2GEXT".
6. The Netgear "genie" should appear within one minute. Or, go to your web browser - Safari or Chrome & enter: **www.mywifext.net**
7. If requested, enter username = "admin" and password = "password" and then Select "Log In".
8. Select your home Wi-Fi network from the 2G list. Select "Continue".
Enter your home Wi-Fi password.
Select "Continue".



How to Configure Network Mode (Cont.)

Using the **Net gear Extender EX6100 / AC750** [iPad Example]

Netgear EX6100/AC750

PNO3 Network mode programming Steps Cont.

9. Enter your home Wi-Fi password.
This is the most important part of the setup - If your security is "WPA type" the screen will tell you. Enter your password and Select "Continue".
10. If you have WEP Security [Capital Letters A-F and Numbers 0-9] The screen will tell you Enter your home Wi-Fi password in the "Key 1" box. (not in passphrase) Select "Continue".
11. Select "Skip" on the 5G setup page
12. Select "Private Network".
Select "Continue".
13. Summary Page: Move to the bottom of the page and select "Continue". Then Select "OK".
14. Wait for the Netgear to apply changes and reboot.
After Netgear reboots the light above the N in the Netgear logo will turn green and signify that the extender is talking to your homes network.
15. Go to "Settings" "WiFi". Log into "yourhomessid_2Gext" and then surf the internet. If you can do this you have set it up correctly. If not more than likely your password is incorrect and you will have to start over.
16. Using a QRS remote control: Press the following buttons in sequence SHIFT, B
17. If you do not have a remote control, hold button 3 on the processor down for 4seconds, do this twice
18. Plug the Ethernet cable back into the Netgear and the PNOmation system should announce its new IP address. If not press "Shift 3" with the remote or use the QRSFinder App

NETGEAR genie

AC750 WiFi Range Extender

Enter the security settings of the selected WiFi network

Step 1 : Select the WiFi Network

Name (SSID): NETGEAR14

Security: WPA2-PSK [AES]

Password (network key):

Step 2 : Set Up the Extender

Step 3 : Apply Settings

Note: WPA Passwords are case sensitive, if you get it wrong you will have to start all over again. Test your password on another device first if possible.

Select the 5GHz WiFi network you would like to extend.

Your extender supports dual band WiFi. If your router does not support 5GHz band, click the Skip button.

Step 1 : Select the WiFi Network

Step 2 : Set Up the Extender

Is this WiFi network (SDB Linksys) a private home network or a public network (such as in a hotel or coffee shop)?

Step 1 : Select the WiFi Network

Private Network

Public Network (selecting this will enable NAT/firewall)

Step 2 : Set Up the Extender

Enter name and security settings for your extended WiFi network

Step 1 : Select the WiFi Network

2.4GHz Network Name (SSID): SDB_WPA_2GEXT

5GHz Network Name (SSID): SDB_WPA_5GEXT

Step 2 : Set Up the Extender

Security Options (2.4GHz)

None

WEP

WPA-PSK (TKIP)

WPA2-PSK (AES)

WPA-PSK (TKIP) + WPA2-PSK (AES)

Security Options (WPA-PSK)

Password (network key): 1234567890 (8-63 characters or 64 hexdigits)

Security Options (5GHz)

None

WEP

WPA-PSK (TKIP)

WPA2-PSK (AES)

WPA-PSK (TKIP) + WPA2-PSK (AES)

Security Options (WPA-PSK)

Password (network key): 1234567890 (8-63 characters or 64 hexdigits)

<http://www.mywifiext.net>

IMPORTANT
WPA-PSK (TKIP) ONLY operates at "Up to 54Mbps" (legacy G) mode, not N mode.
NETGEAR recommends that you use WPA2-PSK (AES) to get full N rate support.



QRSFinder
QRS Music

QRS PNOmation³ Amazon Echo Skill Set Commands

QUICK AND FREQUENTLY USED COMMANDS

Task	Verbal Command	What It Does
Initialize Amazon to Listen	“Alexa” or “Amazon”	Initializes the Echo to listen, use of “Amazon” or “Alexa” is set up with Alexa App from Amazon
Initialize PNOmation Skill Set	“Ask PNO” or “Ask QRS”	Initializes the PNOmation Skill Set, PNOmation will then wait for you to tell it to do something. If you do not follow up with an additional command Echo will respond with “What would you like your piano to do?” QRS has two skill sets that do the same thing just initialize with different ques. If you have tow pianos this is a great way to go.
Play	“Alexa” “Ask PNO” “to play” <“play”, 'to turn on'>	will play the last known cued up playlist
Stop	“Alexa” “Ask PNO” “to stop” < “stop”, “to turn off”>	This will stop playback
Next Song	“Alexa” “Ask PNO” “to play next song” <'play next song', 'next song', 'next'>	This will skip to the next song
Play a playlist	“Alexa” “Ask PNO” “to Play ‘name of playlist’ playlist”	Name your playlist in the app and it will find it, keep the name simple it works better. Best way to get what you want.
Play a Particular Song	“Alexa” “Ask PNO” “to Play ‘name of song’ “	This will play the first version of the song with that name that it comes to. So where we have 7 versions of “Silent Night” it will que them all up in a playlist and begin playing them in the order they are in the database. This can be filtered with additional commands appended like: “Solo” or “Played By ‘Artist Name’ “
Filter Song List Type	“Alexa” “Ask PNO” “to Play ‘name of song’ ‘Solo’	Will que up solo version of the song—no background music
Filter Song by Artist	“Alexa” “Ask PNO” “to Play ‘name of song’ ‘by artist name’ “	This will play the song title by a specific artist
Play Genre Type	“Alexa” “Ask PNO” “to Play” ‘name your genre’ "name your type solo or concert"	Example “Alexa Ask PNO to play Christmas Solo” Will play all of the Christmas Solo content
Softest Master Volume Playback	“Alexa” “Ask PNO” “to soft play”	Sets to master Volume 1 The softest playback <'pianissimo', 'set volume to pianissimo', 'soft play', 'go to soft play', 'set to soft play' >

QRS PNOmation³ Amazon Echo Skill Set Commands

QUICK AND FREQUENTLY USED (CONT.)		
Turn Master Volume Up or Down	"Alexa" "Ask PNO" "Turn Down" or "Turn Up"	Will increase or decrease master volume
Mute All	"Alexa" "Ask PNO" "to be quiet" or "to mute"	Mutes all
Unmute All	"Alexa" "Ask PNO" "to 'unmute" <'you can make noise again'>	Unmute Main
Full Expression Playback	"Alexa" "Ask PNO" " to play with full expression" < 'to play at full expression'>	Sets to master volume 50 and plays with full expression
Play an artist	"Alexa" "Ask PNO" "to play 'name the artist' 'name the type'	Alexa Ask PNO to play Billy Joel or Ask PNO to play Billy Joel Solo Will que up Billy Joel Songs in Data base
Previous Song	"Alexa" "Ask PNO" "to play last song',	Or 'play last song', 'last song', 'previous', 'previous song', 'back'
Play the Radio	"Alexa" "Ask PNO" "to Play Radio Solo" "genre"	Will cue up a radio station and begin playback
Audio Vol Up	"Alexa" "Ask PNO" "to turn audio volume up"	turns up audio volume
Audio Vol Down	"Alexa" "Ask PNO" "to turn audio volume down"	turns down audio volume
Piano Vol Up	"Alexa" "Ask PNO" "to turn piano volume up"	turns up piano volume
Piano Vol Down	"Alexa" "Ask PNO" "to turn piano volume down"	turns down piano volume
Mute Prompts	"Alexa" "Ask PNO" to 'mute the prompts', <'stop talking'>	Mutes the voice prompts
Unmute Prompts	"Alexa" "Ask PNO" to 'unmute the prompts', <'start talking'>	unmutes the voice prompts
Record	"Alexa" "Ask PNO" "record', 'start recording', or 'record me', 'record this'	Initiates Just as if you pressed record on gui
Stop Record	"Alexa" "Ask PNO" "to stop recording" <'end recording'>	Stops recording and saves it
Select Playlist IR	"Alexa" "Ask PNO" "to 'select Playlist %N"	select playlist #N
Search Album	"Alexa" "Ask PNO" "to play albums with %Album%"	Album Search
Search All	"Alexa" "Ask PNO" "to play "Search word" GENERAL SEARCH Key words Solo, Accompaniment, or SyncAlong limit results. Also No Christmas removes Christmas from result and All Christmas adds it.	

PNOMATION³ ELECTRONICS/ELECTROMECHANICAL SYSTEM
1YEAR AND OPTIONAL EXTENDED LIMITED WARRANTY FOR THE
PNOMATION³ PLAYBACK ENGINES ELECTRONICS

QRS Music Technologies, Inc. ("QRS") warrants to you for the Warranty Period that there are no defects in the materials of this Product (as identified at the end of this warranty certificate). The "Warranty Period" expires (except as explained below) One (1) year from the date of your purchase of the Product. In order to determine the date of your purchase of the Product, you will need to provide to us a credit card receipt, a purchase agreement, a sales slip, a warranty registration or some other form of proof that you are the original purchaser and the date of your purchase of the Product.

If you are not able to provide us with some form of proof of purchase date, the Warranty Period will be a shorter period (the "Shorter Warranty Period") which is one year from the date that your dealer purchased the Product from QRS. If you cannot provide a proof of purchase date, you may contact us in the manner described below and we will assist you in determining the date that your dealer purchased the Product from us and determining the Shorter Warranty Period. This is a warranty for parts only and does not include shipping or labor.

This warranty does not apply to any accessories you may have purchased with the product and does not apply to any piano or components of the piano with which the product is used or any piano in which the product is installed. In addition, this warranty does not cover scratches, dents or other defects in the cosmetic finish of the product. Accessories used in connection with the system and sold through QRS are covered by the original manufacturers warranty. The warranty does not cover connectivity issues with your existing network.

The warranty is issued solely to the original purchaser of the product. THIS WARRANTY IS NOT TRANSFERABLE. If, during the Warranty Period, parts incorporated in this product are found to be defective in material or workmanship, and the original purchaser provides Purchase Documents to QRS, then QRS or its authorized dealer will provide replacement parts without charge. We may, at our discretion, provide reconditioned parts or assemblies as warranty replacements. You as the original purchaser will be responsible to pay labor costs incurred in connection with any repair.

EXTENDED WARRANTY

As long as the customer has their piano networked and part of a QRS Music Access Plan, their warranty will remain in effect.

LIMITATION IN CONNECTION WITH OBSOLETE PRODUCTS

If at the time you make a claim pursuant to this warranty, we no longer manufacture or sell the same model of Product, we may, at our discretion, rather than repair or replace defective parts in the Product, offer to sell you a more current version of a similar Product. If we offer to sell you a more current model of the Product, you will be responsible to pay the difference between the Manufacture's Suggested Retail Price ("MSRP") of the more current version of a similar Product and the price you paid for the Product you purchased. If you choose not to accept such offer, we will have no further obligations pursuant to this warranty.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, MADE BY THE MANUFACTURER IN CONNECTION WITH THIS PRODUCT. INCLUDING, BUT NOT LIMITED TO, WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ALLOWED BY THE LAW, QRS SHALL NOT BE RESPONSIBLE FOR LOSS OF THE PRODUCT, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, SPECIAL OR CONSEQUENTIAL DAMAGES, EVEN IF THE MANUFACTURER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights. Some states provide other rights, and some states do not allow excluding or limiting liability for incidental or consequential damage. Consequently, the limitations and exclusions in this warranty may not apply to you. In addition, some jurisdictions have consumer protection rules, regulations and statutes that may apply to you.

PNOMATION³ ELECTRONICS/ELECTROMECHANICAL SYSTEM
1YEAR AND OPTIONAL EXTENDED LIMITED WARRANTY FOR THE
PNOMATION³ PLAYBACK ENGINES ELECTRONICS

Exclusions

There is no express warranty on the Product and this warranty is void if:

1. You did not purchase this Product from an authorized QRS reseller.
2. This Product has been serviced, modified or tampered with by anyone other than an QRS Authorized Service Representative.
3. The name, trademark or serial number has been modified, defaced or removed from the product.
4. This Product has been damaged as a result of abuse, abnormal force or strain, failure to reasonably maintain and protect, modification, accident or exposure to extreme temperature or humidity.
5. Parts, supplies or other accessories which have not been approved by QRS have been used with this Product.
6. Radio frequency interference is generated by uncertified and/or illegal equipment.
7. This Product has been moved or delivered without reasonable preparation and packaging or QRS reasonably determines, after inspection that there has been modification of this Product which adversely affects the reliability of the product or component.
8. If the system was not installed by a Certified QRS installer the warranty will be the "Shorter Warranty Period".
9. Replacement of the SD or Micro SD card and its contents.

Owner's Responsibility

In order to have rights under this warranty, you have the following responsibilities:

1. Retain your proof of purchase and purchase date and register your system either online at qrsmusic.com or through your internet connected networked player system's registration.
2. Notify QRS or any authorized dealer of any warranty claim within ten (10) days after discovery and provide a detailed explanation of the problem.
3. Maintain current content and software updates - (best achieved by placing your system on a secure internet connected network)

General

If any provision herein shall be unlawful, void or for any reason unenforceable, then that provision shall be deemed severable from this warranty certificate and shall not affect the validity of and enforceability of the remaining provisions.

QRS reserves the right to make changes in design and/or improvements to its products without any obligation to retrofit products previously manufactured.

INSTRUCTIONS FOR OBTAINING WARRANTY SERVICE

1. If you cannot provide proof of purchase, contact QRS at 800-247-6557 and we will attempt to determine the date on which your dealer purchased the Product and assist you in determining the Shorter Warranty Period. For warranty service, contact the dealer from whom you purchased the product, or your nearest dealer.
2. If no dealer is near you, contact QRS by phone at 800-247-6557.
3. Do not ship the product without prior written Return Authorization from QRS. Do not attempt to repair or disassemble the product yourself.
4. Please record your model number and serial number and your date of purchase below for your records. Keep this information with your proof of purchase in case your product requires service. Do not dispose of the warranty after it expires. In the event your product ever requires service, these instructions should be helpful in enabling you to obtain proper service.

Product Model # _____ Product Serial # _____ Purchase Date _____

Troubleshooting

3 Amber lights on PLx	PLx has timed out - reboot to fix will clear memory - Call QRS
2 red lights solid 1st two	Driver board issue - tech required Call QRS
2 red lights blinking	Pedal solenoid issue - Call QRS
Unable to update	File uploads but system does not update - Auto back up may be running. Turn off Auto Update, reboot the system, and upload the update. If you still have an issue call QRS
No Lights on PLx	Flat black cable with silver pins are not pointed down when inserted, ref letter orientation. Corrupted database it will go from network mode to standalone - call QRS—may be patch available or will require tech—
No voice prompts, No PLx lights, Processor works	Should still be able to log into it, possible cable issue with adaptor going to legacy system—missing pins or bent pins during installation

