ELAN Home Systems Life Just Got Better	Audio Integration Note
Manufacturer:	Russound
Model Number(s):	**CAV6.6 / CAM6.6 / ST2 (AM/FM/XM/Sirius)**
Comments:	v3.0-5.9 zone and source control 6.0.236 and newer includes zone controller integration only, no virtual keypads for source control.
Document Revision Date:	10/31/12

OVERVIEW AND SUPPORTED FEATURES

The following features are supported:

Traditional Whole-House Audio: The CAV6.6/CAM6.6 has keypads in each zone that control the volume and source. **NOTE:** The keypads can be mounted in double-gang electrical boxes, but they must be the large plastic variety: **THE KEYPADS DO NOT FIT WELL IN STANDARD METAL DOUBLE GANG BOXES.**

Support for IR: The CAV6.6/CAM6.6 has IR outputs that can provide signals to each of the sources, enabling transport control (Play, Pause, Stop, etc) for equipment that has IR control. The CAV6.6/CAM6.6 has a built-in library of existing codes, as well as the ability to learn codes.

Support for AM/FM Radio (up to v5.9): When the ST-2 AM/FM tuner is used in conjunction with the CAV6.6/CAM6.6, the custom AM/FM tuner interface is enabled on the **ELAN** Viewer.

Support for XM and Sirius Radio (up to v5.9): When the ST-2 Satellite tuner is used in conjunction with the CAV6.6/CAM6.6, the custom XM or Sirius radio interface is enabled on the **ELAN** Viewer interface.

Support for Video: The CAV6.6 (**not** the CAM6.6) sends both audio and video (composite only) to each zone.

Display: The UnoS2 keypads have a display that normally shows the name of the source, volume level etc. When playing audio from a **ELAN** system, the track information is displayed.

THE FOLLOWING FEATURES ARE NOT SUPPORTED:

Virtual Keypads for source control (v6): source control via virtual keypads is not supported in version 6.0.

Source control in an "output from zone" configuration: virtual keypads for source control will not work unless they are directly in a Russound zone. They will not work when a zone from Russound is configured as a source in another zone controller.

OSD/HR2/TS2 Controllers: The g! Software On-Screen Display, HR2 and the TS2 **WILL NOT FUNCTION CORRECTLY** with this zone controller's source devices and is specifically **NOT** supported.

VIEWER INTERFACE FOR IR SOURCES

The interface shown on the Viewer for sources to a CAV6.6/CAM6.6 depends on the source type.

For radio sources (AM/FM/XM/Sirius), the **ELAN AM/FM/XM/Sirius** tuner interface is shown.

For digital media sources, the **ELAN Music Library** interface is shown.

With **ELAN** software **VERSION 3**, any other source that is controlled by IR from the CAV6.6/CAM6.6 will appear in the Viewer interface represented by the UnoS2 keypad. This can be a limitation in many cases, because some frequently used buttons (such as number keys on a DVD player) are not available.

With **ELAN** software **VERSION 4**, the source interface can be customized to match the device type, with built-in templates for many standard devices.

INSTALLATION OVERVIEW

1. During the rough-in phase, install speaker wire for the speakers and Cat5 cable for keypads, in each zone.

2. Also during the rough-in phase, run a Cat5 wire from the location of the CAV6.6/CAM6.6 back to the Network Assembly of the **ELAN** system for RS-232 communications. Refer to the **RS-232 Connection Options** Integration Note for other options.

3. Mount the speakers and keypads in each zone, and install the CAV6.6/CAM6.6 and the sources.

4. Program the CAV6.6/CAM6.6. This includes setting the number of sources, the names for each source, and the IR codes for each source. **Note:** Disconnect the serial connection to ELAN prior to programming the unit.

5. If you have multiple CAV6.6 units in the system, remember to set the Controller Number for the first CAV6.6 to 1, the second to 2 and so on.

6. Test the entire CAV6.6/CAM6.6 system to ensure that all the sources play correctly in every zone, and that the keypad buttons behave correctly from the keypads.

7. If the system includes one or more RNet devices (such as the ST2 tuner), they should be connected to the CAV6.6/CAM6.6 with RNet according to the standard Russound procedure.

8. Connect the **ELAN** system to the CAV6.6/CAM6.6 system electrically. See the wiring diagrams for more information. If the system includes multiple CAV6.6/CAM6.6 units or other RNet components (such as the ST2 tuner), only the first CAV6.6/CAM6.6 is connected to the **ELAN** system.

9. Confirm that the "Front / Rear RS-232" selector switch located on the front of the unit is set to the correct serial port to be used for communication between the CAV6.6/CAM6.6 and the **ELAN** system.

10. If the system includes an RNet tuner, such as the ST2, then record the ID for both tuners in the ST2 (the ST2 includes two separate tuners: two AM/FM or one AM/FM and one XM). This procedure is explained later in **CAV6.6/CAM6.6 Programming**.

11. Configure the **ELAN** system for the CAV6.6/CAM6.6 and confirm communication between the CAV6.6/CAM6.6 and the **controller**.

12. Test the system by changing sources in a zone to confirm the correct source plays, and by testing the **ELAN** interface transport control and media server controls.

CONNECTION DIAGRAMS
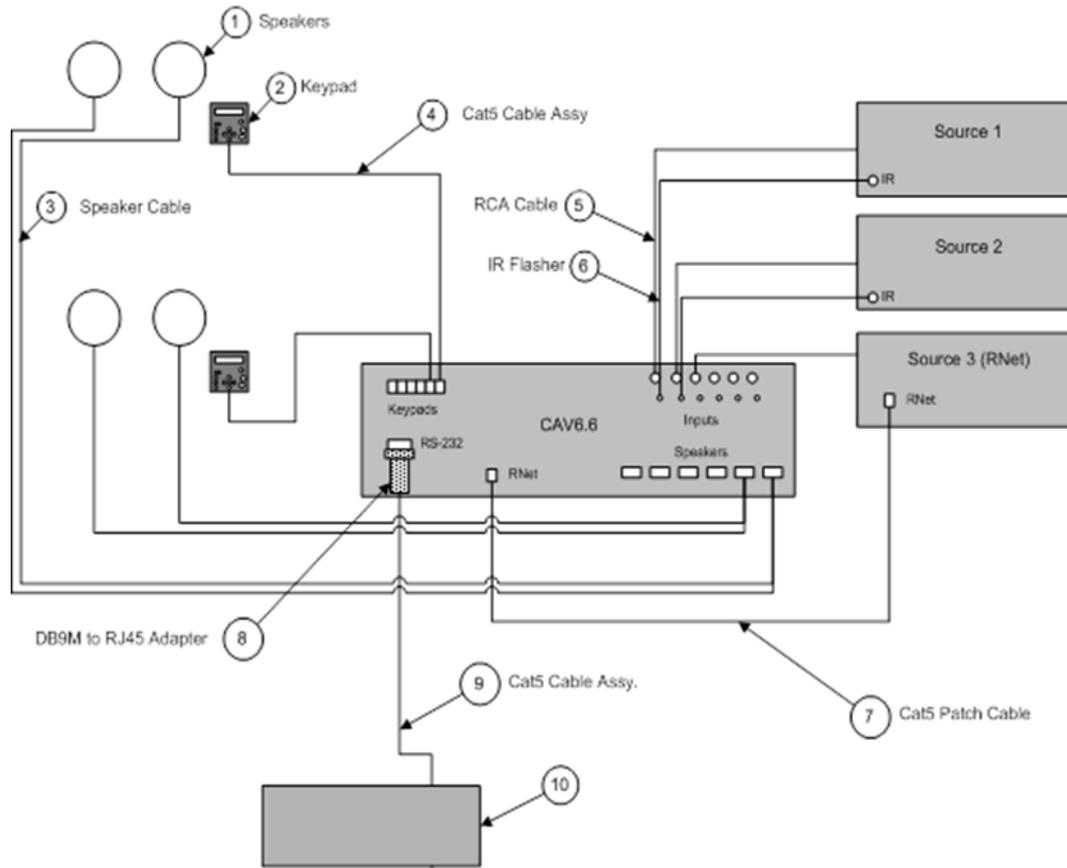
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Speakers	N/A		Analog	Wire	
2	Keypad					
	Uno S1	Russound	Uno S1	Serial	Punch Down	
	Uno S2	Russound	Uno S2	Serial	Punch Down	
3	Speaker Cable	N/A	N/A	Analog	Wire	
4	Cat5 Cable Assy.	Installer	N/A	RS-485	RJ-45 Male X Punch Down	
5	RCA Cable	N/A	N/A	Analog	RCA X RCA	None included with CAV6.6/CAM6.6
6	IR Flasher	Russound	N/A	IR	Mini Jack X IR Flasher	Six are Included with the CAV6.6/CAM6.6
7	Cat5 Patch Cable	N/A	N/A	Rnet	RJ-45 Male X RJ-45 Male	
8	DB9M to RJ45 Adapter	HomeLogic	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
9	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
10	Controller	ELAN	Varies	RS-232	RJ-45 Female	

CAV6.6/CAM6.6 PROGRAMMING

Once the equipment is installed and connected you must program the CAV6.6/CAM6.6 according to Russound guidelines. Special steps that relate to ELAN are provided below:

IMPORTANT NOTE:

To avoid any conflict or odd behavior disconnect the serial cable from the ELAN controller prior to programming the Russound devices.

MULTIPLE CAV6.6 UNITS

If you need more than 6 zones, you can add additional CAV6.6 units: the maximum number of CAV6.6 units is 6, which delivers audio in up to 36 zones.

When you configure the CAV6.6 in the **ELAN** system, you will need to know the **Controller Number** for each. Set the Controller Number for the first CAV6.6 to 1, the second to 2, and so on.

ST2 AM/FM, XM, SIRIUS TUNER SOURCES

If you have a ST2 tuner, then you will need to know the **Tuner ID** for each tuner. Since each ST2 has two built in tuners, there are two IDs that you must know for each ST2.

In addition, the Tuner ID must be the same as the corresponding source number of the CAV6.6/CAM6.6. In other words, **if a tuner is connected as source #1, then that tuner must have a Tuner ID of 1**.

The ST2 factory defaults for the Tuner IDs are tuner #1 = 1, and tuner #2 = 2, which corresponds to connecting the ST2 into the CAV6.6/CAM6.6 sources 1 and 2. For the ST2-XM tuner, the factory defaults are the XM tuner is #1 and the AM/FM tuner is #2. For the ST2-Sirius tuner, the factory defaults are the Sirius tuner is #1 and the AM/FM tuner is #2.

Consult the ST2 documentation for instructions on checking or changing the tuner IDs.

FIRMWARE VERSIONS

We have confirmed proper operation of the **ELAN** system using several different firmware versions. Please consult the table below. Russound does not recommend putting the latest firmware on systems if they are working properly: contact Russound if you are not sure which version you need.

Hardware Version	CAV6.6/CAM6.6 Main	CAV6.6/CAM6.6 Aux	Uno S1	Uno S2	ST2	ST2-XM	ST2-Sirius
Rev 0	1.02.02	1.02.02	N/A	3.00.01	2.00.03	N/A	N/A
Rev 1	2.00.01	1.02.02	N/A	3.00.01	3.00.10	3.00.10	N/A
Rev 0,1,2,3	2.01.16	2.01.16	N/A	3.01.01	3.00.10	3.00.10	N/A
Rev 4 only	3.01.10	3.01.10	N/A	3.01.01	3.00.10	3.00.10	3.02.01
Rev 5	4.00.01	4.00.01	N/A	3.01.01	3.00.10	3.00.10	3.02.01

Russound provides separate instructions for updating the firmware for their equipment: check the Russound Web site, or call their tech support for help at (866) 888-7466.

DETERMINING FIRMWARE VERSION OF THE CAV6.6 AND UNOS2 KEYPADS

Step	Instructions	Comments
1	Change the RS-232 front/rear switch to the other position	This will prevent RS-232 communications during this procedure
2	Cycle power to the CAV6.6	
3	Go to any UnoS2 keypad and remove the faceplate to access the Setup Button of the UnoS2 keypad	
4	Press and release the Setup Button	This should simply power up the keypad
5	Press and release the Setup Button	SOURCE SETUP appears on the display
6	Press Previous	SYSTEM INFO appears on the display
7	Press Play	# CONTROLLERS appears on the display
8	Press Next until VERSION appears	
9	Press Play	The version for the CAV6.6 appears in the display
10	Press and hold the Setup Button on the UnoS2 keypad for several seconds	DIAGNOSTICS appears in the display
11	Press Next several times until VERSION appears in the display	
12	Press Play	The version for the UnoS2 appears in the display
13	Change the RS-232 front/rear switch to the original position	This restores the switch to its proper setting
14	Cycle power to the CAV6.6	Reset the unit to normal operation

DETERMINING FIRMWARE VERSION OF THE ST2

Step	Instructions	Comments
1	Cycle power to the ST2. Then press and hold the TNR SEL btn	TUNER SETUP appears in the display
2	Press MEM^ several times until SYSTEM INFO appears in the display	The display cycles through SOURCE NUM, etc.
3	Press BAND	BUILD TIME appears in the display

4	Press MEM^ several times until VERSION appears in the display	
5	Press BAND	The version appears in the display

CONFIGURATION DETAILS

The following table provides settings used in the ELAN Configurator when connecting to a CAV6.6/CAM6.6 system. Please refer to the Configurator Reference Guide for more details. In the table below:

- "<Select>"   Select the appropriate item from the list (or drop-down) in the Configurator.

- "<User Defined>", etc.   Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communication Devices	**Name**	<User Defined> (Default: **Russound RNet**)	
	Type	**Serial Port**	
	Communication Type	**Russound RNet**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select>	
Audio Tuners (See Note 1)	**Name**	<User Defined>(Default: **Radio**)	
	Device Type	<Select> (Default: **Russound ST2-AM/FM Tuner**)	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **Russound RNet**)	
	Device ID	<Select> (Default: **1**) (See Note 2)	
Audio Zone Controllers	**Name**	<User Defined> (Default: **Russound CAV6.6/CAM6.6**)	
	Device Type	**Russound CAV6.6/CAM6.6**	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **Russound RNet**)	
	Controller No.	<Select> (Default: **1**) (See Note 3)	
Sources	**Name**	<User Defined>	
	Source Device	<Select> (See Note 4)	
	Source Volume	<Select> (See Note 5)	
	Show Source	<Select>	
Zones	**Name**	<User Defined>	
	Show Zone	<Select>	

Notes:

1. The tuner is optional. If you add one ST2 tuner to your system, you must add **TWO** tuners in the configurator: one to represent each of the tuners in the ST2.

2. Each ST2 includes two separate tuners. The default Tuner ID of the first is 1 and the default Tuner ID of the second is 2.

3. For systems with multiple CAV6.6 units, remember to set the Controller Number for the first to 1, the second to 2 and so on.

4. For IR controlled systems, select "Other".

5. For systems with devices that have controllable volume (such as an AudioTron), select the desired volume (normally 100%).

COMMON MISTAKES

1. Forgetting to switch the RS-232 selector switch on the front of the CAV6.6/CAM6.6 to "Front / Rear".

2. Improper programming of the CAV6.6/CAM6.6. Make sure you complete programming of the Russound equipment, and that it functions properly as a stand-alone system, before attempting to connect and control from the **ELAN** system.

3. Improper firmware versions installed on the CAV6.6/CAM6.6, the Uno keypad, or the ST2 tuners. Due to various enhancements (such as the XM radio, the release of the SMS server, etc.), Russound has changed the firmware of the devices. Consult the table above, and make sure your versions match one of those listed.

4. Improperly setting the Controller Numbers for systems with multiple CAV6.6 units. Remember to set the Controller Number for the first CAV6.6 to 1, the second to 2 and so on. The Controller Number must match the corresponding Controller Number set for that CAV6.6 in the Configurator.

5. Improperly setting the RNet IDs for ST2 tuners. Each ST2 has two tuners, and each has a Tuner ID. The Tuner ID must match the corresponding source number in the CAV6.6/CAM6.6, and must be correctly entered in the Configurator.

6. Programming the Russound while it is connected to the ELAN controller. There may be some odd behavior if the Russound system is programmed while connected to a ELAN controller.