# RTiPanel Setup Guide

Apple® iOS devices                Android™ devices

## RTiPanel Overview and Requirements

RTiPanel is an application that is designed to run on Apple® iOS devices (such as iPad®, iPhone® and iPod Touch® devices) as well as Android™ devices. This application communicates with RTI's control processors to provide full control of your RTI system right from your Apple® or Android™ device. The RTiPanel application is designed to run on LAN and WAN networks giving full control and two-way feedback from anywhere in the world with Internet access. A license is required for every Apple® or Android™ device in order to communicate. Licenses may be purchased from the RTI online store, or by contacting your local distributor.

# Table of Contents

## Software Requirements:

- The latest version of Integration Designer programming software. See the dealer section of the rticorp.com website to download.
- The latest firmware installed on the RTI control processor.  See the dealer section of the rticorp.com website to download.
- **NOTE:** To check the current version of firmware on your processor, hook up a USB cable, open Integration Designer and go to Communications>Get Firmware.

## Hardware Requirements:

- Apple iPad, iPhone and iPod touch device or Android™-based tablet or phone.
- RTI XP-series or RP-4 control processor.
- Ethernet Network (LAN) – Ethernet network with WiFi for local access.  For remote access see instructions below.
- System files with multiple RTiPanel App devices (tablets/smartphones) may require the use of an XP8/XP8s control processor that have Flash memory storage which provides additional file space needed to store larger RTiPanel data files.
  - **NOTE: When using an XP8 processor, you must install an SD card into the front on the XP8.** It must be a standard SD card no larger than 2GB and formatted as Fat or Fat32. Flash memory cards with more memory, and MicroSD cards will not work.

## Network Requirements:

- Apple® iOS/Android™ devices used for local control must be connected to the same Ethernet network as the RTI control processor.
- Apple® iOS/Android™ devices used for control from a remote location must have an Internet connection.
- Use of the RTiPanel from a remote location requires Internet access for the RTI processor with **a static IP address from the Internet Service Provider** (ISP). If a static IP address is not possible, then a dynamic DNS service will need to be used. (See the Remote Access section for details.)
- Remote access using an RP-4 control processor, while possible, is not supported.  Also, because the RP-4 is a one-way device, be aware that without two-way feedback there is no way to determine the status of the device (lighting/HVAC/security etc) being controlled.

## Licensing Requirements:

- A license is required for each Apple® iOS/Android™ touch device.
- XP-Series and RP-4 processor RTiPanel App licenses are not interchangeable > Example: You cannot use an XP series RTiPanel license with an RP-4 processor or vice-versa.
- Licenses may be purchased online at http://www.rticorp.com/dealer/apps/rtipanel, or by contacting your local RTI distributor.
- RTiPanel licenses are registered to a specific RTI control processor MAC address and licenses are not transferable to another processor. **No refunds, exchanges or license transfers to another processor are allowed.**

**What if:**

Your client replaces/upgrades an Apple®/Android™ device:

- Rebooting the processor will "free" up the license being used by the old device.  When RTiPanel is installed on the new Apple®/Android™ device and connected to the processor, the license will have been transferred to the new Apple®/Android™ product.

Your client has multiple control processors:

- Every processor must be in the same system file and be on the same network (LAN).
- Every RTiPanel license must be registered to the same "Main" XP processor. (See Advanced RTiPanel Programming section below).

# Basic Integration Designer Programming

Creating a system that includes an RTiPanel device

1) Start with a system file containing a supported RTI processor.
2) Add the Apple®/Android™ device to your system file. (See below, or rticorp.com RTiPanel page in the Dealers section for a current listing of which product to use in your system file).
3) Add an RTiPanel license to your file.

## Adding an RTiPanel Device to System
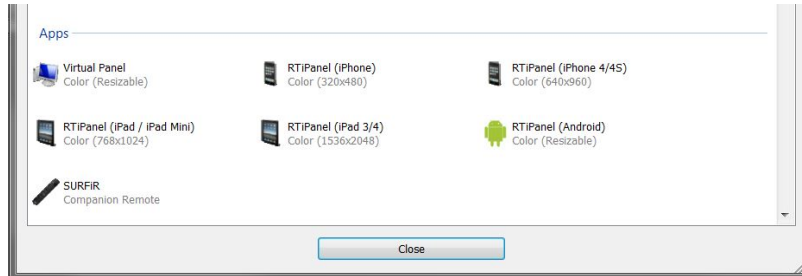


From the 'Device' menu select 'Add New'. In the 'Add New' dialog box, find the 'Virtual Controls' section. Choose the Apple®/Android™ device you wish to add to the file.

NOTE: Verify the model and screen resolution of your Apple®/Android™ device matches the device in your system file. For example, you cannot put an iPad programming into an iPhone.

**iOS devices in Integration Designer:**

- iPad 1, 2, Mini (Non-Retina) > RTiPanel (iPad / iPad Mini) (768x1024)
- iPad 3, 4, Air, Mini (with Retina Display) > RTiPanel (iPad 3/4) (1536x2048)
- iPhone (original) / iPod Touch (1st generation) > Not supported
- iPhone 3G / iPhone 3GS / iPod Touch (2nd and 3rd generation) > RTiPanel (iPhone) (320x480)
- iPhone 4 / iPhone 4S / iPod Touch (4th generation) > Use RTiPanel (iPhone 4/4s) (640x960)
- iPhone 5 / iPod Touch (5th generation) > RTiPanel (iPhone 5/5S) (640x1136)Android Devices

**Android devices in Integration Designer:**

The RTiPanel (Android) is resizable based on the specs of the Android device being used. The RTiPanel Welcome Screen has a "Device Info" page which will display the screen dimensions you will need to define the device in Integration Designer (see the "Configure RTiPanel" section).

o Due to the many resolutions available for Android devices, not every Android device will have pre-built templates available (Page Wizard Feature). Integration Designer includes pre-built templates for some of the most common display resolutions. Display types with pre-built page template options include:
   - 480x800 with a 38 pixel status bar (many Android™ phones)
   - 600x1024 with a 100 pixel status bar (Kindle Fire®)
   - 800x1280 with a 48 pixel status bar (most 10.1" tablets)

## Adding RTiPanel Licenses to System

1) From the Integration Designer 'File' menu select 'System Properties'.
2) Go to the "RTiPanel/Virtual Panel" tab and in the 'Licenses' section press the 'Add' button
3) Navigate on your computer to the license file (ex. iPad_00_15_26_XX_XX_XX.rtilicense) that you purchased and generated on the rticorp.com website. Go to the Dealers section of rticorp.com for details on purchasing licenses and generating the license file.
4) **NOTE:  The Remote Access section** is only needed if the Apple®/Android™ device will be used remotely (outside the local network).  If remote access is not being used, these fields can be left empty.
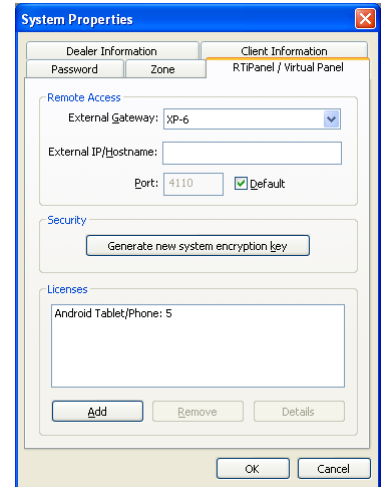
## Configuring the Apple®/Android™ Device

Start by downloading the RTiPanel app from the Apple app store, Android Market or Amazon Appstore (for Kindle Fire®).  When you start the app on the device you will see a welcome screen with some options.

## For Android™ Devices Only:

**Android RTiPanel Welcome Screen**

The screenshot to the right displays the Android welcome screen.
**Get Started** – Download the configuration into the device.
**Demo Mode** – Preview the RTiPanel App.
**Device Info** – Displays the Android device screen dimensions. This information will be entered into Integration Designer when adding an Android™ device to a system file.  A prompt will appear after adding an Android™ device (shown below).
NOTE: As indicated above, due to the large variety of Android™ device display resolutions, only the most common display types will have Page Wizard template pages available.  When programming for an Android™ device that does not have one of the resolutions stated above, the Page Wizard feature will not be available.

**Android Device Information Screen**

The screenshot to the right displays the Android device information screen. This information will be entered into Integration Designer when adding an Android™ device to a system file.  A prompt will appear after adding an Android™ device.
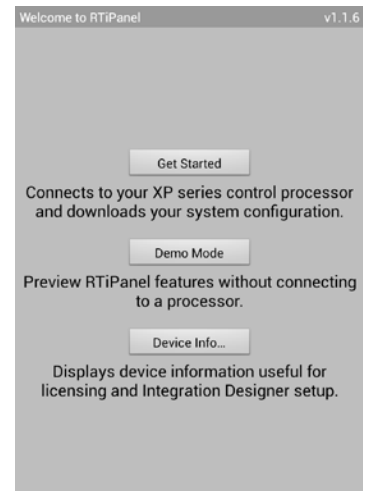
**Integration Designer RTiPanel Size (Android Devices Only)**

The screenshot to the right displays the prompt in Integration Designer asking for the screen dimensions of the Android device.

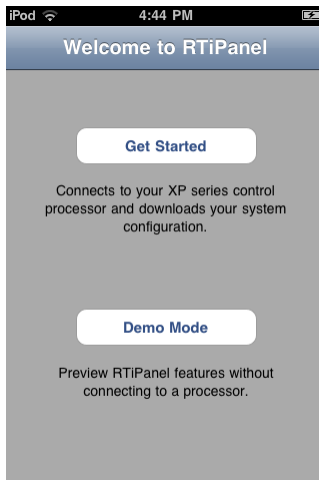**Portrait:** These are the screen dimensions of the device in "Portrait Mode."

**Landscape:** These are the dimensions of the device in "Landscape Mode."

**Resolution:** This is the resolution (Density) of the device screen.

**Resize Mode:** This can be ignored during initial setup. It is used when resizing the screen dimensions of an existing RTiPanel device.
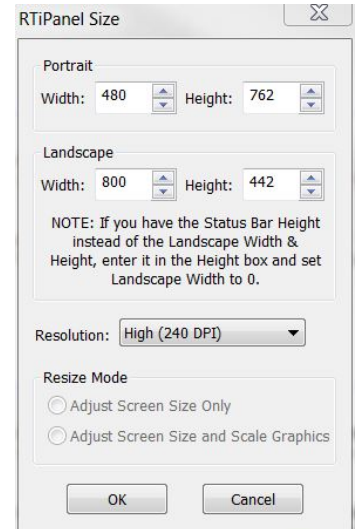
## Get Started:

Select "Get Started"
NOTE: These screenshots are from an Apple® iOS device. Note that the RTiPanel menus may look slightly different when using Android devices.

The next screen will show a list of RTI processors that are on the LAN and are available to connect to. If you are configuring from a remote location (not on the local network), you can "Manually Configure" by selecting the '+' button in the upper-right corner of the screen and typing in the Server Address, which is the DNS hostname or IP address for the location of the XP Processor.
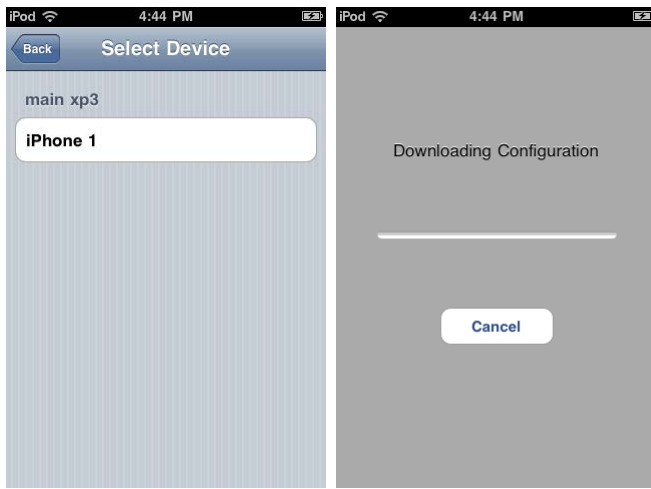
Once a server has been selected, it will provide a list of devices that are compatible with the RTiPanel app.

Select the desired device and the configuration will be downloaded to the device.

The RTiPanel app will check-in with the server after each connection is made to determine if a new configuration is available. If a new configuration is available, it will be downloaded automatically by the RTiPanel app.

# Reconfiguring/Resetting RTiPanel App

In the event that the RTiPanel needs to connect to a different processor, such as a customer who has RTI control systems in multiple homes, the configuration can be reset. Resetting the configuration will cause the RTiPanel to return to the "Welcome" screen, allowing you to go through the configuration steps again and communicating with the new processor.

**Apple® iOS devices:** Go to the iOS device settings and select RTiPanel. Set the "Reconfigure" button to "ON" (screenshot on left). This Reconfigure setting automatically resets itself to "Off".

**Android™ devices**: Go to Setting>Apps>Clear Data. Click "OK" to clear app data. The images below are from the settings menu of a Sony Tablet S. The menu may look different depending on the Android™ device being used.
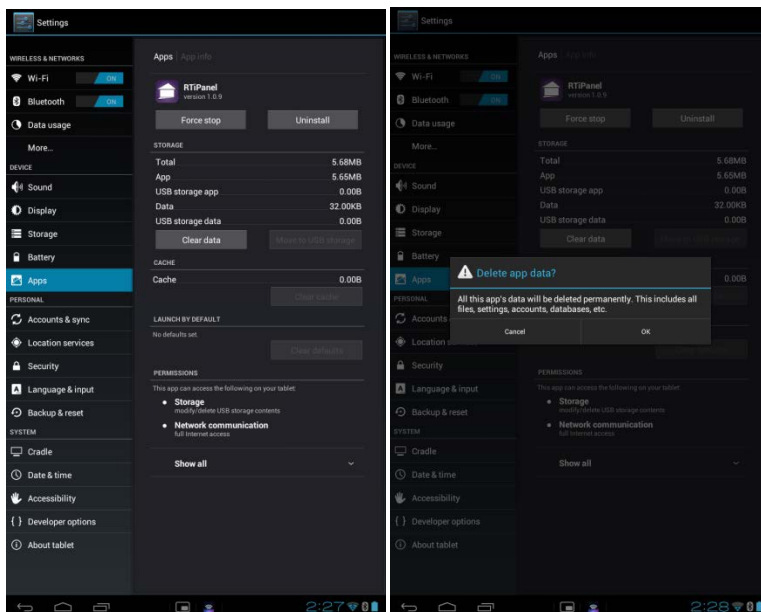
# Advanced Integration Designer Programming

## Multi-Processor Programming in Integration Designer:

• Specify the Default System: Go to the Device Properties of the Apple®
iOS/Android™ device and select "Output" to specify the RTI processor
containing the RTiPanel licenses and Click OK.

• Communication with an alternate processor can be achieved on individual
buttons by adjusting which processor it is assigned to (Button Properties >>
Output tab).  In this case, the default or "main" RTI processor with the licenses
associated with it will still receive the commands from the RTiPanel and will
transfer communications via Ethernet to other processors on the network.

**NOTE:** Integration Designer 9.0 introduced Master/Slave processor mode, which
allows multiple processors to act as one in programming. Using this mode
eliminates the need to define the default system.

**NOTE:** RP-4 control processor does not support Master/Slave mode.
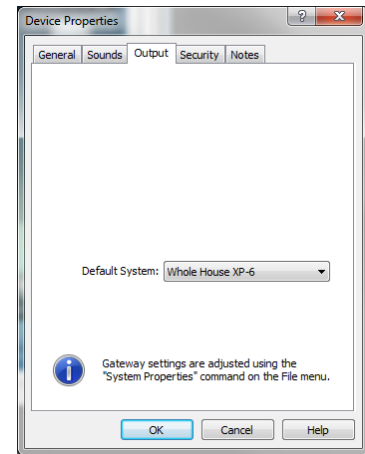
## Gauge Drawing Tool

To add a gauge object to a page, select the gauge drawing tool in the lower-left corner of the Integration Designer
window.  Now select the 'Draw Button' tool.  Draw the gauge on the page to the desired size.  The orientation of
the gauge will change depending on the size of the button.  To make the gauge orientation bottom-to-top, simply
draw the button tall and skinny.  Gauge objects are for feedback only.  You cannot place a command onto the
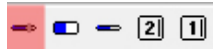gauge object.

Apple® iOS                    Android™

## Slider Drawing Tool

To add a slider object to a page, select the slider drawing tool in the lower-left corner of the Integration Designer
window.  Now select the 'Draw Button' tool.  Draw the slider on the page to the desired size.  The orientation of
the slider will change depending on the size of the button.  To make the slider orientation bottom-to-top, simply
draw the button tall and skinny. Once the slider has been created, driver commands and feedback variables can be
assigned.

Apple® iOS                    Android™

## Toggle Button Drawing Tool

To add a Toggle Button object to a page, select the switch object drawing tool in the lower-left corner of the
Integration Designer window.  Now select the 'Draw Button' tool.  Note that while the actual button can be drawn
to the desired size, the toggle button graphic itself is a fixed size. Once the toggle button has been created, driver
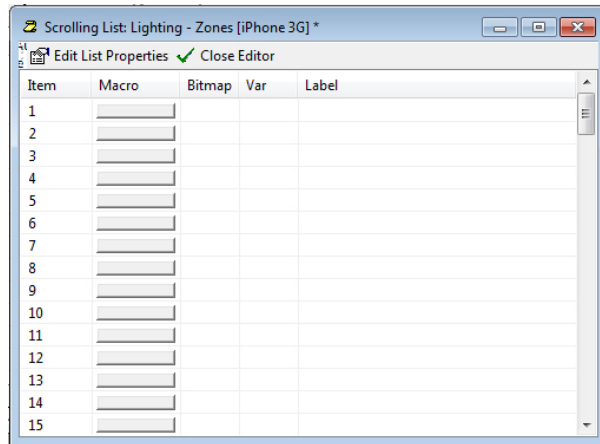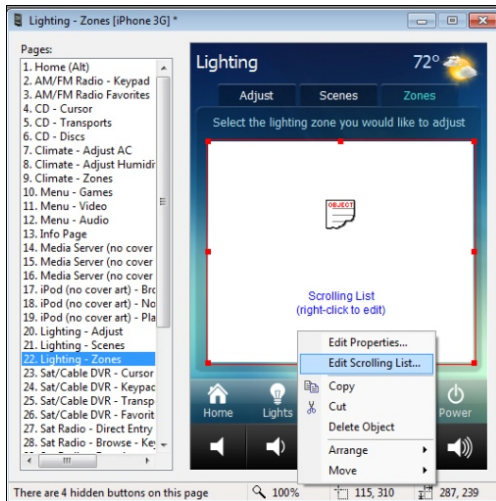commands and feedback variables can be assigned.
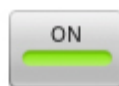
Apple® iOS        Android™

## One-Way List Drawing Tool

Select the static list object drawing tool in the lower-left corner of the Integration Designer window.  Now select the 'Draw Button' tool. Draw the one-way list object on the page to the desired size.  A one-way list can then be populated by right clicking on the scrolling list object and selecting "Edit Scrolling List". A programming menu similar to the illustration below will appear and allow for the creation of macro commands to be executed when an item from the list is selected.  Button Text and bitmap fields are also available for customization of the scrolling list. One-way scrolling lists can be an ideal interface for control requirements that would otherwise require many fixed buttons (ex: favorite music or tv stations, surround modes from an A/V receiver).



## Two-Way List Drawing Tool

To add a Two Way List to a page, select the two-way list object button on the toolbar in the lower-left corner of the Integration Designer window. Now select the 'Draw Button' tool.  Now select the 'Scrolling List Object' tool. Draw the two-way list object on the page to the desired size.  Once created, driver commands and item list feedback variables can be assigned to the list for two-way communication with compatible equipment.  Button text properties (text size, font, alignment) can be adjusted by right clicking on the two-way list button, and selecting "Edit Properties". The list background color, and font colors can be adjusted using the paint tools in the toolbar located at the bottom of Integration Designer.



**Note:** Two-way lists are programmed differently on Apple® iOS/Android™ devices compared to RTI controllers.  This is due to the fact that RTiPanel is exposing some of the native capabilities of the Apple® iOS/Android™ scrolling lists. There is no need to account for a progress bar, or Scroll/Page up or down commands on Apple® iOS/Android™ devices.  The progress indicator is built into the Apple® iOS/Android™ list, and swiping allows for quick, intuitive navigation through the contents of the list.
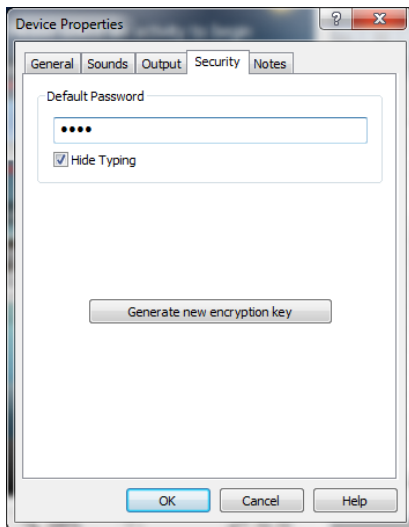
## RTiPanel Password

RTiPanel can provide secure access via the "Security" tab of the Device Properties for each Apple® iOS/Android™ device. When RTiPanel application is open and the password option has been enabled, a prompt will ask for the password entry before the user interface is presented. Note that the password prompt will only be initiated upon starting of the RTiPanel application. If the RTiPanel has been opened and is running in the background of Apple® iOS/Android™, a "new" prompt will not be required when the user chooses to use the RTiPanel application. In the event that secure access to the control interface is important, the user should completely close RTiPanel after each use (i.e. RTiPanel should not be still running in the background).
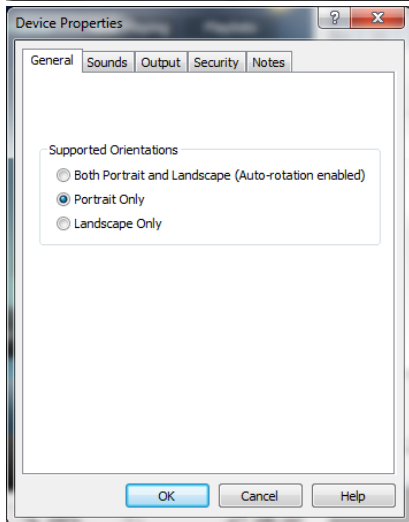
## Locking Orientation

RTiPanel supports unique GUI layout for both Portrait and Landscape mode on Apple® devices. Both Portrait and Landscape mode are enabled by default on each Apple® iOS/Android™ device. The GUI for each orientations must be programmed when both modes are enabled, which in general will require additional programming time. If a fixed graphics orientation is preferred, right click on the Apple® iOS/Android™ device in the System Workspace of Integration Designer, and select "Edit Properties". From the General tab, select the preferred orientation. Once selected, only the desired orientation needs to be customized in Integration Designer.
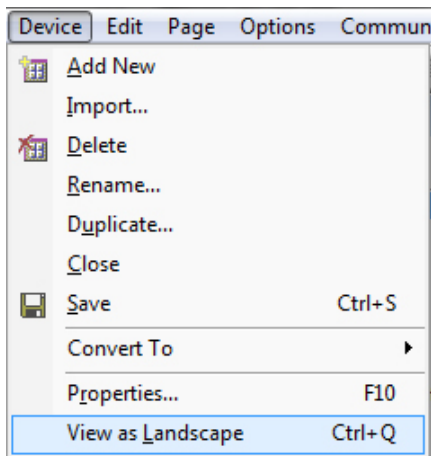
## Changing View of Orientation

When using both orientations (landscape and portrait) on an Apple® iOS/Android™ device, the programmer can alternate easily between both views, either by selecting from the Device Menu in the upper left corner of Integration Designer, or by using the shortcut "Ctrl + Q".
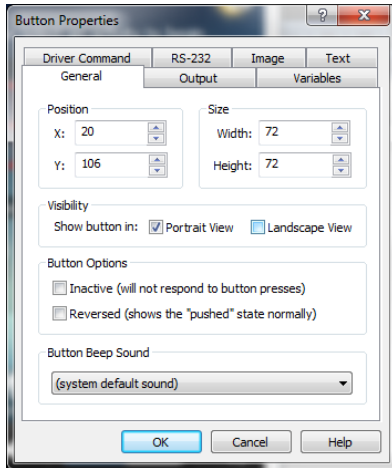
## Hiding Buttons for an Orientation

When auto-rotation is enabled for the Apple® iOS/Android™ device, each button will be visible in both Portrait and Landscape mode by default.  If a button should only be visible in one orientation, right click on the button, and select "Edit Properties".  From the General tab, uncheck the view in which the button should NOT appear.

## Video/ Dynamic Images

RTiPanel version 1.0 supports streaming MJPEG images as well as Dynamic Images (ex: Cover Art) while on a LAN connection only.  Streaming MJPEG video over a WAN or 3G connection is not currently supported.

# Remote Access Setup

## Dynamic Name Service

The first step when setting up remote access is to create a Dynamic Name Service (DNS) account with a DNS server like Dyn.com.  When setting up your DNS account you will receive a DNS hostname.  This hostname is what you will use when setting up the RTiPanel in Integration Designer.

## Setting up DynDNS Account

Go to the DynDNS website (http://dyn.com).  Navigate to the account setup page and create a new account.  Enter the IP address found on your router.  This IP address is the external address given to the router by the ISP.  This IP address will be updated automatically by your router.

## Setting up DnyDNS on Router

Once you have setup a DynDNS account, you must provide your router with the new account information.  In your router setup, navigate to the DNS setup page.  You may see a list of supported DNS services.  Choose 'DynDNS'.  Then enter the username and password information.  The router will log into your DynDNS account whenever the IP address provided by your internet service provider changes.

## Network Router Setup (Port Forwarding)

The next step is to setup the port forwarding entry in your router.  Logon to your router using a web browser and look for the 'port forwarding' setup.  The router must be configured to forward packets from port 4110 to the gateway XP processor. A typical port forward configuration entry would look like this:
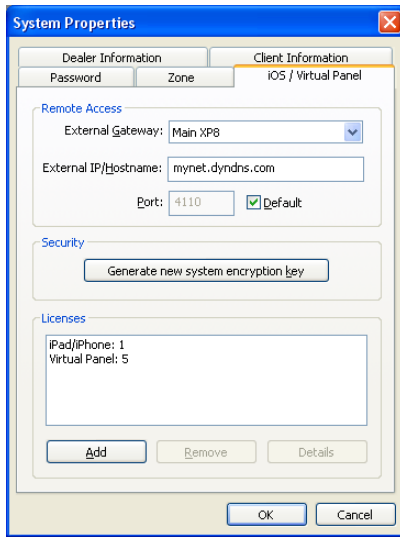Application: RTiPanel
Port: 4110
Destination: 192.168.1.200 (IP address of gateway XP processor)

## Integration Designer Setup

The last step is to enter the DNS hostname into your Integration Designer system file.

## Setting External Gateway

If you have more than one RTI processor in your file, you can designate which processor will act as the gateway for Apple® iOS/Android™ communications.

NOTE: All RTiPanel licenses must be on the same XP processor.

## Setting External IP/Hostname

Under the 'File' menu choose 'System Properties'. On the Android/iOS/Virtual Panel tab, find the 'Remote Access' section. Enter the hostname provided by your DNS account. You can also enter the IP address directly but we do not recommend that.

**IMPORTANT NOTES:**

• Remote access using an RP-4 control processor, while possible, is not supported. Also, because the RP-4 is a one-way device, be aware that without two-way feedback there is no way to determine the status of the device (lighting/HVAC/security etc) being controlled.

• If you do not define an External Hostname, the app will download configuration, but you will not have any control remotely.

• You must use the same hostname or external IP address for the server address on the RTiPanel App when you connect to a server to download the app (see the Configuring your Apple/Android Device/Get Started section).

# Troubleshooting RTiPanel Downloading Issues

## Error Message Descriptions and Steps to Correct

There are error messages that may occur when downloading a configuration fails. These error messages will pop up as the RTiPanel attempts to download. Time can vary as to when these appear so please allow some time.

**Error#1) Configuration Error: The configuration process has terminated prematurely.**
When you "Get Started" on the RTiPanel App and:

1) You can see and select your processor.
2) You can see and select your iOS/Android device.
3) Get this error: Configuration Error: The configuration process has terminated prematurely.

Follow these steps:

• Generate a new "System Encryption Key" in your Integration Designer system file properties.
NOTE: This may affect system files that have RTiPanel devices which have been duplicated or imported from another file.

1) Go to the File>System Properties>RTiPanel Tab
2) Click on "Generate new system encryption key" and click "Yes" when asked.
3) Go to the settings of the device and "Reconfigure" the RTiPanel device.

**Error#2) Connection Error: No license is available on the processor.**
When you "Get Started" on the RTiPanel App and:

1) You can see and select your processor.
2) You can see and select your iOS/Android device.
3) Get this error: Connection Error: No license is available on the processor.

Follow these steps:

• Verify you have added a license to the system properties of the programming file.
• Verify that the MAC address of the RTI processor and the MAC address of the license file match.
  o To find the processor MAC address: With your PC and processor on the same network, open Integration Designer, go to Communications menu and select "Show devices on local network".
  o To determine the MAC address the license is registered to: Open Integration Designer file, go to File>System Properties>RTiPanel tab and double click on the license to see the license details which has the "Processor ID".
• Verify that the type of the license matches the actual iOS/Android device. For example an iPhone "standard license" cannot be used to download the configuration to an iPad.

**Error#3) Network Error: Unable to download configuration. Check your network connection and try again.**
When you "Get Started" on the RTiPanel App and:

1) You can see and select your processor.
2) You can see and select your iOS/Android device.
3) Get this error: Network Error: Unable to download configuration. Check your network connection and try again.

Follow these steps:

• The XP-8 Control Processor needs an SD Flash memory card installed. - The SD card provides additional file space needed to store RTiPanel data files.
NOTE: It must be an SD card no larger than 2GB and formatted as Fat or Fat32. Flash memory cards with more memory, are actually considered SDHC and will not work in an XP8.
NOTE: The newer XP8s model ships with the 4GB SDHC flash memory card.
• Verify the iOS device is connected to the same network (subnet) as the processor.

General Troubleshooting:

**Symptom: App loads to a white screen.**

When you "Get Started" on the RTiPanel App and:
1) You can see and select your processor.
2) You can see and select your iOS/Android device.
3) After completing the load, the app comes up to a white screen.

You may need to:

• Force close the app.

- iOS devices - Double tap the hard button and close all apps.

• Reset the power on the device.

• Go into settings and "Reconfigure" the app.

• Restart the app.

**Symptom: Device doesn't show up during configuration process.**

When you "Get Started" on the RTiPanel App and:
1) You can see and select your processor.
2) But you do not see the iOS/Android device and just the processor name is greyed out:

You may need to:

• Verify the Apple® iOS/Android™ device in your system file matches the actual device you have. – The programming for each device type is specific to that type and cannot be downloaded into another type. For example you cannot download iPad system file into an iPhone, or you cannot download a New Retina display iPad system file to an older iPad 1 or 2.

• Make sure the firmware on the processor is up to date.

**Symptom: RTI processor doesn't show up during configuration process.**

When you "Get Started" on the RTiPanel App and:
1) You can't see your processor to select.

You may need to:

• Verify the Apple® iOS/Android™ device and your processor are on the same network.

• Verify network settings and cabling to processor

– Check to see if you can download the file via network.

• Make sure the firmware on the processor is up to date.

**Symptom: Can't download more than 10 RTiPanel licenses in a system file.**

• Make sure the firmware on the processor is up to date.

• In this case, during the configuration process of the RTiPanel app (downloading to the device), the processor will present only 10 RTiPanel devices at a time. Once a device connects, the next 10 devices will be shown in the list each time an RTiPanel device makes a configure request. When the processor reaches the end of the list, it starts again from the beginning.