

# Product Manual

## **SignStream Media Express**

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### **Installing and using SignStream Technology**

Media Express Version 2.0.5

March 24, 2008



# Table of Contents

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<b>SignStream Media Player Setup</b> .....	<b>3</b>
Ethernet .....	3
PCI Card Slots for SSM-ATSC Modulator Cards .....	3
<b>ATSC Media Files</b> .....	<b>4</b>
Encoding ATSC Media Files .....	4
MainConcept MPEG Encoder .....	4
<b>SignStream ATSC Modulator Cards</b> .....	<b>5</b>
SSM-ATSC .....	5
<b>Head End Installation</b> .....	<b>6</b>
RS-232 Control .....	6
Ethernet Control .....	7
Reset IP Address .....	7
RF Setup .....	7
<b>SignStream Zones</b> .....	<b>8</b>
<b>SignStream Find</b> .....	<b>9</b>
<b>SignStream Media Express</b> .....	<b>10</b>
Version 2.0 .....	10
Local Access .....	10
Media - Control .....	12
Current Playlist .....	12
Media Files .....	12
All Cards .....	12
Media - Edit .....	13
Editing Modes .....	13
Playlist Library .....	13
Media Files .....	13
Media - Setup .....	14
Card Channels .....	14
Options .....	14
Displays – Control .....	15
Special Commands .....	16
Displays – Edit .....	17
Editing Modes .....	17
Preset Parameters .....	17
Displays – Setup .....	18
Head End Communication .....	18
Broadcast Settings .....	18
Changing Zone Names .....	18
Schedule - Control .....	19
Note to Users of Pre 1.7 Software .....	19
Schedule - Edit .....	20
Editing Modes .....	20
Event Parameters .....	20
Alerts - Control .....	21
Alerts - Edit .....	22
Editing Modes .....	22
Alert Parameters .....	22
<b>Technical Specifications</b> .....	<b>23</b>

# SignStream Media Player Setup

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While SignStream media players may vary in appearance and configuration, all share common attributes:

- Windows XP Pro software installed
- SignStream Web operation provided by Localhost IIS service
- Operating system in C: drive
- SignStream media, playlist, and schedule files in E: drive

## Ethernet

IP Address: 192.168.1.245  
Subnet Mask: 255.255.255.0  
Gateway Address: 000.000.000.000

Telnet TCP Port: 2728 Telnet Access  
UDP Port: 2729 For remote Find SignStream access  
80 For Web Access

Web Access: Internal Access - <http://localhost/SignStream>  
External Access - <http://<IP address>/SignStream>  
External Access - <http://<Computer Name>/SignStream>

## Hard Drives

SSV-101 80 GB hard drive for OS, software, and media, 50 GB media partition  
SSV-300/304: Windows: 80 GB SATA II hard drive, 7200 RPM  
Media: 250 GB SATA II hard drive, 7200 RPM  
SSV-306R: Windows: Two 80 GB SATA II hard drives, 7200 RPM, RAID 1  
Media: Four 80 GB SATA II hard drives, 7200 RPM, RAID 5

## PCI Card Slots for SSM-ATSC Modulator Cards

SSV-101: 1 PCI  
SSV-300: 3 PCI  
SSV-300: 4 PCI  
SSV-306R: 6 PCI (5 PCI, 1 PCI-X)  
1 PCIe for RAID 5 controller

# ATSC Media Files

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SignStream plays ATSC 1080i or 720p MPEG-2 Transport Stream files, the same standard digital media file used by all broadcast TV stations, and is compatible with all ATSC HDTV tuners.

In basic terms, most MPEG-2 videos played on PCs are Program Streams, designed for playback on a device. An MPEG-2 Transport Stream is similar, but is formatted to maintain signal integrity when sent over long distances.

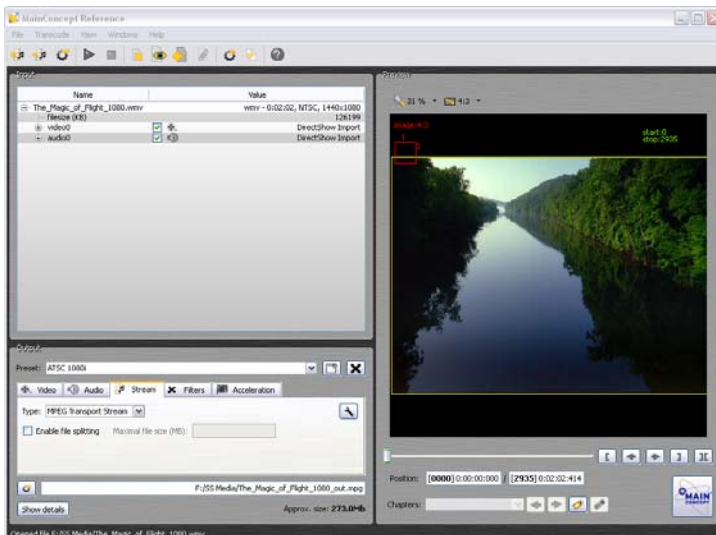
## Encoding ATSC Media Files

Most HDTV video production houses have studio-level software that formats digital media into ATSC streams required by television broadcasters. Costs for conversion software range from expensive studio programs (which include features not required for SignStream, such as inserting channel ID information), and low-cost applications such as MPEG Encoder by MainConcept.

All ATSC files must use the extension **.trp** for playback. The modulator card can play 720p-format media, but for smooth, seamless transitions in playback, all files should be in 1080i format.

To estimate hard drive storage needs, assume that every 10 GB will host 60 minutes of content.

## MainConcept Reference MPEG Transcoder



The MainConcept Reference MPEG Transcoder is not included with SignStream, and is available for \$450 from [www.mainconcept.com](http://www.mainconcept.com), for Windows operating systems. Key features include:

- Converts AVI, MPEG-2, QuickTime (video), and WMV video files. Graphics and vector based “video” files, such as Flash, cannot be converted.
- Encodes 1920 x 1080 (and smaller) digital video files into ATSC 1080i format. This means you can convert 1280 x 720 and DVD-quality 16:9 (856 x 480) video files for use with SignStream. Generally speaking, the lower-resolution formats work well for graphic presentations, less for pure video shows.

Ready-made 1080i and 720p presets, and instructions for converting files are available from the SignStream Content page.

# SignStream ATSC Modulator Cards

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SignStream ATSC Modulator Cards install into the player's PCI and PCI-X card slots. SignStream media players employ two types of SSM Modulator Cards, the SSM-ATSC or the SSM-ATSC2. Only one type of card can be run within the same Media player, the cards cannot be mixed within the same media player.

## SSM-ATSC

General:	Broadcasts ATSC and simultaneous NTSC analog channels
Modes:	Cable, IRC, HRC, Off-Air
ATSC RF Out:	F connector, +24 dbmV
ATSC Channels:	Off-air Channels 14-22 or Cable channels 66-73
NTSC RF Out:	F connector, +24 dbmV, mono audio
NTSC Channels:	Off-air Channels 3-13, 95-99, Cable 3-22, 95-99
NTSC Formats:	Auto, 4:3 (center), cropped, letterbox, or full

# Head End Installation

Some SignStream applications run HDTV playlists only, other applications include CR iC-Net technology to control displays through the same RF coax as the HDTV channels. In systems that provide control a Contemporary Research ICC-HE Head End is installed near the SignStream media player. This unit receives control commands via RS-232 and inserts the commands into the RF system as a small control channel between TV channels 4 and 5. If your SignStream system is not used to control displays, ignore this section. Refer to the ICE-HE manual for Ethernet communication to Head End.

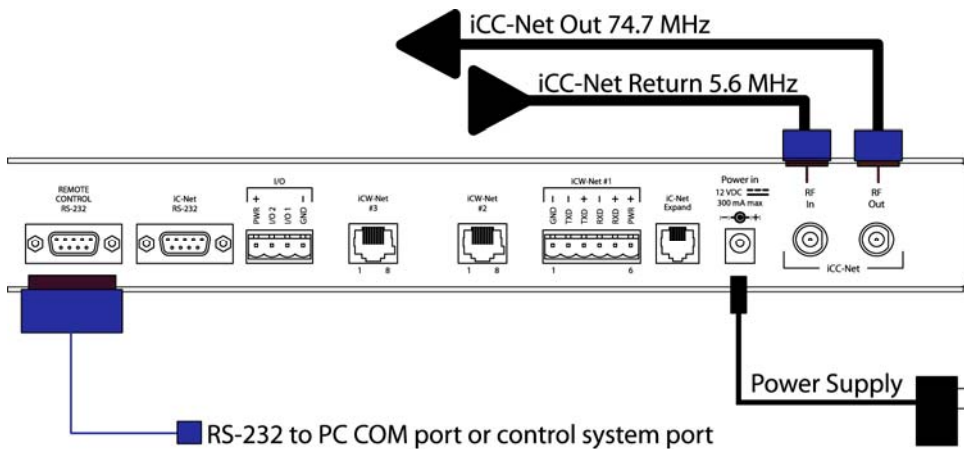
## RS-232 Control



Most applications will use RS-232 communication, connected to an ICC-HE Head End. Check the front panel of the Head End, as shown above, and see if the last 3 DIP switches under the RS-232 LED are set as follows:

- Switch 6 Off (Down)
- Switch 7 On (Up)
- Switch 8 On (Up)

This sets the speed of communication to 19,200 baud.



Next, connect the included RS-232 cable between the 9-pin RS-232 port at the SignStream back panel to the RS-232 Remote Control port on the back of the ICC-HE.

## Ethernet Control

The ICE-HE typically communicates over a network using a static IP address, and is shipped set to a default address:

IP Address: 192.168.1.251  
Subnet Mask: 255.255.255.0  
Gateway Address: 000.000.000.000

Odds are, at least the IP address will change when the ICE-HE is connected to the client's network. One your first steps will be to obtain a static address from the client's IT department, as well as an external gateway IP address if you intend on supporting the system from your office or anywhere outside the site's firewall.

Once you change the settings, create a label noting the settings and attach to the back of the ICE-HE.

### Reset IP Address

If you change the default address and forget what it is later on, you can always reset the ICE-HE back to the default settings using the unit's front-panel DIP switch 2. While the power is on, flip the switch off, then back on to reset the IP address. The IP and Subnet Mask will change, the Gateway will stay at its current setting.

Since its possible another network device is using the default IP address, the best approach is to enter the new settings offline, outside the network. You can use one of two, requiring one of two offline options:

1. Direct PC Connection. Use an Ethernet "Crossover" cable to make a direct connection to the ICE-HE Ethernet port and your PC. Two pairs of wires are reversed at one end to create a direct send/receive path for data.
2. Hub or Switch Connection. Another approach for connection is to use a standard Ethernet hub or switch between your computer and the ICE-HE. Using standard Cat5 Ethernet cables, connect your PC to one port, then connect the ICE-HE to the second port.

## RF Setup

The Head End sends the control channel at a level of 50 dBmV. In virtually all installations, the system installer has installed filters to the RF Out connection to match the level to the SignStream channels. The manual that was shipped with the Head End provides more detail, if needed, can be downloaded from the Head End page in the [www.crwww.com](http://www.crwww.com) Web site.

# SignStream Zones

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Media Express assigns control to three entities:

- All Zones – All displays respond to a single command
- Zones – All displays within one of 15 Zones respond to a single command
- Single Display – Sends command to one display address

***When you design your SignStream system, arrange your display addresses into one of the 15 zones.*** This allows you to control a group of displays as if they were one display.

Note that you can change the default names for Zones in Media Express – see Display – Setup in the Media Express section.

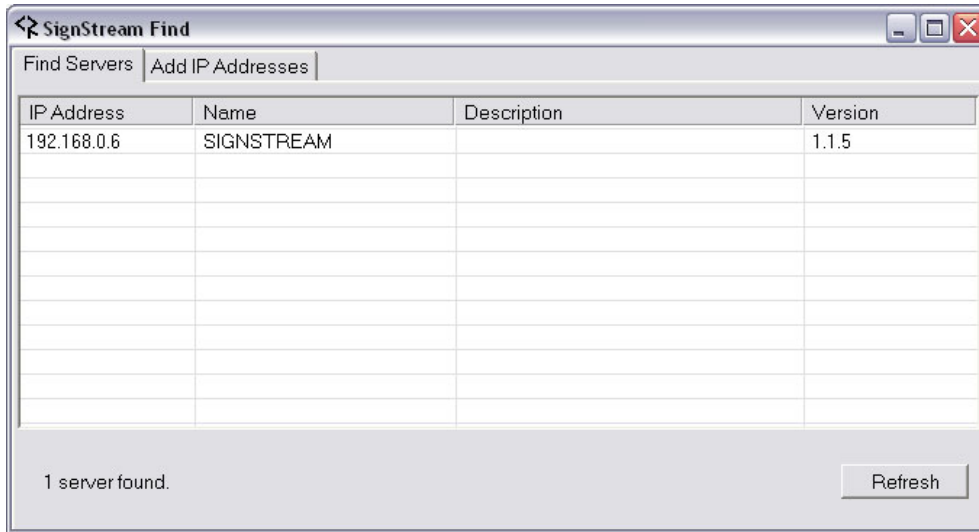
You'll discover that the ICC1-IR and ICC1-232 controllers typical for many SignStream display control systems are designed to follow this Zone address format. You can use the 4 top switches in the second DIP switch to define the controller's Zone. You could stop at that point, or use the upper switches to define the controller's address within the Zone. For example, setting S2/1 On and S1/2 On defines that the controller is part of Zone 1 (256), and is the second unit in the Zone (2). The unique address of the controller would be 258 (256 + 2). The ICC2-ATSC follows a similar procedure – using front-panel programming, you set the unique Unit address (1-255), then the Zone (1-15).

Use the chart below as a guide to setting your Zones and addresses.

Zone	Device #	Unit	Total Device #
1	256	1-255	257-511
2	512	1-255	512-767
3	768	1-255	769-1023
4	1024	1-255	1025-1279
5	1280	1-255	1281-1535
6	1536	1-255	1537-1791
7	1792	1-255	1793-2047
8	2048	1-255	2049-2303
9	2304	1-255	2305-2559
10	2560	1-255	2561-2815
11	2816	1-255	2817-3071
12	3072	1-255	3073-3327
13	3328	1-255	3329-3583
14	3584	1-255	3585-3839
15	3840	1-255	3841-4000
All Zones	4095		

# SignStream Find

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Contemporary Research offers an alternative way to find SignStream media players, called SignStream Find. This application can be downloaded from the SignStream MX or Download pages at [www.crwww.com](http://www.crwww.com). When launched, SignStream Web will find all the SignStream media players in your network.

Simply click on the desired media player to bring up the SignStream Web pages from that media player. You can also add SignStream media players outside your network with the Add IP Addresses tab. To allow external access the IT department needs provide access:

- Make sure the SignStream Media player's Windows Firewall exceptions allows access to TCP 2728, UDP 2728 and TCP 80, set Change Scope to Any Computer, or My Network if you want to limit access to within your network.
- The network firewall needs to be set up for remote access to the media player and UDP ports.

# SignStream Media Express

**Today's Schedule**  Enabled  Disabled

Time	Date	Days	Card	Action	Playlist	Device	Power	HDTV	NTSC	Vol	Lock
8:35 AM		MTWRFS	1	Play	StoreSales-Morning	Zone 1	On	15-1		0	On
11:30 AM		MTWRFS	1	Play	StoreSales-Afternoon	Zone 1	On	15-1	95	0	On
5:00 PM		MTWRFS	1	Play	StoreSales-Evening	Zone 1	On	15-1	95	0	On
9:45 PM		MTWRFS	1	Stop		All Zones	Off				

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**Now Playing**

Card	HDTV	NTSC	Playlist	Playing	
Select	Card 1	15-1	95	StoreSales-Morning	E:\1080CLRB.trp

Play Stop Play All Stop All

5/26/2007  
9:56 AM

SignStream Media Express manages playlists via Web pages accessed from the local SignStream Media player, any computer on the network, or remotely from a distant location.

## Version 2.0.5

- You can now define with a scheduled Event ends. The Event will be removed from the schedule at 11:59 PM at the end of the day.
- All data for playlist, control, and schedule operation are now included in the Data folder in the media directory. Copy this folder along with media files to “clone” other SignStream Media players
- The Configuration file is now in the SignStream root directory so it can't be accidentally copied to other media players

## Local Access

- Connect a USB keyboard and mouse (or PS2 versions) and RGB Monitor to the SignStream Media player.
- Launch Internet Explorer
- The browser will automatically display the SignStream Web pages
- Click on the Setup link at the top
- Note the System IP Address of the media player
- The IP Address can be changed via Windows Network tools, and should normally be set as a static IP address for remote access.

## Remote Access

To access SignStream Web pages within the network, just browse to the computer by

- Enter `http://Computer Name/SignStream`
- Enter `http://IP Address/SignStream`

You'll need to communicate with your IT department to set up access to SignStream from outside the network. Users only need access to the IP address, not to the media file directory.



## Media - Control

The first page in SignStream Web offers control of media playlists. A Playlist is a list of media files that play in sequence, then repeat as a continuous loop until operation is stopped.

### Current Playlist

- **Cards** – Drop-down list selects SignStream Modulator card to view playlist operation
- **Playlist** – Shows the sequence of titles, with the current title highlighted
- **Channels** – Shows the current HDTV and NTSC channels assigned to the card
- **Current Video** – Shows the location and name of the current video and the percent completed.
- **Control** – Features Play, Play Next, and Stop playlist control functions
- **Change Playlist To** – Changes playlist for currently selected card

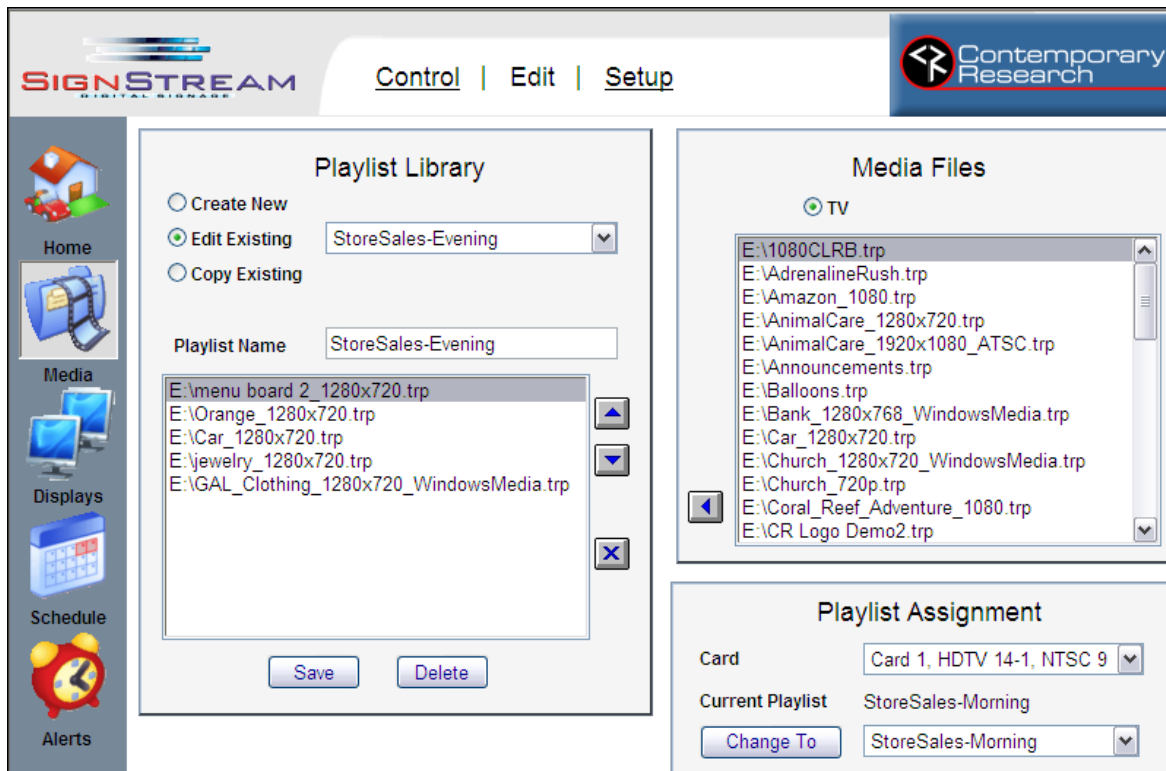
### Media Files

- **Files** – displays a list of all media files, user may highlight one file for Play Selection Now control
- **Card** – Selects SignStream Modulator Card to control
- **Control** – Click **Play Selection Now** to play selected file once, the card's playlist will resume when you click **Stop**.

### All Cards

- **Play** – Starts all cards playing at the beginning of the playlists
- **Stop** – Stops all cards
- **Reset** – Re-reads the playlist files, then starts playing at the beginning

## Media - Edit



The Edit page creates the playlists and assigns the list to each SignStream Modulator Card.

### Editing Modes

- **Create New**– Clears items in Playlist
- **Edit Existing** – Change existing Playlist and Save.
- **Copy Existing**– Copies the values of the selected Playlist. Change and Save.

### Playlist Library

- Highlight a title from Media Files and click the right arrow to add the file to the current playlist
- Use the Up and Down arrows in Playlist to order the sequence of files
- Click the left arrow to remove a title from the playlist
- **Save** – Saves the Playlist
- **Delete** – Removes Playlist

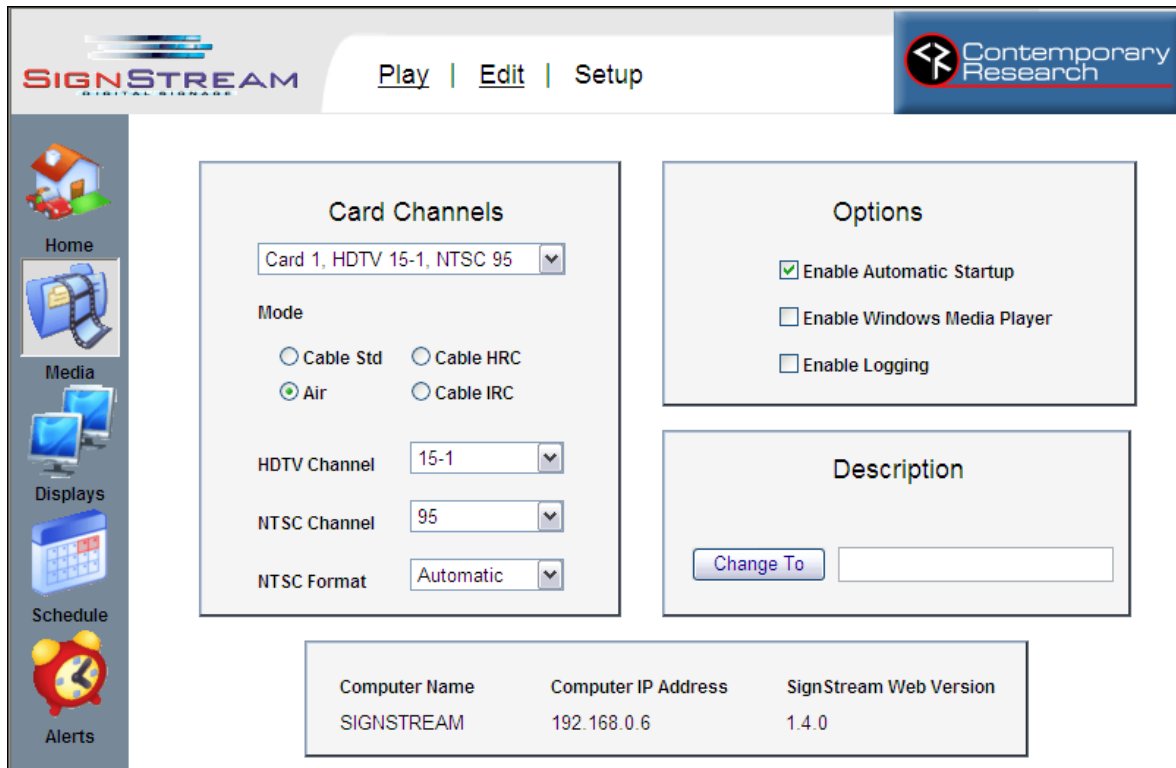
Note that you can't **Save** a playlist that does not have at least one title.

### Media Files

Displays the list of media files available. If the **Enable Windows Media Player** option in **Setup** is checked, You can select Media Player in Media Files to see and create a playlist with a variety of file types, including MPEG, AVI, WMV, and music files. If TV is selected, you can only view and select files with the .TRP extension. Add only .TRP files to a playlist intended for Card 1-6 playback.

**Tip:** After you add new files to the SignStream Media drive, press **RESET** at the bottom of the Media Control page. This will force SignStream to re-scan the directory. All playlists will reset as well.

## Media - Setup



**Card Channels**

Card 1, HDTV 15-1, NTSC 95

Mode

Cable Std    Cable HRC  
 Air    Cable IRC

HDTV Channel: 15-1

NTSC Channel: 95

NTSC Format: Automatic

**Options**

Enable Automatic Startup  
 Enable Windows Media Player  
 Enable Logging

**Description**

Change To

Computer Name	Computer IP Address	SignStream Web Version
SIGNSTREAM	192.168.0.6	1.4.0

Defines basic operation of the SignStream Media player and cards.

### Card Channels

- **Card** – Select SignStream Modulator card
- **Mode** – Select type for RF channel spacing
- **HDTV Channel** – Physical channel used for HDTV broadcasting
- **NTSC Channel** – Channel used for simultaneous analog 4:3 channel
- **NTSC Format** – Auto, Full, 4:3, Cropped, and Letterbox

### Options

- **Enable Automatic Startup** – playlists will automatically run whenever media player is booted up
- **Enable Windows Media Player** – Typically used to preview playlists from a media player's monitor
- **Enable Logging** – Creates a daily comma-separated playlist log file that includes when each title was run, plus a summary of how many times each title was played during the day

### Description

Changes description of SignStream MX – used only for identification, does not change the name of the computer as defined in Windows. The information box at the bottom of the page reflects the Computer Name, IP address, and Media Express Version

## Displays – Control



The Display pages offer the ability to send control commands to displays and projectors throughout the SignStream system.

The **Control** page includes three types tools for display control.

- **Presets.** Sends a saved Preset group of commands to displays
- **Preset Buttons.** The first 12 saved commands appear on the right side. Just click to send.
- **Special Command.** In addition to typical display commands, there are other rarely used commands that can be sent when needed, provided with system documentation. This includes:
  - Set display code - instructs a controller to use a different set of control codes for a different make and model of display.
  - Tune analog or digital only - can lock an HD display to only tune digital or analog channels.
  - Use CableCard tuning - switch to the 5-digit CableCard style digital tuning from normal two-part dashed (XX-XX) digital channel tuning

## Special Commands

The chart below covers the most command commands that can be sent via the Special Commands tool. Many more are available from the product manual or product page at [www.crwww.com](http://www.crwww.com). Some commands can be sent with no other information, such as P1 for Power On. Most other commands need an added parameter, such as volume level or control type.

Command	Description	
<b>All Controllers</b>		
<b>Power Off</b>	<b>P0</b>	
<b>Power On</b>	<b>P1</b>	
<b>Tune Analog</b>	<b>TC,</b>	2-127 Example: TC,33
<b>Tuning Format All</b>	<b>S0,</b>	0=CATV 1=Off-Air 2=IRC 3=HRC 4=Auto
<b>Volume</b>	<b>VL,</b>	Sets TV volume level 0 = Mute 1 – 63 = Minimum level (1) to maximum volume (63)
<b>RS-232</b>		<b>ICC1-232, ICC2-ATSC, ICC2-VDC</b>
<b>RS-232 Control</b>	<b>T0,</b>	Selects control make and model for RS-232 control. Check Manual or <a href="http://www.crwww.com">www.crwww.com</a> product Install page for codes
<b>Tuning Style ICC1-232</b>	<b>H1=</b>	1 = 5-digit CableCard style tuning (1-9999) 2 = Virtual HD Major-Minor tuning (tunes to virtual channel ID in display) 3 = Physical HD Major-Minor tuning (physical channel, minor digital)
<b>HD Tuning</b>	<b>TH,</b>	<Major>, <Minor> Example: TH,15,1 tunes channel 15-1
<b>HD Tune Style ICC1-232</b>	<b>TH</b>	<Style>, <Major>, <Minor> Once a Style parameter is included in tuning command, the ICC1-232 will stay in that mode until the Style is changed  <Style> 0=No change in tuning style 1=5 digit channel (Major=high byte, Minor=low byte) 2=Virtual channel (Major-Minor) 3=Physical channel (Major=Physical - Minor=minor) Example: TH,3,15,1 tunes the digital channel physically broadcasting on 15 The ICC2-ATSC always tunes the virtual channel
<b>IR</b>		<b>ICC1-IR, ICC2-IRC</b>
<b>IR Code</b>	<b>T1,</b>	Sets IR control code. Check Manual or <a href="http://www.crwww.com">www.crwww.com</a> product Install page for codes

## Displays – Edit

The Display Edit page offers the ability to create, copy, or edit new display control Presets. Note that Media Express assigns control Presets to three entities:

- **All Zones** – All displays respond to a single Preset
- **Zones** – All displays within one of 15 Zones respond to a single Preset
- **Single Display** – Sends Preset to one display address

### Editing Modes

- **Create New Preset** – Clears values in the Preset fields.
- **Edit Existing Preset** – Fills in the values from the selected Preset. Change and Save.
- **Copy Existing Preset** – Copies the values from the selected Preset. Change and Save.

### Preset Parameters

Add or change values to an existing or new Preset. Presets that are checked on the left will be sent, those unchecked will not be saved or sent.

- **Name** – Enter a name for a new or copied Preset. Hint – Use numbers 1-12 at the beginning of text to allocate Presets to buttons on the front page.
- **Zone** – Select from 15 Zones or All Zones.
- **Single Display** – use radio button to select a Preset to a specific display.
- **Power** - Set Power On or Off.
- **HDTV Channel** – Enter HDTV channel in dashed (XX-X) or CableCard format (XXXXX)
- **NTSC Channel** – Enter desired analog channel (digital TVs will ignore this Preset)
- **Volume** - Set volume level 0 (Mute) to 63 (Full)
- **Control Lock** - Enable or disable display's front-panel and IR control (not all sets have this feature)

## Displays – Setup

The screenshot shows the SignStream Setup interface. At the top, there is a navigation bar with "Control | Edit | Setup" and the Contemporary Research logo. On the left, a vertical sidebar contains icons for Home, Media, Displays (selected), Schedule, and Alerts. The main content area is divided into three sections:

- Head End Communication:** Features radio buttons for "RS232" and "IP". The "IP" option is selected. Fields include "Baud Rate" (19,200), "COM Port" (1), and "Address" (192.168.0.40). A "Make Changes" button is at the bottom.
- Zone Names:** Features a "Zone" dropdown menu (Zone 4 (1025-1279)), radio buttons for "New Name" (selected) and "Use Default", and a "Change Name" button.
- Settings:** Features dropdown menus for "Tuning System" (Air) and "Digital Tuning Mode" (Two Part).

At the bottom right, a table displays system information:

Computer Name	Computer IP Address
SIGNSTREAM	192.168.0.4

The **Display Setup** page defines how the SignStream connects to the system Head End and basic channel tuning operation.

### Head End Communication

Sets the form of communication to an ICC-HE or ICE-HE Head End. The ICC-HE communicates via RS-232, while the ICE-HE can handle data via Ethernet and RS-232. The RS-232 baud rate is normally set to 19,200.

### Broadcast Settings

Defines the type of cable system (Air, Cable, Cable HRC, or Cable IRC frequencies), and overall style of digital tuning (1-Part CableCard, 2-Part virtual channels, or 2-part physical channels).

### Changing Zone Names

The names of the Zones can be changed here. It's useful to start the text with the Zone number to remember which Zone the name represents. The list will always be sorted by the numeric order of the actual Zones.

## Schedule - Control

The screenshot shows the 'Schedule' control interface. At the top, there are logos for 'SIGNSTREAM' and 'Contemporary Research'. The main area is titled 'Control | Edit' and 'Schedule'. It includes radio buttons for 'Enabled' (selected) and 'Disabled', and a 'Show' section with radio buttons for 'Today's Events' and 'All Events' (selected). Below this is a table of events:

	Time	Start	End	Days	Card	Action	Playlist	Device	Power	HDTV	NTSC	Vol
Select	9:45 AM	9/28/2007		MTWRFS	1	Play	StoreSales-Morning	1 Enterta	On	14-1	9	
Select	9:47 AM	9/28/2007	12/1/2007	MTWRFS	1	Play	Caution	2 Cafe	On	14-1	9	0
Select	4:35 PM			MTWRFS	1	Play	StoreSales-Evening	1 Enterta	On	14-1	9	0
Select	4:35 PM			MTWRFS	1	Play	Graphics_Demo	1 Enterta	On	14-1	9	0
Select	5:05 PM			MTWRFSN	1	Stop		All Zones	Off			

Below the table, there are three main control areas: an 'Event Name' input field with 'Edit' and 'Remove' buttons; an 'Events' pull-down menu currently showing 'Morning Startup' with an 'Add' button; and a date/time selector showing '11/20/2007 2:05 PM'.

The Schedule Control page launches Events by date or recurring cycle. Events are similar to Presets, but include media commands and an assigned date, cycle, and time.

- **Schedule** displays the list of Events by date and time.
- **Enabled/Disable** – click to run or stop the schedule
- **Today's/All Events** – Displays just the events for today or all Events
- Click **Select** to select an Event – selected Event text turns red.
- **Event Name** – displays selected Event, click **Edit** to change, **Remove** to delete.
- **Events** – Use the pull-down list of Events, select, then click **Add** to add to schedule

### Note to Users of Pre 1.7 Software

In earlier versions, Events did not have names. To add names to Events that are currently scheduled:

- **Select** the first Event
- Click **Edit** in the **Event Name** box below
- Go to the **Edit** page, add the Name to the Event, then Save.
- This will create a database of Events you can re-use later on

## Schedule - Edit

The Schedule Edit page creates a database of Events.

### Editing Modes

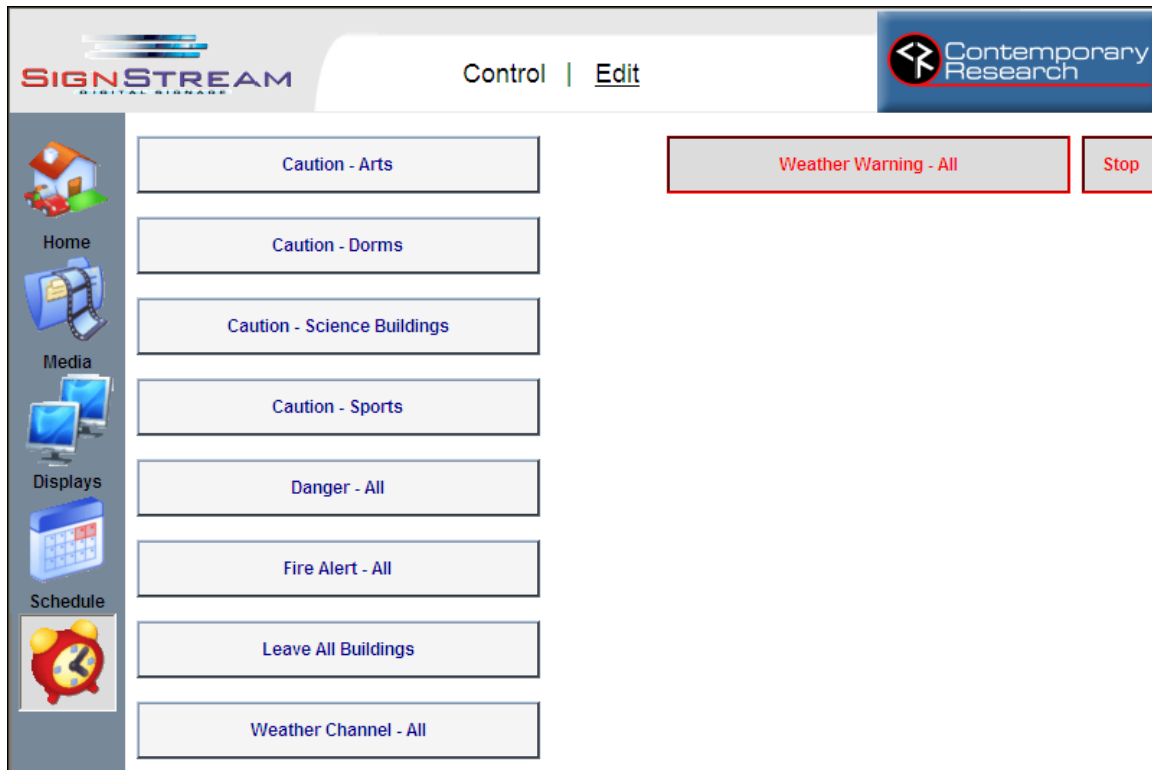
- **Create New Event** – Allows creation of a new Event, clears values in Event data
- **Edit Existing Event** – Fills in the values of the selected Event. Change and Save.
- **Copy Existing Event** – Copies the values of the selected Event. Change and Save.

### Event Parameters

Add or change values to an existing or new Command. Commands that are checked on the left will be sent.

- **Save** – Saves changes
- **Delete** – Removes Event
- **Send Now** – Launches Event immediately
- **Name** – Enter a name for a new or copied Event.
- **Use Preset** – uses the values of the selected Preset
- **Zone** – Select from 15 Zones or All Zones.
- **Single Display** – use radio button to select a command to a specific display.
- **Power** - Set Power On or Off.
- **HDTV Channel** – Enter HDTV channel in dashed (XX-X) or CableCard format (XXXXX)
- **NTSC Channel** – Enter desired analog channel (digital TVs will ignore this command)
- **Volume** - Set volume level 0 (Mute) to 63 (Full)
- **Control Lock** - Enable or disable display's front-panel and IR control (not all sets have this feature)
- **Media** – defines how media starts
  - **Card** – select one or All Modulator cards
  - **Action** – Play, Stop, or Reset media playback
  - **Playlist** – select a playlist to assign to Card(s)
- **One-Time** – Event is launched on one date only
- **Recurring** – Check days of week for cycle
- **Start Date** – When Event or cycle begins
- **End Date** – The day the Event ends (removes from Schedule at 11:59 PM on specified day)
- **Time** – AM or PM

## Alerts - Control



The **Alerts Control** page will display a group of up to 16 buttons a user can click to launch a saved Alert. The **Alerts Edit** page defines the name and actions in the Event.

When a button is clicked:

- The button will be highlighted in red, and as **Stop** button appears on the right.
- All current playlists will stop.
- An emergency playlist will begin running.
- All displays (or a display Zone) will change to appropriate channel and show the message.
- Clicking **STOP** will restore displays to their previous settings and restart previously running playlists.

The **Alerts** feature can impact more than displays. An RS-232 controller or integrated tuner/controller can send a message to presentation room control systems, triggering a programmed response by the system. In addition, an external control system can send Telnet commands that can trigger a saved Emergency Alert.

## Alerts - Edit

The screenshot shows the 'Alerts - Edit' interface. At the top, there are navigation links for 'Control' and 'Edit'. The 'Edit Existing Alert' option is selected, and the alert name is 'Caution - Arts'. The 'Alert' section contains several fields and checkboxes:

- Alert Name:** Caution - Arts
- Include:**  Use Preset,  Zone (3 Front),  Single Display (1 - 4095)
- Control:**  Power (On),  Off
- Media:**  Card (Card 1, HDTV 14-1, NTSC 9),  Playlist (Caution)
- Channel Settings:**  HDTV Channel (15-1),  NTSC Channel (95)
- Volume:**  Volume during Alert (28),  Volume after Alert (12)
- Control Lock:**  Control Lock (Off)

The **Alerts Edit** page functions the same way as scheduling Events. However, Alerts behave differently than Events or Presets. When an Alert is sent, the iC-Net controllers will save their current power and channel settings. When an Alert ends, the controllers will return displays to their saved setting.

### Editing Modes

- **Create New Alert** – Clears values in Alert fields.
- **Edit Existing Alert** – Fills in the values of the Alert command. Change and Save.
- **Copy Existing Alert** – Copies the values of the Alert Command. Change and Save.

### Alert Parameters

Add or change values to an existing or new Alert. Commands that are checked on the left will be sent; those unchecked will not be saved or sent.

- **Name** – Enter a name for a new or copied Alert.
- **Use Preset** – uses the values of a selected Preset.
- **Zone** – Select from 15 Zones or All Zones.
- **Single Display** – use radio button to select a command to a specific display.
- **Power** - Set Power (Power On for Alerts).
- **HDTV Channel** – Enter HDTV channel in dashed (XX-X) or CableCard format (XXXXX)
- **NTSC Channel** – Enter desired analog channel (digital TVs will ignore this command)
- **Volume during Alert**- Set volume level 0 (Mute) to 63 (Full)
- **Volume after Alert**- Set volume level 0 (Mute) to 63 (Full)
- **Control Lock** - Enable or disable display's front-panel and IR control (not all sets have this feature)

Save the Alert. Up to 16 Alerts will appear on the Alerts Control page.

# Technical Specifications

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If you're working with a studio-based content provider, they may want a more complete statement on preparation of the digital media files.

## Minimum Encoding Requirements

TS File Multiplex Rate	19.392658 Mbps +/- 54 bps (ATSC)
TS clip start/end	The TS file should begin and end on whole TS packet boundaries. The file should begin with the TS sync byte (0x47) and contain an integer number of TSpackets.
Minimum File Size	16 MB (6.6 secs @ 19.392658 Mbps)
Video Format	One of 18 ATSC Formats (per ATSC A/53b)
Audio Encoding	AC-3 (per ATSC A52)
PSI / PSIP	MPEG-2 PSI (PAT and PMT) must be present in the multiplex. A static set of ATSC PSIP tables should be present in the stream for some consumer decoders that rely on PSIP information to acquire and tune to the channel.  PID assignments in PAT, PMT, and TVCT service location descriptors should be consistent file to file. TVCT should contain at least one valid virtual channel definition.

## Virtually Seamless Playlist Encoding Restrictions

The purpose of seamless mode restrictions is to create splice points at the beginning and end of each file that adhere to the SMPTE-312M defined "seamless splice point" requirements. These specifications are in addition to the requirements above.

Lead in/out black frames	No restriction
Fade-in/out	No restriction
Video Format	1080i, all files in a playlist. The encoded video format must be consistent across all files to be spliced in a playlist.
Programs	1 Program containing 1 Video and 1 Audio service
Program PID assignments	PMT PID: 16 (0x010) PCR PID 17 (0x011) Video PID: 17 (0x011) Audio PID: 20 (0x014)
TS clip start	The first GOP in the file MUST be CLOSED
TS clip end	The file should not be padded with additional null packets.
VBV Encoding Method	The VBV_delay at the beginning and end of every file must be the same to ensure that the video buffer does not underflow or overflow at the splice point.

This concept is identical to the SMPTE-312M restrictions on "splice\_delay". This requirement can be achieved by using a constant VBV\_delay throughout all files, or by using an encoding algorithm that forces VBV\_Delay to a consistent value at the beginning and end of all files.

VBV\_delay can be examined as the delay between the access unit arrival (in PCR time) and the actual stamped decoding time per DTS/PTS.

## PSI / PSIP Information

### PSI / PSIP Tables

Placeholders for minimal set of ATSC PSIP/PSI tables must be present. PSIP/PSI should be multiplexed at the PID location and repetition intervals given below:

PAT PID: 0 (0x00), 100ms  
PMT PID: 16 (0x10), 400ms  
MGT PID: 8187 (0x1FFB), 150ms  
TVCT PID: 8187 (0x1FFB), 400ms  
STT PID: 8187 (0x1FFB), 1000ms  
RTT PID: 8187 (0x1FFB), 60s  
EIT-0 PID: 8144 (0x1FD0), 500ms  
EIT-1 PID: 8145 (0x1FD1), 500ms  
EIT-2 PID: 8146 (0x1FD2), 500ms  
EIT-3 PID: 8147 (0x1FD3), 500ms

Note: The PSIP and PSI sections will be replaced by the seamless process in the SSC-MB2 card to ensure consistency of the broadcast stream from file to file. Because of this, the actual contents of each table are not important (other than the PAT and PMT).