



HCA Tech Note 605

Weather Underground

In previous versions of HCA, it was suggested that designs that made use of weather data to work with Weather Underground. Late in 2018, Weather Underground announced that they would be shutting down access to 3rd party applications like HCA on 31-Dec-2018. When HCA 15 was released, a new weather provider was built-in to HCA and facilities to ease the transition between the old system and the new system were put in place. This is all detailed in the version 15 release notes.

<http://www.homecontrolassistant.com/download/V15/V15Weather.pdf>

However, Weather Underground changed their mind - sort of. They didn't close down 3rd party access at the end of 2018. Recently (1-March-2019) Weather Underground did say this:

<https://apicomunity.wunderground.com/weatherapi/topics/end-of-feb-wu-api-update>

Make sure you read all this page, in particular the instructions on how to convert old keys to new keys.

With less jargon, what this means are these three important points:

- If you have a Weather Underground key but don't have a weather station that publishes data to Weather Underground, you will no longer be able to use Weather Underground as the weather provider with HCA. You can use the Dark Sky weather provider built into HCA and the new Weather-Test element.
- The Weather Underground implementation built into HCA – in HCA version 14 and still in version 15 and marked as “legacy” – will stop working after March 22, 2019.
- If you have a personal weather station and you upload data from it to Weather Underground, then you can convert the key you used with HCA to a new key as explained above.

To support those users **with a Weather Station that publishes to Weather Underground**, a new Weather Class has been created.

General info about weather classes:

https://www.homecontrolassistant.com/download//Doc/TechNotes/TechNote_606_WeatherClasses.pdf

TechSup@HCATech.com

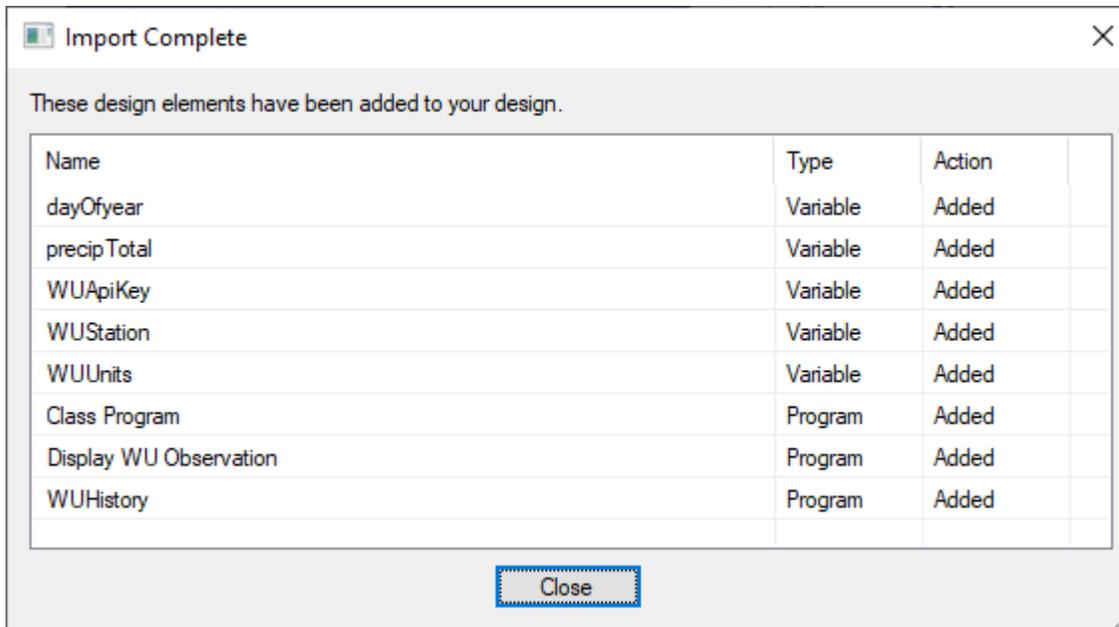
www.homecontrolassistant.com



HCA Tech Note 605

Working with the Weather Underground weather class

Import the Weather Underground class from the online library. The class program is added in a folder called “WU” (for Weather Underground).



Before doing anything else, open the variable inventory and update these three global variables:

WUAppId is the new key you got from Weather Underground using the above procedure.

WUUnits is the observation units: 1 character. 'e' = US, 'm' = metric, 'h' = hybrid uk, 's' = si

WUStation is the location to use. Use the identifier of your weather station.

Since these values are unlikely to change after you configure them, enter the value as the “Current Value” and in the “Set it to this value” with the “When HCA loads the design file” option selected. That way each time HCA starts and loads your file, the variables have the right values.



HCA Tech Note 605

Variable Inventory

Name	Value
_Dark	Yes
_Light	No
dayOfyear	0
precipTotal	0
WUApiKey	""
WUStation	""
WUUnits	"e"

Name: WUUnits

Current Value: e

Usage Info: Weather Underground observation units: 1 character. 'e' = US, 'm' = metric, 'h' = hybrid uk, 's' :

When HCA loads the design file

Set its value to what it was when the design file last saved

Set it to this value

e

Save changes Delete

Referenced in these locations

WU - Class Program
WU - WUHistory

Create New Export Delete all unused Close

Periodic class execution

Now that the class is added and configured, there are two final steps: Getting weather data periodically and using the data.

To retrieve weather data periodically, one way is to cause the Weather Underground class to execute periodically using the Auto Start option on the Advanced Options tab.

Auto Start

Once started automatically run again in: 0 days 1 hours 0 minutes

TechSup@HCATech.com

www.homecontrolassistant.com



HCA Tech Note 605

This way you can choose how often the class runs to collect weather data: Once an hour, every 30 minutes, etc. Also, you may want to add a trigger on the class to start it running when HCA loads your design.

Trigger

Trigger Type: Special Condition

Start the program when this condition happens:

HCA started normally

TechSup@HCATech.com

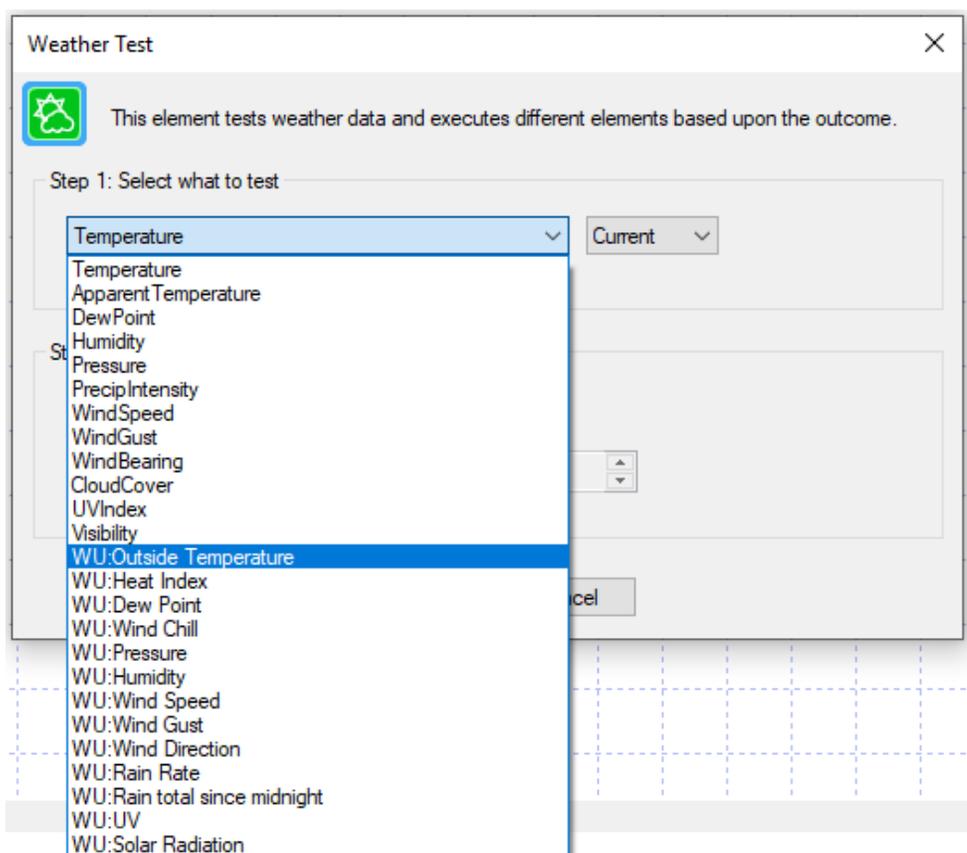
www.homecontrolassistant.com



HCA Tech Note 605

Using the weather data.

Now that the class has been added, and executed at least once, when you use the Weather-Test element and create weather triggers, then Weather Underground data is now available to choose from.



The data items prefixed by “WU” are the Weather Underground ones, the un-prefixed ones are the standard built-in DarkSky observation data.

You can also use Weather Underground data in expressions using the `_WeatherGet` function like this:

```
_WeatherGet("WU:Outside Temperature")
```

The name of the data is the same text as is shown in the Weather-Test element with the “WU:” prefix.

TechSup@HCATech.com

www.homecontrolassistant.com



HCA Tech Note 605

Historical Data

The Weather Underground package also includes a program named "WUHistory". This program can be started by another program to answer questions like: "What is the lowest temperature over the last 18 hours".

Create a program, make sure it can work with local variables, and then add a Start-Program element configured as:

Start Program Properties

This element starts another program and waits until it finishes before continuing the current program unless the "don't wait" option enabled.

Start this program: **WU - WUHistory** Show Notes

Don't wait for this program to complete before continuing to the next element

Delay program start for: 0 hours 0 minutes 0 seconds

Arguments

SensorName:
WU sensor name. See the names created by the weather class program.

Code:
1=high, 2=low, 3=avg [3]

DeltaHours:
Number of hours into the past (negative value) or into the future (positive value)

The started program returns a result. Variable that hold result when the program completes:

Trigger

If the selected program uses the test element to determine how it was started, you can specify the trigger condition. If the program doesn't make such a test it makes no difference what you select as the start trigger. Normally programs don't test the starting trigger unless there are multiple triggers.

Trigger:

OK Cancel

TechSup@HCATech.com

www.homecontrolassistant.com



HCA Tech Note 605

The program to start is “WUHistory” and takes three arguments.

Argument 1: the SensorName is the name of what data to get. This table shows the text to use.

Sensor	Text to use
Outside temperature	temp
Dew Point	dewpt
Heat index	heatindex
Wind Chill	windchill
Wind speed	windspeed
Wind Gust	windgust
Barometric pressure	pressure
Precipitation rate	precipRate
Precipitation amount	precipTotal
Wind Direction	windir
UV	uv
Solar radiation	solarRadiation

Argument 2: The code for what to retrieve is given as a number. 1 is the maximum value in the time period, 2 is the minimum value in the time period, 3 is the average value in the time period.

Argument 3: The number of hours to go back in time. This must be given as a negative value.

NOTE: At of the time of the note, forecast data is not supported so time periods given as a positive number are not supported.

Finally, don't forget to assign the result to a local variable. In the above image this is shown at the red arrow. Once the Start-Program element completes you can then use the value of that variable to test or display the historical data value.

TechSup@HCATech.com

www.homecontrolassistant.com



HCA Tech Note 605

Special handling for Precipitation Amount

When requesting the precipitation amount over a time period, the value returned is the total amount. The value of the 2nd argument doesn't matter.

##end##

TechSup@HCATech.com

www.homecontrolassistant.com