



## **Savant® IP Audio Music Server**

PAV-SMS2001

### **Deployment Guide**

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## Important Safety Information - Read First

Before installing, configuring, and operating Savant equipment and other vendor equipment, Savant recommends that each dealer, integrator, installer, etc. access and read all the required technical documentation. Savant technical documentation can be located by visiting [Savant.com](https://www.savant.com). Vendor documentation is supplied with the equipment.

**Read and understand all safety instructions, cautions, and warnings in this document and the labels on the equipment.**

### Safety Classifications in this Document

<b>NOTE:</b>	Provides special information for installing, configuring, and operating the equipment.
 <b>IMPORTANT!</b>	Provides special information that is critical to installing, configuring, and operating the equipment.
 <b>CAUTION!</b>	Provides special information for avoiding situations that may cause damage to equipment.
 <b>WARNING!</b>	Provides special information for avoiding situations that may cause physical danger to the installer, end user, etc.

### Electric Shock Prevention

#### **ELECTRIC SHOCK!**

The source power poses an electric shock hazard that has the potential to cause serious injury to installers and end users.

#### **ELECTRICAL DISCONNECT:**

The source power outlet and power supply input power sockets should be easily accessible to disconnect power in the event of an electrical hazard or malfunction.

### Weight Injury Prevention

#### **WEIGHT INJURY!**

Installing some of the Savant equipment requires two installers to ensure safe handling during installation. Failure to use two installers may result in injury.

## Safety Statements

Follow all of the safety instructions listed below and apply where applicable. Additional safety information will be included where applicable.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. To completely disconnect this equipment from the AC mains, disconnect the power supply cord plug from the AC receptacle.

# 1. Introduction

This document will guide the installer through the process of installing, configuring, and adding Savant IP Audio devices to a RacePoint Blueprint® configuration.

## Before You Begin

Read through this document in its entirety and ensure that the following required items are available:

- Savant IP Audio Music Server..... ☐
- Unique ID (UID) of the Savant IP Audio Music Server ..... ☐  
(located on the back of the device)
- Savant Host (Smart or Pro) licensed and running da Vinci software ..... ☐  
da Vinci version 8.8 or higher
- Savant Development Environment (SDE/MacBook) ..... ☐
- Ethernet network meeting Savants requirements..... ☐  
See [Appendix A: Network requirements](#)

# 2. Deployment Steps

Follow these steps to successfully deploy a Savant IP Audio device. This page can be used as a checklist to record which steps have been completed.

- 1. Review product specifications and connection details..... ☐  
See [Savant IP Audio Music Server Overview](#)
- 2. Install the Savant IP Audio devices..... ☐  
See [Installation](#)
- 3. Install Savant qualified AVB/TSN Network Switch (Optional) ..... ☐  
See [Adding an AVB/TSN Switch](#)
- 4. Add the Savant IP Audio devices into a RacePoint Blueprint® configuration..... ☐  
See [Adding a Savant IP Audio to a Configuration](#)

## 3. Savant IP Audio Music Server Overview

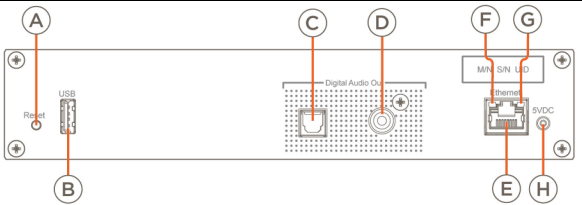
### 3.1. Box Contents and Specifications

Refer to the Quick Reference Guide for these products located on the **Savant Customer Community** for Box Contents and Specifications.

### 3.2. Front Panel

	<b>(A)</b> Power LED	<b>Green:</b> System has power and is operating normally. <b>Off:</b> System is not receiving power.
<b>(B)</b> Status LED	<p><b>Green Blinking:</b> Embedded system is ready, but no communication has been established with the host.</p> <p><b>Green:</b> Host has established communications with the embedded system.</p> <p><b>Red Blinking:</b> Embedded firmware is running, but has not received a DHCP IP Address.</p> <p><b>Red:</b> Host has determined the firmware needs to be updated, but a problem occurred during the process that will initiate a reset.</p> <p><b>Amber Blinking:</b> Embedded system has a valid link-local IP Address and is connecting to the host.</p> <p><b>Amber:</b> Host is updating the embedded firmware.</p> <p><b>Off:</b> Embedded processor is resetting, or is powered up, and is booting the embedded firmware.</p> <p><b>Hardware Failure:</b> If a hardware failure occurs, the status LED indication will be interrupted every three seconds with a solid red indication. For example, if the LED is blinking green when a hardware failure occurs, the LED will alternate between blinking green and solid red at three-second intervals.</p>	

### 3.3. Rear Panel

		<b>(A)</b> Reset Button	Resets the network settings of the device. Hold Reset Button for 5 seconds while powered on to clear network settings. Status LED will rapidly blink red when reset is complete.
		<b>(B)</b> USB	USB 2.0 Type A (reserved for future use).
		<b>(C)</b> Digital Audio Out (Optical)	(1) Digital optical preamp output, line-level 96kHz/24-bit output, fixed volume.
<b>(D)</b> Digital Audio Out (Coaxial)	(1) Digital coaxial preamp output, line-level 96kHz/24-bit output, fixed volume.		
<b>(E)</b> Ethernet	8-pin RJ-45 port 10/100/1000 Base-T auto-negotiating port with Link/Activity LEDs. Supports Audio Video Bridging (AVB).		
<b>(F)</b> Ethernet Activity LED	<b>Green Blinking:</b> Activity (Rx/Tx). <b>Off:</b> No Activity.		
<b>(G)</b> Ethernet Link LED	<b>Green Solid:</b> Ethernet Link is established. <b>Off:</b> Ethernet link is not established		
<b>(H)</b> Power Input	5V DV 3A		

## 4. Wiring and Connections

### 4.1. Audio Connections

The Savant IP Audio Music Server has two audio output connections. This device provides only one stream of Savant Music, both connections transmit the same audio.

### 4.2. Network Connection

The Savant IP Audio Music Server uses a standard RJ-45 port complying with IEEE 802.3 Ethernet standards. This port also supports Audio Video Bridging (AVB) or Time Sensitive Networking (TSN) over Ethernet (AVB/TSN, IEEE 802.1). Up to sixteen IP Audio devices can be connected using AVB/TSN compliant switching. For more information on this, see the [Expansion](#) section.

### 4.3. AC Power Connection



#### **SURGE PROTECTION!**

Use a surge-protected circuit for all components and power supplies requiring 100/240V (AC 50/60 Hz) source power.



#### **ELECTRICAL DISCONNECT!**

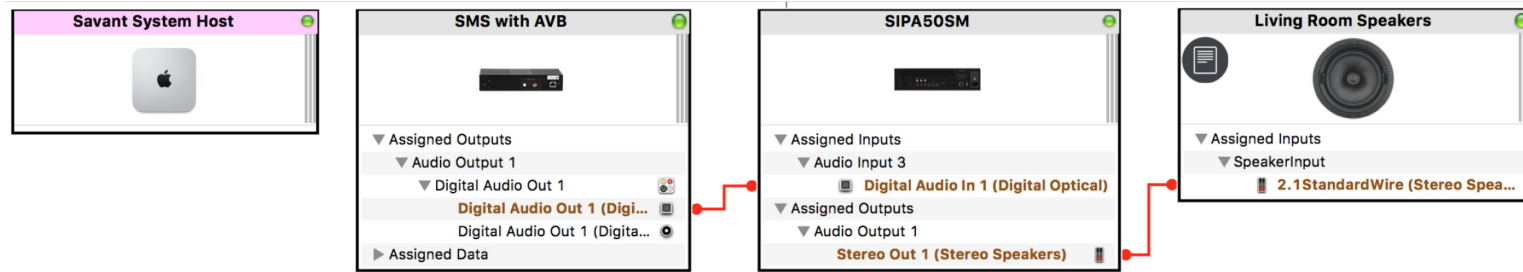
The source power outlet and power supply input power sockets should be easily accessible to disconnect power in the event of an electrical hazard or malfunction.

## 5. Installation

The Savant IP Audio Music Server can be placed on a solid flat surface such as a table or shelf. The PAV-SMS2001 will fit on any generic 1U NEMA rack shelf.

## 6. Blueprint Configuration

### 6.1. Basic Blueprint Layout



## 6.2. Adding a Savant Music Server to a Configuration

This example shows adding a PAV-SMS2001, the basic process is the same no matter what IP Audio device is being added to the configuration. In an open Blueprint configuration.

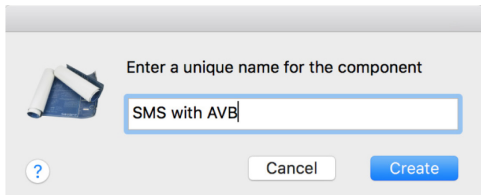
1. Click **Show Library**.
2. Search for PAV-SMS.
3. Select the PAV-SMS2001 and drag into a Shared Equipment zone.



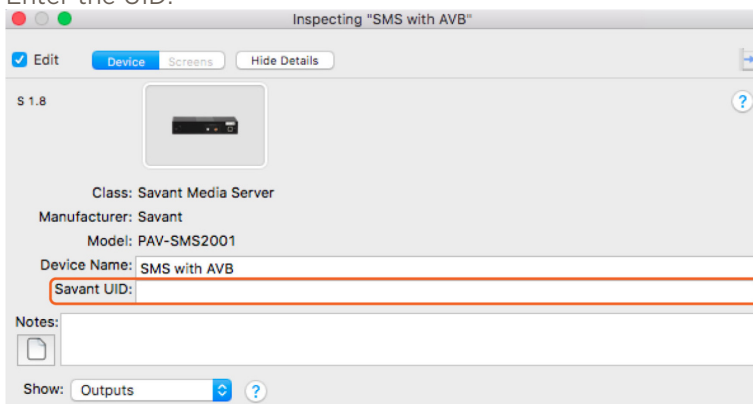
### HELPFUL INFO:

It is recommended to place any type of A/V sources in a Shared Equipment zone. If placed in a User zone the outputs cannot leave that zone.

4. Name the Device.



5. Place PAV-SMS2001 in the layout window.
6. Select the **PAV-SMS2001**.
7. Open **Inspector**.
8. Enter the UID.



### NOTE:

The Ethernet connection is implied in Blueprint. No data connection is needed for a single unit deployment.

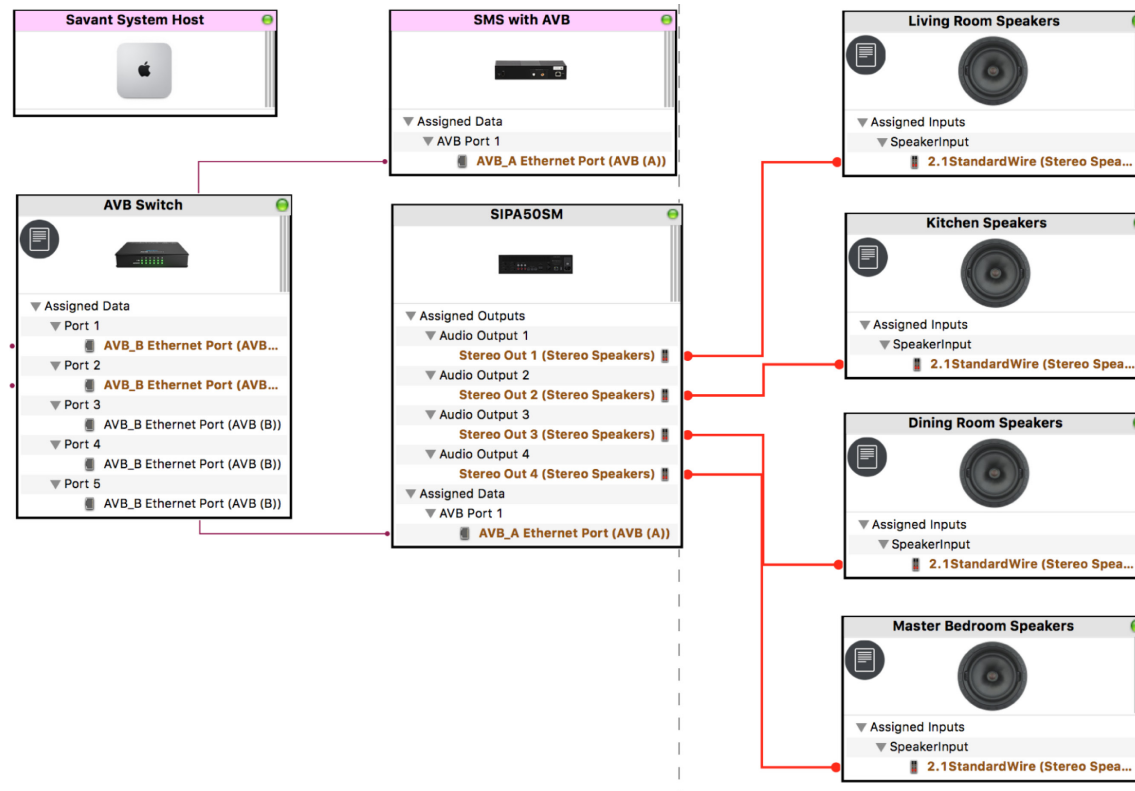
This device supports expansion of up to 16 IP Audio devices to be used as a single system. The second and up to the sixteenth device will need to be added to the configuration in the same way as the first one was. For more information, see the [Expansion](#) Section.



## 7. Expansion

Up to sixteen Savant IP Audio devices can be connected using a compatible switch certified for AVB/TSN switching.

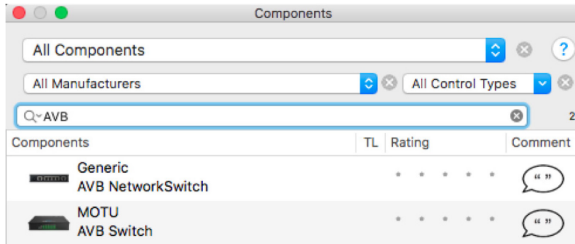
### 7.1. AVB Blueprint Layout



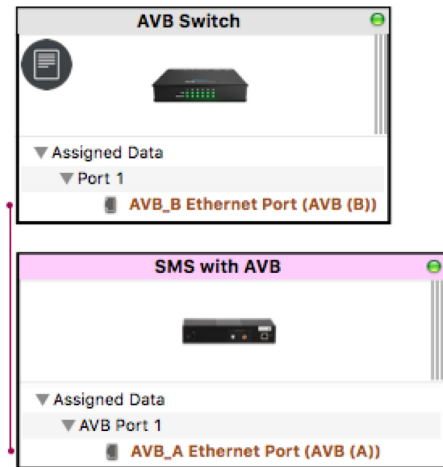
## 7.2. Adding an AVB/TSN Switch

An AVB/TSN switch is only needed if more than one IP Audio device is being used.

1. From Blueprint Click Show Library
2. Search for AVB.



3. Drag into a Shared Equipment zone.
4. Name the Device.
5. Place the AVB switch in the layout window and make AVB connections.



The Savant IP Audio devices Ethernet port must be connected to the AVB switch.

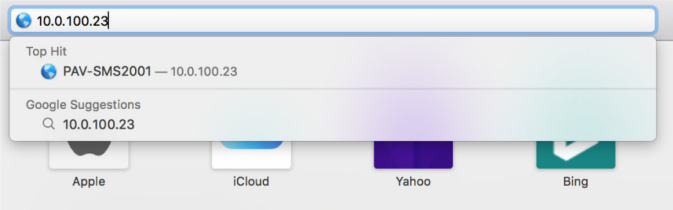
# 8. Web User Interface (Web UI)

In addition to Blueprint, the PAV-SMS2001 has a Web UI. This allows control of settings and audio connections. It can be useful in troubleshooting.

## 8.1. Accessing the Web UI

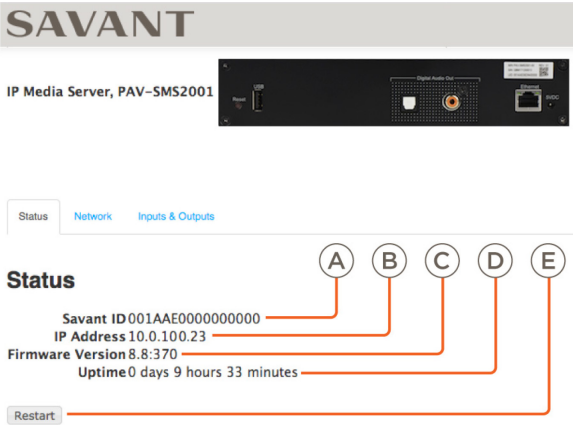
To access the Web UI, the IP Address of the SMS is needed. The IP Address can be obtained with either a Network scanning software or from System Monitor.

- 1. On the SDE, open a Web Browser and enter the address of the switch in the address bar:  
Syntax: http://[IP Address of Switch]



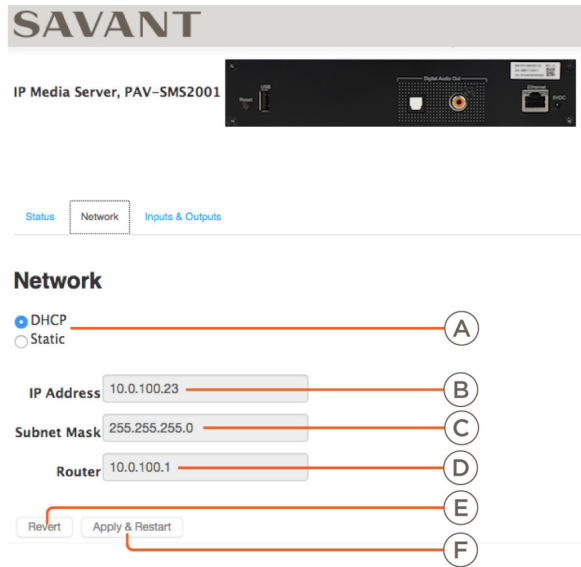
- 2. Once opened, login credentials will be required: User: **RPM** Password: **RPM**

## 8.2. Status Tab



(A)	Savant ID	UID of the device.
(B)	IP Address	Current assigned IP Address.
(C)	Firmware Version	Current Firmware Version number.
(D)	Uptime	Amount of time the unit has been powered without a restart.
(E)	Restart	Restarts the software of the unit.

### 8.3. Network Tab



<b>A</b>	IP Address Configuration	DHCP or Static.
<b>B</b>	IP Address	Displays the current IP Address and allows for entry. This is automatically assigned when item A is set to DHCP.
<b>C</b>	Subnet Mask	Subnet mask of the network. This is automatically assigned when item A is set to DHCP.
<b>D</b>	Router	IP Address of the network router. This is also known as Gateway or Default Gateway.
<b>E</b>	Revert	Select to erase entered settings and revert back to saved settings.
<b>F</b>	Apply and Restart	Select to apply entered settings, and restart the device.

### 8.4. Inputs & Outputs Tab

SAVANT

IP Media Server, PAV-SMS2001

StatusNetworkInputs & Outputs

Inputs & Outputs

A

Connector

Media Server

B

Trim

0 dB

C

Input 1

D

E

Digital Out

F

Stereo

G

Pass-Through

H

Delay

0/0 ms

I

Volume

A

Connector Type

Analog Inputs: Stereo RCA, Digital Inputs (TosLink), Media Server.

B

Channel Trim

Fixed input.  
The built in Music stream is a digital source and does not have a variable trim.

C

Input List

List of the inputs on the device.

D

I/O Connection Indicator

When an input is connected to an output, a line will appear between them showing that there is a connection. Inputs with no connection will have a black dot with no line. The dots can also be used to connect an input to an output. Simply click & hold the mouse on the dot next to the desired input and drag the line to desired output dot and release.

E

Output List

List of the outputs on the device.

F

Output Channels

Stereo  
Digital outputs are set to Stereo and cannot be changed.

G

Pass-Through

Pass-Through  
Digital outputs are set to Pass-Through and cannot be changed.

H

Delay

Adjustable delay per channel from 0 - 160ms.  

Output 1 Delay Settings

Left

Right

0 ms

0 ms

I

Volume

Fixed output.

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9. Savant Music

The PAV-SMS2001 has a single stream of Savant Music. This allows the use of popular music streaming services such as Pandora or Spotify (streaming music service fee may apply). For a full list of supported services, see **Savant Media Server/Savant Music Supported Streaming Services** on the **Savant Customer Community**.

The service is generated in Blueprint. The streaming services are managed in the Savant Pro App.

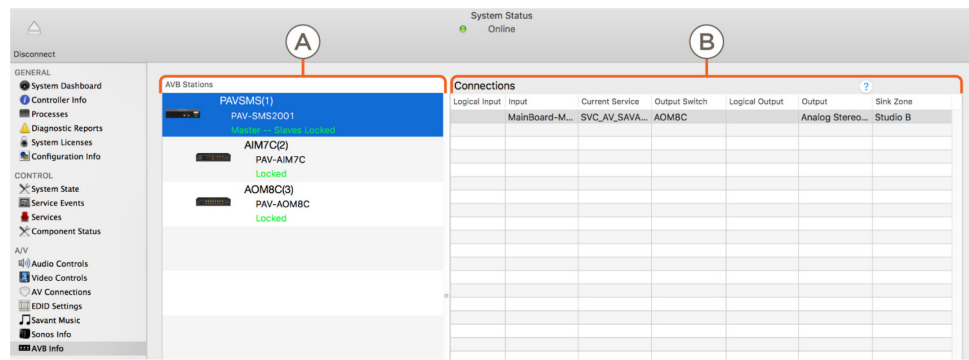
10. System Monitor

AVB Info

Connections that output from the same device that they originate from will not display.

Examples:

- Audio from device A that outputs from device B will display.
- Audio from device A and outputting the same device will not display.



(A) AVB Stations	All AVB/TSN compliant Savant products will display. AVB/TSN Master/Slave notations display here. If “Freewheeling” displays AVB connections will not work.
(B) Connections	All active AVB/TSN connections that originate on the selected device

## Appendix A: Network Requirements

Savant requires the use of business class/commercial grade network equipment throughout the network to ensure the reliability of communication between devices. These higher quality components also allow for more accurate troubleshooting when needed.

### Device Network Connections

Connect all Savant devices to the same local area network (LAN) or subnet as the host. Savant recommends not implementing any type of traffic or packet shaping in your network topology for the Savant devices as this may interfere with performance.

### AVB Requirements

Savant requires a AVB/TSN Compliant Switch. The AVB/TSN switch should be an extension of the current network.

### Managing IP Addresses

To ensure that the IP Address will not change due to a power outage, a static IP Address or DHCP reservation should be configured. Savant recommends using DHCP reservation within the router. By using this method, static IP Addresses for all devices can be managed from a single UI avoiding the need to access devices individually.

#### Setting a Static IP Address

Refer to the **Appendix B**.

#### Setting DHCP Reservation

Setting DHCP reservation varies from router to router. Refer to the documentation for the router to configure DHCP reservation.

### Network Changes

Savant recommends performing one of the following steps to refresh the IP connection after connecting to a new network, changing routers, or if the IP Address range is changed in the current router. This will reset any IP connection and ensure that the host is communicating with the network correctly.

- **Cycle Power**
  - Disconnect the Pro Audio 4 from the power source.
  - Wait 15 seconds and then reconnect.
- **Hot Plug the Ethernet (LAN) Connection**
  - Disconnect the Ethernet (LAN) connection from the controller.
  - Wait 15 seconds and then reconnect.

## Appendix B: Setting Static IP Address

1. Open System Monitor.
2. Double click the Host.
3. Select Controller Info.
4. Select the PAV-SMS2001.
5. Copy the IP address.
6. Open a web browser and enter the IP Address in the Address bar.
7. Enter User Name and Password  
User Name: RPM, Password: RPM
8. Select the Networking Tab.
9. Select Static

The screenshot shows a web interface for network configuration. At the top, there are three tabs: 'Status', 'Network', and 'Inputs & Outputs'. The 'Network' tab is selected. Below the tabs, the title 'Network' is displayed. There are two radio buttons: 'DHCP' (unselected) and 'Static' (selected). Below the radio buttons, there are three text input fields: 'IP Address' with the value '10.0.100.100', 'Subnet Mask' with the value '255.255.255.0', and 'Router' with the value '10.0.100.1'. At the bottom, there are two buttons: 'Revert' and 'Apply & Restart'. Red lines with numbered callouts (9, 10, 11, 12, 13) point to the 'Static' radio button, the 'IP Address' field, the 'Subnet Mask' field, the 'Router' field, and the 'Apply & Restart' button, respectively.

10. Enter desired IP Address  
**NOTE:** This needs to be either outside the DHCP range or reserved in the router. If not, IP conflicts can occur.
11. Enter the Subnet Mask, change only if needed.
12. Enter the Routers IP Address, change only if needed.
13. Click **Apply & Restart**



# Appendix C: DNS (Add, Remove, Query)

Setting a DNS is only relevant to devices with a built in Savant Music stream. Follow the instructions below to, add, remove, or query the DNS servers configured on the IP Audio devices.

- 1. Open a terminal window on a MacBook/SDE.
- 2. Enter ssh RPM@<IP Address of IP Audio device>  
Example:  
**ssh RPM@10.0.200.45**
- 3. When prompted enter the password.  
Default: RPM
- 4. Once logged in, the commands below will add, remove, or query the DNS server(s) configured:

To add a DNS server:	<b>setDNSServer -add -address x.x.x.x &lt;enter&gt;</b>
To remove a DNS server:	<b>setDNSServer -remove -address x.x.x.x &lt;enter&gt;</b>
To query the DNS servers configured:	<b>setDNSServer &lt;enter&gt;</b> Terminal window will respond with the list of DNS servers as displayed below: <b>nameserver 8.8.8.8</b> <b>nameserver 8.8.4.4</b>

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- To contact Savant Sales, visit Savant.com and select **Contact Us** to locate a local sales representative in your area.