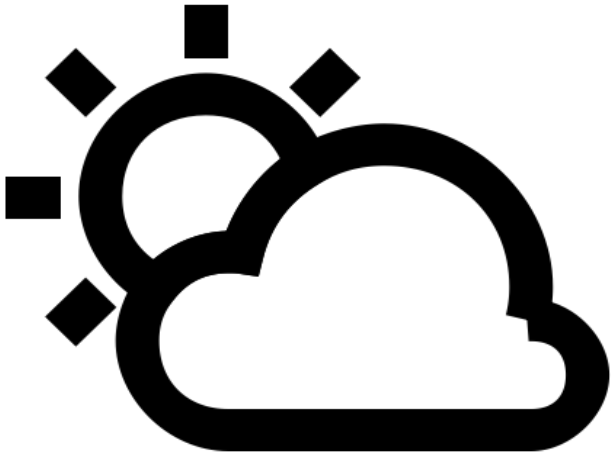


WeatherLog

Keep track of the weather and get information about past trends

Code available at achesak/weatherlog

Created by Adam Chesak

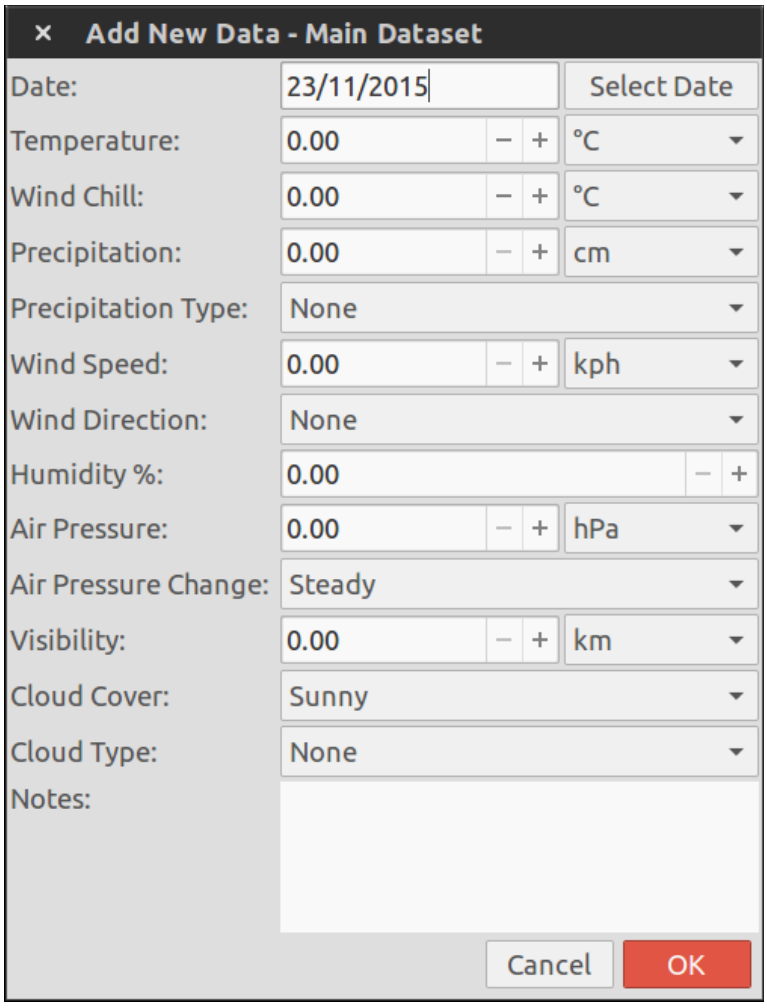
Released under the MIT open source license

Table of contents

Adding data

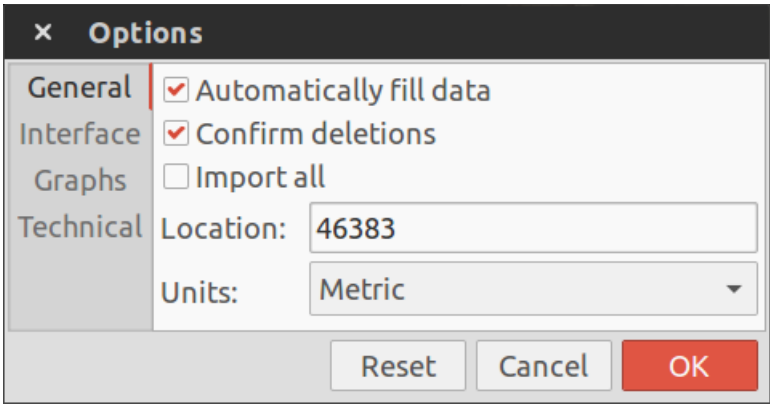
The first time WeatherLog is started it will have a basic interface with no data is shown, just a couple menus, a toolbar, and the column titles.

To add data, click the button with the plus sign on the toolbar. Alternatively, select the Add New Data option in the File menu or press Control-N. This will show the Add New Data window.



All entries are required, except for the notes.

WeatherLog can automatically fill some fields, to make the data easier to enter. To enable this feature, select Options from the Options menu or press F2. Then make sure the check box next to "Automatically fill data" is selected and enter a five digit US zip code into the location entry.

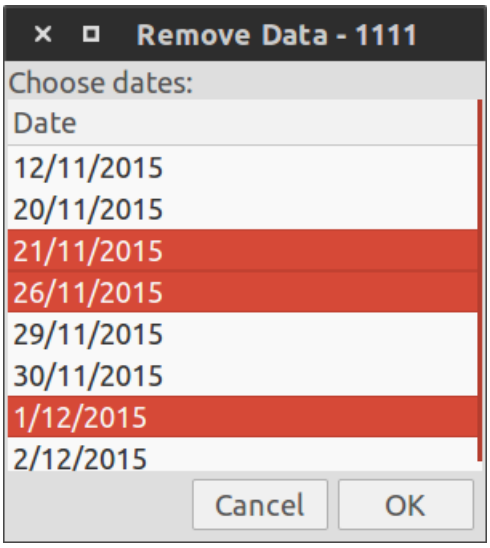


Then when the Add New Data window is opened most of the fields will already be filled with the current weather conditions at the specified location.

Note that currently automatically filling data only works in the United States, using the Yahoo! Weather API.

Removing data

To remove one or more rows of data, chose Remove Data from the Weather menu, press Control-R, or click the toolbar button with the minus sign. This will show the Remove Data window, from which one or more dates to remove can be selected.



If you decide you want to start over, choosing Clear Current Data from the Weather menu will delete all the data in the current dataset. Make sure you want to do this first, as it cannot be reversed unless you have backed up the data.

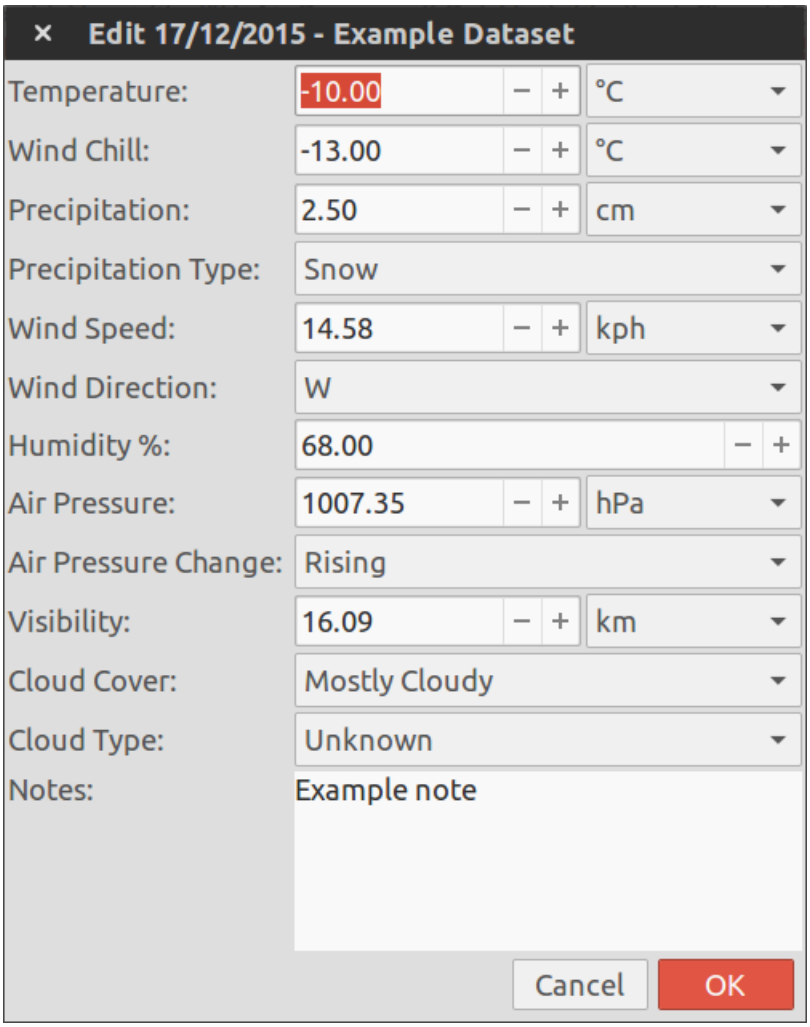
If you want to delete *all* the data, you can choose Clear All Data, also located in the Weather menu. This will remove all datasets as well as reset the options and other configuration details to their default values.

Editing Data

Sometimes you may accidentally enter data incorrectly, or forget to put something in. If that happens, you can edit the data after it has been saved.

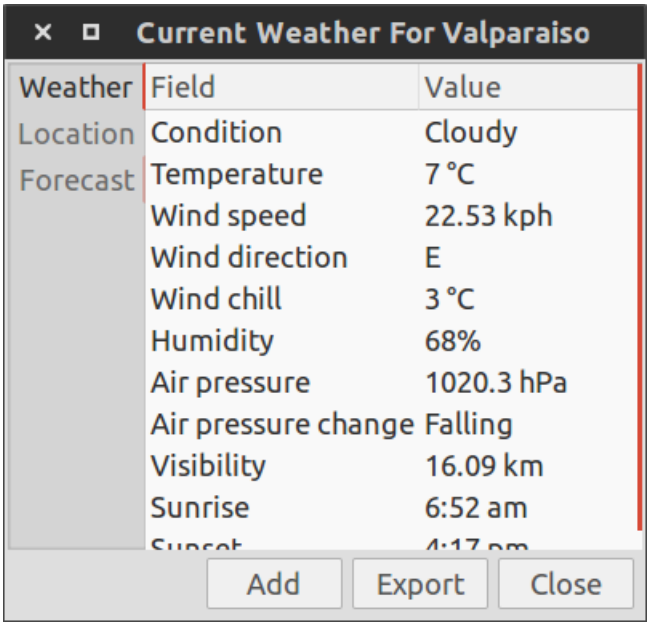
In this image, when the user added the data they forgot to add that it had snowed on this day as well:

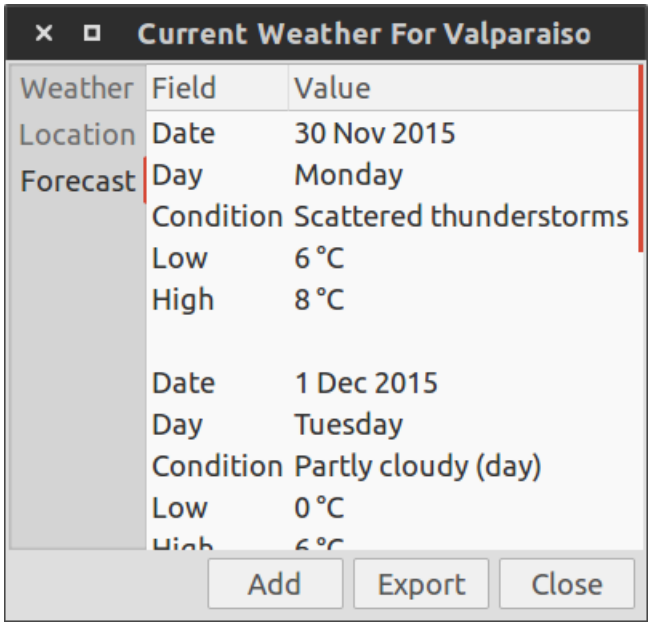
To edit the data, select the Edit item in the Weather menu, press Control-E, or simply double click on the row of data to open the edit window. It is then possible to change the data. Every field can be changed, with the exception of the date. The next image shows that the precipitation has been changed to 2.5 cm of snow.



Viewing current weather

Although WeatherLog's primary purpose is to keep track of trends in the weather, it's also possible to view the current conditions for a given location. Before this feature can be used, a location must be entered in the Options window. Once that has been done the current conditions and forecast can be viewed by selecting Get Current Weather from the Weather menu or by pressing Control-W.

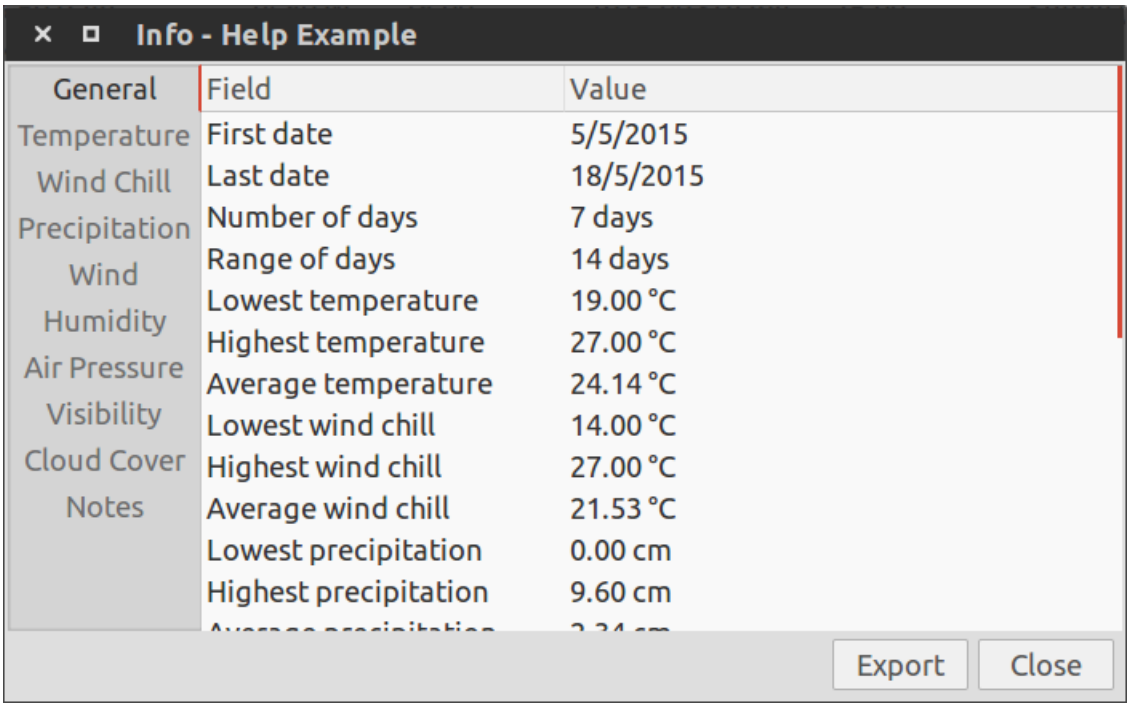


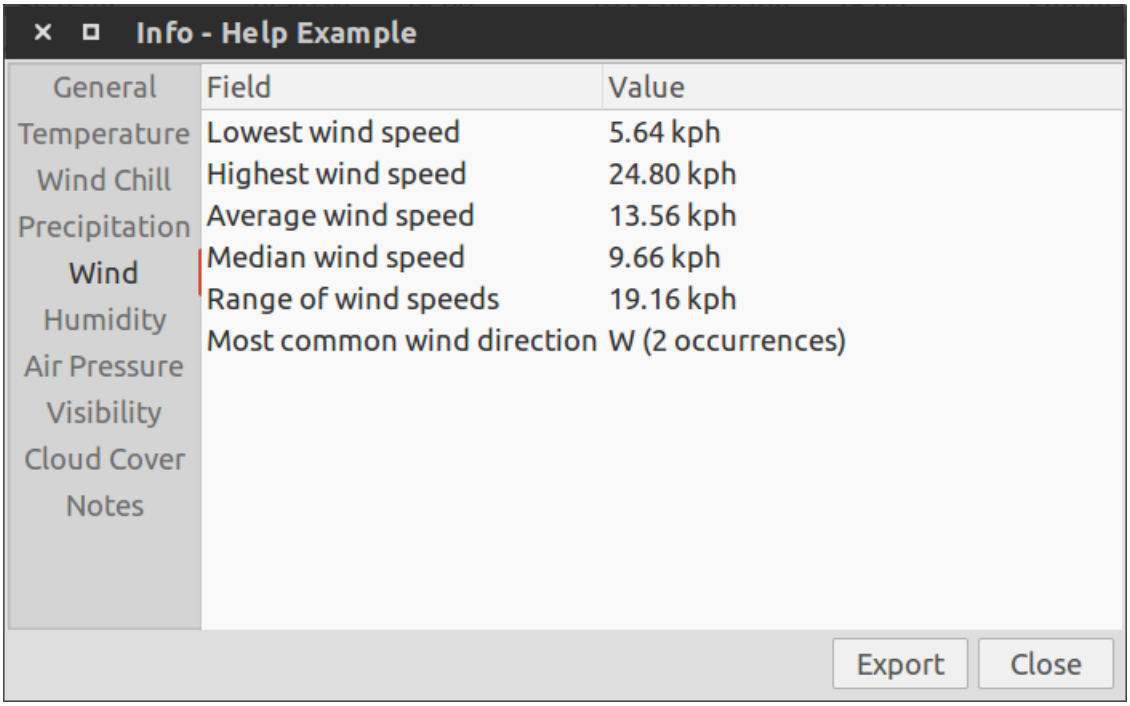


To view the current weather for a different location, choose Get Current Weather For, also in the Weather menu. This will prompt from a location to be entered, and will then show the information.

Viewing info

The Info window, available from the Info item in the Info menu, shows information about the data that has been entered, such as averages, highs, lows, and many others. The General tab shows an overview, while the other tabs show more details on their respective fields.



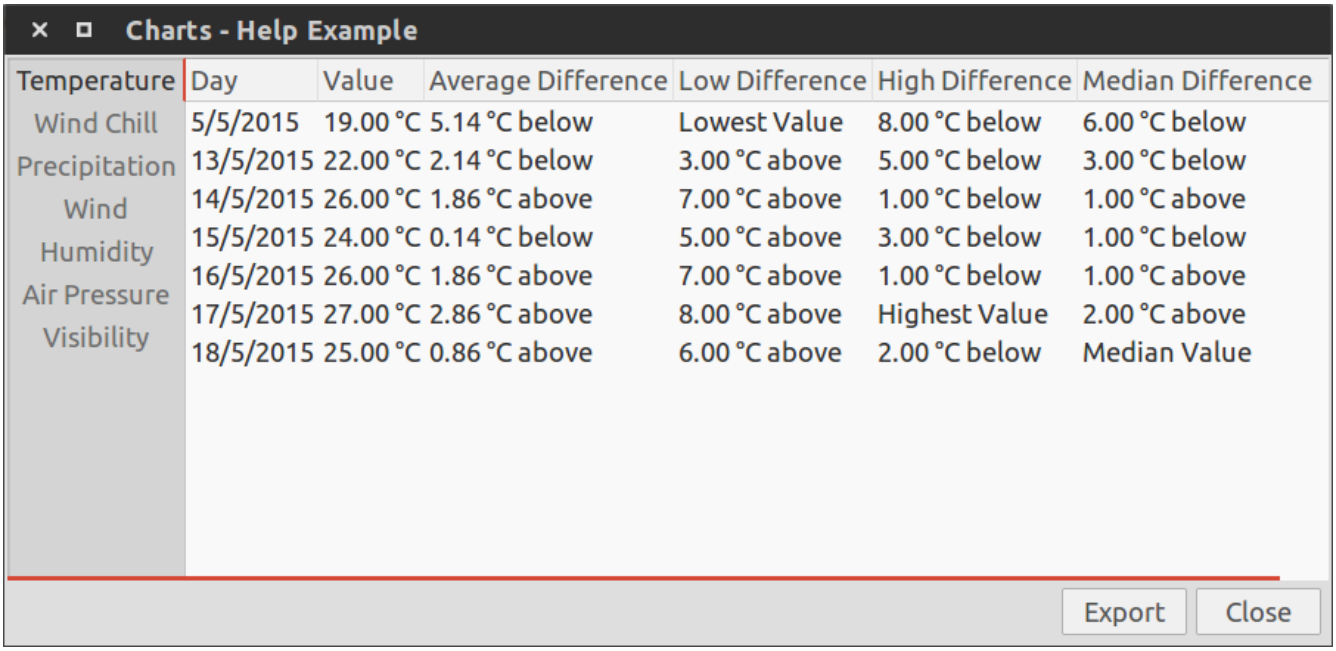


Clicking on the Export button will export the data to an HTML file.

Sometimes it can be helpful to see info about a specific set of data instead of all of it. To do this, use either Info in Range or Info for Selected Dates, both in the Info menu. Info in Range will show info for data in a continuous set between two dates, while Info for Selected Dates allows for non-continuous sets.

Viewing charts

In addition to the Info windows that shows just the average, median, range, etc. of a set of values, WeatherLog also has a feature to show a chart of how each value compares to these statistics. To use this feature, select the Charts item in the Info menu.



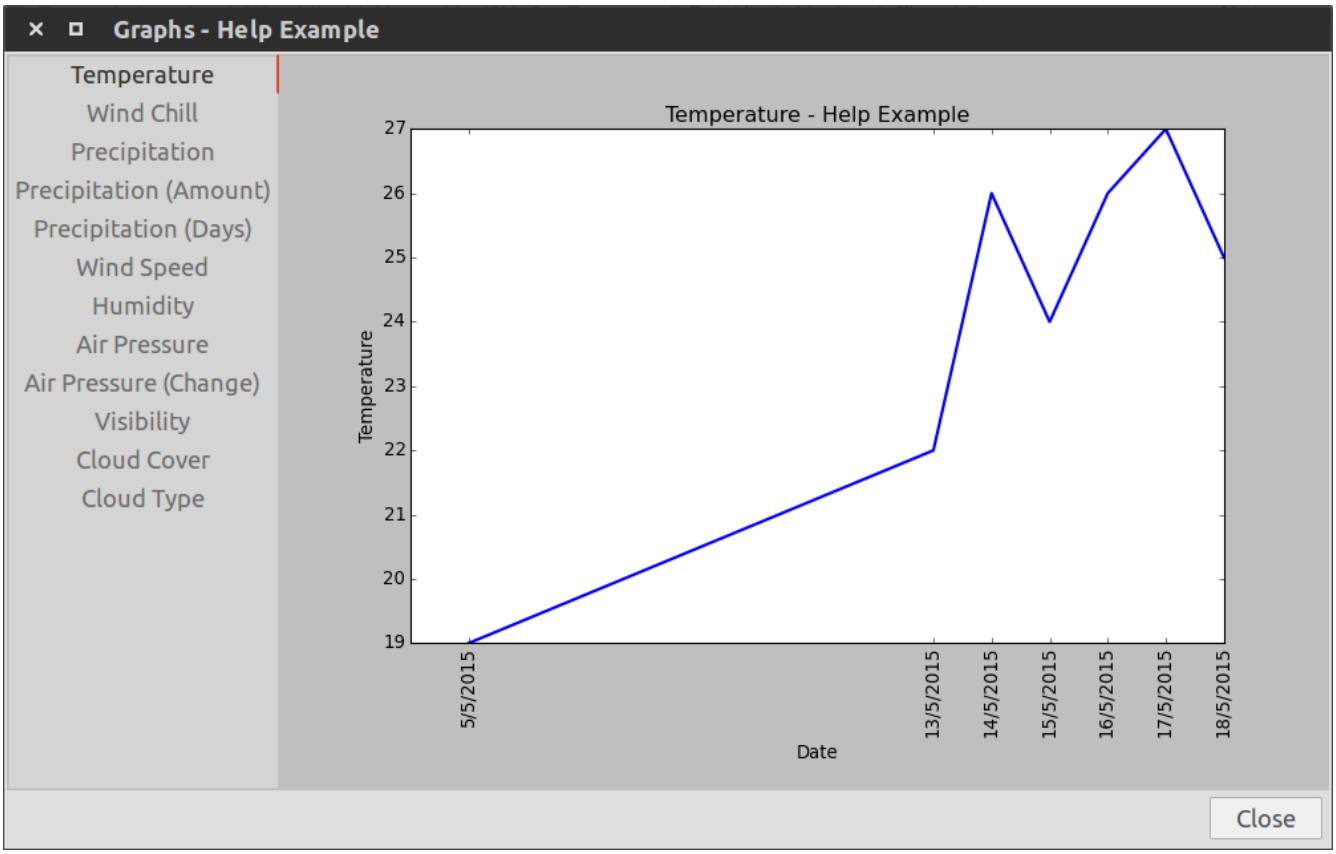
The first two columns show the date and value, while the rest show how the value compares to the calculated data. In the above example, the temperature for the date 13/5/2015 is 2.14 degrees below the average, and 5 degrees below the high. As another example, 5/5/2015 had the lowest temperature, so instead of giving a numerical value it simply says that it was the lowest in the data.

The Export button in the lower corner allows you to export the chart to an HTML file.

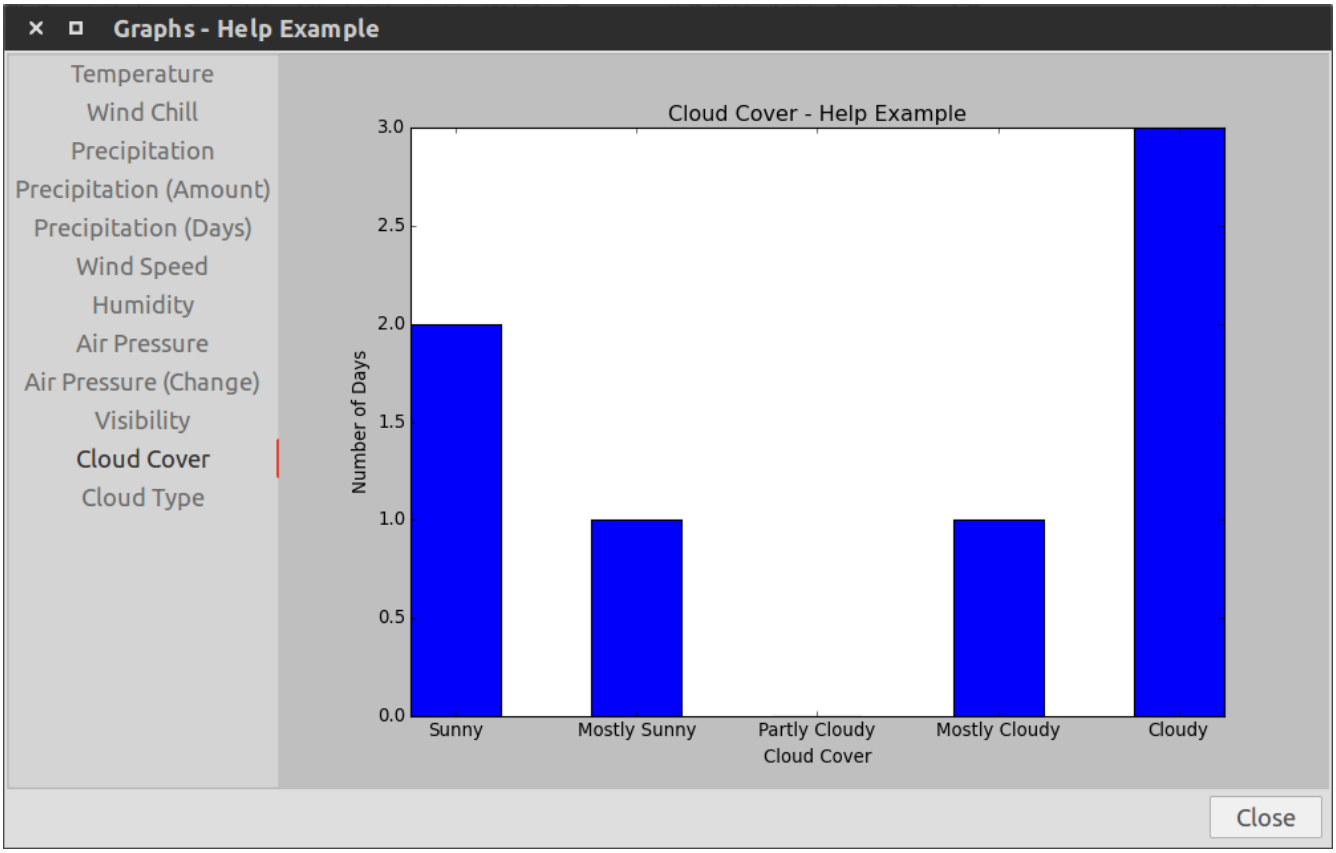
Just like the Info feature, you can also choose a range of data to view a chart of, or you can select the specific dates to use.

Viewing graphs

WeatherLog can display graphs to visualize the data that has been entered. To view the graphs, select the Graphs item from the Info menu.

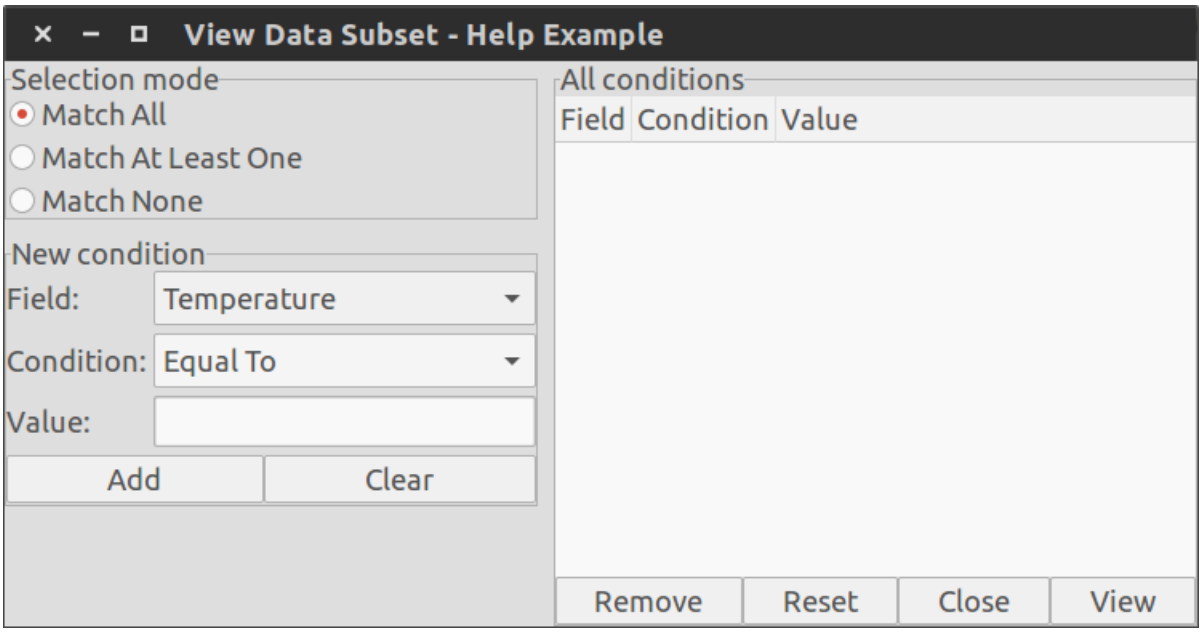


WeatherLog can display graphs on both trends over time and number of occurrences.



Viewing subsets

WeatherLog can show subsets of data based on user-specified conditions. Subsets can be viewed by selecting View Data Subset in the Info menu.

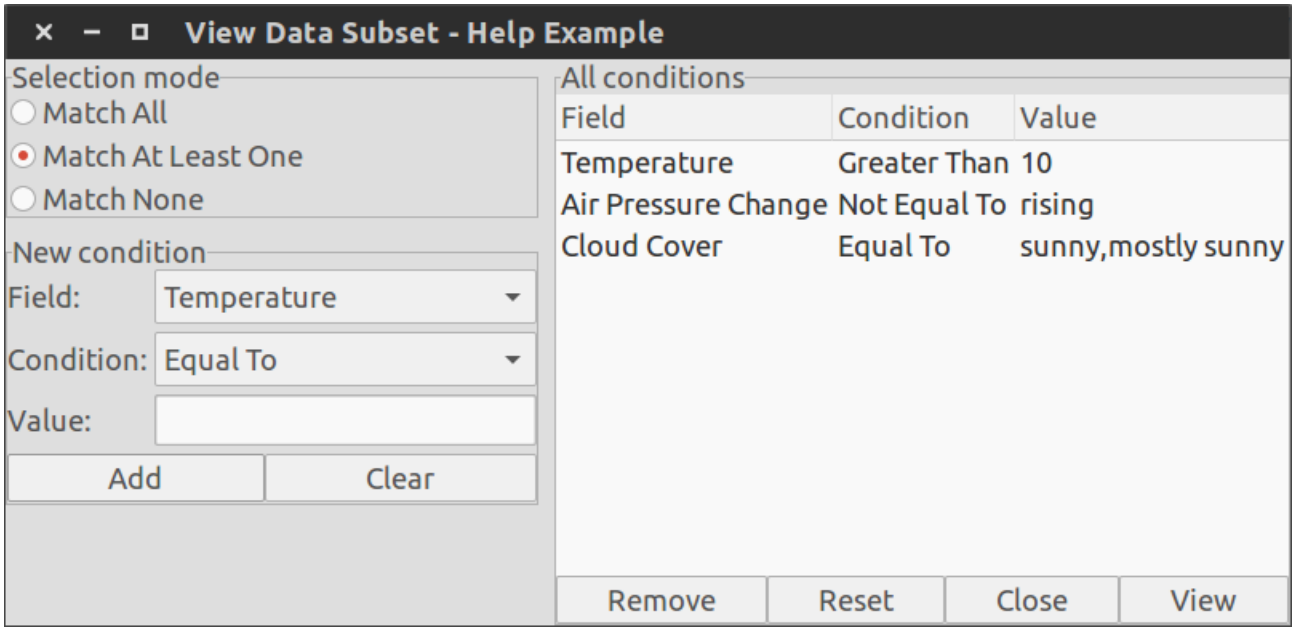


In this window conditions are entered. Filling the fields in the New condition section and pressing Add will add the condition to the list. Note that each field can only have one condition associated with it, and some fields have a limited number of conditions (notably, any of the non-numerical fields cannot use numerical conditions).

The selection mode changes how the conditions are combined. Match All requires all conditions to be met, Match At Least One only requires one to me met, and Match None will only select data that matches none of the conditions.

Conditions can be removed by selecting the conditions and pressing Remove. All of the conditions can be removed at once by using the Reset button. Note that this is different from the Clear button; Clear only sets the condition entering form fields to their default values.

When all conditions have been entered pressing View will show the filtered list of data.



In this example, there are three conditions set:

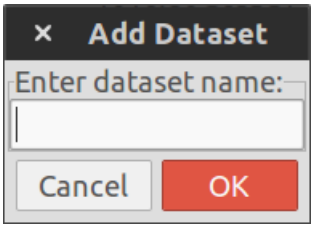
- The temperature must be greater than 10.
- The air pressure change must not be rising.
- The cloud cover must be equal to either sunny or mostly sunny. Some conditions allow multiple values to be entered. Use commas to separate the values.

The selection mods has been set to Match At Least One, so any data that matches any of the three conditions will be allowed.

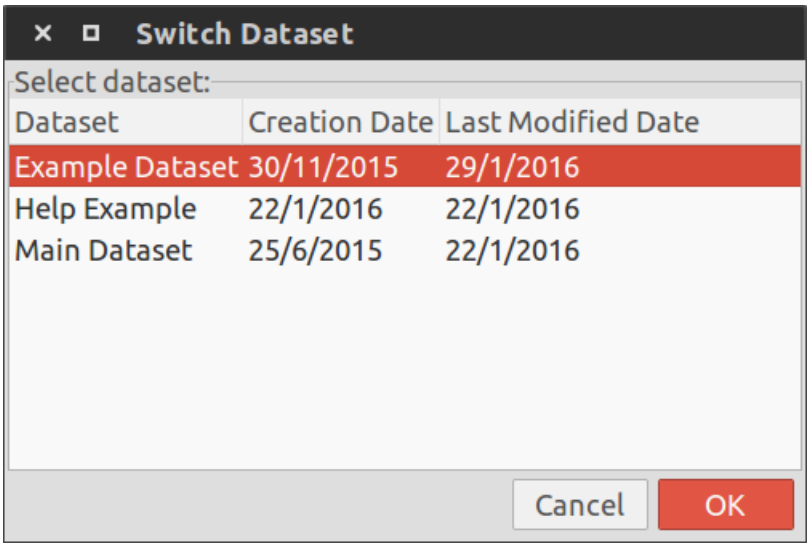
Managing datasets

Datasets can be used to have multiple, separate lists of data. They can be useful to keep one set of data for a specific purpose and not have unnecessary data included, or to organize weather data by location.

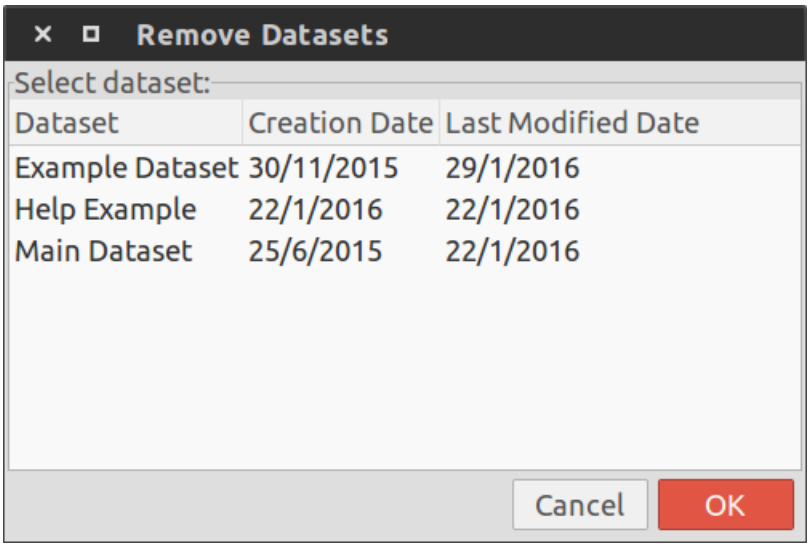
To add a dataset, select Add Dataset from the Datasets menu or press Control-Shift-N. The new dataset name can be entered in the window that appears. After entering the name WeatherLog will automatically switch to the new dataset.



To switch between datasets, select Switch Dataset from the same menu or press Control-Shift-S. This shows a list of all the datasets, along with some metadata.



To remove an unwanted dataset, select Remove Datasets from the Datasets menu. This shows the same window as Switch Datasets, but multiple datasets can be selected at once to delete multiple at a time. Datasets cannot be deleted if they are open; to delete an open dataset, switch to a different one first.



Datasets can also be renamed and merged. To rename a dataset, select the Rename Dataset menu item. After entering a new name the current dataset will have it's name changed. Merging datasets can be done through the Merge Datasets menu item. The selected dataset will have it's data merged into the current dataset. Note that any date that has data in both datasets will have the data from the active dataset kept.

If you entered data into one dataset that you later decided that you want in another, or if you want to copy data to another dataset for a different use than the first, you can use the Copy and Move Data features. These features, available in the Datasets menu, have two options; you can either copy/move the data to a new dataset, or to an already existing one.

When copying or moving to a new dataset, you will need to first enter a new dataset name to use. After you do this you can select the data to put in it. When using an existing dataset you need to select the dataset and then also select the data. The same rules for data priority apply as with Rename and Merge.

Exporting data

WeatherLog can export entered data, which can be useful for backups or to share with someone else. To export data, either click the save button on the toolbar, select Export from the File menu, or press Control-S. In the file dialog that appears enter the filename for the exported file.

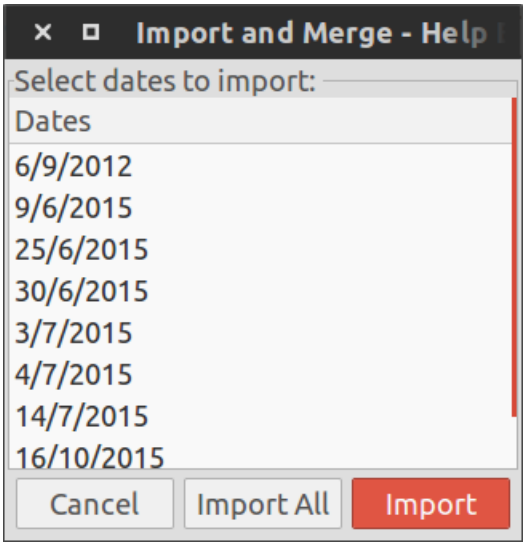
There are three options for exported files. The file can either use WeatherLog's internal format, HTML, or CSV (comma separated values). WeatherLog's internal format is the most space-efficient, but cannot easily be used by external applications. HTML can be useful for easily share data via websites, but is not very good for manipulating the data later. CSV can be opened by most spreadsheet applications like Microsoft Excel or LibreOffice Calc.

WeatherLog can also export to the Pastebin.com text sharing website, making it even easier to share data. To use this feature, select Export to Pastebin from the File menu. In the window that opens enter a name for the paste and the desired format, either JSON, HTML, or CSV. If the data was uploaded successfully a new dialog will appear with the link to the paste.

Importing data

The Import data allows backups to be restored or data from other people to be viewed. Importing data is just as simple as exporting it; click the open button on the toolbar, select Import from the File menu, or press Control-O. This will remove all the data in the current profile and replace it with the data read from the selected file.

To import data without overwriting all the existing data, select Import and Merge from the File menu. This differs from the first import feature in that it combines both sets of data. A dialog will appear with the dates in the file. Select the desired dates to import and press the Import button, or press Import All to include all the data. Any dates that appear in both datasets will have the data in the original dataset kept.



Import as New Profile, in the same menu, differs only slightly from Import. Instead of importing into the currently open dataset it will ask for a new dataset name and save the data to the newly created dataset.

Technical details

This section contains miscellaneous technical details about WeatherLog's implementation. This information is given mostly for development and debugging purposes.

- WeatherLog has the following external dependencies:
  - Python – As it is written in Python, WeatherLog requires the Python interpreter to run. Development is done using Python 2.7, but Python 3.x should work as well. Any version earlier than 2.7 has not been tested, and WeatherLog may not run on these versions of the interpreter.
  - GTK+ 3 – WeatherLog uses GTK+ 3 for the GUI. GTK+ 3.0 is the minimum version required, as no features added in more recent versions are used.
  - Matplotlib – WeatherLog required Matplotlib for the graphing features. Note that WeatherLog's other features will work as usual if this dependency is missing, but the graphs will be disabled.
- WeatherLog uses the following libraries:
  - pywapi (python-weather-api) – WeatherLog uses the python-weather-api library to retrieve weather data from external services.
- WeatherLog follows the XDG Base Directory Specification for the internal files. Data files are stored in `$HOME/.local/share/weatherlog`. Configuration files are stored in `$HOME/.config/weatherlog`. The following is a full list of subdirectories and files, with descriptions:
  - `$HOME/.config/weatherlog` - Main configuration directory.
  - `$HOME/.config/weatherlog/config` - Configuration file, contains the program options stored as JSON. If the user has not changed any options from the defaults yet then this file may not exist.
  - `$HOME/.config/weatherlog/lastprofile` - Configuration file, contains the last used profile. This file is read when the program starts, and the profile that was used last in the previous session is reopened.
  - `$HOME/.config/weatherlog/window_size` - Configuration file, contains the

last window size. This file is read when the program starts, and the window is set to the last used dimensions. The first line contains the window's width, and the second contains the height (both in pixels).

- `$HOME/.local/share/weatherlog/profiles` - Profiles directory, contains all the data files. Each profile is represented by a subdirectory within this one.
- `$HOME/.local/share/weatherlog/profiles/[PROFILE_NAME]/weather` - Data files, contains the user-entered data for that profile. Data is stored as pickled objects, with each list within the main one representing a row of data. It is not recommended to manually change these, as WeatherLog assumes some fields to be certain values or within a certain range, and setting the value to something outside of that criteria could break calculations.
- `$HOME/.local/share/weatherlog/profiles/[PROFILE_NAME]/metadata` - Metadata file for each profile. Contains the creation date on the first line, and the last modified date on the second.