Warmup Thermostat Driver.

This driver is for Warmup Smart Wi-Fi thermostats type 6iE and Element.

The driver will allow for 20 thermostats to be added to the driver.

Configuration:

First setup your thermostats using the Warmup App and follow the instructions enclosed with the product and on the Warmup website.

The driver uses the unique ID of the thermostat to identify them in the system. The thermostat ID can be obtained from the Warmup App. The Id is also the same as the devices Mac Address. The driver does not need to know the IP address of the thermostat as all communications are with the Warmup cloud server. The driver will not work if the XP processor does not have access to the internet!

The driver currently only allows for Warmup accounts with one location. This will change in future versions.

Add the thermostats to your RTI design. Each stat is added using the Add Workspace area. Only one instance of the driver is needed to control up to 20 thermostats, but all thermostats must be registered to the same Warmup account. In the driver configuration enter the unique ID number for each stat making sure to enter them into the correct room.

The driver needs to know the users' login credentials. These are the same credentials used to setup the account in the Warmup App or on the website my.warmup.com.

There are two methods for entering the user credentials. You can either tick the box in the Driver Properties and enter the username and password directly, this is ideal for a private home where the user will not change for many years. The second method is to use the inbuilt keyboard feature

The keyboard feature allows the user to enter their credentials. This means if an apartment is rented out to a different person, the RTI programmer does not need to return to site to reprogram the system when a tenancy changes. User credentials are stored in non-volatile memory. There are a limited number of special characters available for passwords. There is no spacebar on the keyboard as spaces are not allowed in username or password.

Enter the licence for the driver. The driver will run for 2 hours from reboot without a licence. For licence information contact j.marsh@johnmarshav.com the licence is linked to the Mac Address of the RTI processor.

The driver relies heavily on tags for functions and feedback. Where possible use the tag names and text-tags described in this document and most of the programming should be done automatically in ID11. If in doubt, look at the attached example files. The example file has an iPad that uses a Viewport and a virtual panel that uses layers.

Basic Driver functionality:
Each stat has its own set of basic controls to set its mode of operation or target temperature. All these functions can also be achieved by selecting one of the stats and using the functions for 'Selected Stat'. This allows you to control many stats from a single page by simply selecting the stats from a list or buttons.
More complex functions such as Schedule Adjustment and Override Settings are done using the Selected Stat functions only. To do each stat individually would have created lots of separate functions and variables.
The Holiday settings apply to all stats in the system.

Functions:

Select Current Stat:
Before you can adjust one of the stats you need to be able to select it. If you do not have very many stats in your design, then simple buttons will suffice. You can use the Tag '**Select Stat n'** where n is the number of the stat.
If you have many stats, a list is provided to make selection easier. A list is created called '**Stat List'.**
If you have a few stats then it may be easier to add a layer to control each stat. A set of Boolean variables is available to act as a layer switch to display the selected stat, the Tag is '**Selected Stat'**. If you have many stats, it may be easier to build one page and to use the variables that display only the functions and variables that apply to the currently selected stat.

'Selected Stat Name' text variable displays the name of the currently selected stat. This name is retrieved from the Warmup server, so if the user changes the name in the App, say from "Bedroom" to "John's Bedroom", it will be updated in this text variable.
Selected Stat Booleans can be used as a layer switch. Only one variable will be true at once.

The list of stats should be tagged **'Stat List'**. This will auto complete the List and Command items of the list. If using buttons, they should be tagged **'Select Stat 1'**, **'Select Stat 2'** etc. This will add the correct macro and variable feedback.

Set Point Adjust:
The Set Point or Target Temperature of the stat is adjusted with this function.
The buttons should be tagged **'Stat Setpoint Up'** and **'Stat Setpoint Down'**.
The control for the currently selected stat is not tagged and will need to be added manually.
The variable for the setpoint should be tagged **'Stat Setpoint'** for each individual stat and **'Selected Setpoint'** for the currently selected stat.

Set Run Mode:
The run mode can be set to any of the following: Heating Off, Frost, Clear Mode, Schedule, Fixed. Using the tags: '**Stat Off'**, '**Stat Frost**', '**Stat Cancel**', '**Stat Schedule**', '**Stat Fixed**'. Stat Cancel will cancel the Override settings. Override mode is set in the Override section bellow.
The run mode setting for the currently selected stat is not tagged and will need to be entered manually.

The text variable tagged '**Stat Run Mode'** displays the selected run mode for each stat. The text variable "**Selected Run Mode**" shows the run mode for the currently selected stat.

Variables:
Below is a list of all the variables and their tags.

Global:
Global variables apply to all the stats in the system

Location Name	Text	<Not Tagged>	Location name from Warmup App
Location Run Mode	Text	<Not Tagged>	Location Run Mode, eg 'Holiday'
Stat On	Boolean	<Not Tagged>	whole location ON
Frost On	Boolean	<Not Tagged>	whole location Frost
Holiday On	Boolean	<Not Tagged>	whole location holiday
Geo On	Boolean	<Not Tagged>	whole location Geo

Selected Stat

Currently Selected Stat Name from App	Text	<Selected Stat Name>
List of Stats in System	List	<Stat List>
1 – Stat Name1 – Selected	Boolean	<Select Stat>
2 – Stat Name2 – Selected	Boolean	<Select Stat>….

Current Temperature

Selected Stat - Current Temperature	integer	<Selected Temp In>
1 – Stat Name1 – Current Temperature	integer	<Stat Temp In>
2 – Stat Name2 – Current Temperature	Integer	<Stat Temp In>

Set Point

Selected Stat – Set Point	integer	<Selected Setpoint>
1 – StatName1- Set Point	integer	<Stat Setpoint>
2 – StatName2- Set Point	integer	<Stat Setpoint>

Setback Temp

Selected Stat – Setback Temp	integer	<Selected Setback Temp>
1 – StatName1 – Setback Temp	integer	<Stat Setback Temp>
2 – StatName2 – Setback Temp	integer	<Stat Setback Temp>

Fixed Temp

Selected Stat – Fixed Temp	integer	<Selected Fixed Temp>
1 – StatName1 – Fixed Temp	integer	<Stat Fixed Temp>
2 – StatName2 – Fixed Temp	integer	<Stat Fixed Temp>

Run Mode

Selected Stat – Run mode	String	<Selected Run mode>
1 – StatName1 – Run Mode	String	<Stat Run Mode>
2 – StatName2 – Run Mode	String	<Stat Run Mode>

Energy Used kWh

Selected Stat – Energy	String	<Selected Energy Used>
1 – StatName1 – Energy	String	<Energy Used>
2 – StatName2 – Energy	String	<Energy Used>

Cost

Selected Stat – Cost	String	<Selected Cost>
1 – StatName1 – Cost	String	<Cost>
2 – StatName2 – Cost	String	<Cost>

Stat Names from Warmup App

1 – StatName1 – Name	String	<Stat Name>
2 – StatName2 – Name	String	<Stat Name>

Online: True if the Stat is online. This variable takes a couple of minutes to update from when a stat goes offline.

Selected Stat Online	Boolean	<Selected Online>
1 – Online – Stat 1	Boolean	<Online>
2 – Online – Stat 2	Boolean	<Online>

User Credentials and Keyboard entry:

To allow the user to change credentials without the need for an RTI programmer, a keyboard facility is included. This will save the programmer having to attend site every time the username or password is changed.

Two text boxes should be created to hold the username and password. The one for username should be tagged "**Set User**" with the text-tag of "**Set User**". The box for password should be tagged "**Set Password**" with the text-tag set to "**Set Password**". ID11 will auto program these with the correct text, feedback and function.
A Show Password button can be added and tagged "**KP_PASSWORD**" This button will allow the user to

read the password for 3 seconds before it is hidden again.

All the other buttons can now be added to the keyboard using the following tags:
Letters:
"**KP_A**", "**KP_B**", "**KP_C**" etc.
Numbers:
"**KP_1**", "**KP_2**", "**KP_3**" etc
Special Keys

"**Enter**"	Enter Key
"**KP_SHIFT**"	Toggles upper and lower case
"**KP_PASSWORD**"	Displays password text for 3 seconds
"**KP_CLEAR**"	Clear all text from selected text box
"**KP_SPACE**"	Space
"**KP_BACK**"	Delete last item from selected text
"**KP_EXCLAMATION**"	!
"**KP_DOT**"	.
"**KP_HASH**"	#
"**KP_DASH**"	-
"**KP_UNDERSCORE**"	_
"**KP_AT**"	@
"**KP_PERCENTAGE**"	%
"**KP_AND**"	&
"**KP_DOLLAR**"	$
"**KP_POUND**"	£
"**KP_STAR**"	*

When the enter key is pressed the credentials are stored to memory and the driver tries to connect to the Warmup server. Use the Log features in either XP Diagnostics or inbuilt Diagnostics of the XP processor.

Holiday Setup:

A page, layer or Viewport should be created for setting the holiday period start and end times.
Two text boxes should be created. One for the holiday start time should be tagged "**Holiday Start**" with a text- tag of "**Holiday Start**. The other tagged "**Holiday End**" with a text-tag of "**Holiday End**". These will be auto programmed to show the current holiday times. And will be reversed when selected.

Building the calendar:
The calendar has two buttons for next month and previous month. These should be tagged "**Month Next**" and "**Month Previous**". There is also a text box that should have the text-tag "**Calendar Header**" this shows the current month and year for the calendar page.
The calendar body is made up of 7 columns for the days of the week and 5 rows of buttons. It is very important that you tag these buttons correctly.
The first column is for Sundays and should be tagged, from the top "**Sunday 1**", the second row should be tagged "**Sunday 2**" and so on down the column till you reach "**Sunday 5**". Each button should then have a text-tag added using thew same name "**Sunday 1**", "**Sunday 2**" etc.
The second column in for Mondays and should be tagged "**Monday 1**", "**Monday 2**" etc. You get the idea.

Your button tags and text-tags should be laid out like this:

Month Previous			Calendar Header			Month Next
Sunday 1	Monday 1	Tuesday 1	Wednesday 1	Thursday 1	Friday 1	Saturday 1
Sunday 2	Monday 2	Tuesday 2	Wednesday 2	Thursday 2	Friday 2	Saturday 2
Sunday 3	Monday 3	Tuesday 3	Wednesday 3	Thursday 3	Friday 3	Saturday 3

Sunday 4	Monday 4	Tuesday 4	Wednesday 4	Thursday 4	Friday 4	Saturday 4
Sunday 5	Monday 5	Tuesday 5	Wednesday 5	Thursday 5	Friday 5	Saturday 5

In the example ID11 file attached the buttons on the virtual panel are laid over an image of a calendar. There are lots of examples on the internet to 'borrow'. The example on the iPad is purely made from buttons from the existing RTI bitmap library.

When a button on the calendar is pressed, the date is copied to the highlighted box for Holiday Start or Holiday End.
We now need to adjust the time and temperature using buttons tagged as follows:

Holiday Hour Increase	Increases the hour by 1 and will roll over when midnight is reached
Holiday Hour Decrease	Decrease the hour by 1 and will roll over when midnight is reached
Holiday minutes Increase	Increases the Minute by 5
Holiday Minutes Decrease	Decrease the Minute by 5
Holiday Temp Increase	Increase the temperature by 0.5 degrees
Holiday Temp Decrease	Decrease the temperature by 0.5 degrees

Three text variables are needed to display the Hour, Minute and Temperature using the following text-tags:
Holiday Hour
Holiday Minute
Holiday Temp

There needs to be a save button tagged "**Holiday Save**" and a button to clear any previously save holiday settings tagged "**Holiday Cancel**".
The holiday settings are global and will apply to all thermostats in the system.

Schedule Adjustment:

A page, layer or Viewport needs to be created for the adjustment of each individual thermostats schedule. Add buttons to select which day of the week you wish to adjust. These should be tagged:
Schedule Sunday
Schedule Monday
Schedule Tuesday
Schedule Wednesday
Schedule Thursday
Schedule Friday
Schedule Saturday
ID11 will auto program the buttons for function and feedback.

Each day can have 4 schedule items in it. Create text boxes to display each schedule with the following tags:
Schedule 1
Schedule 2
Schedule 3
Schedule 4
Each should have a text-tag using the same tag names. If the box displays a dash, this means there is nothing in the schedule or the start and end times are the same.

Each schedule item needs to have a cancel or delete button tagged:
Schedule 1 Delete
Schedule 2 Delete
Schedule 3 Delete
Schedule 4 Delete

When a schedule is selected the values of the schedule are copied to 5 text variables. These should have the following text-tags:
Schedule Start Hour
Schedule Start Minute
Schedule End Hour
Schedule End Minute
Schedule Temp

To adjust the setting, you need to have 10 buttons tagged as follows:
Schedule Start Hour Increase
Schedule Start Hour Decrease
Schedule Start Minute Increase
Schedule Start Hour Decrease
Schedule End Hour Increase
Schedule End Hour Decrease
Schedule End Minute Increase
Schedule End Hour Decrease
Schedule Temp Increase
Schedule Temp Decrease

Add a button to save the schedule tagged "**Schedule Save**". This button will save the settings for every day, not just the day displayed. If there is no activity on any of the schedule buttons for 1 minute, the data is reloaded from the Warmup server and any changes will be lost.

You can choose to add 7 buttons to allow the user to copy the settings that are currently displayed into other days. These buttons should be tagged:
Schedule Copy Sunday
Schedule Copy Monday
Schedule Copy Tuesday
Schedule Copy Wednesday
Schedule Copy Thursday
Schedule Copy Friday
Schedule Copy Saturday

Override Adjustment:

Override sets a specific temperature and a specific duration. The specified temperature becomes the Target temperature until the time expires.

Two buttons are required to set the temperature. These should be tagged:
Override Temperature Increase
Override Temperature Decrease
A Text tag of Override Temperature displays the temperature.

4 buttons are needed to set the duration, two for the hour and 2 for the minute.
Override Hour Increase
Override Hour Decrease
Override Minute Increase
Override Minute Decrease
Two buttons are needed to store the settings to the currently selected stat or save the settings to all the stats.
Override Set All
Override Set Selected

Change Log:

1.01 Added 10 more stats. The driver now does up to 20 stats on one account.
1.02 Added variables and functions for Currently Selected Stat. Also added list of stats to select from.
1.03 Added adjustment of Holiday times and of daily schedules.
1.04 Added Override setting. Added Online Boolean variable for each stat.
General stability improvements