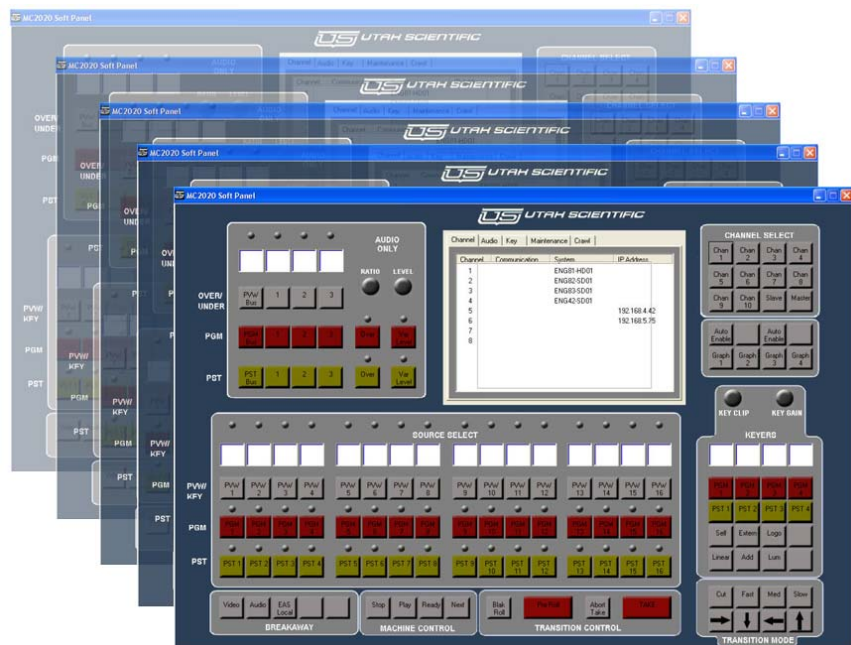




## MC-GUI



## *Setup and Operations Guide*

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## ***MC-GUI Setup and Operations Guide***

- Document Number: 82102-0077
- Document Version: 1.2
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4750 Wiley Post Way, Suite 150  
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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

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- EMC Directive 89/336/EED
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## ***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.
- Disconnect power before cleaning. Do not use any liquid or aerosol cleaner - use only a damp cloth.



- 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).

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## *Company Information*

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### *Overview*

The MCGUI application is a Master Control software program which can be used with all models, including MC-40, MC400, MC4000 and MC2020. It can operate solely on a network or in conjunction with any model of Master Control hard panels as well.

The MCGUI can operate as many as 8 channels on a single soft panel. In order to operate more than 8 channels then additional MCGUI applications would be required.

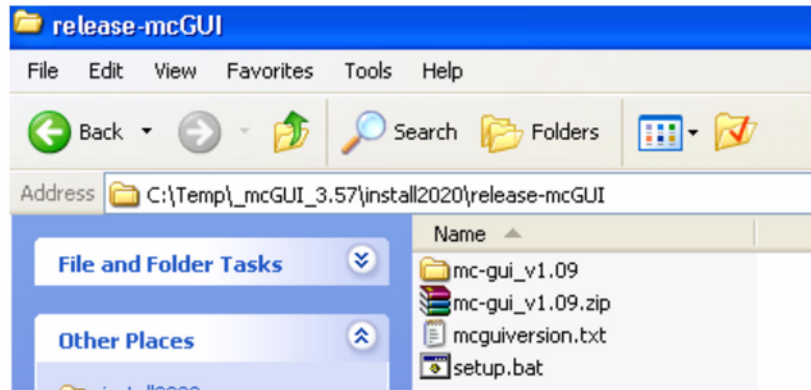
### *Installation*

The program is shipped on a CD with a title similar to '\_mcGUI\_3.57'. These numbers in this title represent the current overall system CD and not the actual version of MCGUI. The actual version of the application will be noted in the title of the folder found within the \_mcGUI\_3.57 folder which will be similar to 'mc-gui\_v1.09'. V1.09 is the current version and is subject to change. Note: If your CD has a number smaller than this then contact Utah Scientific Customer Service for a current version.

**Note:** You may choose to copy the folder from the CD directly onto the working pc. In either case, navigate and open the folder called '\_mcGUI\_x.xx' on the MCGUI CD and then

---

open the folders called install2020 and release-mcgui.  
You should see a similar view as figure 1 below.



**FIGURE 1 - MC-GUI setup location**

## *Setup and Launching the MC-GUI*

1. Locate the setup.bat file from the installation above and double click it. This will create folder in c:\usi called mcGUI and then place the folder called mc-gui\_v1.09 inside of it. This will not install any items in the system registry or into the Program Files folder on the computer. **Note:** You may skip this step and simply copy the mc-GUI\_v1.09 folder anywhere you prefer on your system. We recommend this be put into the c:\usi folder as it will be easy to locate along with other Utah Scientific products that do require this location.



2. Navigate to the mc-gui\_v1.09 folder from the setup above and locate the file called **SMCP.exe** and double click it. You will see the application come up on the computer as seen in figure 2 below. **Note:** Minimum desktop resolution should be set to 1280x800. **Note:** The GUI will launch with default channel connections until it is configured to correspond with desired channels.

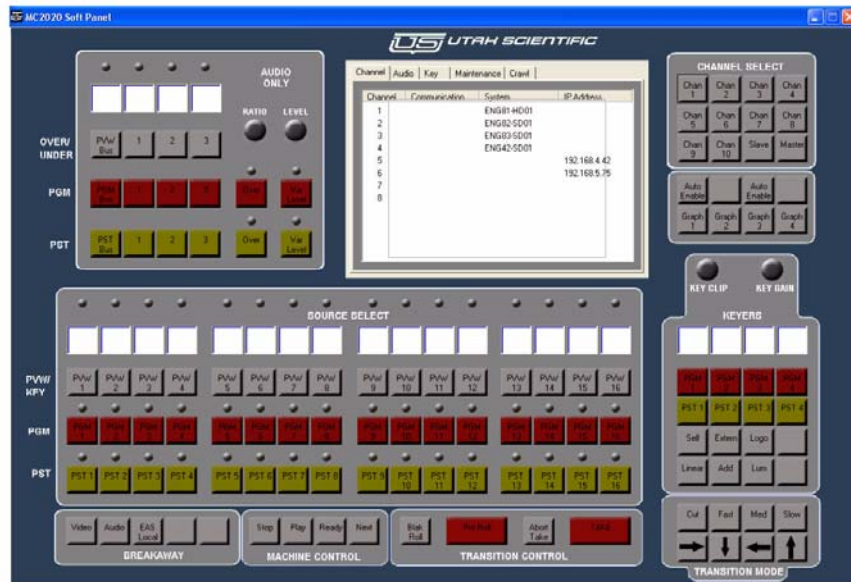


FIGURE 2 - Default Channel view

### Connecting to MC Channels

The MCGUI is capable of connecting to up to eight MC channels. In order to connect to the desired channels you must locate the system channel name for each and then put this name in the correct location found in the MCGUI configuration file.

---

## Locating the System Name


1. Launch TeraTerm and connect to the MC channel using the IP address.  
Note: If connecting to an MC-4000 or an SD/HD-2020 then use the address of that channel. If connecting to an MC400 or and MC40 then use the address of the MCP400 or MCP40 panel or interface unit.
2. After connecting to the channel you should be at a prompt that looks />. At the prompt type 'HDconfig(space)display' (without quotes) and you will see the entire configuration scroll by for that channel.
3. Scroll to the top of the text using the scroll bar at the right of the screen and locate the section called Flash Version Data as seen below.

```
[FLASH_VERSION_DATA_START]
# the following fields are REQUIRED
# the format for this section is a FIELD LABEL:FIELD DATA
# the FIELD LABEL must have a ':' as the separator
# the FIELD DATA must start with a '@'
#
# FILE_FORMAT: @00.01
# CUSTOMER_NAME: @XXXXXXXXXXXXXXXXXXXXX
# SYSTEM_NAME: @XXXXXXXXXXXXXXXXXXXXX
# FILE_DATE: @MM/DD/YYYY
# FILE_REVISION: @??
# SYSTEM_MODEL: @XXXXXXXXXXXXXXXXXXXXX

FILE_FORMAT: @00.05
CUSTOMER_NAME: @KUSI-TV
SYSTEM_NAME: @KUSI-HD
FILE_DATE: @09/29/2010
FILE_REVISION: @01
SYSTEM_MODEL: @MC2020
```

*Write down the name found next to the SYSTEM\_NAME in this section. This is the system name you will use in the MCGUI configuration file in the next steps.*

## Changing System Name in Config File

1. Return to the application folder called mc-gui\_v1.09 from setup section above and locate the file called  config.dat . Double click the file and if it asks for a program type then choose WordPad.



2. Locate the top section titled [FLASH\_VERSION\_DATA\_START] go to the area that looks like the following.

```
FILE_FORMAT: @00.01
CUSTOMER_NAME: @USI
SYSTEM_NAME: @ENG42-MCP01
FILE_DATE: @05/18/2006
FILE_REVISION: @01
```

3. This information is of the MCGUI itself and will appear in the System Information tab in the MCGUI. It is not critical to the operation of the MCGUI and is for information purposes only.
4. Put the customer name in over the name of USI. Note: make sure to leave the @ sign in place and write the names after the sign.
5. Put the desired name of the MCGUI in the SYSTEM\_NAME line. If there are multiple MCGUI panels this will refer to which one you are looking at. Note: make sure to leave the @ sign in place and write the names after the sign.
6. You can change the file date to the current date or leave it as it is.
7. Scroll down to the section titled [2020\_CHASSIS\_CONNECT\_DEFINITIONS\_START] and find the area that looks like the following.

```
#-----,-----,-----,-----,-----,-----
YES ,NMS ,ENG81-HD01 ,208.228.4.196 , ,
YES ,NMS ,ENG82-SD01 ,208.228.244.200 , ,
YES ,NMS ,ENG83-SD01 ,208.228.68.204 , ,
YES ,NMS ,ENG42-SD01 ,208.228.148.208 , ,
YES ,IP , ,192.168.4.42 ,6749 ,
YES ,IP , ,192.168.5.75 ,6749 ,
NO ,NMS , ,208.228.132.220 , ,
NO ,NMS , ,208.228.212.224 , ,
NO ,NMS , ,0.0.0.0 ,0 ,
NO ,NMS , ,0.0.0.0 ,0 ,
```

8. The first eight rows going down from top to bottom are the only lines that can be used and are for connecting to a possible eight channels. The top row is for channel one and they move down in order from there and correspond in the GUI.

- 
9. The first column to the left has two choices of YES and NO indicating if you want that specific channel to be active or not. If you type NO for any given channel then when that channel select button in the GUI is pressed it will not activate. Note: you should put NO for all channels that will never be used in order to disable it from the view in the LCD.
  10. The next column is what determines how the channel will connect to the GUI. The common mode setting here is NMS which is the Utsi protocol that uses the system name to connect. If IP is chosen then the IP address and network port for the channel will be used instead of the system name. It will also be what appears in the GUI instead of the channel name.
  11. The next column is the Network ID Name which is the system name you wrote down for the channel you would like to connect to. Type the name for each desired channel in this column, overwriting the default name. Note: make sure to type the name exactly as it appeared in the channel from where it was written down. It is also very important to keep the amount of spaces and commas in the text file exactly as they appear. The top row is channel one and they go in order from the top down.
  12. The remaining two columns would be used in place of the system name. Just put the IP address of the channel in the desired row and the port number of 6749 to use this mode.
  13. Save the file and exit the configuration file.



Launch the application and this time you will see the names of the channels that were entered into the configuration file for each channel. They will appear in the LCD next to the desired channel.

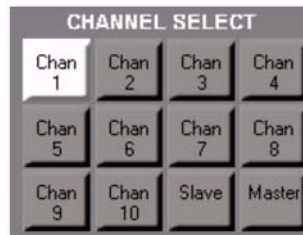
### Channel Select Section

1. Click on the 'Maintenance' tab above the LCD and make sure you are on the 'System Info' tab from there. You will see the Customer Name and System Name which were typed into the configuration file above. The IP address is of the computer that the MCGUI is running on.



**FIGURE 1 - Maintenance tab**

- 
2. Type the subnet mask in the available section which should be the same as the subnet of all the channels connected via this MCGUI. Only type the first three entries and make sure to leave the last entry as 255. Click 'Activate Subnet Mask' when finished.
  3. Click on the 'Channel' tab at the top of the LCD to return to the main system connection screen.
  4. You should be able to connect to any of the channels that are now appearing on the LCD by clicking the associated 'CHANNEL SELECT' button located in the upper right section of the MCGUI. The button will light when it is pressed and actually connects to the channel. If two channels are selected then the active channel will be brighter than the other channel and the other channel will be half lit (hard to see). All other channels will be completely dark. (See Figures 2 - 4 below)



**FIGURE 2 - Chan 1 active only**



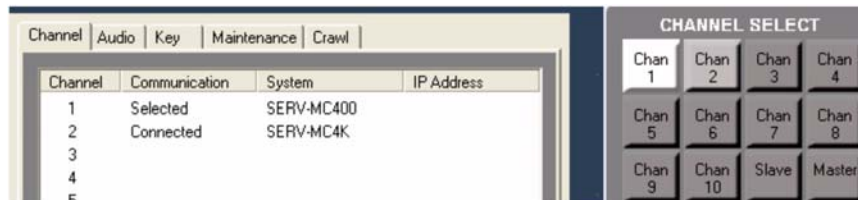
**FIGURE 3 - 1 active- 2 connected**



**FIGURE 4 - 2 active- 1 connected**

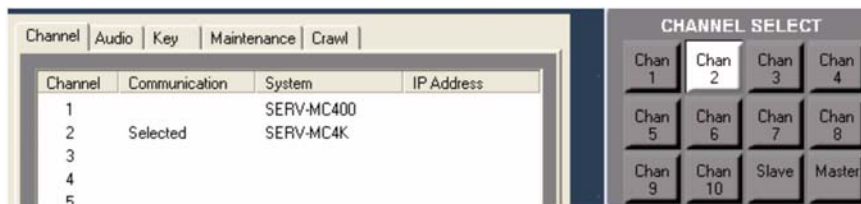
**Note:** Make sure to click on the 'Channel' button above the middle display to see the connection screen.

You should see the word 'Selected' next to the channel that is selected as active.



**FIGURE 5 - Channel one active and selected, channel 2 connected but not active**

Other channels that are online but not active will only show 'Connected' in the display next to that channel. Any channels that are offline will have nothing in the display for that channel.



**FIGURE 6 - Channel one turned off and channel 2 active**

**Note:** To turn a channel off press it again while active. To turn a channel on press the Chan button.

---

## Master Mode

The Master mode is to be used with two or more channels. The button is located in the upper right section of the panel in the channel selection section. The functionality of this is that one channel would be selected and the other channels would follow all button presses that happen on the Master channel. In simple form, when the Master Button is pressed, then every button that is pressed on that channel, the exact same buttons will be pressed for all other channels that are connected.

1. Push each of the channel buttons that you would like to operate at the same time.
2. Push the channel you want to be the active master channel.
3. Push the 'Master' button and it will light. (see figure 7 below) Note: look at the main display and it will show all channels as selected. (see figure 8 below) The actual master channel is the one that is lit in the channel select section. (figure 7)



FIGURE 7 - Master Mode



Channel	Audio	Key	Maintenance	Crawl
Channel	Communication	System	IP Address	
1	Selected	SERV-MC400		
2	Selected	SERV-MC4K		
3				
4				
5				

FIGURE 8 - Master Mode both selected

---

## Slave Mode

The Slave mode is used with multiple MCP2020 control panels. The button is located in the upper right section of the panel in the channel selection section. When this button is pushed on one of the panels, it disables the panel so that all buttons are disabled. The panel will allow status of all button pushes only and puts it in a read only type of mode. (See figure 9 below)



FIGURE 9 - Slave Mode

## Audio Display Tab

Click on the 'Audio' button at the top of the large display. This will open a display of the current audio meters, in real time, which is capable of displaying either four or eight channels of AES audio for Program or Preset. Note: Only four channels of audio can be viewed for Preset and Program at the same time. To see eight channels limits the view to only Preset or Program at one time. (See figure below)



This audio window is also where modes can be changed, monitor points can be changed, monitor level can be dimmed and the use of the video PST monitor point can be changed from PST to PVW.

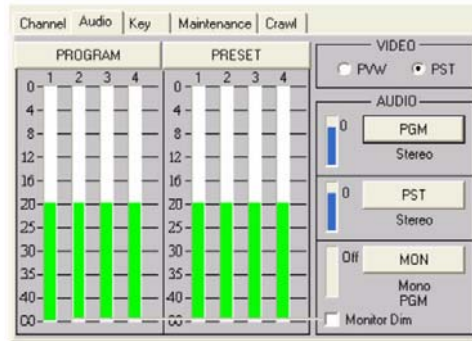


FIGURE 10 - Audio Window Tab Select

### Audio Meters

Figure 11 shows the meters as they would appear with both Program and Preset audio present at unity db audio levels. The numbers 1-4 above the meters indicate audio channels 1-4. The numbers to the left of the meters display the audio level in decibels. 20 (actually -20) is the digital audio level for unity gain which is the ideal audible level for listening.

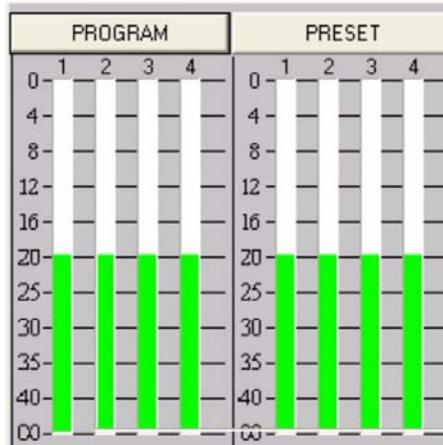


FIGURE 11 - PGM and PST audio meters

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To change the left meters with the right meters so Program is on the right and Preset is on the left, simply left click on the actual name 'Program' or 'Preset' and you will see the following table. This table is also used for selecting channels 5-8 if desired.



FIGURE 12 - Audio meter range

### Audio Modes

There are four audio modes that can be set up as default modes in the configuration file of the master control channel and then selected from the MCGUI. To see these modes click on the PGM or PST buttons in the section titled 'AUDIO'. (Figure below) Note: status below each button will show the current audio mode and will change after being selected.

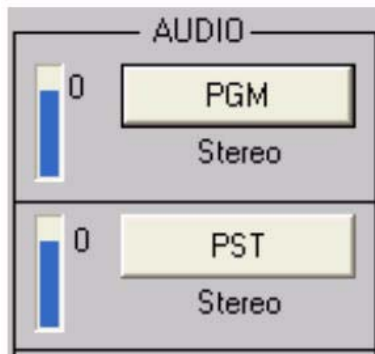


FIGURE 13 - Audio modes





The modes are Mono, Stereo, SAP and Dolby and are used depending on the source format that is coming in. There is a mode selection for both Program and Preset. (below)

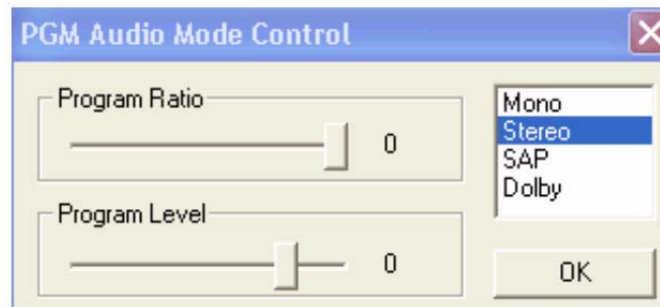


FIGURE 14 - Program Audio Mode

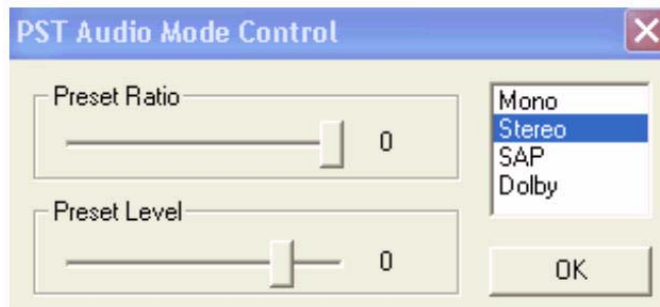


FIGURE 15 - Preset Audio Mode

Each source plays out through the master control and will be heard by the listeners as to that format. An example of its usage would be that if the current source was a stereo source and the new source was recorded as a mono (single channel) format. The new source would be heard only on the left channel by the listener. To play out the mono source on all channels the operator would simply select mono from the MCGUI which would play the mono source to all outputs.

---

## Audio Monitor

The MC2020 model has the ability to monitor different sources. These are setup in the channel configuration file and are heard coming out of the port labeled 'Spare' on the rear of the 2020 chassis.

To select the desired monitor source, click on the 'MON' button in the lower right corner of the audio window. (Figure below) The defaults are PGM, PST and PVW but other sources may be configured such as Demod (Off Air) or any desired source. The mode can also be changed here between Mono, Stereo, SAP and Dolby. (Figure 17)

There is a range selection bar in the same window that is a volume knob. Once this is set to the desired level, this is where the monitor output will remain. To mute the monitor volume there is an additional selection just below the MON button called 'Monitor Dim'. This will dip the audio to the level that was set up in the configuration file.

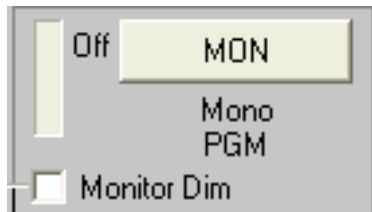


FIGURE 16 - Mon mode

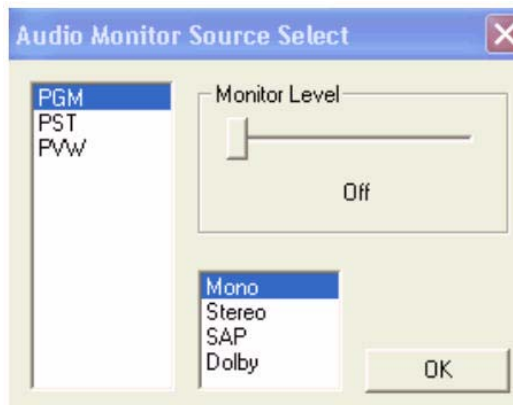


FIGURE 17 - Mon Src Select



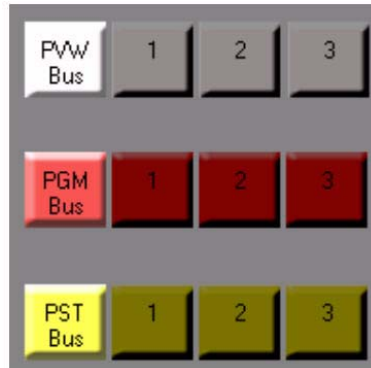
### Audio Only Section

This section is used for bringing additional audio sources on the air as either the main audio or as a source played over the top of the on air source. These can be listened to directly to air or by first using the preset selection buttons to preview the audio prior to using it on air.

The following figure shows the audio only section. There are three audio busses, PVW (white), PGM (red) and PST (yellow) which work directly with their equivalent video bus. (Figure 21) The red bus is the on air Program bus and when the far left button is pressed, this is the audio that comes from the Program video bus located on the main panel Program bus. The same is true for the Preset and Preview busses with their equivalent video bus. Note: The preset audio can be listened to on the embedded Preset video bus or on the AES Preset connector (MC4000 and MC2020 only). The same is true for the Preview bus which is used as the Audio Over audio.

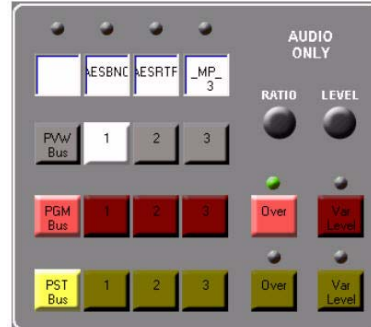


FIGURE 18 - Audio Only section



**FIGURE 19 - Audio only busses**

Buttons 1-3 on the Program and Preset busses are used to select external audio to play direct as explained above for main audio. To play the external audio or main Preview audio over the Preset or Program busses, select the audio button on the Preview bus and then press the 'Over' button next to the desired Program or Preset bus. (below)



**FIGURE 20 - Audio Over Select**

The default for the Audio Over is set to play 50% of the external audio and 50% of the Program or Preset audio. There is also a button called 'Var Level', located to the right of the Over buttons, which can be used to adjust the volume of the Preset or Program audio, for both main audio or audio over levels.



When this button is pressed and the audio is adjusted it will be stored in memory so whenever the button is pressed it will return to the same setting it was set to. To adjust how much of the external audio is used or the amount of desired volume, click the 'Ratio' or 'Level' knobs above the Over and Var Level buttons and you will see the Audio Only table. (below) Move the slide rail to adjust the desired levels.

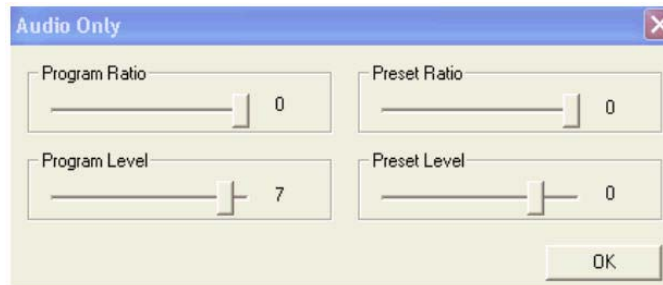


FIGURE 21 - Audio Level Adjusts

The Preview audio is the used as the 'Audio Over' bus.

### Keyer Section

The key tab in the upper section of the middle display (below) is equivalent to the Keyers section in the lower right corner of the GUI (figure 23). The only difference is the speed settings in the main display which are not found in the Keyer section.

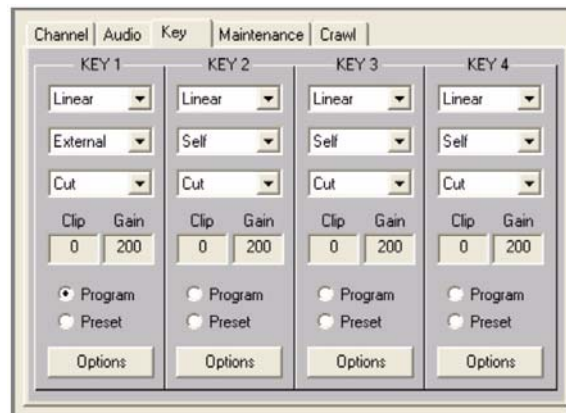
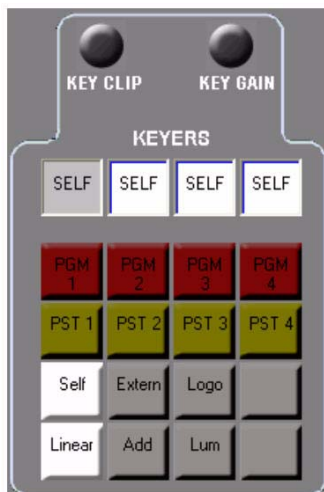


FIGURE 22 - Key Section Tab



**FIGURE 23 - Keyers Section**

### **Key Display Tab**

The MC4000 has 4 keyers built in and available. The MC2020 may have up to 4 keyers which are all optional physical boards. The MC400/40 has 2 keyers built in and available.

The keyers work from left to right (1-4) as seen in the key display window. Each of these correspond to the yellow and red buttons in the 'Keyers' section. They all are set up to operate by default, however there may be some functionality that is desired of which can be modified from the config file such as allowing a keyer to stay on all the time even through transitions or turning off one of the keyers completely. They can all work individually or all at the same time.

All of the functions for activating a key and adjusting its clip and gain can be done from the drop down windows in the key section of the main window. However, it is more visual and easier to use the lower right buttons in the 'Keyers' section.



### Using Keyer Buttons

To view a key from the Preset bus prior to taking it to air, click on the desired yellow PST 1-4 button (Figure 24). To select the key straight to air, click on the desired red PGM 1 key button (Figure 25).

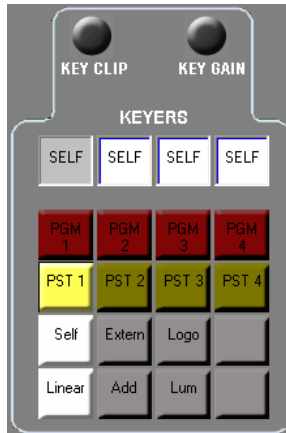


FIGURE 24 - PST Key 1

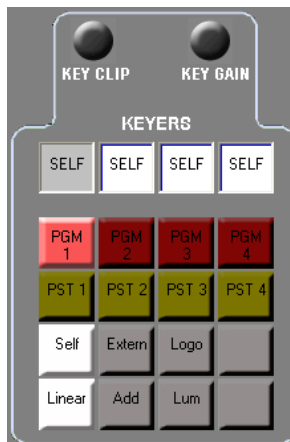
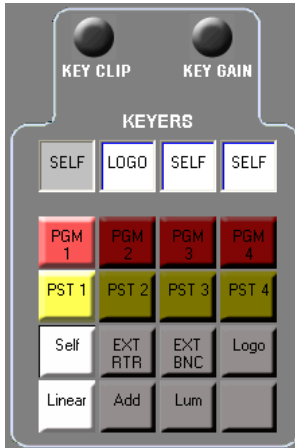


FIGURE 25 - PGM Key 1



**FIGURE 26 - EXTRTR & EXTBNC**

There are three types of keys that can be used, and only one keyer type per keyer can be used at one time. These are Self, External and Logo.



Select the type of key to be used by clicking on it. The display just above each keyer column will change from the keyer name to one of these types.



Self is a key that is an internal key for all master control models. External is used with MC4000 and MC2020 models only and would be referring to a key and fill signal that is connected to the specific keyer ports on the rear of the chassis. The MC400/40 has its own mode for external keyers and they would be set up in the GUI with two specific buttons called EXT BNC and EXTRTR. (Figure 26 above)





## Using the Logo Keyer

The Logo key type is a hardware option which is used to store up to 16 pre-generated logos in the master control. Once these are burned into the master control they can be selected using the Logo keyer button type and then by going to the Key display selection window and then clicking on the 'Options' button at the bottom of the desired keyer. You will see the following window appear which will have 16 Logo selection and will have left, right, up and down position bars. (Figure 27 below) This is called Key 2 Options. It also has the Clip and Gain selectors for adjusting the clarity of the key. Key 1 Options are the same but they come up when the Clip and Gain knobs located above the Keyers section is clicked. The selected Logo can be positioned anywhere on the screen and then saved using the 'Save' button above the positioners so that the next time it is called up it will appear in the same location.

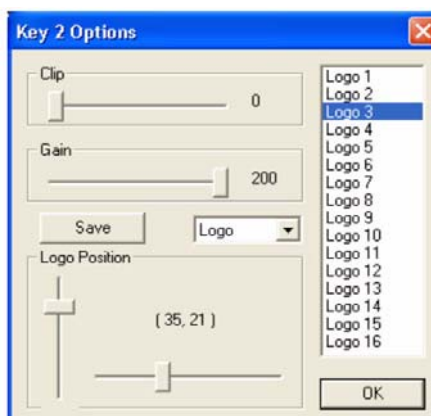


FIGURE 27 - Key 2 Options Logo selection

### *Clip and Gain*

Click either of the knobs above the Keyers section and you will get the Key 1 Options window. This is the same window as the Key 2 Options in figure 27 above. They are noted as 1 and 2 because of the two different places they are selected from.

---

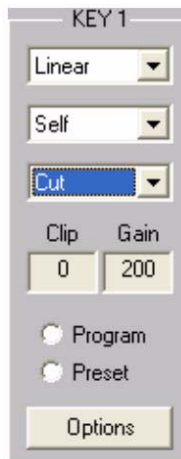
Select the desired buttons at the bottom of the Keyers called Linear, Add and Lum. Only the Linear and Luminance levels may be adjusted. The Additive mode is set to read the correct amount of these levels.



Use the Clip and Gain positioners to adjust the desired amount of Luminance levels.

### *Key Transition Speed*

From the KEY 1 - KEY 4 display as seen below, select the desired speed from Preset to Program that the key will transition, by dropping down the menu (default is cut) and selecting the speed.



### *Direct Sources and Transitions*

The MC4000 and MC2020 systems have three router busses they are switching. These are Program (red), Preset (yellow) and Preview (white). The MC400/40 only switches the Program and Preset busses. The busses are three assigned outputs coming from the router. There are 16 source buttons that are assigned default sources that come from the same router. These are all programmed into the master control configuration and will then appear on the MCGUI in the mini displays just above the Preview bus buttons. (Figure 28 below)



**PROGRAM BUS** - This bus is the On Air bus. If buttons are pressed on this bus it will take that source directly to air. This is not the preferred method as it may introduce glitches when hot switching between sources. This can be prevented by enabling the Clean Switch from the Maintenance window, but this will need to be configured for this function in the master control config file. The ideal way to use this bus is to first select a source from the Preset bus and then clicking the Take button. This will perform the selected transition, which is a smooth switch to air using the new source.

**PRESET BUS** - This is the bus where the next desired switch to air would be selected from prior to clicking the take button. This bus should be setup to view on a monitor and viewed prior to the transition. This is the bus that automation assigns its next event to prior to the transition to air.

**PREVIEW BUS** - This bus can be used to preview the 16 sources on a monitor without interrupting the Preset or Program busses. It is a clean feed output which means there will be no audio or keys visible on the monitor. Note: It is also what gets assigned the clean switch function if that is desired but this will disable it as a Preview feed.

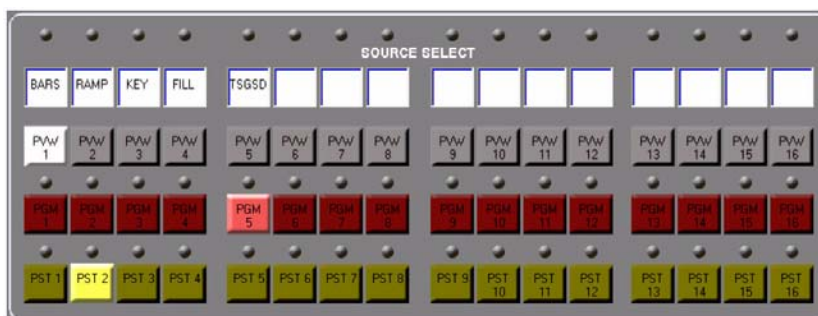


FIGURE 28 - PGM, PST, PVW busses

### Manually Assigning Sources to Buttons

Some or all of the 16 source buttons can be configured to be soft assignable allowing any of the additional sources from the configuration file to be put onto these buttons. Double click the Source Select display just above the Preview source buttons and the following table (figure 29) will open. This table is of all the sources in the system. Click on the group name in the left window pane

---

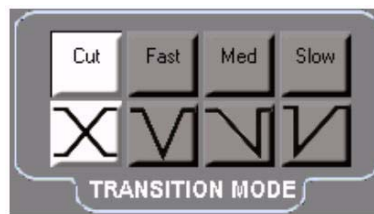
and it will show all the sources for that group in the right window pane. Select the desired source and then click OK. The display will now show the assigned name. Note: These sources are not permanent and will be put back to the default set when a reset is performed.



**FIGURE 29 - Source Assign Table**

### *Transitions*

Select the desired type and the speed of the transition from the 'TRANSITION MODE' buttons in the lower right corner of the GUI, shown below.



The four modes are Cross Fade, Fade Down/Fade Up, Fade Down/Cut Up and Cut Down/Fade Up. The Cross Fade can be used as a direct cut to air or using the three desired speeds. The other three modes and only be used with the slow, medium and fast speeds. Note: Speeds can be configured from the MC configuration file in the Miscellaneous section.

After selecting the transition mode and speed, click the 'Take' button shown below. Note: Use the 'Abort Take' button to disable the Take button. This will not allow automation to take the preset to air even though the events will continue to run. The operator can still take sources directly to air using the Program bus.



Preroll is only used with VTR's that have a preroll time assigned to them. Black Roll is unused.



### Maintenance Display Tab

Figure 30 below is the view of the display when the Maintenance button is clicked at the top of the main display. There are several things that can be seen and used from this menu.



FIGURE 30 - Maintenance Tab

---

**System Info** System Info

Displays Customer and System names, version number and IP address of the computer this GUI is running on. If multiple network cards are in use then the Subnet Mask window is used to put just the first three numbers of the network in the entry location with the last entry left at 255. Activating the subnet mask button will then point the GUI directly to the channels on the same subnet.

**Source Status** Source Status

This is only used with MC2020 systems and is for viewing the real time timing difference between the reference input and the PST and PGM sources.

	Video	Audio	Backup
P			
V	00:00:00.00	00:00:00.00	
W	[xxxx]	Vertical: +000    Horizontal: +0000	SD 525I
P	BARS	BARS	
G	00:00:00.00	00:00:00.00	00:00:00.00
M	[xxxx]	Vertical: +000    Horizontal: +0000	SD 525I
P	RAMP	RAMP	
S	00:00:00.00	00:00:00.00	00:00:00.00
T	[xxxx]	Vertical: +000    Horizontal: +0000	SD 525I

**FIGURE 31 - Source Status Timing Table**



**Note:** The PVW bus is not functional on this screen. Audio is also not functional. The PGM and PST tables will show the name of the source that is currently switched up on the MCGUI. (Figure 30 shows BARS on PGM and RAMP on PST). The 4 x's in brackets [] at the bottom of each window indicates the flags that will appear for that source. To the right of the brackets shows the number of vertical lines and horizontal pixels the source is out from the reference. And to the right of that is the video format detected.

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.

Un-timed 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.

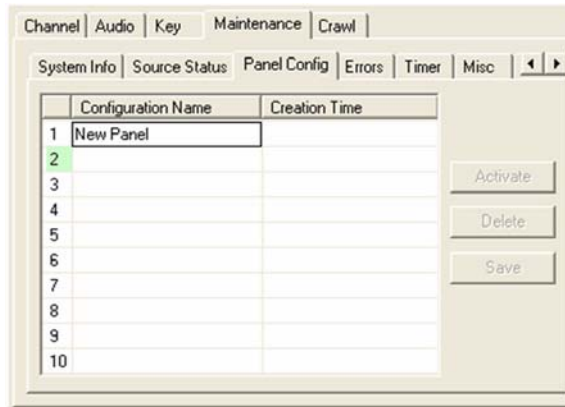
Usage and Display Format: (Defaults to slot 3 (VI), but can monitor Slots 4-7 (KM). Just state slot number after command. For Example, type: 2020timing 5 for slot 5.

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

---

*Panel Config* **Panel Config**

This allows the operator to save a set of buttons that can be recalled at any time. Note: The panels must be stored from top to bottom beginning at number 1. Also, this will save the button set for ALL buttons.



**FIGURE 32 - Panel Config**

Click in the open area next to the numbers on the left of the table and type the desired name for the panel button set.

Click in another box and then go back to the new name and the 'Save' button will light.

Click Save and then enter the name for this button set. Confirm the save. A creation time will be added to the Creation Time window.

To recall the button set click on the desired number next to the panel and then click the 'Activate' button. Confirm the activate option.





Error **Errors**

Error tab, with blank window displayed.

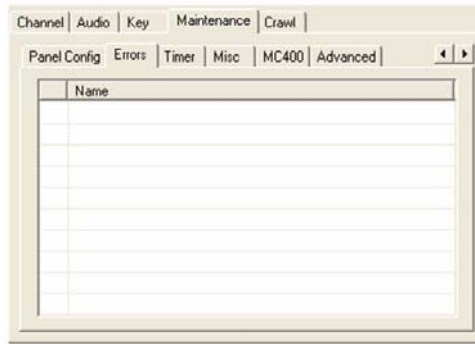


FIGURE 33 - Error window

Active error displayed. Errors will clear once they are acknowledged.

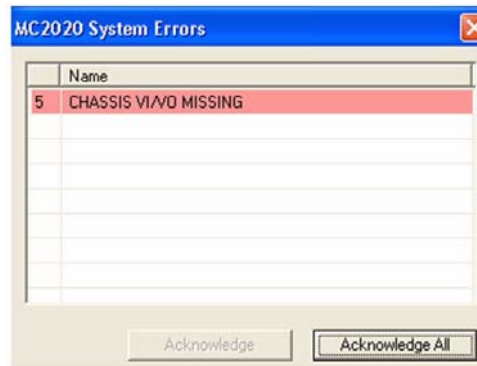


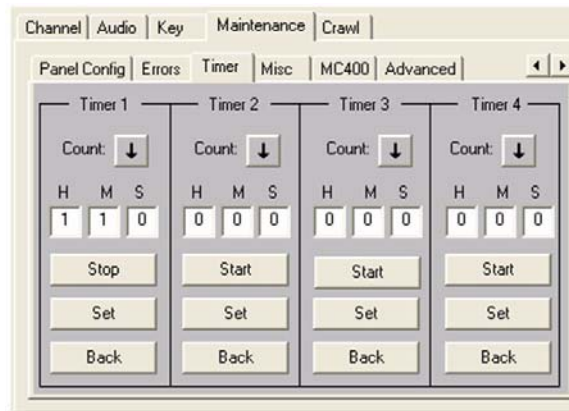
FIGURE 34 - System Error

---

## Timer **Timer**

It is recommended that Time Code be attached to the MC system for this to be useful. Using the Preset monitor this window will run the timers that will show the actual time, count up and down from a set number in the hours, minutes and second windows and both the time from an actual system reset as well as the time since the last Take happened.

Currently only the first two timers are usable.



**FIGURE 35 - Timer Table**



Misc **Misc**

The MC systems have built in color bars for trouble shooting video problems. To turn on the colors, click the 'Set Frame Colors' button. To turn the colors off, click the 'Clear Frame Colors' button. When the colors are on then if there were a problem with the input video the output would display the color green and the output would display the color blue. Otherwise the output would just display black.

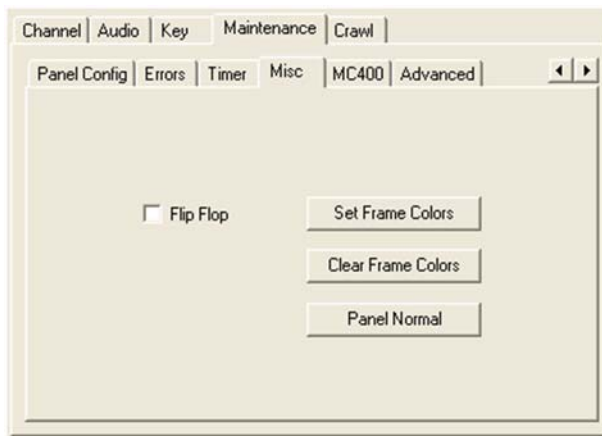


FIGURE 36 - Miscellaneous

The 'Panel Normal' button would set the MCGUI back to the default button set after the buttons have been changed using the Panel Config or Source Assign functions.

---

*Flip Flop*  Flip Flop

Used to toggle back to the previous source that was selected on the Preset bus. After the Take button is pressed, the preset button will revert to the location that the Program button was on. The following illustrations show buttons before and after the Take is pressed.



**FIGURE 37 - Before Flip Flop**



**FIGURE 38 - After Flip Flop**



MC400 MC400

This table will display the default (current) video format table for the MC400, MC40 and MC4000 systems. These can be changed by simply clicking the desired format.

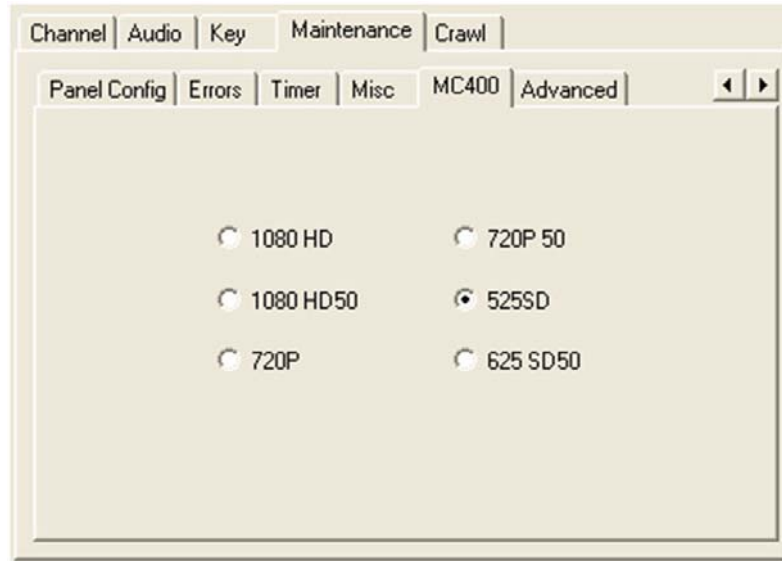


FIGURE 39 - MC400 Video Format

---

*Advanced*   **Advanced**

If no password has been burned into the MCP interface unit for the MC400/40 or into the processor of the MC4000 or MC2020 then the default password is 1234. Type this number in the open box and then click 'Login'. The left window will display all the card types. Click on any of the cards to see the descriptions, serial number, part number and revision. Note: This will only work for the MC2020 system. The other systems will only display the customer and system names along with the IP address of the processor.



**FIGURE 40 - Advanced options**

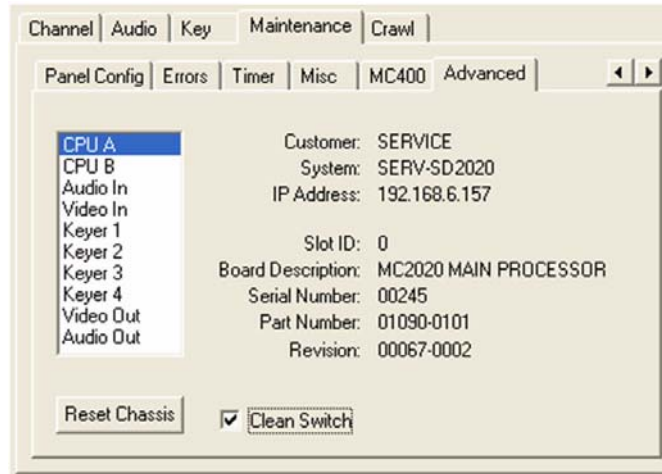


FIGURE 41 - Reset and Clean Switch

Click the 'Clean Switch ' button to enable clean switching on the program bus.  
Note: This only works on the MC4000 and MC2020 systems.

Click the 'Reset Chassis' button to reset the MC channel. Note: Resetting the MC will cause a loss of signal for up to ten seconds.

### Breakaway Section

This is only used if there is a physical audio router in use with the master control. If so then to switch audio or video only, simply press the desired button and then select the source on the preset or program bus.



---

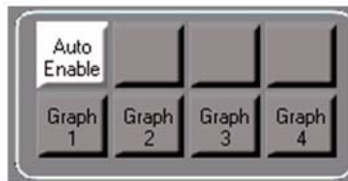
### *Machine Control*

This is only used with the Utah Scientific ESI-2020 product. With it configured and attached to the system this will allow machine control functions from the GUI.



### *Auto Button*

This button must be clicked on for the automation to control the system.



### *Crawl Display Tab*

Text crawls can be ran directly on the Program bus only either by loading a file that has already been created and stored locally on the pc or on a network drive or by typing the text message in the crawl window and sending it from there. Note: The crawl only plays directly to air on the program bus. There is no preview option to view the text while crawling on a monitor. The only visible preview is on the GUI display window. It is recommended that a test crawl be used after setting all the settings for speed, iterations, colors and positioning using the desired settings.

Additional Note: The font settings are not changeable except the text and background color.





### Loading and Saving a Stored Crawl

1. Push the 'Crawl' button above the middle display and you will see the following display.

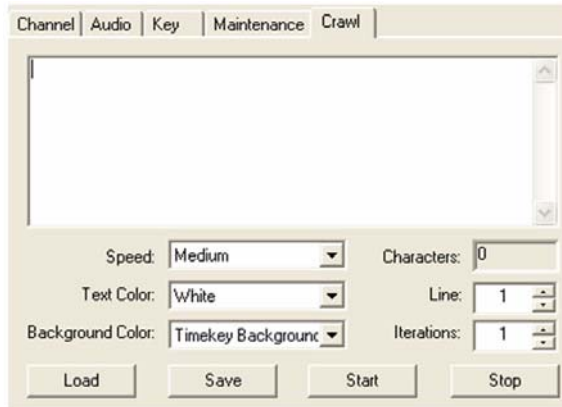

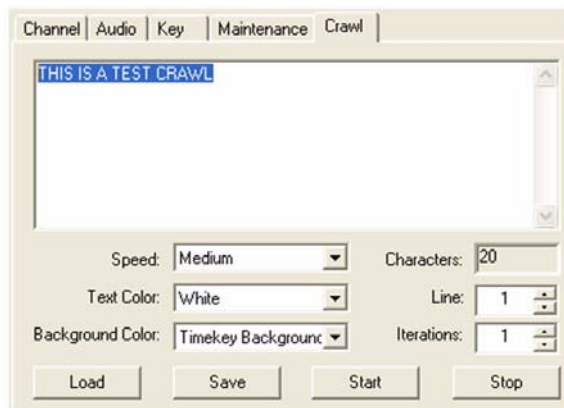










FIGURE 42 - Crawl default display

2. Push the 'Load' button  in the lower left corner of the crawl window and navigate to the location of the desired text file. This can be from any location where a text file can be saved such as hard drives, network drives, USB storage devices, disks or CD's.
3. Click the text file and then click 'Open'. The text will appear in the display area and all the settings will be default. (see figure 43 below)



---

**FIGURE 43 - Text file from Load-highlighted for demo only**

4. Change the speed using the drop down list and choose between slow, medium and fast. 
5. Change the text color by using the drop down list and choosing from various selections. 
6. Change the background color by using the drop down list and choosing from various selections. 
7. Change the line for which the text will be viewed by using the drop down list and selecting from 1 - 8. These are only 8 position lines evenly spaced from top to bottom. 1 is the upper most line and 8 is the lower most line. 
8. Select how many times the crawl should go across the screen by using the drop down list next to the Iterations item. The maximum is 500. 
9. Press the 'Stop' button at any time and it will finish the iteration it is on and then run no more. 
10. To test the crawl press the 'Start' button and it will run across the program bus. If it is possible, bypass the program output to run the test. 
11. Once the settings are in place then press the 'Save' button and save the text file and its settings in the desired location. 
12. If there is a need to edit or create a text crawl from the display, simply type the text on the display and use the steps above if it needs to be saved. Otherwise, just press 'Start' to run it live.



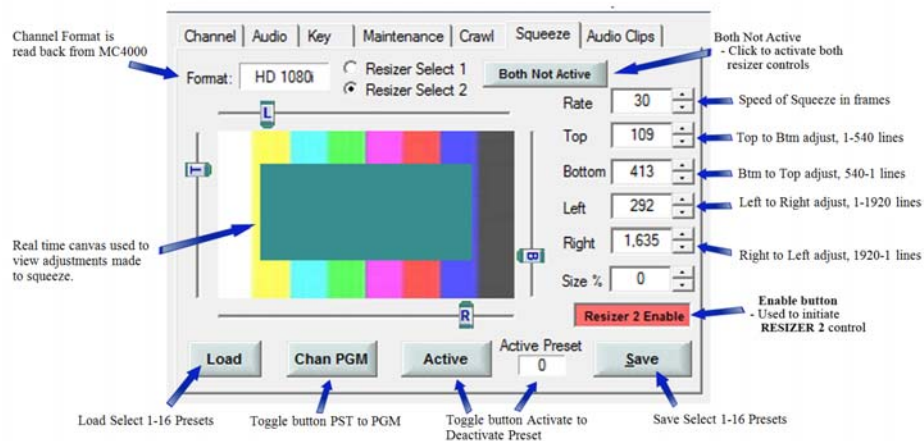
### *Miscellaneous Buttons*

All of the buttons on the MCGUI are capable of being moved to different locations. There are also other button functions that can be added to the GUI such as miscellaneous relays and graphic select buttons for remote switching of the GS4000 system. In order to make any additions or changes to the GUI this must be done in the config.dat file located in the same directory as the MCGUI program runs from. These changes are done in the section called [BUTTON\_MAP\_DEFINITIONS\_START].

It is recommended that you contact Utah Scientific customer service for guidance in this area.

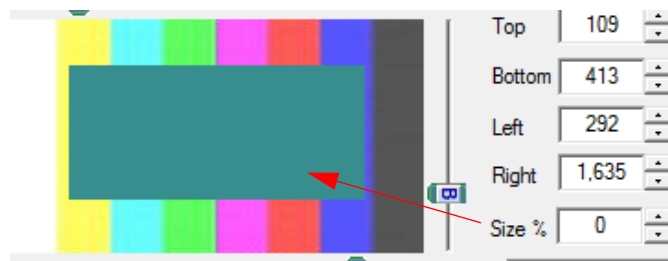
## Squeeze Display Tab

The DVE (Squeeze) application is used with the MC4000 only. This tab is used to set the various parameters of the desired squeeze back with two canvas resizers, and operated from either the Preset bus or the Program “Air” bus. Once the parameters are set, they can be saved as an “Active Preset” and then loaded again at any time. Up to 16 presets can be saved. These presets, as well as the activate button, can also be saved to any button on the MCGUI and called up and activated from there.



## Sizing

The canvas size is modified using the Size % box, and is determined as a percentage relative to the original size. The size increases and decreases the box, constrained to the maximum area available within the display.





Each canvas is adjusted along the four sides (top, bottom, right, left) using the corresponding slide bars, or the absolute values from the value tables to the right of the canvas.

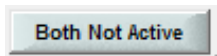
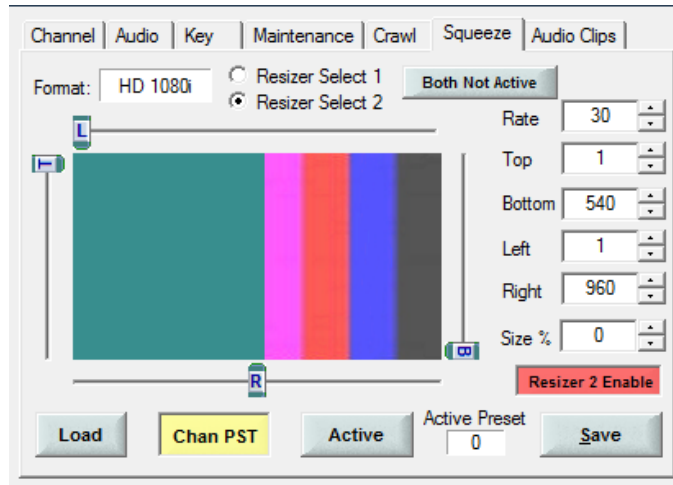


Rate	30
Top	1
Bottom	540
Left	1
Right	1920

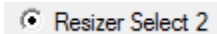
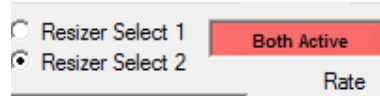
The default values will appear as seen in the figures above. Each canvas will be blue/green in color and will reveal a background image of color bars as the values are adjusted. The bars are in their farthest positions and may be moved in the opposite directions to reveal the background. NOTE 1: The background must be the same video format as the channel video and can be a still or moving video source. NOTE 2: Adjustments should be made with the PST/PGM toggle button being set to PST. This is a real time application and will make adjustments on the PST or PGM output accordingly.

Use the scroll bars above, below and to the sides of the canvas to move the squeeze to the desired position. Or, either type in the value in the boxes to the right of the canvas or use the scroll arrows to change the values.

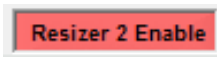
The example in the diagram below shows the right edge of the canvas being squeezed back half the distance to reveal the background. Note the number and position of the right scroll bar and the PST channel mode selection in yellow.



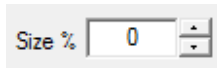
To activate Resizer 1 *and* Resizer 2, click **Both Not Active**.



The **Both Not Active** button is usable *only* when the 'Resizer Select 2' radio button is selected.



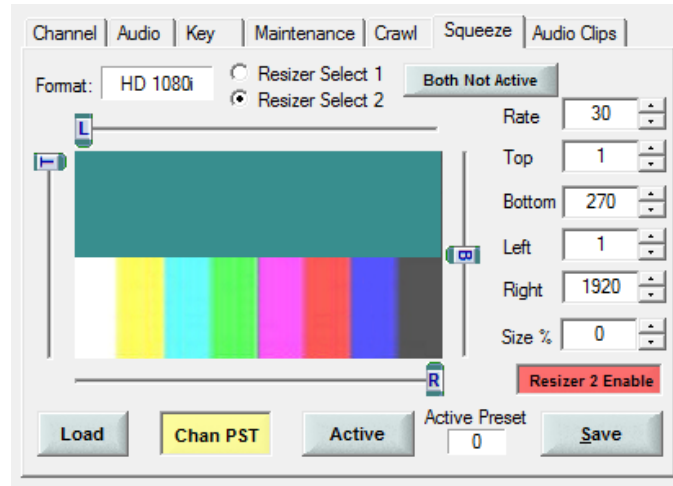
This button is the actual enabler for Resizer 2. Resizer 2 is enabled in the 'on' state (button red).



This selection corresponds to the percentage of the actual image size within the display.

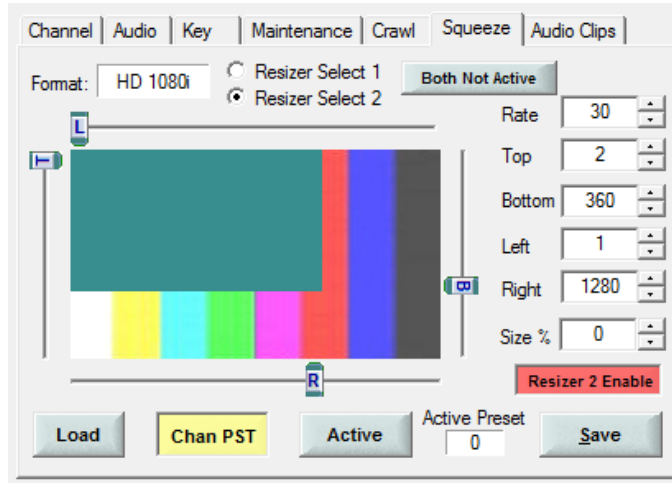


The example in the next diagram below shows the lower edge of the canvas being squeezed up half the distance to reveal the background. Note the number and position of the bottom scroll bar and the PST channel mode selection in yellow.

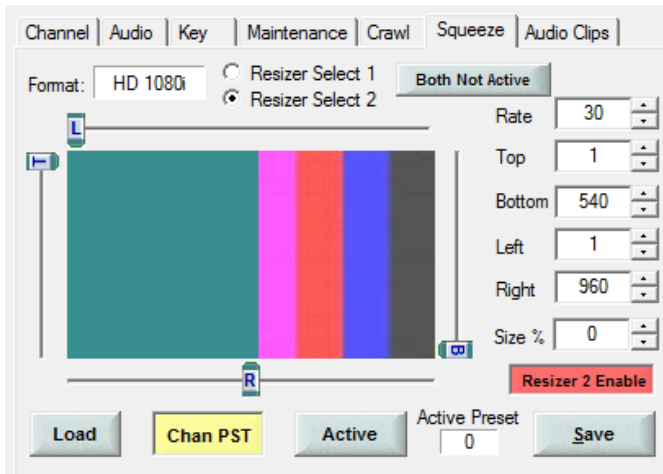


---

The example in the next diagram below shows the lower edge of the canvas being squeezed up a third of the distance and the right edge being squeezed back a third of the distance to reveal the background. Note the number and position of the right and bottom scroll bars and the PST channel mode selection in yellow. This is also commonly called an “L” bar squeeze back.



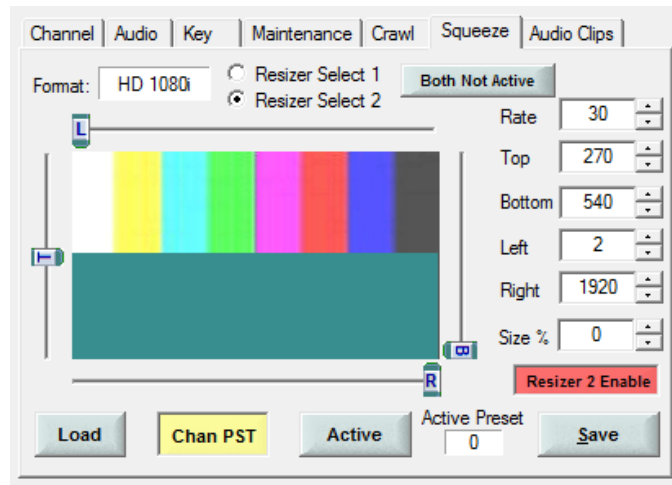
The example in the next diagram below shows the left edge of the canvas being squeezed back half the distance to reveal the background. Note the number and position of the left scroll bar and the PST channel mode selection in yellow.





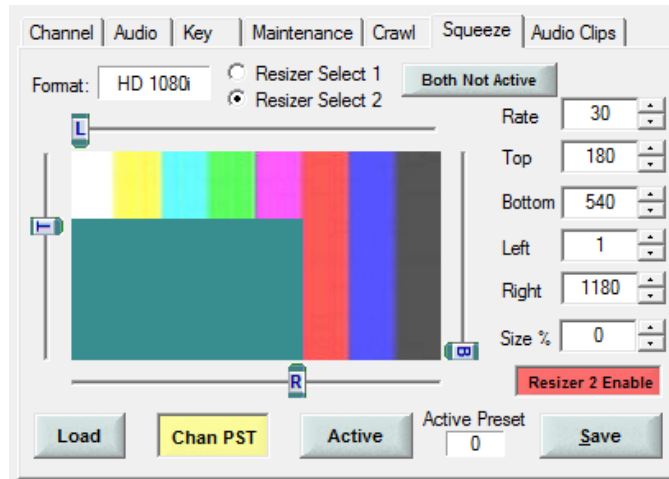


The example in the next diagram below shows the top edge of the canvas being squeezed down half the distance to reveal the background. Note the number and position of the top scroll bar and the PST channel mode selection in yellow.



---

The example in the next diagram below shows the top edge of the canvas being squeezed down a third of the distance and the right edge being squeezed back a third of the distance to reveal the background. Note the number and position of the right and top scroll bars and the PST channel mode selection in yellow. This is also commonly called an “L” bar squeeze back.



Press the 'Active' button to view the squeeze on the Preset output.

To run the squeeze on the PGM bus, click the toggle button in yellow and change it from 'Chan PST' to 'Chan PGM' and then click the 'Active' button.

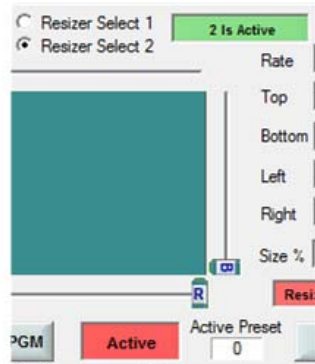




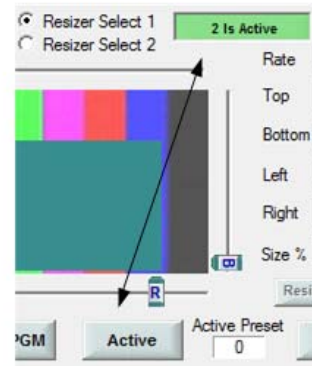
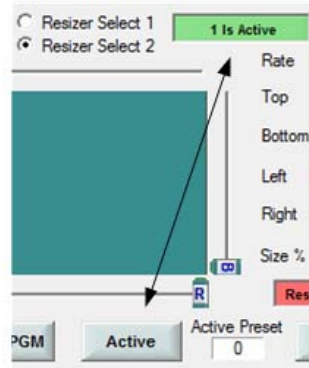
The **Active** button also toggles the *Resizer Select* (state) between 1 and 2.



Active button clicked - Resizer Select 1 (selected)



Active button clicked - Resizer Select 2 (selected)

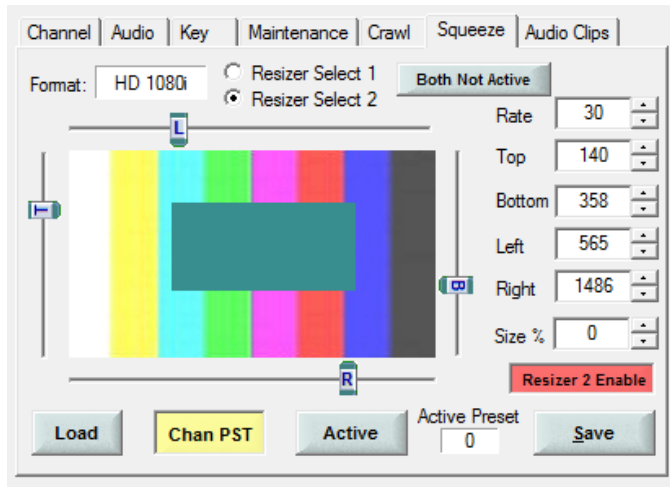


(green) Button toggle - opposite Resizer

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'Size' mode is used to move an entire DVE to a desired location. This would be a DVE that has all sides disconnected from the edges.

Move the top and left adjustment bars and the entire DVE will move with all sides remaining at the size they are set to. The right and bottom bars will auto adjust as the top and left bars are moved. NOTE: moving the right and bottom bars will allow the box to be adjusted on these edges only, while in this mode.

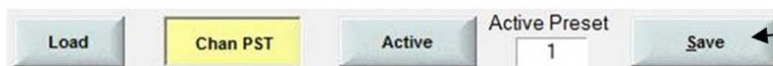




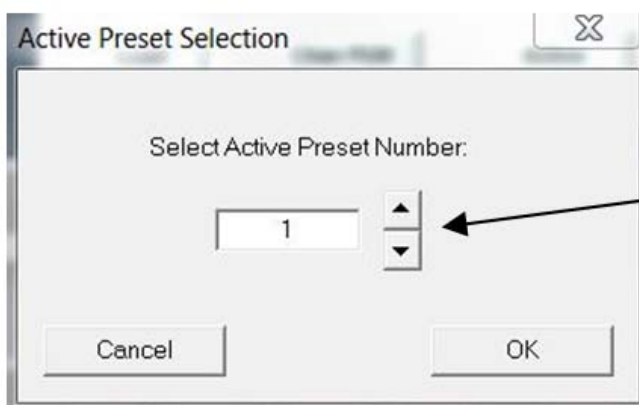
### Saving and Loading Presets

Once the adjustments have been made and the squeeze back is set to the desired location, it can then be saved as a 'Preset' and then called up again from that saved location. To do this, perform the following steps.

1. Click the 'Save' button in the lower right corner of the squeeze screen.



2. When the following window opens, use the up or down arrow to select the desired preset number and then click OK. NOTE: only 1 through 16 preset locations may be used.



3. Click the 'Load' button in the lower left corner of the squeeze screen to call up a 'Preset' that has been saved.



- 
4. When the following window opens, use the up or down arrow to select the desired preset number and then click OK.  
NOTE: only 1 through 16 preset locations may be called up.



To change the speed of the squeeze, move the arrows up or down in the 'Rate' box. The speed is measured in frames and can be adjusted from 1 to 150 as seen in the figure below. The default is set to 30 which is equivalent to 1 second.





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