



MC-400 Programming



Setup and Operations Guide

MC-Programming Guide

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Declaration of Conformity

Utah Scientific, Inc.

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

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

Emission

- EN55022:1994+A1&A2

Immunity

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

Safety

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

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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.
- 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).

Company Information

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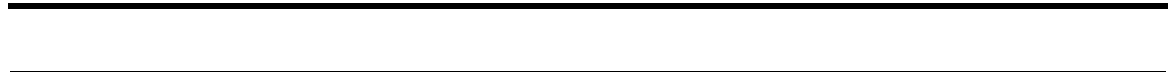
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Section 1

MC-400 Programming

The System CD and its Contents

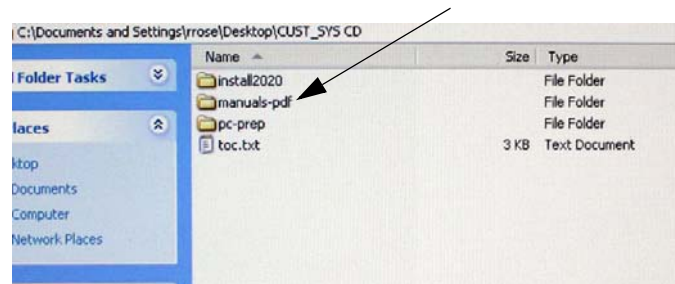
The following procedure involves the setup and maintenance of the MC Configuration files. These steps and illustrations will guide you through all modifications necessary in customizing the file content for your system.

This section includes the following:

Part I - Introduction

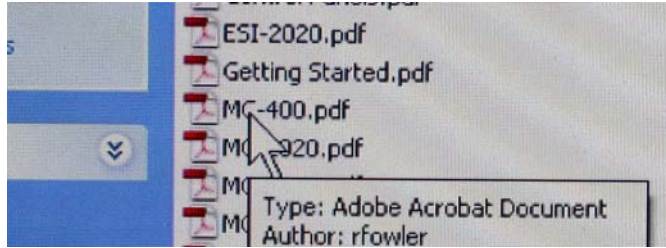
Getting Started

Start the process by opening the *Manuals* folder, located on the system CD.

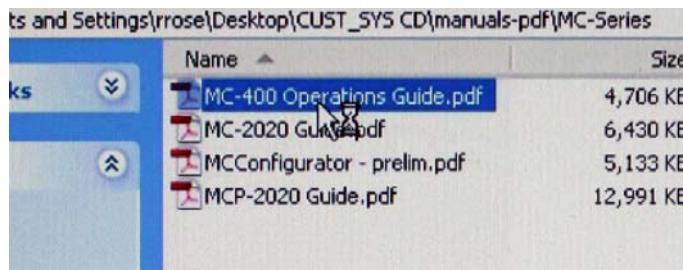


Please note, if your system was purchased after September of 2008, your *Manuals* folder will be located on it's own CD.

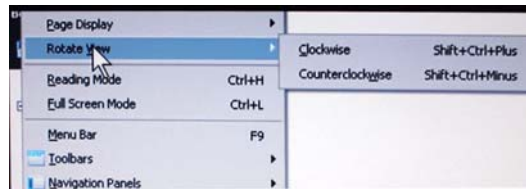
From the *Manuals* folder, double-click the Quick Start folder and open the pdf called 'MC-400'.



Minimize this pdf after it is opened (we will be returning to it momentarily), then open the *MC-Series* folder and double-click the *MC-400 Operations Guide* to open the file.

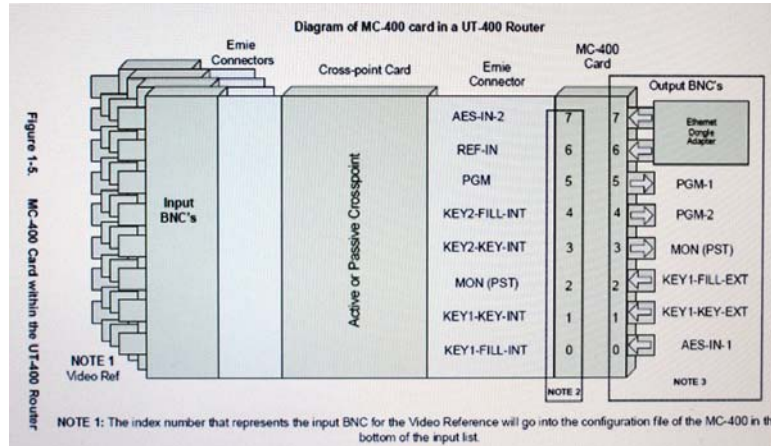


From the pdf's table of contents, select *Detailed View*, then rotate the image clockwise when it appears on your screen.





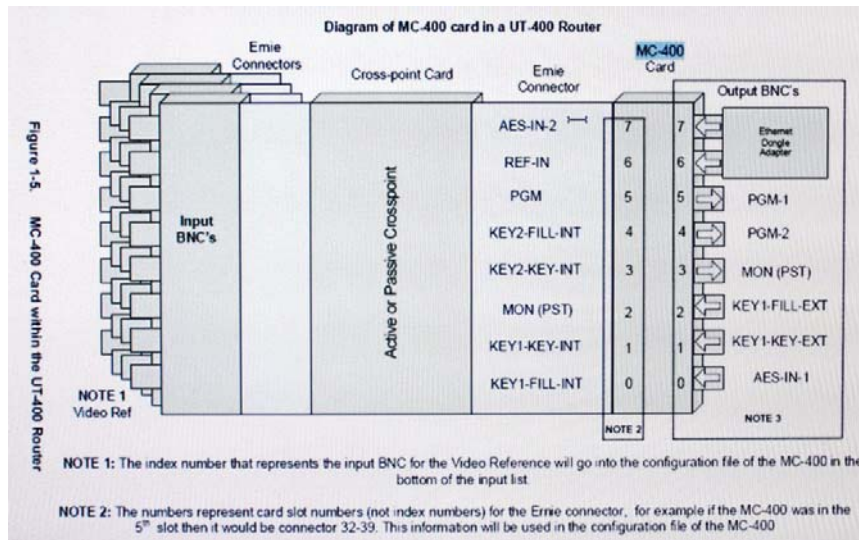
You should now see a Diagram of the MC-400 card within a UT-400 Router.



The MC-400 can only be placed within two types of systems; a UTAH-400 Video Router Chassis, or a stand-alone MC-40 Chassis. The card will reside in one of the output slots when placed inside the UTAH-400, and will become an MC-400 when placed inside the MC-40 chassis. The card's functionality within either is the same. All of the card's eight outputs are occupied when in the UTAH-400 router's output slot. When the card is placed in the MC-40 however, as few as three of the router's outputs can be used, or all eight if needed.

The Card Outputs

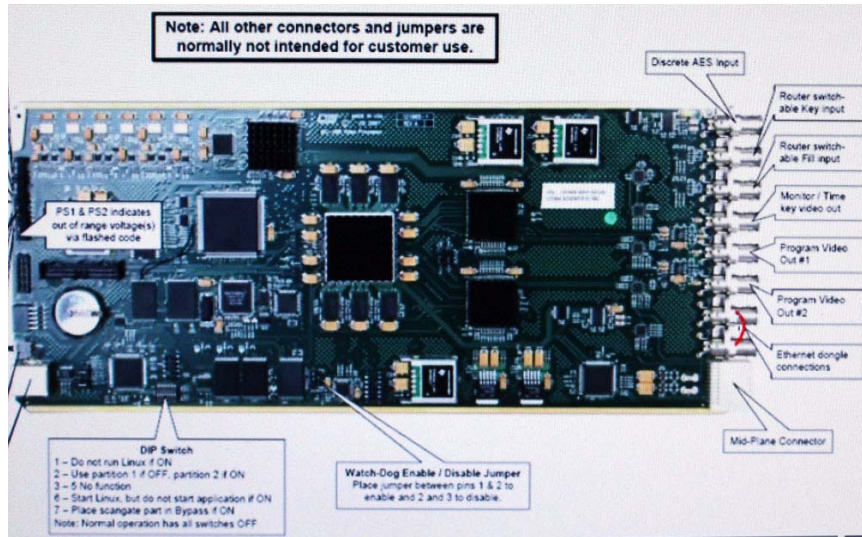
Within the MC-40's application, the chassis' inputs will originate from external devices such as character generators, EAS devices, or separate (discreet) audio. The detail illustrated beneath the 'MC-400 Card' heading (right side) represents the MC-400 card itself.



The detail beneath 'Ernie Connector' (to the left of above) represents the connector that is internal to the router. This is essentially the connective hardware between the MC-400 card, the Crosspoint card, and the Input BNC's where the Sources enter.

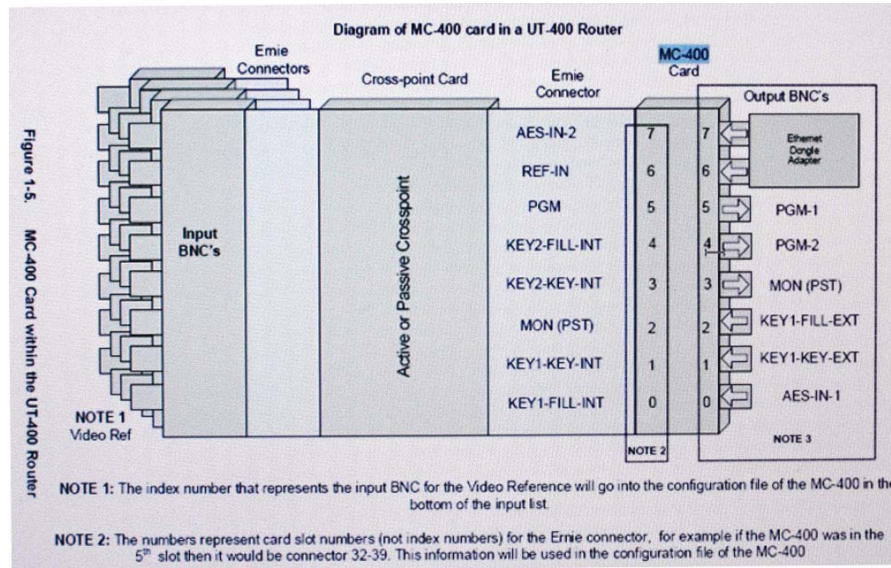


Now note the card photo on the opposite side of the Quick Start pdf. The BNCs shown along the right-hand side are considered multi-use, even though the card resides within an output slot.



The first BNC is the Discreet AES Input and the second BNC is the external key input, while the third BNC is the external fill input. The next is the Preset, or master control system’s monitor output, while the next two BNCs correspond to the Program video outputs. Finally the last two BNCs correspond to the Ethernet ports. These connectors require an Ethernet adapter that plugs onto these ports.

Referencing the previous illustration once again (Diagram of the MC-400 card in the UT-400 router). The outputs depicted on the photo correspond to the BNCs displayed along the right edge of the drawing (connectors 0 – 7).

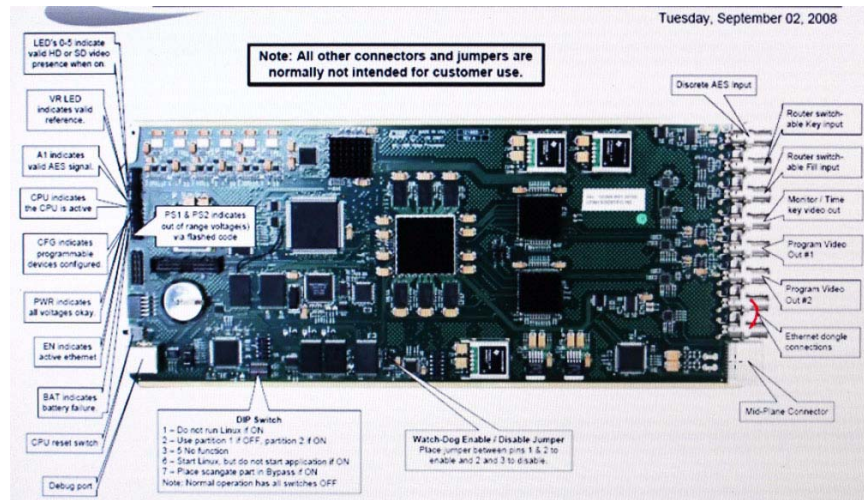


In this case the card occupies slot 0 – 7, and if the card were placed in the next slot, the outputs would become 8 – 15, and so on.

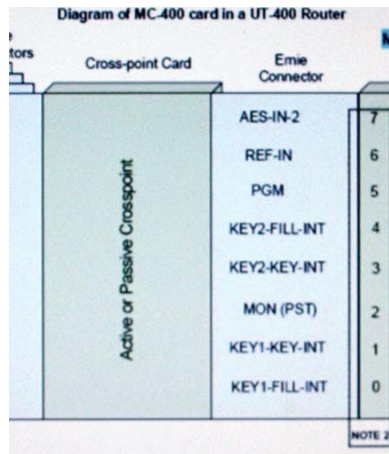


The Card Inputs

This is referred to as the Ernie Midplane Connector.



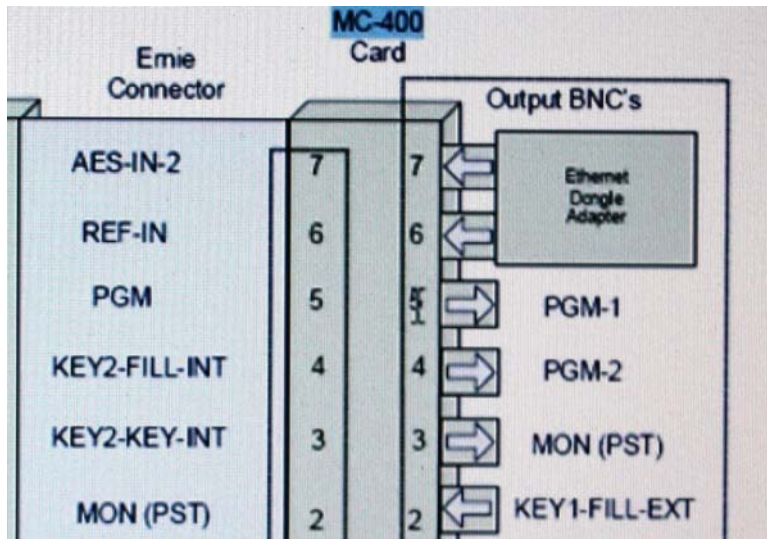
These signals are coming from the input side of the router and through the crosspoint card. The crosspoint and MC-400 cards share the same midplane.



The router's inputs are processed through the Ernie connectors, sent through the crosspoint card, then directed to MC-400 card as program and preset outputs. The *Reference In* corresponds to the master control's format type, either SD or HD. This signal is also processed through the Ernie connector.

Additional programmable inputs can originate from the router in situations where more than one BNC inputs are needed for external audio. This would utilize the Ernie connector's AES-IN-2 (illustrated).

The Program Out's content actually originates from whatever sources are being routed in (note the input BNC in the illustration). In our illustration, the signal travels through the Ernie connector's port 5, then travels out of ports 4 and 5 (the output side).



If for example, there were two additional keys that needed to be used besides the external key (note the output BNCs), there are two internal keyers along the Ernie connector block (illustration) utilizing the input ports 0 and 1, and 3 and 4 respectively.

The monitor port's signal originates from the source that is being routed to the monitor output. In this case, the preset output would need to travel through this particular input -- # 2 within the 'Detailed View' illustration.

Our example's master control is to be used inside a router. In this way, it is made easier for programming purposes in order to route a given source to a the specified program or preset you choose. Additional programming and configuration detail will follow. In particular, we will be demonstrating the process of designating the output BNCs for the indicated Ernie connector numbers into a configuration file so that we can then program this into the Master Control 400 for use.



In essence, the Master Control 400 can be placed into a UTAH 400 router or into an MC-40. We will be programming the content of the MC-400's output BNCs inside the configuration file. This file will then be sent to the master control when the process is complete.



Section 2

Encoding Retrieval

Programming the MC-400

Before getting started, open the MC-400 Quick Start layout. This is a two page PDF file that is located in the System CD's *Manuals* folder. This contains a brief description of the MC-400 Panel's setup.

Your system will contain either the MC-400 panel or the Master Control 2020 panel. In the latter case you would need to also have the MCP-400i within your system. This panel would be approximately half the size of the MC-400 Panel (note the 1RU size in the illustration).



The front of the panel would contain no buttons. In either case, both panels would require the same hardware, firmware, and software.

Retrieving an Existing Config File from the MC-400

This section will describe the config file's index numbers and how they are utilized from the SC-4 control system's source and destination table

Make sure the following conditions are met before proceeding:

- The USI folder is accessible.
- The NFS Server is launched and running.
- TeraTerm is available and ready for use.

In the event the above is not running or accessible, locate the System Installation Guide (system CD, manuals directory), and step through the PC Prep portion of the setup procedure. This will assist you with the needed program installation.

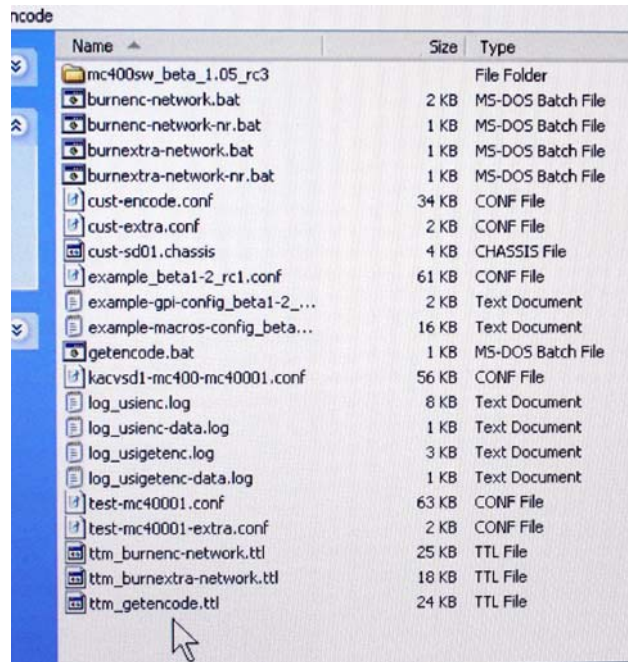
Access the USI Folder; either the shortcut, or the directory located on the 'C' drive. The Install 2020 Program sets up a series of sub-directories within the USI folder. This layout is important since specific files are placed within certain sub-directories when various batch files are run.

Master Control programming will primarily affect the contents of the Encode directory, while the Updates directory is used for the management of software and firmware upgrades.

The NFS Server should be continuously running while sending or retrieving program detail between the devices. Information is handled through the Server, which then parses out detail as needed. This allows the CPU to handle other duties. The NFS Server utility will appear at the bottom of the screen when it is running.

From the MC-400 Folder, access the Encode folder and note the following two batch files:

- getencode (retrieval)
- burnencode-network



A *get encode* will retrieve the encode file and place it in the specified location using the name of the folder. This filename is indicated during system setup.

The *burnencode-network* routine sends the retrieved encoding back to the device from which it was previously derived.

It should be noted that during MC-400 configurations, the MC-400 card exists inside the router along with a control panel (or interface panel). Together, these two devices make up the master control.

The configuration file that is being retrieved from the MC-400's encode folder will turn around and retrieve the file from one single location. Burning the configuration file back into a device will prompt you for both the MC-400 card address and the master control panel (or interface). The majority of the processed information goes to the control panel, while the remaining detail is directed to the MC-400 card.

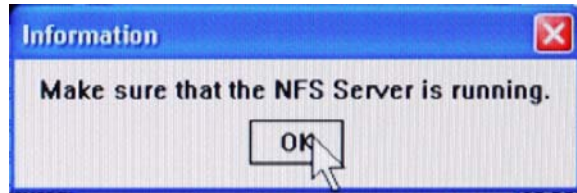
The MCP-400 Encoding that is directed to any given device contains the functionality of each of the buttons that exist on the MCP-400 control panel. All of this panel button programming occurs in the MCP-400.

Encoding Retrieval

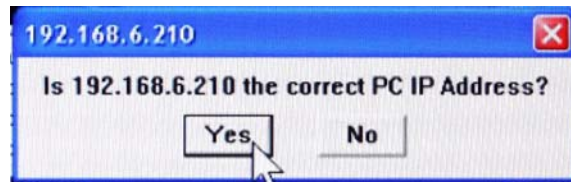
Encoding and functionality, such as the source names that exist on panel buttons along with the outputs that will be switching the router, is assigned through the encoding for the MC-400.

It is necessary to go into each one of the indicated folders and complete a retrieve by double-clicking getencode from (encoding folder). This will include the SC-4, which is very important in this process when considering the input and output numbers that have been programmed in.

Starting with the MC-400 – go to the Encode folder and double-click getencode. When asked if the server is running, verify, then click OK.



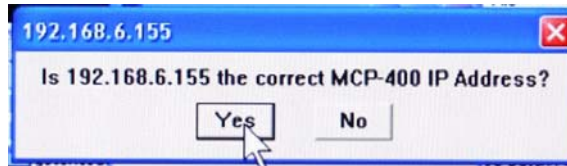
Is current PC address correct? Confirm, YES.



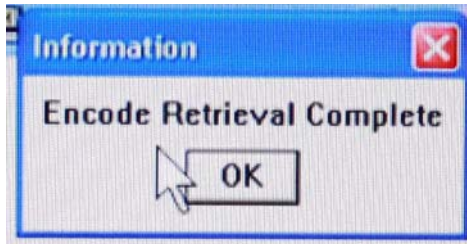
If not current, the field will be blank, and you will need to enter the address manually.



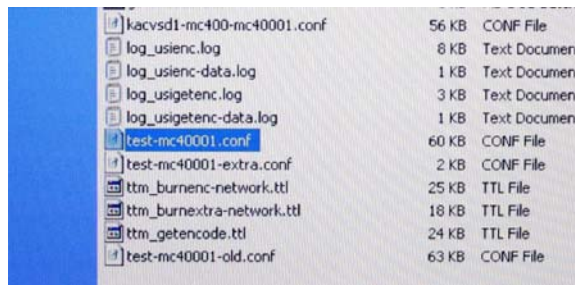
Is MCP-400 control panel address correct? Confirm, OK.



When this is complete, the system will run a script file that takes a few seconds.

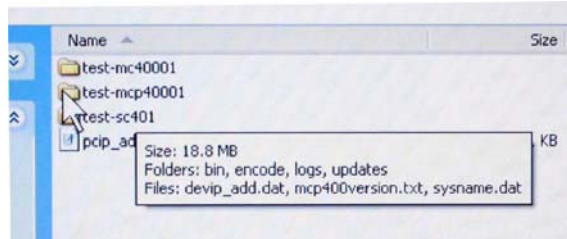


In this process the encoding is being retrieved, placed on the computer (as test MC400-01.config),

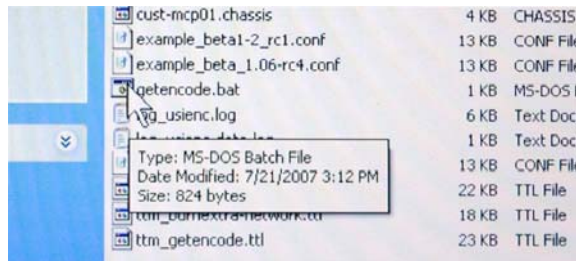


given the current date and time stamp, then overwrites any older version of the file. This process essentially performs a back-up as well.

Now, go back up two directories to the MCP-400 folder.



We will be performing a *getencode* here as well, which will also retrieve the button configuration.



When this is complete, you will see the old file (test-mcp40001-old.conf) the new file (test-mcp40001.conf).

Again, move two directory levels upward and perform the SC-4 getencode. You will be presented another series of address confirmation screens, verified by clicking OK. In this routine, the SC-4 input, output, and mapping tables are being retrieved. Like above, the older files are overwritten and given 'old' file name extension.

The next section covers file encoding and process burning -- back into the specific devices.





Section 3

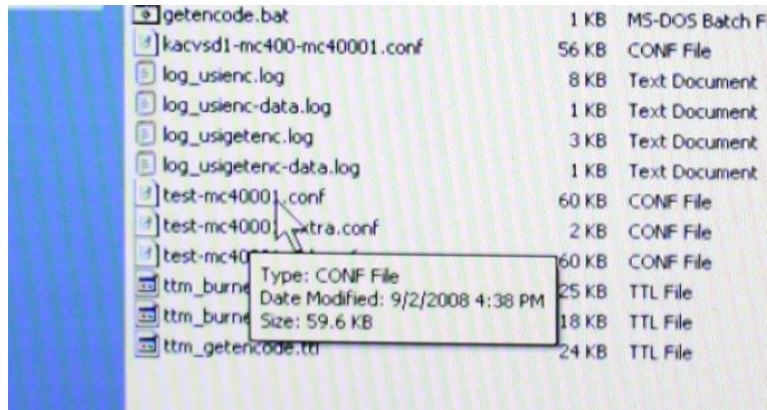
A Description of the Master Control 400 Configuration File

Introduction

The Master Control 400 Configuration file is located within the USI folder, inside MC400 01 encode folder.

During this process we will be accessing additional configuration files for setup purposes, and in particular, SC-4 table information.

We will first access the test-mc40001.conf file.



This file should open using your default text editor when this file is double clicked.

When the file is opened, note the descriptions that lie to the right of the pound signs.

```
[CONFIG_DEFINITION_DATA_START]

[FLASH_VERSION_DATA_START]
# the following fields are REQUIRED
# the format for this section is a FIELD LABEL followed by FIELD DATA
# the FIELD LABEL must have a ':' as the last character
# the FIELD DATA must start with a '@' char and be no longer than 20 characters
#
# FILE_FORMAT: @00.01
# CUSTOMER_NAME: @XXXXXXXXXXXXXXXXXXXXX
# SYSTEM_NAME: @XXXXXXXXXXXXXXXXXXXXX
# FILE_DATE: @MM/DD/YYYY
# FILE_REVISION: @??

FILE_FORMAT: @00.05
CUSTOMER_NAME: @XXXXXX
```

These are remarks. Items that do not lead off with a pound sign (on the line) are required bits of code for the configuration file to function properly (for the device) once the encoding is 'sent back'.

Config File Editing

This Config file contains two primary sections that are used by the system to set some essential parameters. The first section is labeled 'Config Definition Data Start'.

Note the five lines following the remarked out lines (pound signs). The significant file for editing is the 'System Name' line. This name is used for communication between the master control panel and the master control 400.

Also note that every individual master control 400 must be accurately named within the configuration file. 'Customer Name' can be left alone, though it is recommended that it be customized with the company name.



The second section is labeled 'Misc Start'.

```
|
| (MISC_START)
| #
| # various single line items entries that need to be configured
| # uses same line format as flash version section
| #
| # AUDIO_CHANNELS is a 16 bit hex value representing unary enables
| # for up to 16 audio levels. a 1 enables audio
| # processing, 0 disables
| #
| # AUDIO_DIM_ADJUST is a signed value representing the adjustment to
| # apply to the audio monitor channel when the DIM
| # button is pressed. Range is 0 to -45
| #
| # VIDEO_MIX_POSITION This is the slot-id of the board on which
| # the mix will occur. set to 8 for all upstream
```

There are multiple items within this section that should be addressed.

A Description of the Master Control 400 Configuration File

The first portion of this section contains descriptive detail for the following commands:

- First Line – Audio Channels

```
#      Example  STARTUP_CONFIG_MACRO_NUMBER: 81
#
#
#
AUDIO_CHANNELS:      00FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
#EAS_AUTOMATIC_ACTION: 801
```

The default value (00FF) is the incoming audio. This maintains up to 16 channels. This is the recommended value.

- The Audio Dim Adjust

```
AUDIO_CHANNELS:      00FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD_1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

Set to a default of –15db, with a possible range of 0 to –45. This is used to dim the audio monitor output. Pressing the audio dim button will ‘dim’ the audio to that particular value.



- The Video Mix Position

```
AUDIO_CHANNELS: 00FF]
AUDIO_DIM_ADJUST: 0-15
VIDEO_MIX_POSITION: 008
KEY_LEVEL_RESET_MASK: 00F
KEY_LEVEL_XFER_MASK: 000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM: 060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0USI_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 08D_1080I
EAS_OPERATION_MODE: 0MANUAL
EAS_DISPLAY_TIME_MIN: 0120
EAS_FORWARD_TIMEOUT: 0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

This is the slot, or board location within the master control on which the mix will occur. 08 (the default) corresponds to the master control 2020's video output slot. It is not necessary to modify this for MC-400 operation.

- Key Level Reset Mask and Key Level Xfer mask

```
AUDIO_CHANNELS: 00FF]
AUDIO_DIM_ADJUST: 0-15
VIDEO_MIX_POSITION: 008
KEY_LEVEL_RESET_MASK: 00F
KEY_LEVEL_XFER_MASK: 000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM: 060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0USI_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 08D_1080I
EAS_OPERATION_MODE: 0MANUAL
EAS_DISPLAY_TIME_MIN: 0120
EAS_FORWARD_TIMEOUT: 0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

These settings should also be left at the default. These essentially control the keyer levels that will be reset to OFF following a transition, or enabling which keyer level is actually transferred from the preset to the program on a transition. This is primarily used to force the downstream keyer's preset state to be in program, since all of the upstream keyers are always transferred.

A Description of the Master Control 400 Configuration File

- Transition Speed

```
AUDIO_CHANNELS:          000FF|
AUDIO_DIN_ADJUST: 0-15
VIDEO_MIX_POSITION:     008
KEY_LEVEL_RESET_MASK:   001
KEY_LEVEL_XFER_MASK:    000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM:     060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0US1 SYSLOG01
SAUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION:   001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD:   0HD_1080I
EAS_OPERATION_MODE:     0MANUAL
EAS_DISPLAY_TIME_MIN:   0120
EAS_FORWARD_TIMEOUT:    0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

Normal is 30 (fast). There is also a medium and a slow rate. 30 = ½ second, and 120 = 2 seconds. This can be changed to any value between 30 and 120

- Syslog Server ID

```
AUDIO_CHANNELS:          000FF|
AUDIO_DIN_ADJUST: 0-15
VIDEO_MIX_POSITION:     008
KEY_LEVEL_RESET_MASK:   001
KEY_LEVEL_XFER_MASK:    000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM:     060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0US1 SYSLOG01
SAUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION:   001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD:   0HD_1080I
EAS_OPERATION_MODE:     0MANUAL
EAS_DISPLAY_TIME_MIN:   0120
EAS_FORWARD_TIMEOUT:    0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

SYSLOG01 corresponds to the name that is assigned to the US1 logging program. This is placed on the C drive after the install2020 is run (for that particular logging application). This allows the logging application (when it is running) to locate every channel that has this 'turned on'. The name on this line will match whatever happens to be in the US1 logging.



This also allows the system to know who is currently online and how to properly log the necessary detail. For switches, serial automation, EAS, GPIs – and other detail that needs to be logged. This mainly exists for troubleshooting purposes.

- Aux Out XPOINT Sel

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD_1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

The master control 2020 contains an auxiliary output called ‘preview out’, which is unused in the master control 400.

- EAS Automatic Action

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD_1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

The EAS interface that communicates with the MC400 has the ability to engage what is known as a Macro. (The macro section is located at the bottom of this config file.) The EAS automatic action will trigger the macro to run the audio or any other needed action via that macro.

A Description of the Master Control 400 Configuration File

- Clean Switch Enabled

```
AUDIO_CHANNELS:      800FF|
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION:  808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM:  860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8USI_SYSLOG01
SAUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD_1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

Used for the 2020 system and not needed for the MC400 at this time.

- Individual Ratios

```
AUDIO_CHANNELS:      800FF|
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION:  808
KEY_LEVEL_RESET_MASK: 80F
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM:  860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8USI_SYSLOG01
SAUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD_1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

Allows the system to vary the audio on the preview button.
Not needed or used with the MC400.



- MC400 Line Standard

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 802
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD 1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

This is the initial standard that the MC400 will configure after a system reset. The valid line standards are shown above (in the config file's remarked out area.) Systems that use multiple line standards will continue to default to the setting placed on this line.

- EAS Operation Mode -- Manual or Auto

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 802
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD 1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

Auto allows alerts to seamlessly be transferred (forwarded) through, whenever an alert comes in – TFT™, Sage™, Dasdec™, etc. Manual requires an operator intervention (at some point) to activate the alert. A warning will appear (on screen) to notify the operator that some action needs to take place.

In the event the system is set to 'manual' and no operator is present: the system will default to the config file's original setting.

- EAS Forward Timeout

```
AUDIO_CHANNELS:      000FF|
AUDIO_DIM_ADJUST: 0-15
VIDEO_MIX_POSITION:  008
KEY_LEVEL_RESET_MASK: 00E
KEY_LEVEL_XFER_MASK: 000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM: 060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0US1 SYSLOG01
#AUX_OUT_KPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 0HD 1080I
EAS_OPERATION_MODE: 0MANUAL
EAS_DISPLAY_TIME_MIN: 0120
EAS_FORWARD_TIMEOUT: 0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

After the number of seconds indicated, the EAS alert will automatically proceed.

- EAS Display Time Min

```
AUDIO_CHANNELS:      000FF|
AUDIO_DIM_ADJUST: 0-15
VIDEO_MIX_POSITION:  008
KEY_LEVEL_RESET_MASK: 00E
KEY_LEVEL_XFER_MASK: 000
TRANS_SPEED_FAST: 030
TRANS_SPEED_MEDIUM: 060
TRANS_SPEED_SLOW: 0120
SYSLOG_SERVER_ID: 0US1 SYSLOG01
#AUX_OUT_KPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 001
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 0HD 1080I
EAS_OPERATION_MODE: 0MANUAL
EAS_DISPLAY_TIME_MIN: 0120
EAS_FORWARD_TIMEOUT: 0600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

This sets the minimum amount of time the EAS alert is to be displayed. The EAS crawl will display for this amount of time, even if the audio portion is complete. This amount should be shortened to the smallest amount of time possible (the extent of the audio) if you do not want the crawl to continue after the audio has run out.



- EAS SAGE, EAS Holdoff Relay Mode, and EAS Holdoff Relay Number

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80E
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1 SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD 1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

These are related to Sage™ operation and are generally unused. This literally provides the ability to holdoff alerts for given periods.

- Startup Config Macro Number

```
AUDIO_CHANNELS: 800FF
AUDIO_DIM_ADJUST: 8-15
VIDEO_MIX_POSITION: 808
KEY_LEVEL_RESET_MASK: 80E
KEY_LEVEL_XFER_MASK: 800
TRANS_SPEED_FAST: 830
TRANS_SPEED_MEDIUM: 860
TRANS_SPEED_SLOW: 8120
SYSLOG_SERVER_ID: 8US1 SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: 801
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: 8HD 1080I
EAS_OPERATION_MODE: 8MANUAL
EAS_DISPLAY_TIME_MIN: 8120
EAS_FORWARD_TIMEOUT: 8600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

System default is 'not configured'. This however offers the ability to create a macro that, on startup, will run whatever macro has been created. This allows any macro desired to automatically run after a system startup – such as following a reset.

Most of the above settings are set to defaults that will perform quite adequately. The most important elements are the EAS setup and the line format.



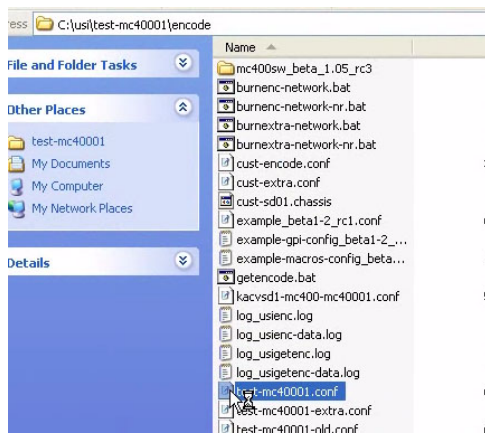
Section 4

Setting up the Logical to Physical Definitions Table

Overview

Defining the Logical to Physical Definitions table involves switching from the Master Control 400 to the proper router levels, when performing takes from the preset to the program bus.

To access the needed file, open the USI Folder, test mc40001, the encode folder, then double-click the test mc40001.conf file.



Next, scroll down to the subsection called 'Router Logical to Physical Definitions Start'.

Setting up the Logical to Physical Definitions Table

We will need to modify the very bottom line in the 'Router Logical to Physical Definitions Start' section.

```
[ROUTER_LOGICAL_TO_PHYSICAL_DEFINITIONS_START]
# LEVEL1, 2, 3, 4, 5, 6, 7, 8 INDEX IS LOGICAL, ENTRY IS PHYSICAL
#
# EX Place video and 3 levels of audio on levels 5-8
# EX -1,-1,-1,-1, 0, 1, 2, 3
#
# NOTE levels 1-8 are valid at this time. 9-16 are future
#
# L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12 L13 L14 L15 L16
# -----
0000,0000,0002,0003,0004,0005,0006,0007,-001,-001,-001,-001,-001,-001,-001,
```

This line contains a number sequence all beginning with "00".

```
# -----
0000,0000,0002,0003,0004,0005,0006,0007,-001,-001,-001,-001,-001,-001,-001,
```

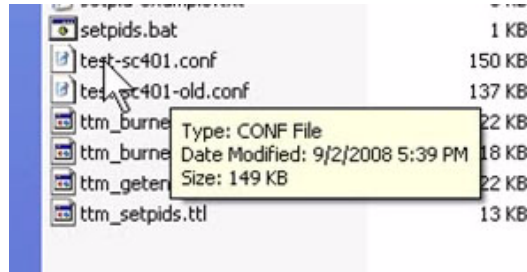
The Master Control communicates with the router via an address that is defined through the SC-4 control system. In the 'Router Logical to Physical Definitions Start' section, the logical table is defined by the "L" numbers (1 – 16) that are located just above the "00" numbers immediately below. This is known as the physical table. The physical table is in reference to the master control, with regard to the given level the master control will be routing, or the physical router from which it derives its sources and destinations. The "00" number you see at the bottom is actually found within the SC-4 level table, which is a virtual table. The numbers listed here represent a physical look-up table for the master control. In order to see what each of these numbers correspond to, we would need to open the SC-4 config file to see these levels within that particular table.

Before we do that, let's get a quick description of the different levels.

The Master Control looks at these numbers, or levels, as a set location for the different routers that will be switched. For example, the L1 (level 1) we see and its associated 4 zeros (immediately below) corresponds to the video level. Level 1 is always set up this way. Level 2 is always associated with the audio level. Systems using discreet audio will use this level as the first audio stream, while L3 would be used for the next audio stream. An embedded system will not utilize this. The other columns could be used for simulation, or for switching another audio level at the same time. In any case, Level 1 is used for video and level 1 is designated for audio.



Next step – Open the SC-4's Encoding folder (test-sc401/encode), then double click *test-sc401.conf*.



This is the SC-4's config file in its raw format.

Now locate the 'Router Table' section within this file. The Router Table section is responsible for defining the physical routers. The 'router level' (column) corresponds to the physical router level for each of the routers listed within this section, with every number representing an actual binary number on the dipswitch.

```

TER  ROUTER
PE   LEVEL  SII
00,  0,     ON
00,  1,     ON
00,  2,     ON

```

There will always be a dipswitch assignment for a given router, and this is how the SC-4 communicates. Note that the count always begins at "0" in the Levels column. Router level 0 is the first level found, level 1 is the second, 2 the third, and so fourth. Remember to check the 'level' table (a virtual table) for verification. This table is located 2 sections down from the router table, and defines all of the different routers that are married to the levels in the Router Table.

The HD Level in the Level Table corresponds to the master control.

Setting up the Logical to Physical Definitions Table

The master control points to index #1 in the Router table, which also corresponds to Level 1.

```
# INDEX NAME FORMAT TYPE LEVEL SIM RFRSH
1, "Dig Vid ", DV, U400, 0, ON, ON
2, "An Vid ", AV, U400, 1, ON, ON
3, "AES 1/2 ", DA, U400, 2, ON, ON

#####
# Signal Type Table
[SIGNAL_TYPE_TABLE]

# INDEX NAME
1, "Level 1 "
2, "Level 2 "
3, "Level 3 "
4, "Level 4 "
5, "Level 5 "
6, "Level 6 "
7, "Level 7 "
8, "Level 8 "
9, "Level 9 "
10, "Level 10 "
11, "Level 11 "
12, "Level 12 "
13, "Level 13 "
14, "Level 14 "
15, "Level 15 "
16, "Level 16 "

#####
# Level Table
[LEVEL_TABLE]

# LEVEL DISC LEVEL SIGNAL
# INDEX NAME INPUT ATTR TYPE ROUTER FOLLOW
1, "SDI VID ", 4095, DV, 1, 1,
2, "An Vid ", 4095, AV, 1, 2,
```

Now, note the Source Device table (image #3) and the Destination table found immediately below the Level table. In each of these tables, Level columns 1 – 4 are the significant columns for this discussion. In a real world example, the names and values within these columns would be specific to the operation, and not the default entries that appear when the file is first opened.

Because level 1 and level 4 share the same physical router, you would never place the same numbers in both of these columns.

```

      L1  L2  L3  L4  L5
4  ALM SRC SRC SRC SRC SRC
3, OFF, 0, 0, 0, 0, -1,
3, OFF, 1, 1, 1, 1, -1,
3, OFF, 2, 2, 2, 2, -1,
3, OFF, 3, 3, 3, 3, -1,
3, OFF, 4, 4, 4, 4, -1,
3, OFF, 5, 5, 5, 5, -1,
3, OFF, 6, 6, 6, 6, -1,
-  - - - - - -
```

Or in other words, numbers placed in one column would be blanked out in the other column.



'Marrying' to the Router Table

Both video formats (in this case, what we see in the Router table's line 4) exist in the same physical router – the router column (in the Router table) is pointing to that same, physical router.

```
# Level Table
[LEVEL_TABLE]

# LEVEL          DISC  LEVEL  SIGNAL
# INDEX  NAME          INPUT  ATTR   TYPE   ROUTER
  1,  "SDI VID  ",  4095,  DV,    1,    1
  2,  "An Vid   ",  4095,  AV,    1,    2
  3,  "AES 1/2  ",  4095,  DA,    1,    3
  4,  "HD VID   ",  4095,  HD,    1,    1

#####
# Group Table
```

The router is taking multiple inputs (or outputs), breaking them apart, then designating one section for the SDI, HD, and so on. And these sections are the only ones that will be routable when they are defined in the Router table.

We could have deleted the entire 4th row (LEVEL table) and forced everything to fall under the physical level one – or the contents of the first line (Router table - # Level Table).

```
# LEVEL          DISC  LEVEL  SIGNAL
# INDEX  NAME          INPUT  ATTR   TYPE   ROUTER  FOLLOI
  1,  "SDI VID  ",  4095,  DV,    1,    1
  2,  "An Vid   ",  4095,  AV,    1,    2
  3,  "AES 1/2  ",  4095,  DA,    1,    3
  4,  "HD VID   ",  4095,  HD,    1,    1
```

But we don't do this since there times you don't want the SD and the HD to mix.

Setting up the Logical to Physical Definitions Table

Since this Router table is the level table that we use for master control, we must access the Level Index column, take the number we find in the column, then minus 1 (which changes the numbers to 0 – 3).

```
#####
# Level Table
[LEVEL_TABLE]

# LEVEL          DISC  LEVEL
# INDEX  NAME          INPUT ATTR
  1,  "SDI VID  ",  4095,  DV
  2,  "An Vid   ",  4095,  AV
  3,  "AES 1/2  ",  4095,  DA
  4,  "HD VID   ",  4095,  HD

#####
```

This becomes the virtual level.

Note the 'Router Level' column in the Router Table. The numbers you see in that column define a physical dip switch. Now note the Level Table. This is the virtual level table. The Router Level column (number) seen here can be married to the same routers in the Router table, or as an alternative, they can exist physically in the same way the SD and HD routers exist.

```
#####
Level Table
[LEVEL_TABLE]

LEVEL          DISC  LEVEL  SIGNAL
INDEX  NAME          INPUT  ATTR   TYPE  ROUTER  FOLLOW
  1,  "SDI VID  ",  4095,  DV,    1,    1,    1
  2,  "An Vid   ",  4095,  AV,    1,    2,    2
  3,  "AES 1/2  ",  4095,  DA,    1,    3,    3
  4,  "HD VID   ",  4095,  HD,    1,    1,    1

#####
Group Table
```

The value that is placed in the master control table corresponds to the number in the Level Index column (Level Table), minus 1. In effect, it starts out as 1 – 4, then changes to 0 – 3.



The 'master control table' directly corresponds to the test-mc40001.conf file. This value is placed along the column of 00's that was referenced above.

```
[ROUTER_LOGICAL_TO_PHYSICAL_DEFINITIONS_START]
# LEVEL1, 2, 3, 4, 5, 6, 7, 8 INDEX IS LOGICAL, ENTRY IS PHYSICAL
#
# EX Place video and 3 levels of audio on levels 5-8
# EX -1,-1,-1,-1, 0, 1, 2, 3
#
# NOTE levels 1-8 are valid at this time. 9-16 are future
#
# L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12 L13 L14 L15 L16
# -----
0000,0000,0002,0003,0004,0005,0006,0007,-001,-001,-001,-001,-001,-001,-001,-001,
```

So if the value needs to be changed to 3, you would place a '3' at the end of the string under the 'L' indicator. For example, 0003 would now exist under 'L1'.

```
[ROUTER_LOGICAL_TO_PHYSICAL_DEFINITIONS_START]
# LEVEL1, 2, 3, 4, 5,
#
# EX Place video and
# EX -1,-1,-1,-1, 0,
#
# NOTE levels 1-8 are
#
# L1 L2 L3 L4
# -- ---- ---- ---- .
0003,0000,0002,0003,0004,
```

Note, if there's already a '3' in another column, you can place a '0' back in that particular column, or not worry about it if there is nothing in the corresponding level column in the table right beneath it – 'Router Source Definitions Start'.

This is how the 'Router to Physical Definitions Start' table works. The number that is placed into this table comes from the SC-4's 'virtual level table', and it's the index level number minus 1.

Setting up the Logical to Physical Definitions Table

Also Note – If your system has been set up as an embedded audio configuration, you would need to create an ‘audio dummy’ level, which would allow you to handle AES discreet audio for additional types of audio coming in – EAS alert, audio over, breakaway, etc.

```
[ROUTER_LOGICAL_TO_PHYS
# LEVEL1, 2, 3, 4, 5, 6
#
# EX Place video and 3
# EX -1,-1,-1,-1, 0, 1
#
# NOTE levels 1-8 are v
#
# L1  L2  L3  L4  L
# --- --
0003,0003,0002,0000,000
```

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE6, SOURCE4, INPUT NUMBER, ACTIVE LEV
#
#           L1  L2  L3  L4  L5  L6
#
IN  0, IN 0,0  ,0  , , , , ,
IN  1, IN 1,1  ,1  , , , , ,
IN  2, IN 2,2  ,2  , , , , ,
IN  3, IN 3,3  ,3  , , , , ,
IN  4, IN 4,4  ,4  , , , , ,
IN  5, IN 5,5  ,5  , , , , ,
IN  6, IN 6,6  ,6  , , , , ,
IN  7, IN 7,7  ,7  , , , , ,
IN  8, IN 8,8  ,8  , , , , ,
IN  9, IN 9,9  ,9  , , , , ,
IN 10, IN10,10 ,10 , , , , ,
IN 11, IN11,11 ,11 , , , , ,
IN 12, IN12,12 ,12 , , , , ,
IN 13, IN13,13 ,13 , , , , ,
IN 14, IN14,14 ,14 , , , , ,
```

This is simulated audio, and will be covered in more detail within the next section.



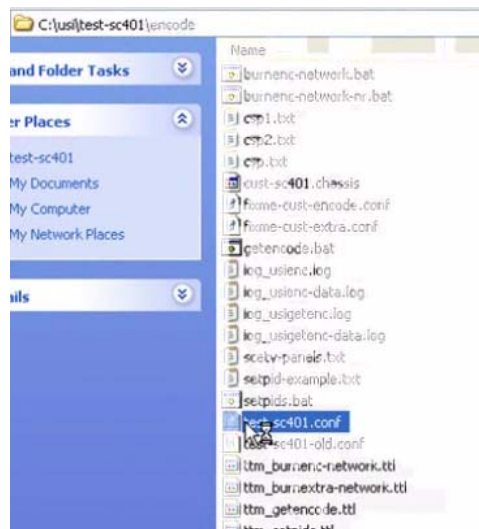
Section 5

Defining Sources and Attributes

Overview

The master control is able to use as many sources that your router or system may have encoded in the SC-4. The LCD display allows you to choose any one and bring them onto the panel as desired. The eight default button settings will remain intact in the event of a system reset.

From the SC-4's Encoding directory, double-click test sc401.conf.





This table is used to set up all inputs that will be used within the master control 400. These inputs will exist inside the mc400's CPU, residing in both locations; the panel, and the mc400. As previously described, the first column (Level 1) is the video input column, while the second column corresponds to a discreet audio level.

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE#, SOURCE4, INPUT NUMBER, ACTIVE LEVELS
#          L1  L2  L3  L4  L5  L6  L7  L8
#          -----
IN  0, IN 0,0  ,0  ,  ,  ,  ,  ,  ,  ,
IN  1, IN 1,1  ,1  ,  ,  ,  ,  ,  ,
IN  2, IN 2,2  ,2  ,  ,  ,  ,  ,  ,
IN  3, IN 3,3  ,3  ,  ,  ,  ,  ,  ,
IN  4, IN 4,4  ,4  ,  ,  ,  ,  ,  ,
IN  5, IN 5,5  ,5  ,  ,  ,  ,  ,  ,
IN  6, IN 6,6  ,6  ,  ,  ,  ,  ,  ,
IN  7, IN 7,7  ,7  ,  ,  ,  ,  ,  ,
IN  8, IN 8,8  ,8  ,  ,  ,  ,  ,  ,
IN  9, IN 9,9  ,9  ,  ,  ,  ,  ,  ,
IN 10, IN10,10 ,10 ,  ,  ,  ,  ,  ,
IN 11, IN11,11 ,11 ,  ,  ,  ,  ,  ,
TN 12, TN12,12 ,12 ,  ,  ,  ,  ,  ,
```

In an embedded system you would create a dummy audio level using the same physical router number. And though a number would reside in that column, the system will respond to a router being there, even though there is not. This would allow breakaways to the discreet audio level inputs (in the case of audio-over).

Note: The 'dummy' level appears in the table as a default, not requiring assigning or creation. It is recommended that you leave the column content intact.

Within the table, there is an 8 character and 4 character parameter that must be followed. Notice the table's 'INXX' nomenclature (the 2nd column from the left).

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE#, SOURCE4, INPUT NUMBER, ACTI
#          L1  L2  L3  L4  L5
#          -----
IN  0, IN 0,0  ,0  ,  ,  ,  ,
IN  1, IN 1,1  ,1  ,  ,  ,  ,
IN  2, IN 2,2  ,2  ,  ,  ,  ,
IN  3, IN 3,3  ,3  ,  ,  ,  ,
IN  4, IN 4,4  ,4  ,  ,  ,  ,
IN  5, IN 5,5  ,5  ,  ,  ,  ,
IN  6, IN 6,6  ,6  ,  ,  ,  ,
TN  7, TN 7,7  ,7  ,  ,  ,  ,
```

Defining Sources and Attributes

This is the 4 character parameter and is not commonly used. In most cases this should remain in the table, as it literally is the name of the source you want to use for each of the system's given inputs. The 8 character parameter (the first column from the left) can contain anything the user would like. In most cases, users make the 4 character name a shortened version of the 8 character name.



The LEVEL column contains same the number found in the SC-4's config file's Index value, inside the Source table.

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE8, SOURCE4, INPUT NUMBER, ACTIVE LEVEL
#
#          L1  L2  L3  L4  L5  L6
#
IN  0, IN 0, 0, 0, , , , , ,
IN  1, IN 1, 1, 1, , , , , ,
IN  2, IN 2, 2, 2, , , , , ,
IN  3, IN 3, 3, 3, , , , , ,
IN  4, IN 4, 4, 4, , , , , ,
IN  5, IN 5, 5, 5, , , , , ,
IN  6, IN 6, 6, 6, , , , , ,
IN  7, IN 7, 7, 7, , , , , ,
IN  8, IN 8, 8, 8, , , , , ,
IN  9, IN 9, 9, 9, , , , , ,
IN 10, IN10, 10, 10, , , , , ,
IN 11, IN11, 11, 11, , , , , ,
TN 12 TN12 12 12
```

Source Device Table
[PHYS_SRC_TABLE]

```
#
# INDEX  NAME      SHORT  GRP8  GRP4  ALM  L1  L2  L3  L4  L5  L6  L7
0, "VTR "01", " 0, 0, 0 0, | , - -11 -1, 0
1, "VTR "02", "S001"0, 0, 0, OFF, 1, 1, 1, , -1, -1, .
2, "VTR "03", "S002", 0, 0, OFF, 2, 2, 2, 1, , -1, -1, .
3, "SAT 001", "S003", 0, 0, OFF, 3, 3, 3, , -1, -1, .
4, "SAT 002", "S004", 0, 0, OFF, 4, 4, 4, , -1, -1, .
5, "SRC 005", "S005", 0, 0, OFF, 5, 5, 5, , -1, -1, .
6, "SRC 006", "S006", 0, 0, OFF, 6, 6, 6, , -1, -1, .
7, "SRC 007", "S007", 0, 0, OFF, 7, 7, 7, , -1, -1, .
8, "SRC 008", "S008", 0, 0, OFF, 8, 8, 8, , -1, -1, .
9, "SRC 009", "S009", 0, 0, OFF, 9, 9, 9, , -1, -1, .
```

A Real World Example

The table we've been looking at and working on (Router Source Definition Start) contains a number of sources, named within the 1st (8 character) column.

The SC-4's config file (minimized at the start of this exercise) contains the same naming values that were just defined. (The Source Device table contains the physical sources.)

Note the "L", Level columns. The level column that we'll be working with is the 4th one over – L4. The Level 4 content corresponds to the Level 4 entries that need to be placed for the index numbers. The numbers we see in this table's Index column are the index numbers that go in to the table on the other config file – the master control 400's config file.

```
# Source Device Table
[PHYS_SRC_TABLE]

#
# INDEX      NAME          SHORT    GRP8    GR
0, "VTR 001", " 0,    0, 0
1, "VTR 002", "S001", 0,
2, "VTR 003", "S002", 0,
3, "SAT 001", "S003", 0,
4, "SAT 002", "S004", 0,
5, "SRC 005", "S005", 0,
6, "SRC 006", "S006", 0,
7, "SRC 007", "S007", 0,
8, "SRC 008", "S008", 0,
9, "SRC 009", "S009", 0,
10, "SRC 010", "S010", 0,
11, "SRC 011", "S011", 0,
12, "SRC 012", "S012", 0,
13, "SRC 013", "S013", 0,
```

The Level 4 column could contain spurious numbers, but it's the number (value) in the Index column that needs to be consistent in both config files. The master control will route the needed index number while the SC-4 looks the number up in this table. The SC-4 will read the information on each row within this table, then route the detail to the individual level table up above – the Level Table's, Level Index Column. The system then reads the information from the 'Router' column, then [switches it] on its own individual router – the 'Router Table' – farther up within the same config file.



The detail going into the 'Source Device Table's' Index and Name columns is not automatic – the operator may need to supply this – However, the system will automatically supply the remaining detail, such as the crosspoint information within the Level column. This was the number (referred to above) that could be spurious. So as long as the Index number is entered correctly, everything else should be managed.

To delete sources, simply highlight the unwanted ones in the list, and press the DELETE key.

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE8, SOURCE4, INPUT NUMBER, ACTIVE LEVELS
#          L1  L2  L3  L4  L5  L6  L7  L8  L9  L10 L11 L12 L13 L14 L15 L16
#-----
VTR  1,IN 0,0  ,0  , , , , , , , , , , , , , ,
VTR  2,IN 1,1  ,1  , , , , , , , , , , , , , ,
VTR  3,IN 2,2  ,2  , , , , , , , , , , , , , ,
SAT  1,IN 3,3  ,3  , , , , , , , , , , , , , ,
SAT  2,IN 4,4  ,4  , , , , , , , , , , , , , ,
IN   5,IN 5,5  ,5  , , , , , , , , , , , , , ,
IN   6,IN 6,6  ,6  , , , , , , , , , , , , , ,
IN   7,IN 7,7  ,7  , , , , , , , , , , , , , ,
IN   8,IN 8,8  ,8  , , , , , , , , , , , , , ,
IN   9,IN 9,9  ,9  , , , , , , , , , , , , , ,
IN  10,IN10,10 ,10 , , , , , , , , , , , , , ,
IN  11,IN11,11 ,11 , , , , , , , , , , , , , ,
IN  12,IN12,12 ,12 , , , , , , , , , , , , , ,
IN  13,IN13,13 ,13 , , , , , , , , , , , , , ,
IN  14,IN14,14 ,14 , , , , , , , , , , , , , ,
IN  15,IN15,15 ,15 , , , , , , , , , , , , , ,
IN  16,IN16,16 ,16 , , , , , , , , , , , , , ,
IN  17,IN17,17 ,17 , , , , , , , , , , , , , ,
IN  18,IN18,18 ,18 , , , , , , , , , , , , , ,
IN  19,IN19,19 ,19 , , , , , , , , , , , , , ,
IN  20,IN20,20 ,20 , , , , , , , , , , , , , ,
IN  21,IN21,21 ,21 , , , , , , , , , , , , , ,
IN  22,IN22,22 ,22 , , , , , , , , , , , , , ,
IN  23,IN23,23 ,23 , , , , , , , , , , , , , ,
IN  24,IN24,24 ,24 , , , , , , , , , , , , , ,
IN  25,IN25,25 ,25 , , , , , , , , , , , , , ,
IN  26,IN26,26 ,26 , , , , , , , , , , , , , ,
IN  27,IN27,27 ,27 , , , , , , , , , , , , , ,
IN  28,IN28,28 ,28 , , , , , , , , , , , , , ,
IN  29,IN29,29 ,29 , , , , , , , , , , , , , ,
IN  30,IN30,30 ,30 , , , , , , , , , , , , , ,
IN  31,IN31,31 ,31 , , , , , , , , , , , , , ,
HD108_1,IN 0,0 ,0  , , , , , , , , , , , , , ,
```

The Router Source Definition Start (Input Table) will contain a complete series of video formats; such as the HD 1080, and several others, each with 8 entries.

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE8, SOURCE4, INPUT NUMBER,
#          L1  L2  L3  L4
#-----
VTR  1,IN 0,0  ,0  , , , ,
VTR  2,IN 1,1  ,1  , , , ,
VTR  3,IN 2,2  ,2  , , , ,
SAT  1,IN 3,3  ,3  , , , ,
SAT  2,IN 4,4  ,4  , , , ,
HD108_1,IN 0,0 ,0  , , , ,
HD108_2,IN 1,1  ,1  , , , ,
HD108_3,IN 2,2  ,2  , , , ,
HD108_4,IN 3,3  ,3  , , , ,
HD108_5,IN 4,4  ,4  , , , ,
```

One element must always exist; a reference video source that comes into the routers that is the same format of video that you are using for this master control.

For example, if you're using a 1080i HD, you would need a constant 1080iHD video source, such as black or color bars. You would need to avoid anything that is likely to drop the video. This must be the same video format you're using for the master control. With that said, you're going to need an entry in this table for the video reference, such as black.

```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE#, SOURCE#, INPUT NUMBER, ACTIVE LEV
#           L1  L2  L3  L4  L5  L6
# -----
VTR   1, IN 0,0 ,0 , , , , ,
VTR   2, IN 1,1 ,1 , , , , ,
VTR   3, IN 2,2 ,2 , , , , ,
SAT   1, IN 3,3 ,3 , , , , ,
SAT   2, IN 4,4 ,4 , , , , ,
BLACK_1, IN 0,0 ,0 , , , , ,
HD108_2, IN 1,1 ,1 , , , , ,
HD108_3, IN 2,2 ,2 , , , , ,
HD108_4, IN 3,3 ,3 , , , , ,
HD108_5, IN 4,4 ,4 , , , , ,
HD108_6, IN 5,5 ,5 , , , , ,
-----
```

If you are using more than one format for reference, you will need to specify that farther down in the reference table.

It is very critical that the correct format be placed in the misc. table.

A Discussion of the Router Source Attribute Start

This table defines the inputs that your system is going to be using for the sources that are coming in.

```
[ROUTER_SOURCE_ATTRIBUTES_START]
#
# This section controls the audio attributes for router sources.
#
# The DEFAULT Source is used for all sources that do not have an entry in this table.
# This assumes that most sources in the system will have similar attributes and
# the exceptions are managed using this table
# DEFAULT Should always be the first entry in the table
#
# SOURCES
# | ,AUDIO SRC TYPE (AES, EMBEDDED)
# | | ,AUDIO MODE (MONO, STEREO, SAP, DOLBY DOLBY E)
# | | | ,AUDIO SOURCE LEVEL +/- db INCREMENTS
# | | | | (RANGE -48 -> +12, 0=UNITY)
# | | | | | , KEY LEVEL ENABLES (0-F) 4 UNARY ENABLES 1 FOR EACH KEYER
# | | | | | Normal is F
# | | | | | ,PHASE REVERSE ACTIVE (Y/N)
# | | | | | ,LEVEL PROCESSING ENABLES??? (HEX FOR 16 UNARY ENABLES)
# | | | | |
# 8 , 4 , 8 , 3 , 3 , 3 , 4
#-----
DEFAULT ,EMB ,STEREO ,000, F , N ,00FF
```

It also defines the modes that most, or all, the sources will be set up as.



The first line is designated for default. Shown as all caps, DEFAULT. This is the first line following all remarked-out lines.

The second line (EMB) means 'embedded'. If the majority of the inputs coming in are embedded, the default line will also be embedded. If the majority of sources are AES, then again, AES goes on that line. If however, an AES source is the exception, you would copy this line (from the table immediately above router source attribute start)

```

# -----
VTR 1, IN 0,0 ,0 , , , , ,
VTR 2, IN 1,1 ,1 , , , , ,
VTR 3, IN 2,2 ,2 , , , , ,
SAT 1, IN 3,3 ,3 , , , , ,
SAT 2, IN 4,4 ,4 , , , , ,
BLACK HD, HDBL, 5 ,5 , , , , ,

[ROUTER_SOURCE_ATTRIBUTES_START]
#
# This section controls the audio attributes for
#

```

and place it just below the 'default' line.

```

# DEFAULT Should always be the first entry in the table
#
# SOURCES
# | ,AUDIO SRC TYPE (AES, EMBEDDED)
# | | ,AUDIO MODE (MONO, STEREO, SAP, DOLBY DOLBY
# | | | ,AUDIO SOURCE LEVEL +/- db INCREMEN
# | | | | (RANGE -48 -> +12, 0=UNIT
# | | | | | , KEY LEVEL ENABLES (0-F) 4 UNJ
# | | | | | Normal is F
# | | | | | | ,PHASE REVERSE ACTIVE (Y/N)
# | | | | | | | ,LEVEL PROCESSING ENABI
# | | | | | | | |
# 8 , 4 , 8 , 3 , 3 , 3 , 4
#-----,-----,-----
DEFAULT ,EMB ,STEREO ,000, F , N ,00FF
VTR 2, IN 1,1

```

Remember to always keep all spaces and commas intact.

Note: In any section you're making changes to, the #-----,-----... line immediately above the section is designed to show you exactly how many spaces to step off; the number of digits, where the comma should be, etc. This spacing formula needs to be adhered to.

Defining Sources and Attributes

The next line (after AES or EMB) is the stereo mode; mono, stereo, SAP, Dolby, etc.

```
# DEFAULT Should always be the first entry in the table
#
# SOURCES
# | ,AUDIO SRC TYPE (AES, EMBEDDED)
# | | ,AUDIO MODE (MONO, STEREO, SAP, DOLBY DOLBY E)
# | | | ,AUDIO SOURCE LEVEL +/- db INCREMENTS
# | | | | (RANGE -48 -> +12, 0=UNITY)
# | | | | , KEY LEVEL ENABLES (0-F) 4 UNARY ENAB
# | | | | Normal is F
# | | | | ,PHASE REVERSE ACTIVE (Y/N)
# | | | | ,LEVEL PROCESSING ENABLES??? (1
# | | | |
# 8 , 4 , 8 , 3 , 3 , 3 , 4
#-----,-----,-----,-----,-----,-----,-----,-----
DEFAULT ,EMB ,STEREO ,000, F , N ,00FF
VTR 2,AES ,
```

The default shown happens to be the mode that most sources will come in as.

The Audio Source level comes in at 0db. The range can be changed if the levels need to be higher or lower. 000 is generally the default.

```
[ROUTER_SOURCE_ATTRIBUTES_START]
#
# This section controls the audio attributes for router sources.
#
# The DEFAULT Source is used for all sources that do not have an entry in this table.
# This assumes that most sources in the system will have similar attributes and
# the exceptions are managed using this table
# DEFAULT Should always be the first entry in the table
#
# SOURCES
# | ,AUDIO SRC TYPE (AES, EMBEDDED)
# | | ,AUDIO MODE (MONO, STEREO, SAP, DOLBY DOLBY E)
# | | | ,AUDIO SOURCE LEVEL +/- db INCREMENTS
# | | | | (RANGE -48 -> +12, 0=UNITY)
# | | | | , KEY LEVEL ENABLES (0-F) 4 UNARY ENABLES 1 FOR EACH KEYS
# | | | | Normal is F
# | | | | ,PHASE REVERSE ACTIVE (Y/N)
# | | | | ,LEVEL PROCESSING ENABLES??? (HEX FOR 16 UNARY ENABLES)
# | | | |
# 8 , 4 , 8 , 3 , 3 , 3 , 4
#-----,-----,-----,-----,-----,-----,-----,-----
DEFAULT ,EMB ,STEREO ,000, F , N ,00FF
VTR 2,AES ,
```

'F' corresponds to the key level enable, and should remain at F.

'N' is the phase reversal and defaults to No. Not operational at this time.

Level Processing – 00FF corresponds to 16 channel.

Also, if the AES sources happen to be SAP or mono, the coding would be placed immediately beneath this 'Default' line. In addition, other custom definitions can be placed at this location if needed.



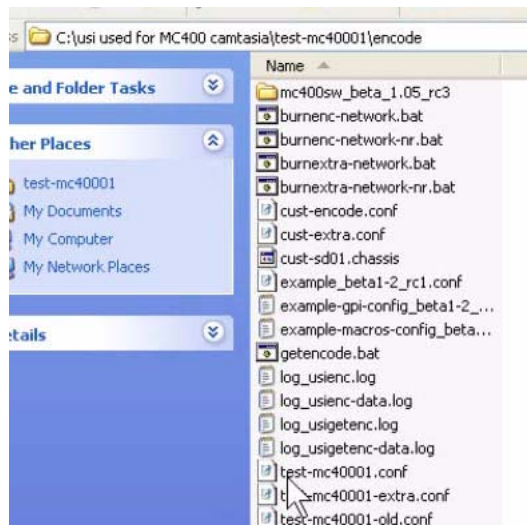
Section 6

Video Format Programming

Overview

This includes the procedure for Programming the Correct Video Format for the MC-400 along with the outputs that are used for the program and preset busses. Also included here will be an examination of the correct video reference that you would need for that format. Finally, we'll look at button programming for the MCP-2020, which will be dependent upon the type of control panel in use. This will include the button functionality, and the naming detail that will appear on the button when it is pressed.

First – re-open the current configuration file. USI folder, the 'test-mc40001.conf' directory, the encode folder, then the 'test-mc4001.conf file.



It should be noted that in this case, we're opening the test-mc4001.conf file because that is the name of the corresponding directory (above).

Now scroll down to the section called Misc.

Note – in almost all cases a system would utilize only 1 video format – this could be anything; PAL, NTSC, 720x, 1080x, etc.) but regardless of what it is, the "MC400 Line Standard (line) must contain the default line standard that the master control will utilize upon initial activation.

```
#
AUDIO_CHANNELS:          @00FF
AUDIO_DIM_ADJUST: @-15
VIDEO_MIX_POSITION:     @08
KEY_LEVEL_RESET_MASK:   @01
KEY_LEVEL_XFER_MASK:    @00
TRANS_SPEED_FAST: @30
TRANS_SPEED_MEDIUM:    @60
TRANS_SPEED_SLOW: @120
SYSLOG_SERVER_ID: @SYS_SYSLOG01
NAVK_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION:  @01
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD:   @HD-1080i
EAS_OPERATION_MODE:    @MANUAL
EAS_DISPLAY_TIME_MIN:  @120
EAS_FORWARD_TIMEOUT:   @600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED

[ROUTER_LOGICAL_TO_PHYSICAL_DEFINITIONS_START]
# LEVEL1, 2, 3, 4, 5, 6, 7, 8 INDEX IS LOGICAL, ENTRY IS PHYSICAL
#
# EX Place video and 3 levels of audio on levels 5-8
```

By the way, all possible formats are listed up above in the [remarked out] MC400 Line Standard sub-section (of this section).

We make sure the correct default format is listed because the MC-400 allows multiple formats for use. One format is needed to reset to, or default, in restart situations.

It should also be noted that on the MCP-2020 panel itself and its softpanel equivalent, you can make this video format designation with a simple button push.



Now scroll down (near the bottom) to the 'Debug Control Start' section.

```

#4 , 12 , 12 , 12 , 8
#-----

[DEBUG_CONTROL_START]
#
# This section is used to set the default logging level for
# various groups supported in the 2020 software.
#
# The possible groups are GENERAL, PANEL, ROUTER,
# TRANS, SYSLOG, MACHINE
#
# The value is a 32 bit hex value where each bit
# is associated with a logging flag in the group.
#
# Example
# GENERAL , 00060001
#

```

The section immediately following this section will contain is titled 'MC400 Video Format ...'. The indication following 'video format' is the current default. Immediately below this, note the listing of all other possible video formats that are supported by the system.

```

#-----
GENERAL ,00000010
PANEL ,00000000
TRANS ,00000000
ROUTER ,00000600
MACHINE ,00000000
SYSLOG ,00000000

[MC400_VIDEO_FORMAT_HD1080I]
#
# Possible video standards are
# [MC400_VIDEO_FORMAT_HD1080I_50]
# [MC400_VIDEO_FORMAT_HD720P]
# [MC400_VIDEO_FORMAT_HD720P_50]
# [MC400_VIDEO_FORMAT_SD525]
# [MC400_VIDEO_FORMAT_SD625]
#-----
(REF_SIGNAL)
# SOURCE0, SOURCE4, ...

```

Every format listed in this sub-part will contain its own individual sub-section, and each of these will contain its own parameter listing that must be correctly configured. This discussion will soon follow.

As mentioned above, the video format designated as default must be placed in the noted line – the 'MC Line Standard' line within the miscellaneous section. There are some additional requirements that must be followed within a given system:

As previously mentioned, the 'Router Source Definitions Start' table must contain SD sources. These SD sources and their corresponding buttons must contain the same name. This table must also contain a source for the SD 525 video reference.

The current master control's format must contain a corresponding referenced source in the 'Router Source Definitions Start' table. You'll notice a default name set for various formats when scrolling down the table. The column content along the table's left side is the 8-character naming detail. Source naming here must exactly match the source name within the reference table. You can delete all other default source entries from the table if they are not to be used. This is not required, but can be done to simplify the table's content if desired. Again, the Router Source Definitions Start table must contain references to all video formats for systems using more than one. The name itself is not important, but it must fit the 8-character slot and be consistent throughout the configuration file. The 4-character name (next column to the right) is not vital, and is typically a shortened version of the 8-character name. The detail contained within the next column (to the right) is derived from the SC-4's input list (the index number).

Designating the Correct Video Format Within the Config Table

To accomplish this, copy the 8-character filename, then scroll down to near the bottom of the table and locate the 'MC400 Video Format' section. Find the 'Ref Signal' line (approximately 9 lines from the top), then locate the current name two lines below. This name must match the name (just copied) from the table above. Highlight the first 8 characters in the column and paste the copied content over.

```
TRANS_SPEED_FAST: @30
TRANS_SPEED_MEDIUM: @60
TRANS_SPEED_SLOW: @120
SYSLOG_SERVER_ID: @USI_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION: @01
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: @SD_525|
EAS_OPERATION_MODE: @MANUAL
EAS_DISPLAY_TIME_MIN: @120
EAS_FORWARD_TIMEOUT: @600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
```

This will indicate to the system that the same reference value is to be used throughout.

Note: When multiple video formats are in use, the last line of the 'Router Logical to Physical Definitions Start' table will contain the formats within its Level columns. For example, the Level 1 column may contain the 525 format, while Level 2 would contain the 1080i format.

Then go to the 'Panel Button Definitions Start' section and verify that no detail resides within the two Sources columns (left-hand side) if multiple video formats are to be used.

```

# CHANNEL OF THE MUSEUM
#
# RWT 8-14-2001
#
# SOURCES,
#   ,SOURCE4
#   ,   ,BUTTON LOCATION (0-29)
#   ,   ,FIXED ASSIGNMENT (Y/N)
#-----,-----,--
#   ,   ,00,N
#   ,   ,01,N
#   ,   ,02,N
#   ,   ,03,N
#   ,   ,04,N
#   ,   ,05,N
#   ,   ,06,N

```

You can place the 8 and 4-character source detail for the buttons inside these columns when only one video format is to be used.

The 'Fixed Assignment' column allows a yes (Y) or no (N) command.

```

[PANEL_BUTTON_DEFINITIONS_START]
#
# The following define the initial button source and location used if the
# Control performs a HARD RESET. 30 buttons are allowed because we must
# the CP-502 as well as the mini MC500 which uses the same control logic
# but physically removes the middle 20 buttons.
#
# Typically buttons 0 through 15 should be on the only entries in this table
# through 29 are unused
#
# RWT 8-14-2001
#
# SOURCES,
#   ,SOURCE4
#   ,   ,BUTTON LOCATION (0-29)
#   ,   ,FIXED ASSIGNMENT (Y/N)
#-----,-----,--
#   ,   ,00,N
#   ,   ,01,N
#   ,   ,02,N
#   ,   ,03,N
#   ,   ,04,N
#   ,   ,05,N
#   ,   ,06,N
#   ,   ,07,N
#   ,   ,08,N

```



If you need the option of re-assigning sources from the Source table to any given buttons, this column would contain an 'N'. This means the control is not fixed. In instances where you would need to select more sources than the panel (soft or fixed) contains, the LCD provides the option of assigning any of the other sources to a particular button. In this case, the 'N' should remain in the fixed assignment column. Placing a 'Y' in any of the rows will cause that line's content to be accessed as the default. 'N' is the default when multiple video formats are in use.

Return to the Video Format Section near the bottom of the file:

The current video format is placed on the first non-remarked line. You should also make sure the correct index number is placed in the row's first Level column.



Refer once again to the MC-400 card's detailed view. (Figure 1-5 in the MC-40/400 System Setup and Operations Guide.

```

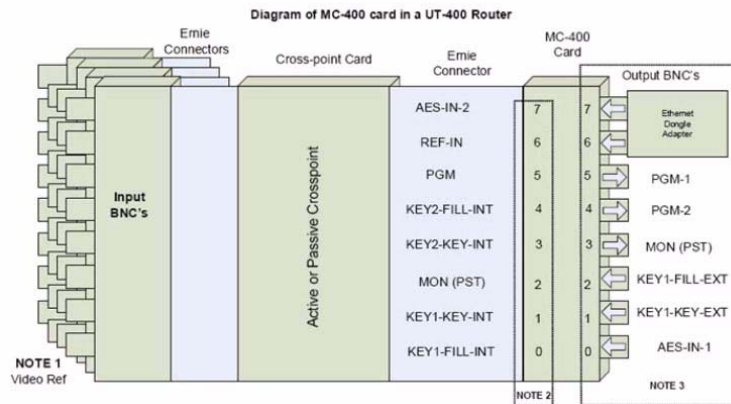
# SOURCE8, SOURCE4, ...
BLCK S25,REF4,0 ,0 , , , , , ,

(LOG_TO_PHY)
# L1 L2 ...
0000,0000,0002,0003,0004,0005,0006,0007,-001,-001,-0

(OUTPUTS)
#8 CHAR ,4 CHAR,VID ,AUD
PROGRAM ,PGM ,0005,0005, / / / / /
PRESET ,PST ,0002,0002, / / / / /
PREVIEW ,PVW , / / / / /
KEY_FIL1,KF1 , / / / / /
KEY_FIL2,KF2 , / / / / /
KEY_FIL3,KF3 , / / / / /
-----

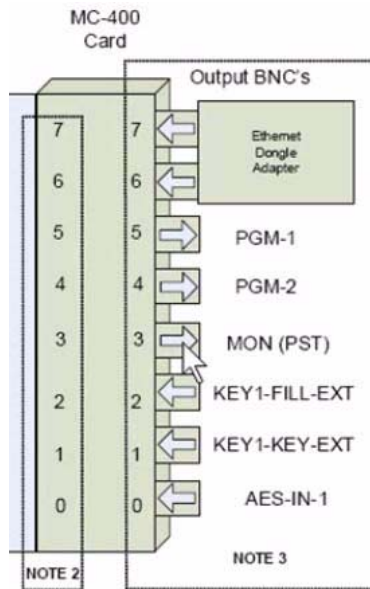
```

The BNCs you see along the right side of the illustration correspond to the router's physical BNCs. Note the dual BNC for Program Out, PGM-1 and PGM-2. There is one preset output, labeled MON-PST.



Our upcoming objective will be programming the above three outputs – PGM-1, PGM-2, and MON-PST – for use with the Emie Connector (illustrated).

The values you see to the immediate right of the Ernie connector (0 – 7) are the actual outputs to be programmed and used on the MC-400 card, and not the physical BNCs.



Apply the value that corresponds to the card's placement in your system to the index number from the SC-4 config file. This index number is associated with the MC-400 card. For example, if the MC-400 card corresponds to outputs 0 – 7 (as shown in the illustration), output 0 to 7 is the actual card slot. This is the first slot. The second slot would contain outputs 8 – 15, the third would contain 16 to 23, and so on. The card designations (shown in the illustration's Ernie connector column) would remain the same as the output numbers shift upward.

Brief Re-cap

The reason you have an output that must be programmed to the Reference, is because there is a specific source that must be used for that particular MC-400 video card's use. In the case of multiple formats there are multiple inputs. The current video format contains a

Button Assignments

```
(LOG_TO_PHY)
# L1 L2 ...
0000,0000,0002,0003,0004,0005,0006,0007,-001,-001,-001,-001

(OUTPUTS)
#8 CHAR ,4 CHAR,VID ,AUD
PROGRAM ,PGM ,0013,0013, , , , , , , , , ,
PRESET ,PST ,0010,0002, , , , , , , , , ,
PREVIEW ,PVW , , , , , , , , , ,
KEY_FIL1,KF1 , , , , , , , , , ,
KEY_FIL2,KF2 , , , , , , , , , ,
KEY_FIL3,KF3 , , , , , , , , , ,
KEY_FIL4,KF4 , , , , , , , , , ,
KEY_SIG1,KS1 , , , , , , , , , ,
KEY_SIG2,KS2 , , , , , , , , , ,
KEY_SIG3,KS3 , , , , , , , , , ,
KEY_SIG4,KS4 , , , , , , , , , ,
AUX_0001, ,0014, , , , , , , , , ,
AUX_0002, , , , , , , , , , ,
```

Overview

Note the 8 and 4 character naming designations for all eight (MC-40 panel) buttons, or sixteen button assignments for an MC-2020 panel.

```
(BUTTON_ASSIGNMENTS)
#8 CHAR ,4 CHAR,# ,FIXED
SD525_1,FS 1,00,N
SD525_2,FS 2,01,N
SD525_3,FS 3,02,N
SD525_4,FS 4,03,N
SD525_5,VT01,04,N
SD525_6,VT02,05,N
SD525_7,VT03,06,N
SD525_8,VT04,07,N
, ,08,N
, ,09,N
```



This naming is derived from the Source table (Router Source Definition Start).

```
(BUTTON_ASSIGNMENTS)
#8 CHAR , 4 CHAR, # , FIXED
SD525 1, FS 1, 00, N
SD525 2, FS 2, 01, N
SD525 3, FS 3, 02, N
SD525 4, FS 4, 03, N
SD525 5, VT01, 04, N
SD525 6, VT02, 05, N
SD525 7, VT03, 06, N
SD525 8, VT04, 07, N
, , 08, N
, , 09, N
```

The Button Assignment table information must be identical to the corresponding detail in the Source table, depending on the number of, and specific buttons actually needed. Any remaining detail in the Button Assignment table that does not match its corresponding line detail (from the Source table) will be ignored during system operation.

Keep in mind that spacing and comma placement must always match from one table to another.

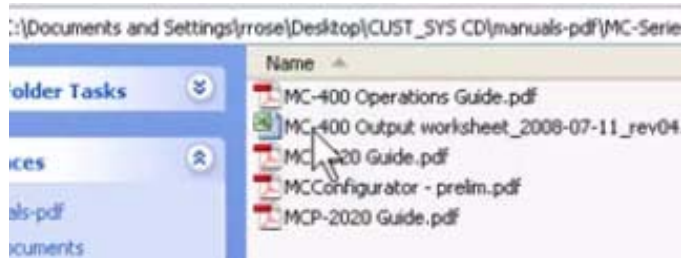
```
[ROUTER_SOURCE_DEFINITIONS_START]
# SOURCE8, SOURCE4, INPUT NUMBER, ACTIVE LEVELS
#          L1   L2   L3   L4   L5   L6   L7   L8
#          -----
IN 0, IN 0, 0, 0, /, /, /, /, /, /, /, /
IN 1, IN 1, 1, 1, /, /, /, /, /, /, /, /
IN 2, IN 2, 2, 2, /, /, /, /, /, /, /, /
IN 3, IN 3, 3, 3, /, /, /, /, /, /, /, /
IN 4, IN 4, 4, 4, /, /, /, /, /, /, /, /
IN 5, IN 5, 5, 5, /, /, /, /, /, /, /, /
IN 6, IN 6, 6, 6, /, /, /, /, /, /, /, /
```

Once again, make sure the master control and been programmed in to the SC-4's output table.

The outputs for Program and Preset are the index values for the actual slot the board is plugged into.

Additional

The 'Manuals' CD contains a file called the 'MC 400 Output Worksheet'.



This layout is broken down into four separate MC-400 systems.

| | A | B | C | D | E | F | G | H |
|----|---|--------------------------|-----------------|--------------|-------------------|-----------------|--------------|-------------------|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | rev 4 7/11/2008 | MC-400 System 1 | | | MC-400 System 2 | | |
| 4 | | Legend | MC40001 | | | | | |
| 5 | | Filled in by customer | Physical Router | Physical BNC | UCON | Physical Router | Physical BNC | UCON |
| 6 | | | Output | | Router Output | Output | | Router Output |
| 7 | | | Information | | Index Information | Information | | Index Information |
| 8 | | Starting Output | | | | | | |
| 9 | | | 0 | | | 24 | | |
| 10 | | PGM Output (1) | | | | | | |
| 11 | | | 5 | 5 | | 29 | 29 | |
| 12 | | PST Output | | | | | | |
| 13 | | | 2 | 3 | | 26 | 27 | |
| 14 | | EXT RTR FILL Output | | | | 24 | | |
| 15 | | EXT RTR KEY Output | | | | 25 | | |
| 16 | | INT RTR FILL Output | | | | 28 | | |
| 17 | | INT RTR KEY Output | | | | 27 | | |
| 18 | | INT AES Output (AES RTR) | | | | 31 | | |
| 19 | | EXT BNC FILL | | 2 | | | 26 | |
| 20 | | EXT BNC KEY | | 1 | | | 25 | |
| 21 | | PGM Output (2) BNC | | 4 | | | 28 | |
| 22 | | EXT AES INPUT (AES BNC) | | 0 | | | 24 | |
| 23 | | REF OUTPUT | | 6 | | | 30 | |
| 24 | | | MC-400 System 3 | | | MC-400 System 4 | | |
| 25 | | | | | | | | |
| 26 | | | Physical Router | Physical BNC | UCON | Physical Router | Physical BNC | UCON |
| 27 | | | Output | | Router Output | Output | | Router Output |
| 28 | | | Information | | Index Information | Information | | Index Information |
| 29 | | Starting Output | | | | | | |
| 30 | | | | | | | | |
| 31 | | PGM Output (1) | | 5 | | 5 | 5 | |
| 32 | | PST Output | | 2 | | 3 | 3 | |
| 33 | | | | | | | | |
| 34 | | | | | | | | |

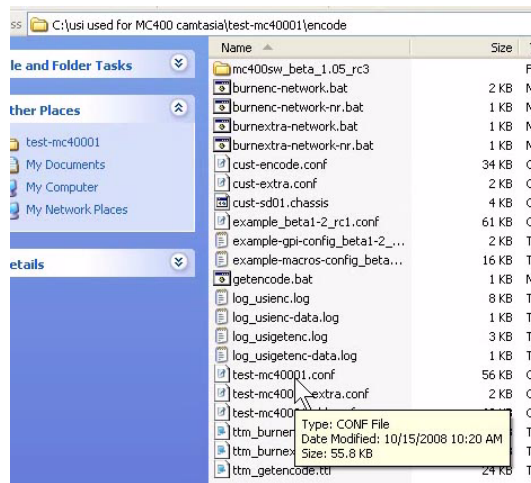
The above will assist in determining correct values. When you place the physical output value (number) into the 'Starting Output' cell, all subsequent cells beneath will populate with the correct configuration detail. This spreadsheet does not provide the Index Information however. These values must be entered manually.

Section 7

Serial Port Setup and Automation

Overview

If you plan to use the master control with an automation program you will need to set up the configuration table within the MC-400's own configuration file. To start this process, navigate to the USI folder, and then access the needed master control channel into which the master control tables need to be placed. Next go to the encode folder, and open the configuration file that named after the folder you are working within.





The most common, and most recent driver for use is called 'TAS Auto Extend', which should be located at the bottom of the listing block.

```

USI_UNET , , , , , , , ,

[CONTROL_PANEL_TYPE_DEFINITIONS_START]
#
# Here we can designate which panels can access this Master Control
#
#MMCP_PANEL ,PORT_01 ,19200 ,8 ,NONE ,1 ,DISABLE ,DIS
#GPW_PANEL ,PORT_02 ,19200 ,8 ,NONE ,1 ,DISABLE ,DIS
#GPW_AUTO_PANEL ,PORT_03 ,38400 ,8 ,ODD ,1 ,DISABLE ,DIS
#TAS_AUTO_PANEL ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#TAS_AUTO_REV2 ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#TAS_AUTO_EXTEND ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#NO_PANEL , , , , , , , ,
#
# PANEL TYPE (MMCP_PANEL, GPW_PANEL, GPW_AUTO_PANEL, TAS_AUTO_PANEL)
# | PORT NUMBER (PORT_01 -> PORT_04)
# | BAUD RATE (4800, 9600, 19200, 38400)
# | Chars (7, 8)
# | PARITY (NONE, ODD, EVEN)
# | STOP (1,2)

```

Most automation companies have written their drivers to this protocol. This 'extended' version provides capability for nearly all buttons on a given master control; including internal and external keys, logos, different types of audio, and all program and preset buttons. Other automation protocols may use 'TAS Auto Panel' or 'TAS Rev 2'. The 'GPW' protocols are older and very customer specific.

```

USI_UNET , , , , , , , ,

[CONTROL_PANEL_TYPE_DEFINITIONS_START]
#
# Here we can designate which panels can access this Master Control
#
#MMCP_PANEL ,PORT_01 ,19200 ,8 ,NONE ,1 ,DISABLE ,DIS
#GPW_PANEL ,PORT_02 ,19200 ,8 ,NONE ,1 ,DISABLE ,DIS
#GPW_AUTO_PANEL ,PORT_03 ,38400 ,8 ,ODD ,1 ,DISABLE ,DIS
#TAS_AUTO_PANEL ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#TAS_AUTO_REV2 ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#TAS_AUTO_EXTEND ,PORT_04 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#NO_PANEL , , , , , , , ,
#
# PANEL TYPE (MMCP_PANEL, GPW_PANEL, GPW_AUTO_PANEL, TAS_AUTO_PANEL)
# | PORT NUMBER (PORT_01 -> PORT_04)
# | BAUD RATE (4800, 9600, 19200, 38400)

```

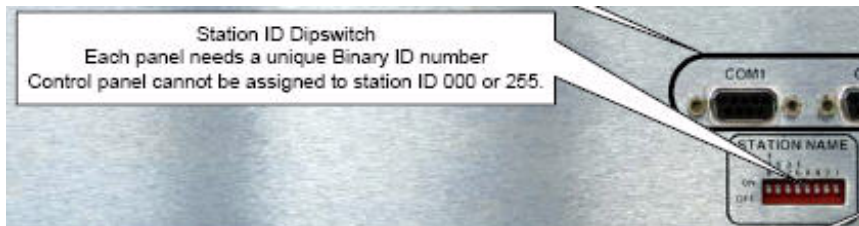
In most cases the 'TAS Auto Extend' is used.

Section 8

Tallies and GPI's

Overview

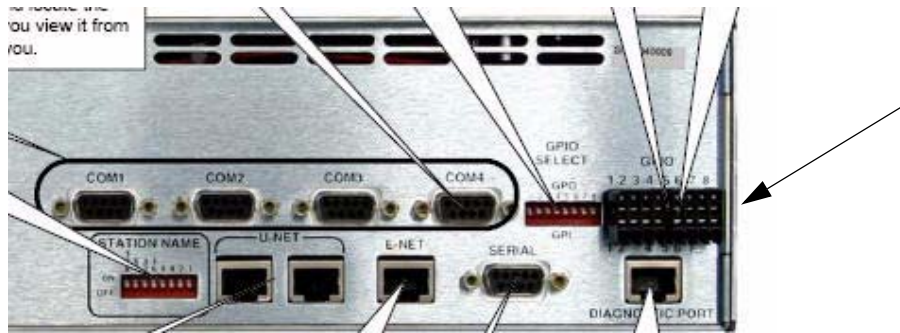
The MC-400 can contain up to 8 GPIs or GPOs. The dip switch on the back of the MCP-400 control panel is labeled GPIO Select, and contains 8 switches.



Tallies and GPI's

Dip switches moved to the down position become GPIs, also known as an opto on the circuit board. Dip switches moved to the up position become GPOs; an output, or simple tally going out.

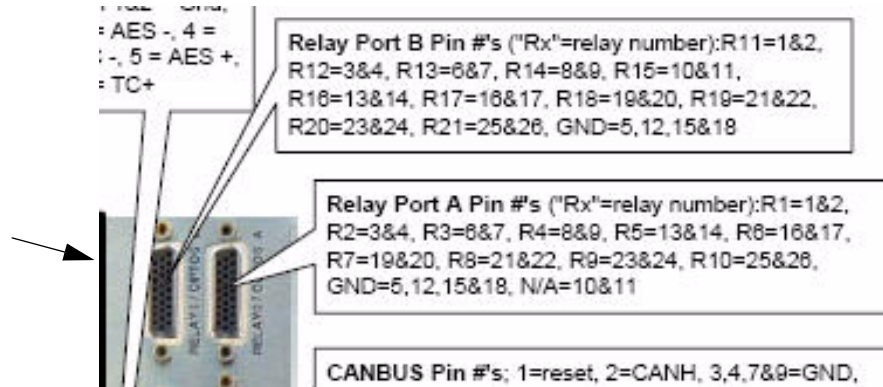
For GPI use, you must have a 5 to 12 volt power source that crosses the incoming relay, the connector to the right of the dip switches.



One of the power source's wires would attach to the relay matrix, while the other [side] of the power source attaches to the sending device – the device sending the pulse or latch to the GPI. The 5+ volt power source effectively energizes this opto. In the case of a GPO, both wires simply attach the chosen relay to the device that is receiving the pulse or latch.



If you are operating a relay or an opto with an MC-2020, there are two connectors on the back of the chassis for use.



Port A contains 11 relays, while port B contains the remaining relays (up to 21). These ports are shown in the upper right corner of the illustration.

Port A manages the first 11, which are all relays. The first 5 on port B make up the remaining relays, while the last 5 are the optos. As with the MC-400, a 5 volt power source is required during GPI usage along with a 1k resistor – important, as this is not build into the MC-2020.

Now access the MC-400 configuration file.

This is located in the Encode folder, located in the USI directory. Now locate the 'Device Tally Definitions Start' section.

```

#-----,-----,-----,-----,-----,-----,-----,-----
#SQZMAX 1,PORT_02 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#HYPERX 1,PORT_02 ,38400 ,8 ,NONE ,1 ,DISABLE ,DIS
#EAS_STD ,PORT_02 ,9600 ,8 ,NONE ,1 ,DISABLE ,DIS

```

```

[DEVICE TALLY DEFINITONS START]
#
# Name , PGM , PGH , PST , PST , CONTROL
# 8 , NUMBER , TYPE , NUMBER , TYPE , PORT
#-----,-----,-----,-----,-----,-----
#IN 0,1 ,LATCH , , ,
#IN 1,2 ,LATCH , , ,
#IN 2,3 ,LATCH , , ,
BLCK 525,1 ,PULSE , , ,

```

```

[MISC_RELAY_DEFINITONS_START]
..

```




Pulse or Latch (in the PGM Type column) is dependent on the device to which the relay is being sent.

```
[DEVICE_TALLY_DEFINITONS_START]
#
# Name , PGM , PGM , PST , PST ,CONTROL
# 8 , NUMBER , TYPE , NUMBER , TYPE , PORT
#-----,-----,-----,-----,-----,-----
#IN 0,1 ,LATCH , , ,
#IN 1,2 ,LATCH , , ,
#IN 2,3 ,LATCH , , ,
BLCK 525,1 ,PULSE ,1 , ,

[MISC_RELAY_DEFINITONS_START]
#
# This table is used to map relays in the MC2020 chassis to misc
# relay functions in the MC2020 control architecture.
#
# The 2020 control system supports 32 misc relay functions. This table
# maps individual relays into 1 or more of the 32 misc relay functions.
```

Latch behaves similar to a button hold, while Pulse activates the on action for a fraction of a second only.

Misc Relay Definitions Start Section

Using a miscellaneous relay allows you to go into the master control panel and program a specific button as a miscellaneous relay.

```
[MISC_RELAY_DEFINITONS_START]
#
# This table is used to map relays in the MC2020 chassis to misc
# relay functions in the MC2020 control architecture.
#
# The 2020 control system supports 32 misc relay functions. This table
# maps individual relays into 1 or more of the 32 misc relay functions.
# The position in the table denotes the misc function the relay is assigned to
#
# Uses the same format as DEVICE_TALLY_DEFINITIONS_START
# - PST Data is not used at this time
# - NAME 8 Is not used at this time. Perhaps it could be used
# as a description in the configurator and MCP LCD displays
#
# Name , PGM , PGM , PST , PST ,CONTROL
# 8 , NUMBER , TYPE , NUMBER , TYPE , PORT
#-----,-----,-----,-----,-----,-----
#LATCH 1,19 ,LATCH , , ,
#-----,-----,-----,-----,-----,-----
```

The last line in this section commands this action; remove the pound (#) sign, then give the button a name that corresponds to its unique usage.

The 8-character name does not need to match anything else (in any other table).

```
# as a description in the configurator and MCP LCD displays
#
# Name , PGM , PGM , PST , PST , CONTROL
# 8 , NUMBER , TYPE , NUMBER , TYPE , PORT
#-----,-----,-----,-----,-----,-----
BUTTON 1,2 , LATCH , , , ,
[MONITOR_TEXT_DEFINITIONS_START]
#
# This section is used to define the fields of the text display
# viewable on the monitor output of the MC2020
```

There are a total of 8 tallies (or GPOs) available for use. Once this is done, you'll need to open the MCP-400 panel configuration file and select the button on which this function is to be placed. This involves the same process; accessing the 'Misc Relay Definitions Start' section within the MCP-400 configuration file and making the same button assignment.

Next, locate the 'GPI Definitions Start' section (below).

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , ,
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----,-----,-----,-----,-----
#7 , PANEL_MISC , MACRO , 2 , LATCH
#8 , PANEL_MISC , MACRO , 5 , PULSE

[DEBUG_CONTROL_START]
#
# This section is used to set the active debug level for
# various groups supported in the 2020 software.
#
# The possible groups are GENERAL, PANEL, ROUTER,
# TRANS, SYSLOG, MACHINE
"
```

Again, the MC-400's dip switch must be moved to the GPI position, energizing the opto, and allowing the acceptance of an input rather than an output.



As with the last two sections, remove the pound (#) sign from the bottom line.

```

# , , , , , , , STATE
# , , , , , , , TEXT8
#4 , 4 , 12 , 12 , 12 , 4 , 8
#-----
1 ,DESC,EAS Audio Control Macro
1 ,ON ,AUDIO_ONLY ,PGH_INPUT ,3 ,ON ,
1 ,OFF ,AUDIO_ONLY ,PGH_INPUT ,1 ,ON ,
1 , ,CONTROL ,DONE , ,
2 ,DESC,SAGE GPI Control Macro (PTT PROGRAM)
2 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
2 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
2 , ,CONTROL ,DONE , ,
5 ,DESC,SAGE GPI Control Macro (READY PROGRAM)
5 ,ON ,GRAPHICS ,ALERT_NOTIFY , ,ON ,
5 , ,CONTROL ,DONE , ,

[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , ,FCN
# , , ,VALUE
# , , , ,TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----
#7 ,PANEL_MISC ,MACRO , 2 ,LATCH
#8 ,PANEL_MISC ,MACRO , 5 ,PULSE

[DEBUG_CONTROL_START]
#
# This section is used to set the active debug level for
# various groups supported in the 2020 software.
#
# The possible groups are GENERAL, PANEL, ROUTER,
# TRANS, SYSLOG, MACHINE
#
# The value is a 32 bit hex value where each bit
# is associated with a debug flag in the group.

```

In this example you can leave the actual line number in place (8, in our example), then provide any name you'd like in the next, 12-character column.

```

[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , ,FCN
# , , ,VALUE
# , , , ,TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----
#7 ,PANEL_MISC ,MACRO , 2 ,LATCH
8 ,PANEL_MISC ,MACRO , 5 ,PULSE

[DEBUG_CONTROL_START]
#
# This section is used to set the active debug level for
# various groups supported in the 2020 software.
#
#-----

```

Tallies and GPI's

This name would typically correspond to this particular button's action. Keep in mind that there are only three types of GPI's applicable to this function; a take, preroll, or macro. In our example the existing type is a macro, and the associated value number (in the next column) is derived from the 'Macro Definitions Start' table (above).

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----#
#7 , PANEL_MISC , MACRO , 2 , LATCH
8 , PANEL_MISC , MACRO , 5 , PULSE
```

This number is associated with the macro types you see farther down in the table – the numbers and their commands that follow the remarked-out lines.

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----#
#7 , PANEL_MISC , MACRO , 2 , LATCH
8 , PANEL_MISC , MACRO , 1 , PULSE
```



The Macro is the GPI's most common use, and in our example it is activating a command associated with the Sage™ EAS Alert system. In this case, running a text crawl through the Program bus.

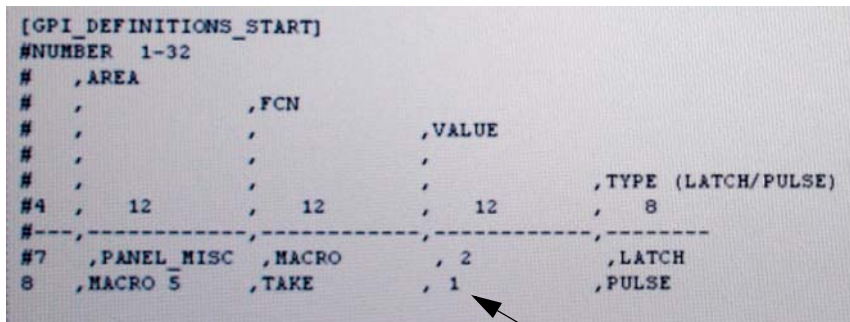
```
#4 , 4 , 12 , 12 , 12 , 4 , 8
#-----
1 ,DESC,EAS Audio Control Macro
1 ,ON ,AUDIO_ONLY ,PGM_INPUT ,3 ,ON ,
1 ,OFF ,AUDIO_ONLY ,PGM_INPUT ,1 ,ON ,
1 , ,CONTROL ,DONE , ,
2 ,DESC,SAGE GPI Control Macro (PTT PROGRAM)
2 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
2 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
2 , ,CONTROL ,DONE , ,
5 ,DESC,SAGE GPI Control Macro (READY PROGRAM)
5 ,ON ,GRAPHICS ,ALERT_NOTIFY, ,ON ,
5 , ,CONTROL ,DONE , ,

[GPI_DEFINITIONS_START]
#NUMBER 1-32
# ,AREA
# , ,FCN
```

Tallies and GPI's

The other two GPI options are take and preroll. In this case, 'TAKE' or 'PREROLL' is typed (all caps) in the third column, followed by a '1' in the fourth, or Value column.

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
-----
#7 , PANEL_MISC , MACRO , 2 , LATCH
8 , MACRO 5 , TAKE , 1 , PULSE
```



In this case the Type (last column) is usually Pulse.

This concludes the setup for the GPI and Tally section for the MC-400.



Section 9

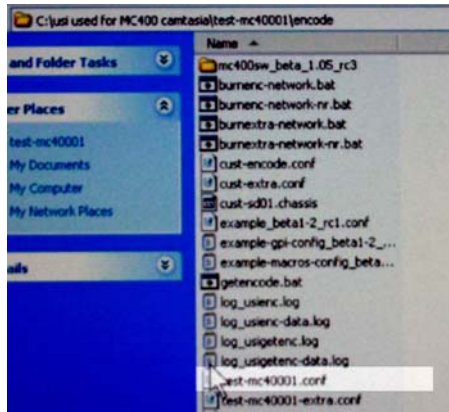
EAS Setup

Overview

There are certain parameters that must be set for EAS operation, regardless of the specific type of emergency alert equipment configuration you're using.

There are five areas of the configuration that must be covered prior to EAS operation.

From the USI directory, navigate to the MC40001 directory, then to the Encode directory. Open the MC40001.conf file from this directory location.



Within the configuration file, locate the 'Miscellaneous' section and find all non-remarked lines related to EAS action.

```
AUDIO_CHANNELS:          @00FF
AUDIO_DIM_ADJUST: @-15
VIDEO_MIX_POSITION:      @08
KEY_LEVEL_RESET_MASK:    @0f
KEY_LEVEL_XFER_MASK:     @00
TRANS_SPEED_FAST: @30
TRANS_SPEED_MEDIUM:      @60
TRANS_SPEED_SLOW: @120
SYSLOG_SERVER_ID: @USI_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION:    @01
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD:     @SD_525
EAS_OPERATION_MODE:      @AUTO
EAS_DISPLAY_TIME_MIN:    @120
EAS_FORWARD_TIMEOUT:     @600
#EAS_SIZE_AUDIO_MATT_MAX: NOT CONFIGURED
```

The default file contains four lines associated with EAS operation – most located near the bottom of the section. The remarked-out (#) lines are set aside as optional at this time.

Locate the line labeled 'EAS Operation Mode'. This command allows two options; Auto and Manual.

```
AUDIO_CHANNELS:          @00FF
AUDIO_DIM_ADJUST: @-15
VIDEO_MIX_POSITION:      @08
KEY_LEVEL_RESET_MASK:    @0f
KEY_LEVEL_XFER_MASK:     @00
TRANS_SPEED_FAST: @30
TRANS_SPEED_MEDIUM:      @60
TRANS_SPEED_SLOW: @120
SYSLOG_SERVER_ID: @USI_SYSLOG01
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED
EAS_AUTOMATIC_ACTION:    @01
#CLEANSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD:     @SD_525
EAS_OPERATION_MODE:      @AUTO
EAS_DISPLAY_TIME_MIN:    @120
EAS_FORWARD_TIMEOUT:     @600
#EAS_SIZE_AUDIO_MATT_MAX: NOT CONFIGURED
```

The system default, Auto, allows the commands on the two lines below (Display Time and Forward Time out) to activate on their own. When the mode command is set to Manual, the system will activate a pre-set EAS button on the MC-400 control panel, and then wait for operator intervention to cause the alert to properly play out. In this case, the preset monitor will display the presence of the EAS alert.



EAS Forward Timeout comes into play when the mode is set to Manual.

```
#CLEARSWITCH_ENABLED: NOT CONFIGURED
INDIVIDUAL_RATIOS: NOT CONFIGURED
MC400_LINE_STANDARD: @SD_525
EAS_OPERATION_MODE: @AUTO
EAS_DISPLAY_TIME_MIN: @120
EAS_FORWARD_TIMEOUT: 600
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED
#EAS_HOLDOFF_RELAY_NUMBER: NOT CONFIGURED
#STARTUP_CONFIG_MACRO_NUMBER: NOT CONFIGURED
```

In this case, the system waits to play the alert for a time period equal to the number of seconds indicated on this command line.

EAS Display Time Minimum plays the EAS crawl for a period equal to the number of seconds indicated on this command line. In the event audio is present and exceeds the minimum play time, the audio message will fully complete and the system will allow the crawl to finish displaying before concluding the alert.

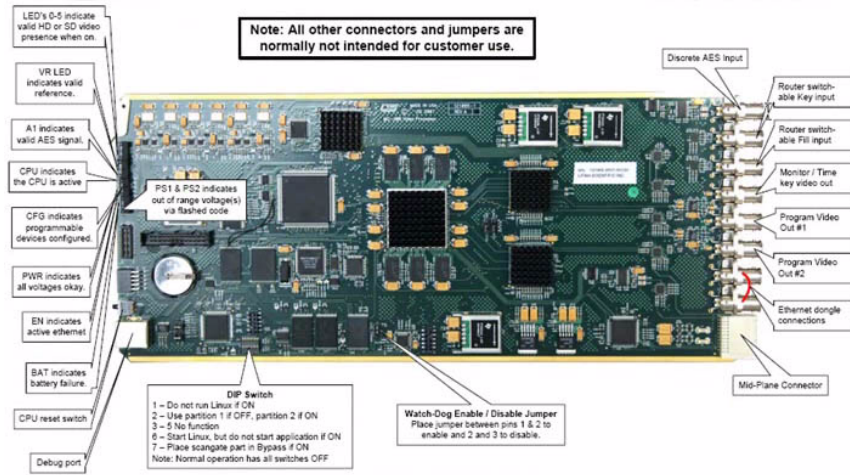
```
-----  
TRANS_SPEED_FAST: @30  
TRANS_SPEED_MEDIUM: @60  
TRANS_SPEED_SLOW: @120  
SYSLOG_SERVER_ID: @USI_SYSLOG01  
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED  
EAS_AUTOMATIC_ACTION: @01  
#CLEANSWITCH_ENABLED: NOT CONFIGURED  
INDIVIDUAL_RATIOS: NOT CONFIGURED  
MC400_LINE_STANDARD: @SD_525  
EAS_OPERATION_MODE: @AUTO  
EAS_DISPLAY_TIME_MIN: @120  
EAS_FORWARD_TIMEOUT: @600  
#EAS_SAGE_AUDIO_WAIT_MAX: NOT CONFIGURED  
#EAS_HOLDOFF_RELAY_MODE: NOT CONFIGURED  
-----
```

EAS Automatic Action – this line contains the macro number that must be present if audio, from a UTSCI master control, is to be included in the alert.

```
KEY_LEVEL_XFER_MASK: @00  
TRANS_SPEED_FAST: @30  
TRANS_SPEED_MEDIUM: @60  
TRANS_SPEED_SLOW: @120  
SYSLOG_SERVER_ID: @USI_SYSLOG01  
#AUX_OUT_XPOINT_SEL: NOT CONFIGURED  
EAS_AUTOMATIC_ACTION: @01  
#CLEANSWITCH_ENABLED: NOT CONFIGURED  
INDIVIDUAL_RATIOS: NOT CONFIGURED  
MC400_LINE_STANDARD: @SD_525  
EAS_OPERATION_MODE: @AUTO  
EAS_DISPLAY_TIME_MIN: @120
```

In particular, a Macro must be used when digitally converted EAS audio is directed to the MC-400 card's AES audio input.

This audio signal utilizes one of the card's BNC's. Please refer to the MC-400 Quick Start illustration.



Note the BNC connectors along the card's right edge, as shown in the illustration. The top connector is labeled 'Discreet AES Input', and would correspond to the #7 connection if this card occupies the 0 – 7 slot, #15 in the next slot, #23 in the following slot, etc. The audio will enter through this BNC. The digitally converted EAS audio (becoming an AES stream) is plugged directly into this BNC. The configuration file will manage the remaining detail, playing the audio out as needed.

Now note the MCP-400 illustration for additional detail regarding serial port setup, and locate the com ports (1 – 4) along the rear view illustration.



Com 1 is typically reserved for automation, and the configuration file contains a default for Com 2. This is the next item that must be modified within the config file.



The next config file modification requirement involves the EAS macro. Our system does not detect the 'beginning of header' during Sage™ operation. A triggering GPI from the Sage™ is required for proper activation. Locate the last line in the 'GPI Definitions Start' section and remove the pound (#) sign if present.

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
#-----
#7 , PANEL_MISC , MACRO , 2 , LATCH
8 , MACRO 5 , TAKE , 1 , PULSE
```

Make sure 'MACRO' is indicated in the 'FCN' column, and '2' (for Sage™) is placed in the 'Value' column. A '2' will cause the graphics to essentially turn on, then off (most common). Number '5' in the Value column indicates a 'ready' program, which utilizes the optional 'relay' and 'audio wait' commands from the 'Miscellaneous' section (discussed earlier).

```
#NUMBER 1-??
# , ACTION ON/OFF
# , NUMBER 1-10
# , AREA
# , , FCN
# , , , VALUE
# , , , , STATE
# , , , , TEXTS
#4 , 4 , 12 , 12 , 12 , 4 , 8
#-----
1 , DESC, EAS Audio Control Macro
1 , ON , AUDIO_ONLY , PGM_INPUT , 3 , ON ,
1 , OFF , AUDIO_ONLY , PGM_INPUT , 1 , ON ,
1 , , CONTROL , DCNE , ,
2 , DESC, SAGE GPI Control Macro (PTT PROGRAM)
2 , ON , GRAPHICS , ALERT_PLAY , , ON ,
2 , OFF , GRAPHICS , ALERT_PLAY , , OFF ,
2 , , CONTROL , DCNE , ,
5 , DESC, SAGE GPI Control Macro (READY PROGRAM)
5 , ON , GRAPHICS , ALERT_NOTIFY , , ON ,
5 , , CONTROL , DCNE , ,
```

The 'Type' indication should be set to Latch, since this GPI is to remain On continuously, allowing the macro itself to turn off.

```
[GPI_DEFINITIONS_START]
#NUMBER 1-32
# , AREA
# , , FCN
# , , , VALUE
# , , , , TYPE (LATCH/PULSE)
#4 , 12 , 12 , 12 , 8
-----
#7 , PANEL_MISC , MACRO , 2 , LATCH
#8 , PANEL_MISC , MACRO , 2 , LATCH
```

When a Sage™ GPI is triggered and macro begins to run, the Miscellaneous table 'responds' by activating its 'EAS Automatic Action' (command line). The number indication along this line is '1', which means that the 'EAS Audio Control Macro' 1 is simultaneously activated from the 'Macro Definitions Start' section.

```
[MACRO_DEFINITIONS_START]
#
# This section defines the macros the system can perform.
# See macro-definitions.txt in the software release
# directory for detailed instructions on using macros
#
#NUMBER 1-??
# , ACTION ON/OFF
# , NUMBER 1-10
# , AREA
# , , FCN
# , , , VALUE
# , , , , STATE
# , , , , TEXTS
#4 , 4 , 12 , 12 , 12 , 4 , 8
-----
1 , .DESC,EAS Audio Control Macro
1 , ON , AUDIO_ONLY , PGM_INPUT , 3 , ON ,
1 , OFF , AUDIO_ONLY , PGM_INPUT , 1 , ON ,
1 , , CONTROL , DONE , ,
2 , .DESC.SAGE GPI Control Macro (PTT PROGRAM)
```



This activates the 'audio only' from the AES BNC discussed above. This action will mute the program audio while playing the EAS-related audio. Program audio (indicated by '1' in the Value column) and video will resume once the macro has concluded.

```

[MACRO_DEFINITIONS_START]
#
# This section defines the macros the system can perform.
# See macro-definitions.txt in the software release
# directory for detailed instructions on using macros
#
#NUMBER 1-??
# ,ACTION ON/OFF
# , NUMBER 1-10
# , ,AREA
# , , ,FCN
# , , , ,VALUE
# , , , , ,STATE
# , , , , ,TEXTS
#4 , 4 , 12 , 12 , 12 , 4 , 8
#-----
1 ,DESC,EAS Audio Control Macro
1 ,ON ,AUDIO_ONLY ,PGM_INPUT ,3 ,ON ,
1 ,OFF ,AUDIO_ONLY ,PGM_INPUT ,1 ,ON ,
1 , ,CONTROL ,DONE
2 ,DESC,SAGE GPI Control Macro (PTT PROGRAM)
2 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
2 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
2 , ,CONTROL ,DONE
3 ,DESC,SAGE GPI Control Macro (READY PROGRAM)
3 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
3 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
3 , ,CONTROL ,DONE

```

TFT™ systems do not require a GPI setting, since the serial line is essentially the trigger.

```

#NUMBER 1-??
# ,ACTION ON/OFF
# , NUMBER 1-10
# , ,AREA
# , , ,FCN
# , , , ,VALUE
# , , , , ,STATE
# , , , , ,TEXTS
#4 , 4 , 12 , 12 , 12 , 4 , 8
#-----
1 ,DESC,EAS Audio Control Macro
1 ,ON ,AUDIO_ONLY ,PGM_INPUT ,3 ,ON ,
1 ,OFF ,AUDIO_ONLY ,PGM_INPUT ,1 ,ON ,
1 , ,CONTROL ,DONE
2 ,DESC,SAGE GPI Control Macro (PTT PROGRAM)
2 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
2 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
2 , ,CONTROL ,DONE
5 ,DESC,SAGE GPI Control Macro (READY PROGRAM)
5 ,ON ,GRAPHICS ,ALERT_PLAY , ,ON ,
5 ,OFF ,GRAPHICS ,ALERT_PLAY , ,OFF ,
5 , ,CONTROL ,DONE

```

In this case, Macro #1 is left active in the 'Macro Definitions Start' section, the GPI is turned off, and the macro is played out from the Miscellaneous table's 'EAS Automatic Action' command.



Section 10

Changing the IP Address and Chassis ID Screen

Establishing a Connection – Serial or Telnet

This applies to the IP Address change for the SC-4 control system, all master controls, ESI products, and the MX-Lator

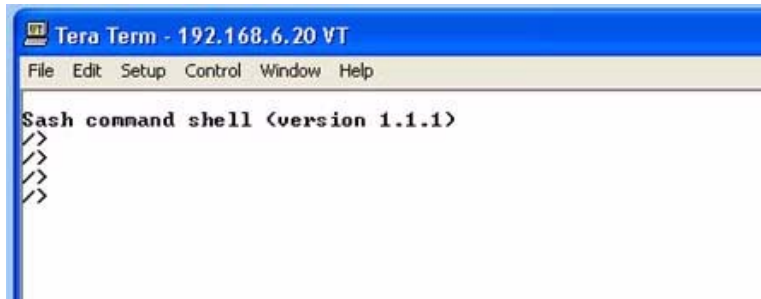
There are two ways to connect to these devices; either via the serial port, or by using a Telnet session. All USI-supplied laptops will contain the TeraTerm application. This can also be located on the system CD within the PC Prep directory.

When you launch the Tera Term software a dialog will appear called, 'Tera Term: New Connection'.



Changing the IP Address and Chassis ID Screen

With the TCP/IP radio button clicked, make sure the current IP address is entered in the 'Host' field, then click 'OK'. As long as the master control and the computer you are using occupy the same network, a prompt (sash command shell) will appear when OK is clicked.



In the event you do not know or have the device's current address, but only need to add or change an address, the connection must be established via the serial port. In this case you would not use the command-line window. In this case, click the 'Serial' radio button in the 'Tera Term: New Connection' dialog box.





USI-provided laptops will include a 9-pin to USB adapter cable and a 9-pin to CAT-5 adapter. These are attached to the device's diagnostics port. Most USI diagnostics ports are located on the front of the card itself. When the plug-in is made on the device, you will select the Com Port (Tera Term: New Connection dialog) that the PC recognizes – Com Port 1 – 4.

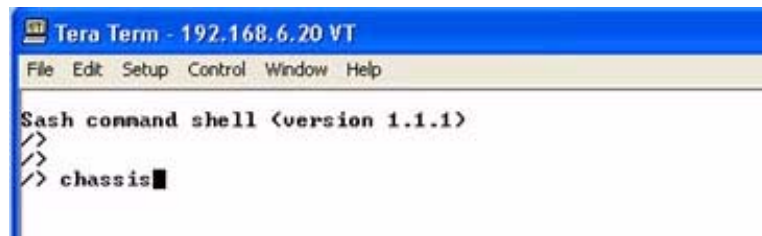


You will see 'Tera Term – COM2 VT' (or similar) in the screen's header when 'OK' is clicked

Note: You will see a blank dialog box (Tera Term – Disconnected) if the connection was not properly made.

Command Usage

The command for seeing the device's IP address is the word 'chassis'.



Changing the IP Address and Chassis ID Screen

Type chassis, then press ENTER.

```
*** Utah Scientific Chassis Configuration Program
*
* US[chassis] [options] [filename]
*
* -d, display debug data
* -r, read and display existing chassis config data
* -ip1, set the ip address for 1st ethernet interface
* Example: chassis -ip1 192.168.4.239
* Option: chassis -ip1 192.168.4.239 netmask 255.255.255.0
* -ip2, set the ip address for 2nd ethernet interface
* Example: chassis -ip2 192.168.4.239
* Option: chassis -ip1 192.168.4.239 netmask 255.255.255.0
* -gw1, set the gateway ip address for 1st ethernet interface
* Example: chassis -gw1 192.168.4.1
* -gw2, set the gateway ip address for 2nd ethernet interface
* Example: chassis -gw2 192.168.4.1
* -mask1, set the subnet mask for 1st ethernet interface
* Example: chassis -mask1 255.255.255.0
* -mask2, set the subnet mask for 2nd ethernet interface
* Example: chassis -mask2 255.255.255.0
* -init, initialize flash data
* -cust, change customer name
* -chid, change chassis id
* -unet, change unet node #
* filename, place config data in filename into configuration flash
*
* >
```



Once you have done this you will see a listing of all allowable system operations for 'chassis'. For example, to read and display existing chassis config data, you would type chassis -r.

```
Sash command shell (version 1.1.1)
/>
/> chassis

Application:   USI Chassis Interface Program
Version:      0.01a

*** Utah Scientific Chassis Configuration Program
*
* USIchassis [options] [filename]
*
* -d, display debug data
* -r, read and display existing chassis config data
* -ipl, set the ip address for 1st ethernet interface
* Example: chassis -ipl 192.168.4.239
* Option: chassis -ipl 192.168.4.239 netmask 255.255.255.0
* -ip2, set the ip address for 2nd ethernet interface
* Example: chassis -ip2 192.168.4.239
* Option: chassis -ip2 192.168.4.239 netmask 255.255.255.0
* -gw1, set the gateway ip address for 1st ethernet interface
* Example: chassis -gw1 192.168.4.1
* -gw2, set the gateway ip address for 2nd ethernet interface
* Example: chassis -gw2 192.168.4.1
* -mask1, set the subnet mask for 1st ethernet interface
* Example: chassis -mask1 255.255.255.0
* -mask2, set the subnet mask for 2nd ethernet interface
* Example: chassis -mask2 255.255.255.0
* -init, initialize flash data
* -cust, change customer name
* -chid, change chassis id
* -unet, change unet node #
* filename, place config data in filename into configuration flash
/> chassis -r
```

(Use a space between chassis and -r). In this example you would see a complete description of chassis config and user data.

```
Application:   USI Chassis Interface Program
Version:      0.01a

Reading back MCP 400 PROM data
PS Flash reports 0 bytes programmed

-----
Chassis Config Data
Program State:      PROGRAMMED
File Format:       00.01
File Revision:     16
File Date:        06/24/2002
Burn Date:       11/30/1999
Family:          2
Category:        2
Sub Name:       CR01

Chassis User Data
Customer Name:    Utah Scientific
Chassis ID:      MCP-400_20
UNET NODE ID:
INET INI COUNT:
NIC 1 IP ADD:
NIC 1 IP NET:    ifconfig eth0 192.168.006.020 netmask 255.255.255.0 broadcast 192.168.006.255
NIC 1 IP GW:     route add -net 192.168.006.000 netmask 255.255.255.0 eth0
NIC 2 IP ADD:
NIC 2 IP NET:    route add default gw 192.168.006.001 eth0
NIC 2 IP GW:
/> █
```

Changing the IP Address and Chassis ID Screen

Note the NIC (card) detail at the bottom of the 'Chassis User Data' block.

```
Application:   USI Chassis Interface Program
Version:      0.01A
Reading back MCP 400 PROM data
PS Flash reports 0 bytes programmed
-----
Chassis Config Data
Programm State: PROGRAMMED
File Format:   00.01
File Revision: 16
File Date:    06/24/2002
Burn Date:    11/30/1999
Family:       2
Category:     2
Sub Name:     CR01
-----
Chassis User Data
Customer Name: Utah Scientific
Chassis ID:   MCP-400_20
UNET NODE ID:
INET INT COUNT:
NIC 1 IP ADD:  ifconfig eth0 192.168.006.020 netmask 255.255.255.0 broadcast 192.168.006.255
NIC 1 IP NET:  route add -net 192.168.006.000 netmask 255.255.255.0 eth0
NIC 1 IP GW:   route add default gw 192.168.006.001 eth0
NIC 2 IP ADD:
NIC 2 IP NET:
NIC 2 IP GW:
```

Most UTSCI devices only allow 1 NIC cards, while some allow 2, such as the SC-4. Each individual NIC card requires a separate sub-net setting. Whenever an IP address is changes, the subsequent detail along the NIC line updates to reflect that modification.

To make any change to the configuration above (Reading Back detail – chassis – r), type chassis - ip1 192.168.6.21 [ENTER]

```
Chassis User Data
Customer Name:   Utah Scientific
Chassis ID:     MCP-400_20
UNET NODE ID:
INET INT COUNT:
NIC 1 IP ADD:   ifconfig eth0 192.168.006.020 netmask 255.255.255.0 broadcast 19
NIC 1 IP NET:   route add -net 192.168.006.000 netmask 255.255.255.0 eth0
NIC 1 IP GW:   route add default gw 192.168.006.001 eth0
NIC 2 IP ADD:
NIC 2 IP NET:
NIC 2 IP GW:
>>
>> chassis -ip1 192.168.6.21
Application:   USI Chassis Interface Program
Version:      0.01A
Reading back MCP 400 PROM data
PS Flash reports 0 bytes programmed
CHASSIS: Couldn't open -ip1, error 2
ERROR processing config file -ip1, program operation aborted
>> chassis -ip1 192.168.6.█
```

Important Note: The address above, 192.168.6.21, is used here as an example only. It is used as the address we're changing the IP TO.



To verify the change, type
chassis - r

```
Application:   USI Chassis Interface Program
Version:      0.01A

Reading back MCP 400 PROM data
PS Flash reports 0 bytes programmed
-----
Chassis Config Data
Program State:   PROGRAMMED
File Format:     00.01
File Revision:  17
File Date:      06/24/2002
Burn Date:     11/30/1999
Family:        2
Category:      2
Sub Name:      CR01

Chassis User Data
Customer Name:  Utah Scientific
Chassis ID:    MCP-400_20
UNET NODE ID:
INET INT COUNT:
NIC 1 IP ADD:  192.168.006.021
NIC 1 IP NET:  255.255.255.0
NIC 1 IP GW:   192.168.006.001
NIC 2 IP ADD:
NIC 2 IP NET:
NIC 2 IP GW:
/>
```

Note the change in the IP address, though the subnet detail stays the same. It is also important to note that the change will only take effect when the device is reset.

Changing the Chassis ID

A very brief command explanation appears when 'chassis' is typed on the command line. (-chid) this ID is required in many devices for system communication.

```
*** Utah Scientific Chassis Configuration Program
*
* USIchassis [options] [filename]
*
* -d,   display debug data
* -r,   read and display existing chassis config data
* -ip1, set the ip address for 1st ethernet interface
*       Example: chassis -ip1 192.168.4.239
*       Option: chassis -ip1 192.168.4.239 netmask 255.255.255.0
* -ip2, set the ip address for 2nd ethernet interface
*       Example: chassis -ip2 192.168.4.239
*       Option: chassis -ip1 192.168.4.239 netmask 255.255.255.0
* -gw1, set the gateway ip address for 1st ethernet interface
*       Example: chassis -gw1 192.168.4.1
* -gw2, set the gateway ip address for 2nd ethernet interface
*       Example: chassis -gw2 192.168.4.1
* -mask1, set the subnet mask for 1st ethernet interface
*       Example: chassis -mask1 255.255.255.0
* -mask2, set the subnet mask for 2nd ethernet interface
*       Example: chassis -mask2 255.255.255.0
* -init, initialize flash data
* -cust, change customer name
* -chid, change chassis id
* -unet, change unet node #
* filename, place config data in filename into configuration flash
/>
```

Changing the IP Address and Chassis ID Screen

The configuration file's 'system name' and the 'chassis ID' should ideally be the same for successful communication between the Master controls and the control panels.

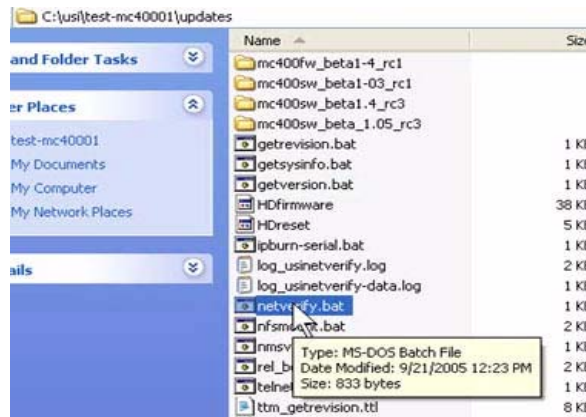
To commit the change, type `-chid, (the system name)` then press ENTER. To confirm the change, type `chassis -r`. As with above, this modification requires a system reset in order for the change to take effect.

Section 11

Retrieving and Sending config files to the MC and MCP-400

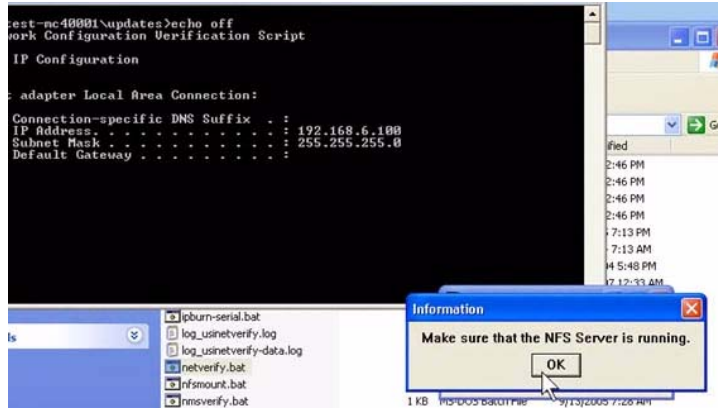
Overview

Before a configuration file is edited, the file must be successfully retrieved, then sent back for activation. In particular, you will be editing the config file that already exists, rather than starting from scratch. Before starting this process, it is important to verify your network connection, and that successful communication is established between the control panel, the MC-400, and computer from which you'll be editing. All devices must occupy the same subnet. To verify your network connection, run the 'netverify' batch file that is located in each device's 'updates' subdirectory.



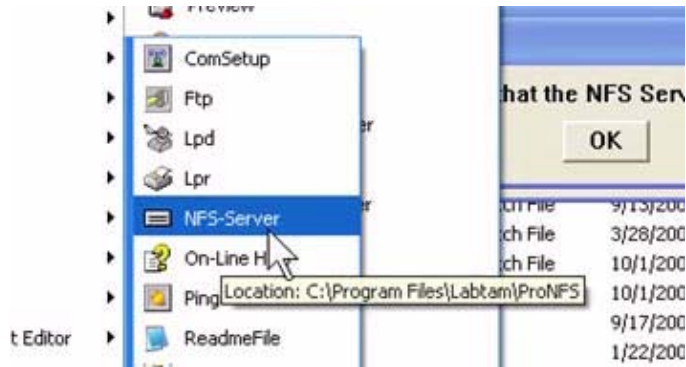
Retrieving and Sending config files to the MC and MCP-400

When you run the 'netverify.bat' file, the program will begin prompting you for various confirmations. The first prompt is associated with the NFS Server.



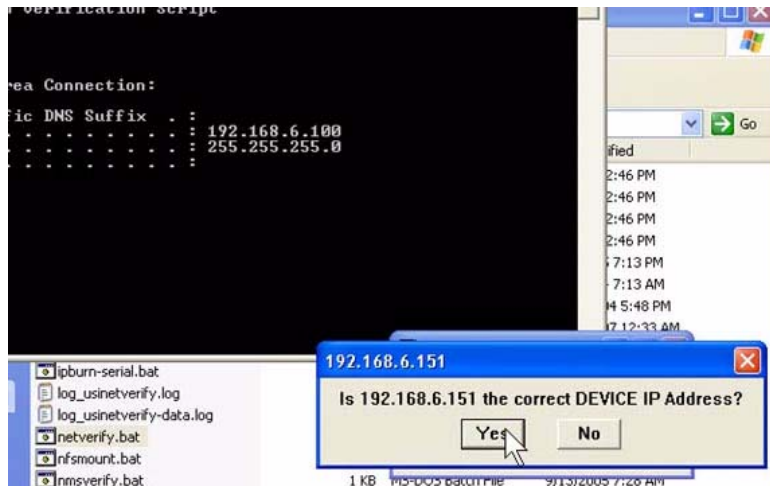


If the NFS Server is not currently running (as noted in the tray at the screen's lower-right), click the 'Program' tab and navigate to NFS Server to select and launch the application.



If the application is not located there, go to the 'C' directory's Program folder and locate the directory called 'Labtam, then ProNFS.

Once the NFS Server is running and you have confirmed by clicked 'Ok', the program will ask you to confirm the correct PC IP address, then the current device's IP address.



When you confirm, the system will ping the device, complete an NFS mount test (to make sure the NFS Server is running), then complete a system name check.

```

Tera Term - 192.168.6.151 VT
File Edit Setup Control Window Help
Sash command shell (version 1.1.1)
/> cd /usr
/usr> cd /
/> hostname
uClinux-coldfire
/> ps
  PID  PORT  STAT  SIZE  SHARED  %CPU  COMMAND
   1    S    40K   0K   0.0   init
   2    S    8K    0K   0.0  kflushd
   3    S    8K    0K   0.0  nfsiod
   4    S    8K    0K   0.0  nfsiod
   5    S    8K    0K   0.0  nfsiod
   6    S    8K    0K   0.0  nfsiod
  19   S0   S    72K   0K   0.0  /bin/sh
  17    S   138K  0K   0.0  /bin/usinns
  18    S    72K   0K   0.0  /bin/Hdinit
  20    S    40K   0K   0.0  /bin/inetd
  21    S   267K  0K   0.0  ./syslog
  22    S   235K  0K   1.3  ./panel-mc400
  23    S   546K  0K   1.3  ./trans
  24    S    40K  0K   0.0  /bin/telnetd
  25   p0   R    75K  0K   0.0  sh
/> ping 192.168.6.100
PING 192.168.6.100 (192.168.6.100): 56 data bytes
64 bytes from 192.168.6.100: icmp_seq=0 ttl=128 time=0.0 ms

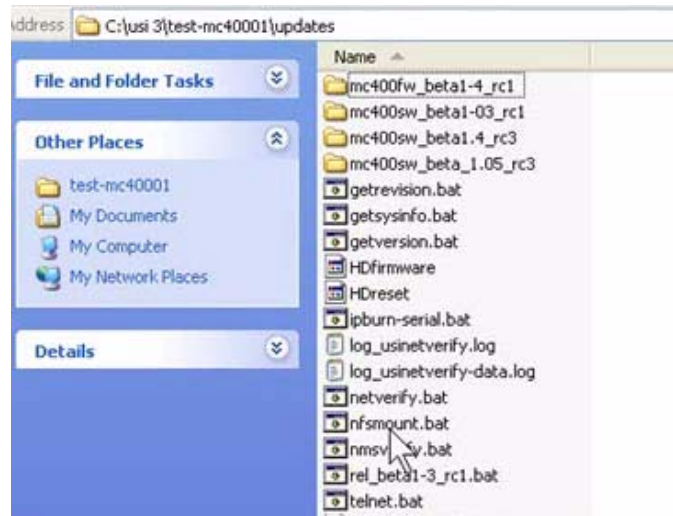
--- 192.168.6.100 ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 0.0/0.0/0.0 ms
/> /bin/umount test
umount: test: not mounted
/> /bin/mount -n -t nfs 192.168.6.100:/c/usi /test
/> cd /test/test-mc40001
/test/test-mc40001> cat sysnane.dat

```

In the event the NFS Server is not mounting correctly (not turned on, or not being run from the correct location), an error will display, indicating the NFS is not mounted properly. The name test verifies the correct directory pathway. If this location is incorrect or changes for some reason, the program will display a dialog indicating that the drive cannot be properly be mounted. The critical element here involves the USI directory, since the Install 2020 application (run earlier) recognizes this particular directory.

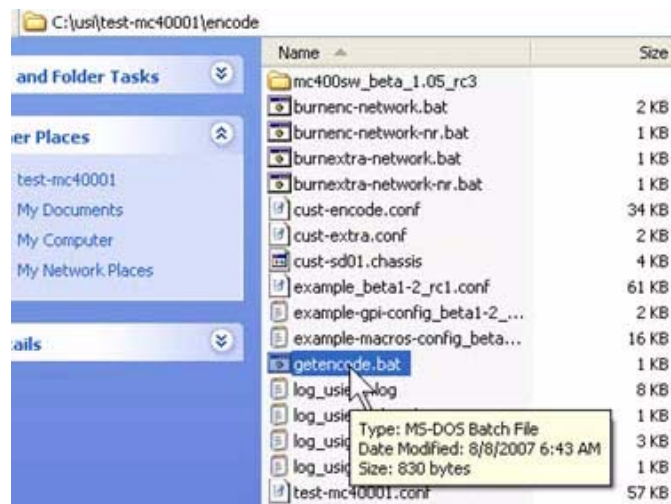


Once again, the 'netverify' application can be run from any devices 'Updates' directory prior to completing any retrievals.



Once you have verified correct network operation for the devices you're retrieving information from, complete the following:

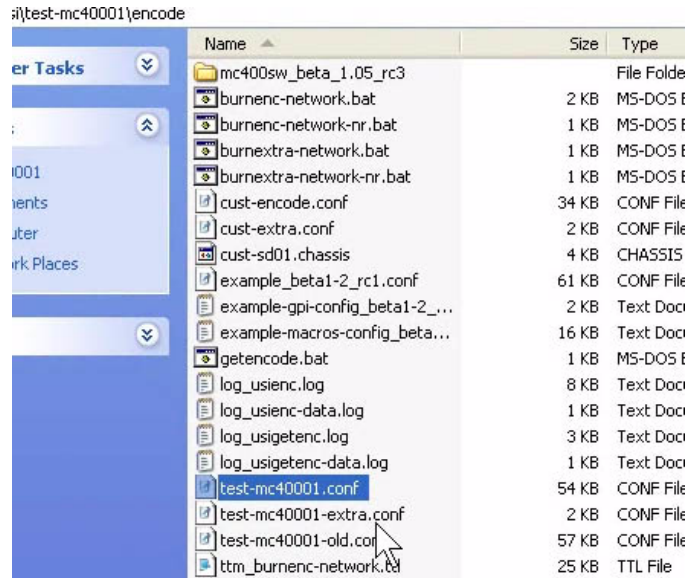
Navigate to the device's folder (in our example we're using the MC40001 folder), open the 'Encode' folder, and run the 'getencode.bat' file.



Retrieving and Sending config files to the MC and MCP-400

This will retrieve the necessary information from the device. In our example the information will come from both the panel and the MC-400. This process will update the MC40001.conf file, providing a new date and time update.

si|test-mc40001|encode



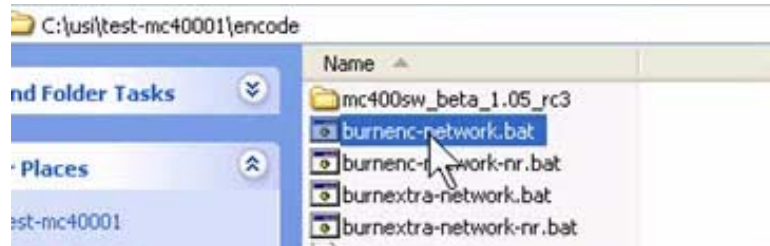
| Name | Size | Type |
|--------------------------------|-------|------------|
| mc400sw_beta_1.05_rc3 | | File Folde |
| burnenc-network.bat | 2 KB | MS-DOS F |
| burnenc-network-nr.bat | 1 KB | MS-DOS F |
| burnextra-network.bat | 1 KB | MS-DOS F |
| burnextra-network-nr.bat | 1 KB | MS-DOS F |
| cust-encode.conf | 34 KB | CONF File |
| cust-extra.conf | 2 KB | CONF File |
| cust-sd01.chassis | 4 KB | CHASSIS |
| example_beta1-2_rc1.conf | 61 KB | CONF File |
| example-gpi-config_beta1-2_... | 2 KB | Text Doc |
| example-macros-config_beta... | 16 KB | Text Doc |
| getencode.bat | 1 KB | MS-DOS F |
| log_usienc.log | 8 KB | Text Doc |
| log_usienc-data.log | 1 KB | Text Doc |
| log_usigetenc.log | 3 KB | Text Doc |
| log_usigetenc-data.log | 1 KB | Text Doc |
| test-mc40001.conf | 54 KB | CONF File |
| test-mc40001-extra.conf | 2 KB | CONF File |
| test-mc40001-old.conf | 57 KB | CONF File |
| ttm_burnenc-network.ttl | 25 KB | TTL File |

This will also replace the 'old' config file with an updated version.

When you run the 'getencode' batch file, the program will once again prompt you for address verification. When complete, the program will retrieve the encoding and display an 'updated' dialog. When you view the directory contents again, you'll see that the date and time indications have updated.



After the above steps have been completed, you will need to run the 'burnenc-network.bat' file.



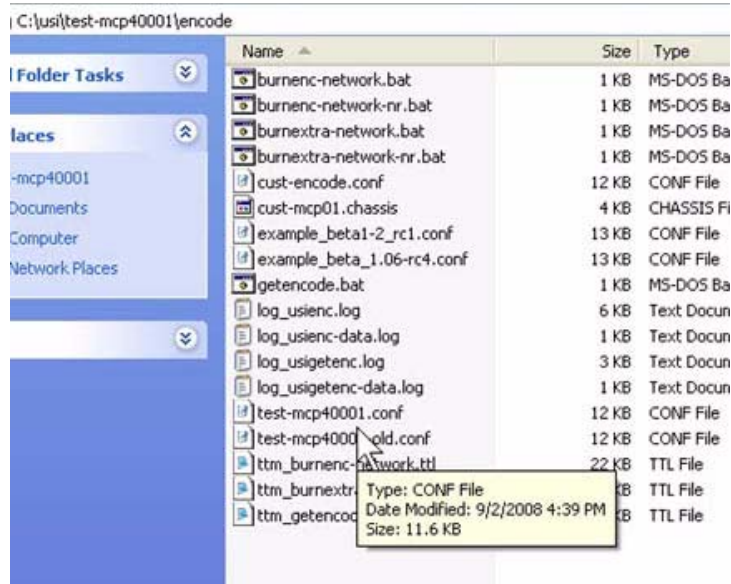
This will send the new configuration file information to the Master Control 400 and the panel (in this example).

Note the 'burnenc-network-nr.bat' file. This means that no reset will occur upon completion, forcing you to complete a reset manually (button on the actual card).

Running the burnencode batch file will once again prompt you for address confirmation, and ask whether or not you'd like to complete the chassis encoding upgrade (in our case, the MC-400). When the command line activity completes, you'll be presented with a second set of prompts; this time for the panel's address and encoding.

Other Config File Modifications

To make changes to the panel's button layout (Take button, keyers, LCD, etc.), you would need to modify the actual panel's configuration file. In our example, this is located inside the MC40001 directory's 'Encode' folder.



And as above, it is necessary to first run the 'getencode' batch file to retrieve the information from the device (MCP-400). And as previously described, the time and date stamps for the configuration files will update.

When the config file is modified, we again perform the 'burnencode' application, which will send the new information to the device ONLY (MCP-400 panel). When complete, the panel resets – unless you selected the 'burnencode-nr' batch file, in which case the panel is reset manually.

Note: An automatic reset will disrupt the video signal for approximately 3 – 5 seconds. A bypass patch or route is a temporary workaround for this situation.

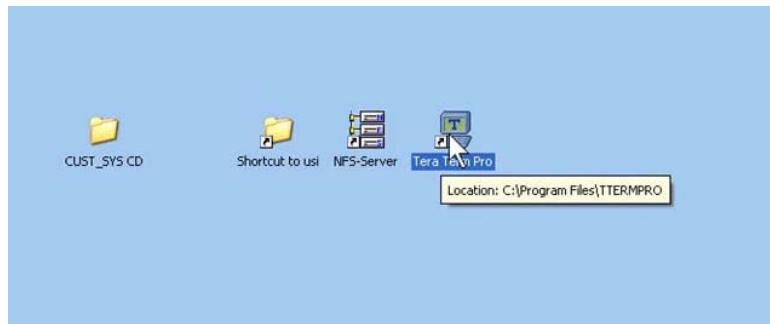
Section 12

Connecting the MC-400 Channel to the MCP-400

Overview

Careful setup is necessary to facilitate successful communication between the MC-400 card and the control panel (either MCP-400 or MC-2020). Proper naming within the configuration file is a vital part in completing this process. In this exercise we will identify the name locations, then show how names are modified.

As in previous exercises, make sure Tera Term Pro is installed on the system.



When Tera Term is located, launch the program. At this point it is important that a solid network connection exist for all devices. All devices for this configuration must occupy the same subnet; the computer, the card, and the panel used. The subnet is identified by the first three numerical markers in the address; such as XXX.XXX.X.253.

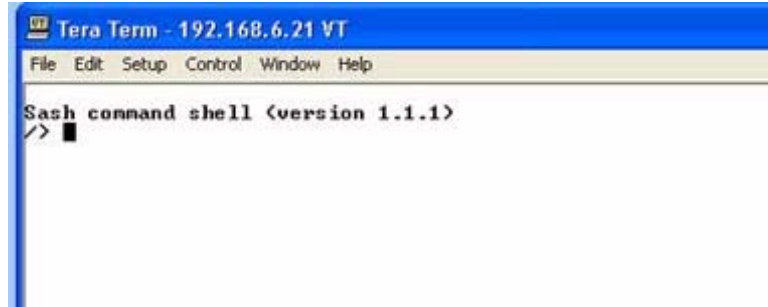
Connecting the MC-400 Channel to the MCP-400

When you launch Tera Term, you will see the 'New Connection' dialog window with the 'TCP/IP' radio button selected as the default.





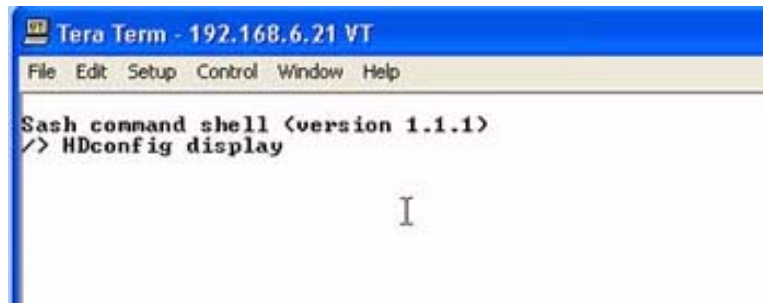
Click 'Ok' when the address indication is correct for your device. A command-line prompt will appear.



80% of the configuration file programming is sent to the panel, while the remaining 20% is loaded to the card. When information is retrieved from the system (in our example, the MC-400), the MCP-400's IP address is used, since this is where 80% of the programming is loaded. This is the address you will see along the command-line box's header.

There are two different commands we will run from this prompt to see the different names.

There is a name that exists in the MC-400 card's 'system name' section, which is viewed from this [prompt] location. To accomplish this, type Hdconfig display (ENTER).



Make sure you place the space between the two words. You'll now see the entire configuration previously programmed.

Locate the 'Config Definition Data Start' at the top of the file, and find the 'System Name' line in the first set of non-remarked lines.

```

Tera Term - 192.168.6.21 VT
File Edit Setup Control Window Help

Utah Scientific HD2020 Configuration Program
HD Configuration Management Program Version 01.55ncp400-BETA
Reading from location: 20000
##
## Utah Scientific HD2020 Configuration Data
##
##
[CONFIG_DEFINITION_DATA_START]
[FLASH_VERSION_DATA_START]
## the following fields are REQUIRED
## the format for this section is a FIELD LABEL followed by FIELD DATA
## the FIELD LABEL must have a ':' as the last character
## the FIELD DATA must start with a '@' char and be no longer than 20 characters
##
## FILE_FORMAT: @00.01
## CUSTOMER_NAME: @XXXXXXXXXXXXXXXXXXXX
## SYSTEM_NAME: @XXXXXXXXXXXXXXXXXXXX
## FILE_DATE: @MM/DD/YYYY
## FILE_REVISION: @??

FILE_FORMAT: @00.05
CUSTOMER_NAME: @USI_ENG
SYSTEM_NAME: @NAB08-NC40001
FILE_DATE: @01/06/2004
FILE_REVISION: @01

# FLASH PROGRAM DATE 11/30/1999
    
```

The name indicated here is the actual name assigned to this particular device. This same name must also be located in the MCP-400's Chassis Connection section.

Press ENTER to re-activate the prompt. Now type MCPconfig display.

```

[LOGFILE_TARGET_DEFINITIONS_START]
# This section defines the NFS address & directory the system
# will use as remote file systems
# Currently the log xfer function is the only target defined.
#EXAMPLE:
#192.168.004.010,/c/rt/usilogs/kyw-hd ,YES
#
# IP NFS LOGGING DIRECTORY <40 CHARS> Acti
# ADDRESS Enal
#-----
#192.168.004.165,/c/usi ,
#
[END_CONFIG_FILE]

<>
<>
<>
<>
<> MCPconfig display
    
```

This time locate the '2020 Chassis Connect Definitions Start' section.



The first un-remarked line section shows all potential channels that can be connected to from this panel.

```

nms system.
#ACTIVE
#CONNECT MODE
#NETWORK ID NAME
#IP ADDRESS
#PORT
#STARTUP ACTIONS
#A ----- AUTC
#B ----- AUTC
#CDEFGHIJKLMNOPQRST -
#5 10 20 20 10 20
YES .NMS .NAB08-MC40001 .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
[MONITOR_SWITCHER_DEFINITIONS_START]
# This section is used to define the controller we should use for monitor wall switching

```

In our example, the only available channel is displayed on the first line, and the name indicated here must match the name found in the MC-400's 'System Name' line above.

Once again, our example shows both names to be the same by default.

```

nms system.
#ACTIVE
#CONNECT MODE
#NETWORK ID NAME
#IP ADDRESS
#PORT
#STARTUP ACTIONS
#A ----- AUTC
#B ----- AUTC
#CDEFGHIJKLMNOPQRST -
#5 10 20 20 10 20
YES .NMS .NAB08-MC40001 .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
.NMS .-1 .-1
[MONITOR_SWITCHER_DEFINITIONS_START]

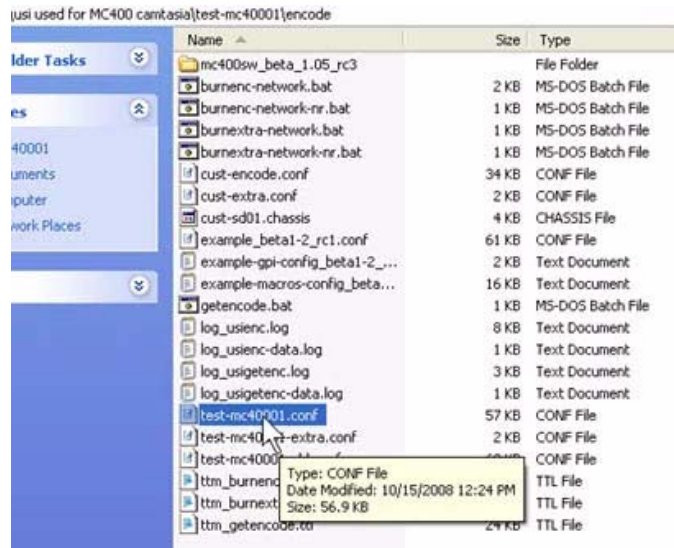
```

We will now discuss a method for modifying this name at multiple locations.

We will now modify the MC-400's system name, and to accomplish this we must make the change from within the MC-400's own directory.

Connecting the MC-400 Channel to the MCP-400

Make sure the Tera Term diagnostic shell is closed, open the USI shortcut directory, open the MC40001 directory, then open the 'Encode' folder. Now open the 'MC40001' config file (mc40001.conf).



Locate the 'Config Definition Data Start' section, and find the 'System Name' indication, just a few lines below.

```
[CONFIG_DEFINITION_DATA_START]

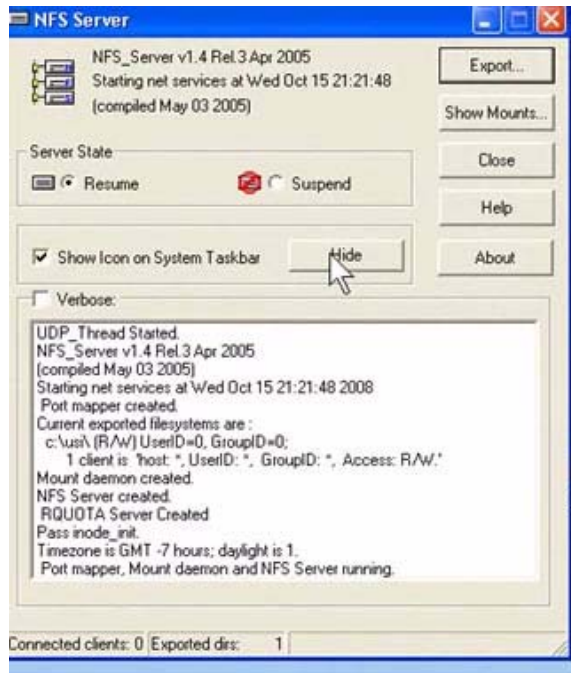
[FLASH_VERSION_DATA_START]
# the following fields are REQUIRED
# the format for this section is a FIELD LABEL followed by FIELD DATA
# the FIELD LABEL must have a ':' as the last character
# the FIELD DATA must start with a '@' char and be no longer than 20 char
#
# FILE_FORMAT: @00.01
# CUSTOMER_NAME: @xxxxxxxxxxxxxxxxxxxxxxxx
# SYSTEM_NAME: @xxxxxxxxxxxxxxxxxxxxxxxx
# FILE_DATE: @MM/DD/YYYY
# FILE_REVISION: @??

FILE_FORMAT: @00.05
CUSTOMER_NAME: @USI_ENG
SYSTEM_NAME: @USI-MC40001
FILE_DATE: @01/06/2004
FILE_REVISION: @01
```

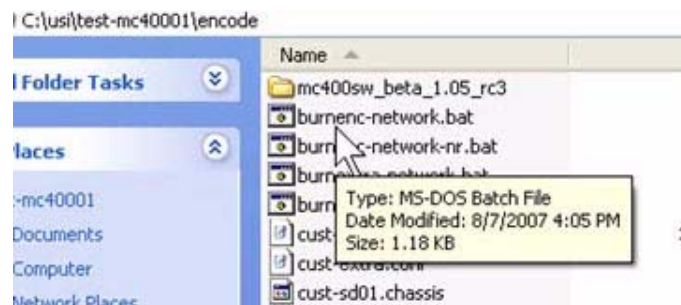
This line contains the new name that we would like to program back to the MC-400 configuration. We have viewed this line's content for verification, and will now need to 'burn' the file content back to the MC-400 configuration. Close the configuration file.



The NFS Server should be running during this operation, as indicated by a dialog window within your desktop. If the NFS dialog is immediately visible, check the 'Show Icon on the System Task Bar' box, then click the 'Hide' button to minimize the window.



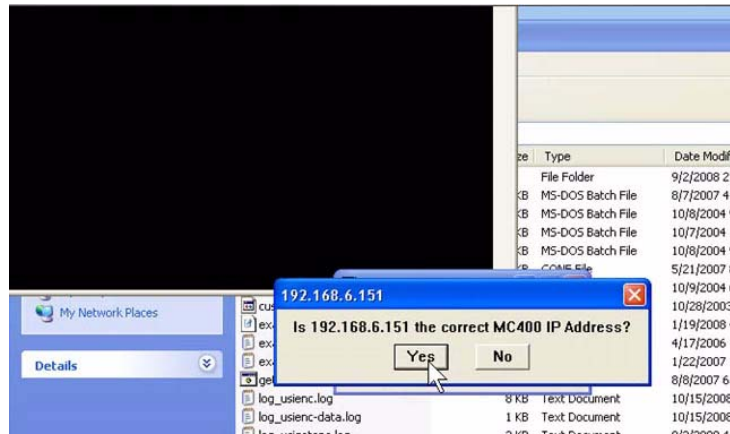
From the MC-400's 'Encode' directory, double-click 'burnenc-network.bat' to run the program.



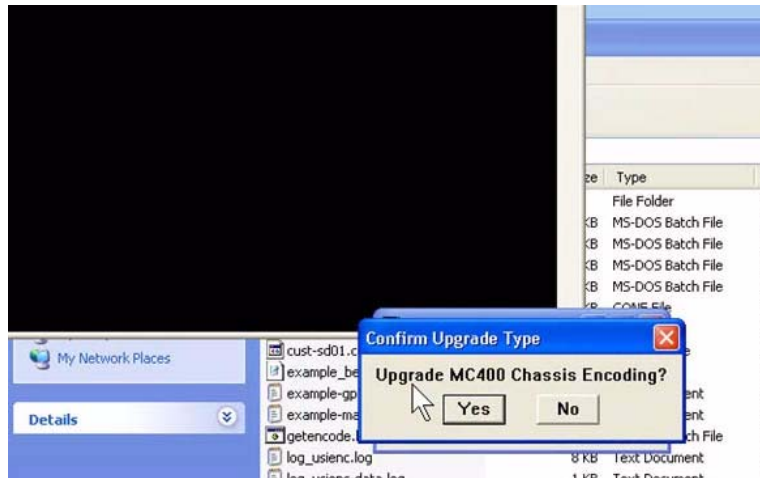
Note the earlier discussion regarding system resetting v.s not resetting, and how your on-air operation could potentially be affected.

Connecting the MC-400 Channel to the MCP-400

The program utility will begin when you double-click the batch file, and the first dialog will ask you to confirm the NFS Server activity. The next two dialog boxes will confirm the correct IP address for the PC and the MC-400.



If so, click 'Yes' to confirm, and if 'No', type in the correct IP address at the provided dialog. Next you will be asked to confirm whether or not you intend to upgrade the MC-400 chassis encoding.

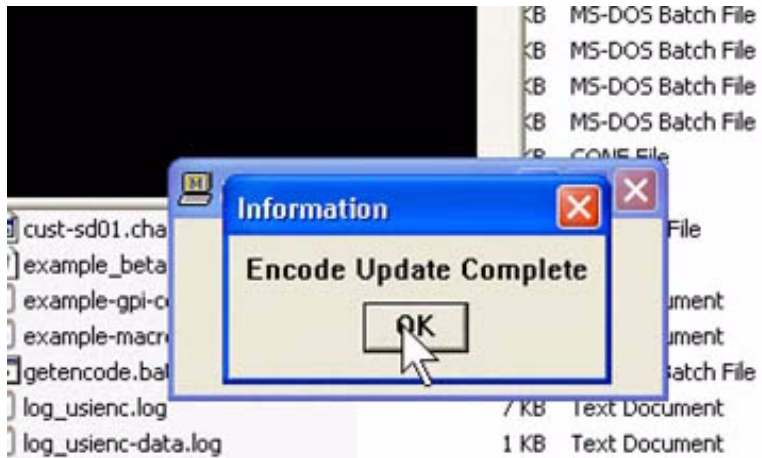




In almost all cases you will indicate 'Yes', at which point the diagnostic shell quickly runs a script file.

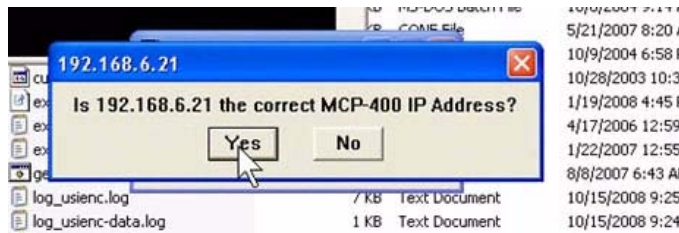
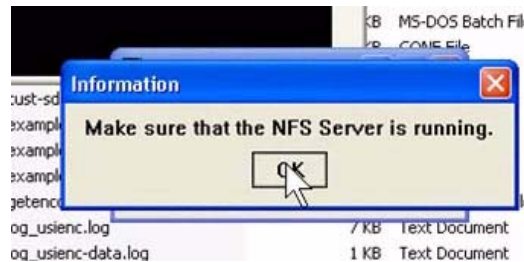
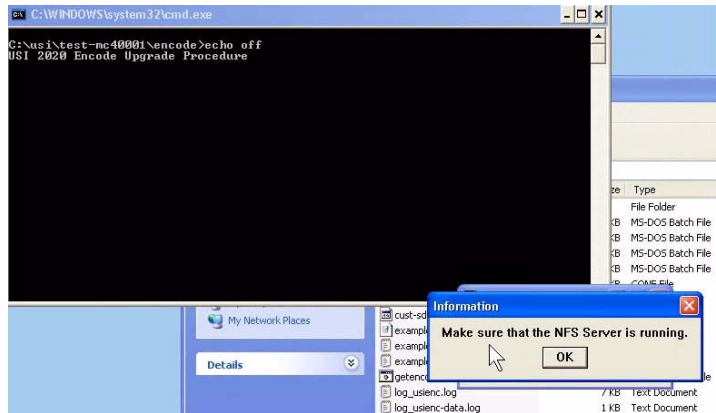
```
Tera Term - 192.168.6.151 VT
File Edit Setup Control Window Help
jupdate comment for idx 1
jupdate comment for idx 2
jupdate comment for idx 5
  Read in 8 monitor-Text config entries
parsing GPI Definition section
  Read in 1 GPI config entries
:PI idx=07 area=10 fcn=14 val=00000001 type= 1
parsing DEBUG CONTROL Definition section
  Read in 6 DEBUG CONTROL entries
)BG CTL GEN 00000010 PAN 00000000 TRN 00000000
  RTR 00000000 MCH 00000000 SVS 00000000
parsing MC400 UID-STDI1080i1 Definition section
?MC4USS(3) changing sections to 1 on [(REF_SIGNAL)]
?MC4USS(3) changing sections to 2 on [(LOG_TO_PHY)]
?MC4USS(3) changing sections to 3 on [(OUTPUTS)]
?MC4USS(3) changing sections to 4 on [(BUTTON_ASSIGNMENTS)]
?MC4USS(1) good data update
parsing MC400 UID-STDI1080i_501 Definition section
?MC4USS(3) changing sections to 1 on [(REF_SIGNAL)]
?MC4USS(3) changing sections to 2 on [(LOG_TO_PHY)]
?MC4USS(3) changing sections to 3 on [(OUTPUTS)]
?MC4USS(3) changing sections to 4 on [(BUTTON_ASSIGNMENTS)]
?MC4USS(1) good data update
parsing MC400 UID-STDI720P1 Definition section
?MC4USS(3) changing sections to 1 on [(REF_SIGNAL)]
?MC4USS(3) changing sections to 2 on [(LOG_TO_PHY)]
?MC4USS(3) changing sections to 3 on [(OUTPUTS)]
?MC4USS(3) changing sections to 4 on [(BUTTON_ASSIGNMENTS)]
?MC4USS(1) good data update
parsing MC400 UID-STDI720P_501 Definition section
?MC4USS(3) changing sections to 1 on [(REF_SIGNAL)]
?MC4USS(3) changing sections to 2 on [(LOG_TO_PHY)]
?MC4USS(3) changing sections to 3 on [(OUTPUTS)]
?MC4USS(3) changing sections to 4 on [(BUTTON_ASSIGNMENTS)]
?MC4
```

When complete, you will be asked to confirm the MC-400 reset, which in turn resets the internal portion of the card's [programmed] 20%.



Connecting the MC-400 Channel to the MCP-400

At this point the panel's remaining 80% of programming must be reset, so we will repeat the process for that portion of the upgrade. This includes address and upgrade confirmation.



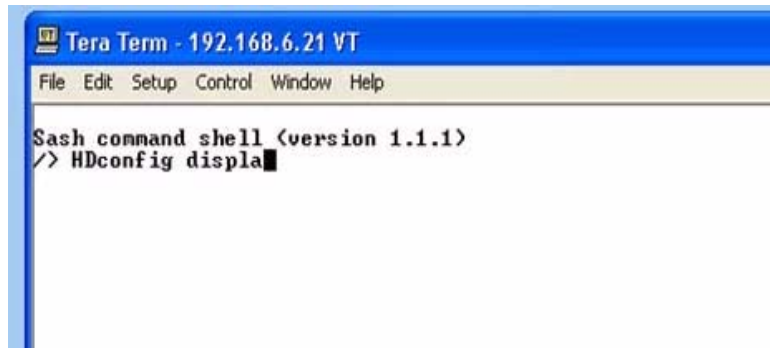
This process completes the entire configuration update for the system name within the current folder. You will experience a 3 – 5 second loss of video if you are live-on-air and did not run the 'nr' batch file.



Now re-launch the Tera Term utility, and insert the control panel's IP when the 'Tera Term: New Connection' window appears (click Ok).



Type HD config display at the command-line prompt and press ENTER.



After the file detail appears, scroll back up to the top of the display and check the content of the 'System Name' line.

```
[CONFIG_DEFINITION_DATA_START]

[FLASH_VERSION_DATA_START]
# the following fields are REQUIRED
# the format for this section is a FIELD LABEL followed
# the FIELD LABEL must have a ':' as the last character
# the FIELD DATA must start with a '@' char and be no
#
# FILE_FORMAT: @00.01
# CUSTOMER_NAME: @XXXXXXXXXXXXXXXXXXXXX
# SYSTEM_NAME: @XXXXXXXXXXXXXXXXXXXXX
# FILE_DATE: @MM/DD/YYYY
# FILE_REVISION: @??

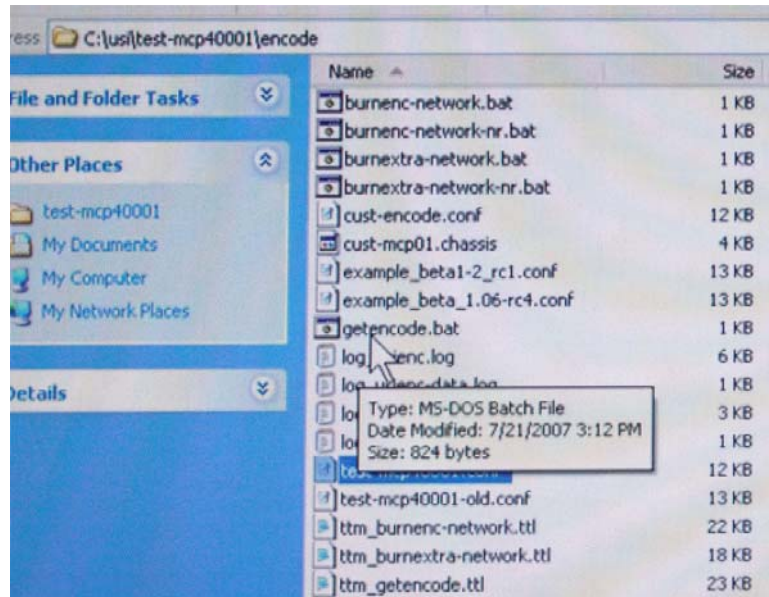
FILE_FORMAT: @00.05
CUSTOMER_NAME: @USI_ENG
SYSTEM_NAME: @USI-MC40001 ████████████████████
FILE_DATE: @01/06/2004
FILE_REVISION: @01

# FLASH PROGRAM DATE 11/30/1999
```

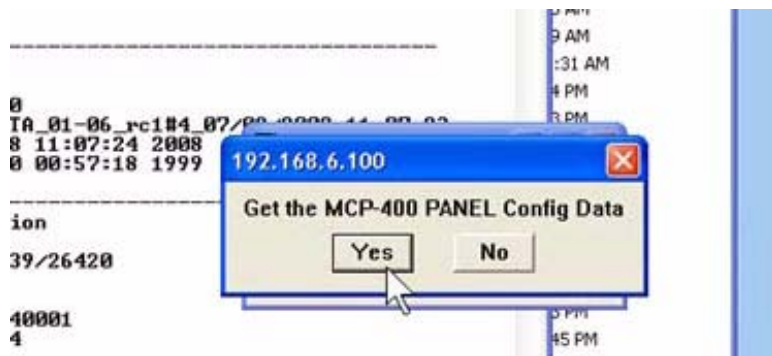
You may notice that this does not match the MCP-400's 'connection' screen. In this case, close the file and go to the MCP40001 folder within the 'USI' directory.



Open the 'Encoding' folder, then run the 'getencode' batch file.

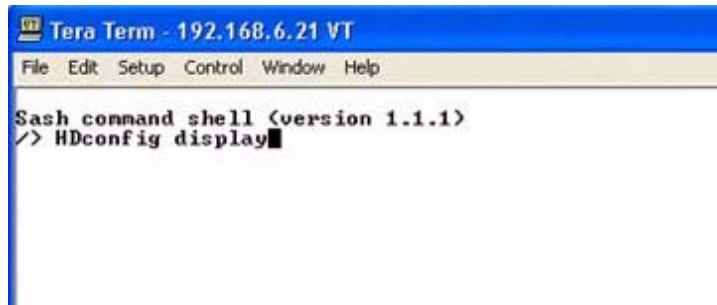
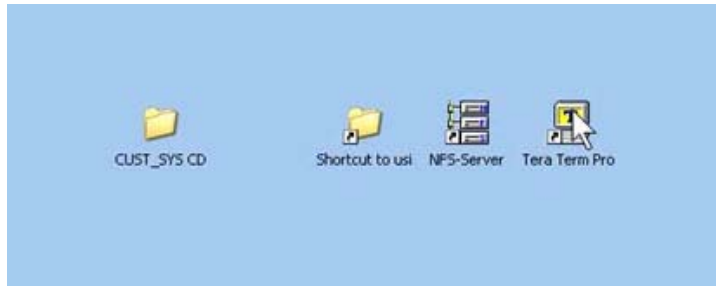


When this file launches, you will see the same series of confirmation screens, and when the operations begins, the program will retrieve the necessary information from inside the panel. When this is complete, you will find updated configuration files inside the 'Encode' directory.



Connecting the MC-400 Channel to the MCP-400

Next, re-launch Tera Term, enter the panel's IP address at the '...New Configuration' window, and type HD config at the command prompt.





Go to the 'Config Definition Data Start' section and write down the content of the 'System Name' line.

```
[CONFIG_DEFINITION_DATA_START]
[FLASH_VERSION_DATA_START]
! the following fields are REQUIRED
! the format for this section is a FIELD LABEL followed by FIELD
! the FIELD LABEL must have a ':' as the last character
! the FIELD DATA must start with a '@' char and be no longer th
!
! FILE_FORMAT: @00.01
! CUSTOMER_NAME: @xxxxxxxxxxxxxxxxxxxxxxxx
! SYSTEM_NAME: @xxxxxxxxxxxxxxxxxxxxxxxx
! FILE_DATE: @MM/DD/YYYY
! FILE_REVISION: @??

FILE_FORMAT: @00.05
CUSTOMER_NAME: @USI_ENG
SYSTEM_NAME: @USI-MC40001
FILE_DATE: @01/06/2004
FILE_REVISION: @01

! FLASH PROGRAM DATE 11/30/1999
```

(The copy paste function is not available while inside Tera Term) This is the name we are attempting to match in the 'connection' screen. Now return to the config file and go to the 'Connect Definitions Start' section and locate the device name on the first un-remarked line.

Connecting the MC-400 Channel to the MCP-400

This is the line whose first column contains the word 'YES'. Replace the third column's content with the detail you wrote down (or memorized) above. Make sure 'INSERT' is activated on your keyboard.

```
#          ,NETWORK ID NAME
#          ,IP ADDRESS
#          ,PORT
#          ,STARTUP ACT
#          A -----
#          B -----
#          CDEFGHIJK
# 5      10      20      20      10      20
#-----#-----#-----#-----#-----#-----
YES ,NBS      , USI-MC4000101      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,
     ,NBS      ,      ,      ,      , -1      ,

[MONITOR_SWITCHER_DEFINITIONS_START]
# This section is used to define the controller we should use for monitor wall sw
# The data is made up from the following fields.
```

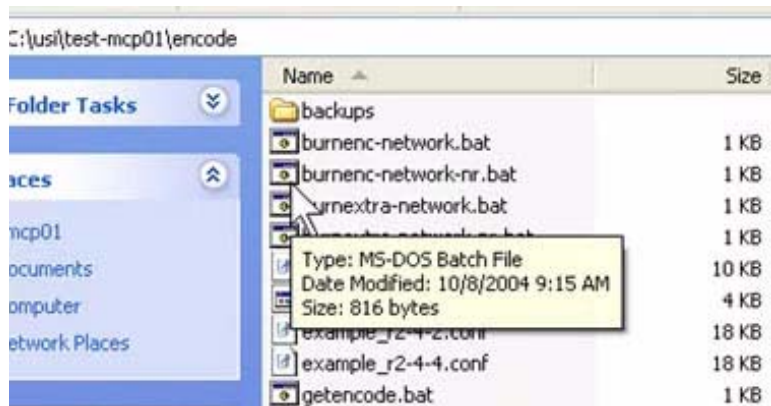
This is the panel's connection screen name that must match the system name of the HD config display.

Section 13

Connecting the MC-400 Channel to the MCP-400 – Conclusion

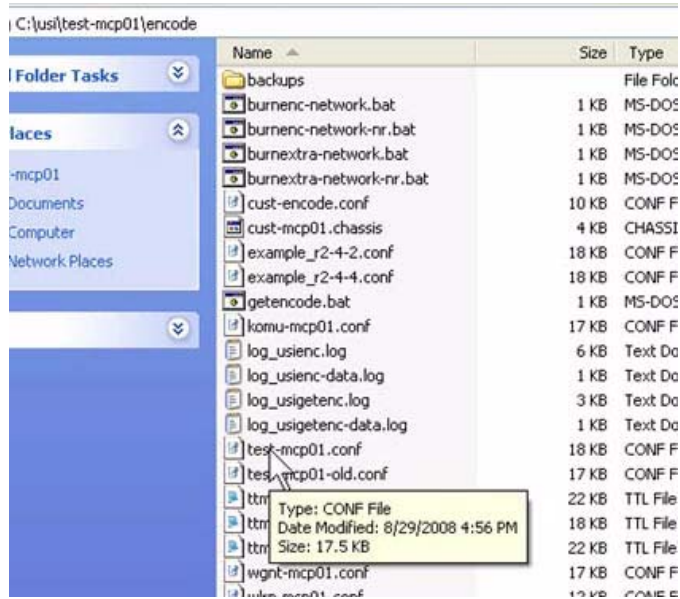
Overview

When connecting an MCP-2020 panel to the MC-400, go to the USI directory, then open the mcp01 folder.



Connecting the MC-400 Channel to the MCP-400 – Conclusion

This folder is associated with the MCP-2020. From here, open the 'Encode' folder, double-click the mcp01.conf file,



then scroll down to the 'Chassis Connect Definitions Start' section.



The first non-remarked line must contain the name of the chassis that you will be connecting to (as described in the previous section regarding MC-400 and MCP-400 connection).

```
#ACTIVE
#      ,CONNECT MODE
#      ,NETWORK ID NAME
#      ,IP ADDRESS
#      ,PORT
#
#
#
#
#
#
# 5      10      20      20      10
#-----
YES ,NMS      ,USI-SD01      ,      , -1
YES ,NMS      ,      ,      ,      , -1
YES ,NMS      ,      ,      ,      , -1
YES ,NMS      ,      ,      ,      , -1
YES ,NMS      ,      ,      ,      , -1
YES ,NMS      ,      ,      ,      , -1
YES ,NMS      ,      ,      ,      , -1
```

In our example, this name indication is changed to 'USI-MC40001'.

```
#ACTIVE
#      ,CONNECT MODE
#      ,NETWORK ID NAME
#      ,IP ADDRESS
#      ,PORT
#      ,STAR
#      A --
#      B -
#      CD
#
#
#
# 5      10      20      20      10
#-----
YES ,NMS      ,USI-MC40001      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,XX
YES ,NMS      ,      ,      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,X
YES ,NMS      ,      ,      ,      , -1      ,X
```

The first two columns; YES and NMS, refer to the active connection, and name comparison between the chassis and the name found in the third column.

Connecting the MC-400 Channel to the MCP-400 – Conclusion

Unlike the last exercise, the MCP-2020 control panel can contain up to eight channels, as indicated in all rows marked with 'YES' (first column).

```
#ACTIVE
#      ,CONNECT MODE
#      ,NETWORK ID NAME
#      ,IP ADDRESS
#      ,PORT
#      ,STA
#      A -
#      B
#      C
# 5      10      20      20      10
#-----,-----,-----,-----,-----,-----
YES ,NMS      ,USI-MC40001 ,      , -1 , X
YES ,NMS      ,      ,      , -1 , X
YES ,NMS      ,      ,      , -1 , X
YES ,NMS      ,      ,      , -1 , XX
YES ,NMS      ,      ,      , -1 , X
YES ,NMS      ,      ,      , -1 , X
YES ,NMS      ,      ,      , -1 , X
YES ,NMS      ,      ,      , -1 , X
```

The control panel could connect to as many as eight individual MC-400 cards (channels). In contrast, the MCP-400 is limited to one channel of master control connection.

For single channel operation, place the name in the first row of the connection table as shown in the config file.

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