Utah Scientific

The MC Configuration Series - MC-4000/400

System Setup and Operation

The MC Configuration Series - MC-4000/400

- Document Number: 82102-0036
- Document Version: 1.0
- Date: March 19, 2012
- Printed in U.S.A.

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Declaration of Conformity

Utah Scientific, Inc.

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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
- Low Voltage Electrical Directive 72/23/EEC

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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.

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

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• 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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System Introduction and Setup

Overview

Welcome to McConfig 400/40, the configuration tool for the Master Control 400 systems from Utah Scientific. This guide is intended to simplify the process of getting your master control system up and running in the shortest time possible. Our goal is to make the process of configuring your master control as easy and intuitive as possible.

Though the MC Configuration (software) resides within the PC, the utility controls the CPU in the master control panel or interface chassis and MC-400/40 card. This software is used for the actual editing of sources and destinations, audio, keyers, and relays.

Sending the Configuration File and Resetting the MC

Once any changes have been made in this application then they will need to be sent to the MC400/40 and the MCP400/40 devices.

From the File menu, select 'Send Configuration to Target'. This will send every modification made within the current MC Config software interface back to the same target that was previously specified. It will send the information to both the panel and the card and when completed you will then need to reset the devices. It will NOT prompt you to do this.

To reset the panel and card go to the 'File' menu item and then click on the 'Reset Target' item. This will then go out to both devices and rest them. It will not be visible for about 30 seconds so be patient. NOTE: Resetting the devices will cause an interruption to the video and audio for approximately 10 seconds or less so plan the press of this button accordingly.

## Syncing Sources/Destinations to UCON Version 3.5x

> **Note:** *UCON Version 4.xx is much different regarding the syncing of sources and destinations to the Master Control. Refer to the next section at the end of this chapter for details.'*

There is a very convenient way of assigning sources and destinations to the Master Control channels which simply uses these lists from UCON. This is nice because it offers the ability to only create one source and destination table in UCON that is programmed to the SC4 and then syncs those with the tables in the Master Control. There are a couple of steps that will need to be done initially and then again if the tables in UCON change for any reason such as adding, removing or changing the tables.

> **Note:** *If there are any source or destination names in UCON that do not have an entry in the level columns for the cross point number those names will be dropped from view in both the source and destination tables as well as the button list. The synchronization process requires numbers to be matched with names and therefore will not display if they are not there.*

Section 1

In UCON, with the current active data store open to the system screen, go to the toolbar and click on file and then click the Set Export Src/Dest list Settings and you will see the following window appear.
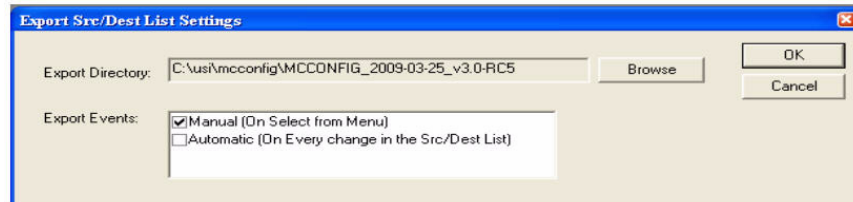

Click browse and navigate to the folder where the MCconfig application is being launched from. Unless that has been moved the default location is 'c:\usi\mcconfig' and the application folder is in here.

If you want to manually send the Export file to this location then leave the default checked as manual. If you want to have this update the Export file any time a change is made to the source/destination list then check the Automatic button.

> **Note:** *Currently the default name that is Exported is used for the Soft Panel 2 application and not MCconfig. So the next step is critical or the import will not work properly.*

After the export file has been sent to the MCconfig application folder, either manually or automatically, you will need to go to that folder and locate the name of the file which is Datastore_UconExport.txt and remove the part that reads Datastore_ so the name is left as UconExport.txt. This name is what the MCconfig application recognizes and will use to sync with the UCON names. The folder and its contents with this file name should look similar to this.
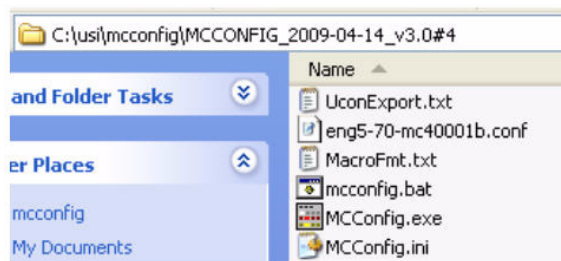
Synchronizing Source Names

If it is running, you will need to close the MCconfig application and restart it. You will then retrieve the configuration from target as shown in the first section of this guide for this to use the sync feature. If this is done properly you will see the following when you click on the Open Source Table only it will show the device names from your system. (this is only an example below)
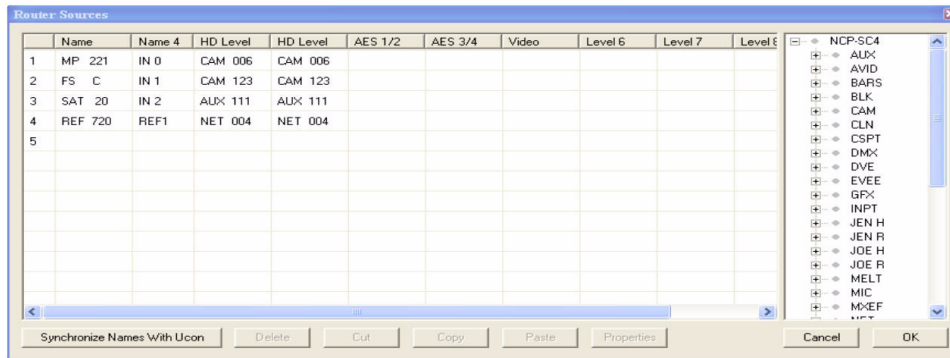
You will now see the names in the level columns that should match the names from the Ucon level names in the source/destination tables.

You will also have access to all of the sources at the right side of the table. To add any of these names to the source table simply click on the plus sign next to any of the sources to reveal all the devices in that group. Then click, hold and drag the desired source with the left mouse button to the next open slot in the source table to the left.

> **Note:** *To avoid all levels from having the name brought over you will need to cancel out of this screen and go to the top menu item called Routers and then click on the Logical to Physical menu item. The table will look like this.*

Click in each level window and select the empty item in the drop down list for the levels you do not want to display. Generally this is all except the first 2 columns. Then click OK and return to the Open Source Table. This does not have to be done but it will display the source in all levels and will not cause any issues, it just may be too much info to look at.

To synchronize the sources that exist on the MCconfig source table click the Synchronize Names with UCON button in the lower left of the window. You will then notice that all the names in the 8 and 4 char columns will update to reflect the same names as are in the UCON tables. You should only need to do this once unless you make changes to Ucon and need to export the file again.

If you wish to edit any of the names so that they are different from the UCON and are more customized then simply click on the name in the table and change it there. As long as you do not click the Synchronize button after this it will remain custom.

You can also click on any of the names in the source columns and copy it using the copy button at the bottom. This will allow you to paste it to any other location as needed. If you try and click on a level window that does not exist it will highlight the entire row across indicating it is not enabled.

Synchronizing Destination Names

Destination names do not allow for customization but as long as the export file is in use then the numbers in the destination table automatically update with the correct name that comes from the UCON destination.

To view the destination table go to the toolbar and select the Video Format menu item and then click on MC400. When the window appears, click on the video format of the MC400/40 that you have retrieved the configuration from at the top of the window and in the lower right section locate and click on the Edit Outputs button. You will see a screen similar to this one showing the names for the Program, Preset and Aux Bus 1 (reference output) in the table in place of the index number.

Aux Bus 1 only requires an entry in the first level column where the other two need to have entries in the first two columns. If these outputs need to be changed you will simply click on the plus sign next to the destination group names at the right of the window and then click and drag the desired destination onto each of the windows as needed.

Using UCON Version 4.xx and the Master Control

UCON-V4 is the most current version of UCON and as in the previous version 3.5x, it's nice because it offers the ability to create only one source and destination table in UCON that is programmed to the SC4/SC400 and then syncs those with the tables in the Master Control. This version makes the process very simple, as it retrieves the Master Control configuration automatically for channel that is selected, which then allows the user to immediately begin working.

> **Note:** *If there are any source or destination names in UCON that do not have an entry in the level columns for the cross point number those names will be dropped from view in both the source and destination tables as well as the button list. The synchronization process requires numbers to be matched with names and therefore will not display if they are not there.*

In UCON, with the current active data store open to the 'System' screen, go to the menu toolbar and drop down the item called 'Master Control' and then select the only item in the list called 'Master Control Configuration' and you will see the following window appear.
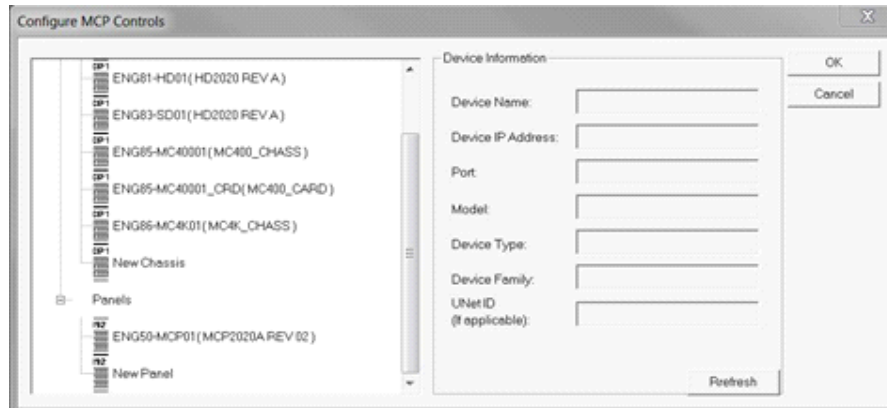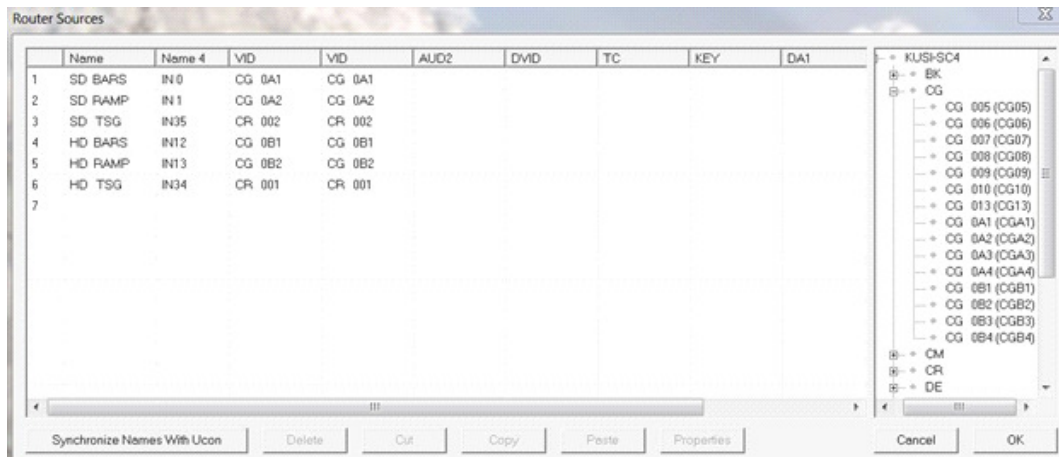

In the window pane on the left, there will be a list of active Master Control devices that correspond to your current system. Double click on the desired channel that you wish to go into and the MCConfig application will launch and immediately retrieve the configuration from that channel.

Section 1

> **Note:** *If you watch closely you will see a status window appear in the upper left of the MCConfig application, showing the IP address of the channel that it is retrieving the data from. If this does not happen then an error will appear next stating that it could not find the file.*

Synchronizing Source Names

After the retrieval completes, you will see the following when you click on the Open Source Table, only it will show the device names from your system instead of the numbers. The numbers will appear in parenthesis next to the source names in the list shown at the right. (this is an example shown below)

You will now see the names in the level columns that should match the names from the Ucon level names in the source/destination tables. You will also have access to all of the sources at the right side of the table. To add any of these names to the source table simply click on the plus sign next to any of the sources to reveal all the devices in that group. Then click, hold and drag the desired source with the left mouse button to the next open slot in the source table to the left.

Section 1

Note: *To avoid all levels from having the name brought over you will need to cancel out of this screen and go to the top menu item called Routers and then click on the Logical to Physical menu item. The table will look like the following illustration.*

Click in each level window and select the empty item in the drop down list for the levels you do not want to display. Generally this is all except the first 2 columns. Then click OK and return to the Open Source Table. This does not have to be done but it will display the source in all levels and will not cause any issues, it just may be too much info to look at.

To synchronize the sources that exist on the MCconfig source table click the Synchronize Names with UCON button in the lower left of the window. You will then

notice that all the names in the 8 and 4 char columns will update to reflect the same names as are in the UCON tables. You should only need to do this once unless you make changes to Ucon and need to export the file again.

Custom Names

If you wish to edit any of the names so that they are different from the UCON and are more customized then simply click on the name in the table and change it there. As long as you do not click the Synchronize button after this it will remain custom. You can also click on any of the names in the source columns and copy it using the copy button at the bottom. This will allow you to paste it to any other location as needed. If you try and click on a level window that does not exist it will highlight the entire row across indicating it is not enabled.

Synchronizing Destination Names

Destination names do not allow for customization but as long as the export file is in use then the numbers in the destination table automatically update with the correct name that comes from the UCON destination. To view the destination table go to the toolbar and select the Video Format menu item and then click on MC400 (this is the same selection for the MC4000). When the window appears, click on the video format of the MC400/40 that you have retrieved the configuration from at the top of the window and in the lower right section locate and click on the Edit Outputs button. You will see a screen similar to this one below showing the names for the Program, Preset and Aux Bus 1 (reference output) in the table in place of the index number.

Aux Bus 1 only requires an entry in the first level column where the other two (PGM and PST) need to have entries in the first two columns. If these outputs need to be changed you will simply click on the plus sign next to the destination group names at the right of the window and then click and drag the desired destination onto each of the windows as needed.

If there are other outputs to be used for the Keyers, then they would be added in this same manner to the appropriate outputs in the table.

The MC Config Interface

You will notice the first thing you see when you start McConfig is the look of the application. Because the MC-400/40 series of master control can be used with an MCP-2020 control panel we have simply used the current McConfig 2020 GUI as the template.
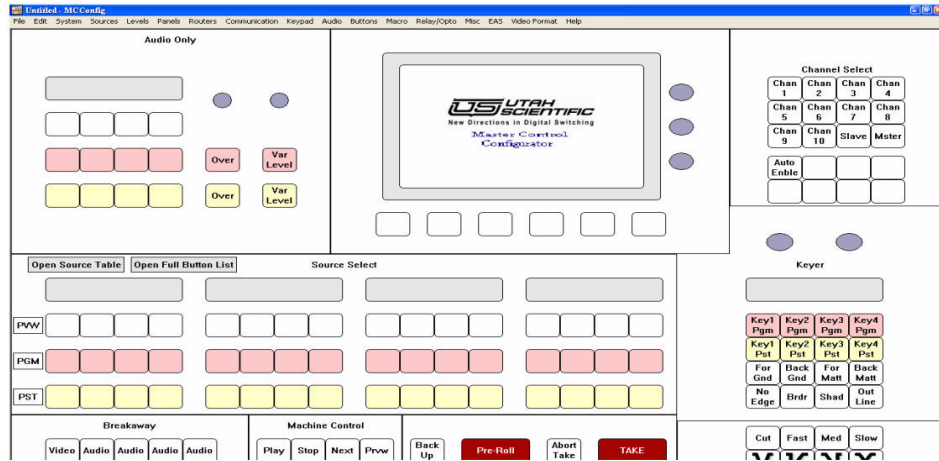

Figure 1-1.

The above view is the panel layout for the MCP-2020. Unlike the application for the 2020 where you simply point and click on the button list and destination area to edit, these areas on the GUI for the 400/40 are unused and should remain blank. Instead you will edit these two areas in the video format section in the top tool bar menu. However, to edit the source list you would click on the Open Source Table found in the center left of the application. This will be explained in detail later in this guide.

> **Note:** *When possible, the recommended method would be to retrieve the existing configuration and make any needed changes. Beginning from scratch can take a great deal more time and could introduce potential problems.*

System Setup

Overview

This Section will assist you with establishing all online connections and software selections necessary for system operation. This includes the initial program launch, retrieving the master control file, and successfully communicating on the network.

Initial Startup

Program Launch

Launch the MC Configuration utility by double-clicking the desktop icon.
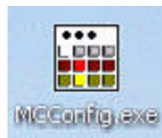
When the program first appears the panel will appear on the screen in a minimized mode, causing certain prompts to be out of view at the display's bottom. To maximize the display, make sure your monitor resolution is placed at the highest setting possible (at least 1200 pixels wide), and click the actual 'maximize' button on the interface. This will ensure the proper display of all prompts at the edges of the interface.

When initially launched, the MC Config interface will appear with its generic, default settings in place, with nothing populating the individual buttons. Button assignments are not made until master control file information is accessed ('Retrieve', File menu).

Step One - Selecting the Target

From the Communications menu, highlight **Select Target to Configure**.
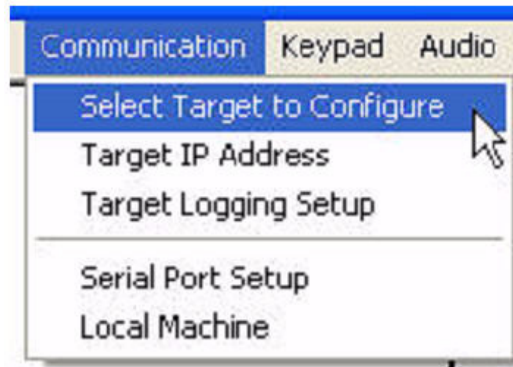
The dialog box that follows will contain all master control devices that currently exist on the network.
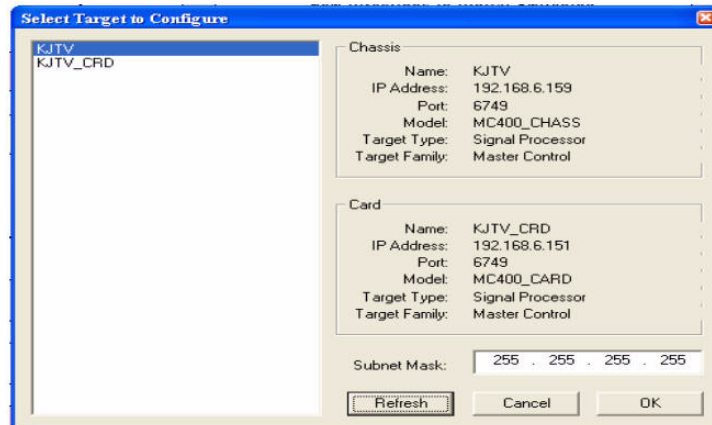
Left-clicking any of the devices in the window will display all pertinent information associated with the file. When you highlight one of the files and click OK, MC Config will immediately acknowledge the chosen master control, even though it does not initially appear in the panel display. The selected configuration must now be Retrieved from the Target (step 3).

Note: *Make sure the displayed Subnet Mask is correct (changeable in the above dialog). The program may have difficulty locating the correct address if your network contains multiple network interface cards (on multiple subnets).*
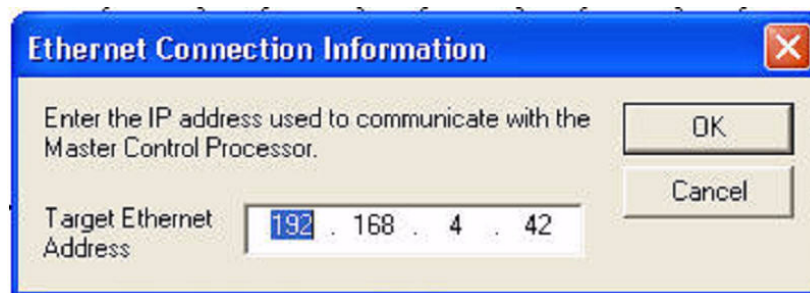
Step Two - Verifying the IP Address

The program will automatically default to the IP address associated with the selected master control file (Step One). If you need to change this address, select Target IP Address from the Communication menu and make the needed modification.

For additional detail regarding the IP address and MC Config networking, please see "More Info - The Master Control and MC Network Configuration" at the conclusion of this section.

Step Three - Retrieving the Configuration

Note: *If you do not perform step 2 first file retrieval will not work as it will be grayed out.*

From the File menu, select Retrieve Configuration From Target.

This process will instruct the program to obtain the needed information from the selected master control (previous step). Once this is accomplished, the LCDs on the interface will populate with the actual master control information contained in the file.

Step Four - Sending the Configuration to the Target

From the File menu, select Send Configuration to Target.

This will send every modification made within the current MC Config software interface back to the same target that was previously specified (Step One, Select Target to Configure).

Step Five

'Step Five – Resetting the Channel after Sending the Configuration'

From the File menu, select 'Reset Target'. This will take approximately ten seconds before the channel reboots. WARNING: the reset action will cause the loss of video and audio coming out of the MC channel for approximately 5-10 seconds. It is recommended that the channel that is to be reset is put in bypass prior to selecting this action.'

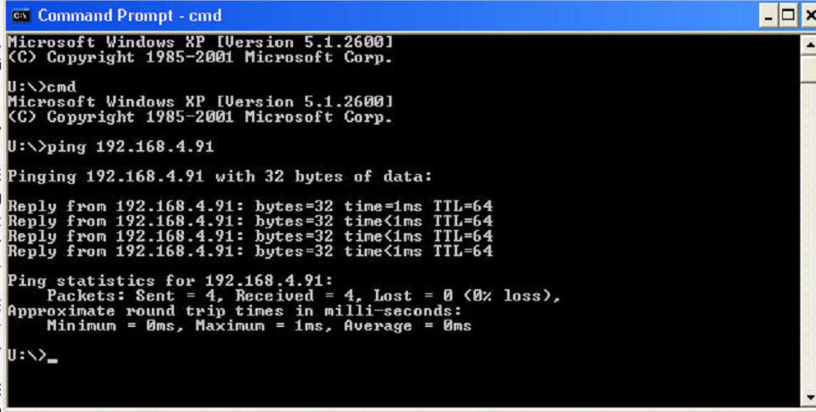## *The Master Control and MC Config Network Connection*

The Target IP address that must be specified in MC Config refers to the IP Address of the master controller CPU. This is used for general communications between the MC Config application and the target machine.

The network connection is general purpose, but within the context of MC Config it is used to send and receive the configuration data that is collected and generated by MC Config. To locate the current MC400 channel's IP address, go to the MCP-2020 panel and press the MAINT button on the LCD. Press the ADV OPS button, then the FRAME button. The IP address will display in the lower portion of the window as the CPU card is selected.

The subject of computer networking can be complex and hard to understand, but for the purposes of MC Config, there are just a few quick steps required to get a Windows based computer communicating with a target machine.

The first step is to obtain IP addresses for both the computer running MC Config and the master controller system. There is no way to obtain these addresses other than to get them assigned by your network administrator since they must be unique for every machine on the network.

The next step is to assure both your computer and the MCP-400 or interface chassis can communicate over the network. To verify the PC's address, access the cmd prompt and type IPconfig. This will display the address of the computer. At the prompt within the DOS window, type "ping" followed by the IP address for the MC-2020 you are trying to find. Here is an example for a master controller with an IP address of 192.168.4.91.

If the MCP-400 or interface chassis can be found, the messages will indicate a reply, as is the case in this example. If it is not found, a message will indicate there is no reply and message data was lost as shown in the example below.

If communication cannot be established, your IT specialist may need to help resolve the problem.

If this test is positive, the connection is ready. MC Config can be configured successfully to communicate and configure your target machine. To do this, type the target IP address into

the Ethernet Connection Information box under the communication->Target IP Address menu

item as shown below, and MC Config is ready to pass data to and from the master controller.

Changing the IP Address

To change the IP address for the MCP-2020, the MC-4000/400 card and the MCP-400 or interface chassis, complete the following:

> **Note:** *Make sure that if you change the CPU address, you also make the necessary changes to the MCP panel address as well. This will ensure that both are on the same subnet.*

1. Attach the 9 pin to RJ-45 adapter (supported by UTSCI) to the PC -- with the TeraTerm program running -- to the MC4000/400 card RJ-45 port on the front of the card. The corresponding port on the MCP-2020 is located on the inside of the panel (upper side). And the corresponding port on the MCP-400 or the interface chassis is located on the rear of the panel and is labeled Diagnostics Port

2. Launch TeraTerm, then follow the connection routine using the serial port setup.

3. Make sure the serial settings are set to 19200 8 N1.

4. At the prompt, type chassis -ip1 "new address"

5. At a convenient time you will then need to press the reset button on the MC-4000/400 card. This is located on the inside center of the card. Note: This will cause the system to lose both video and audio for up to 10 seconds. The reset button on the MCP-2020 panel is located next to the RJ-45 port. To find it, lift the lid and go to the upper inside of the panel.To reset the MCP-400 panel or interface chassis, you must recycle the power to the unit by pulling the power cord and replacing it.

General Operation

Overview

This Section describes the interface, and basic menu layout and function within the MC Configuration utility. The instruction within this section assumes the Retrieve has already occurred, and you're ready to complete specific operations with a loaded master control file.

The Interface

The MC Config toolbar allows access to every editable function for the master control configuration file. This includes managing Sources, Button assignments, relays, serial port maintenance, etc. Though the MC Config interface has the appearance of the actual master control 2020 panel, it is communicating directly with the MC-4000 and MC-400 cards card and not the panel itself.

There are certain portions of the MC Config interface that are editable by clicking directly within. Larger portions of the master control configuration file are accessed via the toolbar, and these will be described in this section.

File/Save As

This function saves the IP address information as a beginning point. This also saves the system info and the config file which is all of the MC-4000/400 tables and settings to the desired location.

File/Open

This function allows you to open an existing configuration file from the location it was saved on the computer. This will populate the MC Config interface with all of the configuration details.

Button Assignment and Modification

Once a configuration file has been retrieved and a source table exists, you can edit the button assignments, destination assignments for Preset, Program and Reference output (Aux Bus 1), reference source and logical to physical router assignments by clicking on the menu item called Video Format in the top toolbar and then clicking the MC400 item. Click on the video format button at the top of the window of the MC channel you are looking at and you should see a window similar to the following example pop up. The enable button should be checked and you will see the various assignments for that channel in each window. If you click on all of the other video formats the enable button should not be checked except for the formats you will be using with the specific channel you are working with.
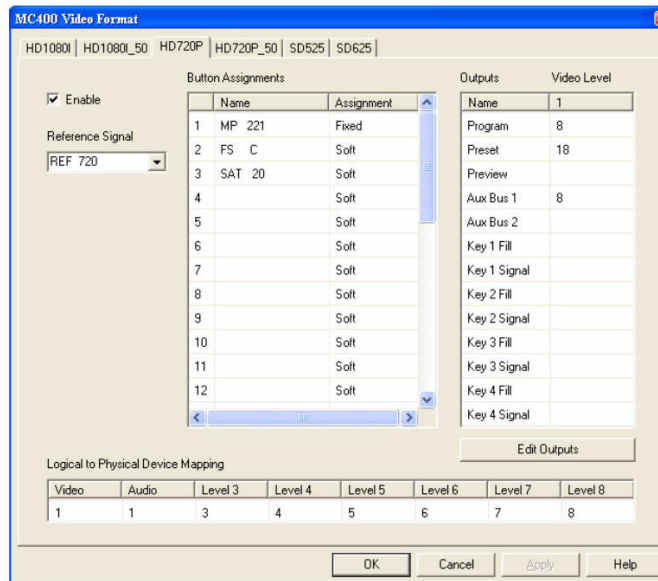
Buttons

To change or add a source to a button, simply click on the desired name location for the button you want to edit. Left-clicking any source name in the 'Panel' group area will produce a drop-down menu containing all potential sources available.

4	IN 13	▼	Soft
5	PGM 81		Soft
6	MON 81		Soft
7	AUX 81		Soft
8	IN 7		Soft
9	IN 8		Soft
10	IN 9		Soft
11	IN 10		Soft

Note: *Buttons are numbered along the left column and go in order as seen on the MC control panel from left to right. For an MCP-400 panel you would only have entries from 1-8 as there are only 8 physical buttons on the panel. And for an MCP-2020 panel you would have entries from 1-16 as there are 16 physical buttons on that panel.*

Outputs

To change or edit the primary outputs you will need to click on the Edit Outputs button just below the outputs window.

| Outputs	Video Level
Name	1
Program	8
Preset	18
Preview	
Aux Bus 1	8
Aux Bus 2	
Key 1 Fill	
Key 1 Signal	
Key 2 Fill	
Key 2 Signal	
Key 3 Fill	
Key 3 Signal	
Key 4 Fill	
Key 4 Signal	
Edit Outputs	

Note: *These outputs are index numbers found in the SC4/400 output list and are specific for the slot that the card is plugged into. (See detailed view in MC400/40 series guide section 1)*

Reference Signal

The reference to the MC-400/40 must be one of the assigned inputs to the UT400/40 router and should have been placed in the source table of the MC-400/40. This source must also be a constant signal format of the type of MC-400/40 it is used with. For example, if you have an HD720p MC-400/40 then you must use a constant HD 720p source such as Black or Bars for this input. To assign the correct source in the Video Format window, locate the Reference Signal drop down menu and select the reference source from the source list. (The only exception is for an MC-40e system which has the reference input assigned directly to the 7th BNC of the MC-40 chassis)
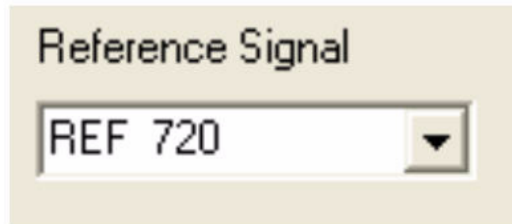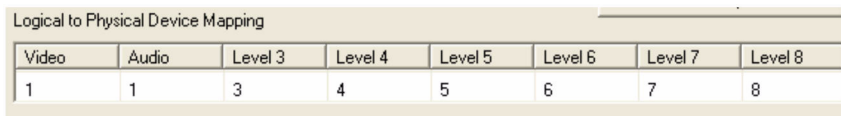
Reference Signal

REF 720

If the reference for the MC4000 feeds into an input on the router, then follow the same steps as in the paragraph above relating to the MC400/40 reference. If the reference to the MC4000 comes from an external DA or sync generator and not from the router, then nothing needs to be selected or programmed here for this to work. The reference would feed directly into input 15 for an MC4000 card in the channel one position and input 31 for a card in the channel two position.'

Logical to Physical Device Mapping

The MC400 uses embedded audio and because of this the first two windows for this table should be the same number, which is the number of the logical level of the Video router that is used for the channel you are editing. To locate the correct level for this table go to the UCON application and right click on the SC4 icon on the System view and click Configure. The lower table is the level table referred to here. The index number in the far left assigned to the MC-400/40 video router level is the number you will place in both windows of this logical to physical table. The example below shows logical level 1 in both the Video and Audio windows and this would be for video router level 1

The same applies for an MC4000 if embedded audio is used. If an actual AES audio router is to be used then follow the steps above to locate the router level number found in Ucon, which would most likely be a 2, and place it in the Audio level (shown with a 1 in the picture below)'.
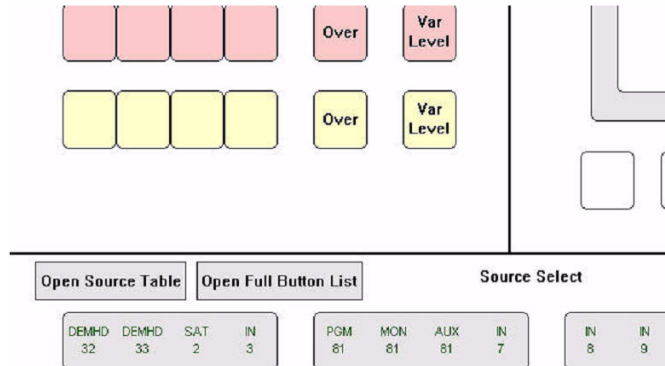
Logical to Physical Device Mapping

Video	Audio	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
1	1	3	4	5	6	7	8

Source Management

You can view the contents of the current Source table by clicking the 'Open Source Table' cell within the interface. (Also accessed by clicking the Sources menu.)

This will display all Sources contained within the current configuration. It should be noted that Source information can be edited from this location, and doing so will affect the content of the Button Assignments dialog window (described above).

To view or modify the primary Preset and Program outputs you will do this from the Video Format table explained above. There are more details in further discussions below on configuring the MC.

Although Left-clicking the Preview, Preset, or Program buttons themselves (interface) calls up the

'Router Output Configuration' table this is NOT used for the MC-4000 and MC-400/40. It is an MC-2020 function only.

Additional Button Groups

Channels - View Only

The Channel detail is essentially opened when the configuration is retrieved, so it is not modifiable within the MC Config interface. Since there is only one channel accessed (at a time) when a configuration file is retrieved, no further channel modifications are possible within this button set.

Keyers - View Only

The names in the LCD are programmed in using the button assign section (Button Assignment and Modification.) For additional detail, see Sources / Key Marry Definitions, later in this section.
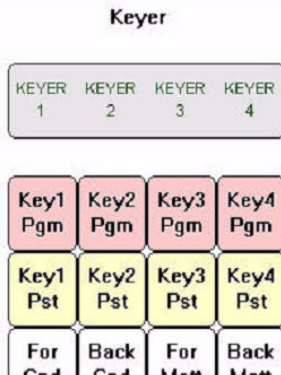
Breakaway, Pre-Roll, and Take

Like the above groups, these button configurations are pre-assigned and not modifiable within the MC Config utility. Machine Control is a function of 'Relays' and Source modification and will be discussed further in the next section.
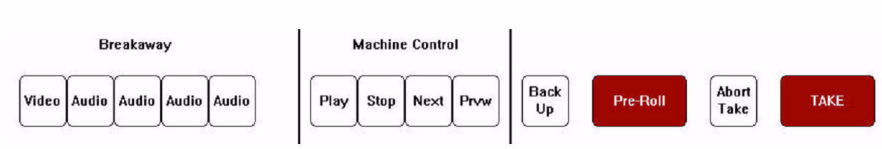
System Configuration

Overview

This Section describes the contents and the essential menu functions within the MC Configuration utility. The instruction within this section assumes the Retrieve has already occurred, and you're ready to complete specific operations with a loaded master control file.

Following the descriptions of the MC Config menu, the section will conclude with instruction for Sending the Configuration File. This includes proper target addressing, CPU reset, and verifying the results. You can skip ahead to this sub-part if you are ready to complete the file send.

The rMan Connection - Obtaining Necessary Index Numbers

This section outlines the method used to obtain the necessary index numbers in the Video and Audio columns. This also applies to the Router Sources table, and the Program, Preset, and Preview bus assignments as well as the reference input.

The required index numbers are gathered from the 'Device Config' tables within rMan and presumes you are using an SC-4. (SC-3 systems require a cross point number only.)

Verifying the Device Numbers through rMan

rMan is essentially polling the SC-4 (continually) for information updates. When rMan is first launched, you will see tables containing names assigned to the system. This is found in the 'Graphical Status' tab area. Click the 'Device Config' tab to show cross point numbers for Sources and Destinations and the index number for each device.

When you click the 'Device Config' tab, you will see Device numbers listed along the far left column. (Also known as Index numbers.)
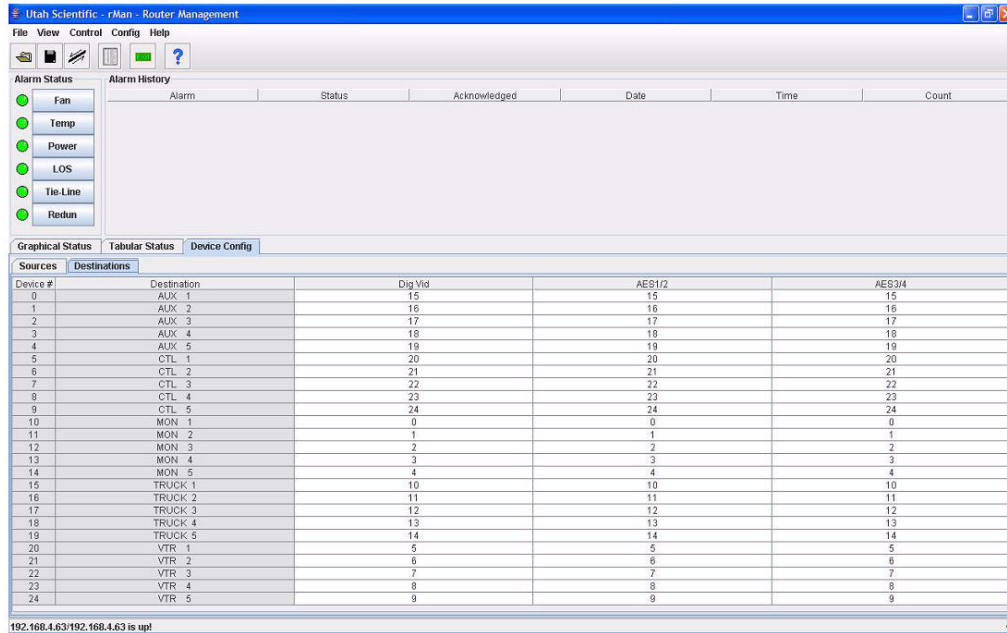
Usage Example: In this example a number of devices will be added (such as cameras and VTRs). The detail you see in all remaining columns to the right are the physical connections on the back of the router.

Though we may see various numbers listed as the physical connections, the device number remains at the default (starting at 0 and counting upward – along the far left column of the window). The 'device number' is the actual number that must be entered into the master control – not the number in the physical connection column.

Returning to the MC Config side – in the Router Source table, you would create a new entry (such as Camera 1) – The third column in this table now becomes very relevant.

From rMan, return to the Device Config tab and select the 'Sources' tab – the crucial element is the device number that appears along far left column. In this case Camera 1, which equals 0 (the typical starting point). This is the number that must be entered in MC Config's Router Sources table.

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MC Config will also automatically increment the device numbers upward based on the number of times you choose to have the device incremented (one of the window's selections). These device numbers are important as a means for switching the correct Source.

Once again, the critical part here is the number contained in the video column, which is also the device number that appears in rMan's far left column (Device Config/Sources) It is the Source table that contains the actual 'Sources' found within the routers, as opposed to that which is being directed out of the routers.
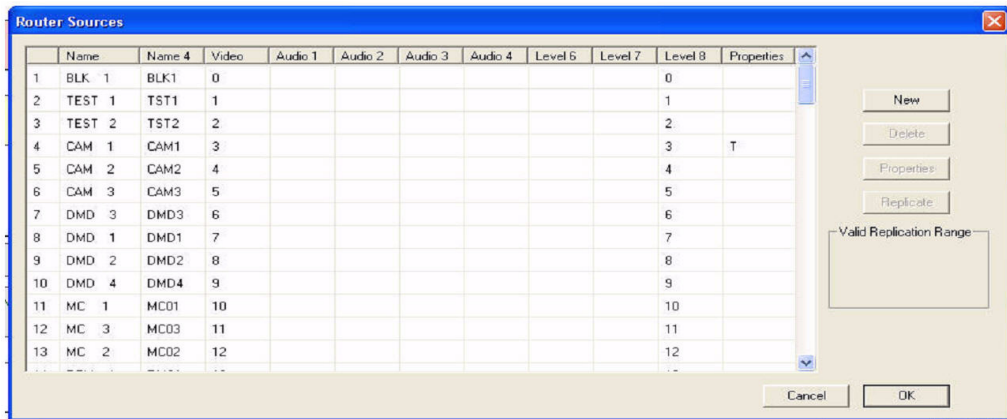
Note: *Though the above Usage Example applies to Sources, the same procedure is used for designating Destinations.*

Essential Menu Operations

Sources / Source Table

> **Note:** *If you would like to associate the sources and destinations loaded in the SC4 directly from UCON into this interface, to be used with the MC-400/40, refer to the section immediately following this section just after Machine Control usage. Using names from UCON will replace the need for index number association and will be unused.*

This table allows you to edit and delete Sources. The Name in the first column is the actual system device. The numbers found along the right-most columns are index numbers located within the SC-4, and are associated with the corresponding name. The SC-4 is the control system for the entire router and master control system and contains a 'global table' that contains device names.

Entries that are made in the Source table require the correct index number associated with the desired cross point number. Index numbers can be verified by using rMan, and it is within the rMan interface that you obtain the associated cross point numbers.

Any New device placed within this table will already exist as a Source somewhere in the system, and when this Source is placed in the Router Sources table it will require the right index number in order for the correct switch to take place. Again, this is why the rMan verification is important.

The audio mode assignments made in this table include Embedded and mode assignments only. Audio mode assignments can be made on a device-by-device basis.
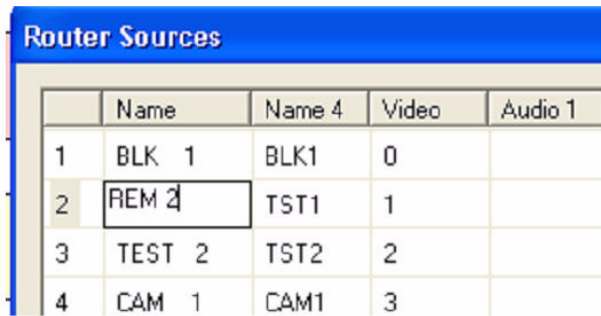
Index and Cross point Numbers

The numbers that appear in the video and audio columns are the actual numbers used to switch the routers cross point. It should be noted that these numbers are not the cross point's input numbers, but rather separate numbers that will 'map' to that router number (found in the SC-4).

Modifying Source Names

To edit the Name (contained in the first column), you simply highlight the column (making it active), and hand type the new name.

Router Sources

	Name	Name 4	Video	Audio 1
1	BLK 1	BLK1	0	
2	REM 2	TST1	1	
3	TEST 2	TST2	2	
4	CAM 1	CAM1	3	

The program will automatically place the entry in upper case and insert the necessary spaces, which is visible when you tab to the next column.

Column Breakdown

The far left (column number) is nothing more than a column ordering line number.

The Name is an 8-character designation and is the essential description of the device. This could include a VTR, network device, server, or other video source. The name itself can be anything a user chooses. The Name will also appear on the [physical] panel's LCD.

The Name 4 is a 4-character designator and will appear on the MC Configurator's LCD. Though it is not required that Name 8 and Name 4 exactly match, it is best to maintain some consistency in the naming convention. Clicking the name button will toggle the listing alphabetically between a – z and z – a.

The Video column is an index number assigned by the SC-4, and must be obtained and placed in this column manually.

The Properties column will display a 'T' if there is a tally assigned to that particular input.

Adding a new entry to the Router Sources Table

• By clicking the New button, the last 'name' cell at the bottom of the table is highlighted and ready for a text entry.

• You make the appropriate designations in both columns (8 and 4 character name columns)

• You next obtain the SC-4's index number for this device from the rMan program. It's best to 'replicate' when multiple device entries are needed with similar detail.

The Properties Dialog

The Properties dialog is accessed by clicking the Properties button within the Router Sources window. When clicked, a dialog window appears with three sub-tabs contained within.

Section 3
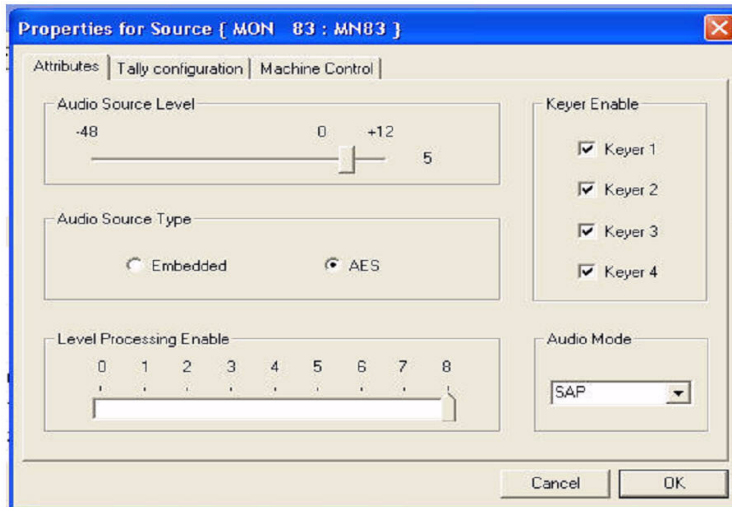
Attributes

The Audio Source Level controls the actual level the device will default to when it initially comes up after a reset or power cycle.

The Audio Source type is selectable between AES and Embedded however for the MC-400/40 it must be left as Embedded. AES is for an MC-4000 and MC-2020 only.

Level Processing – should be left at 8 (default).

Keyer Enabled – this is an MC-4000 and MC-2020 function only.

Audio Mode – the selection here should reflect the audio type produced within the indicated source.

Tally Configuration

The MCP-400 panel contains 8 GPIO's for use as tally relays or opto-isolator devices. The MC-4000 card has an option card installed which will either have 21 relays or it will have a mix of 16 relays and 5 optos.

To use the port as a Tally simply click on the Tally Configuration tab.

The detail within this tab will indicate the relay that is assigned to both the Program bus and Preset bus for that source. This can be used by clicking the drop down arrow for the Program or Preset selection and choosing the desired Tally. Only the available Tallies from 1-8 will be displayed.
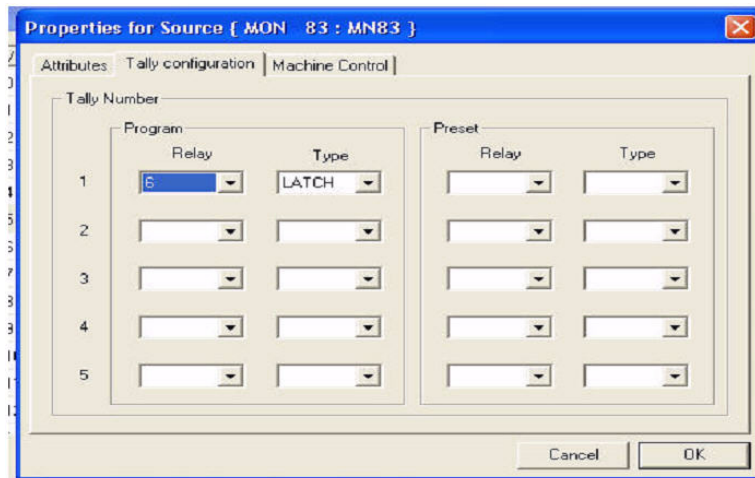
When selections are made within this dialog, the detail within other cells updates to reflect the changes made. Two types of relays can be assigned – Latch or Pulse for an indicated Program and Preset bus – in this way the relay is properly triggered.

Latch and Pulse – Latch relays simply stay on all the time until the next source is switched. Pulse is simply a momentary switch that just comes on & goes right back off.

Machine Control

The Machine Control dialog allows you to make indications for specific relays: Ethernet and Relay interface type on a source-by-source basis.
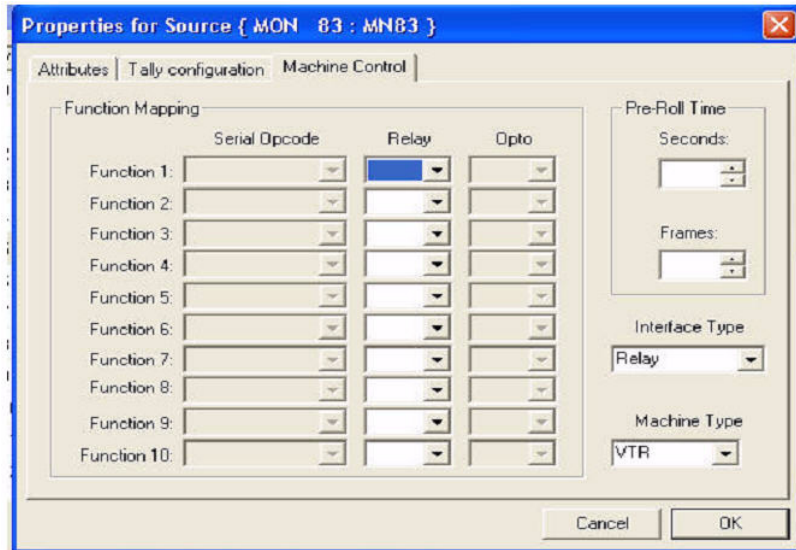
Pre-roll times, frames, and machine type (VTR or Server) can also be indicated at this location.

You are likely using an ESI control unit if operating on a server. Any modifications made within the Properties dialog area will appear in the Router Sources Table. Items can be deleted from the Router Sources table by simply highlighting the item and clicking the delete button. The table will refresh automatically the next time it is accessed. The line numbers will also update.

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Entering Destinations in the Video Format Table

To view the destination table go to the toolbar and select the Video Format menu item and then click on MC400. When the window appears, click on the video format of the MC-4000 or MC400/40 that you have retrieved the configuration from at the top of the window and in the lower right section locate and click on the Edit Outputs button. You will see a screen similar to this one showing the index numbers for each of the outputs.
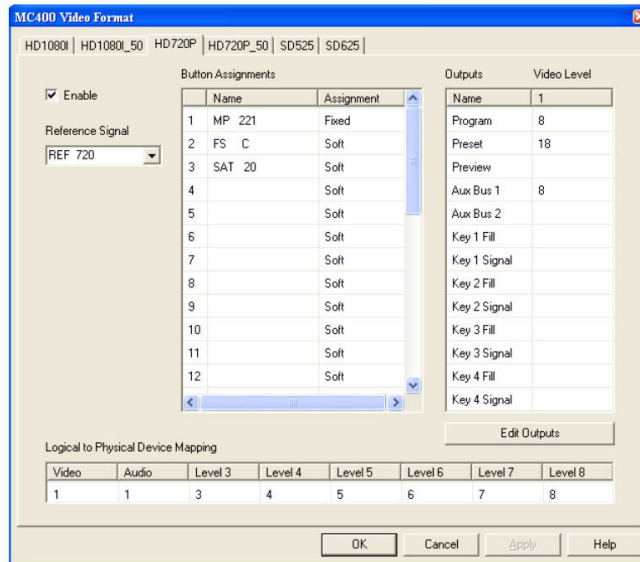
Destinations for an MC-4000

The MC4000 can be configured to run as an internal or external system. The internal type is used in stand alone mode. In this case the outputs for channel 1 are 0 for PGM, 1 for PST, 2 for PVW and 15 for reference. The outputs for channel 2 are 16 for PGM, 17 for PST, 18 for PVW and 31 for reference.

The external type is used as an extension from a router and is the most common. In this case, there will be a template on the rear of the MC and the outputs for these items come from a router. In both cases, these output numbers will get entered into the output table.'

Destinations for an MC-400

Note: *All MC-400 outputs must first be programmed into the SC4 prior to assigning them to the MC-400 card.*

There are only three MC400 destinations and they are Preset, Program and Aux Bus 1. The number for these outputs is dependent on which slot the MC400 card is placed in. However, no matter which slot the card is placed in, Preset is always the third output, Program is always the sixth output and Aux Bus 1 is always the seventh output for that range of eight outputs that the slot represents for that card. Once you have the correct output numbers then you take the index number from the SC4, as explained above, and place that in the destination table in the first two level column windows for each output.

Here are a couple of examples. IMPORTANT NOTE: Utah Scientific routers are all zero based so the first output card slot would be for outputs 0-7. The next slot would be 8-15 and so forth.

Example 1: If you have an MC400 card in the first slot which is outputs 0-7 then the Preset output number would be 2 because it is the third output. Program would be output 5 because it is the sixth output and Aux Bus 1 would be output 6 because it is the sixth output. You would then look up these outputs in the SC4 output table and use the corresponding index number for each of these.

Example 2: If you have an MC400 card in the forth output slot which are outputs 24-31 then the Preset output number would be 26 because it is the third output for that card slot. Program would be 29 because it is the sixth output for that card slot and Aux Bus 1 would be output 30 because it is the seventh output for that card slot. You would then look up these outputs in the SC4 output table and use the corresponding index number for each of these.

Using this information you would look up the index number for each of these outputs using the rMan application as explained above and place it in the output table in the appropriate locations.

If the MC400 is in a V-32 frame that is fed from a larger frame, then you would use the level number from the larger router and the output numbers of your choice that will be coming out of that router and feeding into the V-32 frame where the MC-400 card is placed. You would then need to create a start up Macro (see this section later in this guide) that will be set up to switch the appropriate inputs from the larger router to the three outputs, (Preset, Program and Aux Bus 1) as shown in the examples above.

Destinations for an MC-40i and MC-40e

> **Note:** *All MC-40i (internal MC) outputs are direct connections to BNC's on the back of the MC40 chassis and require no destination programming from the MCconfig application.*

There are only three MC40i (internal MC) destinations and they are Preset, Program and Aux Bus 1. The number for these outputs are always going to be the same with Preset third output, Program as the sixth output and Aux Bus 1 as the seventh output. These are the numbers you will place in the first two level column windows for each output.

Here is an example. IMPORTANT NOTE: Utah Scientific routers are all zero based so the output card slot would be for outputs 0-7 only as there is only one slot for the MC40.

Example: With the MC40i card in the output slot which is outputs 0-7, then the Preset output number would be 2 because it is the third output. Program would be output 5 because it is the sixth output and Aux Bus 1 would be output 6 because it is the sixth output.

Reference Input

The reference to the MC-400/40 must be one of the assigned inputs to the UT400/40 router and should have been placed in the source table of the MC-400/40. This source must also be a constant signal format of the type of MC-400/40 it is used with. For example, if you have an HD720p MC-400/40 then you must use a constant HD 720p source such as Black or Bars for this input. To assign the correct source in the Video Format window, locate the Reference Signal drop down menu and select the reference source from the source list. (The only exception is for an MC-40i stand alone system which has the reference input assigned directly to the 7th BNC of the MC-40 chassis)
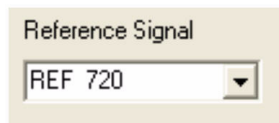
Reference Signal
REF 720

If the reference for the MC4000 feeds into an input on the router, then follow the same steps as in the paragraph above relating to the MC400/40 reference. If the reference to the MC4000 comes from an external DA or sync generator and not from the router, then nothing needs to be selected or programmed here for this to work. The reference would feed directly into input 15 for an MC4000 card in the channel one position and input 31 for a card in the channel two position.'

Levels Menu / Set Levels

This is the number of levels currently assigned that entries are needed for. In particular, the Source Table referenced certain numbers of levels for both video and audio. This is where the determination for the actual number of levels takes place, and are actual dipswitch-assigned levels within the router.

Routers / Logical to Physical

The cell on the far left is the actual video router connected to the master control.

This cell must contain the router's dipswitch level setting assigned to that particular router. For example, one video router and two audio routers would be represented by a zero in the first cell, a 'one' in the second cell, and a 'two' in the third cell. It is important to note that the first column contains the video router that the master control is switching, and the base count (or dipswitch setting) begins at '0' so 0 = 1, 1 = 2, 2 = 3, etc. The significant element here is knowing that what you see in these cells corresponds to the logical level setting.

For verification: right-clicking an SC-4 device in the U-Con interface will produce a window that will display these levels. (This is the bottom window along the Index column.) The number to be entered for that level is the index number minus 1. In this way, you would place a "0" in the logical to physical table.

Panels/Configuring Master Control Panels

The initial setup for the Serial Port(s) is accomplished under Panels/Configure Master Control Panels.
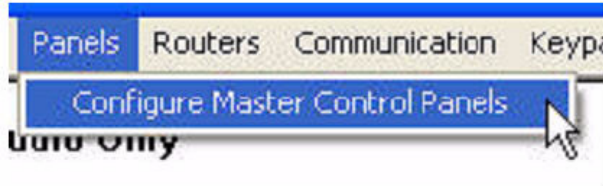
This window gives you the ability to define the serial ports, and make the determination regarding the type Automation driver will be used. (the Device Type column).
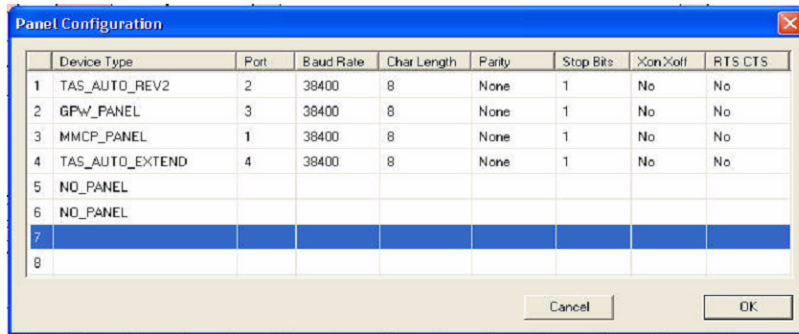
The 'Device Type' column contains selections for automation type selections that may be applicable to your system. (A listing of known automation companies and their protocols is available.)

Serial Port configuration associated with the entered 'Device Type' can be later edited or updated by selecting Serial Port Setup from the Communication menu.

> **Note:** *UTSCI only has a set number of automation protocols for use – TAS auto*

The TAS protocols are for multiple usage (other).

In 'Panel Configuration', the user needs to select the Device Type, port to use, baud rate, etc.

To change only the baud rate, you must access Communications/Serial Port Setup, and simply change that particular baud rate. Again, we are not actually changing the 'Device Type' at this location.

Communications / Serial Port Setup

Go to the top menu item called 'Communication' and select 'Serial Port Setup' from the drop down list. This will display the 4 serial port settings created from the 'Panel Configuration' tables and will allow changes to the baud rate and parity settings for each of them.

There are four ports on the rear of the MCP-400 panel labeled COM 1 through COM 4. (See the MC-400/40 guide for RS232/422 jumper settings). There are four ports on the rear of the MC-4000 chassis for each channel and use a 1x4 breakout cable of which each port is labeled Port 1 through Port 4. (See the MC-4000 guide for RS232/422 jumper settings).'

	Device Type	Baud Rate	Char Length	Parity	Stop Bits	Xon Xoff	RTS CTS
1		38400		None	1	No	No
2		38400	8	None	1	No	No
3		38400	8	None	1	No	No
4		38400	8	None	1	No	No

The 'Device Type' is determined within 'Panels/Configure Master Control Panels', which relates to the type of automation currently in use and the kind of port that will be set up.

Communication / Local Machine

Allows the port definition for SqueezeMAX and the HYPERX. HYPERX is no currently implemented.

For verification, select Serial Port Setup from the Communication menu. This will reveal any port designations made above.

Keypad / Settings

Note: *This is not required unless automation uses keypad entry.*

This function opens the keypad edit dialog. It is used to indicate the values of each of the buttons on the Router Select Keypad.
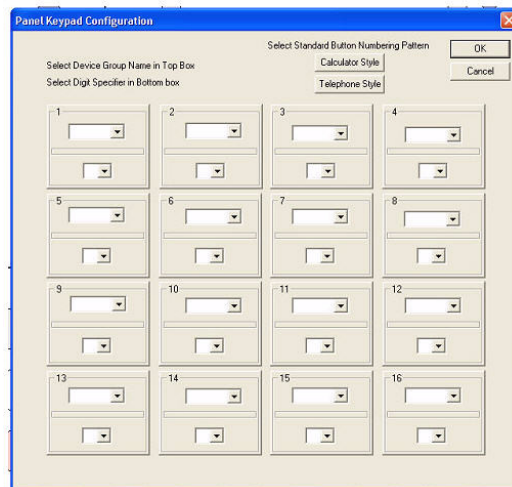
There are two drop down selection boxes on each button, one for a device mnemonic and the other for a numeric value. The mnemonic values are selected from the available source groups defined for the system. The numeric values are selected from the hexadecimal digits from 0 to F. These mnemonics and numbers can be placed on any button.

To help in filling in the keypad, there are buttons at the top of the dialog that automatically number the buttons in standard ways. For instance, the telephone pattern numbers the keys the same as a telephone keypad with the upper left button being 1 and 0 is on the bottom. A calculator pattern button is also provided.

Sources / Audio Source Mode

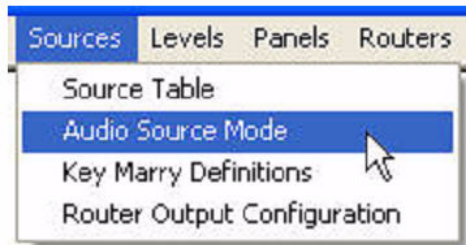The audio that is used with the MC400/40 is generally embedded in to embedded out. However, there are two external inputs that can be used to bring in AES audio. The output is embedded with either option. To select and edit the audio default modes for all sources drop down the menu item called 'Sources' and select the 'Audio Source Mode' item.

The table activated by this menu selection represents a 'general mode setting' for all sources coming into the system, in addition to those leaving the PGM and PST monitors (outputs).

	Name	L1	L2	L3	L4	L5	L6	L7	L8
1	MONO	0	0						
2	STEREO	0	1	0	1				
3	SAP	0	1	2	3				
4	DOLBY	0	1	2	3	4	5	6	7

The system default mode is Dolby stereo (up to eight channels or four AES streams of audio). The MC Config program will handle any type of incoming audio source (single or multiple channel) and re-distribute the audio correctly.

Usage Example: Mono sources are represented by "0,0" in the columns, while a stereo signal is represented by "0,1". SAP can be utilized if more than two channels exist (4 channels / 2 streams). Dolby is used when 3 to 4 streams of audio exist for a given source.

Audio / Edit Audio Only Sources

There is only one external input that can be used to bring in AES audio and a second audio only source that can be brought in via the router. The 'Edit Audio Only Sources' menu item is not used for this as there is no setup required.
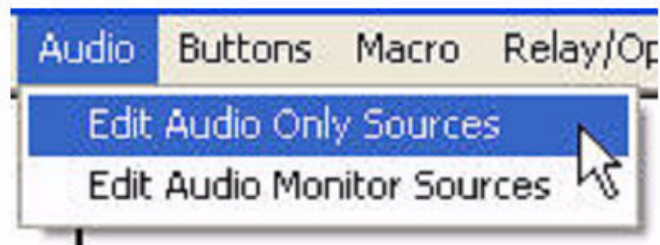
Audio / Setup for Internal AES Audio #2 for MC4000/400/40

The second external AES audio input is accessed internally from the router and simply needs to have the desired source that comes into the router, routed to the last output number that is on that particular card. For example, if your MC400 card is installed in the last output slot of your V32 frame then it would be in output location 24-31. These outputs should already be assigned in the destination table of the SC4/SC400/SCX400 control card and if they are not then you need to add them with whatever names you want to call them. We recommend that you look at the detailed view of the MC400 on page 1-6 of the MC40/400 Operations Guide and use a name that describes each of the outputs that go to the Ernie connector. The last output is the AES #2 audio output. Once this one is in the destination table you will simply switch up that last output using whatever source the audio is coming in on, to it. If there are several inputs you would like to switch between then you would simply switch those inputs to that output as needed using a router control panel.

Relay/Opto / Hardware Type

To view and modify the GPI's and miscellaneous relays click the menu item called 'Relay/Opto' at the top and you will see the following drop down list.
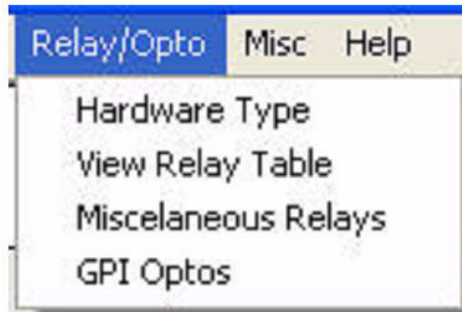
Select 'Hardware Type' and this will display that there are 8 Relays/Optos available. Then to see what the 8 are currently assigned to, select the item called 'View Relay Table'.

Miscellaneous Relays

There are 8 miscellaneous relays that can be used from the MCP2020 and can also be used on the MCP400/40 panel. However, the only issue is that they require free buttons to trigger the relay and where the MCP2020 panel has extra buttons available this may not be so easy with the MCP400/40 type.

From the menu above select the 'Miscellaneous Relays' menu item and you will see the following window appear.
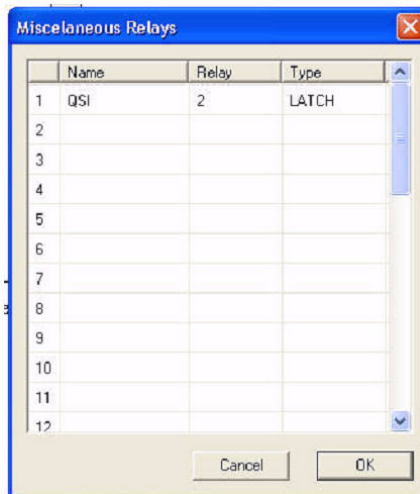
From here it will allow you to input a name for the relay, to select a relay that is left over, and whether or not the relay is a pulse or a latch. Once this is done, you use the MCP-Configuration

utility to make the actual button assignment if it is to be used on the MCP2020. If it is to be used with the MCP400/40 panel type you will need to go into the panel config file and edit the button configuration.

Take Relay

To add a 'Take Relay' which will close the desired relay any time the preroll or Take buttons are pressed you will simply check the box located in the bottom of the Miscellaneous Relay table and then drop down the list of relay located next to the check box and select the desired relay. NOTE: There must be one relay available in order for this to function.

GPI Opto

There are a total of 8 GPI/O's available. As noted above, to view what is in use and not in use click the 'View Relay Table'. There are three types of GPI options that can be used. The first two are a Take and Pre-roll GPI and the third type is a Macro. The Take and Pre-roll can be triggered externally using this option. The Macro triggers a preconfigured macro such as a sequence of events that is set up in the macro table. When you select the GPI/Optos from the menu above you will see the following table.

GPI Optos

	Opto	Function	Value	Type
1	8	TAKE		LATCH
2	1	PREROLL		PULSE
3	2	MACRO	7	PULSE
4	3	MACRO	8	PULSE
5	4	MACRO	9	PULSE
6	5	MACRO	10	PULSE
7	6	MACRO	11	PULSE
8				

Cancel   OK

Click in the Opto column to select the available GPI. Remember, if some of these are already in use as relays you will not see them in the list.

Click in the Function column and you will see the three options discussed above. If you select Take or Pre-roll you will not need to assign a value in the next column as it will automatically press these buttons when triggered by that GPI.

If you select a Macro then you will need to assign the macro number in the Value column of the macro that has been created in the macro configuration table.

The last thing needed is to select the Type of closure you desire for that GPI as to whether it is a pulse (short closure) or a latch (constant closure). A Macro will always be set as a pulse.

Section 3

Miscellaneous Parameters

The following table is used to set various default settings for miscellaneous operations/functions. To open the table click on the 'Misc' menu item at the top and then select 'Miscellaneous Parameters' from the drop down list.

To get an explanation for each item in this table and how to use it click on 'Help' at the top of the main screen and then select 'Help Topics' from the drop down list. In the 2nd window select 'Miscellaneous Parameters Description' and click 'Display'.

Miscellaneous Parameters	
Audio Channels (16 bit hex value)	000F
Audio Dim Adjust (Range: 0 to -45)	-15
Video Mix Position	08
Key Level Reset Mask	0f
Key Level Transfer Mask	00
Transition Speed Fast (Frames)	15
Transition Speed Medium (Frames)	30
Transition Speed Slow (Frames)	60
Syslog Server ID	
Aux Output Signal Select (blank to use default)	PVW
EAS Auto Forward Macro. (Range 1-32, blank to disable)	01
Clean Switch Enabled.	No
Individual Ratios	No

Monitor Text

This is the location for changing & updating Preset monitor display messages.

Monitor text Configuration

Item	Active	Display Line	Column	Length	Forground Color	Background Color	Blink
System Name	Yes	1	10	31	Transparent White	Transparent Black	No
PGM Source Name	Yes	7	1	8	100% Red	Transparent Black	No
PST Source Name	Yes	8	1	8	100% Yellow	Transparent Black	No
Time Display Line 1	Yes	7	10	14	Transparent White	Transparent Black	No
Time Display Line 2	Yes	8	10	14	Transparent White	Transparent Black	No
Error Messages	No	5	1	40	Red	None	Yes
Information Messages	No	6	1	40	White	Transparent Black	No

OK

Verify   Cancel

The user has the ability (on a PRESET monitor) to actually display the contents of this dialog. If 'Yes' is selected in the 'Active' column then that 'Item' will be displayed according to its setup.

In this case the 'System Name', 'PGM Source Name' and 'PST Source Name' Items will be displayed all of the time whereas the remaining items will only be displayed when they are either turned on such as the Time Display or if there are any errors or system messages that are flagged such as power supply alarms or sync issues.

The other columns determine where the Items will be displayed on the monitor and the color of the text and background it displays on as well as if you want the message to blink or stay constant.

Macro Usage

Overview

A macro is essentially a series of events occurring with the push of one button, and should

be designed to mimic an actual button push. There are three types of macro initiation:

   1.   Button - Done manually, triggering other events.

2. GPI - Corresponding to the GPI/Opto.

3. EAS/Auto - Managed by a separate table (Misc/Miscellaneous Parameters).

Example

To Start, select 'Edit Macros' from the Macro menu. It is at this location (the 'Macro List' group area) that we create the actual macro.
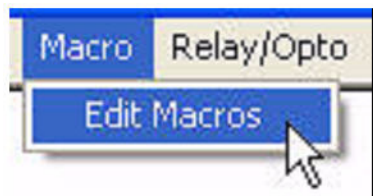
The initial step that must be taken is to assign this macro to a specific button within the MCConfig interface. Click the New button, then name the macro by placing a description in the cell (below).
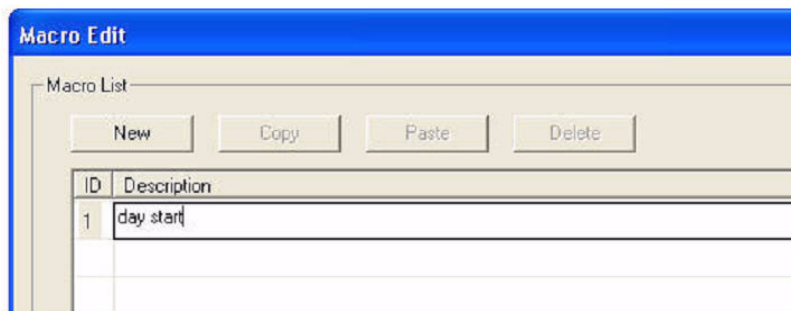
The detail you enter in this cell is a description of what the new button will do.

Now go to the 'Macro Details' group Area to begin your Macro. The selection in the first column (Action) of the first line across must be set to 'ON' and the last line must be set to 'Control' in the Area column and 'Done' in the Action column. You will then want to add a few blank lines in between these two rows where you will build your Macro.

Highlight the bottom line (by clicking the line number) and press the keyboard's Insert key as shown in the following insert.

For now, press the Insert key six times to generate that many rows. (These can always be deleted later if necessary.)

Your new window should look like this.

> **Note:** *All Macros must have ON as the first action and CONTROL DONE as the last action.*

Column Information

ID column

This is the Macro number and is assigned when a new Macro is created.

Action column

ON/OFF

There are two actions that can take place with any given Macro. The first is a one state function when it would be triggered by a GPI using the pulse mode. The second is a two state function when the Macro will turn ON, either by a button press from the panel or from a GPI using the latch mode and then the Macro will turn OFF when the button is again pressed to turn off or when the GPI is released.

ON = This is used for both states and would be placed on the first line, which is the beginning, of each Macro. NOTE: This is the only place that the ON state is to be used.

Off = This is only used when doing a two state function and is placed on the first line of the second function of that Macro. NOTE: This is the only place that the OFF is to be used.

Area column

These are the main selections for what you want the Macro to do.

CONTROL   - controls the flow of macros, loops, delays etc

AUDIO_ONLY   - Audio Only section controls

ROUTER   - controls to select source buttons, assign sources etc

TRANS_CNTRL   - Trans Control Area to do TAKE and PREROLL type operations

TRANS_SELECT - (NOTHING IMPLEMENTED AT THIS TIME)

PANEL_MISC   - Limited to the MACRO Operations right now

GRAPHICS   - allows control of graphics PRESETS of Squeeze Max

KEYER_1   - enables keyer_1 of MC-2020 or MC-400

KEYER_2   - enables keyer_2 of MC-2020 or MC-400

KEYER_3   - enables keyer_3 of MC-2020 ONLY

KEYER_4   - enables keyer_4 of MC-2020 ONLY

Function Column

After selecting the Area choice above you will get a drop down in this column of specific functions related to that choice.

Value Column

Entries here will vary depending on the function above. These will be the index numbers if it is to be a direct router source or destination route. If it is a graphics selection the number you would enter would be the preset number 1-11 for the SqueezeMax choice. For Audio Only choices it would the number of the button to be pushed. The number 1 is the first button. All other values will come up with a drop down menu to choose from such as audio ratio and relay numbers.

State Column

The choices are ON or OFF and is only used depending on the function. ON would be used when you would be pushing a button that can only be pushed to turn it ON. (In other words if the button cannot be pushed again after it is on to turn it off then this is when you would use the ON state). OFF would be used for buttons that would require a button push to turn them back off such as an Audio Over or a Keyer button. You would have a line for turning ON, or pushing, the Audio Over button and then another line to turn it OFF when you are done with it.

Text Column

This is unused and is to be left blank.

Depending on the Area choice, these are the possible entries for functions related to each and what they do:

Control

Delay – The amount of the delay (Value column) is expressed in 'Fields'. (30 seconds corresponds to 60 fields, etc.) Essentially this will Delay the next line (or row beneath in this table) for whatever time you have entered in the last field (Value column).

Done - This ends the Macro and only needs to be in the last line.

Audio_Only (this is the audio only section in the upper left corner of panel)

PGM_INPUT - This is the red button row. Value choices are 1-4. State is always ON.

PST_INPUT - This is the yellow button row. Value choices are 1-4. State is always ON.

PGM_EFFECT- Over/Under button for the red buttons.

> Value choices are:
>
> OVER - this will put the audio that is on PVW (white bus) over the PGM audio.
>
> UNDER - this will put the audio that is on PVW (white bus) under PGM audio.
>
> State is ON to turn the function on and OFF to turn the function off.

PST_EFFECT - Over/Under button for the yellow buttons.

> Value choices are:
>
> OVER - this will put the audio that is on PVW (white bus) over the PGM audio.
>
> UNDER - this will put the audio that is on PVW (white bus) under PGM audio.
>
> State is ON to turn the function on and OFF to turn the function off.

PGM_RATIO - Ratio for Over/Under amount for PGM audio (red buttons).

> This must follow a line in the Macro for PGM_EFFECT.
>
> Value choices are selected from drop down menu and are in decibels. No state required.

PST_RATIO - Ratio for Over/Under amount for PST audio (yellow buttons). This must follow a line in the Macro for PGM_EFFECT.

Value choices are selected from drop down menu and are in decibels. No state required.

KEYER_1 (This information also applies for Keyers 2-4. This section is located in the lower right corner of panel.)

PGM_KEY - This is the red PGM key button for Keyer 1. No value needed. State is ON or OFF.

PST_KEY - This is the yellow PST key button for Keyer 1. No value needed. State is ON or OFF.

KEY_INPUT - This is the External, Self or Logo button for Key 1 and is selected in Value column.

KEY_MODE - This is the Lin, Add or Lum button for Key 1 and is selected in Value column.

LOGO SELECT – This enables the LOGO keyer and then choose 1-16 in Value column.

ROUTER (This is for pushing the 16 buttons on the MCP2020 as well as performing router source to destination routes)

PVW_INPUT - These are the white buttons. Value is 1-16 for the button number. State is ON.

PGM_INPUT - These are the red buttons. Value is 1-16 for the button number. State is ON.

PST_INPUT - These are the yellow buttons. Value is 1-16 for the button number. State is ON.

SOURCE - This is to assign a source to a button. Value is 1-16 for the button. Text is src name.

DIRECT - This is to switch a src to dst on the router. Value is the src index #. State is the dst index #. These are found in the SC4 I/O tables.

TRANS_CNTRL (This is for pressing the TAKE and PREROLL buttons.)

TAKE - This is to press the TAKE button. No value is needed. No state is needed.

PREROLL - This is to press the PREROLL button. No value is needed. No state is needed.

PANEL_MISC (This is to perform a relay closure only)

RELAY - Value choices are 1-21 depending on how many the system has available.

MACRO - This is not used.

GRAPHICS (These are for SqueezeMax and EAS functions)

PRESET - This is to push presets 1-11 on the SqueezeMax. Value is 1-11. State is ON or OFF.

ALERT_PLAY - This is for SAGE EAS only which begins playout. No Value. State is ON.

ALERT_NOTIFY - This is to push the manual EAS button assigned to a button. State is ON.

The following are a few examples taken from the actual MC configuration file.

EXAMPLE MACROS

```
        Macro for TFT or DASDEC audio to come on (MC-400 and 2020)
1    ,DESC,EAS AUD MACRO
1    ,ON   ,AUDIO_ONLY  ,PGM_INPUT   ,3          ,ON  ,
1    ,OFF ,AUDIO_ONLY  ,PGM_INPUT   ,1          ,ON  ,
1    ,     ,CONTROL      ,DONE        ,          ,    ,

        Macro for SAGE (Audio and Alert to come on) (MC-400 and 2020)
When using ALERT_PLAY, after the audio turns off then the crawl will
use the EAS_DISPLAY_TIME_MIN: @030 and will continue to run the crawl
for 30 seconds or whatever time is entered.
2    ,DESC,EAS AUD MACRO
2    ,ON   ,AUDIO_ONLY  ,PGM_INPUT   ,3          ,ON  ,
2    ,OFF ,AUDIO_ONLY  ,PGM_INPUT   ,1          ,ON  ,
2    ,     ,CONTROL      ,DONE        ,          ,    ,
3    ,DESC,EAS MACRO USING SAGE
3    ,ON   ,GRAPHICS      ,ALERT_PLAY  ,          ,ON  ,
3    ,OFF ,GRAPHICS      ,ALERT_PLAY  ,          ,OFF ,
3    ,     ,CONTROL      ,DONE        ,          ,    ,
Note: There are two types of Function commands when doing a macro for
the crawl for a SAGE.ALERT_PLAY and LOCAL_PLAY. They act the same when
the are executed but the Alert_Play continues the crawl and looks at
the Min_Display_Time.Local_Play shuts the crawl off and the Macro is
turned off.
```

Note: *There are two types of Function commands when doing a macro for the crawl for a SAGE.ALERT_PLAY and LOCAL_PLAY. They act the same when the are executed but the Alert_Play continues the crawl and looks at the Min_Display_Time.Local_Play shuts the crawl off and the Macro is turned off.*

```
       Button #.  The button # starts at 00.
4    ,DESC,switch PST to PGM on button 3 (CBS HD)
4    ,ON   ,ROUTER        ,PST_INPUT   ,03         ,ON  ,
4    ,ON   ,TRANS_CNTRL ,TAKE        ,           ,    ,
4    ,     ,CONTROL      ,DONE        ,           ,    ,
5    ,DESC,switch PST to PGM on button 4 (CTRL C)
5    ,ON   ,ROUTER        ,PST_INPUT   ,04         ,ON  ,
5    ,ON   ,TRANS_CNTRL ,TAKE        ,           ,    ,
5    ,     ,CONTROL      ,DONE        ,           ,    ,

       Macro for Audio OVER selecting second audio button
6    ,DESC,add/Remove PGM OVER
6    ,ON   ,AUDIO_ONLY  ,PGM_EFFECT  ,OVER        ,ON  ,
```

```
6   ,     ,AUDIO_ONLY  ,PVW_INPUT   ,2            ,ON  ,
6   ,OFF ,AUDIO_ONLY  ,PGM_EFFECT  ,OVER         ,OFF ,
6   ,     ,CONTROL     ,DONE        ,             ,    ,
```

Macro for Audio OVER with a -4db ratio with button 3 on the audio Only
section
```
7   ,DESC,Local EAS Crawl Macro
7   ,ON  ,AUDIO_ONLY  ,PGM_RATIO   ,-4           ,    ,
7   ,     ,AUDIO_ONLY  ,PVW_INPUT   ,3            ,ON  ,
7   ,     ,AUDIO_ONLY  ,PGM_EFFECT  ,OVER         ,ON  ,
7   ,OFF ,AUDIO_ONLY  ,PGM_INPUT   ,1            ,ON  ,
7   ,     ,AUDIO_ONLY  ,PGM_EFFECT  ,OVER         ,OFF ,
7   ,     ,CONTROL     ,DONE        ,             ,    ,
```

Marco for EAS Audio and Triggering Relay 1. Relays start at 0
```
8   ,DESC,EAS AUD MACRO
8   ,ON  ,AUDIO_ONLY  ,PGM_INPUT   ,3            ,ON  ,
8   ,     ,PANEL_MISC  ,RELAY       ,0            ,ON  ,
8   ,OFF ,AUDIO_ONLY  ,PGM_INPUT   ,1            ,ON  ,
8   ,     ,PANEL_MISC  ,RELAY       ,0            ,OFF ,
8   ,     ,CONTROL     ,DONE        ,             ,    ,
```

Macro for switching Router inputs to certain outputs with a delay
```
9   ,DESC,ON it SWITCHES IN 7 TO OUT 8, OFF IT SWITCHES IN 4 TO OUT 8
9   ,ON  ,ROUTER      ,DIRECT      ,7            ,8   ,
9   ,     ,CONTROL     ,DELAY       ,5            ,    ,
9   ,OFF ,ROUTER      ,DIRECT      ,4            ,8   ,
9   ,     ,CONTROL     ,DONE        ,             ,    ,
10  ,DESC,This is SWITCHING IN 5 TO OUT 3 AND IN 4 TO OUT 4
10  ,ON  ,ROUTER      ,DIRECT      ,5            ,3   ,
10  ,     ,ROUTER      ,DIRECT      ,4            ,4   ,
10  ,     ,CONTROL     ,DONE        ,             ,    ,
```

Macro to bring A Logo Key with the ability to select the 16 logos
```
11  ,DESC,ENABLE LOGO 1
11  ,ON  ,KEYER_2     ,INPUT       ,LOGO         ,ON  ,
11  ,     ,KEYER_2     ,LOGO_SELECT ,1            ,    ,
11  ,     ,KEYER_2     ,PGM_KEY     ,             ,ON  ,
11  ,OFF ,KEYER_2     ,PGM_KEY     ,             ,OFF ,
11  ,     ,CONTROL     ,DONE        ,             ,    ,
```

```
        Macro to bring BNC External Key (MC-400 only)Not in McConfig?
Send to the man
12  ,DESC,ENABLE EXTERNAL KEY
12  ,ON  ,KEYER_1      ,PGM_KEY     ,            ,ON  ,
12  ,     ,KEYER_1      ,INPUT       ,EXTERNAL_BNC,ON  ,
12  ,OFF ,KEYER_1      ,PGM_KEY     ,            ,OFF ,
12  ,     ,CONTROL      ,DONE        ,            ,    ,

        Macro to bring an External Key 1on (2020 only)
13  ,ON  ,KEYER_1      ,INPUT       ,EXTERNAL    ,ON  ,
13  ,     ,KEYER_1      ,PGM_KEY     ,            ,ON  ,
13  ,OFF ,KEYER_1      ,INPUT       ,EXTERNAL    ,OFF ,
13  ,     ,KEYER_1      ,PGM_KEY     ,            ,OFF ,
13  ,     ,CONTROL      ,DONE        ,            ,    ,
```

Macro to bring a Squeeze Max EAS Preset on and going back to Default

```
14  ,DESC,
14  ,ON  ,GRAPHICS     ,PRESET      ,11          ,ON  ,
14  ,OFF ,GRAPHICS     ,PRESET      ,1           ,ON  ,
14  ,     ,CONTROL      ,DONE        ,            ,    ,
```

SAMPLE MACROS WITH MULTIPLE FUNCTIONS

This Macro Does Squeeze Max EAS Alert Preset 11, Audio only button 4 (2020) and External Key #1 and then it turns it all off.

```
1   ,ON  ,GRAPHICS     ,PRESET      ,11          ,ON  ,
1   ,     ,AUDIO_ONLY   ,PGM_INPUT   ,4           ,ON  ,
1   ,     ,KEYER_1      ,INPUT       ,EXTERNAL    ,ON  ,
1   ,     ,KEYER_1      ,PGM_KEY     ,            ,ON  ,
1   ,OFF ,GRAPHICS     ,PRESET      ,1           ,ON  ,
1   ,     ,AUDIO_ONLY   ,PGM_INPUT   ,1           ,ON  ,
1   ,     ,KEYER_1      ,PGM_KEY     ,            ,OFF ,
1   ,     ,KEYER_1      ,INPUT       ,SELF        ,ON  ,
1   ,     ,CONTROL      ,DONE        ,            ,    ,
```
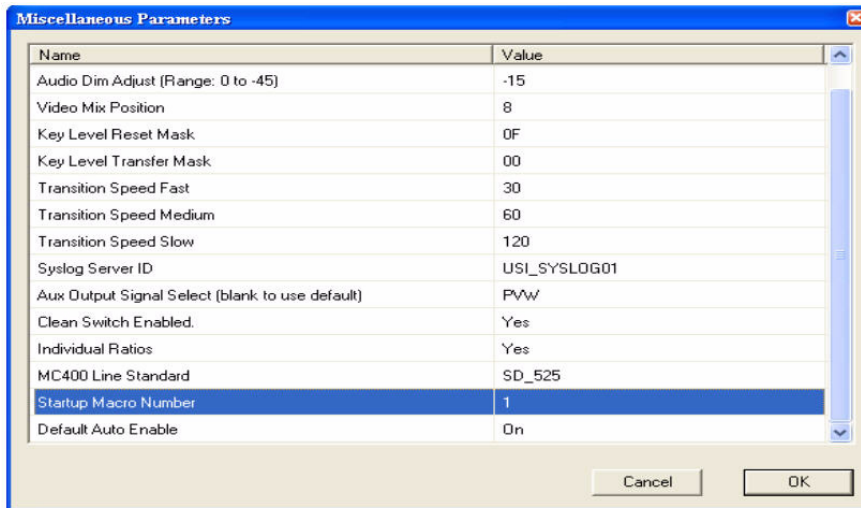
Start Up Macro

When the MC-400 is rebooted by pressing the black reset button on the front of the card or performing a reset to the card from a Telnet connection, one of the processes that it looks for is the Startup Macro parameter. This is a Macro of your choice that at a reboot will perform whatever is set up in that Macro to run. The most common use for this is to have all of the specific inputs that are coming into the router switch directly to their specific Ernie connector outputs automatically. (See section 1 in the MC400/40 users guide on Detailed View)

You must first build the desired Macro from the steps above. Following this you will then navigate to the top of the program to the Misc menu item and in the drop down select Miscellaneous Parameters.

Locate the 2nd line from the bottom called 'Startup Macro Number' and in the 'Value' box type in the number of the Macro you wish to run when the MC400 is reset.

You will see the following table appear.

Name	Value
Audio Dim Adjust (Range: 0 to -45)	-15
Video Mix Position	8
Key Level Reset Mask	0F
Key Level Transfer Mask	00
Transition Speed Fast	30
Transition Speed Medium	60
Transition Speed Slow	120
Syslog Server ID	USI_SYSLOG01
Aux Output Signal Select (blank to use default)	PVW
Clean Switch Enabled.	Yes
Individual Ratios	Yes
MC400 Line Standard	SD_525
Startup Macro Number	1
Default Auto Enable	On

EAS Setup

The MC4000/400/40 has the ability to pass the EAS crawl message along with its audio. This part of the interface will need to be setup according to the type of EAS unit you are using.

To open the EAS configuration table, navigate to the top menu line and select EAS. You will see the following table appear.
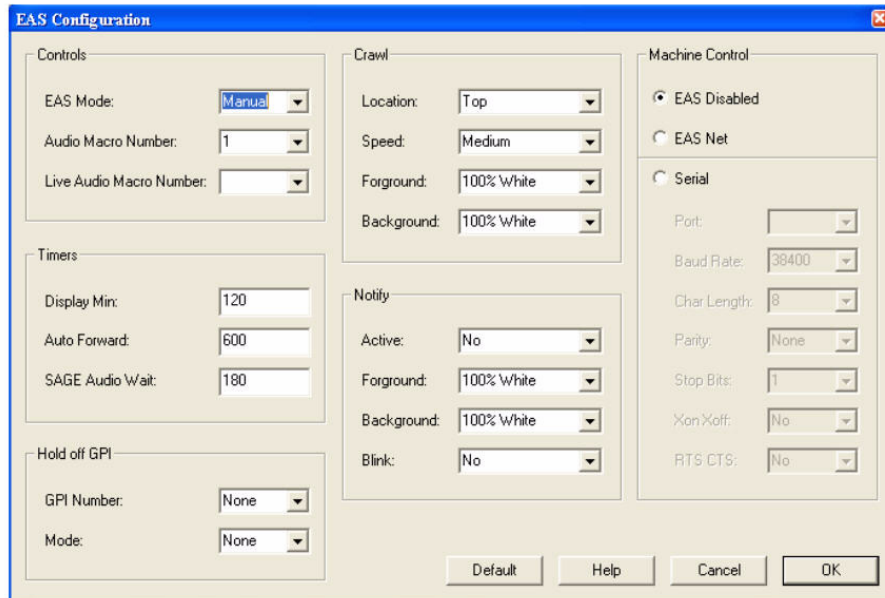
Connection to the MC4000/400/40

The first thing to determine is how you will use the EAS with the MC400/40. If you have a DASDEC unit you will have the ability to connect either using Ethernet or a serial connection. Both the SAGE and TFT units are only capable of using the serial interface.

Locate the following section called Machine Control to the right of the table.
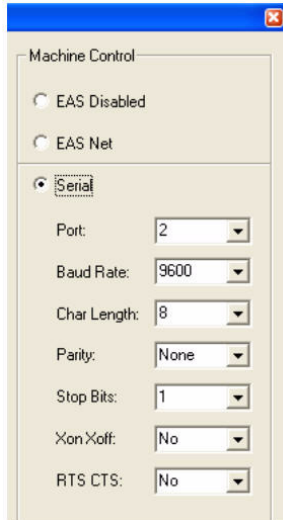
> **Note:** *If you are not using the EAS through the Master Control then the 'EAS Disabled' button should be checked and you would not need to proceed any further with this setup section.*

If you have a DASDEC/Ethernet then you will click on the EAS Net button and then refer to the end of this section on how to setup and use EAS NET. Otherwise, click on the Serial button and continue on from here'.

Select the port number 1-4 that you will be connecting to on the MCP-400, interface chassis or the MC4000. There are four ports on the rear of the MCP-400 panel labeled COM 1 through COM 4. (See the MC-400/40 guide for RS232/422 jumper settings). There are four ports on the rear of the MC-4000 chassis for each channel and use a 1x4 breakout cable of which each port is labeled Port 1 through Port 4. (See the MC-4000 guide for RS232/422 jumper settings).'

Next, determine if you would like the alert to automatically play out from the Master Control when it arrives from the EAS unit or if it needs to hold for an operator to push the start button manually when they would like it to play out.

Locate the following 'Controls' section of the EAS configuration table and drop down the EAS Mode selection menu.
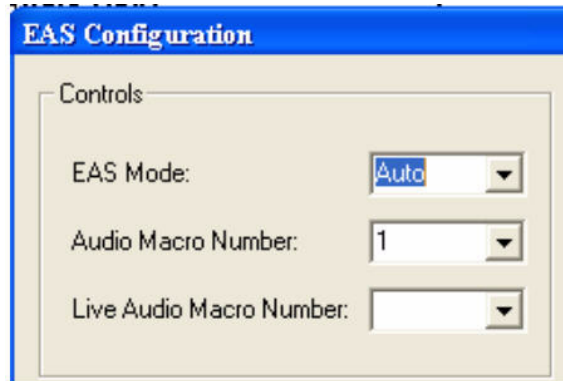
Select Auto mode to force the alert to play out automatically when received by the Master Control.

Select Manual mode if an operator will be manually playing the alert at a later time.

Select Off when you want to disable the EAS function.

Drop down the 'Audio Macro Number' menu and select the audio macro that will be used for the EAS. This number will only show up if the macro for audio play out has been created.

> **Note:** *In order for audio to play through the MC400/40 you will need to connect the audio from the EAS unit to the external audio input connector which is the last BNC on the MC400/40 output card. It is also necessary to create an audio Macro for it to function.*
>
> *In Addition: For an MC4000 you must add the audio to one of the three external AES inputs on its chassis for the correct channel. If there is a breakout panel then it will be labeled where to connect. Otherwise, refer to the MC4000 guide for instructions on correct pin outs and location of these connectors.'*

Using the Macro section above, create the Macro with the following parameters. The Macro number on the left is an example and will be whatever is created on your system:

Table 0-1.

MACRO #	Action	Area	Function	Value	State
1	ON	AUDIO_ONLY	PGM_INPUT	3	ON
1	OFF	AUDIO_ONLY	PGM_INPUT	1	ON
1		CONTROL	DONE		

The 'Live Audio Macro Number' is used for EAS Net selection only.

Locate the next section called 'Timers" in the EAS configuration table. The value to be placed in each of these is in seconds.

The entry for the 'Display Minimum' plays the EAS crawl for a period equal to the number of

seconds indicated in this field. In the event that the audio is present and exceeds this minimum play time, the audio message will fully complete and the system will allow the crawl to finish displaying before concluding the alert. 10 seconds is the minimum allowable entry and is the recommended time for this field. This will assure that when the audio completes then the craw will finish the message it is on and not run another iteration. 600 is the maximum allowable entry and if it is set to this then what will happen is that when the audio completes, then the crawl will continue replaying through the 600 seconds and then finish at that time.

The entry for the 'Auto Forward' field is only used when the EAS mode is set to 'Manual'. It is then used as a default, in seconds, at which time the EAS will be forced to automatically play out when it reaches this time.

The entry for the 'SAGE Audio Wait' field is used longest period of time the master will allow the audio to play on the air.

Locate the 'Hold off GPI' section of the EAS configuration. This is SAGE mode 2 which lets the master know that there is an alert ready to play.

The two modes are Active open and Active Closed. There is also an option of None which disables the 'Hold off GPI' from working.
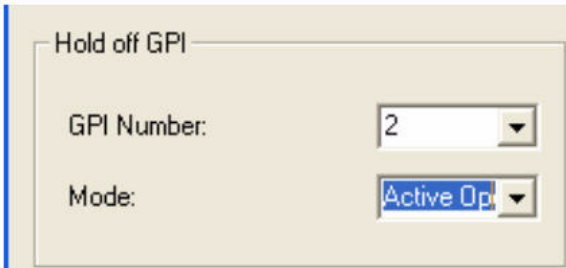
Locate the 'Crawl' section of the EAS configuration. This is used to alter a few attributes of the crawl that is output through the MC400/40.
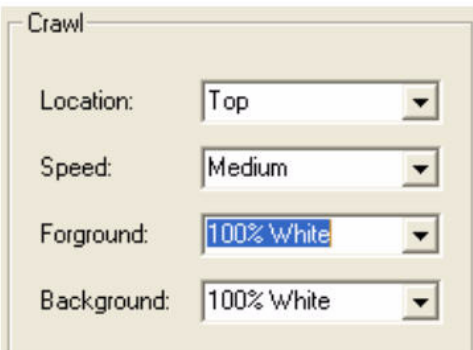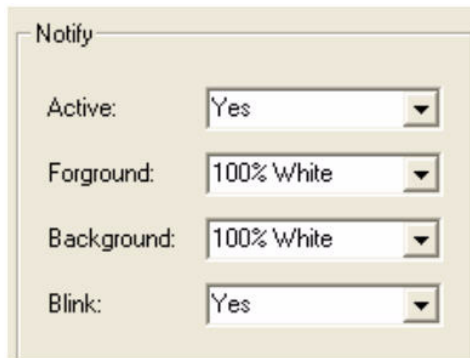
The 'Location' field has two options, top and bottom, which is the position of the crawl on the monitor.

The 'Speed" field has three options of Slow, Medium and Fast, which are not changeable and are the speed that the crawl runs at.

The 'Foreground' field has multiple choices of which will determine the color of the crawl text.

The ' Background' field has multiple choices of which will determine the color of the background banner that the crawl runs on.

Locate the section called 'Notify' in the EAS configuration table. This section is only used when the EAS mode is set to 'Manual'. In this mode the Preset monitor can display a text field that will say, 'EAS COMING DOWN" designed to 'Notify' the operator that the alert is ready to play at which time the operator will decide when they want to push the pre assigned button on the MC Panel that will be flashing.

The 'Active' field will need to be set to 'Yes' to allow the notify message to display on the Preset monitor. If it is set to 'No' then the monitor will not display the text, however the pre assigned button on the panel will still flash until pushed.

The 'Foreground' field is used to select the color of the text.

The 'Background' field is used to select the color of the background banner that the text will be displayed on.

The 'Blink" field is either set to Yes or No to have the notify text blink continuously on the Preset monitor or remain solid in a non blinking state.

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