# rMan

## Utah Scientific
## Router Management

CELEBRATING 25 YEARS OF SERVICE TO THE BROADCAST INDUSTRY

**US Utah Scientific**

## rMan Operations Guide

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**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 rMan Control System is conformance with the following standards:

- EN50081-1 Generic Emission Standard
- EN50082-1 Generic Immunity Standard
- IEC-950 Product Safety
- C-UL 1950 Product Safety
- UL 1950 Product Safety

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

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

$$C \, \epsilon$$

## *Important Safeguards and Notices*

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

### Safety Symbols

• Hazardous Voltage symbol

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

### Warnings

Please observe the following important warnings:

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

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

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

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

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

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

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- 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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# *Chapter 1* **- The rMan Interface**

## Introduction

This is essentially the introduction to the rMan Utility.

## System Overview

The rMan Utility has been developed as a management tool for Utah Scientific's Router Operations. Once the SC-4 and control panels have been configured using the U-Con utility, rMAN is utilized for system status and maintenance.

rMan can be used throughout the life of the facility's router operations for effective observation and maintenance. The program is also designed to offer corrective 'advice' when certain problems develop. This may involve certain steps or specific corrective action to resolve conflicts.

# Installing rMan Software

Locate the system CD that should have been provided with the SC-4 controller. (If you do not have this CD, contact Utah Scientific Customer Support at 800-447-7204). On the CD you will find a folder called *Install 2020*. Open this folder and then open the folder called *release-rMan*. Double-click the *setup.bat* file -- this will install Java onto the PC (required), followed by the rMan application.

Locate and double-click the rMan icon on the desktop to launch the program.

Make sure an Ethernet connection exists between the SC-4/400 and the PC containing the rMan application. Follow the standard Ethernet protocol for the connection, using CAT5 cable. A crossover cable is required if running directly between the devices.
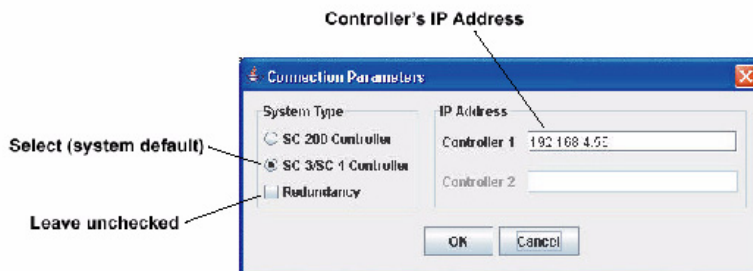
## Connection Parameters



**FIGURE 1-1.**

This is the first window that will appear when rMan is launched. Make sure the default IP address is correct, or enter the correct address at this time.

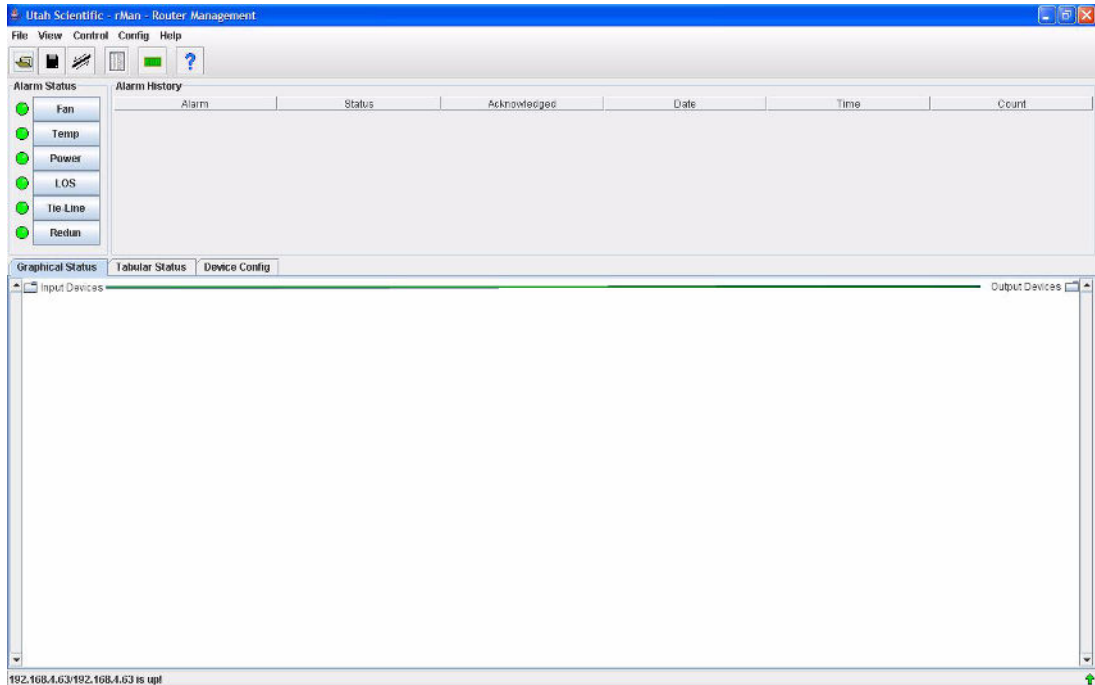The following screen will appear once a connection has been established.



**FIGURE 1-2.**

As you can see, all connection detail is minimized in the folder view (large white area).

## Status Bar

Located at the bottom of the display, the Status Bar displays the current connection activity. The green [up] arrow on the right side indicates an 'active' connection.
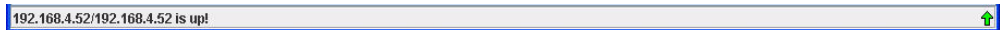


If the green arrow is not visible, establish a connection by selecting 'Connect' from the File menu, or by clicking the connect icon (just below the Control menu).

# Main Screen

Typically the user will begin running rMan after the system is configured and running. The user is initially provided with the current alarm status and alarm history.
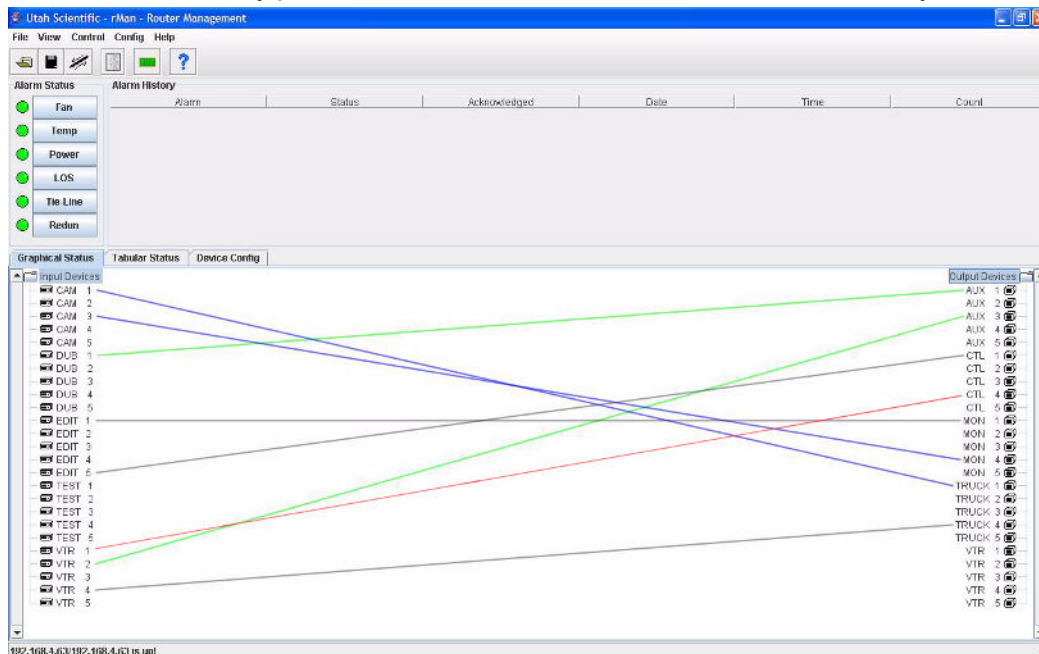


**FIGURE 1-3.**

Once a connection has been established, you will see the IP address along the lower-left corner of the display, and a green (up) arrow in the lower-right corner.

Alarm LEDs will display green initially, then turn red if any alarm conditions exist.

## *Alarm Status*

*See Chapter 2 for more information regarding Alarm Status and History.*

# Graphical Status

Graphical Status is a powerful way to view router connections.

Connection Lines

The lines you see connecting the right and left columns (devices) indicate an actual connection between the Input device and an Output device through the router. The different colors have specific meanings:

Blue – Video connection

Green – Audio connection

Gray – Other kinds of connections (General), such as video and audio together. Data routing can also be black.

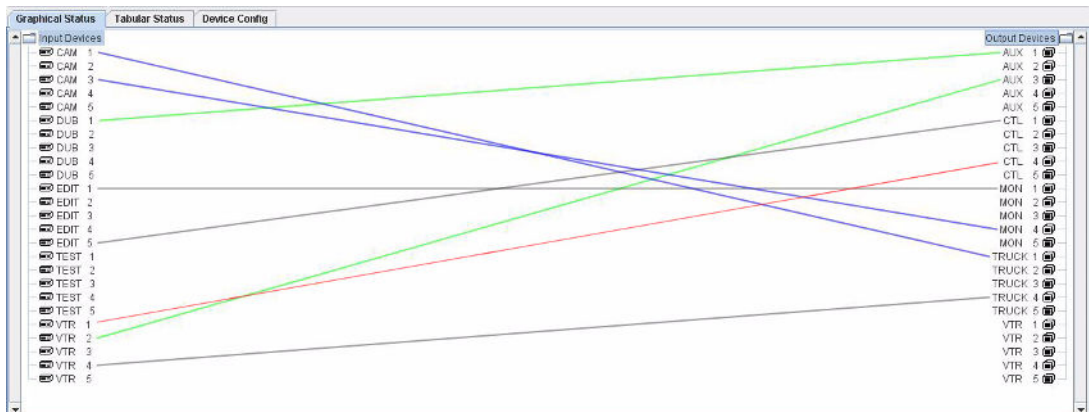Red – This indicates a Tie Line connection. The red line also indicates tie line status.



**FIGURE 1-4.**

# Constructing a Folder View within *Graphical Status*

The Folder View file modification is the process of organizing essential display activity into manageable directories (folders) for easier reference. You will start with the default flat view of the layout (Fig. 1-4) then construct new folders associated by Group Names. The file modification process consists of adding the appropriate HTML code to the beginning and end of each group block within your saved file (see illustration). The illustration will contain references to the start and stop points that will be used for the HTML markers.

### Flat View

The Flat View exists as a convenience for the user, as the operator is not required to create a file to start up. Specifically, when rMan is first run, there is no file associated with the view, so the system simply obtains default information from the SC-4 and creates a device listing. The user can save this information as a file for convenience.

### Device format (analog or digital views)

Organizing Input and Output devices into folders helps to minimize clutter and gives a high-level, layered view of the router status. rMan gives you the ability to organize devices by geographic location within your facility. This is possibly the most useful way of viewing system status. Device management of this type can involve edit bays, control rooms, switchers, video areas, etc.

## Folder View - File Construction

This guide contains an example of the finished (saved) XML file that you will be working with prior to creating the folder view. This XML file will contain the Input and Device name, along with all other applicable devices. You'll use this file to essentially construct new groups into a better organized folder view.

As mentioned, the file modification consists of adding the appropriate HTML code to the beginning and end of each group block (in the already saved XML file). This process involves simply the copy and paste of a short text string at the beginning and end of given text blocks. *This will be illustrated in our example.*

### *Procedure*

While in the flat view (Figure 1-4), select Close from the File menu. When this is done, all detail contained in the large white display area will *minimize down* to show only the Input and Output devices.
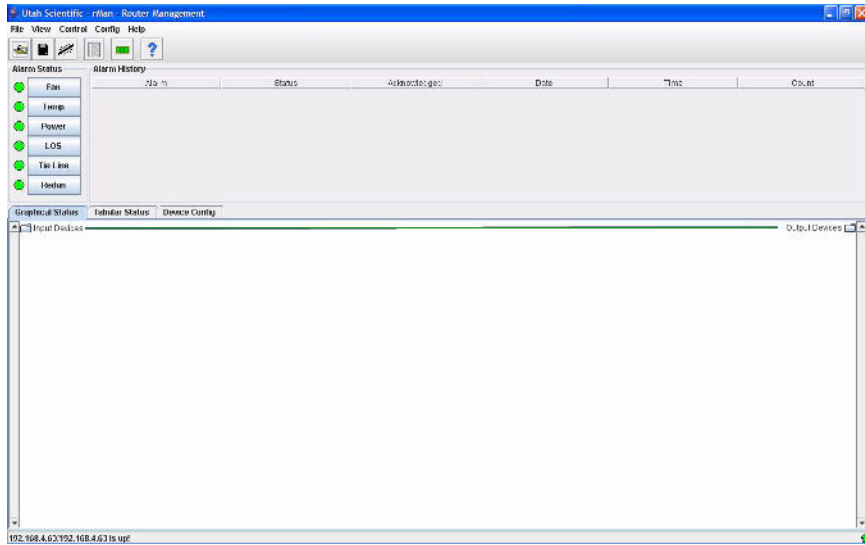


**FIGURE 1-5.**

At this point return to the *File* menu and select **Save**. This will open a standard Save dialog that will default (for the save) to the last hard drive location. Name the file, and make sure you add a **txt** extension. Click OK to close the window.

Next, close the rMan application completely, then open a text editor (such as *Notepad*) and open the just-saved file. The file will look similar to this:



```
File  Edit  Format  View  Help
<?xml version="1.0" encoding="ISO8859-1" ?>
<rMan type="statusview">
        <input>
                <device name="???? 101" />
                <device name="???? 102" />
                <device name="???? 103" />
                <device name="???? 104" />
                <device name="???? 105" />
                <device name="???? 106" />
                <device name="???? 107" />
                <device name="???? 108" />
                <device name="???? 109" />
                <device name="???? 110" />
                <device name="???? 111" />
                <device name="???? 201" />
                <device name="???? 202" />
                <device name="???? 203" />
                <device name="???? 204" />
                <device name="???? 001" />
                <device name="???? 002" />
                <device name="???? 003" />
                <device name="???? 004" />
                <device name="???? 005" />
                <device name="???? 006" />
                <device name="???? 007" />
                <device name="???? 008" />
                <device name="???? 009" />
                <device name="???? 010" />
                <device name="???? 011" />
                <device name="???? 012" />
                <device name="???? 013" />
                <device name="???? 014" />
                <device name="???? 015" />
                <device name="???? 016" />
                <device name="???? 017" />
                <device name="???? 018" />
                <device name="???? 019" />
                <device name="???? 020" />
                <device name="???? 021" />
                <device name="???? 022" />
                <device name="???? 023" />
```

**FIGURE 1-6.**

Before proceeding, click 'Save As' from the File menu, and place an XML extension at the end of the file name.

**example: rman1.xml**

It is at this point that you'll add the proper HTML 'open and 'close' text strings to the indicated text blocks. These HTML strings are easy to use, and if you have experience with HTML code you will already be familiar with them. In this exercise we will be breaking the devices you see listed above (Fig. 1-6) into manageable groups, so we'll be placing group 'open' and 'close' markers at specific locations. These locations are determined by preference -- or where you would like the devices to start and end in each group. (See the next Figure).

The HTML string for 'open' group is

### &lt;group name="VT"&gt;

The "VT" in the above example is the VTR reference found in the original text file, and will appear in the finished rMan folder view. This could also refer to other devices, such as CAM, AUX, NT, etc.

The HTML string for the 'close' group is

### &lt;/group&gt;

When complete, your edited text file should look similar to this:

```
rman view
<?xml version="1.0" encoding="ISO8859-1" ?>
<rMan type="statusview">
        <input>
                <group name="VT">
                        <device name="VT    001" />
                        <device name="VT    005" />
                        <device name="VT    007" />
                        <device name="VT    008" />
                        <device name="VT    009" />
                        <device name="VT    002" />
                </group>
                <group name="NT">
                        <device name="NT    001" />
                        <device name="NT    002" />
                        <device name="NT    003" />
                        <device name="NT    004" />
                        <device name="NT    005" />
                        <device name="NT    006" />
                        <device name="NT    007" />
                        <device name="NT    008" />
                        <device name="NT    009" />
                        <device name="NT    010" />
                </group>

        </input>
        <output>
                <group name="VT">
                        <device name="VT    001" />
                        <device name="VT    002" />
                        <device name="VT    015" />
                </group>
                <group name="AX">
                        <device name="AX    005" />
                        <device name="AX    006" />
                </group>
        </output>
</rMan>
```

**FIGURE 1-7.**

Notice that the devices are now separated into manageable group blocks.

Now re-save this file (making sure the 'XML' extension is in place), re-launch rMan, then open the new file.

You will now have a revised graphical folder view of your components, as opposed to the 'flat' view that was previously available.
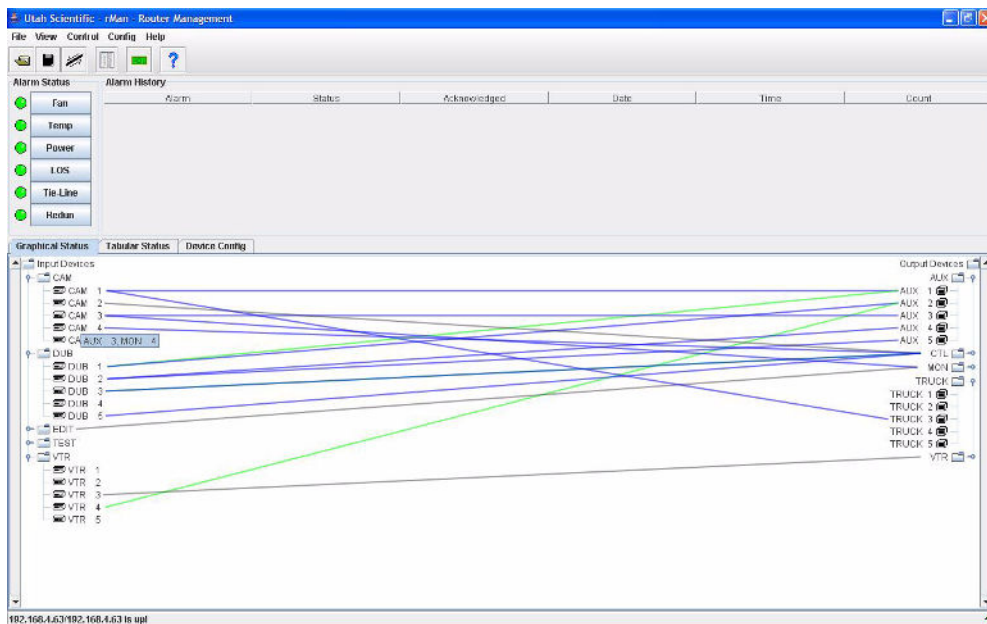


**FIGURE 1-8.**

You can organize different sets of devices within a facility, then place this listing in a view file for convenience. It is possible to have different views of the system by creating different files (above procedure). A file simply contains a definition as to how the view should look.

## Tabular Status

Tabular Status is the traditional way to view router status. Destination devices are displayed on the left, while connected source status is listed to the right.

**FIGURE 1-9.**

The above view contains the actual status of the names within the system, rather than graphical connections only. This includes the mnemonic names of each connection, with real time updates shown in the 'Source Name' column.

### *The Device Number – Examined Further*

The device number is associated with various 'mappings' that are taking place within the SC-4. Device numbers are in effect, markers that the SC-4 uses to place devices within the table. All items – whether they're cameras, monitors, or anything else – get 'device numbers' that are utilized during the switching process, and everything in the control panel contains a device number for switching purposes.

Numbers are also 'mapped' to given 'Levels'. The 'mapping' is a means for directing the signal to the appropriate crosspoint in the router, so that the switching can occur at the right place.

### *Device Configuration*

This table is an actual readback of the current Source and Destination list taken from the SC-4. This is a global crosspoint table that is used by all devices such as control panels, master control switchers, and automation programs attached to the SC-4. These devices all use the same index table that in turn, maps to the individual cross-point numbers for the different level formats of video, audio, data routers, etc.

Click the Source or Destination button (found in the Device Configuration table) to view the index table with its associated level crosspoints.



**FIGURE 1-10.**

# Event Log

The Event Log is essentially a listing of all actions that have occurred. To locate this listing, select Event Log from the View menu. (You can also select Event Log from the icon toolbar.)

## Individual Messages

A 'Take' message will contain associated Device Numbers. The message will, in turn, indicate what actual physical inputs and outputs switched on the Router.

Within the Event Log, you can click on the Headings to sort them in a given manner. This procedure is helpful in searching for an individual event.

You have the ability to sort the headings in a column basis. When new events are activated, they will automatically drop to the bottom of the column in a scrolling fashion. New events can be viewed by scrolling to the bottom of the listing.



**Note:** *Note: New takes coming into the program display will be added at the bottom of the list. This can amount to a lot of activity within the list, making the location of older entries difficult. Use the toggle button to pause the Auto-Scroll. For convenience, this will keep the screen from updating and allow the user to scroll and search for specific entries.*

## Sorting

This is a new addition to the program, and you can sort by Event, Time, or by Details. Clicking any of the column buttons (top) gives you different sorting capabilities for that particular column detail. The arrow upward will place the most recent activity at the bottom of the column. The Event column can be sorted alphabetically; with an 'arrow up' sorting from A to Z, while the down arrow sorts Z to A. The default sorting method is down arrow. The most recent activity is displayed at the bottom of the list, and the oldest detail will appear at the top of the column display.

### *Pause Auto-Scroll*

When clicked, program Takes are 'still stored' within the SC-4, but are not displayed (for scrolling) within the Log. This is useful because in active scrolling situations, detail is arriving in the log too quickly for there to be a coherent display.

# Take Panel

The Take Panel provides a means for displaying the current status information for any of the controller's Inputs and Outputs. The Input, Output, and a Level selection must be made (bottom checkbox) to activate the Take button. When the Take button is clicked, a take is performed and current status for the last take (associated with the Input, Output, and Level) is displayed at the bottom of the dialog box. Selecting a different Output from the list causes the Take button to turn gray, indicating that the source box and levels check boxes are showing current status.

With a video encoder in place, the program provides a display for the selected Output in the large view area.



**Status Display**

**Level Select**
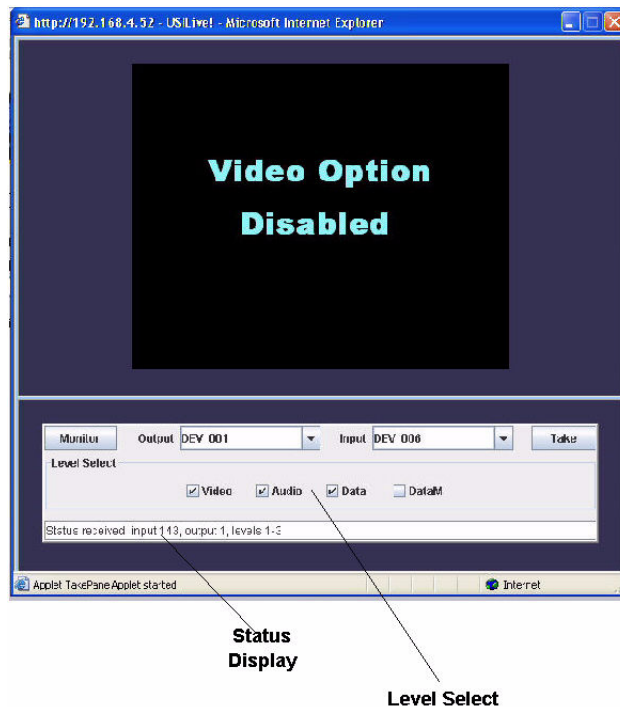
To use the viewer, attach the monitor output from the digital router to the encoder unit that is attached to the PC. To view a specific output, select it from the output dropdown box and then press the monitor button.

*Important: An Internet browser must be correctly mapped to the operating system for this utility to work properly. For the setup procedure, see next.*

## Mapping Verification

Mapping Verification is the method for activating your Internet browser, so that each time the rMan Take Panel is used your selected browser automatically appears. The following steps will cover the setup process; and will allow you to verify the browser currently in place, change the browser (selection), or add one if none currently exists.

From the **Start** button, select *Control Panel*, then *Printers and Other Hardware*. Next, select 'System' (menu item on the left), the *Advanced* tab, then 'Environment Variables' (button near the lower-left area).
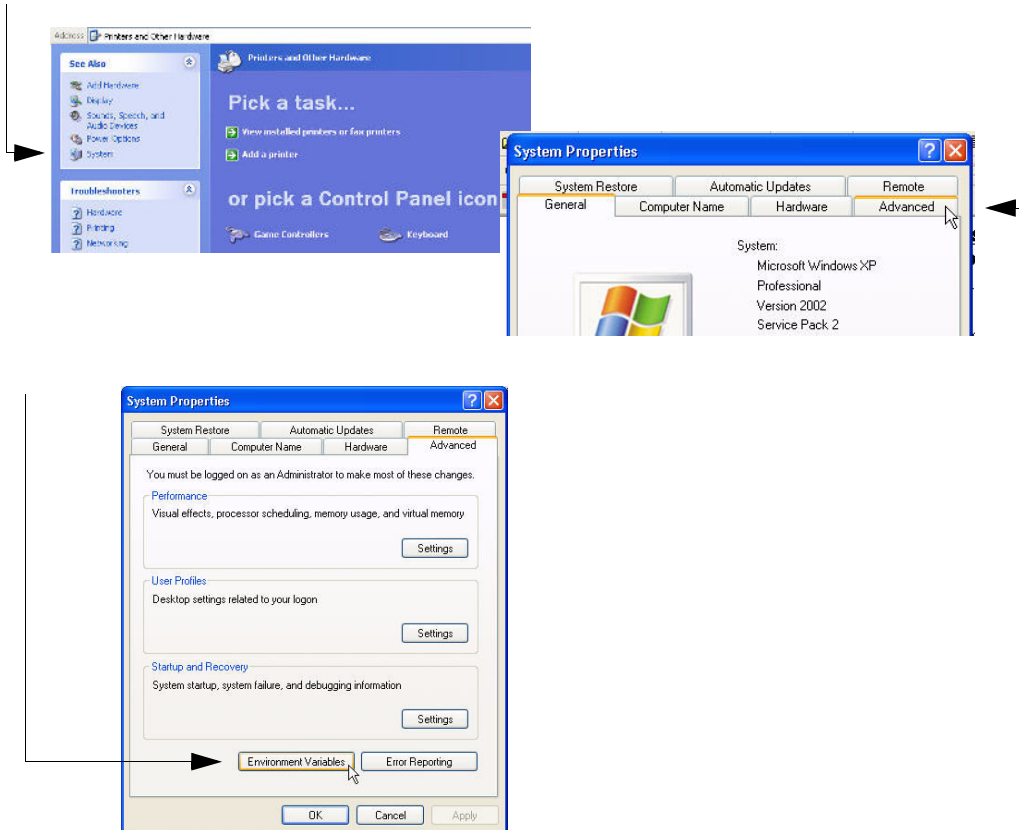




**FIGURE 1-11.**

In the 'System Variables' window, scroll down until 'Path' is visible. Highlight 'Path, then click the Edit button.
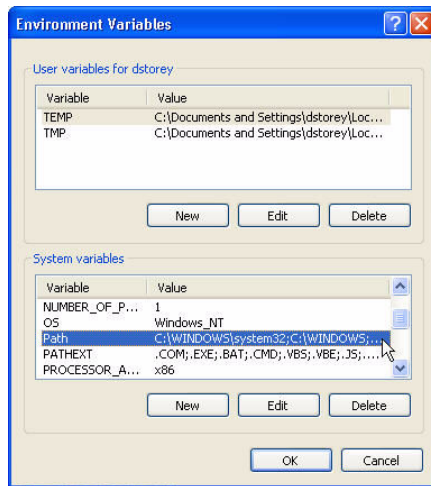


**FIGURE 1-12.**

When the Edit window appears, go to the 'Variable Value' text box and type the following Immediately after the semi-colon:
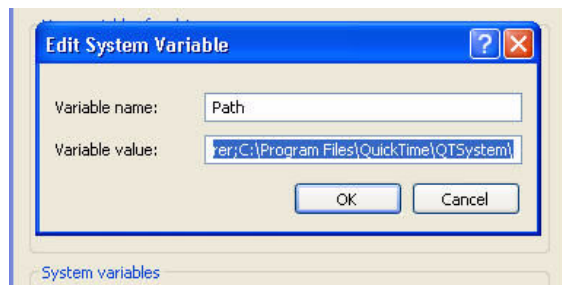


**FIGURE 1-13.**

This is where the name of the current Internet browser needs to appear, immediately after the last semi-colon. If it is already there, do nothing. If there is no semi-colon and/or you do not see the name of the Internet browser, type the following:

c:\Program Files\Internet Explorer

(You can substitute *Internet Explorer* with another browser if you prefer.)

When the above has been entered, click **OK** to close all dialog windows.

## Returning to rMan After Mapping

You can now activate the Internet browser by accessing the Take Panel (Control menu).

The above action allows the web page associated with the SC-4 control panel to launch. When you select the Take Panel, the user name and password entry dialog will appear.



These are currently set as defaults: admin for username and admin for password. *Not changeable at present.*

Click the Login button (shown above). This will direct you to a sub-browser (dialog). The video output (if present) is the output of a decoder card, or the monitor output of the router. The actual video display is optional and is driven by a separate video card.
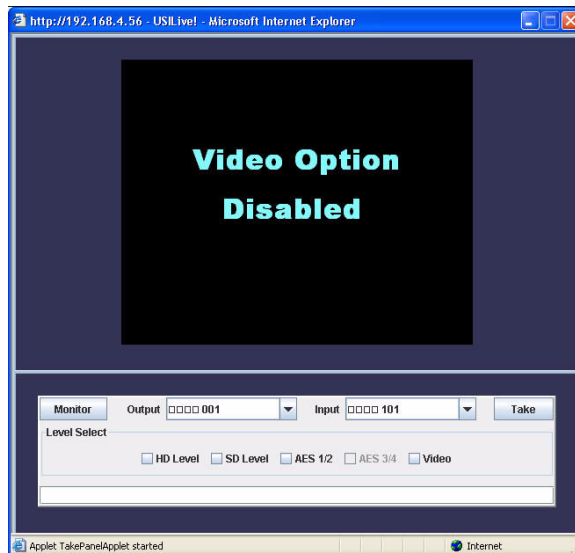


The control area (lower portion of the screen) is essentially an Ethernet control panel, in sync with the SC-4. The input and output lists (dropdown menus), contains all current system devices.

Making Output selections, as an example, is simply a matter of highlighting the item from the dropdown menu. The Levels that are currently available for the selected output will appear under the dropdown list.



You can highlight the levels you want to associate the Take *to* by clicking their associated checkboxes. Clicking the Take button will perform the actual switch. The switch will be confirmed in the bottom white bar (message area).

Clicking the 'Monitor' button will switch the selected Output to the monitor bus for verification (viewing) purposes.

> *Important to Note*
>
> *It is not mandatory for rMan to be operating to achieve the above monitoring. Using the SC-4's IP address, you can go directly to the SC-4's web page and perform the same functions. Do this by selecting the (4th) item in the listing – SC-4 Router Control.*

**Chapter 1**

# *Chapter 2* **- rMan Alarms and Alerts**

## rMan Alarms

rMan monitors the alarm status, including the severity of the condition and the alarm's history.[1]

Alarm Status – Alarm Status is defined by the LEDs that are displayed on the interface. A red LED indicates a minor error, flashing red indicates a major error, and a green LED indicates a cleared status. View

Clicking the button next to the LED will provide specific status information regarding the nature of the alarm.

## Alarm Types

### *Tie-Line Alarms*

A Tie Line Alarm is likely the most frequent alarm you will encounter.Tie Lines support transparent signal conversion. Tie Lines are limited in number, and Tie Line alarms occur when the system has reached its capacity.

Groups of Tie Lines can be managed together as a 'pool', and when a tie line pool reaches its pre-configured alarm threshold, the alarm is produced. This will not be a major alarm since no critical operations are affected, but when the capacity is exceeded, the alarm status becomes major.

When a Tie Line alarm occurs, you will be prompted to find the current locations for tie line use, then disconnect the ones that are not neces-

---

1. Currently, the only alarms that are functional are the tielines and LOS alarms.

sary. You can determine what destinations are using tie lines by simply looking at the graphical interface and seeing where the red lines are connected.

## Alarm History

The Alarm History reflects the 'Life Cycle' of an alarm condition. Meaning, an alarm will exist until the status is cleared and the user has clicked 'Acknowledge' on the dialog display.

If an alarm condition appears and later subsides without anyone verifying it, the alarm still exists as an 'alarm condition' until it is acknowledged. Once the alarm is acknowledged and cleared, it then will assume a 'green' or cleared status. The program provides a count of the total number of times an alarm has occurred before being acknowledged.

Alarm events also appear in the Event Log as line items

## Email Alerts

rMAN can automatically send email alerts any time an alarm event occurs. The list of recipients is definable within the program.
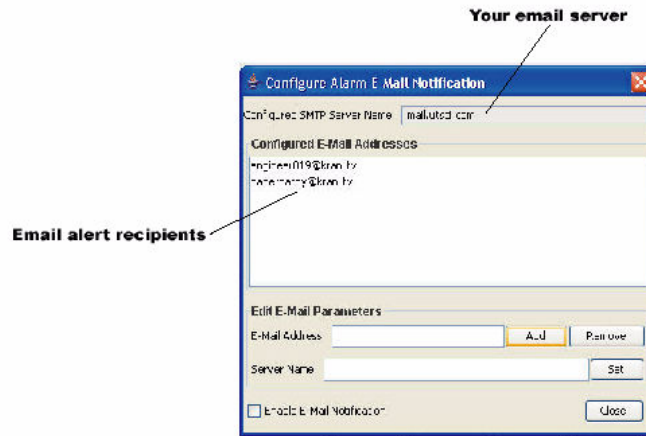
### *Email Configuration*

A listing of email addressed (for the alert notification) is configured within the SMPTE mail server.



Addresses are either enabled or disabled at this location. To add a new email address, just type the new address in the provided window and click Add. The complete list of addresses will appear in the larger window (illustration on right). You can

also designate the Server Name you will be using for Email. Changes made are saved in the rMAN settings file.

Chapter 1

## *Index*