

Sonos® Basic Interface

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This driver provides control and basic feedback over the Sonos multi-zone audio system for up to 20 zones.

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Whilst every effort has been made to ensure this driver will work with future versions of the Sonos firmware, the protocol is proprietary and hence could change without notice. This means a firmware update could result in a non functioning driver. If this is of concern then we recommend not using this driver. That said, in the last 12 months spent working with this driver it has never once stopped working due to a firmware update.

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Note:

Please report any bugs found to bugs@mydevice.com.au. Include driver version number and steps to reproduce the issue where possible.

Driver Version

Date	Author	Version	Changes
October 28, 2011	Matt Crump	1.0	Initial release.
October 30, 2011	Matt Crump	1.1	Increased to 20 zones and added LinkZone/DropZone functions.

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Driver Configuration Settings:

Zone (1-20)

Description: Use this to give your zone a descriptive name. This is not used internally by the driver.

Device Type: Select the type of device that belongs to this zone. This is not used internally by the driver.

Serial Number: **VERY IMPORTANT:** You must provide the serial number of the zone device exactly as specified in the Sonos Desktop Controller software. This will be in the format XX-XX-XX-XX-XX-XX:X where X is 0-9,A-F. See below for where to obtain the serial number.

Zone Off Timeout: The number of seconds of no output (paused) that must elapse before a zone off event is triggered.

Last.fm

Developer key: In order to search for missing cover art you must have a Last.fm developer key. Due to the licensing requirements imposed by both the music industry and Last.fm, My Device is unable to embed our developer key in the code as this driver is commercially licensed. You may use their cover art for personal use by signing up for a free key here:

<http://www.last.fm/api/account>

It should be a 32 character lower case hexadecimal string. Paste it in exactly as received for this to work.

System

Disable driver: Check this box if you need to temporarily disable the Sonos driver. The driver will still load, but not start executing. Handy whilst you are testing the rest of the system.

Licensing

Unlock code: Insert your purchased unlock code here. Each unlock code is matched to the MAC address of your XP processor. Leaving this field blank will give you a 60 minute trial. Once the trial has expired you can reset the XP to gain another 60 minutes.

Serial Numbers:

Ok, so where do I get that serial number you keep going on about? And more to the point, why do I even need it?

What a good looking question. Let me explain.

Sonos uses DHCP to obtain an IP address for each zone player. This is great for the end user because it means zero network setup in most cases. You just plug it in and it works. Unfortunately, in the CI world a dynamic IP address means headaches when you want to control it. This is no different.

Imagine you have 3 zones. They start up and 192.168.0.201 is zone 1, 192.168.0.202 is zone 2 and 192.168.0.203 is zone 3. Happy days. We can easily route each zone message to the correct zone player. Then one day there's a power outage and all the Sonos gear reboots. Zone 1 is now 192.168.0.203. Not so good.

So, we need a way to match a Sonos device with what you and I call "Zone 1". Enter the serial number. The serial number is a unique ID that cannot be changed on the Sonos device. So when you setup the

driver and match a Zone with a serial number, you can sleep easy knowing no matter how many times it's IP address changes the link will remain intact.

How do I find the serial number? Two ways. The first and simplest method is by opening up the Sonos Desktop Controller software (which let's face it, you must have used to commission the site anyway!) and heading over to the Help -> About My Sonos System menu. Below each Sonos device it found you'll see an entry showing the serial number. You may need to wait a few minutes for all the gear to show up if you've just recently applied power. For example:

PLAY:5: Sitting Room (Associated)

Serial Number: 00-0E-58-54-81-BA:9

Version: 3.5.2 (build 15444250)

Hardware Version: 1.16.4.1-2

IP Address: 192.168.0.226

OTP: 1.1.1(1-16-4-zp5s-0.5)

Yours won't be red, I just did that to save you reading time. Simply copy and paste this string (yes, including the colon and single digit/letter at the end) into the corresponding position in the driver config tab.

You mentioned another way to get the serial number? Indeed. This one involves having physical access to the Sonos gear. All the gear I've looked at requires you to turn it upside down. On the base is a sticker with the words 'SERIAL NUMBER' and a barcode printed on it.

It will be in the format: XXXX XX-XX-XX-XX-XX-XX-X.

Now comes the tricky part. Forget the first 4 digits. You're probably fixating on them because I singled them out. For that, I am sorry, but try to forget about them. Then there's the 2nd tricky thing – you need to reformat the string so it looks like:

XX-XX-XX-XX-XX-XX:X

Basically, just put a colon before the last character instead of a dash.

Yep, just use the Sonos Desktop Controller software, it's much simpler and you don't have to worry about making a typo.

Functions:

System:

These commands deal with the maintenance of the system as a whole.

Discover

This command sends a broadcast to the network asking any Sonos devices to identify themselves. This is done automatically when the driver starts. Sonos devices automatically announce themselves periodically so you shouldn't need this function.

Get Customer ID

This command asks a zone to report the Sonos customer ID.

Zone: 1 – 20.

Control:

These commands deal with individual control of a zone.

Set LED State

This command switches the front panel LED on/off. You could use this to indicate a zone is in use.

Zone: 1 - 20.

State: On/Off.

Play

This command starts playback of the currently selected input for the selected zone.

Zone: 1 – 20.

Pause

This command halts the current playback for the selected zone.

Zone: 1 – 20.

Next

This command skips to the next track in the selected zone.

Zone: 1 – 20.

Previous

This command skips to the previous track in the selected zone.

Zone: 1 – 20.

Seek Track

This command jumps to the specified track number in the selected zone.

Zone: 1 – 20.

Track: 1 - ...

Seek Relative Time

This command skips to specified position in the currently playing track in the selected zone.

Zone: 1 – 20.

Hours: 0 - ...

Minutes: 0 – 59.

Seconds: 0 – 59.

Set Volume

This command sets the volume in the selected zone.

Zone: 1 – 20.

Level: 0 – 100.

Increment/Decrement Volume

This command increases or decreases the volume in the selected zone. You can specify the step which will alter the volume in larger jumps.

Zone: 1 – 20.

Direction: Increment/Decrement.

Step: 1 – 10.

Mute

This command mutes the output in the selected zone. You can mute/unmute all zones simultaneously by selecting zone 0.

Zone: 0 – 20.

State: On/Off/Toggle.

Set Loudness

This command controls the loudness feature in the selected zone.

Zone: 1 – 20.

State: On/Off/Toggle.

Set Crossfade Mode

This command controls the crossfade feature in the selected zone.

Zone: 1 – 20.

State: On/Off.

Set Play Mode

This command controls the playback feature in the selected zone.

Zone: 1 – 20.

Mode: Normal/Shuffle/Shuffle (repeat)/Repeat All.

Set Bass

This command controls the bass level in the selected zone.
Zone: 1 – 20.
Level: -10 to 10.

Set Treble

This command controls the treble level in the selected zone.
Zone: 1 – 20.
Level: -10 to 10.

Get Position Info

This command requests the current position information for the playing track in the selected zone.
Zone: 1 – 20.

Inputs:

These commands control the input selection for a zone.

Select Source

This command selects the input source in the selected zone.
Zone: 1 – 20.
Source: Music Library/Line-In.

Select Remote Source

This command allows you to select the input source from a remote zone and play it in the selected zone. Use this to connect a wireless iPod dock to a zone player.
Zone: 1 – 20.
Source: Music Library/Line-In/Dock.
Remote Source: 1 – 20.

Set Line-In Level

This command sets the line in sensitivity level in the selected zone.
Zone: 1 – 20.
Level: 1 - 10.

Set Audio Input Attributes

This command allows you to set the name and icon for the line-in source in the selected zone.
Zone: 1 – 20.
Line-In Name: <string>.
Icon: <select from the list>.

Link Zone

This command links a servant zone to the zone specified.

Zone: 1 – 20.

Link To: 1 – 20.

Drop Zone

This command makes the specified zone standalone.

Zone: 1 – 20.

Variables:

Variables are provided for all 20 zones. Obviously only the zones you have specified serial numbers for are valid!

System

Busy: (Boolean) This variable is True whilst the driver is still initializing, False once startup has completed. You can use this to show/hide a 'please wait' graphic whilst the system is initializing.

Zone 1 - 20

Zone Name: (String) Name of the zone as specified in the Sonos Desktop Controller.

Sonos Model: (String) The model of the Sonos device. For example, 'Sonos ZonePlayer S5'.

Sonos Model Number: (String) The model number of the Sonos device. For example, 'S5'.

Sonos Version: (String) The version of the firmware in the Sonos device. For example, '15.4-44250'.

Sonos IP: (String) IP address of the Sonos device.

Sonos UUID: (String) Unique Sonos network identifier. For example, 'RINCON_XXXXXXXXXXXXXXXXXX'.

Volume: (Integer) Zone master volume. Range is 0 to 100.

Volume Left: (Integer) Zone left volume. Range is 0 to 100.

Volume Right: (Integer) Zone right volume. Range is 0 to 100.

Bass: (Integer) Zone bass level. Range is -10 to 10.

Treble: (Integer) Zone treble level. Range is -10 to 10.

Balance: (Integer) Zone balance level. Range is -10 to 10.

Loudness: (Boolean) Zone loudness feature. True when enabled, false when disabled.

Now Playing Track: (Integer) Track number currently playing in this zone.

Now Playing Track Length: (String) Length of the currently playing track in this zone. For example, '0:05:43'

Now Playing Track Title: (String) Name of the currently playing track in this zone.

Now Playing Album: (String) Name of the currently playing album in this zone.

Now Playing Artist: (String) Name of the currently playing artist in this zone.

Now Playing Track Position: (String) Position of playback of the current track in this zone. For example, '01:27'

Now Playing Track Position Percentage: (Integer) Track position represented as a percentage. Use this to indicate the position on a gauge.

Next Track Title: (String) Name of the track to be played next in this zone.

Next Album: (String) Name of the album to be played next in this zone.

Next Artist: (String) Name of the artist to be played next in this zone.

Next Track/Artist: (String) Combined track/artist to be played next in this zone. In the format Artist – Track Title.

Mute: (Boolean) Zone mute status. True when mute is on, false when it is off.

Playing: (Boolean) Zone playback status. True when playing, false when not playing.

Paused: (Boolean) Zone pause status. True when paused, false when not paused.

Shuffle: (Boolean) Zone shuffle status. True when shuffle is on, false when it is off.

Repeat: (Boolean) Zone repeat status. True when repeat is on, false when it is off.

Crossfade: (Boolean) Zone crossfade status. True when crossfade is on, false when it is off.

Icon: (Image) Zone icon. If the Sonos device is able to provide an icon image it will be available here. Please note, not all devices support this.

Cover Art: (Image) Cover art for the currently playing track, if available. Please note, not all tracks have cover art available.

License

Unique Id: (String) This is your MAC address for the XP processor. You can display this if you're having difficulty with the licensing system. Make sure it matches the value you submitted for purchasing a license.

Licensed: (Boolean) License status. True when a valid unlock code has been provided, false when the license is not valid.

Unlicensed: (Boolean) License status. True when an invalid unlock code (or none at all) has been provided, false when the license is valid.

Events:

Events are provided to allow intelligent control of the connected subsystems. Using the Zone On/Off events you can easily turn power amps on/off whenever the user uses the system.

System

Initializing Sonos: As this driver is rather CPU intensive during startup you can use this event to display a please wait screen or similar.

Initialization Complete: Once startup has completed this event will trigger.

Zone 1 - 20

Zone On: This event will be triggered when the zone is currently in the Off state and playback has started.

Zone Off: This event will be triggered when the zone is currently in the On state and playback has been paused for the duration specified in the Driver Configuration tab for this zone.

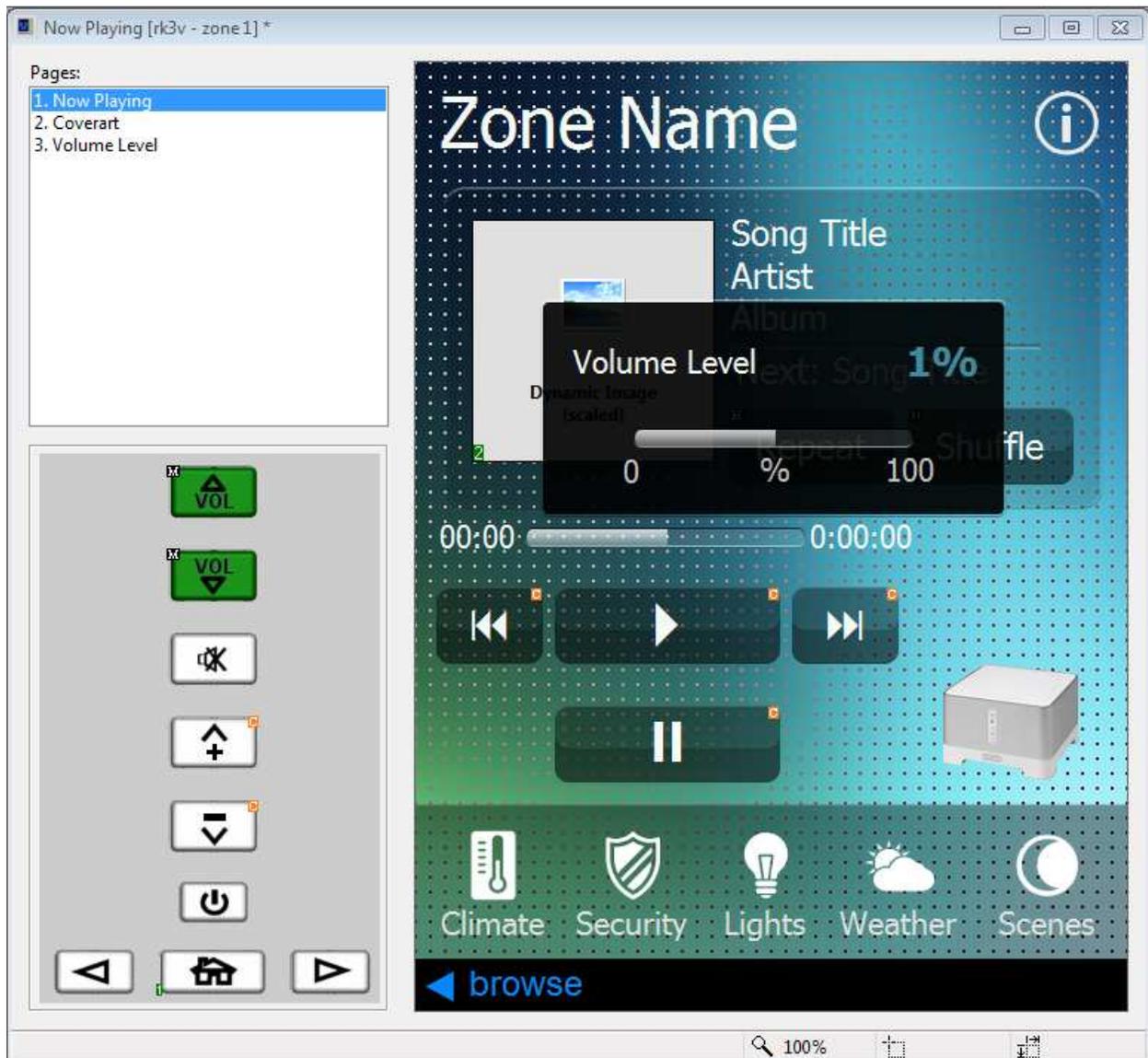
Examples:

Displaying a 'please wait' screen while the driver starts.

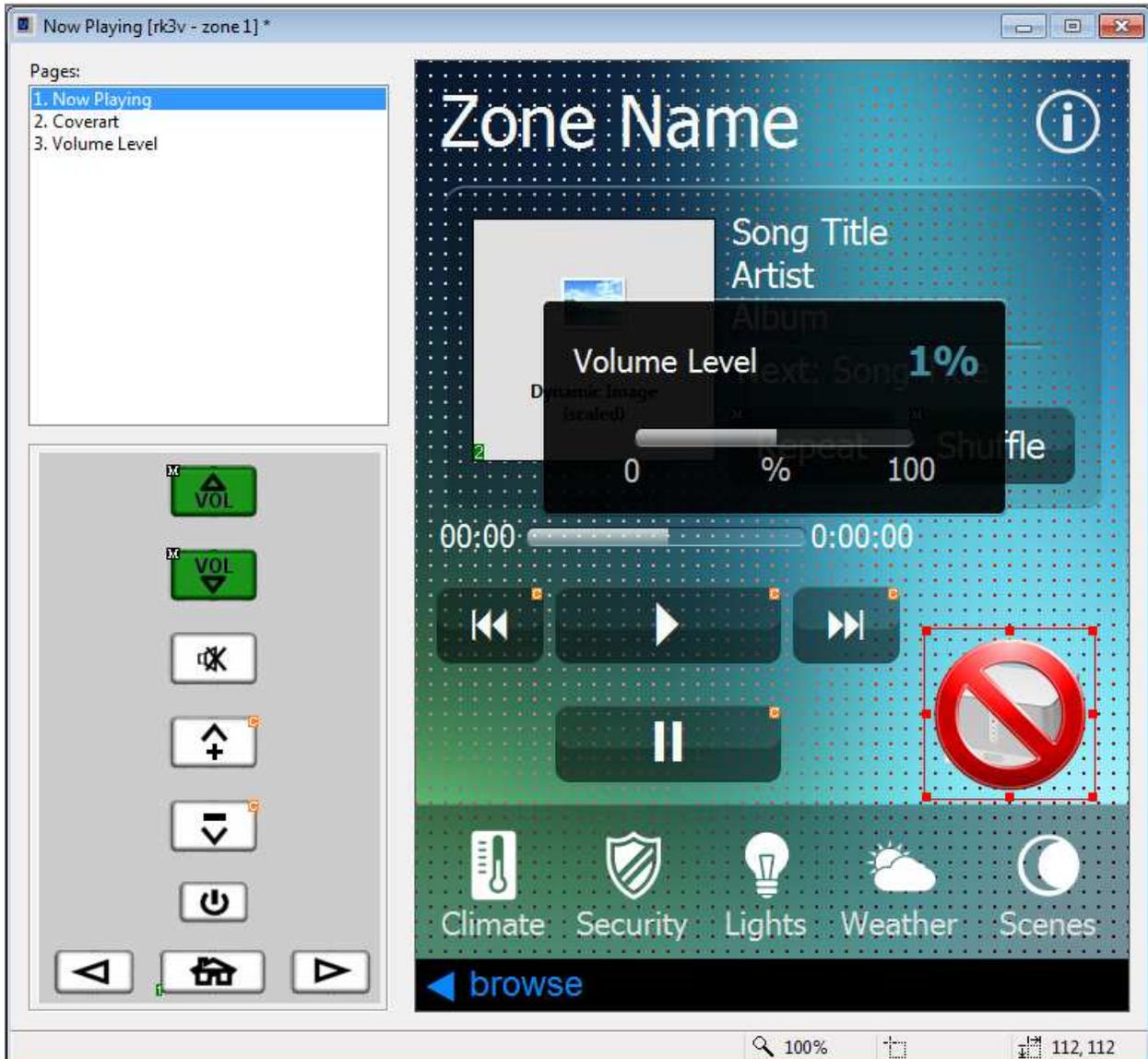
This example will walk you through adding a please wait style screen to a panel. On the newer processors like the XP3 and XP6, the driver starts in a few seconds so this shouldn't be necessary. However on the older XP8 it can take 10-20 seconds to startup which may cause frustration for an end user.

There are two ways to achieve this. The first is by simply overlaying a 'busy' graphic that indicates the system is busy. To add this, do the following:

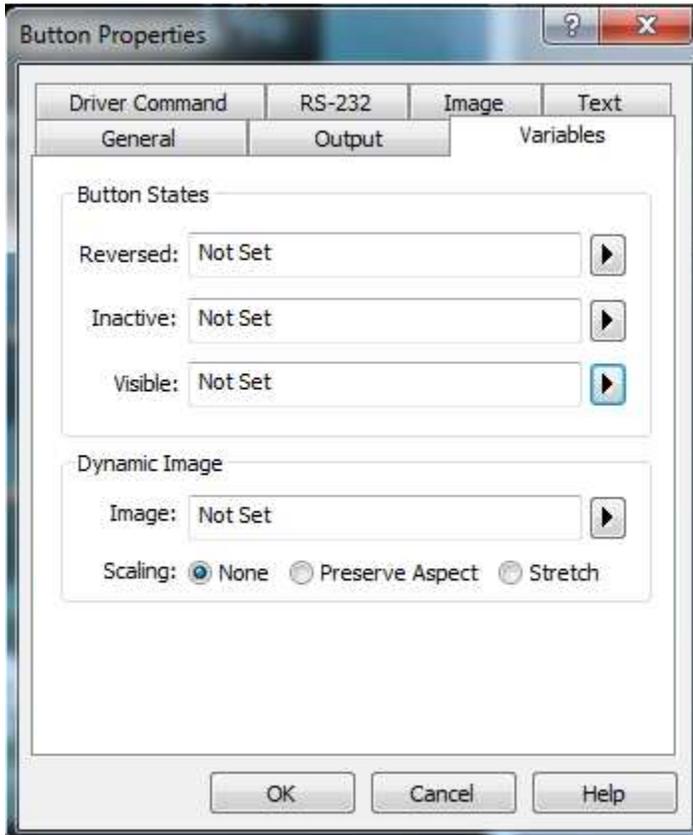
Start by opening the device you wish to add the busy indicator to.



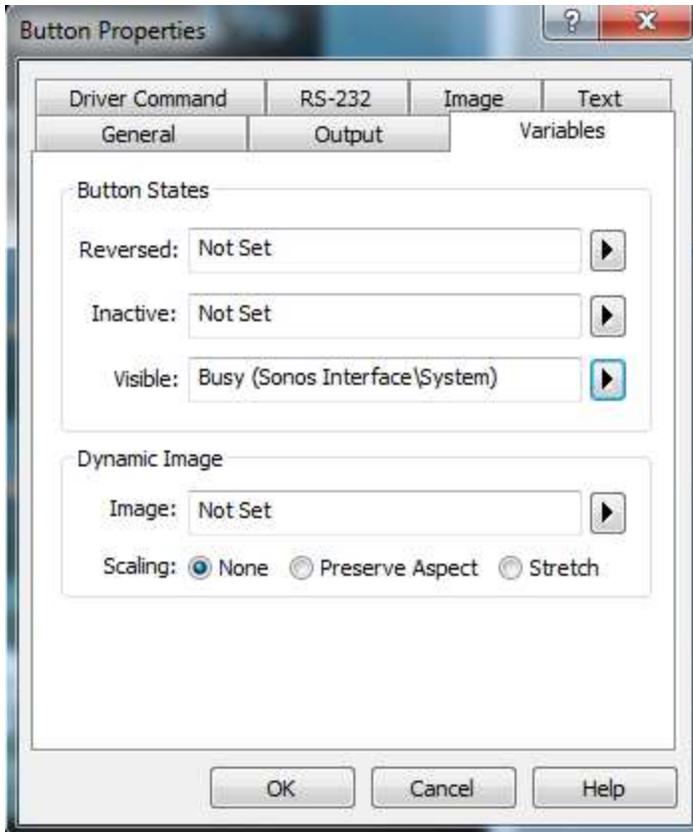
Now browse your bitmap library and find an appropriate busy indicator. I like the Ghostbusters style 'no' red ring with a line through it. Drag this onto your page and position it in an appropriate position.



Select the newly positioned image and right click on it and select Edit Properties.
Navigate to the Variables tab and click on the right arrow next to the Visible button state.



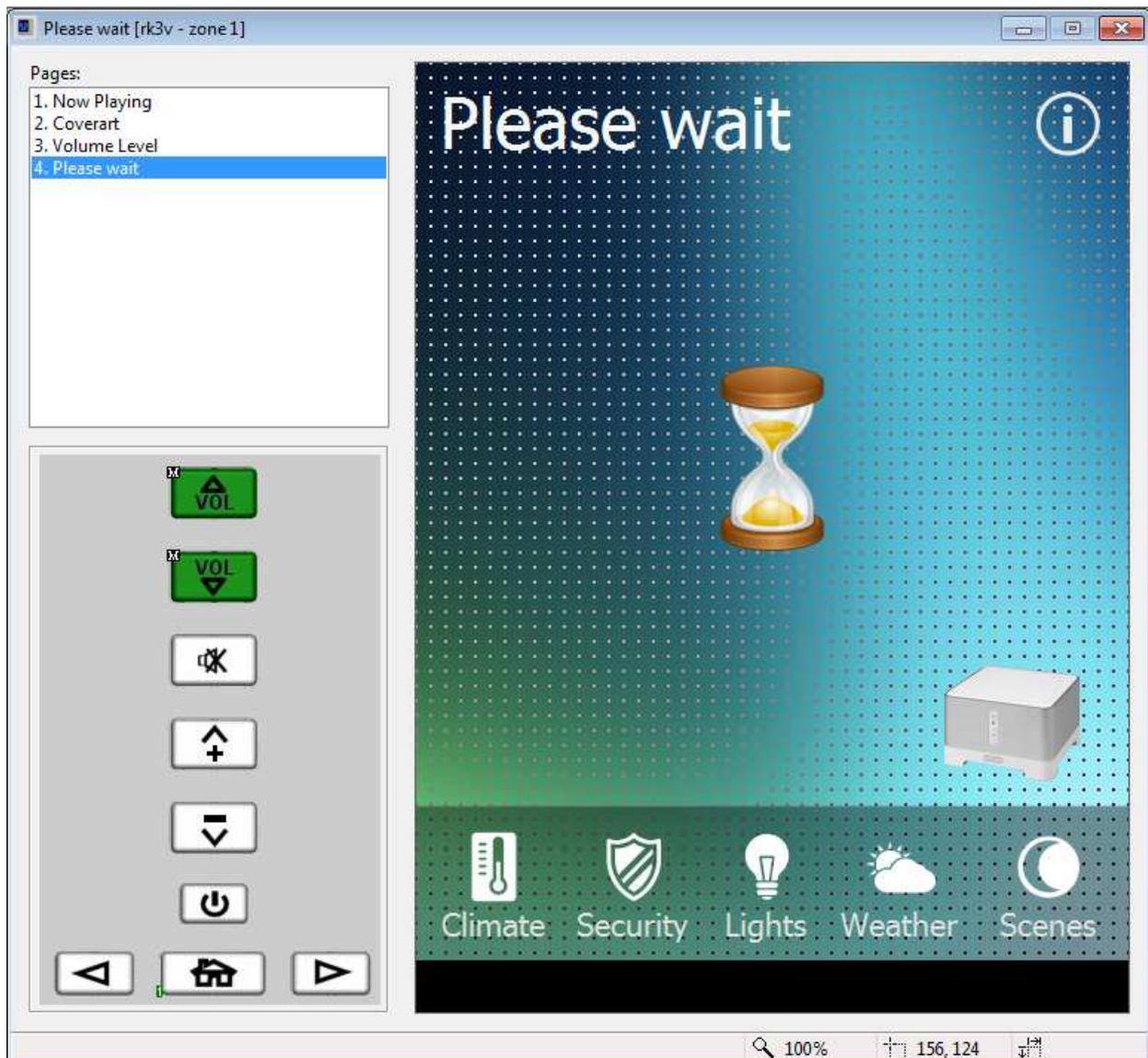
Now select the Sonos Interface driver -> System -> Busy.



Hit OK and you're done. Now when the system is starting up the big red 'NO' graphic will appear, hopefully making it obvious to the end user that they need to wait.

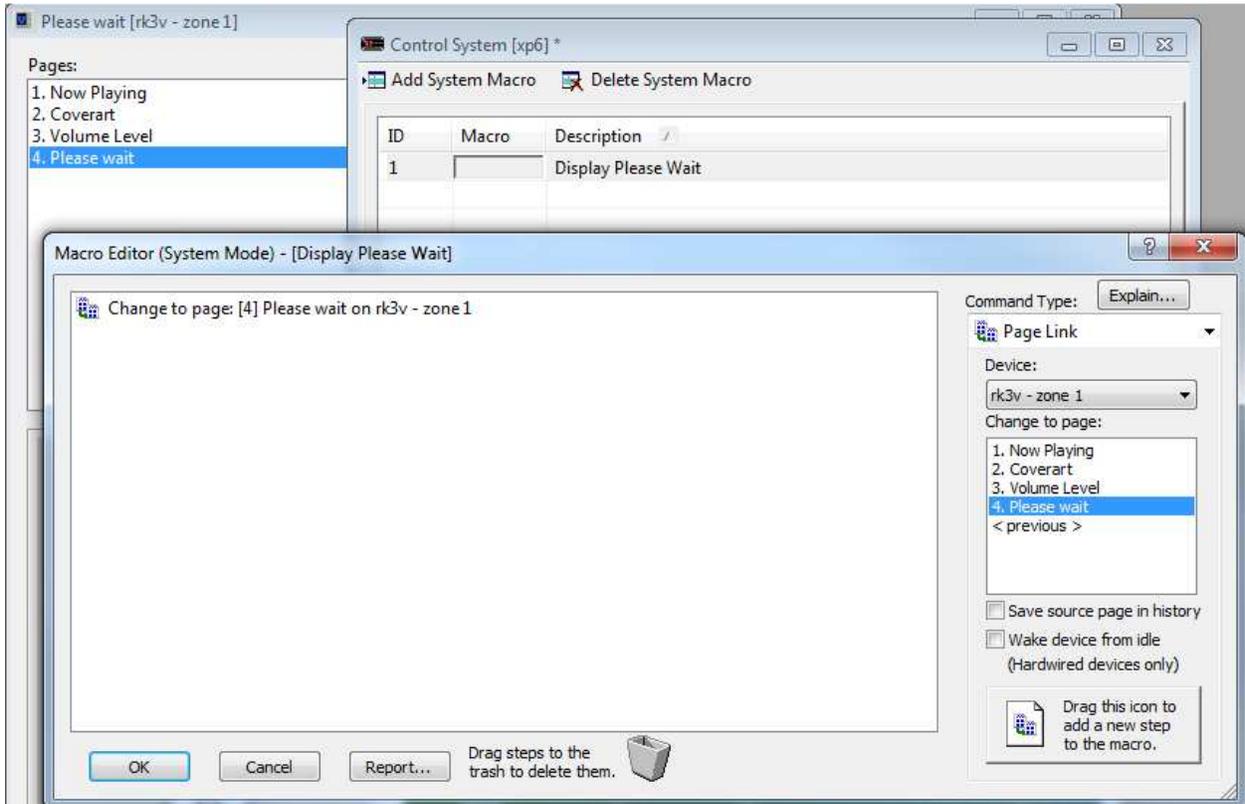
If you have a lot of pages, using this method may not be suitable. So, you can use an Event to trigger page flips instead.

Start by adding a 'please wait' page to your panel.



Now we need to create a few macros. Open your XP processor (mine is an XP6 in this example) and make sure the System Macros tab is selected. Click on Add System Macro.

Name the macro something obvious like 'Display Please Wait'. Now edit the macro and add a Page Link command that will show our new please wait screen. Uncheck the 'Save source page in history'.



Now add a similar macro that Page Links to your home page (or now playing in my case).

Once that's done, jump over to the Events tab on your XP and add a new Driver Event.

Set the Event to: Sonos -> Initializing Sonos event.

Set the Macro to: Display Please Wait.

Hit OK.



Now add a similar one for Initialization Complete, but point it at your home page macro.



Now when the XP restarts you'll get a please wait screen until the driver is open for business.

Integrating with Home Theatre Systems.

If you have a Sonos zone player that's been added as an input to an existing system, wouldn't it be cool if the existing amp turned on when playback started, and automatically turned off when the user was done? Yep, we thought so too! Here's how to do it:

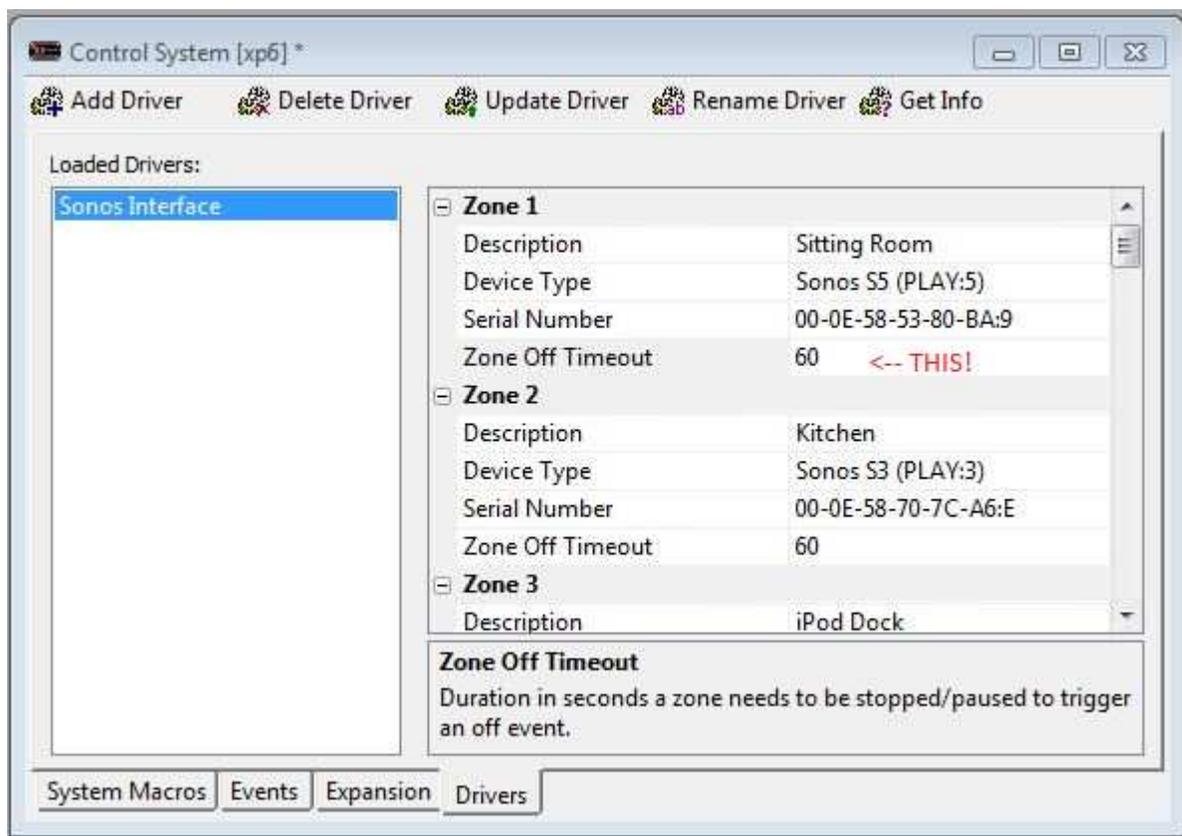
For this example I will assume you have 2 system macros:

Turn Gear On; and

Turn Gear Off

If you're looking at the sample project file included with this document, these macros simply close and open Relay 1 respectively. In a real life scenario, Turn Gear On would probably power on the amp, select the Sonos input and set the volume to something reasonable. Turn Gear Off would switch off the amp.

Remember back when you setup each zone in the driver configuration tab and there was a Zone Off Timeout value? If not, here's a screen shot:



This value (60 in the above image) is the number of seconds that need to elapse in PAUSE mode for the zone before it will trigger a Zone Off event.

What this means in English is, once the user hits pause in Zone 1, the driver will trigger a Zone Off event if playback doesn't resume within 60 seconds.

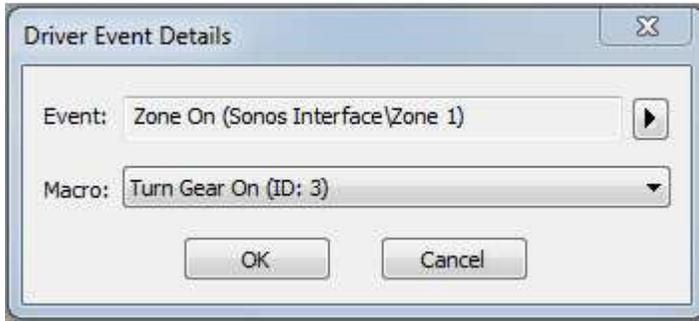
Set this value to a time that works for the user.

Now tab on over to the XP Events window and add a Driver Event.

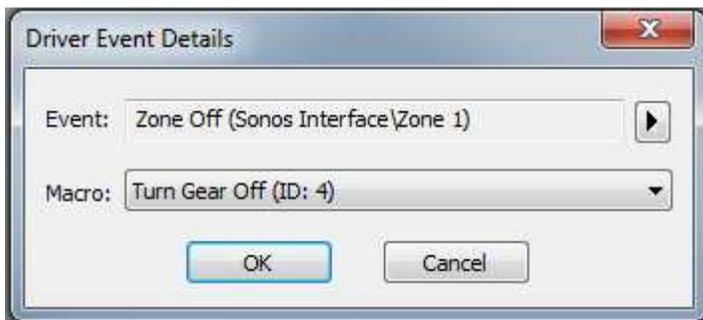
Set the Event to: Sonos -> Zone 1 -> Zone On;

Set the Macro to: Turn Gear On

Hit OK.



Now do the same thing for Zone Off, and point it to Turn Gear Off.



That it, you're done! You've now created a setup that will 'Turn Gear On' when Zone 1 starts playing, and 'Turn Gear Off' once Zone 1 has been paused for 60 seconds.

Rinse and repeat for as many other zones as necessary.

Contact Details:

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It's my device...