



## Frequently Asked Questions

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**Broadcast Tools ACS 8.2 Plus Audio Switcher Configuration**

### Introduction

Satellite programming is a fact of life for many radio stations today. In fact, it is not unusual for a single station to use as many as 5 or 6 different satellite feeds during the course of a broadcast day. Many engineers, when faced with the challenge of sorting out and routing these audio signals to an automation system, have elected to use the Broadcast Tools ACS 8.2 Plus Audio Switcher. Taking only 1 rack unit of space, the ACS 8.2 Plus provides 8 audio inputs and two outputs. Additionally, the unit includes individually adjustable (L + R) buffer amps for each input channel and a silence sensor. The switcher provides for front panel user selection of switch paths, and a GPIO port with 16 Trigger inputs and 8 output relays. On-board metering and monitoring are valuable additional benefits. As with many BT products the ACS 8.2 Plus can be fully controlled by the serial port via Simian's Macro commands.

After reading this document, you will be able to use the ACS 8.2 Plus's basic functions. There are other functions the ACS 8.2 Plus has that are not covered in this document, such as fading between inputs, and setting up silence sensing. Information on more advanced functions can be found in the user manual supplied with the unit.



*Figure 1: Front Panel View of the Broadcast Tools ACS 8.2 Plus Switcher*

### Hardware Setup

Setting the options should be attended to first. There are many different configurations for the ACS 8.2 Plus. The following settings are the recommended settings for most common uses of the ACS 8.2 Plus. If you purchased your ACS 8.2 Plus directly from BSI, these settings will already be set for you. If you purchased your ACS 8.2 Plus elsewhere, you will need to set the internal dipswitches as shown in Figure 2. You will need to remove the top cover of the ACS 8.2 Plus to expose the DIP switch 'SW17' located just behind the face plate of the device. NOTE: Simian will only respond to

trigger input from device ID '0'.

Switch #	On/Off	Description
SW 17-1	Off	Device # +1
SW 17-2	Off	Device # +2
SW 17-3	Off	Baud Rate
SW 17-4	Off	Baud Rate
SW 17-5	On	Audio Switching Type
SW 17-6	Off	Audio Switching Type
SW 17-7	On	Power Up Mode
SW 17-8	On	Open Collector Mode
SW 17-9	Off	Relay Mode
SW 17-10	On	Remote Control Mode

Figure 2: Broadcast Tools ACS 8.2 Plus Recommended Settings

With regard to how to wire your audio sources in to the ACS 8.2, and where to route the ACS 8.2 outputs with Simian and the rest of your console-to-transmitter chain, there are two main schools of thought, depicted in Figure 3 and Figure 4, shown below. Though it is possible to use either configuration, configuration 1 has numerous advantages over configuration 2 with simplicity and reliability.

### Configuration 1 - Recommended Setup

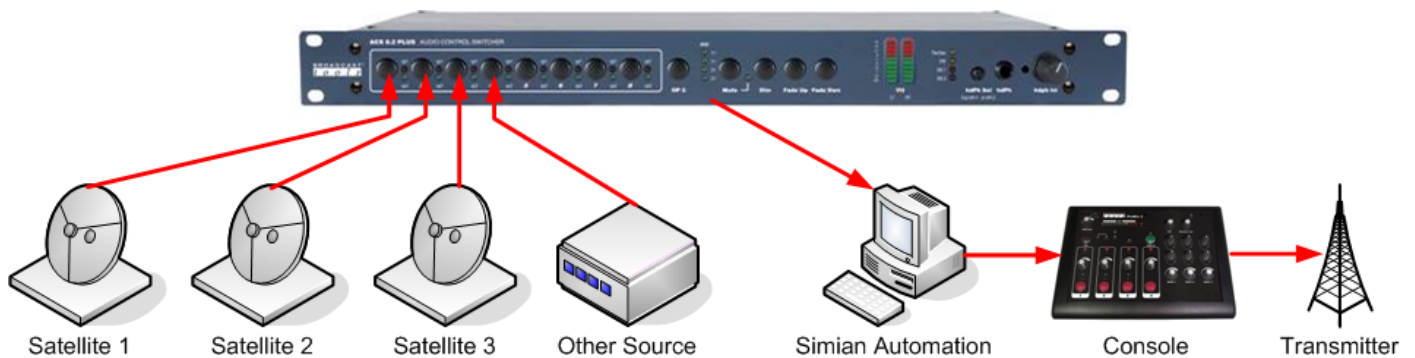


Figure 3: Configuration 1: This is the recommended and supported wiring configuration of the ACS 8.2 for use with Simian

The wiring configuration depicted in Figure 3 has all satellite sources (and other sources, such as stream decoders/players, etc.) wired in to the inputs of the ACS 8.2. The output of the ACS 8.2 is wired into the Line In of the audio card in the Simian automation computer. The output of the Simian automation computer runs in to one or more channels on your audio console (and then on to any processing and transmitting gear you have further down the line).

The advantage of using configuration 1 are many. For starters, Simian only needs to change between sources on the ACS 8.2 when a different satellite receiver's feed needs to be used. Secondly, Simian's Pass-Through Mixer's can be used, allowing the pass-through mixer's AutoMute feature to be employed, which drastically simplifies spot replacement programming in your program log. Thirdly, Simian can use the ACS 8.2 to switch between sources when doing background recordings of satellite feeds. Finally, the number of serial commands Simian needs to send to the ACS 8.2 are drastically reduced, making serial communication collisions vastly less likely.

### Configuration 2 - NOT Recommended Setup

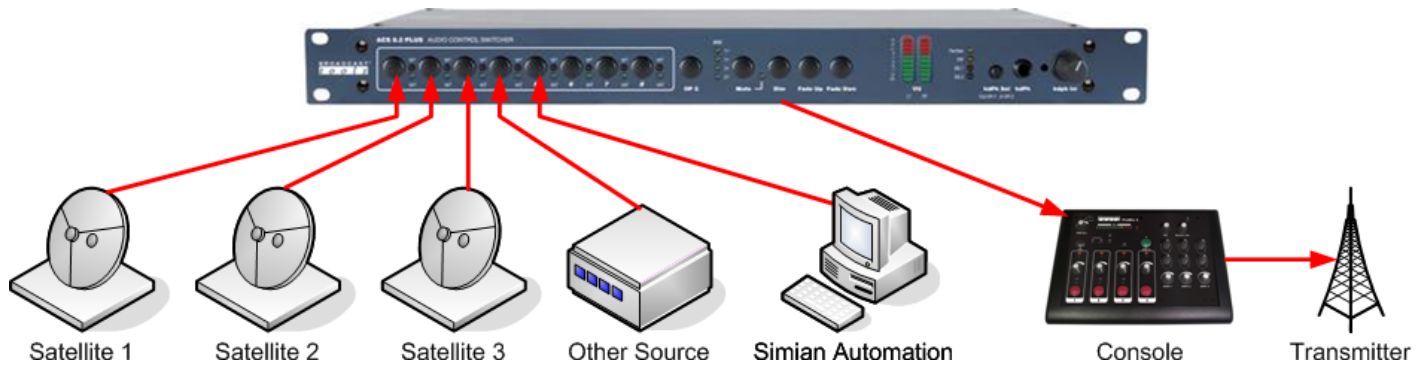


Figure 4: Configuration 2: Though it can be made to work, this is **NOT** the ideal wiring configuration of the ACS for use with Simian

The wiring configuration depicted in Figure 4 is **NOT** recommended for use with Simian. In this configuration, all satellite sources (and other sources, such as stream decoders/players, etc.), AND the output from Simian are wired in to the inputs of the ACS 8.2. The output of the ACS 8.2 is wired to a channel on the audio console (and then on to any processing and transmitting gear you have further down the line).

The disadvantage of using configuration 2 are numerous. First, Simian must send at least one serial command (and possibly multiple commands, depending on how the ACS 8.2 is configured) at the start and of every break to switch between the satellite feed and Simian's audio, significantly raising the likelihood that you will run in to serial communication collisions, causing the ACS 8.2 to fail to switch between channels or mute a feed, causing two channels to be live at the same time (AKA a train wreck). Secondly, Simian's pass-through mixers can't be used to control the satellite audio feed, so Simian's AutoMute function can't be used. Thirdly, Simian won't be able to perform background recording of your satellite feeds.

Configuration 1 is the more robust, fault tolerant, and feature rich wiring configuration for integration of the ACS 8.2 in to your Simian automation system. Additionally, configuration 1 is required when using the spot replacement instructions in the FAQ document: [Stopsets for Network Feeds With Local Breaks \(click here\)](#). For this reason, configuration 1 is the wiring orientation that BSI Tech Support recommends for error free operation.

### Configuration 3 - Alternate Advanced Recommended Setup

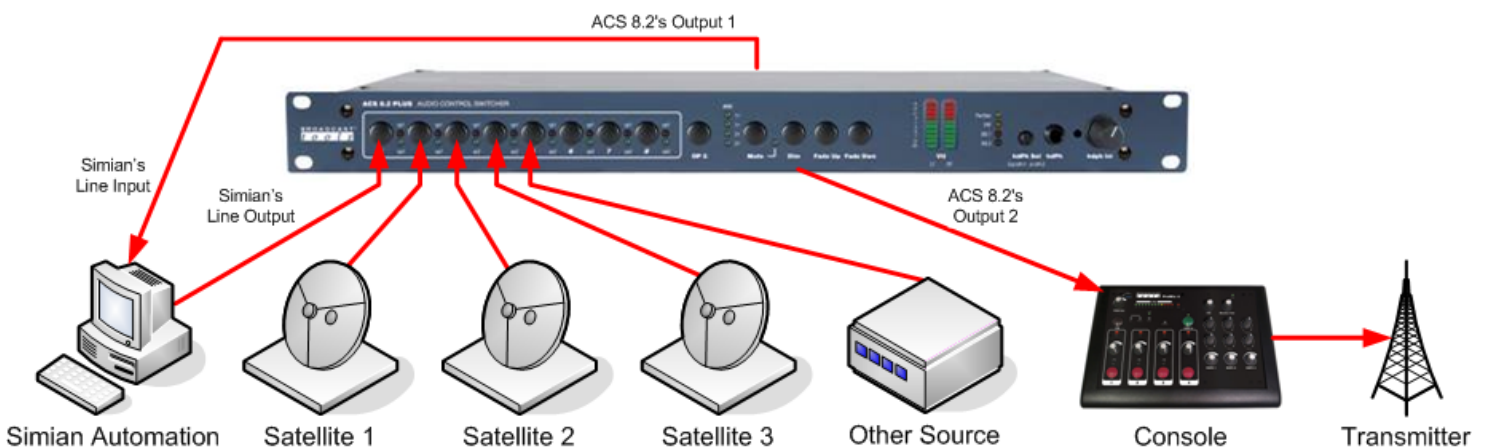


Figure 5: Configuration 3: Advanced alternate configuration allows bypassing automation in an emergency, but still allows use of Simian's Auto-Mute functionality.

For those who want to be able to bypass the automation system in an emergency can use configuration 3, shown above in figure 5. This configuration still allows Simian to use its Auto-Mute functionality, as in configuration 1, but doesn't force the explicit use of serial macros at the start and end of every break, which is the root of the unreliability inherent in configuration 2.

This is considered the advanced setup since there are a lot more moving parts, and the routing is more abstract than

configuration 1. Under normal circumstances, the Simian input is routed to output 2 of the ACS 8.2 switcher, so that Simian's audio output is routed to the console (and on to the transmitter). The ACS 8.2's output 1 is used to route the satellite and other audio sources to the line input on Simian. This allows Simian to use its pass-through mixers to mute and un-mute the satellite audio as needed. The switcher only needs to be commanded to switch inputs when a source changes, just as configuration 1 allows. All other log building steps are the same as configuration 1, as the rest of this document outlines below.

## Software Setup

Interfacing the ACS 8.2 Plus with Simian is easy! First, decide which serial port on the computer is available. This port name (COM1 or COM2) is entered into Simian in the Serial Com tab of the TOOLS | HARDWARE OPTIONS window. Other settings for the switcher are as shown in Figure 6.

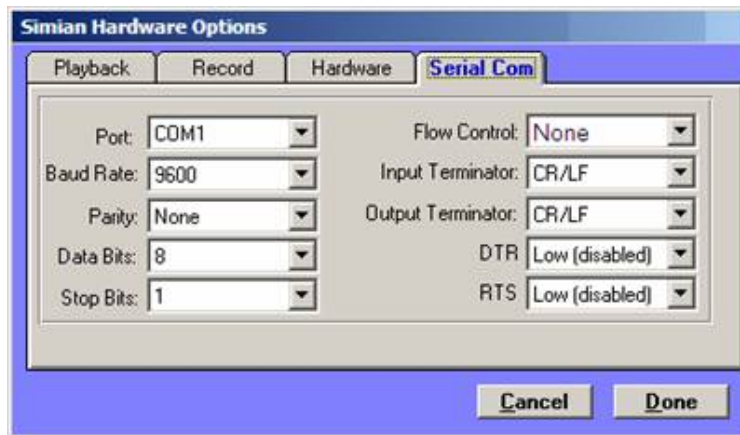


Figure 6: Simian's Hardware Options|Serial Com settings

**NOTE:** It is important to close and then re-open Simian after making changes to this dialog box to properly re-initialize the serial port.

Proceed to the Hardware tab in Simian's Hardware Options. As shown in Figure 7, set both the Incoming Triggers and Outgoing Relay / Switcher dropdowns to the Broadcast Tools SS 8.2 / SRC8-III option. Broadcast Tools has built backwards compatibility into the ACS 8.2 Plus by using the same communication "language" that the SS 8.2 uses.

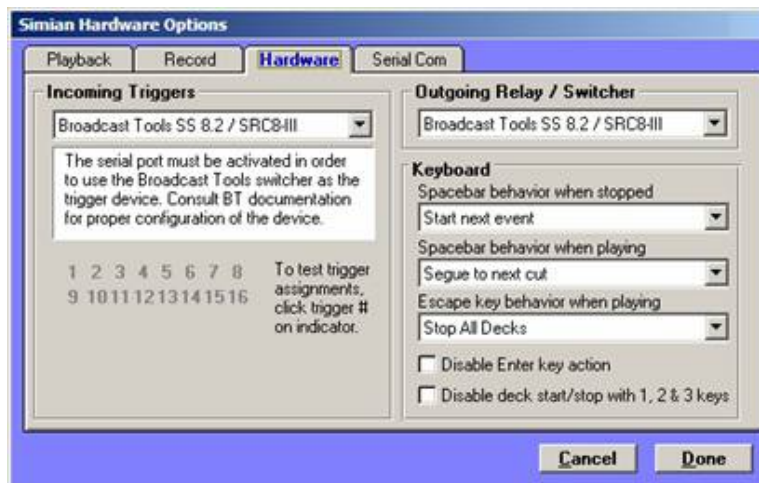


Figure 7: Simian's Hardware Options|Hardware tab settings configured for the Broadcast Tools SS 8.2

The serial I/O on the ACS 8.2 Plus is a simple 3-wire hookup. Broadcast Tools provides a standard 9-pin serial connector to RJ-11 phone jack adaptor with the switcher. This allows you to use a common phone extension cable to connect the computer to the switcher. This cable should be kept as short as possible, and shielded cable should be used in high-RF environments.



Now that Simian is electrically connected to the switcher, the next step is to switch channels, control relays, and configure triggers from within Simian.

## Controlling the Switcher

Because the ACS 8.2 Plus uses a simple serial protocol, we can easily switch channels from within a Simian Program Log, a Scheduled Events set, a Hotkey, or a Trigger set. Simian includes a SERIAL command within Event Builder's Macro library. This command will send a serial data stream out through the port you selected earlier in the TOOLS | HARDWARE OPTIONS | Serial Com tab. The ACS 8.2 Plus uses a simple command structure. All commands to change channel routing begin with an asterisk (\*). This is followed by device # (usually 0), then two digits for the desired input channel (01-08), followed by the desired output channel (1-2). Using this as a guide we could switch Input Channel 2 to Output 1 by issuing the command \*0021 to the switcher.

To send this command from Simian, select the Macro tab in Event Builder and select the SERIAL command. Simply add the \*0021 (or what ever routing code you need) following the SERIAL command in Event Builder. For example, the command shown in Figure 8 will switch input 6 to output 2.



Figure 8: Simian's Event Builder with SERIAL Macro

After making sure that all the other settings (i.e. Cue and Scheduled Time) are set as needed, you may drag and drop the command into your Program Log, Hotkey set, Trigger set, or Scheduled Event set to perform you desired action.

## Digital I/O

The ACS 8.2 Plus switcher also supports 16 trigger inputs and 8 relay outputs. Simian uses the RELAY macro to control the relays of the ACS 8.2 Plus. For example, to close relay 1 on the ACS 8.2 Plus for 300ms, you would place the macro command RELAY 1,300 into your Program Log, Scheduled Events set, or Hotkey set. You can set up Trigger Sets to utilize the 16 trigger inputs. For example, if you wanted Simian to start playback of the next item in the program log when trigger 1 is closed, place the STARTNEXT macro into line 1 of your Trigger set as shown in figure 9.

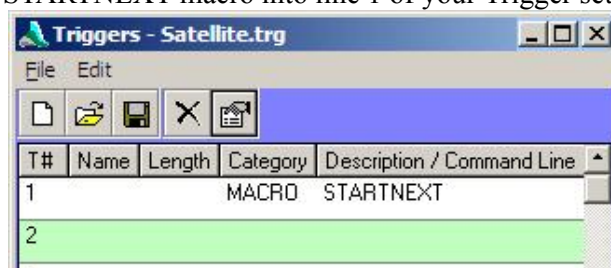


Figure 9: Trigger set with the STARTNEXT macro entered in Trigger 1

## Summary

This Application Note demonstrated just one of the many ways that Simian may be expanded to meet the needs of virtually any broadcast facility. While this App Note focused on the basics of the Broadcast Tools ACS 8.2 Plus Switcher to get you up-and-running, the ACS 8.2 Plus has the ability to fade between it's input channels, link multiple units to switch more than 8 channels (though Simian can only use the triggers from device with address '0'). More info on other functions can be found in the user manual supplied, or downloaded from [www.broadcasttools.com](http://www.broadcasttools.com).

### **Help Topics:**

Last updated Thu, Jul 10 2014 1:25pm

### **Please Wait!**

Please wait... it will take a second!