

# Operations Manual

# RouteWarePRO 4.0

## Control & Monitor Software



Communications - Telemetry - Automated Testing - Broadcast



Global Signal Switching and Distribution Specialists

Made in the USA

## Warranty

This Universal Switching Corporation product is warranted against manufacturing defects and workmanship for a period of two years from the date of shipment from our factory. During this period, Universal Switching will, at its option, either repair or replace products which prove to be defective or out of specification per the original purchase order or contract. Damage by misuse or abnormal conditions of operation or evidence of partial or complete disassembly beyond normal maintenance or expansion procedures voids this warranty. Since Universal Switching Corporation has no control over conditions of use for the products it manufactures, no warranty is made or implied as to the suitability for the customer's intended use, beyond such performance specifications as are made a part of the purchase order or contract.

Equipment shipped F.O.B. Universal Switching Corporation shall become the property of the Buyer upon delivery to the carrier. Equipment shipped F.O.B. Destination shall become the property of the Buyer upon delivery acceptance from the carrier. Damage during shipment, for items shipped F.O.B. Universal Switching Corporation should be handled by immediately requesting the carrier's inspection upon evidence of damage to the equipment. This warranty excludes all other warranties expressed or implied. Universal Switching Corporation shall not be liable for any special, indirect, or consequential damages.

For warranty service or repair, the Buyer shall prepay shipping charges to Universal Switching Corporation, and Universal Switching Corporation shall pay shipping charges to return the product to the Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Universal Switching Corporation from another country.

Universal Switching Corporation warrants that its software and firmware designated by Universal Switching Corporation for use with an instrument will execute its programming instructions when properly installed on that instrument. Universal Switching Corporation does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error-free.

---

# CONTENTS

<b>1. GETTING STARTED .....</b>	<b>7</b>
<b>1.1. Installation Requirements .....</b>	<b>7</b>
<b>1.2. First Time Installation .....</b>	<b>7</b>
1.2.1. RW.ini file install .....	8
<b>1.3. Update Installation .....</b>	<b>9</b>
1.3.1. Uninstall .....	9
<b>1.4. License Activation .....</b>	<b>10</b>
<b>2. INITIAL SETUP .....</b>	<b>11</b>
<b>2.1. Terminology .....</b>	<b>11</b>
<b>2.2. Before Launching RouteWarePRO 4.0 .....</b>	<b>11</b>
<b>2.3. User Hints .....</b>	<b>12</b>
<b>2.4. Launching RouteWarePRO 4.0 .....</b>	<b>12</b>
<b>2.5. New Panel .....</b>	<b>12</b>
2.5.1. Selecting a TCP/IP Port .....	14
2.5.2. Module Control Selection .....	16
2.5.2.1. Multiple Modules (no "Poles" listed) .....	17
2.5.2.2. Ganged Mode and Poles .....	17
2.5.3. Resource and Switch Fields .....	17
<b>2.6. Title Bar .....</b>	<b>19</b>
2.6.1. System Health Indicator .....	19
2.6.2. Software Title .....	19
2.6.3. Panel Name .....	19
<b>2.7. Global Settings .....</b>	<b>19</b>
2.7.1. Update Interval .....	20
2.7.2. Auto Scroll .....	20
2.7.3. Activity Log .....	20
2.7.4. Edit rw.ini .....	20
2.7.5. Export Activity Log .....	20
2.7.6. View Activity Log .....	20
2.7.7. Operations Manual .....	21
<b>2.8. Multiple Sessions .....</b>	<b>21</b>
<b>3. TAB DEFINITIONS .....</b>	<b>23</b>
<b>3.1. Select Tab .....</b>	<b>24</b>
3.1.1. VISA Resource .....	24

<b>3.2. Commands Tab.....</b>	<b>24</b>
3.2.1. File Store / Recall.....	25
3.2.2. Batch Add / Delete .....	26
3.2.3. Device Memory Location .....	26
3.2.4. Sort By .....	26
3.2.5. Clear All.....	27
3.2.6. Connect Button.....	28
3.2.7. Disconnect Button .....	28
3.2.8. X-point View.....	28
3.2.9. OUTputs / Inputs / MODules Tables.....	28
3.2.10. Renaming Outputs and Inputs.....	29
<b>3.3. Connections Tab.....</b>	<b>30</b>
3.3.1. Display .....	30
3.3.2. Send To / Send .....	31
3.3.3. X-point View.....	31
<b>3.4. Information Tab .....</b>	<b>32</b>
3.4.1. Auto Interlock Indicator .....	32
3.4.2. Auto Restore Indicator .....	33
3.4.3. Slot Num .....	33
3.4.4. Avail?.....	33
3.4.5. Mod ID.....	33
3.4.6. Ins / Outs.....	33
<b>3.5. Status Tab.....</b>	<b>34</b>
3.5.1. Power Status .....	34
3.5.2. Faults.....	34
3.5.3. Supply 1 / Supply 2.....	35
3.5.4. Generate Report.....	36
3.5.5. Self Test .....	36
3.5.5.1. Self Test Result Window .....	36
3.5.6. CPU 1 / CPU 2 Battery.....	36
3.5.7. PRJ1 / PRJ2.....	36
<b>3.6. Settings Tab.....</b>	<b>37</b>
3.6.1. Title Text Color.....	37
3.6.2. Background Color.....	37
3.6.3. Inactivity Timeout .....	37
3.6.4. Network ID.....	38
3.6.5. Internal Ganging .....	38
3.6.6. Auto Interlock .....	38
3.6.7. Auto Restore .....	38
3.6.8. Beep on Error .....	38
3.6.9. LXI Identification .....	38
3.6.10. Unlock Local Control / Lock Local Control .....	38
3.6.11. Matrix Type .....	38
3.6.12. Send RESET.....	39
3.6.13. GET? / SET Function .....	39
<b>3.7. About Tab .....</b>	<b>40</b>
<b>4. THE RW.INI FILE.....</b>	<b>41</b>
4.1.1. Sections and Parameters .....	41
4.1.2. Routeware.ini file.....	43

---

- 5. RESOLVING ISSUES ..... 45
  - 5.1. Can't Find Product ..... 45
  - 5.2. Resource Name Examples..... 45
- 6. RECORD OF CHANGES ..... 47

**TECHNICAL SUPPORT**

Phone +1 818-381-5111  
Fax +1 818-252-4868  
Email [support@uswi.com](mailto:support@uswi.com)

7671 North San Fernando Road  
Burbank, CA 91505-1073 USA

---

# 1. Getting Started

---

This section provides instructions for the first time installation or updated installation (from a legacy version) of RouteWarePRO 4.0.

**NOTE:** The supplemental [Programmers Guide](#) is referenced throughout this manual. You can find the *Programmers Guide* on the Disc that shipped with your order or you may download a copy by clicking on the hyper-linked title.

## 1.1. Installation Requirements

---

RouteWarePRO 4.0 requires the following minimum system specifications to install.

- Administrator level user access (necessary for install / uninstall only)
- Microsoft Windows XP (32-Bit), Windows 7 (32 or 64-bit), Windows 8.1 (32 or 64-bit), Windows 10
- GPIB, Ethernet, serial port (RS232, 422, or 485), or USB port

## 1.2. First Time Installation

---

**NOTE:** Please read Section 1.2 in its entirety before continuing with the install.

To install, insert the RouteWarePRO 4.0 CD into the designated computer and follow the on-screen instructions. Select the installation option that matches the version purchased:

- **Software Activated:** Activation using software license key code. Activation is over the internet, email, or telephone and is tied to the hardware present in the PC. To change PC's or if making major hardware changes (like swapping HDD's), uninstall/deactivation is required.
- **Hardware Key License:** Install this only if you have a RouteWarePRO USB Key. This version may be installed on multiple PC's or swappable HDD's. The software will operate on any PC with the USC Hardware Key present in a functional USB port.

If the "Autorun" function is disabled, run autorun.exe from the root directory of the CD. The setup wizard walks you through the installation process. The install package includes all relevant run time engines required for the software to operate.

With some GPIB interfaces, you may need to install support for your specific hardware (such as the NI488 interface, NI488220). Refer to your interface hardware documentation for hardware specific VISA driver requirements. The latest versions of the LabVIEW and NI-VISA runtimes are available from National Instruments ([www.ni.com](http://www.ni.com)).

**NOTE: Installation may require removal or upgrade of previous runtime versions that other applications may need.**

NI is a registered trademark of National Instruments  
Copyright ©2014 National Instruments Corporation. All Rights Reserved.

### 1.2.1. RW.ini file install

The RW.ini file is thoroughly documented in Section 4. The file is used for customizing the software i.e. titles, channel names, color schemes, etc. Depending on the location of the file, it can be customized per user account or for a global “All Users” account.

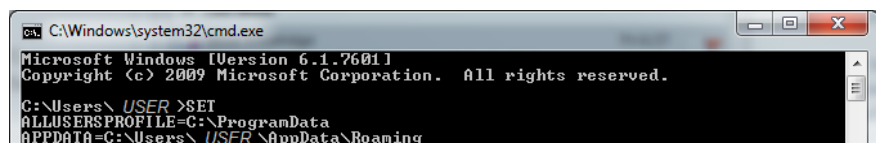
During the installation process, you may choose to perform a Complete or Custom setup type. The default selection is “Complete”. This option will allow for individual user account customization of the software. It will place the RW.ini file in the appropriate location on the user’s profile. A Windows 7 folder location example is shown below:

```
C:\Users\USER NAME\AppData\Roaming\rw.ini
```

By selecting the “Custom” setup type, you will be given the option to install the AllUsersProfile configuration file. This option places the RW.ini file in a public location so that all users will share the same RouteWarePRO customizations. A Windows 7 folder location example is shown below:

```
C:\ProgramData\rw.ini
```

Note that the exact folder locations are customizable in the Microsoft Windows operating system. Use the SET command in a Command Prompt to determine the exact location of the folders in your system, screen shot below:



```
ca: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\ USER >SET
ALLUSERSPROFILE=C:\ProgramData
APPDATA=C:\Users\ USER \AppData\Roaming
```

To change the locations of the folders use the following parameters:

```
SET [variable]=[string]]
```

```
variable Specifies the environment-variable name.
string Specifies a series of characters to
assign to the variable.
```



---

## 1.3. Update Installation

---

To update an existing installation of RouteWarePRO, it is recommended that you first uninstall previous versions of RouteWarePRO and associated NI run time engines. Configuration files created for previous installations will not be interfered with.

### 1.3.1. Uninstall

The uninstall process removes all RouteWarePRO 4.0 files installed by the setup program. None of the RouteWarePRO configuration or log files are changed or removed when RouteWarePRO is uninstalled or re-installed.

Uninstalling also de-activates the license seat (software activated version only), making it available for installation onto another machine. It is recommended that backup of any customized configuration files is performed as well as verification of an active Internet connection before uninstalling RouteWarePRO

To uninstall RouteWarePRO 4.0, open the Windows Control Panel and run "Add or Remove Programs" tool, or run the RouteWarePRO 4.0 installer from the installation CD.

***NOTE: The activation service keeps track of the RouteWarePRO 4.0 license seats available. RouteWarePRO 4.0 should be uninstalled from machines that are no longer using the software. The uninstall activity needs to be updated over the Internet by the uninstall process to open an activation seat.***

---

## 1.4. Software License Activation

---

When you launch a non-activated installation of RouteWarePRO 4.0, you will be prompted to activate the software or continue with the evaluation period. Without activation, RouteWarePRO 4.0 operates for a trial period of 30-days. This unrestricted evaluation period permits the user to evaluate RouteWarePRO 4.0 free of charge, or to start using it immediately even if the activation service is temporarily unavailable.

When you purchase RWP4.0, you will receive a unique software serial number. For physical copies that are shipped, the serial number will be labeled on the CD packaging. For copies that are purchased and delivered electronically, the serial number will be emailed to you. Contact [support@uswi.com](mailto:support@uswi.com) with your purchase order number if you do not have or cannot locate the RWP serial number.

By default the software utilizes an on-line activation service for managing software licenses. When attempting to activate the software, the activation request is sent to the activation service through a secure Internet connection (SSL). This request includes the software license codes and the computer's 64-bit machine serial number and 32-bit machine disk identifier. The activation process is autonomous and never requests, collects, or transmits personal information. It does not scan hard drives, and none of the information collected can be used to identify individual hardware components.

If an activation attempt fails, options for activating by phone or email are displayed. Either option will generate an Activation Request Code. Contact USWI support ([support@uswi.com](mailto:support@uswi.com), 818-381-5111) with this code and the RWP serial number so that the Activation Response Code can be generated.

The activation service automatically manages the available seats for a given license restricting simultaneous activations to the quantity purchased.

***NOTE: The activation process is autonomous and does not request, capture, collect or transmit personal information.***

---

## 1.5. Hardware Key

---

As simple as it sounds! This version of RWP4.0 will only run when the USB key is installed on the computer. Remove the key and the software will not function. If you need a replacement key for whatever reason, contact support. If you need to convert from a software activated version of RWP4.0 to a Hardware Key version, you must un-install the software version first then install the hardware version. For convenience, both versions are included with the CD-ROM that came with your purchase.

## 2. Initial Setup

---

RouteWarePRO 4.0 is designed for immediate use with minimal start-up steps. The following sections provide information on the buttons, tabs, indicators and features of RouteWarePRO 4.0.

### 2.1. Terminology

---

Specific terminology is used in the RouteWarePRO 4.0 application, and in this Installation and Operation Manual.

- System or switch: A system (or switch) contains at least one module and may contain multiple modules.
- Panel: a selected collection of crosspoints within a module or system
- Gang: When two or more modules function in parallel, typically when accessed as a “virtual” single module or “pole”
- Poles: “Virtual” modules that represent two or more “actual” modules which are “ganged” together
- *Italicized* items in this manual represent titles in the program.
- **Bold** items in this manual represent selectable buttons in the program

### 2.2. Before Launching RouteWarePRO 4.0

---

RouteWarePRO 4.0 utilizes an automatic identification method for determining which units are available to operate. Before you launch the application, verify that all products to be used with RouteWarePRO 4.0 are powered and connected via the desired remote control interface. You may also have to add RouteWarePRO 4.0 as an exception to the Windows Firewall.

Also verify that the switch to be operated by RouteWarePRO 4.0 is not being remotely controlled by other equipment. Note that the various ports on your host are “shared resources”. When a process running on your host wants to access a resource, it may lock that resource for at least some of that access.

For example, the *HyperTerminal* application that ships with Windows maintains a lock on its serial port all the time that it’s in the connected state. (When it’s in the disconnected state, it releases the lock.)

The RouteWarePRO 4.0 application, on the other hand, locks the resource when it is actively sending a command and releases it as soon as the response arrives. (This is also true of the LabVIEW drivers for Universal Switching Corporation products.) As a result, if an application like *HyperTerminal* is launched while the application is

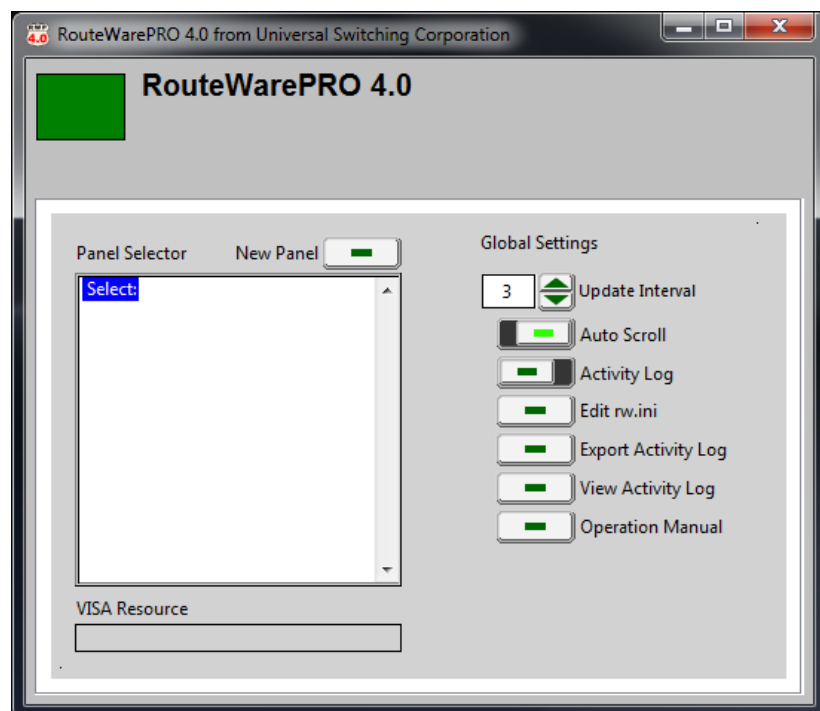
running, it may lock your resource and keep the application from sending commands until it is placed in the disconnected state.

## 2.3. User Hints

When hovering over the various tabs, buttons, and tables, user hints appear. These brief descriptions are meant as guides or reminders to program functionality. Full explanations of functions are found in this document.

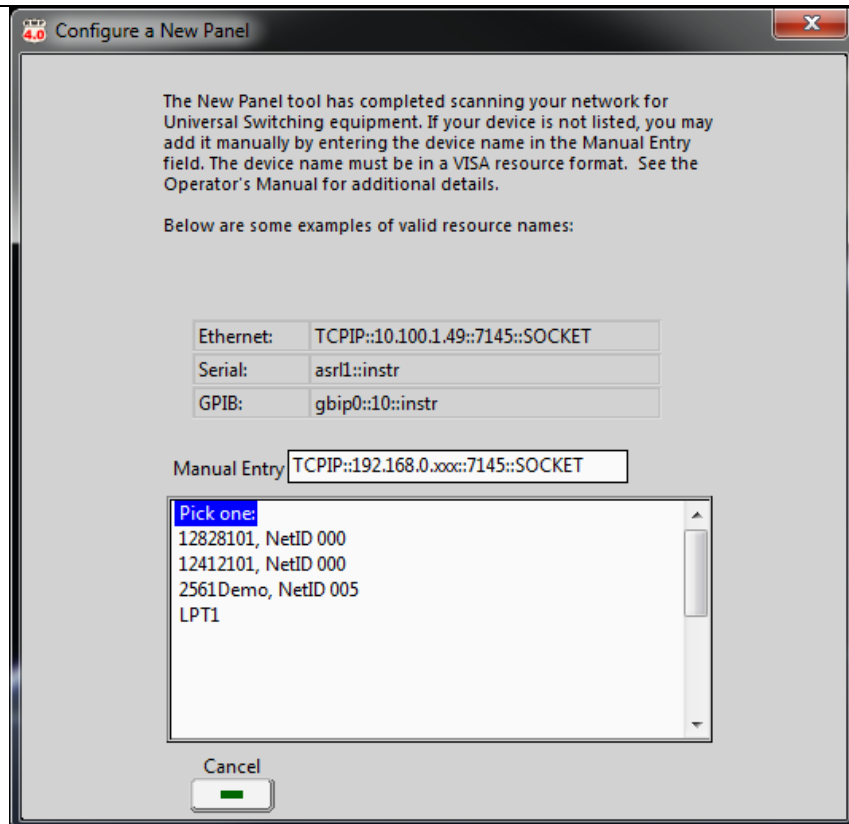
## 2.4. Launching RouteWarePRO 4.0

Upon launching RouteWarePRO 4.0, the program interface is shown and the *Panel Selector* list is empty. The majority of the functionality is hidden until a Universal Switching product is configured. To configure a new product, select the button for **New Panel**



## 2.5. New Panel

This section describes adding a **New Panel** to the *Panel Selector*. When the button is pressed, RouteWarePRO immediately scans your local area network (LAN) and reports back any IEEE 488.2 compliant Universal Switching devices located on your network. The list populates with the firmware model number of the device and its user defined network ID.



If the system you want to control does not appear in the list, you may use the *Manual Entry* field to add the VISA resource. If the system you wish to add is not shown and is on the local area network, verify that the system is powered ON, connected, and either is using DHCP or has been assigned a valid IP address for your LAN workgroup. Once this has been verified, **Cancel** the *Configure a New Panel* window and run the *New Panel* scan again.

If the system is to be controlled over the internet or other non-searchable network, type in the resource location in the *Manual Entry* field. Typically, you will need to edit the IP address and the port number. Once the IP address and port number have been entered, the **Add** button will appear.

Note that the system operating on the remote network will need to be turned on and have one of more of its available ports forwarded to it through the firewall. Typically ports 7145, 7147, and 7149 are valid for controlling Universal Switching systems.

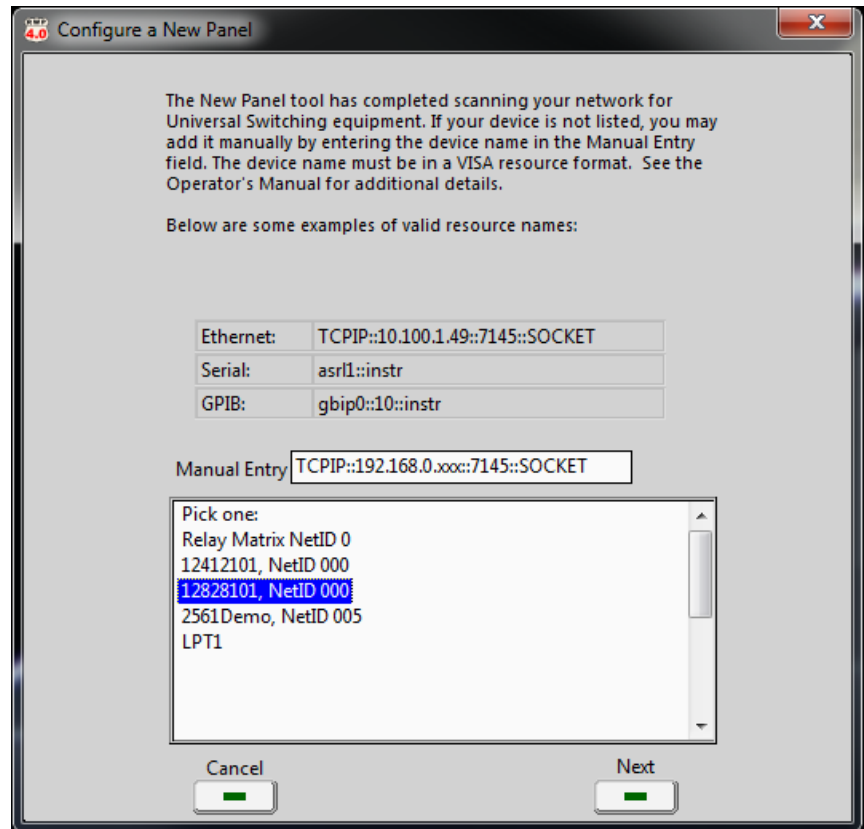
If you are using serial to control the system and the COM port is not available in the list, it is because the port is not available in the National Instruments Measurement and Automation Explorer (MAX) "configuration store". Please see [www.ni.com](http://www.ni.com) for more information on MAX. You can use the *Manual Entry* field to manually enter a port using the following syntax:

For COM1: ASRL1 : INSTR

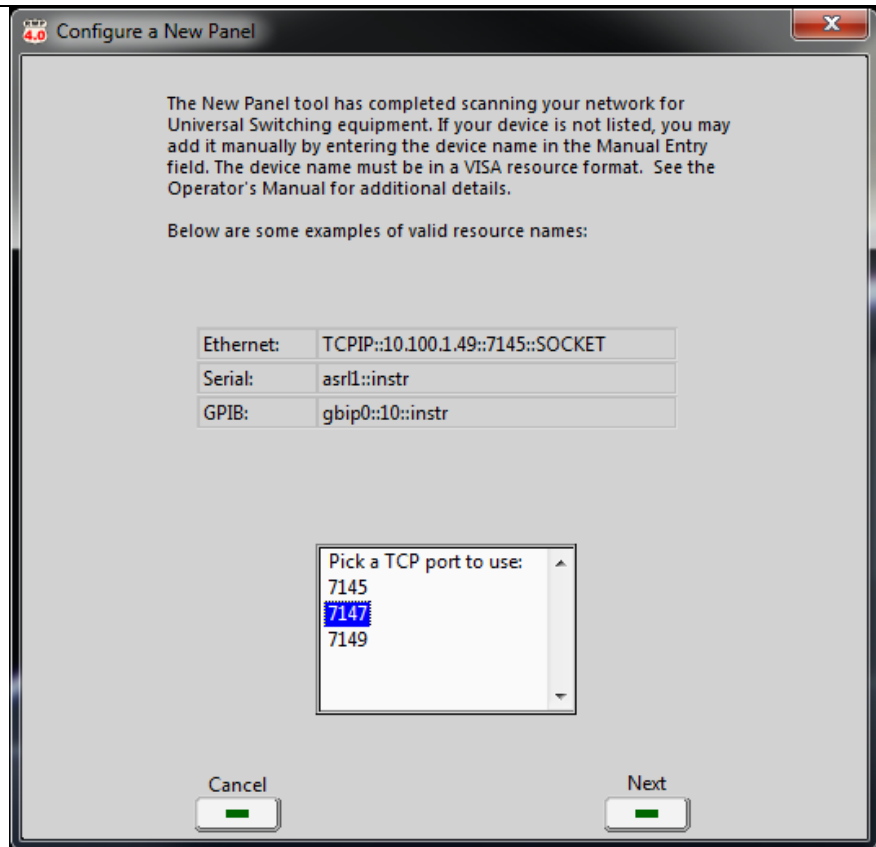
For COM2: ASRL2 : INSTR

## 2.5.1. Selecting a TCP/IP Port

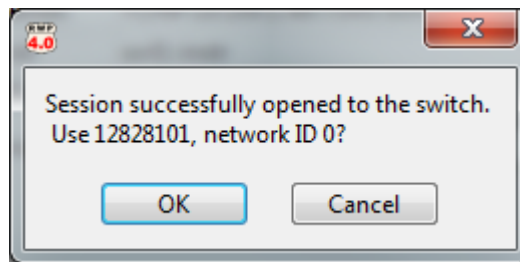
Once a device has been selected from the available list or added manually, the **Next** button will appear.



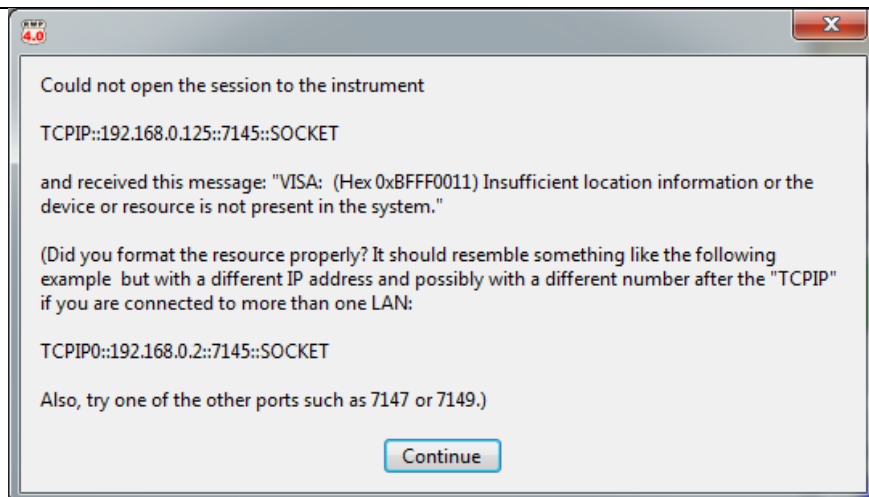
When selected, the new panel will communicate with the device to determine the available TCP/IP ports. The available ports will be listed and once selected, the **Next** button will appear.



If the session has been successfully opened, a dialog box will appear. Select **OK**.

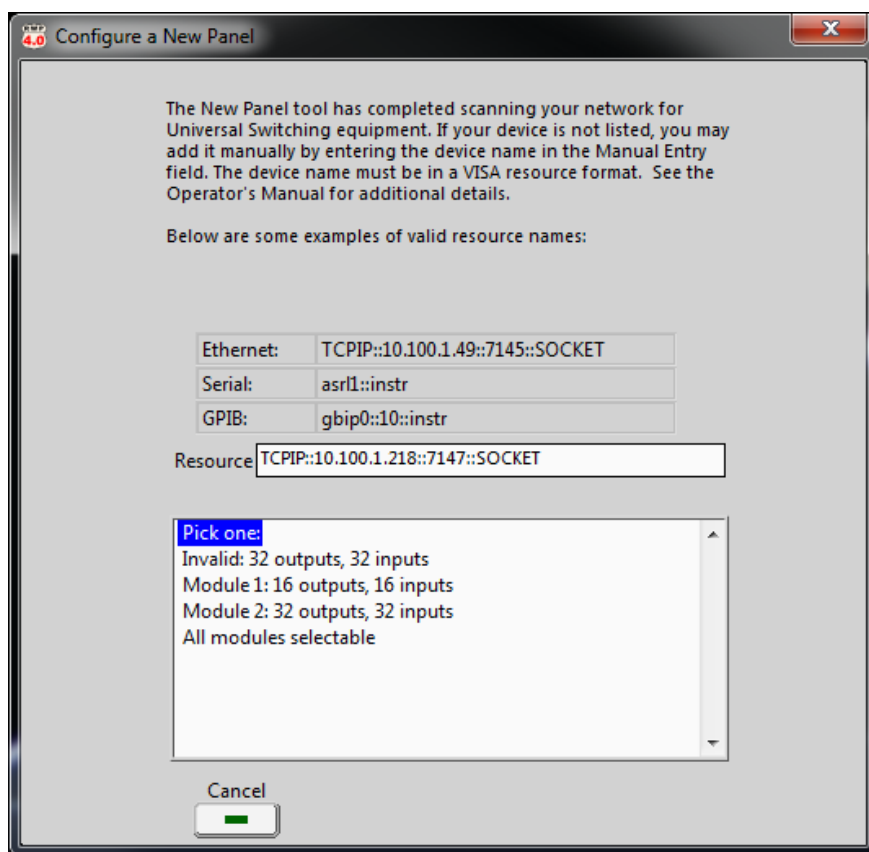


If the session is not successfully opened, a dialog box will appear indicating there was a problem. Selecting **Continue** will close the *Configure a New Panel* window and bring you back to the home screen to try again.



### 2.5.2. Module Control Selection

The following screen appears only if the system consists of multiple controllable module section. This screen allows the user to select which module or modules the main panel controls. Scenarios include choosing either a specific module, a Ganged Pole (parallel control of multiple modules), or to control all available modules. The following examples may apply to the selection process depending on the modules available in your system.





---

### 2.5.2.1. Multiple Modules (no “Poles” listed)

If a system has multiple discretely controlled modules, you may select a specific module to control, or use the “All modules selectable” option. With the “All modules selectable” option, an additional module selection window in the **Commands** tab provides control of any module within the system from a single panel.

Click on the device to select it or **Cancel** to return to start over.

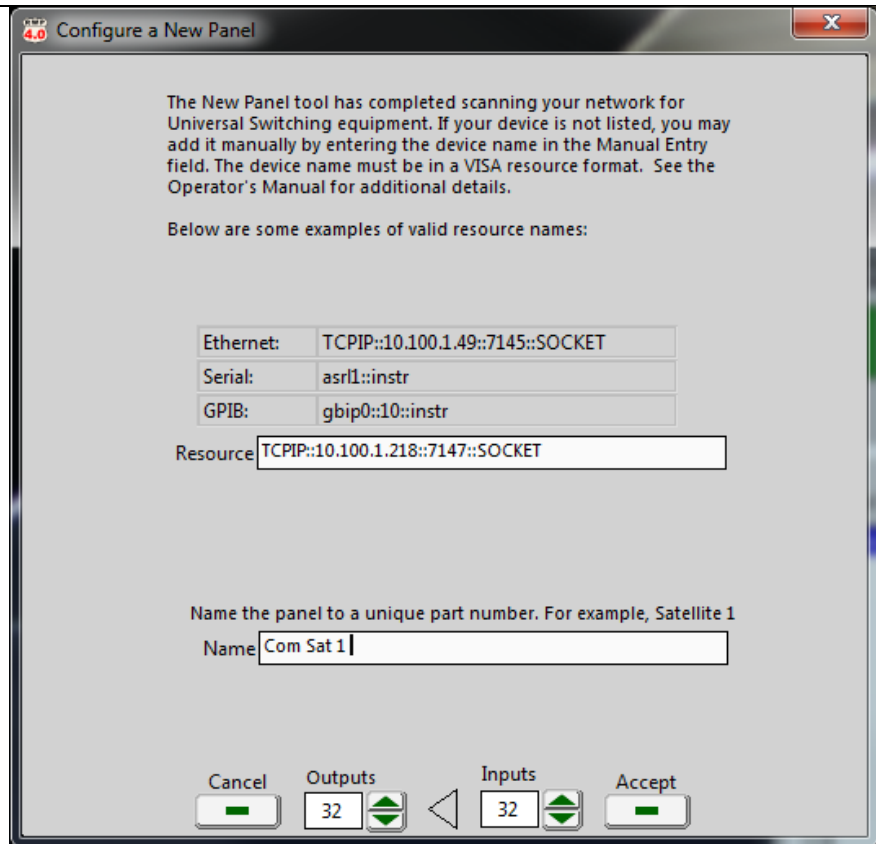
### 2.5.2.2. Ganged Mode and Poles

Systems may be configured in Ganged Mode with modules assigned to Poles. Poles are “virtual” modules that gang together two or more “actual” modules. Poles are discovered and controlled as a single panel, but all modules that “belong to” a Pole operate per the Pole’s control.

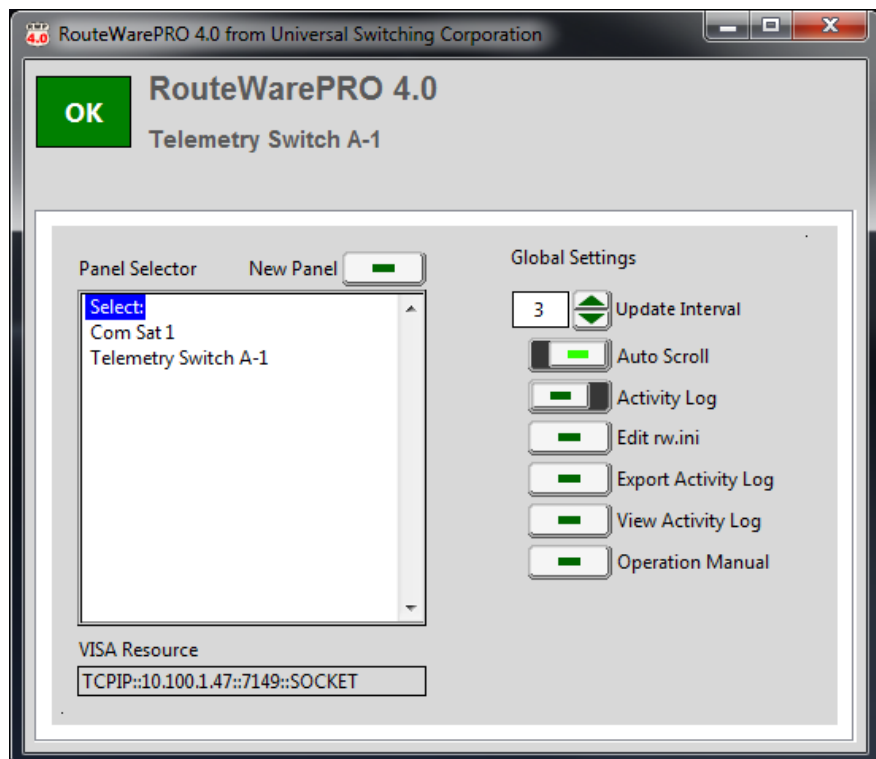
### 2.5.3. Resource and Switch Fields

After the module control section is completed, you will see the *Resource* address and panel *Name*. You may edit either of these fields for last minute changes. Either of these can be changed later by editing the rw.ini file.

Up and down arrows are positioned adjacent the Output and Input fields. Use the arrows to select a range of connections that are available for use, and exclude other connections that may be reserved or dedicated to specific projects. When complete, select the **Accept** button.

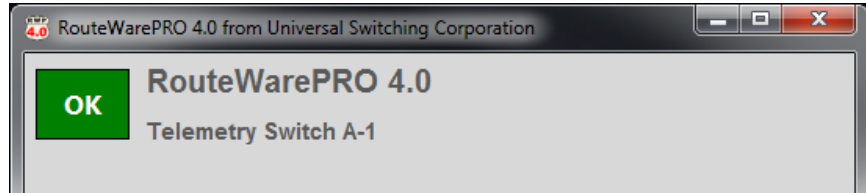


Now that the panel has been added, you will see the panel Name in the *Panel Selector* list.



## 2.6. Title Bar

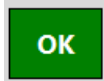
The title bar includes a system health indicator, user-definable Software Title and user-definable Panel Name.



### 2.6.1. System Health Indicator

When a panel is selected from the available list, the system health indicator will have the following states:

Indicates the the system is not reporting any problems.

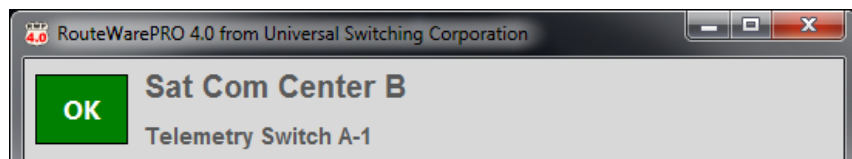


Indicates that the system is reporting a problem and the user should check the status tab for more information.



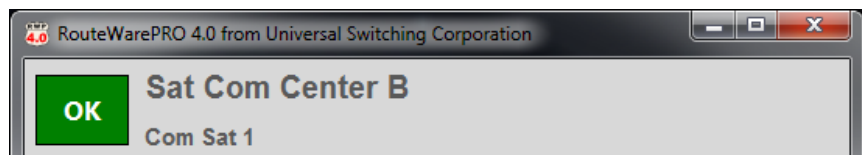
### 2.6.2. Software Title

The default software title is "RouteWarePRO 4.0" but may be changed by highlighting the text and entering a new title. The title will remain the same regardless of the panel that is active.



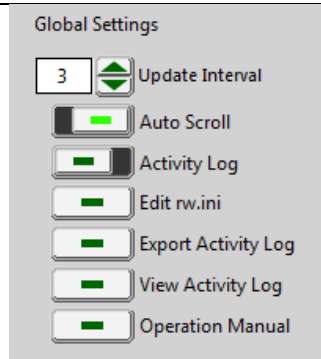
### 2.6.3. Panel Name

The panel name title may also be changed by highlighting the text and entering a new title. The panel title will change with the panel that is active.



## 2.7. Global Settings

This section describes the available global settings and their functions.



= ON



= OFF

### 2.7.1. Update Interval

The update interval control allows the user to select the interval, in seconds, between status updates. Use the arrows to set the interval or just enter the number directly. The update interval must be at least +1 second.

### 2.7.2. Auto Scroll

Auto Scroll applies to how the Commands tab behaves when an output is selected. When this selection is set to ON, the connected input will be brought into view when the user selects an output. If the selected output is not connected to an input, no input will be highlighted. When this selection is set to OFF, the connected input will be highlighted but not be brought into view.

### 2.7.3. Activity Log

When set to ON, a time stamped activity log is maintained in a text file on the PC. The log contains crosspoint activity for all panels including panel names, crosspoint activity and result.

### 2.7.4. Edit rw.ini

This button launches the rw.ini file. See Section 4 for more details.

### 2.7.5. Export Activity Log

This button launches the Activity Log text file. Here, you may delete the contents of the activity log in addition to other standard Microsoft Windows functions like copy, paste, save-as and print.

### 2.7.6. View Activity Log

This button launches the Activity Log viewer. The viewer parses the information in the activity log and provides a cleaner look than just the text file. The user may also sort the events chronologically by

using the **Order** button towards the bottom. For convenience, **Print**, **Select All** and **Copy** buttons are also available.

### 2.7.7. Operations Manual

This button launches the Operators Manual, RWP4.0-SM.pdf. Adobe Acrobat reader is required to view this document.

## 2.8. Multiple Sessions

RouteWarePRO 4.0 supports multiple sessions communicating over TCP/IP. This means that RouteWarePRO 4.0 can be executed more than once resulting in multiple RouteWarePRO 4.0 windows. Each “session” is an independent instance of RouteWarePRO 4.0 and may be used to monitor and control multiple Universal Switching products simultaneously. The only limitation is the users available monitor resolution. For additional information see Section 4.1.2.





---

## 3. Tab Definitions

---

This section describes the features of the panel interface of the RouteWarePRO 4.0 software. The RouteWarePRO 4.0 panel interface contains the following features:

**Select Tab:** Where panels are selected, new panels added, and global settings are edited.

**Commands Tab:** Where individual panels are controlled, configurations loaded or removed and where the X-point View is launched.

**Connections Tab:** Where the current crosspoint configuration is viewed, printed or exported. The X-point View may also be launched.

**X-point View:** Where a visual representation of the panel crosspoint matrix may be used to control the crosspoint configurations including connecting and disconnecting crosspoints.

**Information Tab:** Where panel specific information may be viewed

**Status Tab:** Where current status of the panel or system may be viewed including any fault conditions or error codes.

**Settings Tab:** Where panel specific settings may be changed and additional advanced panel controls may be found.

**About Tab:** Where you will find information about the RouteWarePRO release version, Universal Switching and other helpful tools.

The **Maximize** button allows full screen display of the application. Additionally, the RouteWarePRO 4.0 window is sizeable by clicking and dragging on any edge of the window that is available.

## 3.1. Select Tab

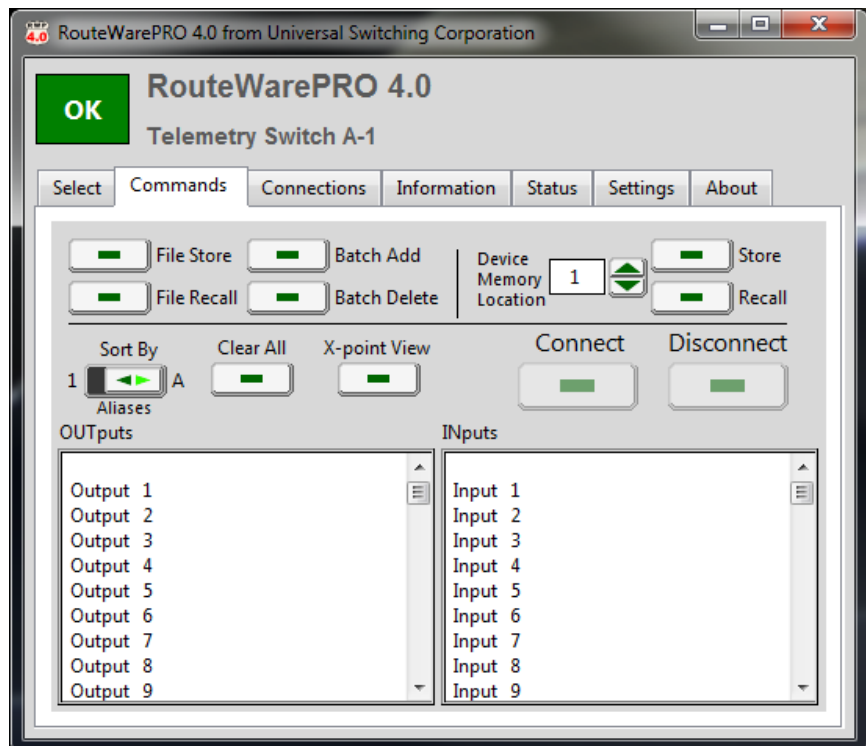
The **Select** Tab contains all of the global settings described in Section 2.7 as well as the available Panels that were added per Section 2.5. This is also where *New Panels* are added.

### 3.1.1. VISA Resource

The VISA Resource field displays the associated VISA resources for the selected panel. If a VISA error occurs, it is displayed in the box below the VISA Resource window.

## 3.2. Commands Tab

The **Commands** tab provides the main controls from which to control a switching system. This section describes the various controls.





---

### 3.2.1. File Store / Recall

The File Store and File Recall functions provide an option for storing a configuration or recalling a configuration from the file system of the host (Microsoft Windows) running RouteWarePRO 4.0. The File Store and File Recall buttons store or recall the entire specific system file regardless of what sub-set of the modules the current panel is controlling. Pressing the button opens a dialog box for the specific operating system file. When using Recall, the selection of a file (signified by pressing the OK button in the dialog box) causes the current system configuration to be cleared.

Regardless of the extension used, the files are in a plain text format. The format is one line per active cross point, in the order output-input-module, as displayed in the example below.

Example:

```
2, 4, 1  
6, 7, 2
```

This connects to output 2 from input 4 on module 1 and to output 6 from input 7 on module 2.

On systems that **auto route**, there is no module operand as shown in the example below:

```
6,7  
3,2
```

The first example connects to output 6 from input 7, and the second example connects to output 3 from input 2 with the product automatically routing to the correct module.

***NOTE: The File Store and File Recall commands store and recall the configuration for the entire specific file regardless of what sub-set of the modules the current panel is controlling.***

---

### 3.2.2. Batch Add / Delete

This Batch Add function works similar to the FILE RECALL selection except that the existing connections are not cleared. Instead the connections listed in the batch file will be added in addition to the existing connections. In the event that an output in the list is already connected, the Auto Interlock status on the switch under control determines if a new connection is made or an error is generated. See Section 3.4.1 for information on the Auto Interlock feature.

The Batch Delete function works with the same overall file format as ADD BATCH and FILE RECALL. In this case the listed crosspoints are disconnected. The input operand may be Wildcard or a valid input. If it is the Wildcard, it is understood as “any input” and the output is disconnected. If an input is specified, it must match the input to which the output is connected. In either case, it is not an error if the output is already disconnected.

### 3.2.3. Device Memory Location

Connection configurations may be stored for recall in a memory location on the remotely controlled system’s on board memory. The entire configuration of the selected system is stored and overwrites any previously stored configuration in that memory location. This allows configurations to be “uploaded” to the system in case a manual recall of the configuration is required at the system front panel or simply to add an additional level of backup and control redundancy. Use the Up or Down arrows to assign a memory number from 1 to 200 to the connection configuration, and Store the configuration by pressing the Store button. The available memory locations is reported on the **Information** tab in the *Memory Locations* field. Since it is possible to overwrite an existing location, a confirmation is required.

When recalling the connection configuration, enter the desired memory location into the Memory field and press Recall. The Recall operation first clears all current connections, then recalls the selected connection configuration from the system’s memory. Since it replaces the current system configuration, a confirmation is required. Recalling a memory location that has not been stored returns an execution error.

This control stores or recalls the entire system’s current configuration to a memory location, including modules/panels that may not be in control by the current panel configuration. In a system that is divided into multiple panels, it is suggested that all relevant panels be confirmed before using the “Store” and “Recall” buttons.

### 3.2.4. Sort By

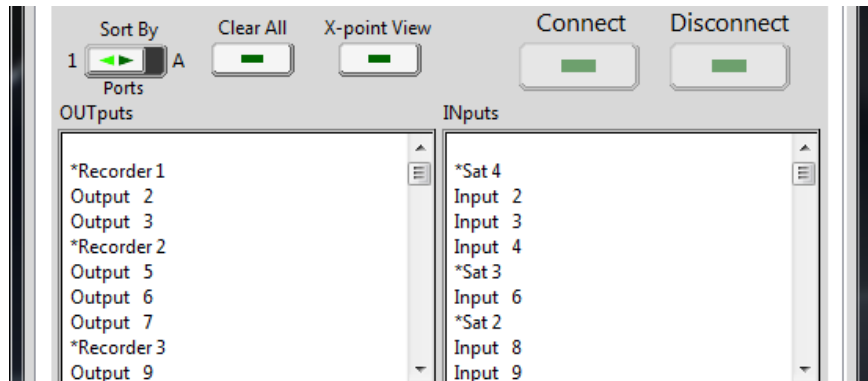
Outputs and Inputs may be sorted numerically (1) or alphabetically (A). By default the I/O aliases are titled Output 1 / Input 1, etc. and the user will not see a difference when toggling between the two sort by options. These aliases may be customized as the user sees fit (See Section 3.2.10). When aliases are

customized, it may be desired to sort the I/O alphabetically in cases where the physical I/O's are not used sequentially but the user would like to see their application listed sequentially.

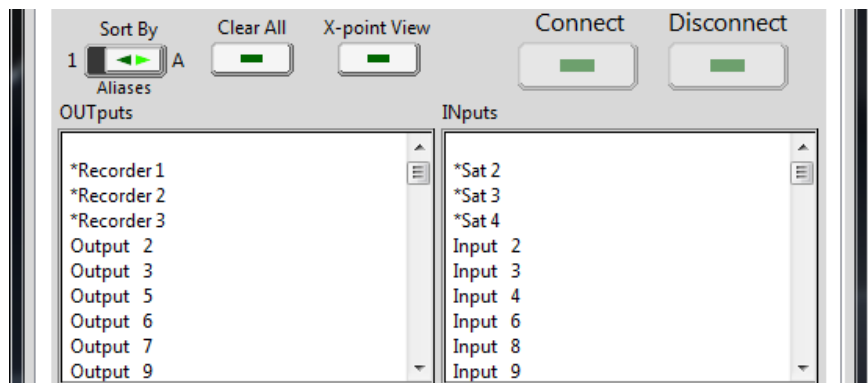
Sort by Number displays the OUTputs and Inputs columns in logical numerical order based on the system's physical port numbers (the default names reflect port numbers). Sort by Alpha displays OUTputs and Inputs alphabetically with numbers first and then by letter from A to Z. In the example below, the following I/O's have been renamed:

Output 1 → *Recorder 1	Input 1 → *Sat 4
Output 4 → *Recorder 2	Input 5 → *Sat 3
Output 8 → *Recorder 3	Input 7 → *Sat 2

When displayed numerically, the aliases appear to be out of order:



When displayed alphabetically, the aliased are grouped together:



### 3.2.5. Clear All

The Clear All button clears all connections on the selected system. If there is more than one module, all connections are cleared on the entire system regardless of what module or sub-set of crosspoints within a module the current panel is controlling. To prevent mishaps, the user is prompted to confirm that the action is intended.

### 3.2.6. Connect Button

Select the desired destination OUTPUT from the left column and then the source signal Input and click the Connect button to make the connection. For fan-out systems, you may select multiple outputs by holding the CTRL key on the keyboard or using the SHIFT key to select a range of outputs. This functionality is inherent to the Windows operating system.

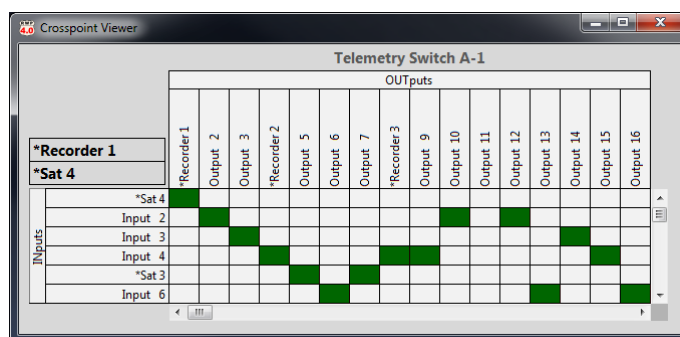
### 3.2.7. Disconnect Button

Select the OUTPUTs that you want to disconnect and press Disconnect. When the OUTPUT is selected, the connected Input is automatically selected. For fan-out systems, you may select multiple outputs by holding the CTRL key on the keyboard or using the SHIFT key to select a range of outputs.

### 3.2.8. X-point View

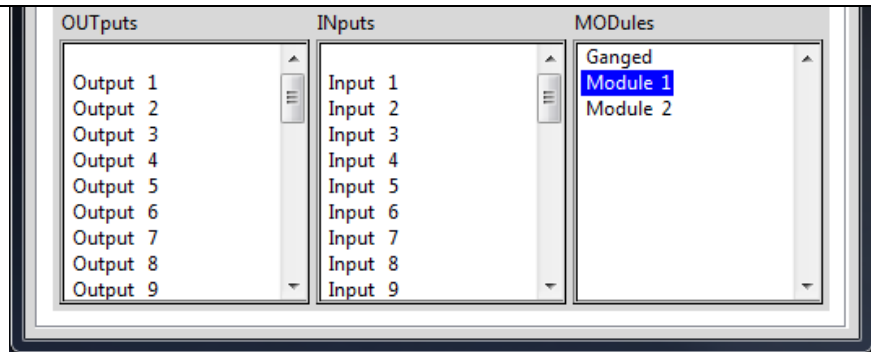
The latest addition to the RouteWarePRO tool set is the X-point View. This button will launch a stand-alone window that provides a visual representation of the panel's crosspoint matrix. The window size may be adjusted by dragging its borders so that the entire matrix or just part of it is viewable. Scroll bars allow for utilization of the entire matrix on small resolution screens.

By selecting an individual box within the matrix, a crosspoint may be connected (represented by a green square) or disconnected (represented by a white square). The X-point View also provides the user with the current alias titles of each I/O whether the aliases are left in their default state or customized (See Section 3.2.10)



### 3.2.9. OUTPUTs / Inputs / MODules Tables

The tables displaying the output, input, and module (when applicable) list the default aliases. The aliases are user definable and may be customized to fit your intended application, signal source equipment or signal destination equipment. Care should be taken when changing the names so that they are readable within their respective boxes. The widths of the tables will scale with the size of the RWP4 main window so if you have a lengthy alias, it will fit!



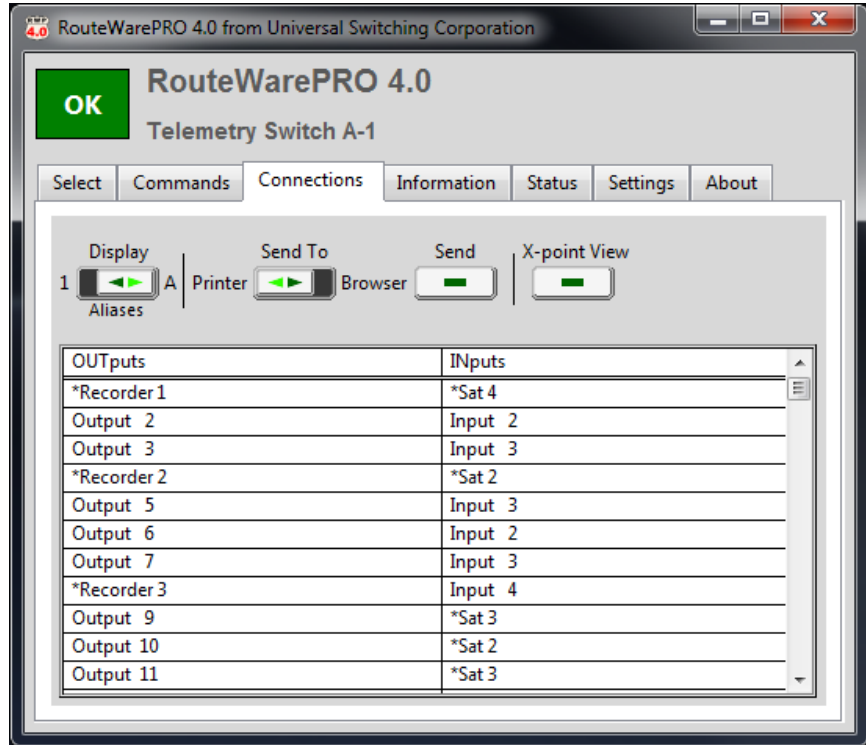
When selecting a crosspoint to connect, the output must be selected first as it automatically queries the output on the switching system to see if it is already in use. If in use, the relevant input will be highlighted. After an output is selected, the user can then select the input. When available, the user must also select which module the crosspoint should be enacted on. If it is desired to have the crosspoint made on multiple modules, the user may select the ganged option (if available).

### 3.2.10. Renaming Outputs and Inputs

The Outputs and Inputs names may be changed at the **Commands** screen. Select the specific output or input entry, click once, pause for ½ second, and then click again (just like renaming a Windows desktop icon). The entry is highlighted and may be renamed by overtyping the existing name with the new name.

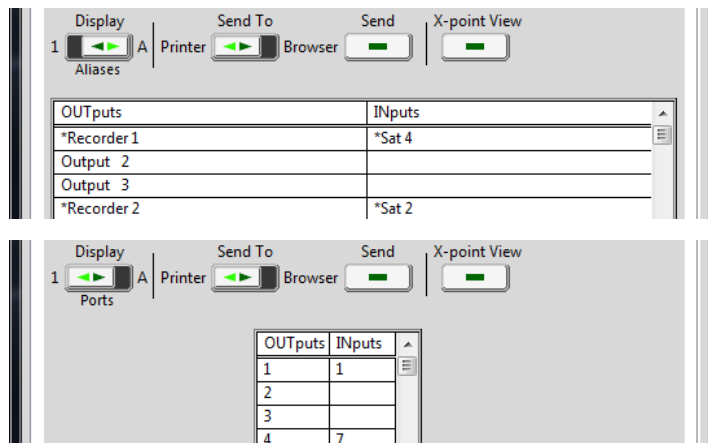
### 3.3. Connections Tab

The **Connections** Tab provides a real time list of crosspoint configurations. This section describes the available features.



#### 3.3.1. Display

The **Display** toggle switch allows the user to display the crosspoint configuration in numerical format (*Ports*) or alphabetical (*Aliases*). Note that disconnected outputs are displayed without a corresponding input. Unlike the Commands tab, the connections tab cannot be sorted. Output 1 will always be at the top of the output list.



### 3.3.2. Send To / Send

The *Send To* function allows the user to either print the crosspoint configuration table or export it to a web browser. Use the **Send To** toggle switch to select the output device then press the **Send** button to either launch a print dialog box or web browser.

The print dialog box will list currently installed printers on the PC from which you may select one. The *Browser* option will launch the default web browser selected on the PC.

The output format displays the crosspoint configuration with either port number or aliases (See Section 3.3.1). The custom titles, firmware model number and Network ID are also included for identification purposes.

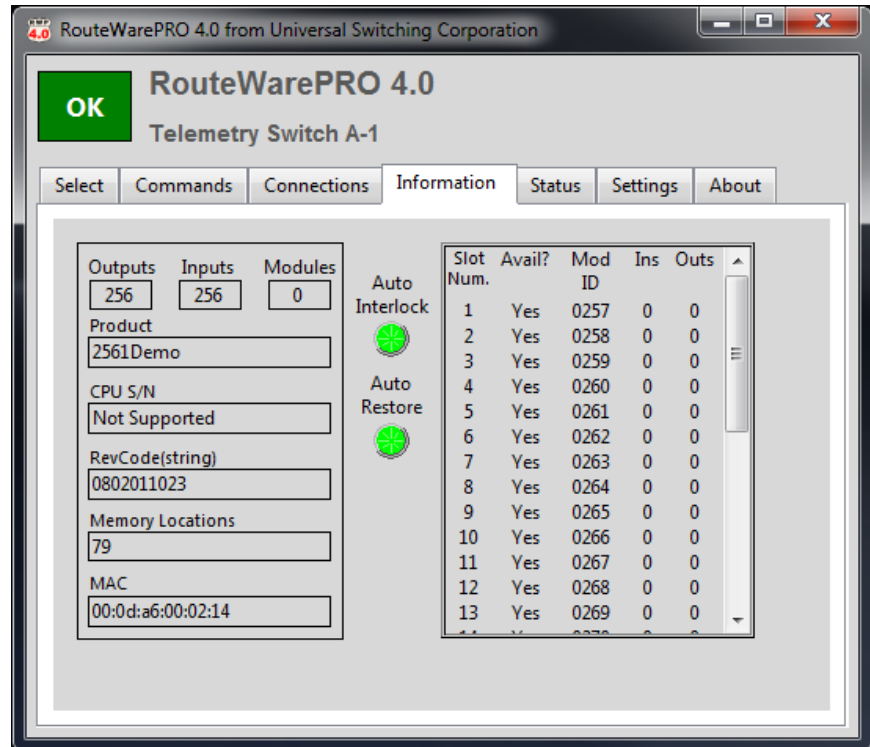
RouteWarePRO 4.0		Telemetry Switch A-1	2561Demo, Network ID 5
OUTputs			INputs
*Recorder 1			*Sat 4
Output 2			
Output 3			
*Recorder 2			*Sat 2
Output 5			
Output 6			
Output 7			
*Recorder 3			Input 4
Output 9			*Sat 3
Output 10			*Sat 2
Output 11			*Sat 3
Output 12			*Sat 2
Output 13			*Sat 3
Output 14			Input 6

### 3.3.3. X-point View

For convenience, the **X-point View** is also available from the **Connections** tab. See Section 3.2.8 for more details.

## 3.4. Information Tab

The **Information** tab displays relevant information about the switching system. This section describes the information displayed.



**Outputs** – The maximum valid output number for the system. This number may be higher than the available outputs for a given panel or module in a system with multiple modules.

**Inputs** – The maximum valid input number for the system. This number may be higher than the available inputs for a given panel or module in a system with multiple modules.

**Modules** – The number of modules supported by this system. This number may be higher than the available modules for a given RouteWarePRO panel configuration.

**Product** – the product (firmware) model number.

**CPU S/N** – Serial Number of the system CPU if supported.

**RevCode (String)** – System firmware revision code.

**Memory Locations** – Number of available memory locations that may be used to store/recall crosspoint configurations. (See Section 3.2.3 for more details).

**MAC** – The Media Access Control (MAC) address for the selected switch’s central processing unit (CPU). Each CPU has a unique MAC address.

### 3.4.1. Auto Interlock Indicator

Auto Interlock is a convenience function that automatically disconnects an output from a connected input when a new input is connected to it. Otherwise, an “Output already in use” error



---

would be generated. The Auto Interlock indicator displays the features status for the switch under RouteWarePRO 4.0 control. The indicator is bright green when Auto Interlock is ON. The indicator is unlit (or dark green) when Auto Interlock is OFF. The Auto Interlock status may be changed in the Settings tab. See Section 3.6.6.

### **3.4.2. Auto Restore Indicator**

Auto Restore is a convenience function that automatically restores the last known switch configuration on a system reset or power cycle. The Auto Restore indicator displays the features status for the switch under RouteWarePRO 4.0 control. The indicator is bright green when Auto Restore is ON. The indicator is unlit (or dark green) when Auto Restore is OFF. The Auto Restore status may be changed in the Settings tab. See Section 3.6.7.

### **3.4.3. Slot Num**

Identifies the slot number of the mainframe module bay where a switch module is installed. Use the scroll arrows to view additional modules.

### **3.4.4. Avail?**

Indicates the detection and availability of a module.

### **3.4.5. Mod ID**

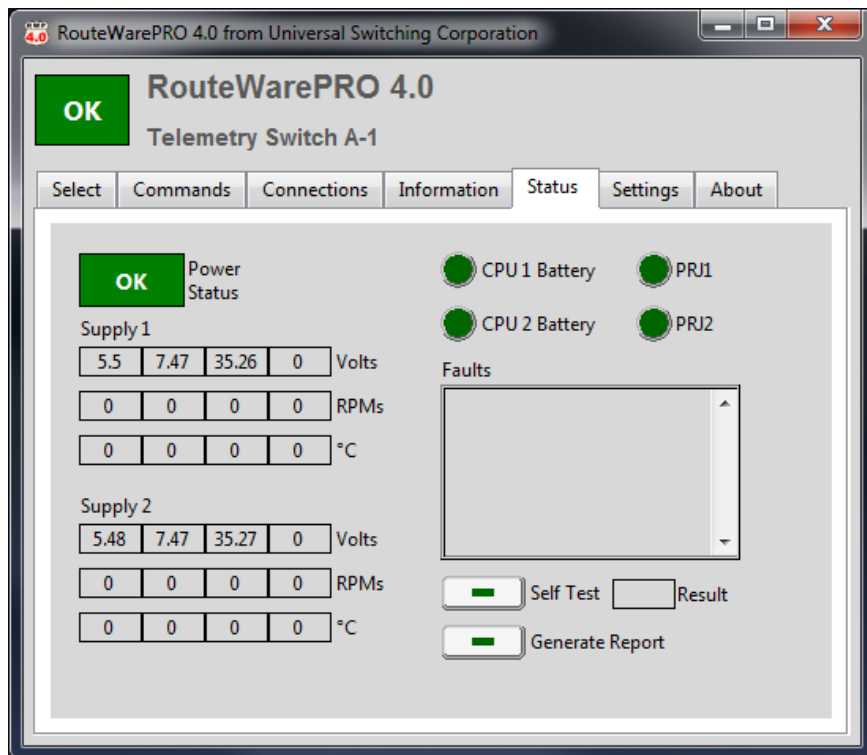
Each module is identified with a unique three or four digit identification number.

### **3.4.6. Ins / Outs**

Indicates the number of inputs and outputs on the module.

### 3.5. Status Tab

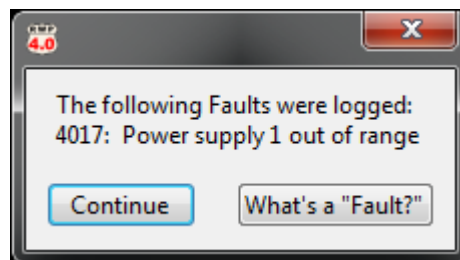
The **Status** tab provides real-time diagnostic information about the system and allows the user to perform a system self-test. Additionally, the user may generate a diagnostic report which may be used for troubleshooting efforts. This section describes the various features of the status tab.



#### 3.5.1. Power Status

The Power Status indicator identifies if there is a problem with the power supplies. The indicator will show green "OK" or red "Fault" if there is a problem. If a problem is identified, a dialog box will appear indicating the fault code and definition. For example:

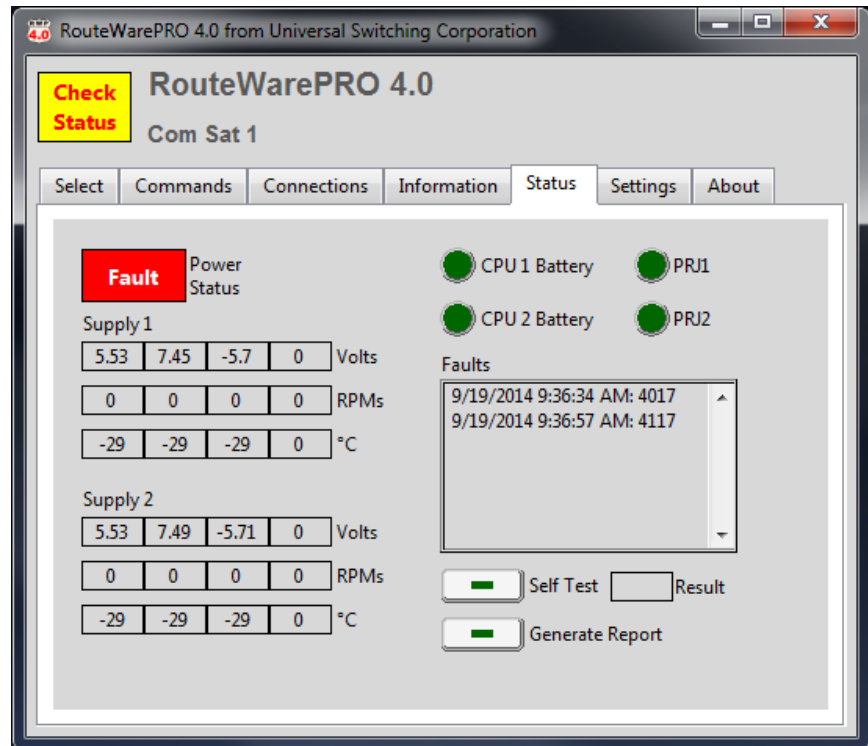
For convenience, you may select the "What's a "Fault?" button for additional information.



#### 3.5.2. Faults

The Faults list will display the contents of the fault queue. Once the fault queue is read, it will be emptied. It is recommended that if there are faults listed, the user should use the Generate Report function to log the status of the switch in the fault condition. Faults are time stamped and listed chronologically with the oldest fault

listed first. Check the [Programmers Guide](#) (available on the About tab) for a list of fault codes and definitions.



### 3.5.3. Supply 1 / Supply 2

The *Supply 1* and *Supply 2* fields display real time operational status of the power supplies. The available information consists of the following:

- **Volts** - displays power supply voltages.
- **RPMs** - displays fan speed.
- **C°** - displays power supply temperature (Celsius)

Not all systems use all the indicators on all four channels. A zero in any given field does not indicate an error. The health of a given power supply is determined by its pre-programmed settings. The power supply automatically reports if there is an error or if a measured value exceeds the permitted threshold.

### 3.5.4. Generate Report

If a fault is displayed, it is suggested that the first course of action is to press the Generate Report button. This creates a system log file which details all critical information regarding the selected panel and recorded fault information. The file is intended to be submitted to Universal Switching Corporation if Technical Support is required. Email the file to [support@uswi.com](mailto:support@uswi.com) for additional help.

### 3.5.5. Self Test

The Self Test button performs a self-test and displays the result in the Result window. This is typically used to allow the system to discover and configure modules that have been hot-swapped or replaced.

#### 3.5.5.1. Self Test Result Window

When the button is pressed the result window will show three periods indicating that it is waiting for a response. The results of a Self Test are displayed as "OK" or the number of switch modules the Self Test did not find. To determine the meaning of a numeric Result, see the Operators Manual for the switching system in question.

### 3.5.6. CPU 1 / CPU 2 Battery

These indicators display the status of the CPU battery:

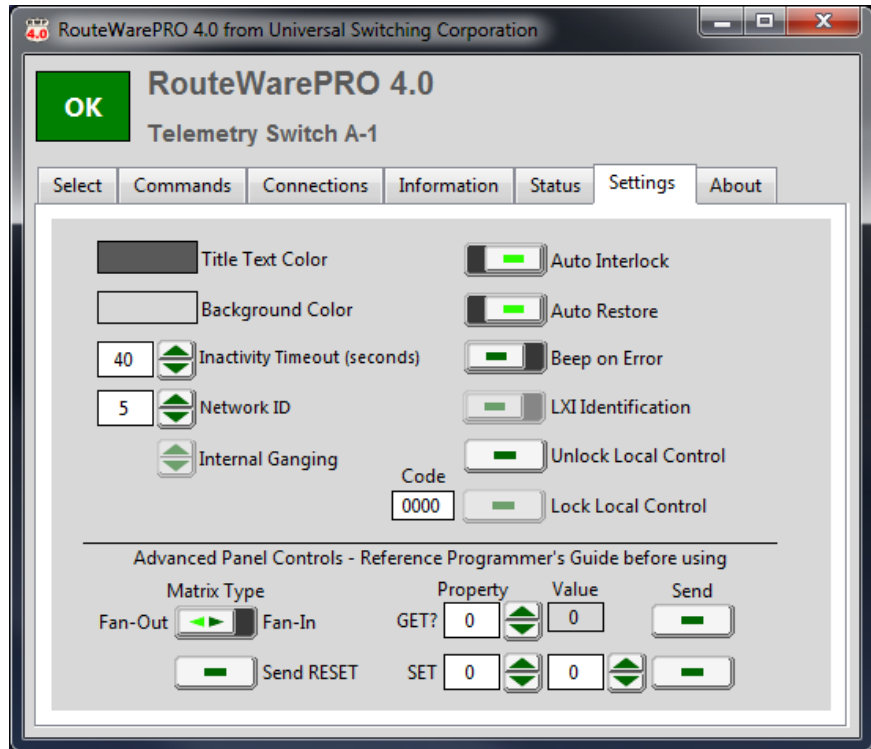
- Dark Green – Not Supported
- Bright Green – Batteries OK
- Bright Red – Batteries require replacement.

### 3.5.7. PRJ1 / PRJ2

These indicators are project specific and may not be in use. If a Project Specific indicator is active (bright green) refer to the Operators Manual for the switching system in question. Otherwise, these indicators can be ignored.

## 3.6. Settings Tab

The **Settings** tab displays the panel specific settings and some advanced controls for the switching system. This section describes the various settings and their intended use.



### 3.6.1. Title Text Color

When the rectangle is selected, a color selection dialog box appears. Select the desired color for the title text.

### 3.6.2. Background Color

When the rectangle is selected, a color selection dialog box appears. Select the desired color for the software background.

### 3.6.3. Inactivity Timeout

If after a period of time, the switching system's Ethernet port does not detect any activity, the port will automatically close. This is particularly useful when the device is located in an un-manned location and there is an interruption in the LAN. When set to 0, the inactivity timeout is disabled. It is recommended that the **Inactivity Timeout** be set to a value greater than the **Update Interval** value (Section 2.7.1).

---

### 3.6.4. Network ID

The **Network ID** can be used to differentiate between multiple systems of the same model number. The Network ID is viewable from the system front panel.

### 3.6.5. Internal Ganging

**Internal Ganging** is a function that is only available in certain switching systems. As such, this function will be greyed out if not applicable. Refer to the Operators Manual for the switching system to determine appropriate values if available.

### 3.6.6. Auto Interlock

**Auto Interlock** is a convenience function that automatically disconnects an output from a connected input when a new input is connected to it. Otherwise, an "Output already in use" error would be generated. Use the toggle to enable or disable the function.

### 3.6.7. Auto Restore

**Auto Restore** is a convenience function that automatically restores the last known switch configuration on a system reset or power cycle. Use the toggle to enable or disable the function.

### 3.6.8. Beep on Error

If an execution error is detected by the system, the system will chirp or beep. Use this toggle to enable or disable the function.

### 3.6.9. LXI Identification

When available, use the **LXI Identification** to enable the LAN Status Indicator. The LSI is a mechanism that allows a remote control user of a device to determine which device is being communicated with if they are in an environment with multiple devices of similar model or appearance. When enabled the LSI will flash on the system front panel and will take the form of a "+" sign or "!" sign. Refer to the [Programmers Guide](#) for additional information.

### 3.6.10.Unlock Local Control / Lock Local Control

The system front panel may be locked or unlocked. To unlock the front panel control, press the **Unlock Local Control** button. To lock the front panel control, enter a four digit PIN code then press the **Lock Local Control** button.

### 3.6.11.Matrix Type

The *Matrix Type* toggle switch is considered an Advanced Panel control. Some switching systems are considered fan-in where by a single output may be connected to multiple inputs. In these cases, the **Fan-In** option should be set. This will adjust the controls on the

---

commands and connections tab accordingly. When this setting is changed, a confirmation window will appear. The default setting is for **Fan-Out** as most switching systems are of this variety.

### 3.6.12. Send RESET

The **Send Reset** function will reset the system. It has the same effect as power cycling the device.

### 3.6.13. GET? / SET Function

The GET? / SET functions are considered an advanced function. Refer to the GET? SET value tables in the [Programmers Guide](#) for more information.

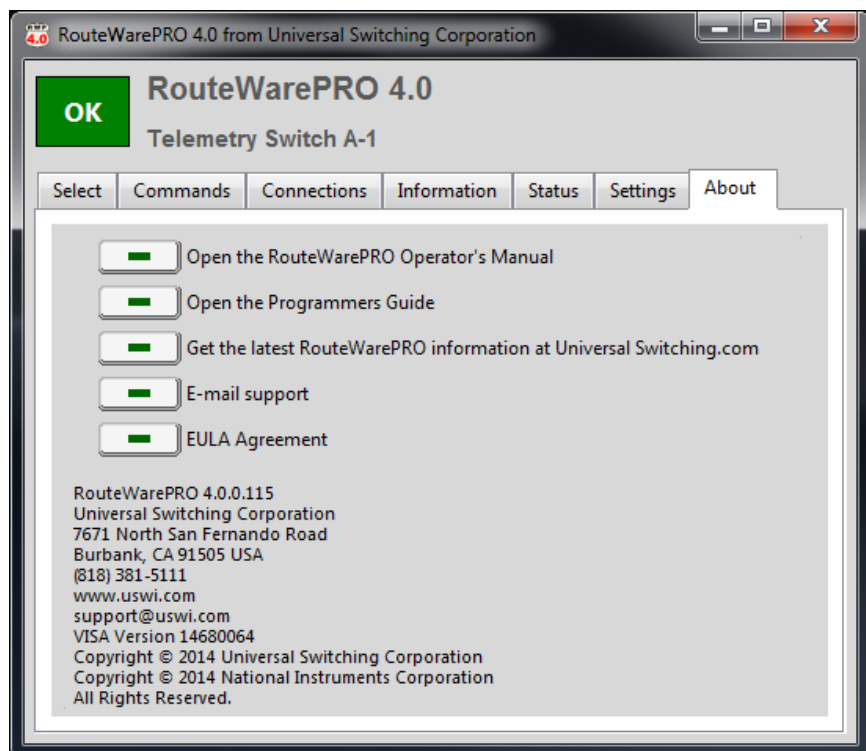
To send a GET? Query, enter the *property* and select the corresponding **Send** button. The *Value* field will be populated with the value currently set for the property.

To send a SET command, enter the *property* and *value* and select the corresponding **Send** button. A confirmation dialog box will appear. Select OK and the property will then be set.

### 3.7. About Tab

The about tab contains the following information:

- Link to RWP 4.0 Operators Manual
- Link to the [Programmers Guide](#)
- Link to [www.uswi.com](http://www.uswi.com)
- Link to launch you default email program and email [support@uswi.com](mailto:support@uswi.com)
- End User License Agreement
- Software build information
- USWI Contact information





---

## 4. The RW.ini File

---

The RW.ini is used for customizing the software i.e. titles, channel names, color schemes, etc. Depending on the location of the file, it can be customized per user account or for a global “All Users” account. See Section 1.2.1 for installation instructions.

Although RouteWarePRO 4.0 maintains the rw.ini file on its own, the user may find it convenient to edit the file (See Section 2.7.4). The following is a brief explanation of the rw.ini file.

### 4.1.1. Sections and Parameters

Within the rw.ini file are various Parameters that are grouped into Sections. Sections are defined with titles in brackets ( ) for easy identification. Parameters within Sections are displayed as name=value pairs. The “Windows standard” in terms of case insensitivity and uniqueness apply to the rw.ini file entries.

The (Application) Section may contain the following parameters. While some of these parameters automatically are generated and controlled with RouteWarePRO 4.0, several of them must be added manually if their functionality is required:

<sup>1</sup>Title = “<Main Title>” ; title that appears in the top of the window

<sup>2</sup>AllowEditing = TRUE ; this may be modified to FALSE, but if FALSE, users are unable to edit text or change the Update Interval from within RouteWarePRO 4.0

<sup>1</sup>Statusinterval=3 ; corresponds to the Update Interval control at the left side of the window. The time in seconds between each status/state check

<sup>1</sup>Logging = TRUE: state of the Activity Log toggle. See 3.2.11

#### NOTES:

<sup>1</sup>This parameter is automatically generated when required and can be edited in RouteWarePRO 4.0

<sup>2</sup>This parameter must be manually entered and maintained in the rw.ini file

All other Sections within the rw.ini file are generated when a panel is added (see Section 2.5). The name given to that panel when it is generated becomes the Section title. The following are the relevant name=value pairs that are generated when required and their defaults.

<sup>3</sup>Resource=<VISA resource string>; This describes to RouteWarePRO 4.0 how to access the desired panel

<sup>2</sup>RS485=0; The address byte when using Universal Switching's implementation of RS485. The "0" inhibits the address byte (normal condition)

<sup>1</sup>Title=<panel name>; This is where the panel name is located and changed if desired. This supersedes the Section title which is the "logical" name of the panel and should not be changed

<sup>1</sup>Foreground=595959; The color to use for the panel's color

<sup>1</sup>Background=D8D8D8; The color to use for the panel's background

<sup>1</sup>Title="<panel title>"; Text shown below the main title that corresponds to the selected panel

<sup>1</sup>AlphaSort=FALSE; This is the last state of the "Sort By" toggle in RouteWarePRO 4.0

<sup>3</sup>UseModule=1; For systems with multiple modules, this assigns the specified panel in this section to operate only the module numbered here

<sup>3</sup>Modules=2; For system with multiple modules, this determines how many "modules" are reported to and available to the specified panel

<sup>3</sup>Outputs=<# of outputs>; Number of outputs the panel accommodates

<sup>3</sup>Inputs=<# of inputs>; Number of inputs the panel accommodates

<sup>2</sup>OutputBoxLabel="OUTputs"; The label above the Outputs List on the Commands tab.

<sup>2</sup>InputBoxLabel="Inputs"; The label above the Inputs List on the Commands tab

<sup>2</sup>ModuleBoxLabel="Modules"; The label above the Module's List on the Commands tab

<sup>1</sup>Output001="Output 1"; any number may be substituted for 001

<sup>1</sup>Input001="Input 1"; any number may be substituted for 001

<sup>1</sup>Module01="Module 1"; any number may be substituted for 001

---

NOTES:

<sup>1</sup>This parameter is automatically generated when required and can be edited within RouteWarePRO 4.0

<sup>2</sup>This parameter must be manually added and edited in the rw.ini file to use

<sup>3</sup>This parameter is initially created by RouteWarePRO 4.0, but to make changes requires editing the rw.ini file

#### 4.1.2. Routeware.ini file

The routeware.ini file is found in the program directory where the RouteWare.exe file is located. Within the routeware.ini file are additional program parameters that are not contained within the rw.ini file. Parameters within the rw.ini file are displayed as name=value pairs. The “Windows standard” in terms of case insensitivity and uniqueness apply to the rw.ini file entries.

The main section in this file is (RouteWare) and may contain the following parameters. While some of these parameters are generated and controlled automatically within RouteWarePRO 4.0, several of them must be edited manually to change their function.

<sup>2</sup>AllowMultipleInstances=TRUE; This enables RouteWarePRO 4.0 to run multiple sessions of the program. To disable this function, set the parameters to FALSE.

<sup>1</sup>colorHistoryitem<#>=<HTML color>; Numbered from A through K these can be found in the History row of the Panel Color Scheme color picker.

NOTES:

<sup>1</sup>This parameter is automatically generated when required

<sup>2</sup>This parameter is present when installed and must be manually edited in the rw.ini file to use



---

## 5. Resolving Issues

---

This section may help resolve some issues with the application configuration, and assist with the resources needed to control the product.

### 5.1. Can't Find Product

---

In the event that the host can't locate the product, the Status screen appears with a message. Some things to check are:

1. Correct VISA resource
2. Product powered up
3. Product connected
4. Product has the same address as the resource.

### 5.2. Resource Name Examples

---

The following are some examples of VISA resources. The NI-VISA included with RouteWarePRO 4.0 can be found in the Start list under "National/Instruments/VISA/Documentation".

- Gpib0::10::instr
- Gpib::10::instr
- Asrl1::instr
- Asrl2::instr
- TCPIP::10.100.1.49::7145::SOCKET



---

## 6. Record of Changes

---

This section only applies to revised manuals. The table below indicates the revision level entered and a brief description of change(s).

Revision	Description of Change	Date
Initial Release		20140919
A	Added details about the hardware key version in Section 1.2 and added Section 1.5	20150402

---

# NOTES

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---