Utah Scientific

SqueezeMAX HD
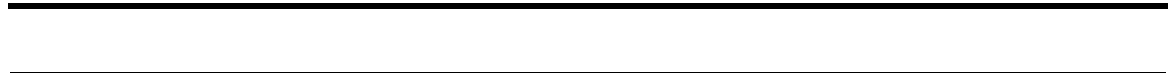
Master Control Effects and Graphics

Utah Scientific

SqueezeMAX HD Operations Guide

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This equipment has been tested and found to comply with the limits for a Class A, digital device, pursuant to Part 15, Subpart B of the FCC Rules and the Canadian EMC Requirement (ICES-003). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at their own expense. Shielded cables must be used to ensure compliance with the FCC Class A limits.

Declaration of Conformity

Utah Scientific, Inc.

4750 Wiley Post Way, Suite 150
Salt Lake City, Utah 84116-2878 U.S.A.

We declare our sole responsibility that the Utah-400 Digital Routing Switcher is in conformance with the following standards:

Emission

- EN55022:1994+A1&A2

Immunity

- EN55024:1998
- EN61000-3-2
- EN61000-3-3

Safety

- IEC 60950-1:2001 /EN 60950-1:2001

Following the provisions of the Directive(s) of the Council of the European Union:

- EMC Directive 89/336/EED
- Low Voltage Electrical Directive 72/23/EEC

Utah Scientific, Inc. hereby declares that the product specified above conforms to the above Directive(s) and Standard(s).

$$C \in$$

Important Safeguards and Notices

This section provides important safety guidelines for the Operator and Service Personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, specifically those instructions related to risk of fire, electric shock, or injury to persons.

Safety Symbols

- Hazardous Voltage symbol

- Caution symbol. The product is marked with this symbol when it is necessary to refer to the manual to prevent damage to the product.

Warnings

Please observe the following important warnings:

- Any instructions in this guide that require opening the chassis, changing a power supply, or removing a board, should be performed by qualified personnel only. To reduce the risk of electric shock, do not perform any service unless you are qualified to do so.

- Heed all warnings on the unit and in the operating instructions.

- Do not use this product in or near water. Disconnect AC power before installing any options or servicing the unit unless instructed to do so by this manual.

- This product is grounded through the power cord ground conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product inputs or outputs.

- Route power cords and other cables so they won't be damaged.

- The AC receptacle (socket) should be located near the equipment and be easily accessible.

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- Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed conductors and components while power is on. Do not insert anything into either of the systems two-power supply cavities with power connected.

- Do not wear hand jewelry or watches when troubleshooting high current circuits, such as power supplies. During installation, do not use the door handles or front panels to lift the equipment as they may open abruptly and injure you.

- To avoid fire hazard when replacing fuses, use only the specified correct type, voltage and current rating as referenced in the appropriate parts list for this product. Always refer fuse replacement to qualified service personnel.

- Have qualified personnel perform safety checks after any service.

Cautions

Please observe the following important cautions:

- When installing this equipment do not install power cords to building surfaces. To prevent damage when replacing fuses, locate and correct the problem that caused the fuse to blow, before reconnecting power.

- Use only specified replacement parts

Notices

Please observe the following important notes:

- When the adjacent symbol is indicated on the chassis, please refer to the manual for additional information.

- For the HD-2020 Chassis and Master Control Panel, refer to "Connecting and Disconnecting Power" - Chapter 2 (Hardware Installation).

Company Information

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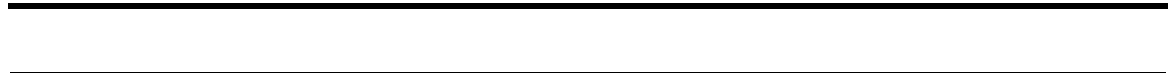
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SqueezeMAX HD Operations Guide

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CHAPTER 3 *System Configuration*

1

System Overview

Important Note: Under no circumstances should you activate Windows™ updates, or add any software applications. The SqueezeMAX system is to run as it is received.

SqueezeMAX HD is a software application for controlling broadcast graphics on air. Used in combination with a USI switcher, SqueezeMAX HD offers a channel branding solution that's easy to use.

SqueezeMAX HD comes with user-specified presets. A preset consists of the graphical output that will appear on air, as well as a control screen that allows you to control the graphics on air.

Launching SqueezeMAX HD

Launch the SqueezeMAX HD interface by double-clicking the program icon, typically located in the middle of the Windows desktop.

SqueezeMAX HD will initially activate in the Edit mode (below). This is used for selecting and editing a scene, and contains the following features:
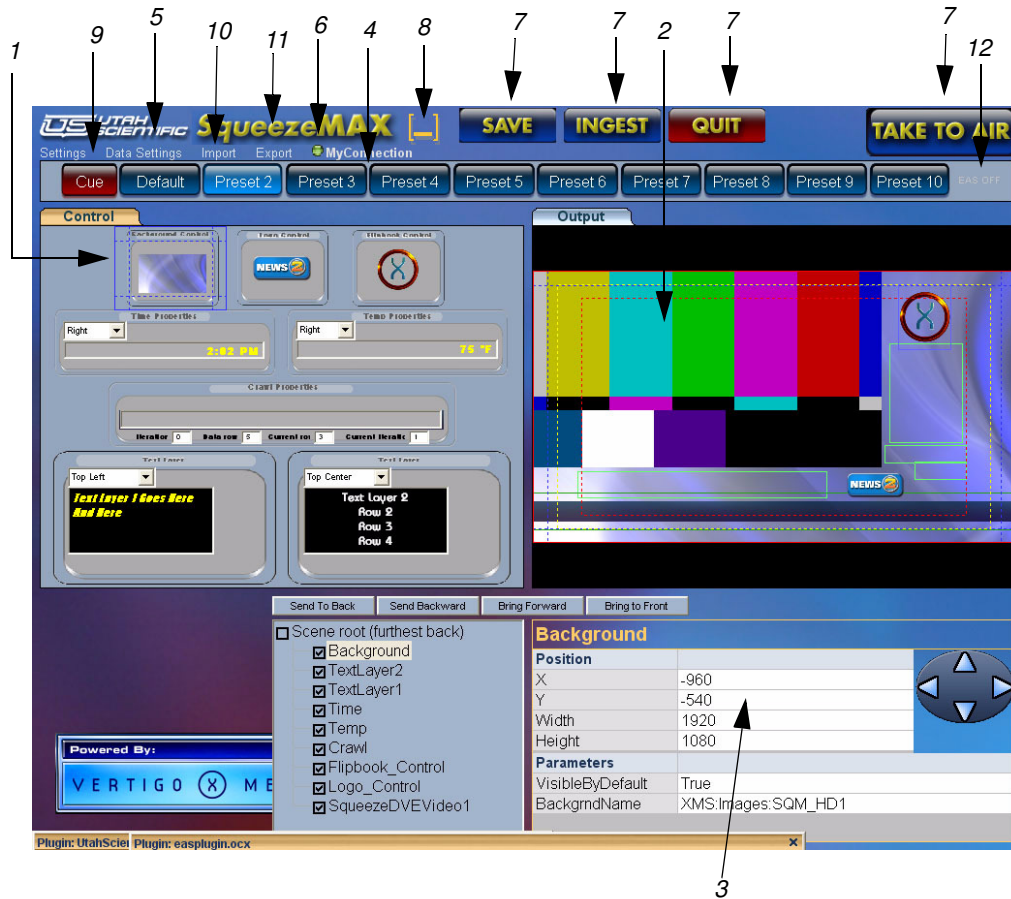
The SqueezeMAX HD Interface

FIGURE 1-1. SqueezeMAX HD Interface in Edit Mode

1- **Preset Control** - This is the window on the left that's indicated by the orange Control tab. This screen will be used for managing graphics on air.

2- **Preset Output** - Located to the right of the control screen and indicated by the blue Output tab, this window acts as a preview to what will appear on air. The output will be controlled by the control screen.

3- **Scene modification area** - Located directly below the Preset output window, this area includes the Scene tree, layer ordering buttons, and position and properties info.

4- **Preset selection buttons** - Located directly above the Preset control and output, these buttons allow you to switch to a different preset by simply clicking the button of your choice (e.g., Default, Preset 1, or Preset 2.)

5- **Settings & Data Settings** - Located in the upper left corner of the interface, clicking here displays the Settings dialog box. Data settings refers to data sources that can be modified.

6- **Connection indicator** - Located next to Settings. A Red light indicates a loss of connection to the device, while Green indicates a good connection.

7- **Save, Ingest, Quit, Take to Air** - These buttons are mostly self-explanatory. The Save button commits the changes made to a preset. The Ingest button makes images or TARGA sequences (flip book animations) available for use in SqueezeMAX HD. The Quit button closes the SqueezeMAX HD program, and the Take to Air button switches you to On Air mode and sends the graphics to air.

8- **Minimize button** - Windows standard. Allows you to reduce the interface from the active display.

9- **Cue** - This provides a ready, or 'pre-roll' state for a given Preset prior to on-air activation. The button will turn red (to indicate activation) when Cue is clicked. Next, select the required preset for on-air activation. (This will take the Preset full screen.) Click the required Preset one more time (when ready) to immediately take the Preset to air.

10- **Import** - Selecting *Import* from the main menu pulls a 'package' of directories into the SqueezeMAX HD interface, overwriting any information stored on the applicable Preset(s).

A *package* contains several directories and files associated with import and export functionality. The file containing the '.exp' extension is vital to the process and lies within the main directory.

Imported Presets must re-occupy the same numeric positions as used previously.

11- **Export** - When you click 'Export' along the main menu, you are prompted to select the specific presets for use. You may also click the box that indicates 'All'. **All** should *not* be indicated if you do not want to back up the images and logos.

If you were in the process of moving elements to another SqueezeMAX HD, the logos and background images would be required in order for the Presets to be complete. This will cause the file size to increase significantly, and again, is not necessary if logos and/or backgrounds are not required for the Preset transfer.

12- **EAS (Fixed Preset)** - EAS is a fixed preset that will only be activated if an EAS system is connected to the SqueezeMAX HD and an EAS message is requested. The default duration of the EAS sequence is 300 seconds, at which time the sequence will re-cue itself in the event a new emergency alert is sent.

Note: This preset can be configured for placement of EAS crawl data.

EAS Device Hook-up

The EAS device used (typically TFT® or Sage®) is connected from the SqueezeMAX device's COM-2 port and to the corresponding COM-2 port on the EAS chassis. A null modem cable is required.

As an alternative, you can also use the USB port on the rear of the SqueezeMAX chassis for this purpose. In either case the SqueezeMAX interface will indicate the proper port for EAS use.

Operation Modes: Edit and On-Air

Tip: You can configure SqueezeMAX HD to automatically launch in one mode or the other.

See "Application Settings" for more detail.

SqueezeMAX HD operates in two separate work modes: Edit or On-Air.

Edit mode allows you to make changes to the scene before going to air, while On-Air mode is the actual take-to-air environment.

Edit Mode

Edit Mode is the system default. In this mode of operation you have the ability to make necessary changes to the preset graphics without affecting any on-air display. When graphic modification is complete you can switch to the on-air mode to take your finished work directly to air.

The figure on the following page displays SqueezeMAX HD in Or Air mode.

> *Note: The output and scene modification area are replaced by a full-size version of the control screen. Use Edit Offline (located where Settings appears in Edit mode) to return to Edit mode.*

On-Air Mode

To activate the On-Air mode:

In **Edit** mode, click **TAKE TO AIR** in the upper right corner of the Squeeze-MAX HD interface.

SqueezeMAX HD will default to the external video source when operating in this mode.

To return to the Edit mode:

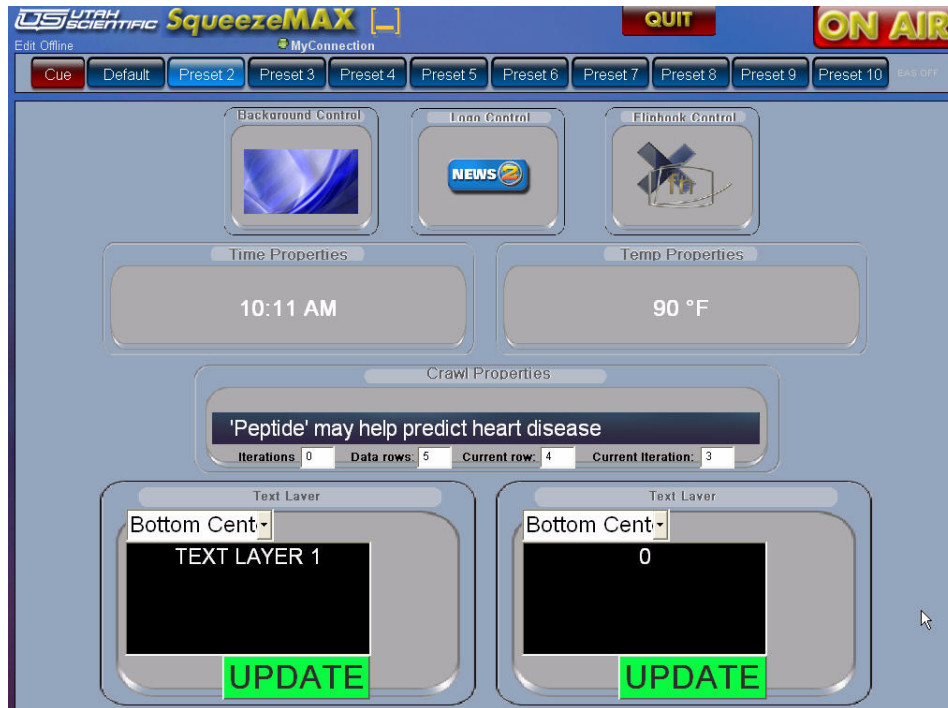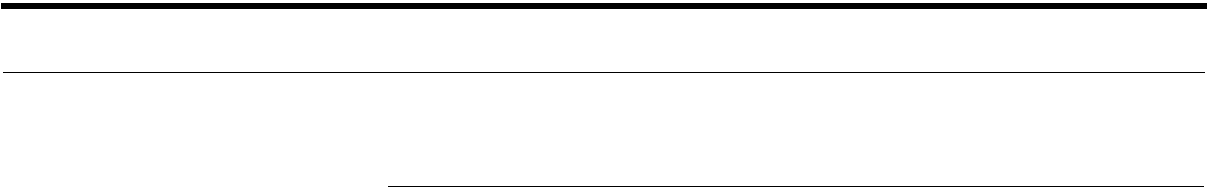Click *Edit Offline* in the upper left corner of the SqueezeMAX HD interface.

FIGURE 1-2. SqueezeMAX HD interface in On-Air mode

2

Daily Operations

The following chapter describes the basic functions involved in operating SqueezeMAX HD. This includes *Preset* management, *Ingesting*, and displaying *Text*.

When initially launched, SqueezeMAX HD will send the default *Preset* display to air. Click **Edit Offline** (upper-left) to stop the on-air operation and re-gain control.

The SqueezeMAX HD interface contains two primary windows for system status and operation; *Control* and *Output*.
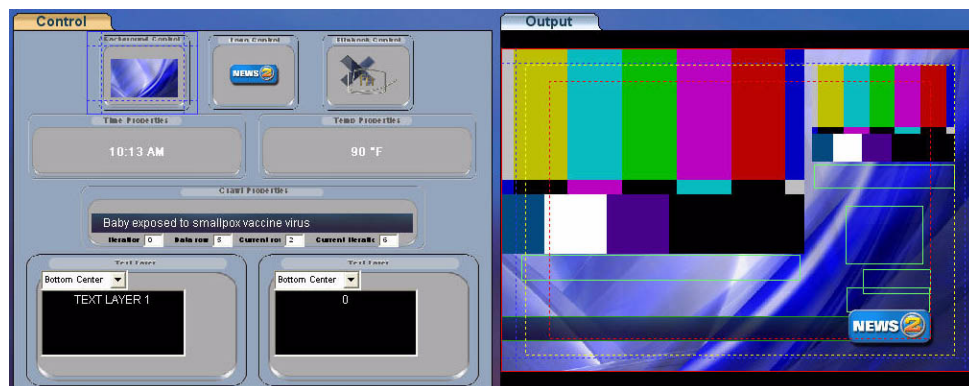
When you click in either window, you can use the scroll wheel on the mouse to zoom in and out of the design detail. Click the spacebar to return to default display.

The **Control** tab area is used for on-air graphics status and crawl control, while the **Output** tab area allows graphical placement and sizing prior to on-air activation.

Selecting a new preset

Presets can be selected by pressing the appropriate button on the USI switcher, or by using the SqueezeMAX HD interface.

To select a new preset:

- In either **Edit** or **On Air** mode, click one of the **Preset** buttons.

FIGURE 2-1. Preset buttons for selecting a new preset

Modifying presets

The extent to which presets can be changed varies from one preset to another, and depends on the permissions granted by the preset's author. Modifications can only be made to the output -- not to the control screen. The editing section is located in the lower section of the interface.
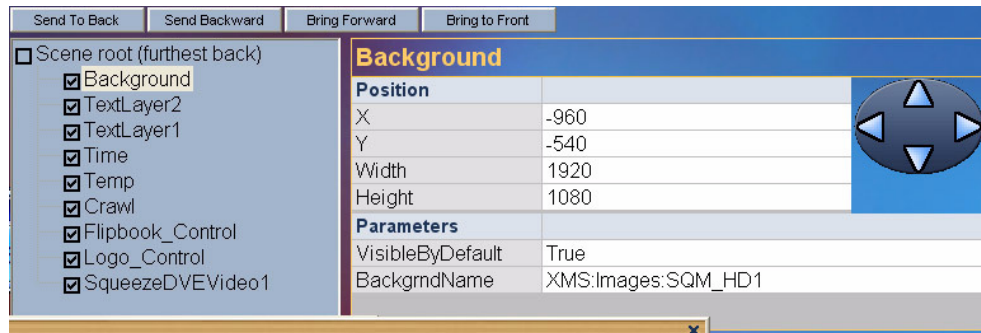

FIGURE 2-2. Editing section

Scene Tree - Element window

The window in the lower-left portion of the display contains all design elements currently available for use. The ten 'design elements' below behave similarly to the layers you encounter in other graphics programs.
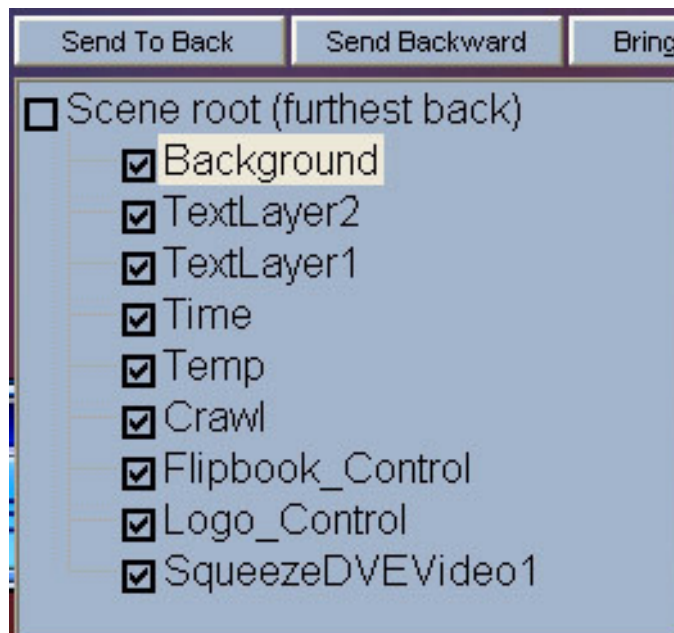
FIGURE 2-3. Scene Tree

For this discussion, the above elements will be referred to as layers.

The above dialog contains layer detail for background, logo, crawl data, and text. The top layer in the listing represents the bottom positioned item within the visual display.

When any layer is highlighted (Output design window), all x and y sizing parameters are displayed at the bottom of the screen.

Note: To enable a program video wipe over a still, background graphic, SqueezeDVEVideo1 (above) must always be checked. In this case, the DVE 1 (layer) is minimized to a 1 pixel width and placed outside the viewing area.

Accessing Images

Ingesting New Images and Targa Sequences

Click the **Ingest** button, located at the top-center of the display. A navigation window will appear allowing you to select a file from a provided list.

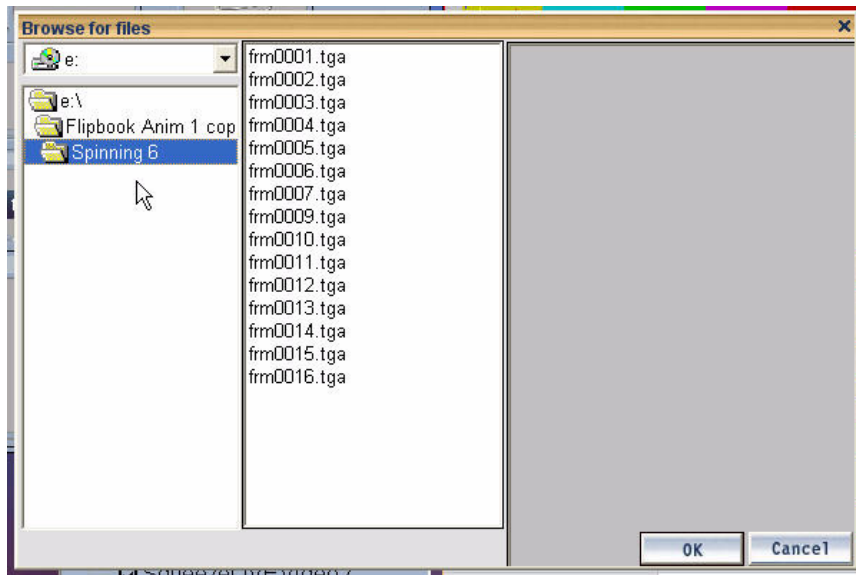**FIGURE 2-4. Image selection dialog**

Files to be ingested must be originally saved in 32-bit targa (with alpha) format. Ingested images can be used as logo-type elements or background displays.

When Ingesting, you are essentially *importing* a graphic file or a Targa sequence from an outside source. Once you have identified the file and clicked OK, the system will begin the 'save' routine for SqueezeMAX HD use. The new file will initially appear (in the *Background* or *Logo* selection box) with a long numeric name, but will contain the actual name you provided when subsequently accessed from the storage directory.

To Ingest a Targa sequence, you must select the first frame (typically labeled 0000), hold the Shift key down, then select the last frame (such as 0100). In this case all frames between 0000 and 0100 will be ingested.

Selecting Images from the Directory

You access graphical elements from the SqueezeMAX HD image directory for use within logo and background layers.

Click the directory button (below) to activate the image selection dialog.
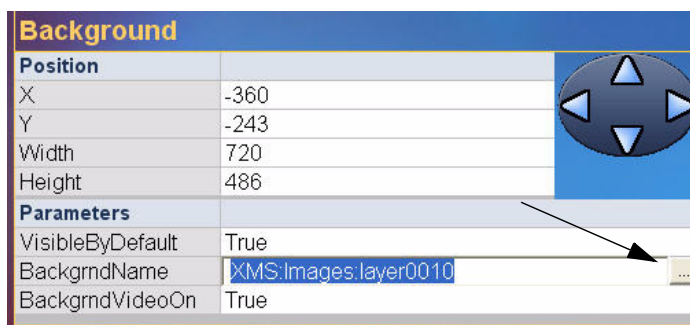
FIGURE 2-5. Image directory button

The navigation window will allow you to select a file from the provided list.
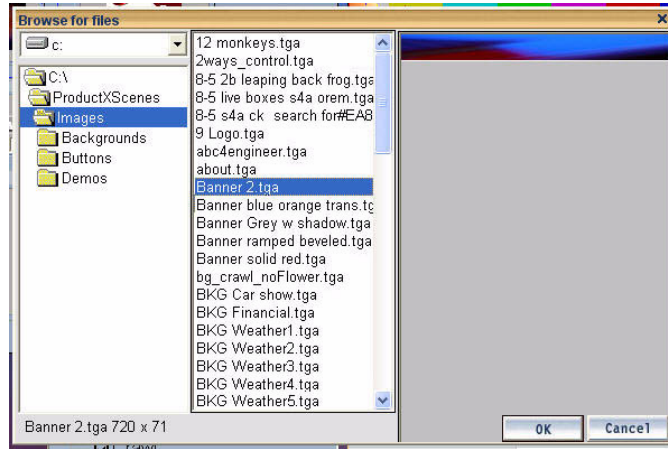
FIGURE 2-6. **Image file selection (dialog)**

Flipbook Animation

To develop a flipbook-style animation, all target files for the display must be high-lighted within the list.
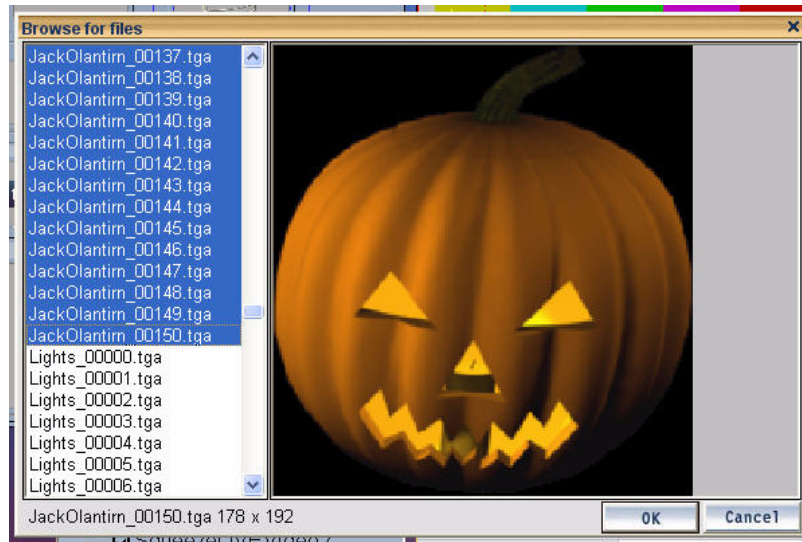
FIGURE 2-7. Targa file selection

Click the **OK** button once the files are highlighted. The new image will now appear in the highlighted layer (Output tab).

Output tab

The red outline within the Output display area represents a full 1920x1080 raster (1080i frame), the yellow line represents safe action, and a green bounding box indicates a text layer. (The dashed red line is safe title.) All bounding boxes are sizeable in any direction, and all are proportionately scalable when the shift key is held down. *Logo scaling is always proportionate in any direction.*


FIGURE 2-8. Output tab display

Image Modification

Images are moved around the display area by simply clicking the item and using the mouse. For fine-tune adjustments, click the item and use either the keyboard or on-screen arrow keys. Use the shift key for proportional scaling.

Text in the Display

Text can be placed in two separate [text] layers, with nine different positions (quadrants) for actual text placement. Text modification follows the same Windows standard fo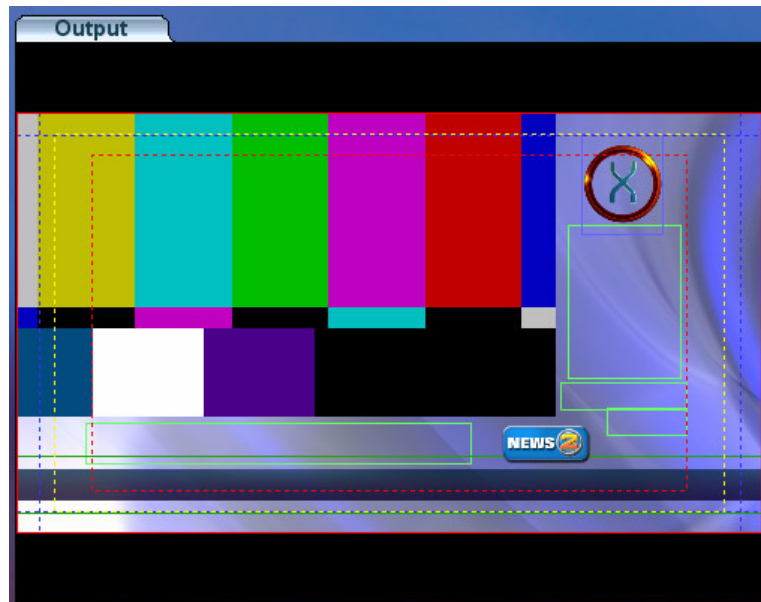und elsewhere, with a locking option to prevent text blocks from being updated or modified online. Both text layer blocks can be locked.

Data Sources (Text modification)

To modify an existing file, double-click the data source name (Settings area), or create a new data source by clicking New[1].

A new text row will be created each time the *Return* key is pressed.
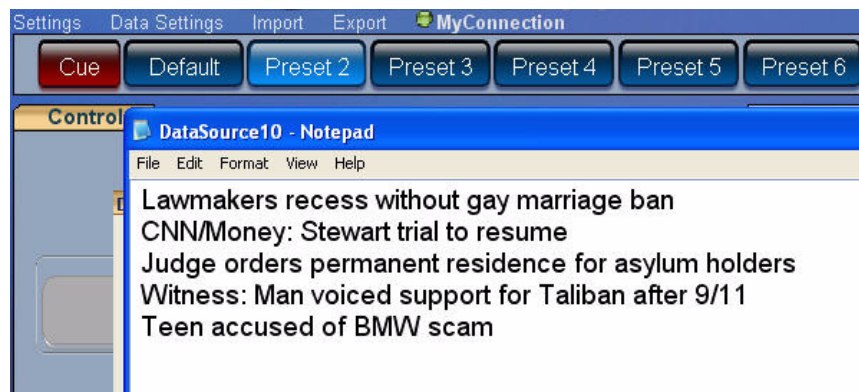
In the event quotes are required within a text statement, you must add double-quotations around the statement itself. (This is a software requirement.) For example,

> *The Governor again emphasized, ""Additional Fees are Mandatory"", in a news...*

This would display as,

> *The Governor again emphasized, "Additional Fees are Mandatory", in a news...*

---

1. New text files are created with the Windows text editor.

Crawl Setup

A crawl contains its own, separate, background layer. This can be any targa file imported to the SqueezeMAX HD system. A crawl contains the same positioning parameters as other elements (x and y). Modifyable parameters include width and height (in pixels), current font style, color, and size, along with rate (pixels displayed per second).
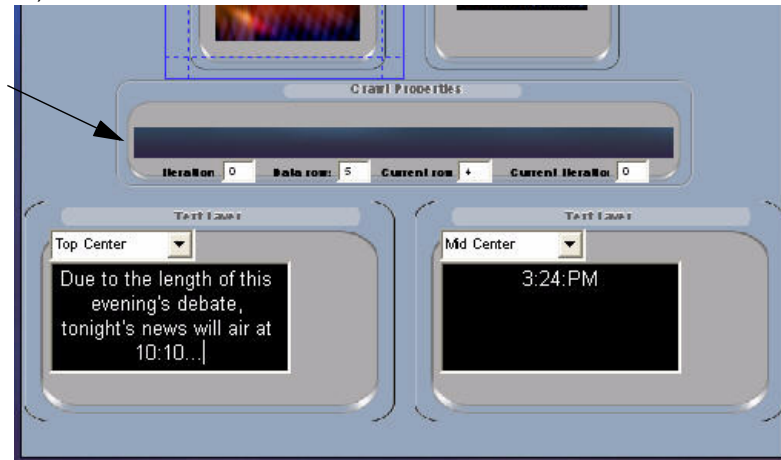
FIGURE 2-9. Crawl parameter and background display

Crawl Parameters

The display speed is 120 pixels per second (by default), with possible rates ranging between 300 - 700 pixels per second.

Spacing refers to the amount of actual pixel space between data rows.

Iteration refers to the number of times a crawl will loop before stopping. This is set to '0' as the default for an infinite iteration. *Not functional at this time.*
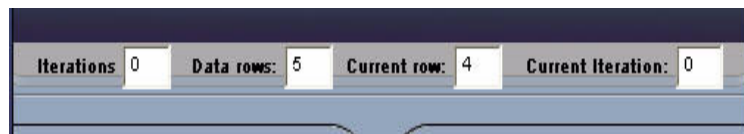
The **Current Row** is the row currently displayed in the crawl control

The **Current Iteration** is the number of times a crawl data set has been displayed.

> *Important Note: Prior to taking a crawl to air, you must select the new, or modified (crawl) Preset in the Edit Offline mode. This will prevent the previous buffered data from going to air when attempting to activate the new crawl.*

Modifying the Font Color

Font color is changed by selecting a Text Layer, then highlighting the field corresponding to 'Font Color'.
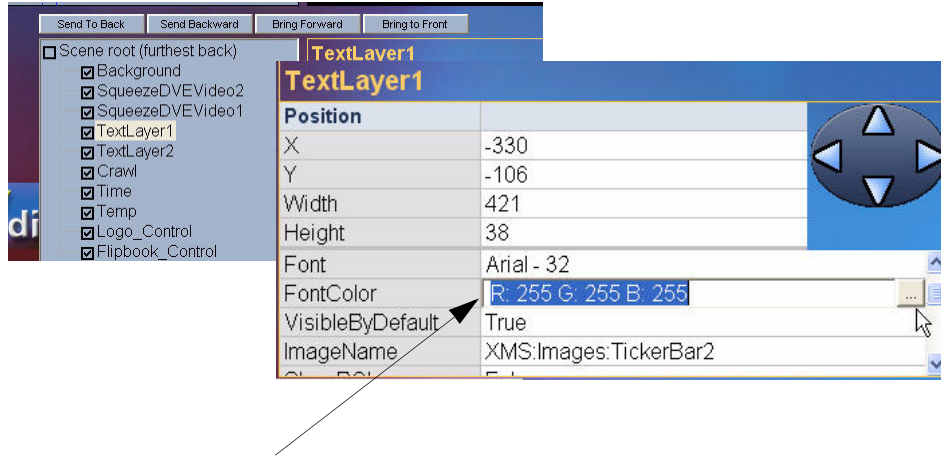
FIGURE 2-10. Font color designation

Next, click the pop-up box along the right side of the font color field. A color selection dialog will appear offering a palette of color choices.
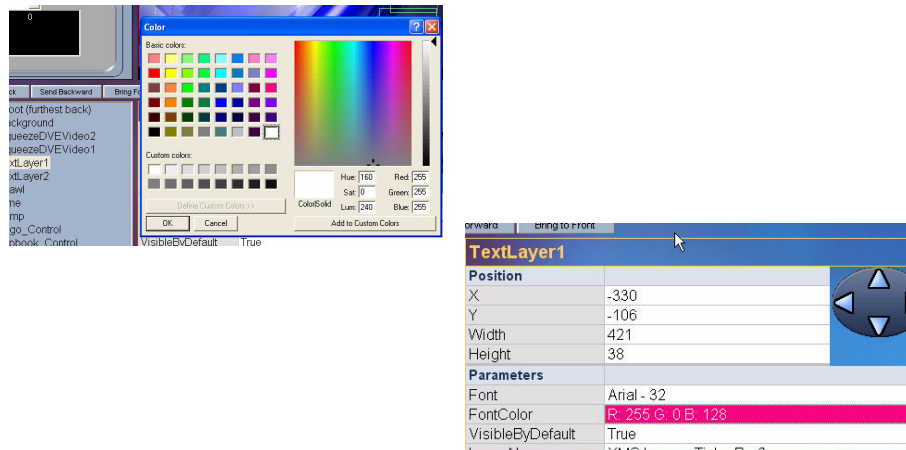
FIGURE 2-11. Font color indication

The font field will change shades to reflect the selected color.

Background Parameters

Background elements can exist as individual graphic layers. A background file must always be saved in 32-bit TARGA format.

> Note: The background should always remain in the fixed and centered position. This equals -960 (X position) by -540 (Y position), at a resolution of 1920x1080.

Finalizing

Click the **Save** button to commit all changes to the present *Preset.*

Click **Take to Air** to place the current *Preset* online.

Import/Export Function

Overview

The SqueezeMAX HD **Import**/**Export** functions allow for a backup and restore option for the program presets.

FIGURE 2-12. Import and Export menu selections

These backups are typically used for disaster recovery or periodic archiving. Selecting **Export** from the main menu creates a 'package' containing all data [image] information for the selected Preset(s).

Selecting **Import** from the main menu pulls these packages into the SqueezeMAX HD interface, overwriting any information stored on the applicable Preset(s).

A package contains several directories and files associated with import and export functionality. The file containing the '.exp' extension is vital to the process and lies within the main directory.

Usage

Select **Export** from the main menu to activate the function.
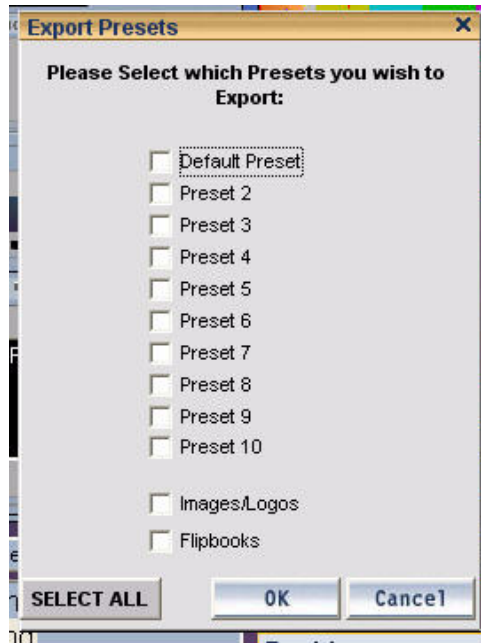
FIGURE 2-13. **Export Presets dialog**

Next, choose the Preset(s) you'd like to back up by checking the appropriate box(s).

> **Important Note:** The **Select All** button will include all Images and Logos in the export. This is typically used during exports to a separate SqueezeMAX HD system. This will cause the file size to increase significantly, but is not necessary if logos and/or backgrounds are not required for the Preset transfer.
>
> Please also note that Imported Presets must re-occupy the same numeric positions as used previously. Specifically, Preset 2 remains Preset 2, etc.

After clicking OK, a dialog will appear, requesting the location you'd like to save the export package. The name indicated at the bottom of this dialog is the actual name of the directory to be created. The package files (with their corresponding directories) will be saved within this new directory.

The directory naming sequence is as follows:

SqzMax_PresetExport_ddmmyyyy_hhmmss_Presets_x_y_z_

**Preset names -
Selected for Export**

To import a package, select **Import** from the main menu. A dialog will then appear asking you to select the appropriate ".exp" file. Select the desired file and click Open. The import will commence. All presets contained within this package will be imported, and will over-write their current content; specifically, if the package contains Presets 1, 3, and 5, an import of this package will overwrite the current Presets 1, 3, and 5 only. All other Pre-set(s) will be unaffected.

SqueezeMAX HD must be restarted after a package is imported. Once the program has been restarted, all imported Presets must be 'Published'. To do this, select each Preset in the *Edit* mode, then click **Save**. This will Publish any changes made.

Cue

Overview

The SqueezeMAX HD interface now provides a ready, or 'pre-roll' state for any given Preset prior to on-air activation. The *preview* of the selected Preset is viewable within the SqueezeMAX HD interface while the Preset is cued.

2. Select the PRESET to air

1. Click CUE

3. PRESET is clicked again to activate

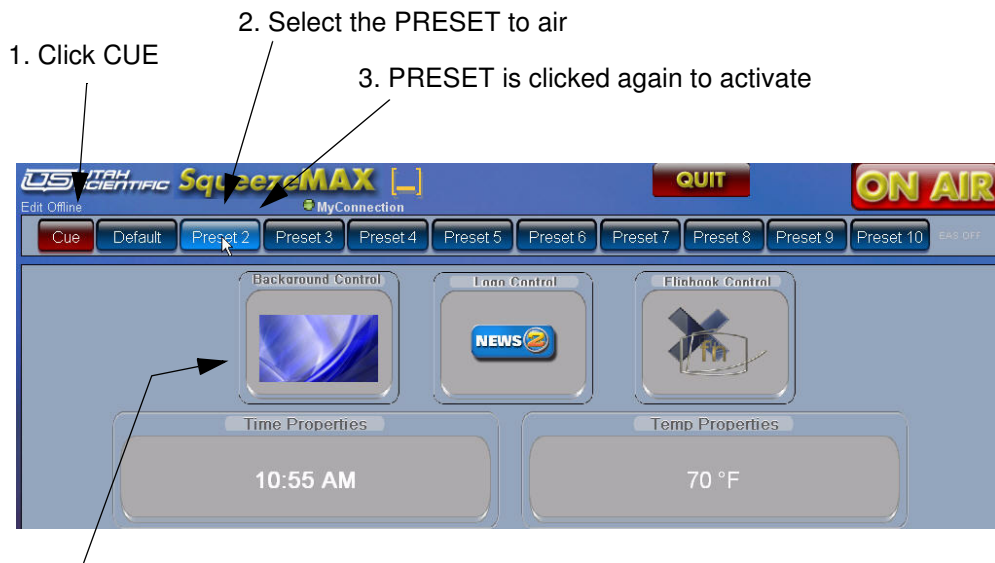PRESET elements appear (static) as Preview

FIGURE 2-14. Cue activation

Usage

To cue a Preset; click the **Cue** button (causing the button to turn a brighter shade of red), then click the desired Preset. Any other preset activity will cease, allowing the system to return to default status.

Click the Preset button again to air the display.

EAS System Operation

The SqueezeMAX system is designed to operate with the following EAS devices:

- TFT™

- Sage™

- Dasdec™

- LAN-based emergency alert

The program now includes a plug-in that will allow automatic communication with the above configurations; accepting alert messages and processing them through the SqueezeMAX interface.

Message Display

EAS message display is automatic, requiring no operator intervention. However messages can be taken to air manually by completing the following steps. SqueezeMAX allows the operator to modify, or add to (if necessary), EAS messages received from the decoder (Sage™, TFT™, Dasdec, etc.).

An alert message is present when the red EAS button is illuminated (upper right corner).

FIGURE 2-15.

To manually take the message to air, click the CUE button, then the EAS button. This bypasses the delay (indicated in the plug-in window).

A message delay is in effect during automatic message display (when EAS messages are *not* taken to air manually). The on-air delay is equal to the number of seconds indicated in the plug-in window.
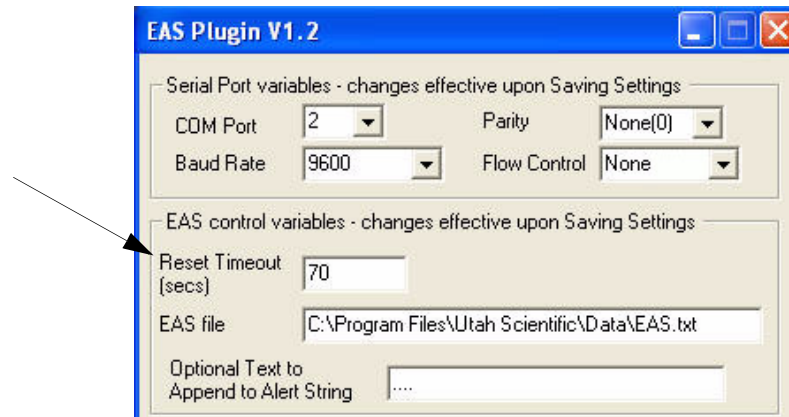

FIGURE 2-16.

Manually Editing an EAS Message

To manually change the content of an EAS message, you must modify the content of the text file (located in the *Utah Scientific*, **Data** sub-directory.)
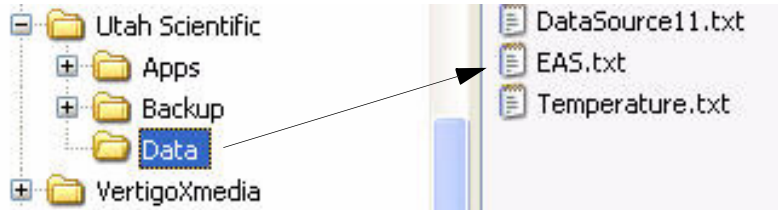
FIGURE 2-17.
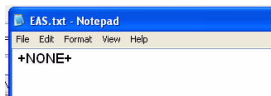
Open the eas.txt file, located in the above directory. The default display (appearance) is the word 'none' with "+" symbols on either side. (+NONE+).
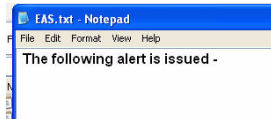
For the EAS message update to automatically occur, make sure SqueezeMAX is running, then edit the content of the text file by removing the 'plus' signs and creating a new message.

Save the new message, close the text file, then return to the SqueezeMAX interface.

Your **Cue** and **EAS** buttons are now active.
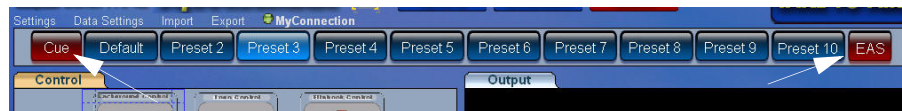
To activate your emergency alert message (on air), click the **Cue** button first, then click the **EAS** button. If you are not already in the on-air mode, click the Take to Air button.

Note: You have one minute to 'air' your EAS message from the time the text file is initially saved.

Click the EAS button (upper right) to activate the new message. The updated message will appear after a short delay. The EAS preset (itself) will override any other preset currently running, with full-screen program video active behind the EAS alert.

The contents of the EAS (text) file will return to the default setting (+text+) after the EAS alert has completed. This time-out is determined in your EAS plugin window.
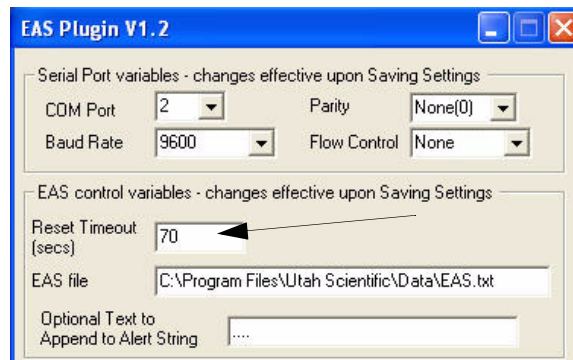
FIGURE 2-18.

When EAS is active, SqueezeMAX will contain a display similar to the illustration below.
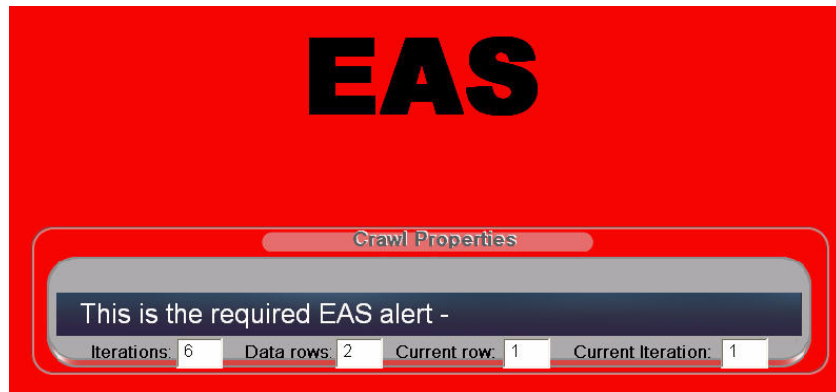
FIGURE 2-19.

The text message itself should appear within this field (middle of the on-screen 'component').

Important Notes:

- *Do not a launch a subsequent EAS alert until at least 10 seconds have passed since the last display. The default 'None' text will air if the display command is sent. The only way to clear this condition is by restarting SqueezeMAX.*

- To keep the initial text segment (from the previous message) from appearing in a new display, make sure the *dot leader* is present in the dialog (illustrated).
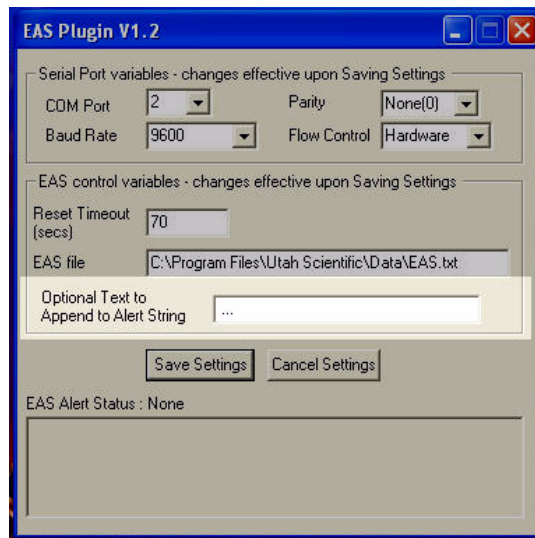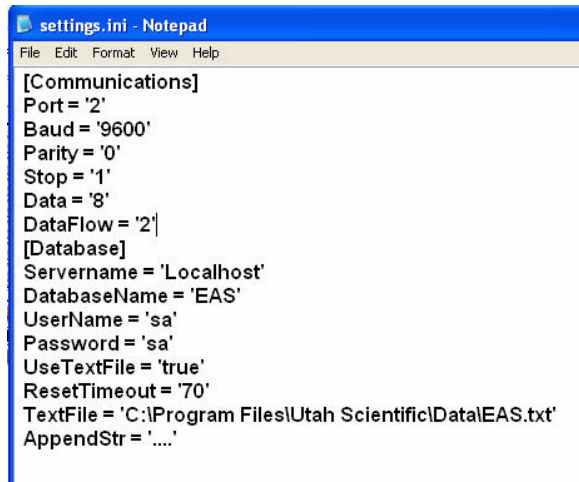
Changing the EAS Device Configuration

The necessary components for SqueezeMAX/EAS configuration are included in the installation package. However, in the event the EAS plug-in is not installed to your system, you can modify the setup parameters to communicate with the EAS device of your choice. The installation utility for TFT™, Sage™, or Dasdec™ is located on a separate CD. *Please contact Customer Service if you do not have this CD, or if you need assistance in its operation.*

The EAS communications parameters, such as port and baud rate, etc., are modified within the settings.ini file. This file is located in the 'plugins' directory.

Program Files\Utah Scientific\Apps\Plugins

The settings within this file correspond, by default, to the Sage™ operating system, but can be modified to accommodate the other external EAS devices.

FIGURE 2-20.

You can alter portions of the above file for Dasdec™, TFT™, or LAN-based setup, then re-save and close the file.

Sage™ Configuration - As Needed

- Set the device to GENERIC CGEN

- Set YES on the CRAWL RWT

- Use the Sage's Com 2 - this should be fixed at 9600 baud

- Your cable must be a null-modem type, with a standard DTE 9-pin configuration.

The AES plugin on both SqueezeMAX units are set as follows:

- Com 2 (USB-to-serial adapter)

- Baud - 9600

- Parity - None(0)

- Flow - None

EAS Device Cabling

The SqueezeMAX HD uses a serial cable for connection from the Com 2 port (SqueezeMAX) and the serial (Com 2 port) on the EAS decoder.

FIGURE 2-21.

TFT™ Operation (Basic)

There are two levels, or menu systems, of setup configuration for the TFT™. Both are password protected, with the first level offering basic review options, while the second level offers more detailed configuration possibilities.

First Level

Press the Password button (1), then 9-1-1 (2 and 3 below), then press **Enter** (next to the TFT's printer). *This is the default password*.
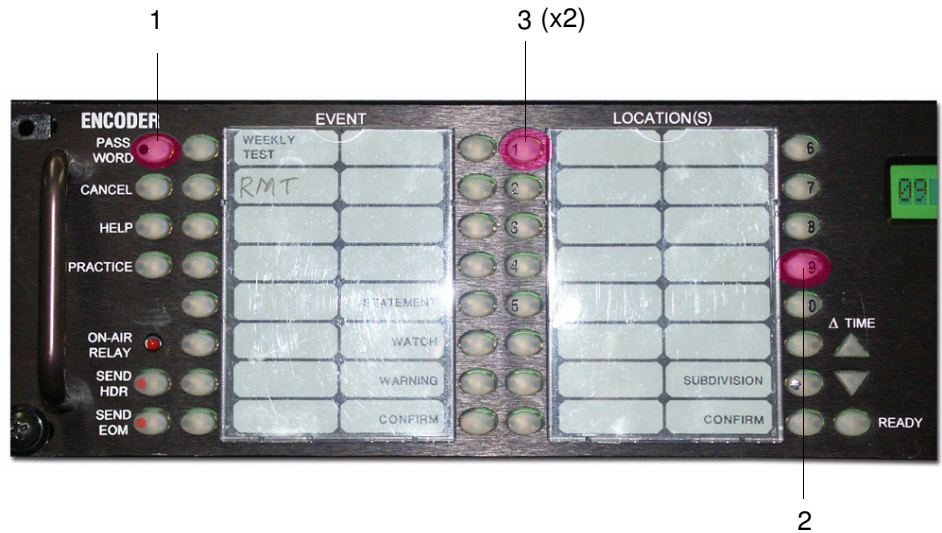
FIGURE 2-22.

This level is intended mainly for reviewing setup detail and manually sending alert messages.

Second Level

Accessing the Second Level allows, in particular, the Character Generator definition for SqueezeMax setup. Press the Password button (1), then 9-1-2 (2 and 3 below). *This is the default password*.
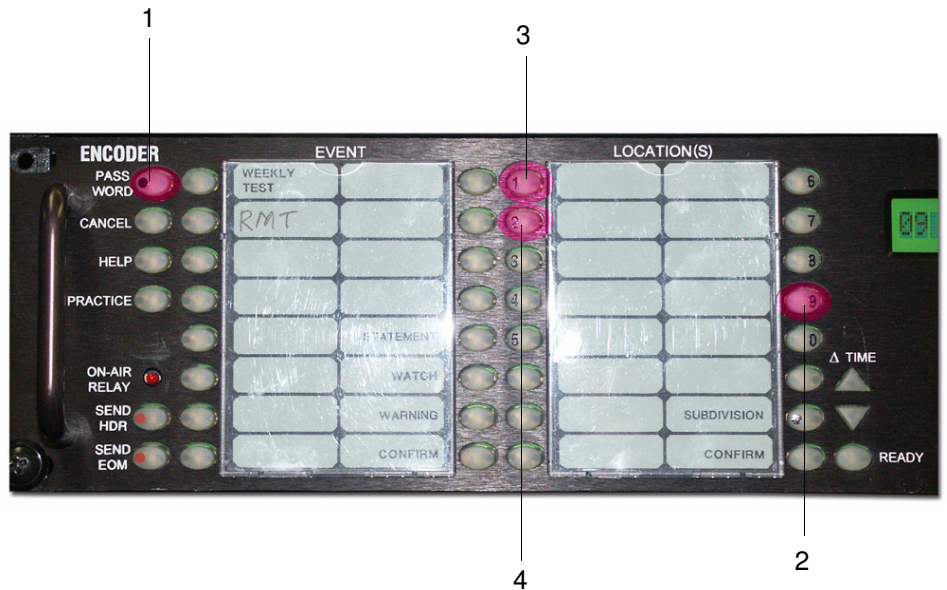
FIGURE 2-23.

Next, press **Enter** (next to the TFT's printer).
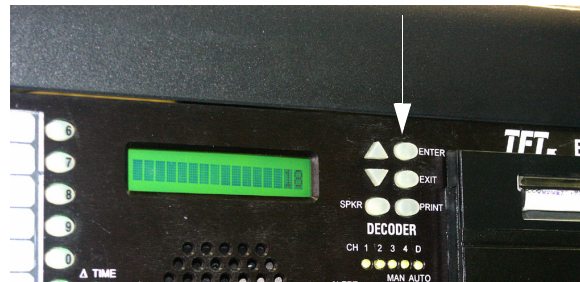
FIGURE 2-24.

To make a character generator [setup] change, scroll to #18 on the LCD screen. This command enables or disables the character generator interface.

Scrolling is done by pressing the up or down arrow keys next to the screen.

When you reach #18, press the **Enter** button. The current (default) character generator will be displayed. Scroll among the selection possibilities by again pressing the up or down arrow keys. Press the **Enter** button once again when your character generator mode is located.

Unless otherwise called for, the required selection is 'Standard TFT'.

TABLE 1. Available Character Generator selections

STD	Standard TFT
CODI	Interface to Chyron Codi
VDS	Interface to VDS 840
ALT1	Alternate TFT for Trilithic EAS Systems
ALT2	Alternate TFT for Next Level EAS Systems

Additional menu selections are made by scrolling up or down through the options, then making setup choices among 32 selections

3

System
Configuration

This Section Contains the Following:

Vertigo™ Control Panel Adjustment

When using the SqueezeMAX HD system, it is necessary to verify the following setting within the Vertigo control panel. Before proceeding, close the SqueezeMAX application if it is currently running.

The executable file that launches the Vertigo control panel is located inside the 'Apps' sub-directory, inside the 'Utah Scientific' directory.

Double-click the *VertigoControlPanel.exe* to launch the application.

Genlock Source

When the program is activated, highlight *Genlock Source*, verify that *SDI Video A* is indicated within the pop-down menu, make sure *Auto Set Current After Set Default* is checked, and finally (most importantly), click the **Set as Default** button along the right side.

When the above setting is made, close the Vertigo Control Panel and re-launch the SqueezeMAX interface.

Genlock Resolution

Complete the following to change the SqueezeMAX resolution to 720p:

- Close the SqueezeMAX application.

- Go to c:/Program Files/Utah Scientific/Apps; open **vcg2.ini** file, then locate the following lines:

  > **OutputScale=1**
  > **VideoCaptureInterlaced=True**

  and change the content to

  > **OutputScale=0.666**
  > **VideoCaptureInterlaced=False**

  Save the file, then exit.

- Launch the VertigoXG2 application, located in the Program Files/Utah Scientific/Apps folder (SqueezeMAX C drive).

- From the application, click the control panel (button).

- Select (in the TV format field) 720p60M.

- Click *OK*, *Exit*, then *OK* once again.

Finally, reboot the system to make sure the changes take effect.

Note: All Presets will remain 'built' as 1080i within the program, though the output will be 720p. To return to 1080i operation, change the corresponding line items within the .ini file and the (above) control panel setting back to 1080i30M.

Rear Connections

The connections illustrated below apply to the SqueezeMAX HD rear panel.
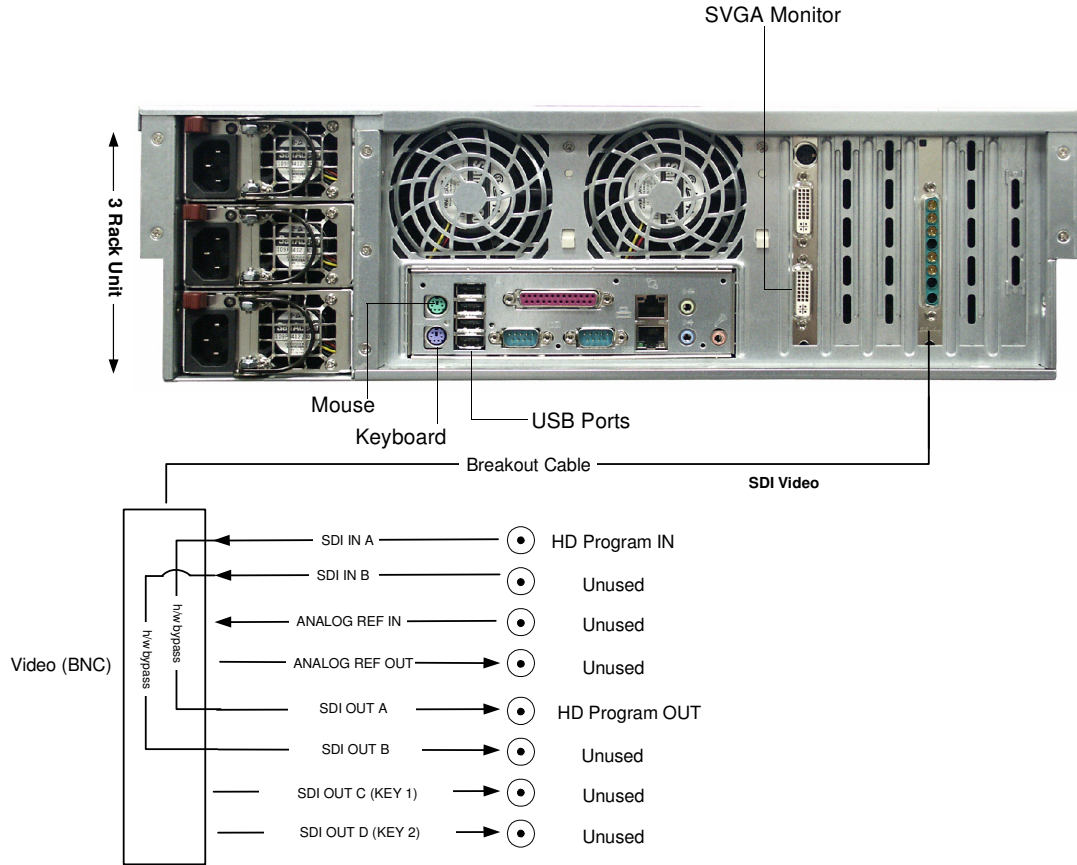
FIGURE 3-1. Rear Panel connections

Visual Overview of the System

SqueezeMAX Installation Mode

Notes:

1.. In this mode, the resized video is the PGM output, so mixes and keys will appear in this window.

2.. This mode depends on the bypass switcher to take the SqueezeMAX off-line for previewing effects.
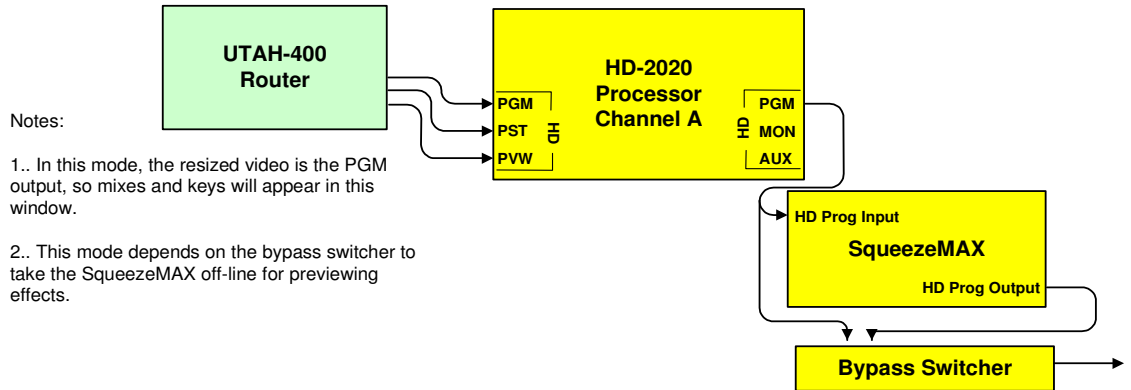
FIGURE 3-2. SqueezeMAX HD within the larger configuration

System Timing

Using SqueezeMAX in the Downstream Mode

Note: The following instruction references the connections shown in Figure 4-6 (previous page).

Although this is not the recommended mode to run in with the 2020 because the resized video is the actual program bus which is where transitions and keys are made, the connections are less difficult and there are no programming requirements.

In order to preview effects in this mode, you must have a bypass router in place to take the SqueezeMax offline.

Complete the following:

1. Connect PGM out of the 2020 chassis into the HD Program In on the Squeeze-Max.

2. Connect HD Program Out of the 2020 chassis into the Bypass switcher desired input.

3. Connect PGM out of the 2020 to a second desired input on the Bypass switcher.

SqueezeMAX System Timing

Although the spec for the sources coming into the 2020 is + or – one horizontal line and is very forgiving, the SqueezeMax is not and the timing must be very tight. This timing is done using the following procedure and has to do with the sources coming into the 2020 and not the SqueezeMax.

Symptoms of untimed sources through the SQM may be broken up video, glitches or slight bumps in the video as well as loss of or distorted closed caption.

HD SqueezeMAX Timing - Downstream

The HD SqueezeMax does not use an external reference. There are only two connections to be made. One is the video input and the other is the video output. It gets the reference from the video input. There is a delay of 7 frames through the HD SQM and for this reason it is recommended that it be used in the downstream mode only. In order to use it upstream the PGM bus input to the 2020 must also be delayed by 7

frames. We recommend that the sources be adjusted to as close to zero as possible when using SQM.

Timing Sources into the MC-2020

It is very important that all sources that pass through the 2020 are in sync with the reference that comes into the reference port located in the lower right corner of the 2020 chassis.

The reference for the SD-2020 must be an SDI source that is constant such as SD black or color bars. The reference for the HD-2020 must be an HD source that is constant such as HD black or color bars. We recommend that this source comes from the generated house sync of which all sources are also in sync with.

The 2020 has a timing utility that is very useful. Its purpose is to compare the source that is currently in use on any of the three busses (PGM, PST, PVW) with the video reference and display the difference between the two in both vertical lines and horizontal pixels.

There are two ways to view this. One is serially using the diagnostics port located on the front of the 2020 CPU card or with a telnet connection using the CPU's IP address. The second way is via the LCD utility on the MCP-2020 control panel using the menu icon called Src Status located on the Maint button.

Note: The program will display the vertical and horizontal difference for all three busses when viewing it from the diagnostics or telnet ports and only the PGM and PST busses when viewing it using the MCP-2020 LCD utility menu.

Using the Timing Utility

2020 Timing Utility Definitions

Good Video [G] is a video source that complies with SMPTE standards for signal integrity (levels, jitter, clock rate all comply with SMPTE tolerances) from which the MC2020 Video receivers can reliably recover clock and data information.

Asynchronous Video [A] is a "good" video source with sync timing that drifts relative to the video reference input sync timing. This signal is NOT GenLocked. For this reason, the video source will drift in and out of the +/- 1 HLINE "Timed Video" window. Video Status will be erratic.   Embedded Audio (for now) will be noise or sputtering sounds.

UnTimed Video [U] is a "good" video source that is GenLocked (not drifting) with sync timing that falls outside the +/- 1 HLINE "Timed Video" window relative to the video reference input sync timing. Video Status is stable. Embedded Audio (for now) may include noise or sputtering sounds.

Timed Video [T] is a "good" video source that is GenLocked (not drifting) with sync timing that falls within the +/- 1 HLINE "Timed Video" window relative to the video reference input sync timing. Video Status is stable. Audio is embedded without errors.

Usage and Display Format: (Defaults to slot 3 (VI), but can monitor Slots 4-7 (KM). Just state slot number after command.

> *For Example, type: 2020timing 5   for slot 5*

Video Status Flags appear in order (GAUT). Lower case 'x' means not active.

PST does not give any status on KM Cards; PGM = KEY, PVW=FILL

Positive V & H #s mean the source is ahead of reference, Negative values mean behind.

Type CTL-C to exit the utility.

Connecting via Serial

1. Plug the serial adapter (pn# 140100-2 supplied by Utah Scientific) into the COM port of the config pc. If you are unable to locate this adapter it can be easily built using the following pin out.

        RJ459pin

          1 - 2

          3 - 3

          4 - 5

          5 - 8

          7 - 7

2. Attach a standard CAT5 cable (straight through) between the adapter and the RJ45 connector located on the front of the 2020 CPU card. (This card is installed in the far left slot of the 2020 chassis).Run the TeraTerm terminal program (supplied by Utah Scientific on the system CD in the directory called PC Prep) or other desired program such as Hyper Term.

3. In TeraTerm select serial and choose the pc COM port you are using. Set baud rate to 19200 and parity to 8N1 in the serial port settings.

4. Hit the return key and you should get a prompt that looks like this />. At the prompt type 2020timing (case sensitive) to start the program.

Connecting via Telnet

(To use telnet the 2020 CPU must be on the same subnet as the computer)

1. Run the TeraTerm terminal program (supplied by Utah Scientific on the system CD in the directory called PC Prep) or other desired program such as Hyper Term. If using another program, make sure it can work with TCP/IP sessions. In TeraTerm select TCP/IP and enter the IP address of the 2020 CPU card.

2. Hit the return key and you should get a prompt that looks like this />. At the prompt type 2020timing (case sensitive) to start the program.

Using the LCD on the MCP-2020 Panel

Note: Timing displayed using this method is not updated instantly - a delay will occur.

1. Push the Home button located just below the LCD.

2. Push the Maint button located on the LCD.

3. Push the Src Select button located on the LCD.

4. This is the utility and will only display the source in use on the PGM and PST busses. The PVW section will not display here but only using the serial or telnet method.

Adjusting the Timing

(Recommended method is using serial or telnet as these will update in real time.)

1. In most cases each source device from frame syncs to servers to DTR's will have some form of adjustments for the V (vertical) and H (horizontal) timing. You will need to refer to each device manual to find this procedure.

2. Push the source that you want to look at on any of the three busses (PGM, PST, PVW) and look at the terminal. You will see the V displayed in lines and the H displayed in pixels for that source.

3. Adjust the V and H for that device while watching the terminal. The closer you bring the V and H to zero the better the 2020 will operate. The spec is + or – one horizontal line which means that you must have the V at 000 but the H can be anywhere from 0000 to + or – 858 pixels for SD, + or – 2200 for 1080i HD and + or – 1650 for 720p HD.

![US logo]

4

Working with Images

This chapter covers image SqueezeMAX HD Image Management; starting with *Ingesting*, continuing with the use of the *Scene Tree,* then concluding with *Image Positioning*.

Ingesting is the process of importing images and/or Targa sequences into SqueezeMAX HD.

To Ingest an image

1. Click **INGEST** . An Ingest dialog box displays.

2. Use the dialog box to navigate to the folder containing the desired image.

3. Select the image and click the **OK** button.
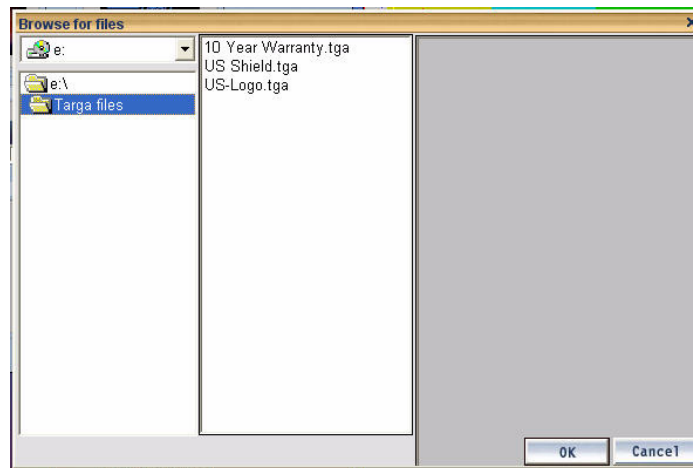
Scene tree

The Scene tree lists every element in the output. Each element occupies a *layer*, with the element on the bottom layer listed first. Using the example at right, the Background is listed first and is therefore on the bottom layer, whereas the Crawl is at the top-most layer.
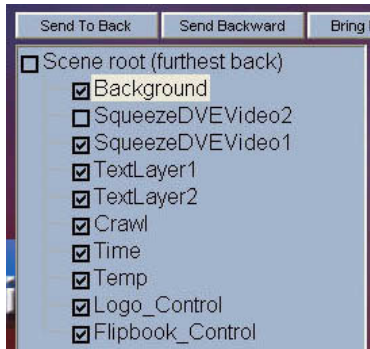
Checkboxes in the Scene tree allow you to hide or display scene elements. Checked elements are visible, unchecked ones are not. Note that when you change the visibility status in the Scene Tree, it is automatically reflected in the VisibleByDefault parameter (explained in the following section) and vice versa.

You can change layer ordering by selecting a layer in the Scene tree -- meaning, you are clicking on layer as opposed to checking the box -- then using the following buttons:

Important Notes:

- The ten element layers (illustration at left) are always present. Bounding boxes for each are consistently visible on the screen display. If you want to move an unused bounding box out of your work area, <u>make sure the element is turned off (unchecked)</u>.

- **Reducing a bounding box to 0 x 0 pixels will destroy the layer, and is not recommended. In this case, the Preset must be re-loaded in order to restore the layer. As an alternate, you can reduce the bounding box to 1 x 1 pixels. This will essentially make the bounding box invisible when an additional layer is not needed.**

Send To Back - Reassigns the selected element to the bottom layer.

Send Backwards - Sends the selected element back one layer.

Bring Forwards - Brings the selected element forward one layer.

Bring to Front - Reassigns the selected element to the top layer.

Changes made to layer ordering will be reflected in the Scene tree.

Position and Parameters

When you select an item in the Scene tree, its position and parameters display in the section at right.

Crawl	
Position	
X	-360
Y	-243
Width	720
Height	70
Parameters	
Font	Arial - 18
ForeColor	R: 255 G: 255 B: 255
VisibleByDefault	True
ImageName	XMS:Images:TickerBar2

The **Position** section is standard to all scene elements. Moving elements is accomplished either by using the arrows or by changing the values in the X and Y fields. Width and height are modified by entering new values in the corresponding fields.

The contents of the **Parameters** section depends on the element selected. Common examples of parameters include (in alphabetical order):

- **BackColor** - The color of the background of the text area. To change it, click in the field. When the button displays in the field, click it. This displays the Color dialog box.

- **BackgroundName** - The name of the background image. To change it, click in the field. When the button displays in the field, click it. This displays a dialog box you can use to find a new image. Note that only ingested images can be used (see "Ingesting" on page 4-1).

- **Crawl settings: iterations, data rows, current row, current iteration.**
  - Iterations: The number of times a crawl will loop before stopping. Set to 0 (zero) for infinite iterations.
  - Data rows: the number of separate crawl items in the data source.
  - Current row: the number of the row currently displayed in the crawl control.
  - Current iteration: the number of times the current data set has been shown.
- **CropBottom** - Crops the bottom of the video window by the specified number of pixels.
- **CropLeft** - Crops the left side of the video window by the specified number of pixels.
- **CropRight** - Crops the right side of the video window by the specified number of pixels.
- **CropTop** - Crops the top of the video window by the specified number of pixels.
- **DataSource (crawl)** - The text file is the source of the data being displayed on the crawl. To choose a new data source, click in the field. When the button displays in the field, click it. This displays the Data Source manager dialog. Choose the desired data source and click "OK".
- **DataSource (text)** - To display the computer time in the text field, type the word "CLOCK" into the text field.
- **Duration - Sets the number of seconds[1] to be used for the squeeze.**
- **Font** - The font to be used for text -- within a crawl or text layers. To change it, click in the field. When the button displays in the field, click it. This displays the Font dialog box.
- **FontColor** - The text color. To change it, click in the field. When the button displays in the field, click it. This displays the Color dialog box.
- **ImageName** - The name of the image to be used in a crawl. To change it, click in the field. When the button displays in the field, click it. This displays a dialog box you can use to find a new image. Note that only ingested images can be used (see "Ingesting" on page 1).

---

1. .25 = 1/4 second, .5 = 1/2, 1 = 1.

- **Iterations** - see "Crawl settings"

- **LockText** - Setting LockText to "True" prevents the text from being edited while on air. "False" permits editing in on-air mode.

- **LogoName** - The name of the image to be used for a logo. To change it, click in the field. When the button displays in the field, click it. This displays a dialog box you can use to find a new image. Note that only ingested images can be used (see "Ingesting" on page 3-2).

- **Rate** - The speed of the crawl in pixels per second. Rates of between 300 and 700 are most commonly used.

- **ShowBGImage** - Choose whether the selected background image is displayed for text fields or crawls.

- **Spacing** - The number of pixels to leave between items in the crawl.

- **VisibleByDefault** - Determines whether or not the scene element will be visible in the scene. Whatever is selected from the drop-down list will be reflected in the Scene tree, i.e. if the element is checked in the Scene tree (meaning it is visible) and False is selected for VisibleByDefault, the Scene tree box will be unchecked automatically.

Changes made to positioning and parameters will be reflected in the output window.

- Flip book loop (true or false)

- Flip book Proxy (pic load)

Saving changes made to the output

To save changes made to the output:

- In **Edit** mode, click **SAVE** .

5

Data Sources

Overview

A **Data Source** is a reference to an external text file that stores the actual text segment to be displayed in a crawl. Examples of data sources would be news headlines, breaking news, weather alerts or forecast data, sports results, stock information, or any other text to be scrolled across the screen.

Data sources can only be modified in Edit Offline mode. To begin editing any one of the current data sources, click the *Data Settings* menu. The data manager window will be displayed:
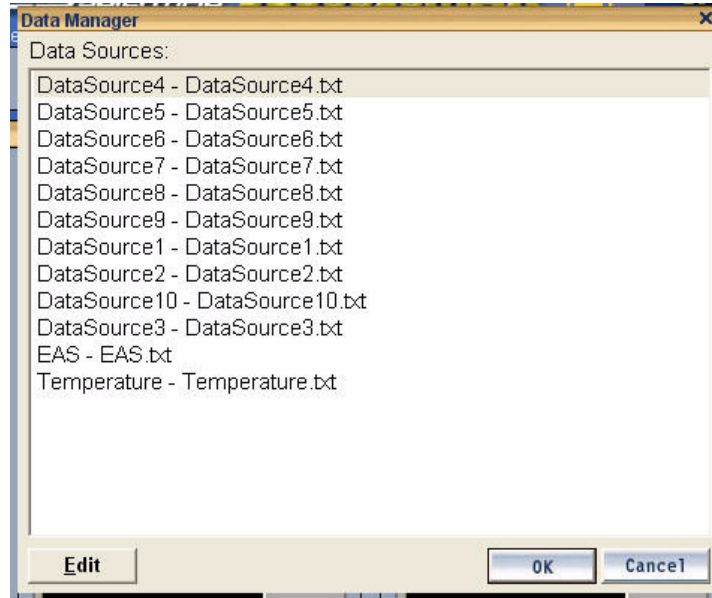

FIGURE 5-1. Data Source listing

Editing Data Sources

To edit a Data Source, double-click on the data source to be edited from the list (below). The dialog will expand to show the properties of the selected data source.
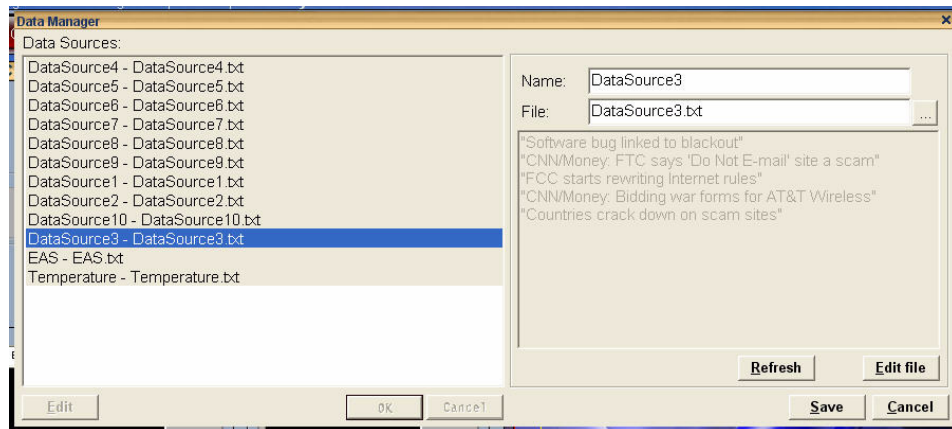

FIGURE 5-2. Data Manager

The name of the data source can be modified, as well as the text file that stores the data.

When you click **Edit File** (lower right), the data source text will appear in a *Windows Notepad* (or other default text editor.) When you have finished modifying the file; save the file, close the text editor, then click the refresh button to view your update.

A maximum of twelve data sources can be saved at a time.

A

LAN Setup and Installation

Overview

SqueezeMax LAN allows the user to individually edit the SqueezeMax "Crawl" text for all ten SqueezeMax data sources via a networked "host" computer. Each host computer can interface with up to six SqueezeMax units.

Steps Involved

Step 1

Copy the file SqueezemaxLAN.zip to your preferred installation directory, such as C:\Program Files.

Step 2

Unzip the SqueezemaxLAN.zip file which creates a new directory called SqueezemaxLAN.

Step 3

With Windows Explorer, go to the SqueezemaxLAN directory and double click the application called SqueezemaxLAN.exe to begin the program.

Step 4

There are four pieces of information that need to be entered for each SqueezeMax that will be interfaced. This information is: the "Client Name", the "SqueezeMax User", the "SqueezeMax IP" address and the "SqueezeMax Data Source Path".

The "Client Name" is entered in the "Edit Client Name" window. This name is used in the drop down box located in the upper right corner of the SqueezeMax LAN window. It can be any name that you chose to use to identify the SqueezeMax client machine.

The "SqueezeMax User" is the name Windows uses to identify the SqueezeMax machine. This name can be found by clicking the "Start" button on the SqueezeMax, the name appears at the top of the pop-up menu.

Utah Scientific recommends that each SqueezeMax be given a static IP address. Once this address is known enter the address in the "SqueezeMax IP" address box.

The text data that SqueezeMax LAN can edit is stored on the SqueezeMax machine. The Utah Scientific default path to the text data for an SDI SqueezeMax is:

**C:/Program Files/VertigoXmedia/Apps/JambalayaData/**

For an HD SqueezeMax the path is:

C:/Program Files/Utah Scientific/Data

If you have not changed the data storage location enter the appropriate default information in the "SqueezeMax Data Source Path" If you have changed the data storage location you will need to enter the correct data storage path.

Step 5

Verify that a software package called "cygwin" is installed on the SqueezeMax machine opening "Explorer" and verifying that this path exists: (Drive):/cygwin. Another clue to the existence of "cygwin" is if this shortcut appears on the desktop.
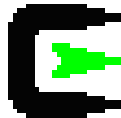
If this directory does not exist please contact Utah Scientific.

This completes the installation of SqueezeMax LAN.

SqueezeMax LAN Operation

Operation of SqueezeMax LAN is simple and straight forward.

Step 1

Select the desired SqueezeMax machine from the drop down menu in the upper right corner of the screen.

Step 2

Select one of the ten "data sources" to edit and press the "Get Current" button in the upper right hand corner. The current text will appear in the "Current Text" window. This step is intended to simply aid in verifying that the correct text is being edited.

Step 3

Type the new text to be issued to the SqueezeMax in the "New Text" window.

Step 4

Press the "Save/Send" button in the upper right corner of the screen. This writes the new information to the SqueezeMax data sources. Please note that if the edited data source is being displayed on air, the new text will not appear until after the current reiteration of the old text is complete. How long it takes for the new text to be displayed is dependant on the length of the old text and the number of lines in the text.

B

CYGWIN Installation

Overview

Cygwin contains the tools that are used on the SqueezeMax machine in interfacing with SqueezeMax LAN software. Cygwin must be installed in the SqueezeMax in order for SqueezeMax LAN to computer to interface with the SqueezeMax machine.

To verify if Cygwin is already installed on the SqueezeMax machine, look for this logo;

on the desk top or look for a folder called C:\cygwin.

CYGWIN tools Installation on Squeezemax

(Please follow the instructions carefully)

Steps Involved

Step 1

Open Windows Explorer folder view and copy cygwin_install.zip to C:\ or the preferred drive. (The ZIP file consists of a directory called "cygwin" with a subdirectory called "install").

Step 2

Unzip cygwin_install.zip by extracting the files onto C:\. Using Windows XP click on the cygwin_install.zip file, select "extract all" and ensure that the target unzip path is C:\ and no where else. When completed a folder called C:\cygwin\install will have been created.

Step 3

In Windows Explorer open a view of C:\cygwin\install and double click "setup.exe" to install the Cygwin packages on the system.

Carefully follow the instructions below for each setup screen.

> a. Press "Next" on the "Cygwin Setup" screen.
>
> b. Choose "Install from Local Directory".
>
> c. Ensure that the path is C:\cygwin. Select "All Users" and "Unix/binary".
>
> d. Ensure that the "Local Package Directory" is C:\cygwin\install.
>
> e. At this point the "Select Packages" screen opens. Every package in the list must be installed; however by default not all are selected. To select all packages follow the instructions.
>
> > 1. Press "View" until "Full" appears just to the right of the "View" button. (In most cases only a single press of "View" is required).
> >
> > 2. Rows of information will appear in a dialog box. In the left hand column labeled "New" you will notice that some of the packages are labeled "Skip" rather than having a series of numbers in the "New" column. On any package labeled "Skip" click on the word "Skip" and it will be

selected for installation and the word skip will be replaced by a series of numbers. Make sure that every "Skip" is selected.

3. Choose "Next"; the installation process will take a few minutes.

4. Allow the installation to add the icon's and choose "Finish".

5. Select "OK" in the small dialog box that opens.

Step 4

Go back to the Windows Explorer view from which you ran the Cygwin setup.exe and double click the file initcyg.bat file. This will open a DOS window that tracks the progress of the installation. When the DOS window closes the installation is complete.

Removal of Cygwin

Step 1

Double-click the Cygwin icon on the desktop. This will open a dialog window.

Step 2

When the prompt appears enter "net stop sshd"; leaving out the quotation marks. This stops the applications and allows for the Cgywin folder to be deleted.

Step 3

Open windows Explorer and go to C:\cygwin; press the "delete" key.

C

CHAPTER C   *Encryption Key Modification*

Overview

By preventing unauthorized access, encryption keys are used to protect the integrity of the text that is written to the SqueezeMax and in the process it protects the integrity of the information that is broadcast. When Squeeze-Max LAN is installed on the host PC and the accompanying Cygwin software is installed on the SqueezeMax machine a default "encryption key" is created as part of the installation process. The SqueezeMax machine and the host computer for SqueezeMax LAN both create the identical default encryption key when the software is initially installed.

In the event you want an added measure of security or if the default encryption keys have been stolen or comprised, Utah Scientific has allowed for the creation of a customized encryption key. It is VERY important that you understand that once you start down the road of creating a new encryption key, there is NO turning back. Every SqueezeMax machine, host computer, replacement or new piece of equipment will need to have the new encryption key installed in order to operate.

To illustrate: The decision is made to use custom encryption keys. You go through the entire process with every SqueezeMax machine and LAN host computer. A week later the host computer dies – all the machines and computers will need to have new encryption keys recreated and re-installed before the replacement computer can be included.

In order to create and install custom encryption keys you will need a method of transferring data from the SqueezeMax LAN host computer to the SqueezeMax machines. This can be done via a thumb drive, compact disc, floppy or whatever other method you devise. Do not begin the custom encryption key generation process until you are certain that you have the means to make the data transfer.

Creating Customized Keys

Step 1

In the folder C:\Program Files\SqueezemaxLAN\putty, of the LAN host computer, you will find an application called "puttygen.exe". This application is use to create the new encryption key. To begin double click on puttygen.exe, this will open a window called "PuTTY Key Generator". Please not that the "Key" portion of the window says "No key".

Step 2

Select the "SSH-2 DSA" option in the "Parameters" section of the window. Leave the "Number of bits in a generated key" at 1024.

Step 3

Press the "Generate" button and carefully follow all the instructions.

Step 4

Once the process is complete you will see the new encryption key in the "Key" portion of the window. This is the data that needs to be transferred to all the other SqueezeMax machines and host computers. Copy the complete text to a notepad or similar file and save to the thumb drive or other transfer method.

Step 5

Press the "Save private key", without a passphrase. When you press this button a folder view will open and a file named "dsa_priv.ppk" will be in this folder. Select this file and press "save".

Step 6

Press the "Save public key" and select the file called "dsa_pub". Press the "Save" button.

Step 7

Replace the text in the C:\cygwin\home\Squeeze Max\.ssh\authorized_keys file on every SqueezeMax machine with the new encryption key information.

Default Encryption Key Restoration

In the event you have replaced the default encryption key and need to restore it follow these instructions.

Step 1

On the SqueezeMax LAN host computer, delete the existing SqueezeMax LAN installation by deleting the "SqueezemaxLAN_install" folder.

Step 2

Reinstall SqueezeMax LAN by following the installation instructions and defaults.

Step 3

Go to: C:\Program Files\SqueezemaxLAN_install_1_2\SqueezemaxLAN\putty and run "Puttygen.exe".

Step 4

Press the "Load" button and select "Dsa_priv.ppk" and press "Open". This will load the original/default encryption key in the "Public key for pasting into the openSSH authorized_keys file". Copy this information into a note pad file and save it a manner that will allow you to transport it to each of the SqueezeMax machine(s) that need the original/default key restored. (Using a thumb drive or similar)

Step 5

On all SqueezeMax machines go to the C:\cyg-win\home\Squeeze Max\.ssh\authorized_keys file and replace the existing data in the authorized_keys file with the new data. Every SqueezeMax machine must be updated.

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