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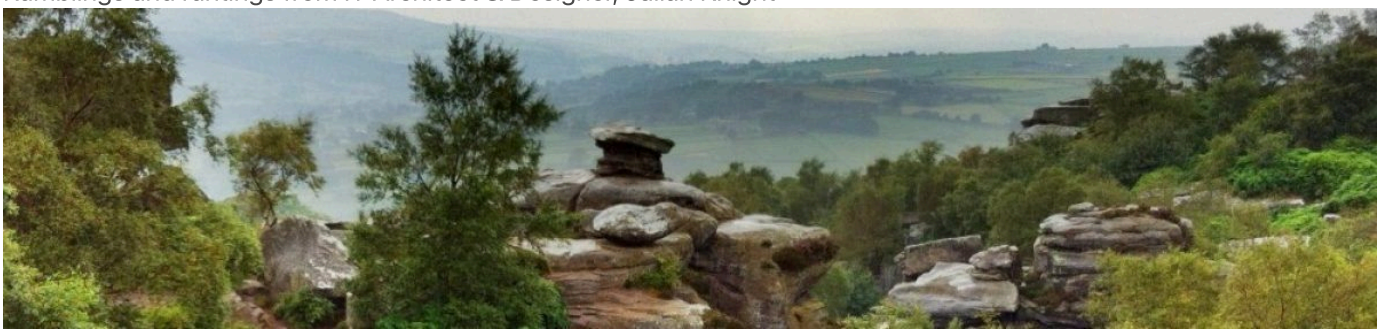
Ramblings and rantings from IT Architect & Designer, Julian Knight



Drayton Wiser heating control

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> Drayton are a very widely used manufacturer of heating controls. They make the "Wiser" control system which is low cost and easily fitted. Th

Drayton's Wiser smart heating controller is a low-cost system for controlling boilers and radiators. Note that Drayton is part of Schneider-Electric

It has the lowest cost thermostatic radiator valves (TRV's, smart radiator controls) of any of the smart home systems - around half the price of oth

It also has the advantage of not requiring the Internet or the Drayton cloud servers for the system to keep running so you are not dependent on Dr

However, the disadvantage of the Wiser system is that it isn't as sophisticated as some others and clearly Drayton don't have the resources to rap

Of course, if you are reading this, you are probably already somewhat knowledgeable about home automation. You may also be aware of Node-RE

We can easily use Node-RED to help get information from the Wiser system and even use it to add smarter controls such as connecting to other s

At the end of this article is some code that you can import into your own Node-RED service and start working with the Wiser system straight away.

Connecting to your controller

You will need to get a couple of pieces of information before you can start working with your Wiser system and Node-RED.

Once you have this information, you can configure the example Node-RED flow at the end of this article and you should be able to query informati

IP Address

When your Wiser system connects to your home Wi-Fi, it will be given an IP address and we need to know that before we can talk to it. There is no connected it.

You should configure your router to give the controller a fixed IP address otherwise it may change if the router is restarted.

System Secret

In order to interface with the controller, you need to know a very long string of random characters that is its system secret.

You can get the system secret by doing the following (reference):-

1. Press the setup button on your HeatHub, the light will start flashing
2. Look for the Wi-Fi network (SSID) called 'WiserHeatXXX' where XXX is random
3. Connect to the network from a Windows PC
4. Once connected run the following command in PowerShell

   ```
   Invoke-RestMethod -Method Get -UseBasicParsing -Uri http://192.168.8.1/secret/
   ```

   If you are using a different type of operating system, you will need a tool that will return data from a web query.
5. This will return a string which is your system secret
6. Press the setup button on the HeatHub again and it will go back to normal operations
7. Copy the secret and save it somewhere.

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Don't forget to change the change node (the 2nd node in this flow) to the information you obtained above.


```
[{"id":"738ed75a.9b0dc8","type":"inject","z":"fb0c842.c87fc78","name":"Save controller configuration for Wiser",
"topic":"","payload":"","payloadType":"str","repeat":"","crontab":"","once":true,"onceDelay":0.1,"x":230,"y":460,
"wires":[["d34f3b88.6b3008"]]},{"id":"d34f3b88.6b3008","type":"change","z":"fb0c842.c87fc78",
"name":"Set Wiser Variables (Secret and Host)","rules":[{"t":"set","p":"wiserSecret","pt":"flow",
"to":"<Change_this_to_your_systems_secret_string>","tot":"str"},{"t":"set","p":"wiserHost","pt":"flow","to":"<your_controll
"tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":570,"y":460,"wires":[[]]}]
```


Copy the code in the black box and use the "Import" menu in Node-RED.

Controlling the system

The following sections contain basic information about how to control the Wiser system.

Don't forget that the system may be controlled by other applications (like the mobile app) or services such as Google Home or Amazon Alexa integ

Note that you *do not need the Internet* for this at all. You only need your local network. All of this will work even if your Internet connection is down

Each entry below has a "path" such as '/data/domain/System/RequestOverride' and some text or JSON in a grey box. In the example flows, the info flow, they are called "change" nodes.

Room ID's

The Wiser system mainly works by controlling "rooms". In the mobile app, these are all named and you can find the names in the data you can quer

Wherever you see `<roomNumber>` in the information below, this is the ID not the offset in the `/data/domain/Room` array.

Temperature values

The values use to control and query temperatures are multiplied by 10. So 200 equals 20.0°C, 195 equals 19.5°C. Note that the value will be round

Set or cancel an override of the thermostatic temperature for a Room 🔗

Path: /data/domain/Room/ `<roomNumber>`

Payload: `{"RequestOverride":{"Type":"Manual","SetPoint":195}}`

This will be permanent until something else changes the setting.

Set/cancel Boost for a Room

/data/domain/Room/ `<roomNumber>`

`{"RequestOverride":{"Type":"Manual","DurationMinutes": 30, "SetPoint":200, "Originator":"App"}}`

`{"RequestOverride":{"Type":"None","DurationMinutes": 0, "SetPoint":0, "Originator":"App"}}`

Note: Duration is in minutes. The returned info includes a `OverrideTimeoutUnixTime` property, to convert this to a real time, you can use the Uni

Set/Cancel Manual mode for a room

/data/domain/Room/ `<roomNumber>`

`{"Mode":"Manual"}` or `{"Mode":"Auto"}`

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`true` or `false`

Set/cancel Away Mode

/data/domain/System/RequestOverride

```
{"type":2,"setPoint":100}
```

```
{"type":0,"setPoint":0}
```

Note: Sets the min temperature to 10°C

Also note that you should cancel manual overrides for all rooms.

References

Much of the above was gleaned from the following reference code.

- andrew-schofield/openhab2-addons - also has references for hot water, scheduling and smart plugs
- chrisduffer/drayton-wiser

Example control and query code

Copy the code and import it into Node-RED. You will need the configuration flow as well.

The configuration flow sets the flow variables `flow.wiserHost` and `flow.wiserSecret` .

Query the current settings

Query everything or query a single room

The top inject will return everything that the controller can tell us. It is useful in helping understand what data is available and how it is structured.

```
[{"id":"3822a01a.859ea","type":"inject","z":"fb0c842.c87fc78","name":"","topic":"Wiser QUERY","payload":"","payloadType":"s
"repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":160,"y":620,"wires":[["2dfd4a60.601b06"]]},{"id":"fcb37ac1.cb36f8
"type":"http request","z":"fb0c842.c87fc78","name":"","method":"use","ret":"obj","url":"","tls":"","x":770,"y":620,
"wires":[["c21166d6.4784c8"]]},{"id":"c21166d6.4784c8","type":"debug","z":"fb0c842.c87fc78","name":"","active":true,
"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":950,"y":620,"wires":[]},{"id":"a9652fa4.60f24",
"type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set","p":"method","pt":"msg","to":"GET","tot":"str"},
{"t":"set","p":"url","pt":"msg","to":"\"http://\" & $flowContext('wiserHost') & $.path","tot":"jsonata"},{"t":"set",
"p":"headers","pt":"msg","to":"{\t    \"SECRET\": $flowContext('wiserSecret'),\t    \"HOST\": $flowContext('wiserHost') & \
"tot":"jsonata"}],"action":"","property":"","from":"","to":"","reg":false,"x":560,"y":620,"wires":[["fcb37ac1.cb36f8"]]},
{"id":"2dfd4a60.601b06","type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set","p":"path","pt":"msg",
"to":"/data/domain/","tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":330,"y":620,
"wires":[["a9652fa4.60f24"]]},{"id":"9b02c89.7609c38","type":"inject","z":"fb0c842.c87fc78","name":"",
"topic":"Wiser QUERY Room","payload":"","payloadType":"
"x":180,"y":680,"wires":[["38d8c719.5ae978"]]},{"id":"
"rules":[{"t":"set","p":"path","pt":"msg","to":"/data/domain/Room/6","tot":"str"}],"action":"","property":"","from":"",
"to":"","reg":false,"x":370,"y":680,"wires":[["a9652fa4.60f24"]]}]
```


Get a simplified view of all of the rooms

This flow queries the '/data/domain/Room/' path and then simplifies the output using JSONata

```
[{"id":"c8566325.8a07b","type":"inject","z":"fb0c842.c87fc78","name":"","topic":"Start Query","payload":"",
"payloadType":"str","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":130,"y":800,"wires":[["82a69e2d.bd5a1"]]},
{"id":"a3f3790.4883288","type":"http request","z":"fb0c842.c87fc78","name":"","method":"use","ret":"obj",
"url":"","tls":"","x":630,"y":800,"wires":[["2887038d.8bd21c"]]},{"id":"55b4a3e7.8eb21c","type":"debug",
"z":"fb0c842.c87fc78","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload",
"x":950,"y":800,"wires":[]},{"id":"a8da7133.b0ced","type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set",
"p":"method","pt":"msg","to":"GET","tot":"str"},{"t":"set","p":"url","pt":"msg","to":"\"http://\" & $flowContext('wiserHost
"tot":"jsonata"},{"t":"set","p":"headers","pt":"msg",
"to":"{\t    \"SECRET\": $flowContext('wiserSecret'),\t    \"HOST\": $flowContext('wiserHost') & \":80\"\t}",
"tot":"jsonata"}],"action":"","property":"","from":"","to":"","reg":false,"x":460,"y":800,"wires":[["a3f3790.4883288"]]},
{"id":"82a69e2d.bd5a1","type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set","p":"path","pt":"msg",
```

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```
"to":"payload{ \t    $.Name : {\t        \"id\": $.id,\t        \"Name\": $.Name,\t        \"CurrentTemperature\": $.Calcul
"tot":"jsonata"}],"action":"","property":"","from":"","to":"","reg":false,"x":790,"y":800,"wires":[["55b4a3e7.8eb21c"]]}]
```


The output looks like:


```
{
  "Bedroom 2": {
    "id": 5,
    "Name": "Bedroom 2",
    "CurrentTemperature": 19.2,
    "DesiredTemperature": 12.5,
    "Override": "No",
    "OverrideTimeout": "N/A"
  },
  "Master Bedroom": {
    "id": 6,
    "Name": "Master Bedroom",
    "CurrentTemperature": 19.2,
    "DesiredTemperature": 12.5,
    "Override": "Yes",
    "OverrideTimeout": "18:09:42"
  }
}
```


Control the system

These flows show you how to make changes to the controller from Node-RED.

Boost the temperature in a room for 30 minutes

Applies a 30 minute boost to 18.5°C for room id 1.


```
[{"id":"9d700a39.ebbaa8","type":"http request","z":"fb0c842.c87fc78","name":"","method":"use","ret":"obj","url":"",
"tls":"","x":770,"y":560,"wires":[["58845d6d.bf2a24"]]},{"id":"32c33bee.cf6c24","type":"inject","z":"fb0c842.c87fc78",
"name":"Wiser SET","topic":"","payload":"","payloadType":"str","repeat":"","crontab":"","once":false,"onceDelay":0.1,
"x":140,"y":560,"wires":[["855deb47.8df6f8"]]},{"id":"58845d6d.bf2a24","type":"debug","z":"fb0c842.c87fc78",
"name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"true","x":930,"y":560,
"wires":[]},{"id":"6ec2a88e.839598","type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set","p":"method",
"pt":"msg","to":"PATCH","tot":"str"},{"t":"set","p":"url","pt":"msg",
"to":"\"http://\" & $flowContext('wiserHost') & $.path","tot":"jsonata"},{"t":"set","p":"headers","pt":"msg",
"to":"{\t    \"SECRET\": $flowContext('wiserSecret'),\t    \"HOST\": $flowContext('wiserHost') & \":80\"\t}",
"tot":"jsonata"}],"action":"","property":"","from":"","to":"","reg":false,"x":560,"y":560,"wires":[["9d700a39.ebbaa8"]]},
{"id":"855deb47.8df6f8","type":"change","z":"fb0c842.c87fc78","name":"","rules":[{"t":"set","p":"payload","pt":"msg",
"to":"{\"RequestOverride\":{\"Type\":\"Manual\",\"Originator\":\"App\",\"DurationMinutes\":30,\"SetPoint\":185}}",
"tot":"json"},{"t":"set","p":"path","pt":"msg","to":"/data/domain/Room/1","tot":"str"}],"action":"","property":"",
"from":"","to":"","reg":false,"x":340,"y":560,"wires":[["6ec2a88e.839598"]]}]
```


The output from this contains updated room info.

You can easily amend the payload and path to any of the settings listed in the controlling the system section above.

Previous: Easily search for contributed nodes on the Node-RED Flows site

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