Crestron Sophia Controller Interface For Naim Audio music servers
User Guide

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Crestron Sophia Controller:

Introduction

The Crestron Sophia Controller interface is intended to allow Crestron control systems to interface with the Naim Audio NS01, NS02, NS03 and NSHDX audio servers. The interface can support 16 users and as many playout zones as the product can provide (maximum of 4 on the NS02 and NS03).

In practice, given the demands of other AV components within the program, a 16 user implementation may not perform as expected. Multiple Crestron processors should be considered for large systems. More than one Crestron Sophia Controller may connect an audio server simultaneously.

System Requirements

The following are the Crestron system requirements for use with the Naim Audio Crestron Sophia controller:

- Crestron series 2 controller, such as a Crestron Pro 2.
- Operating system version 4.000.0226 or better. This module is not compatible with earlier Crestron V3 operating systems.
- Network connection to the server. Note that a RS232 connection is not supported.
- Crestron touch panels capable of displaying Dynamic Graphics if cover art display is required.
- Non-standard IP port 2921 must be open on the LAN for control and cover art access.
- TPS-6L firmware 3.001.0036 or better.

Components

The following components are distributed as a part of this interface. All these modules must be present:

Demo Program	Naim audio server module DEMO vxxx.smw
Controller module	Naim audio server module vxxx.umc
(components)	Naim audio server sophia processor vxxx.usp
	Naim audio server keyboard module vxxx.umc
	Naim audio server keyboard processor vxxx.usp
	Parse console data.usp
Touch Panel Files	Naim audio server 640x480 xpanel DEMO vxxx.vtp
	Naim audio server 640x480 tps-6l DEMO vxxx.vtp

All source code is provided but a programmer is encouraged to not modify the individual components, but rather to integrate them into their overall system program.

Should the programmer wish to modify the provided touch panel layouts, particular care should be taken when editing the lists as each list item uses multiple modes. Digital, analog and serial joins for each list item must be edited, some in each mode.

System Overview

The Crestron Sophia Controller communicates with Naim audio servers via IP. The IP interface is preferred for speed and reliability. For cover art, the touch panels must be connected via IP where they collect images directly from the server.

The Naim_audio_server_module_vxxx.umc interface module handles all communications with the server. Communication is carried out using sockets internal to the module, a feature of the Crestron v4 operating system, this means the connection information does not require entry on the processor IP table and no other Ethernet symbols need to be added to the program.

Play-out zones and Users

Two important concepts must be understood to use this controller, that of *play-out zones* and *users*.

Play-out zones are defined as hardware outputs on the server. These are often associated with areas or rooms within a residence. Each *user* can either be fixed to a *play-out zone* during programming or can move between *play-out zones* when the program is running (run-time). <u>This is a choice the system programmer must make when designing the program.</u>

Users must not be confused with *play-out zones*. A *user* is defined as a single module within the program, which can independently search the server's database. For example, two modules could be provided in a (say) living room, each independently searching for albums or movies. But these two modules would share the same *play-out zone*. Up to 16 separate *users* can be supported by the Crestron Sophia Controller.

Remember that any of the 16 users can use any of the 16 possible play-out zones, and that the zones can change at run-time if so desired.

Using The Controller

Below are listed the main steps required when using the Crestron Sophia Controller.

Procedure

The majority of what is discussed below can be accomplished by cutting and pasting components and folders from the example program.

Communications With the Naim audio server

The Naim_audio_server_module_vxxx.umc interface module handles all communications with the server. Communication is carried out using sockets internal to the module, a feature of the Crestron v4 operating system, this means the connection information does not require entry on the processor IP table and no other Ethernet symbols need to be added to the program.

The IP address of the server is hard-coded into the program at time of writing by entering it into the bottom parameter field of the Naim_audio_server_module_vxxx.umc module.
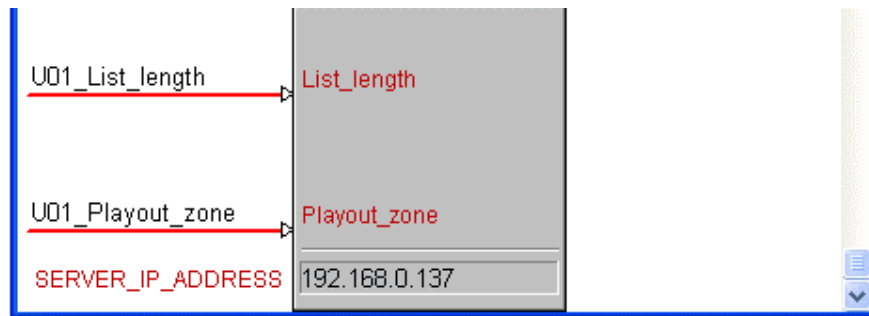
If required, the server address can be changed after program is loaded via the Toolbox Text Console. Type:

UserProgCmd "SOPHIA_IP:192.168.0.194".

Substitute the actual IP address and note that the quotes must be typed. If in doubt, see the Crestron help file for the UserProgCmd symbol. If a valid IP address is entered, an acknowledgment will appear in the Text Console. Restart the system to use this address.

To revert to the internally programmed IP address (the one shown at the bottom of the Naim_audio_server_module_vxxx.umc module) type in the Text Console:

UserProgCmd "SOPHIA_IP:USE_INTERNAL"

Then restart the system and check that the correct IP address is used. At any time, just restart the program from the Text Console with F10. The server connection attempt and success will be reported.

Using the Naim audio server module

Cut and paste the module from the sample program.
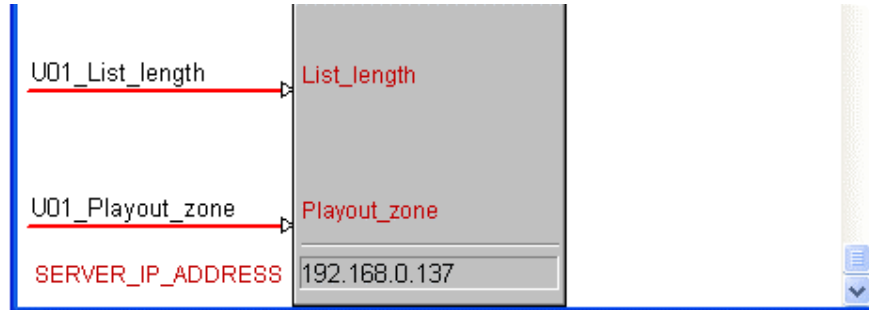
To set the playout zone of the module change the Playout_zone analog value. If you wish to have a user change play-out zones while the system is running, use an INIT symbol to generate a new zone number.

The length of the list of items returned from a search can be changed by setting the List_length analog value. The demo program has the list length set to 8, the maximum value is 20, a list length of 20 is only suitable for very large panels. It must be understood that a longer list means response time will be reduced. 'Split screen' pages (see below) will always only have 3 list items displayed.

Touch Panel Page Management
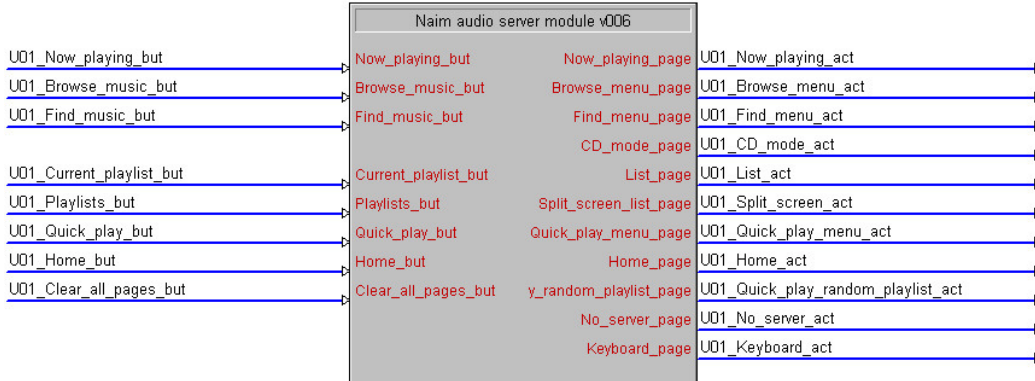
The various touch screen pages required for the Sophia Crestron interface are activated by the first 11 outputs of the module. These signals assert and remain asserted for as long as each page is required, the page signals are effectively interlocked.

Assuming that you are integrating this demo program into a larger overall program, these signals will need to be added to other page activation signals, possibly through an interlock. A clear all pages input signal is also provided if required, this will make all page outputs low.

Note that most touch panel screens are called from within the module, not directly from button presses.

Cover Art Support

Supported Panels

At the time of writing this document, the majority of Crestron touch panels support Dynamic Graphics and therefore cover art display from the server. Be certain that the latest touch panel firmware is used.

Using Cover Art

Cover art is retrieved by a touch panel directly from the server via an IP connection. Therefore your touch panels must be connected to the same network as the server. (Note that a panel may be connected to the control system via Cresnet and be connected to the LAN for cover art access only.)

All touch panels receive a serial string from the Crestron Control system indicating where cover art can be found on the server. Obviously only the IP capable connected panels will show the cover art.

Other Features

Make Strings Permanent

No *Make String Permanent* symbol is included in the program. For most newer touch panels this is not required. Add as required.

No server page

The connection to the server is monitored by the module and reconnections attempted when lost. The signal No_server_page is asserted when the server has disconnected. When the server comes back online the module resets any searches and defaults to the home page.

END