Universal Switching Corporation

INSTALLATION AND OPERATION MANUAL

Routing and Control GUI for Universal Switching Corporation Products

State-of-the-Art Switching Solutions

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1. Getting Started

This section provides instructions for first time or update installation of RouteWarePRO 3.0.

1.1. Installation Requirements

RouteWarePRO 3.0 requires the following minimum system specifications to install.

- Administrator level user access (necessary for install/uninstall only)
- Microsoft Windows 2000, Windows XP, Vista x64, Vista x86
- GPIB, Ethernet, or serial port (RS232, 422, or 485)

1.2. First Time Installation

To install, insert the RouteWarePRO 3.0 CD into the designated computer and follow the on-screen instructions. 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.

For RouteWarePRO 3.0 to operate there are two (2) required runtimes that must be present: LabVIEW runtime (2009 or newer) and NI-VISA runtime (4.5 or newer). They are included in the RouteWarePRO installation, but If you already have adequate versions of these runtimes installed on the system, check the boxes for each one you do not want to install on the "**Required Runtime Files**" screen. If you decide to install or modify the LabVIEW or NI-VISA runtimes after installing RouteWarePRO, the installers are accessible from the Universal Switching Corporation program group listed in the Windows Start menu.

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).

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

1.3. Update Installation

To update an existing installation of RouteWarePRO 3.0, follow the directions for a "First Time Installation." At the "Installation Destination Location" screen, point the location to the computer's current RouteWarePRO folder. Any existing Log or Configuration folder files are not changed or deleted, and the new version of RouteWarePRO 3.0 automatically uses the computer's existing RouteWarePRO configuration files (if from version 3.0 or newer).

To use configuration files from versions of RouteWarePRO earlier that 3.0, further consideration must be made. Since significant changes have been made in the functionality of RouteWarePRO 3.0, configuration information from earlier versions is not compatible and must be manually converted if desired. See Section 4.5 for a suggested procedure to import legacy configurations.

NOTE: Although the RouteWarePRO installer is designed to preserve existing configuration files, back up the Configuration files in your current RouteWarePRO installation before updating.

1.4. License Activation

RouteWarePRO 3.0 utilizes an on-line activation service for managing software licenses. When running the program for the first time, it prompts for the license key provided with the software and attempts to activate the program over the Internet.

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.

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

Without activation, RouteWarePRO 3.0 operates for a trial period of 30-days. This unrestricted evaluation period permits the user to evaluate RouteWarePRO 3.0 free of charge, or to start using it immediately even if the activation service is temporarily unavailable.

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

1.5. Uninstall

The uninstall process removes all RouteWarePRO 3.0 files installed by the setup program. There is also the option to remove the LabVIEW and NI-VISA files installed with RouteWarePRO, but this is only recommended if there is no other software on the computer that utilizes these runtimes.

None of the RouteWarePRO configuration or log files are changed or removed when RouteWarePRO is uninstalled or re-installed. If you wish to back up the configuration files, see Section 4 in this Installation and Operation Manual for information on the file locations.

Uninstalling also de-activates the license seat, 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 3.0, open the Windows Control Panel and run "Add or Remove Programs" tool, or run the RouteWarePRO 3.0 installer from the installation CD.

NOTE: The activation service keeps track of the RouteWarePRO 3.0 license seats available. RouteWarePRO 3.0 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.

2. Start-up

RouteWarePRO 3.0 is designed for immediate use with minimal start-up steps. The following paragraphs provide information on the buttons, tabs, indicators and features of RouteWarePRO 3.0.

2.1. Terminology

Specific terminology is used in the RouteWarePRO 3.0 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
- 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 that are "ganged" together

2.2. Before Launching RouteWarePRO 3.0

RouteWarePRO 3.0 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 3.0 are powered and connected via the desired remote control interface.

Also verify that the switch to be operated by RouteWarePRO 3.0 is not being used by any 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.)

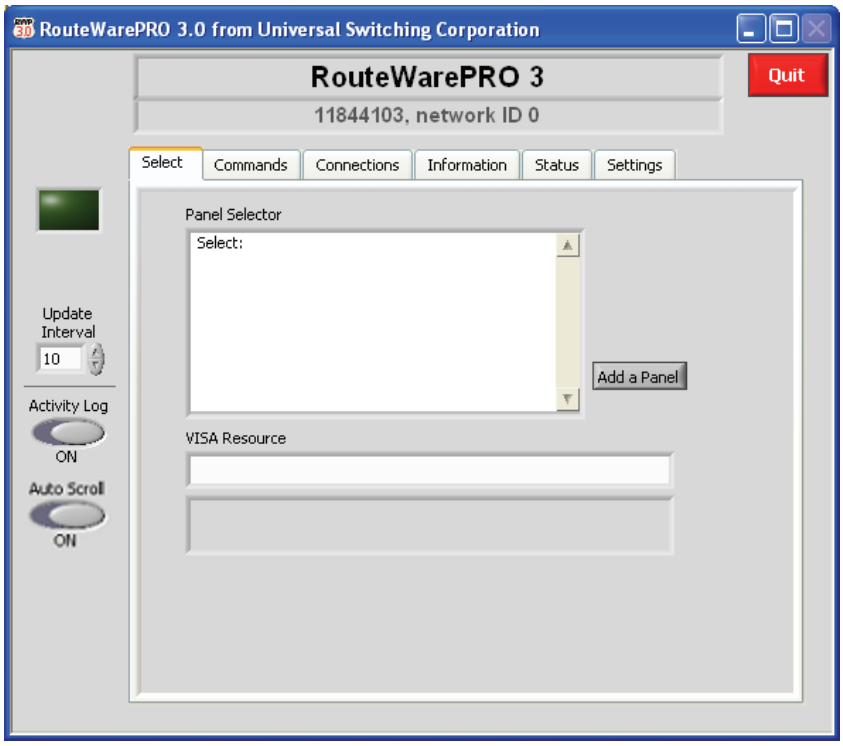
The RouteWarePRO 3.0 application, on the other hand, locks the resource when it is actively sending a command and releases it as soon as the response arrives. (This is also true of the LabVIEW drivers for Universal Switching Corporation products.) As a result, if an application like *HyperTerminal* is 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 3.0

Upon launching RouteWarePRO 3.0, a window like the one shown below displays the Select tab. The screen colors represent the default values and may be changed at the Settings tab.



2.4.1. Status Indicator

The GREEN indicator on the left hand side of the application window is for status. It changes to YELLOW and displays "Check Status" if an error condition is detected.

If the "Check Status" is displayed, select the Status tab for additional information.

2.4.2. Update Interval

This selection sets the periodic update interval in seconds for system monitoring. This is a global setting and adjusted using the up and down arrows.

2.4.3. Activity Log

This activates a persistent log file for all connection activity. It is an ON/OFF toggle and is a global program setting.

The log file is found at *C:\Documents and Settings\<User Name>\Application Data\rwlog.txt* and records the activity for that user.

> ***NOTE: The application's close button is non-functional. Use the Quit button to close the application and release resources.***

2.4.4. Text Editing

Several of the text fields found throughout RouteWarePRO 3.0 can be edited from within the program.

The main title (default value is RouteWarePRO 3.0) and the panel name immediately below it can be edited simply by clicking on the value to enable the editing cursor. Note that the main title is a global field, and that the panel name applies to the panel currently selected.

On the Commands tab, the names of the OUTputs, INputs, and MODules can be edited by first highlighting the item to edit, waiting at least ½ second, and then clicking on it again. Performing a slow "double-click" on a channel or module name enables the editing cursor to allow the field to be changed. If the field is erased, the default name is restored.

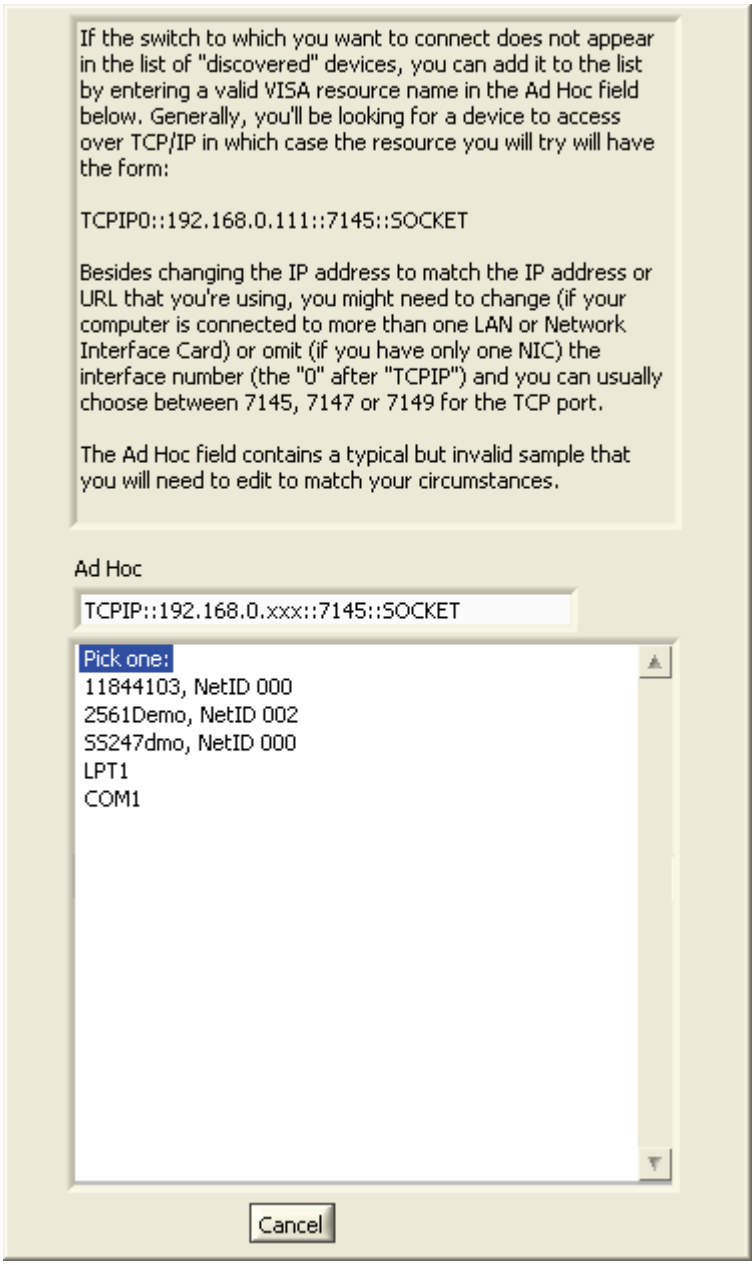
Other fields in RouteWarePRO 3.0 can be changed by editing the rw.ini file. Also, in-program editing can be disabled to prevent further changes from within the program. See Section 4.1 for additional information.

2.5. Add a Panel

The first time the application opens, the Panel Selector box is empty. To add a panel, follow the instructions below.

2.5.1. Add a Panel

Click on the Add a Panel button. RouteWarePRO contains a "search and add" wizard which locates any system on the local area network with a Universal Switching Systems ID and displays it in the list. The following screen is displayed.



If the system you want to control does not appear in the list, read the on-screen instructions for more information. For more information, consider the following scenarios:

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, run the Add a Panel wizard again.

If the system is to be controlled over the internet or other non-searchable network, type in the resource location in the Ad Hoc field. Typically, you will need to edit the IP address and the port number. Once the IP address and port number have been entered, click the Add button and it becomes a selectable system in the list.

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. See the system's User Guide for additional information.

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 for more information on MAX. You can use the Ad Hoc field to manually enter a port using the following syntax:

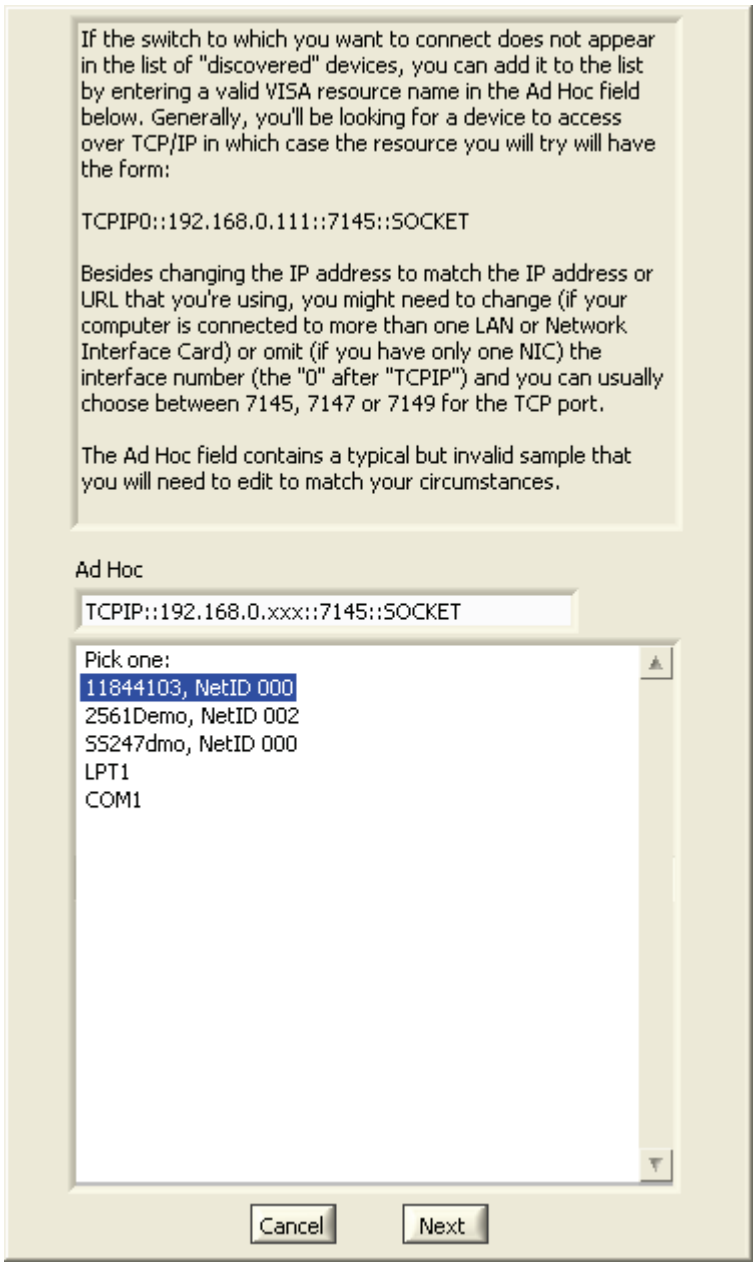
For COM1: `ASRL1:INSTR`

For COM2: `ASRL2:INSTR`

For COM3: `ASRL3:INSTR`

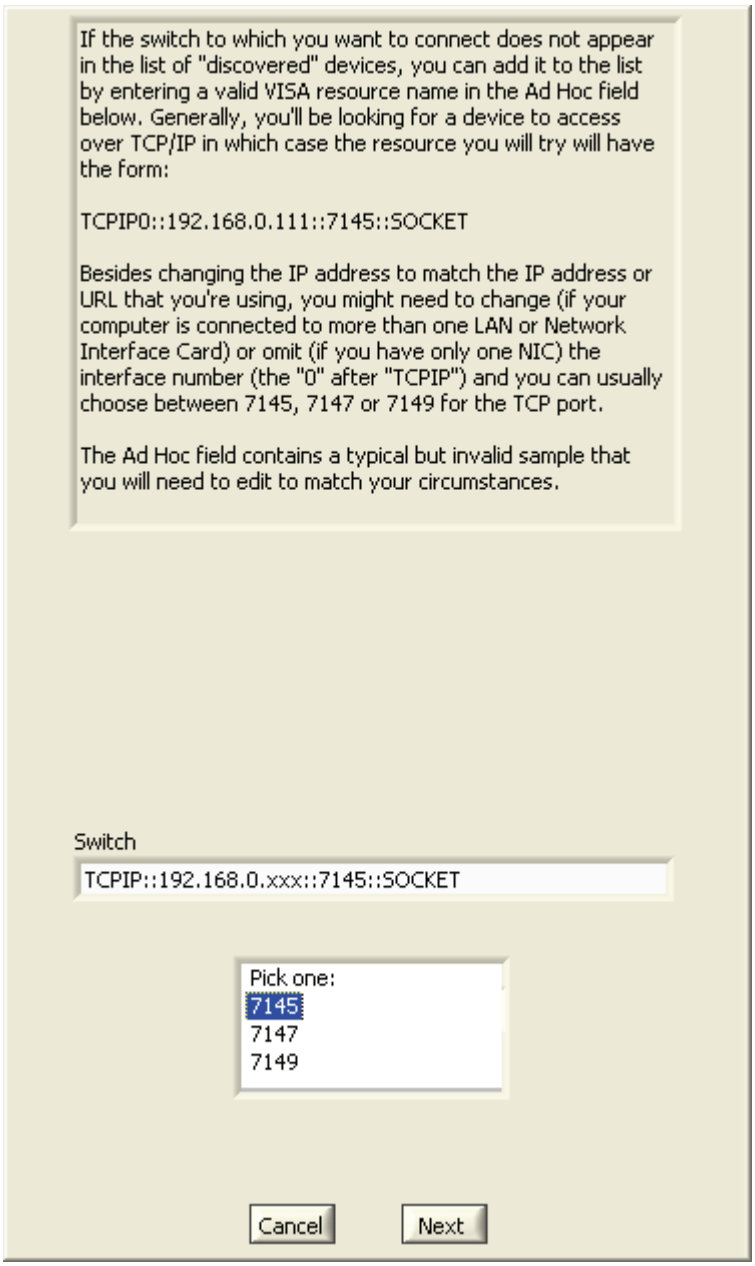
2.5.2. Pick a Device

Select a device and highlight it. After making a selection, click on the Next button.



2.5.3. Port Address

Pick the port address to with the selected device. Available ports are automatically displayed. Follow the instructions on the screen. Highlight the desired port from the list and click on the Next button. Note that this step is skipped if you select a system added using the Ad Hoc field or a non-Ethernet resource (like Serial or GPIB).



Typically, each switch is provided with three (3) available ports. The ports are 7145, 7147, and 7149. Only one port is required for remote access by a single session of RouteWarePRO.

If using multiple computers to simultaneously control a single system, note that each computer must use a different port. The same consideration should be made if controlling a single system using multiple RouteWarePRO Panel sessions on a single computer. Whether it is on one computer or multiple computers, each RouteWarePRO window controlling the same system at the same time must use a different port number.

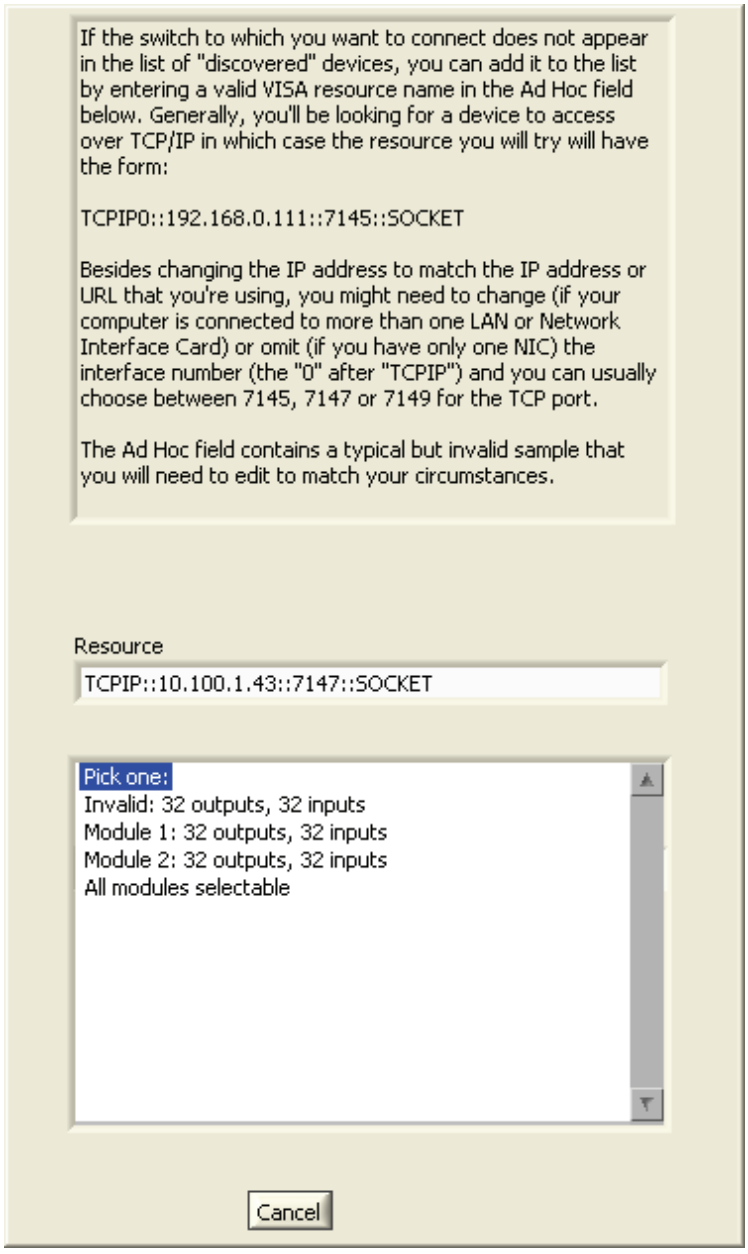
2.5.4. Module Control Selection

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.

2.5.4.1. 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 on Cancel to return to the Select tab.

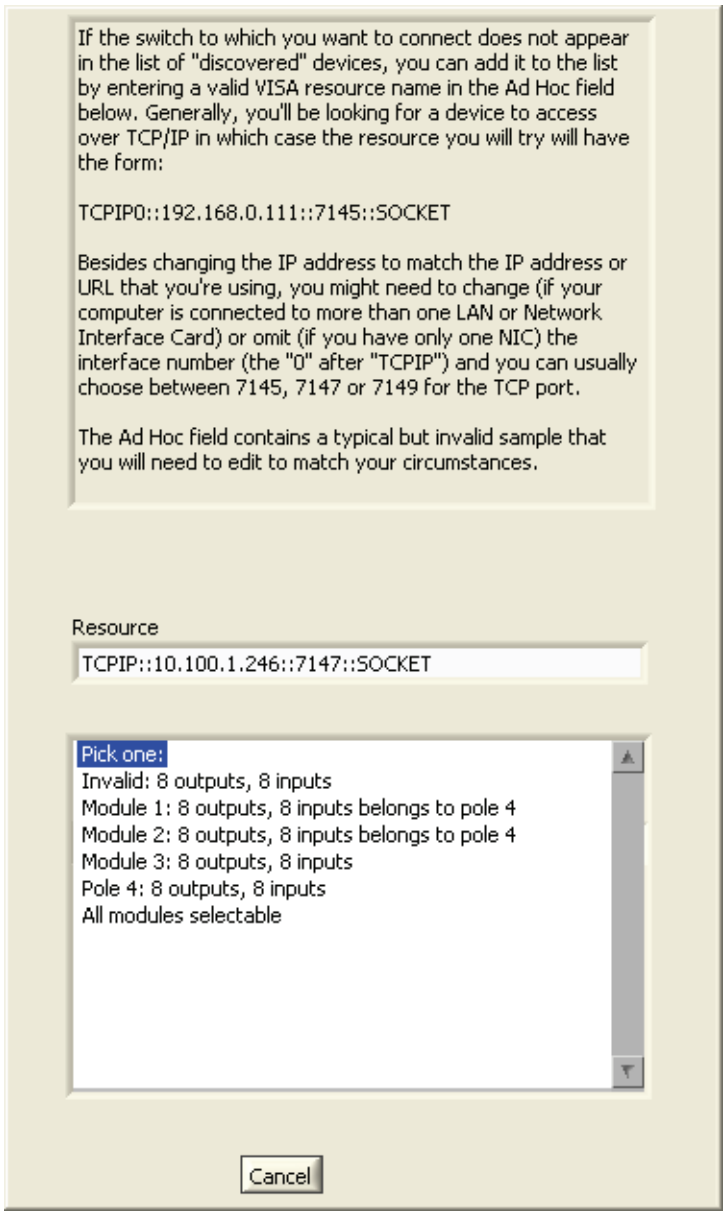


2.5.5. Ganged Mode and Poles

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.

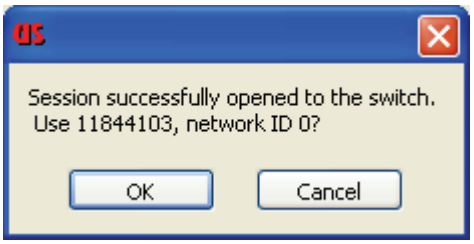
Shown below is an Add a Panel screen with the option of a Pole 4 selection. Pole 4 includes Module 1 and Module 2. This style of operation is most common for applications that use two modules for synchronous data/clock applications, or for "left hand/right hand" antenna switches.

For additional information see Section 4.4.



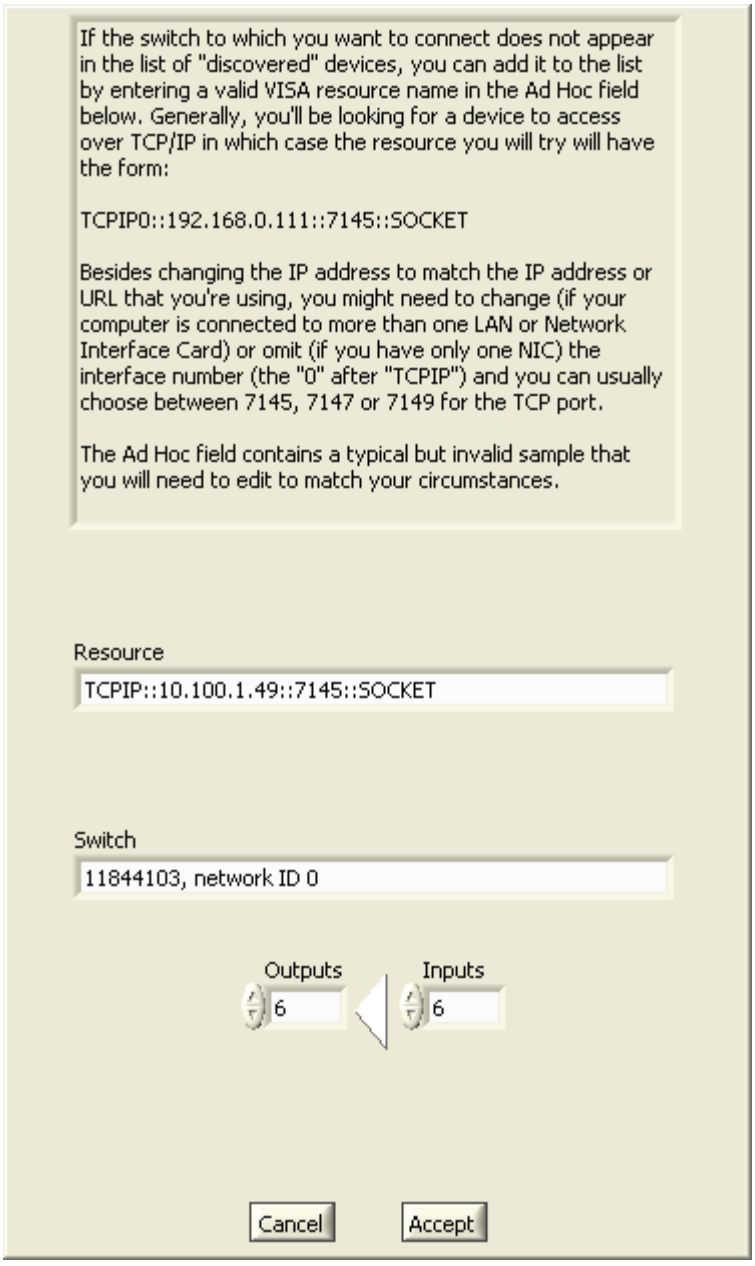
2.5.6. Session Dialogue Box

When a panel is selected and the Next button is clicked, a dialogue box opens to confirm the selection. Clicking on OK accepts the device and its assigned network ID. Clicking on Cancel returns the application to the Select tab.



2.5.7. Resource and Switch Fields

When you have selected a device and address, the information is displayed in the Resource and Switch fields.



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.

This is helpful when controlling a large switch, like a S2561E, or multiple S2561E switches with switch arrays that may have dedicated crosspoints that rarely change or need to be isolated from modification.

You may modify the Resource information by clicking in the field and revising the information. This is not recommended at this point since the settings so far have been verified.

The Switch field will be the display name of the panel in the Panel Selector and at the top of the screen when selected. The name shown is automatically generated, but does not hold any significance. It may be changed here or by selecting it in the Panel Selector and editing in the Panel title at the top of the window.

Note that even though the Outputs are listed before Inputs, a triangular icon reminds the user that the switch flow is Input to Output.

Click on the Accept button to accept the device and return to the Select tab. The newly added panel appears on the list in alphabetical order.

2.6. Multiple Sessions

RouteWarePRO 3.0 supports multiple sessions communicating over TCP/IP. This means that RouteWarePRO 3.0 can be executed more than once resulting in multiple RouteWarePRO 3.0 windows. Each "session" is an independent instance of RouteWarePRO 3.0 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 4.3.

3. Tab Definitions

This section describes the features of the panel interface of the RouteWarePRO 3.0 software. The title "RouteWarePRO 3.0" on top of the panel interface is stored from the "rw.ini" file and may be changed by the user by clicking on the title in the RouteWarePRO 3.0 screen. The RouteWarePRO 3.0 panel interface contains the following features:

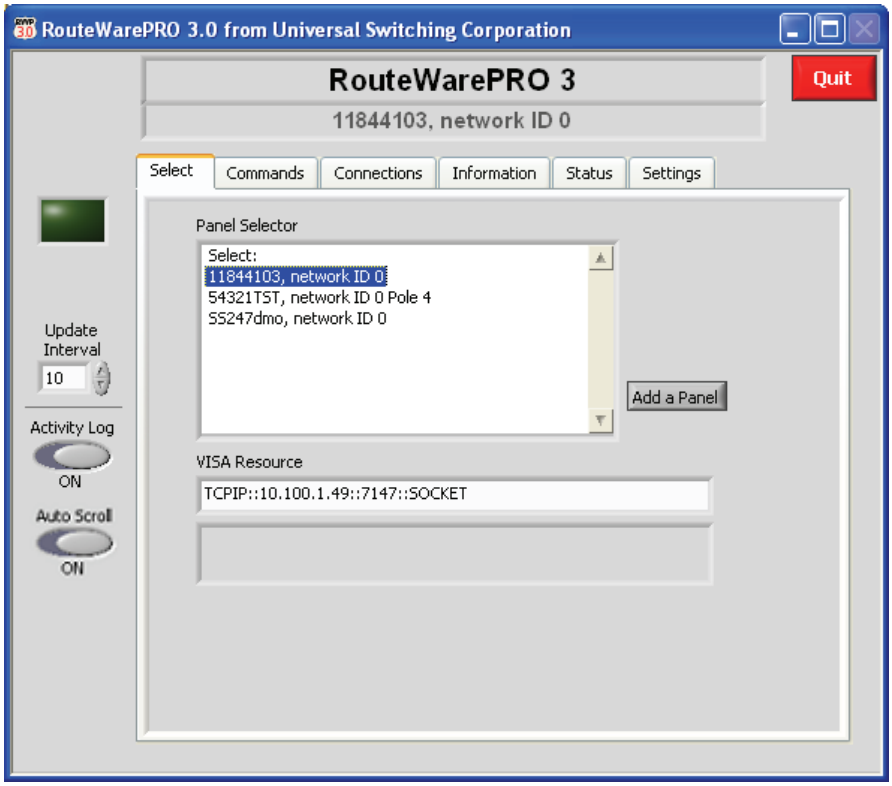
- The **Select**, **Commands**, **Connections**, **Information**, **Status, Settings** tabs. Each tab displays a screen that is explained in the following sub-section of this manual.
- The **Quit** button releases resources and closes the application.
- The **Maximize** button allows full screen display of the application. Additionally, the RouteWarePRO 3.0 window is sizeable by clicking and dragging on any edge of the window that is available.
- The **Update Interval** control allows the user to select the interval, in seconds, between status updates. Use the arrows to set the interval.
- The **Activity Log** switch, when set to ON, enables logging of each relevant command in the *C:\Documents and Settings\<User Name>\Application Data* folder.

NOTE: The application's close button is non-functional. Use the Quit button to close the application and release resources.

3.1. The Select Tab

The **Select** screen is displayed after you start the application. This screen provides a list in the Panel Selector box of available panels. The panel identifier or application title may be revised by clicking in the appropriate field and overtyping the text. See Section 2.4.4.

Clicking on a panel makes the panel active. Most installations require only a few panels, but there is no limitation to the quantity of Panels in RouteWarePRO 3.0.



3.1.1. Panel Selector

The Panel Selector box displays the devices. To Add a Panel, see Section 2.5.

3.1.2. 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. The Commands Tab

The **Commands** tab selects the main screen from which to control a switching system. The **Commands** screen provides a list of all OUTputs and INputs, (and MODules if more than one) and buttons for the action to be taken (Connect, Disconnect, etc.) are provided. The selected switch is displayed in the window beneath the main title.

3.2.1. Sort by Button

Ports may be sorted numerically (Number) or alphanumerically (Alpha). The Sort by button toggles to display Number or Alpha. 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 alphanumerically with numbers first and then by letter from A to Z (the Wildcard option always remains at the top of the INPuts column).

In the sample screen, three (3) Outputs have been renamed "HDTV", "Test bench" and "Video 1," and three (3) inputs have been renamed "Sat 1," "Sat 2," and "Scope."

The state of the Sort by button also changes the display on the Connections tab. All OUTputs displayed in the table are sorted accordingly, and the INput they are connected to is displayed in the right column.

Renaming Outputs or Inputs is done at this screen. See 3.2.8.

Note: If a selected Output is not connected to an Input, the Wildcard is highlighted.

3.2.2. 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. Only one Output/Input pair may be selected and Connected at a time.

Note that connecting an OUTput to the "Wildcard" input returns an error.

3.2.3. Disconnect Button

Select the OUTputs that you want to disconnect and press Disconnect. When the OUTput is selected, the connected Input is automatically selected.

3.2.4. Clear Button

The Clear 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.

3.2.5. Store/Recall Buttons and Memory location

Connection configurations may be stored for recall in a memory location on the remotely controlled system. The entire configuration of the selected system is stored. This allows configurations to be "uploaded" to the system in case a manual recall of the configuration is required 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 location is reported on the information tab in the Memories field. Since it is possible to overwrite an existing location, a confirmation is required.

When recalling the connection configuration, enter (or select using the Up or Down arrows) 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.

> ***NOTE: Recalling a memory location that has not been stored returns an 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.

> ***NOTE: Storing to a memory location that has already been assigned overwrites any stored configuration in that memory location.***

3.2.6. File Store and File Recall Buttons

The File Store and File Recall buttons provide an option for storing a configuration or recalling a configuration from the file system of the host running RouteWarePRO 3.0. 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 entire 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

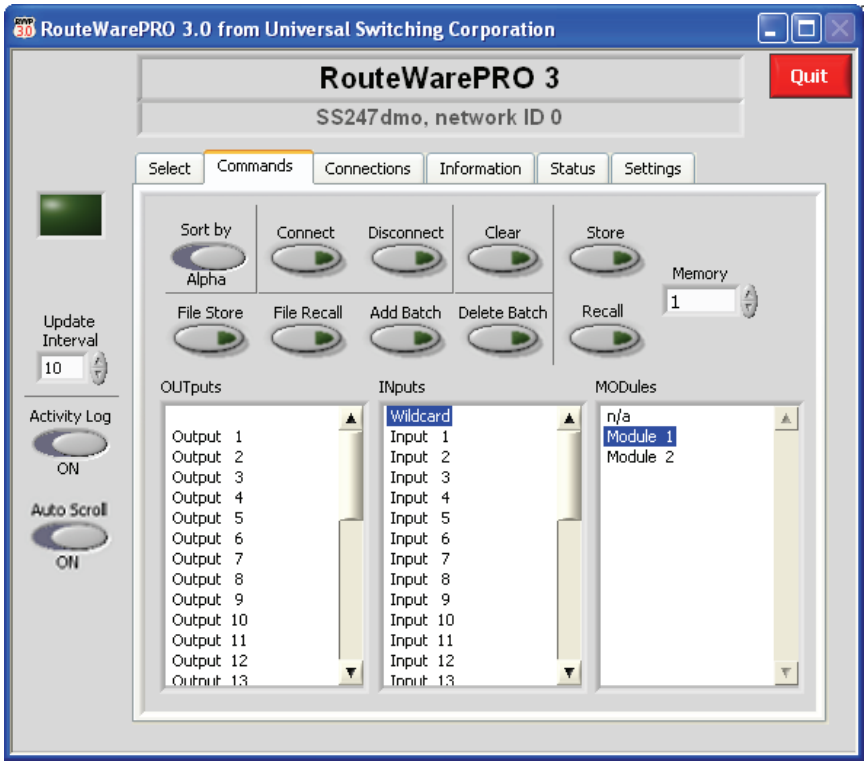
3,2

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.***

3.2.7. Input/Output/Module Window Boxes

The window boxes displaying the output and input selections available (and might also include a third "module" box) list the default names. The names are user definable and may be changed. Care should be taken when changing the names so that they are readable within their respective boxes. The width of the window boxes presents the only display limitation for the names.



3.2.8. 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. See Section 2.4.4.

3.2.9. Add Batch

This selection works similar to the FILE RECALL selection except that the existing connections are not cleared. 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 3.4.2 for information on the Auto Interlock feature.

3.2.10.Delete Batch

This selection 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.

3.2.11.Activity Log

When this selection is set to ON, an entry is made for each relevant command in the User's Application Data folder where the rw.ini file is located.

3.2.12.Auto-Scroll

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, the wildcard will be selected.

When this selection is set to OFF, the connected input will not be brought into view when the user selects an output. However, the input will be highlighted, just not brought into view.

3.3. The Connections Tab

Selecting the **Connections** tab displays the Connections screen which shows all connections that are made and verified on the product. The connections of the modules are displayed in Numbers or Names formats. These formats may be selected by a toggle switch at the top of the screen. Numbers is the actual input and output channels on the switch, and Names is the user's assigned nomenclature.

3.3.1. Display

The Display switch defines the display of the output and input channels on the selected switch. When the switch is in the Names position, the channel names (as shown below) are displayed. When the switch is in the Numbers position, the logical number of each output, input and module are displayed.

In the example below, the Display switch position is Names. Note that unconnected OUTputs are still displayed, but without an INput.

3.3.2. Send to Button

The Send to button selects either Printer or Browser. When Printer is selected and the Send button is pressed, a printer selection dialogue box appears. Once a printer is selected, the current configuration is sent to the printer using the default printer configuration.

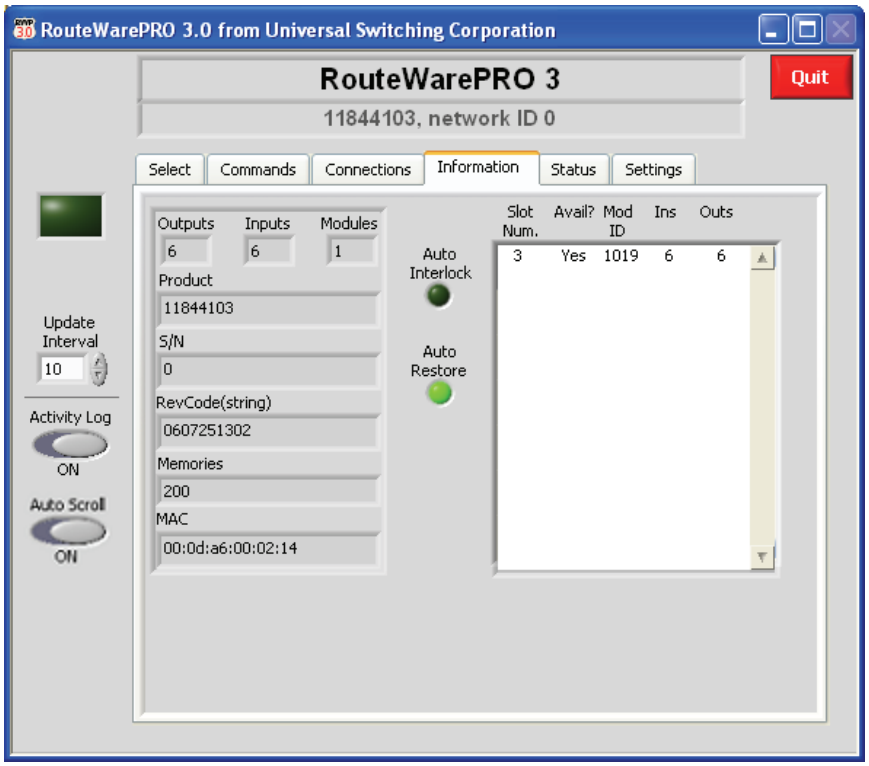
When Browser is selected, press the Send button and the current switch configuration is displayed in the operating system's default browser window. This allows the user to save the configuration table electronically, open it in another program, (like a spreadsheet of HTML editor) or have more control over printing options.

3.4. The Information Tab

The **Information** tab displays a screen with information about the system. The **Information** screen is selected by clicking on the information tab and is updated every time the **Information** tab is selected.

> ***NOTE: In order to display the latest system's information after a HOT - SWAP module installation; first go to the Status screen and perform a SELF-TEST to update the current status of the system and then click on the Information screen to view the latest system's information.***

The module's table information located at the right side of the screen provides information on each module installed in the system.



3.4.1. Identification Information

The system's identification data includes the following:

- **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 model number.
- **S/N –** Serial Number of the model/system (if available from the CPU.
- **RevCode(String) –** System's firmware revision code.
- **Memories –** Number of available memory locations.
- **MAC –** The Media Access Control (MAC) address for the selected switch's central processing unit (CPU). Each CPU has a unique MAC address.

> ***NOTE: The Product Model number, Serial and RevCode (string) are useful for resolving technical issues with Technical Support.***

3.4.2. Auto Interlock Indicator

The Auto Interlock indicator displays the Auto Interlock status for the switch under RouteWarePRO 3.0 control. The indicator is bright GREEN when Auto Interlock is ON. The indicator is unlit when Auto Interlock is OFF. The Auto Interlock status may be changed in the Settings tab. See Section 3.6.1.

3.4.3. Auto Restore Indicator

The Auto Restore indicator displays the Auto Restore status for the switch under RouteWarePRO 3.0 control. The indicator is bright GREEN when Auto Restore is ON. It is dim GREEN when Auto Restore is OFF. The status reflects the state of Auto Restore on the system in the active panel. It is an indicator only and may not be changed from within the RouteWarePRO 3.0 application.

3.4.4. Slot Num

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

3.4.5. Avail?

Indicates the detection and availability of a module.

3.4.6. Mod ID

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

3.4.7. Ins and Outs

Indicates the number of inputs and outputs on the module.

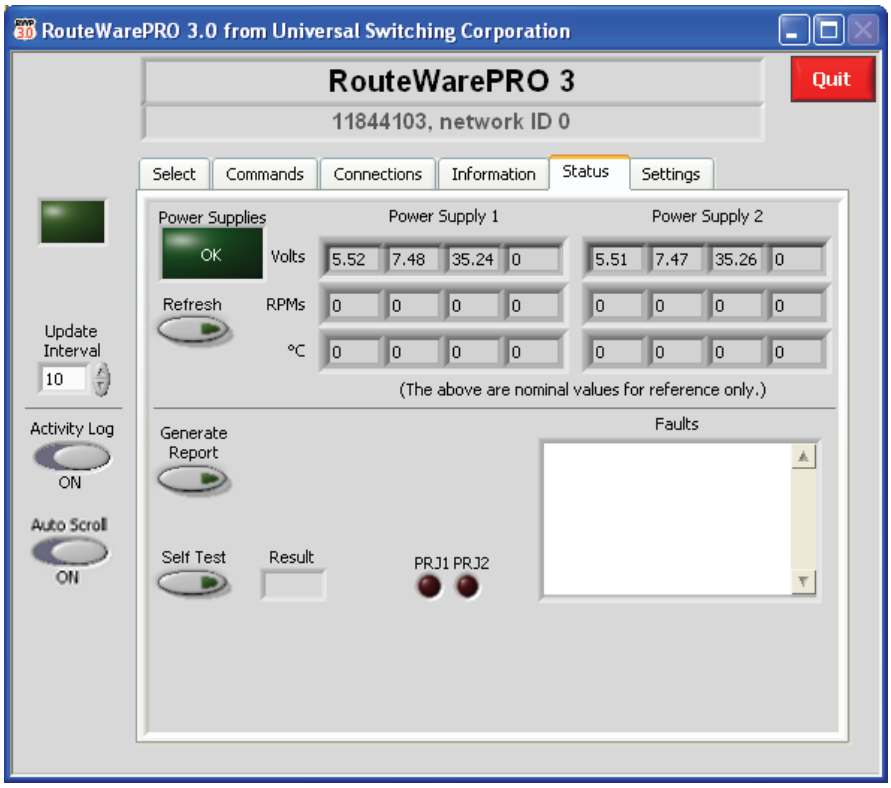
3.5. The Status Tab

The **Status** screen may be selected by clicking on the **Status** tab. The **Status** tab displays monitored information. The system monitored functions are regularly updated per the Update Interval setting found at the left side of the window.

If a malfunction or command error is detected in the system, a "Check Status" indicator displays **Check Status** on the left side of the window. Select the Status tab to investigate the error.

The Status Screen consists of Status Indicators, Status Buttons, and Status Fault Records. The following paragraphs explain the indicators, buttons and record logging operations.

This Status screen example is from a test application and consequently no values for RPMs or temperature are displayed.



3.5.1. Status Indicators

3.5.1.1. Power Supply 1 and Power Supply 2

The power supply fields display current status per the Update Interval audit of operating conditions. The display 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.

3.5.1.2. Power Supplies Indicator

The power supplies indicator normally remains GREEN unless a fault is discovered. When a fault is discovered, the indicator is RED and the power supply failure is displayed.

In the Status screen example, Power Supply 1 and Power Supply 2 are operating normally and the appropriate values for Volts, RPMs, and temperature (in Celsius) are displayed.

This Status screen example is from a test application and consequently no values for RPMs or temperature are displayed.

3.5.2. Status Buttons

3.5.2.1. Refresh Button

The Status screen is updated each time it is opened. While viewing it, the display is static with the last known status. The Refresh button is used to manually update the status indicators.

3.5.2.2. Generate Report Button

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.

3.5.2.3. Self Test Button

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-swap replaced or expanded.

3.5.2.4. Self Test Result Window

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 User Guide for the attached system.

3.5.3. Faults Window Display

A fault window displays a record of any fault. The record is a single column list. If a fault is ever displayed, it is suggested that the first course of action is to press the Generate Report button. See Section 3.5.2.2.

The Status tab includes the following unused indicators:

- **Project 1 (PRJ1) –** project specific indicator for systems that utilize this status control
- **Project 2 (PRJ2) –** project specific indicator for systems that utilize this status control

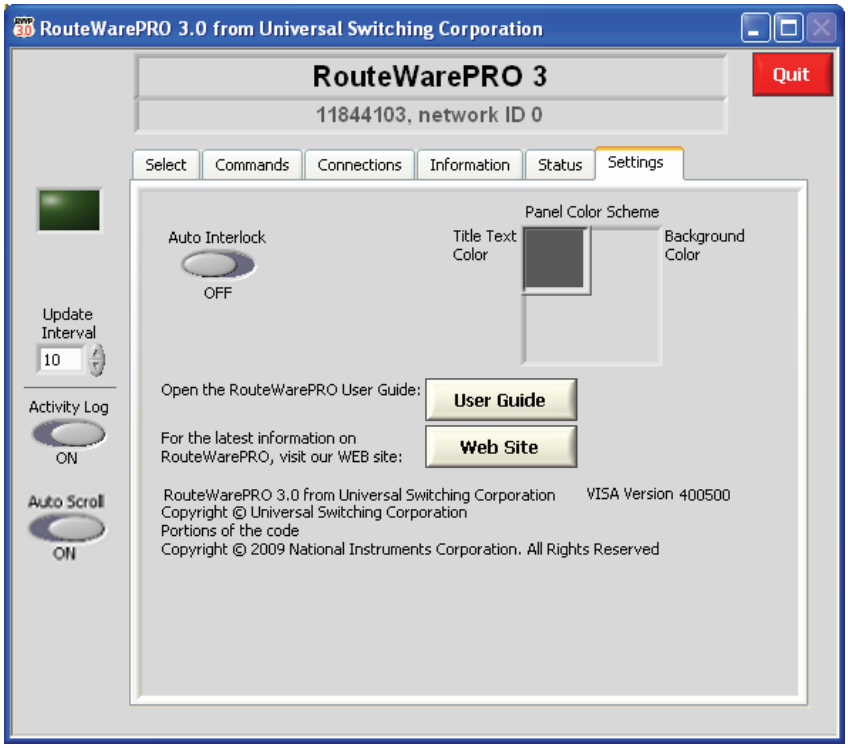
Note that these indicators are rarely used and remain dim for the majority of switching systems. See the User Guide for your specific system to see if the PRJ1 and PRJ2 LED indicators are utilized.

3.6. The Settings Tab

The **Settings** tab displays a screen with the software version, copyright information, VISA version, a link to the Universal Switching User Guide and Web site, as well as the Title Text Color and Background Color fields.

The User Guide button is a quick link to this RouteWarePRO PDF user guide. It contains programming and command protocol information.

The web site button launchs the system default browser and direct it to www.uswi.com. The uswi.com Web site introduces the entire complement of Universal Switching Products. All current information, including updates to RouteWarePRO software and documentation are accessible from the web.



3.6.1. Auto Interlock

The Auto Interlock button is a toggle that may be set to ON or OFF and applies to the selected panel.

- With the Auto-Interlocking feature enabled (ON), the unit automatically disconnects any input connected to the specified output before making the new input connection.
- With the Auto-Interlocking feature disabled (OFF), the user must send a disconnect command for the existing cross-point connection prior to connecting any new input port. This is to prevent unintentionally disconnecting currently used connections.

> ***NOTE: Careful consideration should be taken before changing the default ON setting of the Auto Interlock switch.***

3.6.2. Panel Color Scheme

The Panel Color Scheme tool allows the user to change the panel title color and the general background color for a specific panel.

Click in either the Title Text Color area or the Background Color area, and a standard Windows color picker displays. Use the color picker to select the desired display colors.

Up to the last eleven colors selected from the color picker are shown in the History row at the bottom of the color picker tool. This, along with the System row (system colors) allows for quick configuration of multiple panels to either match the operating system's color scheme, or to a match a specific color theme.

> ***NOTE: The Title Text and Background Color changes are implemented the next time that the application is opened.***

4. Advanced Features

The following paragraphs provide a brief explanation of RouteWarePRO 3.0 advanced features.

4.1. rw.ini File

On startup, RouteWarePRO 3.0 looks for the rw.ini file in the *C:\Documents and Settings\All Users\Application Data* folder. If not found, RouteWarePRO 3.0 looks in the *C:\Documents and Settings\<User Name>\Application Data* folder. If it still does not find the rw.ini file, it creates the file in that location. This allows the user to place a copy of rw.ini file to be shared or separate rw.ini files that can be maintained and by individual users.

Although RouteWarePRO 3.0 maintains the rw.ini file on its own, the user may find it convenient to edit the file externally with a text editor. 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 3.0, several of them must be added manually if their functionality is required:

- [1]Title = "<Main Title>" ; title that appears in the top of the window
- [2]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 3.0
- [1]Statusinterval=3 ; corresponds to the Update Interval control at the left side of the window. The time in seconds between each status/state check
- [1]Logging = TRUE: state of the Activity Log toggle. See 3.2.11

NOTES:

[1]This parameter is automatically generated when required and can be edited in RouteWarePRO 3.0

[2]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.

- [3]Resource=<VISA resource string>; This describes to RouteWarePRO 3.0 how to access the desired panel
- [2]RS485=0 ; The address byte when using Universal Switching's implementation of RS485. The "0" inhibits the address byte (normal condition)
- [1]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
- [1]Foreground=595959 ; The color to use for the panel's color
- [1]Background=D8D8D8 ; The color to use for the panel's background
- [1]Title="<panel title>"; Text shown below the main title that corresponds to the selected panel
- [1]AlphaSort=FALSE; This is the last state of the "Sort By' toggle in RouteWarePRO 3.0
- [3]UseModule=1 ; For systems with multiple modules, this assigns the specified panel in this section to operate only the module numbered here
- [3]Modules=2; For system with multiple modules, this determines how many "modules" are reported to and available to the specified panel
- [3]Outputs=<# of outputs>; Number of outputs the panel accommodates
- [3]Inputs=<# of inputs> ; Number of input s the panel accommodates
- [2]OutputBoxLabel="OUTputs" ; The label above the Outputs List on the Commands tab.
- [2]InputBoxLabel="INputs" ; The label above the Inputs List on the Commands tab
- [2]ModuleBoxLabel="Modules" ; The label above the Module's List on the Commands tab
- [1]Output001="Output 1" ; any number may be substituted for 001
- [1]Input001="Input 1" ; any number may be substituted for 001
- [1]Module01="Module 1" ; any number may be substituted for 001

NOTES:

[1]This parameter is automatically generated when required and can be edited within RouteWarePRO 3.0

[2]This parameter must be manually added and edited in the rw.ini file to use

[3]This parameter is initially created by RouteWarePRO 3.0, 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 3.0, several of them must be edited manually to change their function.

- [2]AllowMultipleInstances=TRUE; This enables RouteWarePRO 3.0 to run multiple sessions of the program. To disable this function, set the parameters to FALSE.
- [1]colorHistoryitem<#>=<HTML color>; Numbered from A through K these can be found in the History row of the Panel Color Scheme color picker.

NOTES:

[1]This parameter is automatically generated when required

[2]This parameter is present when installed and must be manually edited in the rw.ini file to use

4.2. Inactivity Timeout

Since RouteWarePRO opens a TCP/IP port connection to the system (when using Ethernet connectivity), it is important that this port be closed when a remote control session completes. However, if communication is interrupted while a port is open, it may remain in that state and prevent access until it is reset.

To prevent a port from remaining open, an inactivity timeout can be set on the system. This results in automatically closing inactive ports. If there are any concerns regarding network integrity, or if the ability to perform maintenance to the system is restricted in case of a port error, we suggest enabling this setting. Since the RouteWarePRO Update Interval counts as switch activity, it is suggested that the system's inactivity timer be set for any value greater than the interval being used.

Inactivity timeout is read and set at each individual switch using a GET? and SET property. See the system's OPERATION MANUAL or the USER GUIDE FOR IEEE488.2 COMPLIANT UNITS for more information.

4.3. Multiple Sessions

RouteWarePRO 3.0 supports multiple sessions communicating over TCP/IP. This means that RouteWarePRO 3.0 can be executed more than once resulting in multiple RouteWarePRO 3.0 windows. Each "session" is an independent instance of RouteWarePRO 3.0 capable of operating a different device. Availability of this feature is controlled in the routeware.ini file described in Section 4.1.

Note that two sessions cannot access the same panel or system using the same port number. For example, if you create two of the same panel, but they have different port numbers, they can each be operating in two separate sessions without conflict. However, if you use the same panel on the same port or two different panels from the same system on the same port, it results in a conflict and produces a session error.

It you intend to use multiple sessions on a single system, make certain to plan how to address the different resources within the limits of the available ports. Typically, Universal Switching products have three available ports per Ethernet module at 7145, 7147 and 7149.

4.4. Ganged Mode and Poles

When adding a panel, the operating mode of the system containing the panel must be considered,

A switching system may be configured in Ganged Mode with modules assigned to Poles. Poles are "virtual" modules that gang together two or more "actual" modules.

Any module or combination of modules may be identified as a Pole. For example, Module 2 and Module 3 may be identified as Pole 4. Pole 4 is discovered in RouteWarePRO 3.0 as "Module 4". A system may have as many poles as required.

4.5. Importing Legacy Configurations

Legacy port name configurations from versions earlier than RouteWarePRO 3.0 are not compatible and must be imported. Below is a procedure for importing a legacy configuration into the rw.ini file using a typical spreadsheet program.

- Drag and drop the legacy configuration file on to a spreadsheet window Column A
- Delete the top two rows
- In B1 enter output001 or input001 as appropriate
- Click on B1 and drag the lower right corner of the selection box downwards so that column B is the same length as column A. (The spreadsheet should automatically renumber each cell.)
- In C1, enter the formula:

  `=CONCATENATE(B1,"=""",A1,""""")`

- Click on C1 and drag the lower right corner of the selection box downwards so that column C is the same length as columns A and B
- Select column C1, copy it to the clipboard and paste into the appropriate section of the rw.ini file as described in Section 4.1.1

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 3.0 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
A	Revised syntax in section 4.5 from A1. to A1, Added instructions in 2.5.1 on manually adding a serial port that is not in the MAX configuration store.	20100804
B	Auto-Scroll: Revised screen shots and added section 3.2.12	20100923

NOTES