

Job Aid 4. Obtain and Import Weather Data for FireFamilyPlus

Introduction

FireFamilyPlus analysis requires weather station metadata (Station Catalogs) and historical and current weather observations. The NFDERS v4 update requires hourly weather observations to calculate dead fuel moisture values. Weather data can be obtained in many ways. This Job Aid describes the recommended process for obtaining and importing weather data for use in FireFamilyPlus. Click on a link below to go to a specific section of the document.

[Station Catalogs and Weather Data from the FAMWeb Data Warehouse](#)

[Station Catalogs](#)

[Weather Data: FAMWEB Data Warehouse](#)

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Required Data

Three downloads are used to obtain the required weather files for FireFamilyPlus analysis. It is important for the user to understand the data provided by each of these sources and to download and import them according to the recommended process in this document. Weather data on these websites are available to public users and do not require a user ID or password.

Station catalog files

Station catalog files are obtained from the [Wildland Fire Application Information Portal](#). Station catalog files must be saved with .txt file extension (e.g., "StationID_StationName_StationCatalog.txt"). For example, the file name for the Libby Ranger Station RAWS could be 240107_LibbyRS_StationCatalog.txt.

***Tip:** Some browsers require the user to insert quotes around the file name to prevent the browser from changing the file extension.*

Hourly Weather Data

Hourly weather observation files should be obtained from two sources:

- The [Wildland Fire Application Information Portal's](#) Data Warehouse
- The [Program for Climate, Ecosystem, and Fire Applications](#) website (CEFA)

***Tip:** Hourly weather observation data can also be obtained from the Weather Information Management System (WIMS). A user account and password are required to access this system. Instructions are added at the end of this document.*

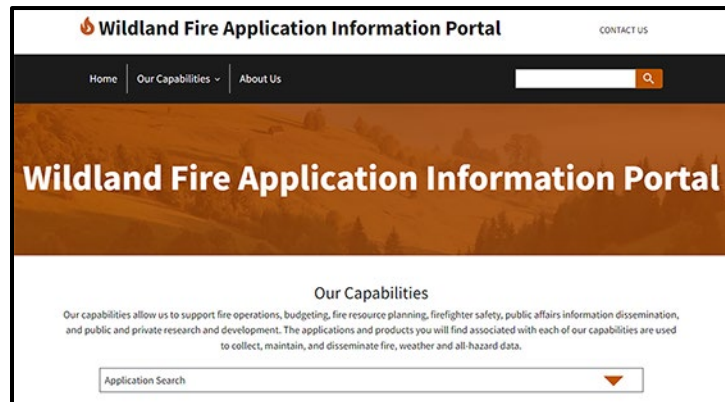
Hourly weather observations files must be saved with an **fw13 file extension**. Include the source in your naming convention (e.g., StationID_StationName_Source.fw13) to differentiate between files when it's time to import to FireFamilyPlus. For example, weather observation files from the FAMWeb Data Warehouse for the Libby Ranger Station RAWS could be named 240107_LibbyRS_DW.fw13, and weather observation files from the CEFA website could be named 240107_LibbyRS_CEFA.fw13.

Station Catalogs and Weather Data from the FAMWeb Data Warehouse

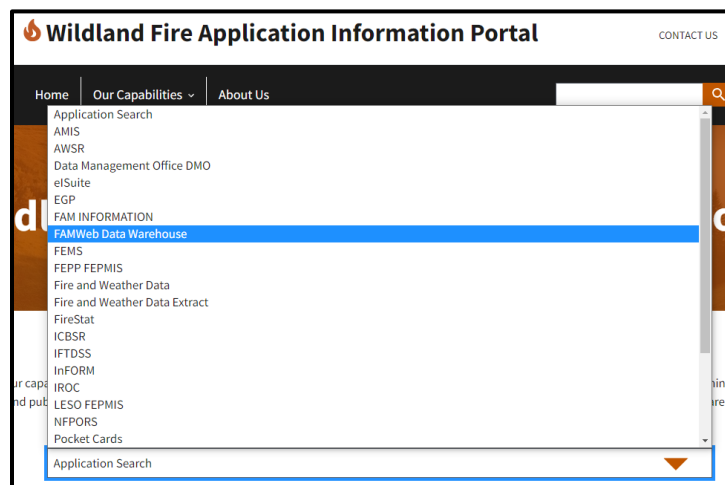
The [Wildland Fire Application Information Portal](#) links to data from the FAMWeb Data Warehouse. There are several datasets stored in the Data Warehouse (DW), which is run on IBM's COGNOS software. Therefore, you may hear it referred to as either the Data Warehouse or COGNOS. It contains hourly weather data for all stations in the WIMS database beginning on 14 August 2014 or when a station is added. Data are current to the hour.

Accessing the FAMWeb Data Warehouse

- Go to the [Wildland Fire Application Information Portal](#) website.

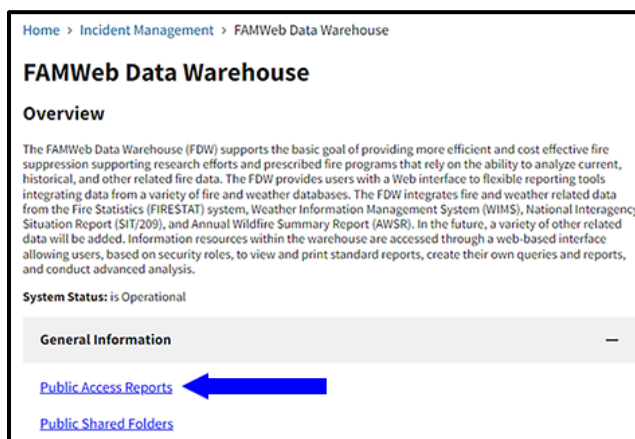


- In the **Application Search** dropdown menu, select **FAMWeb Data Warehouse**.

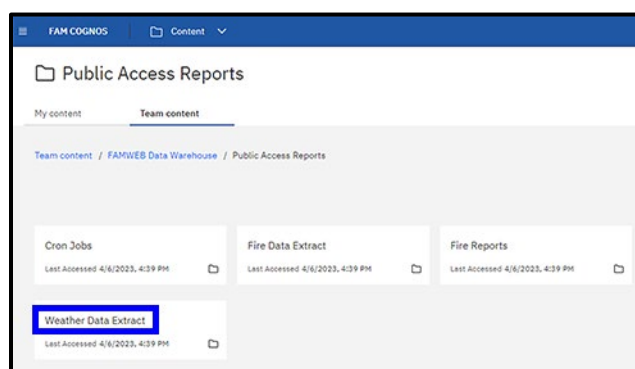


Tip: You can also click on **Our Capabilities** at the top of the page and select **FAMWeb Data Warehouse** under **Incident Management** on the left-hand side of the menu.

- When the FAMWeb Data Warehouse page opens, click on the + button next to General Information and select **Public Access Reports**.

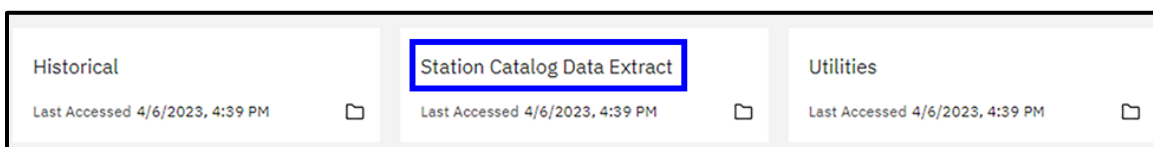


- Select **Weather Data Extract** (click on the words, not the box).

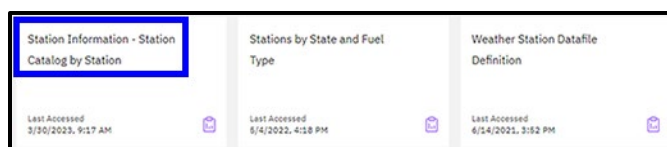


Station Catalogs

- To download station catalogs, click on the link for **Station Catalog Data Extract**.
Tip: Station Catalogs in FireFamilyPlus are old. You **MUST** replace them with a current version.



- Click on the link to **Station Information – Station Catalog by Station** to get one formatted for FireFamilyPlus.



- Enter the Station ID and click **Finish**.

- Change the file name to *StationID_StationCatalog.txt* (e.g., "420403_StationCatalog.txt").

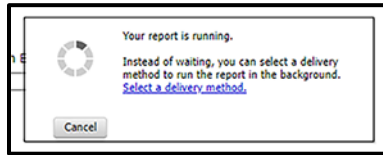
NOTE that the file type is **csv**. This is incorrect – it is actually a text (**txt**) file that has been formatted for use in FireFamilyPlus. COGNOS is unable to change the file extension to the correct one. Change the extension to **.txt** when saving the file to avoid confusion in the future. You may need to use quotes around the name depending on the browser used. You do not need to change the file type.

Weather Data: FAMWEB Data Warehouse

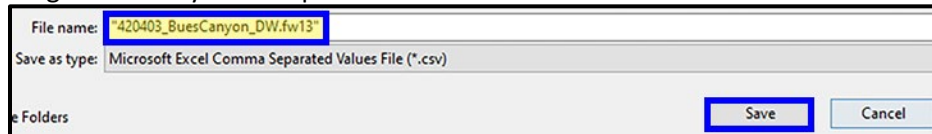
- Return to the **Weather Data Extract** window or follow the steps for [Accessing the FAMWeb Data Warehouse](#). You can go back to a previous screen on the browser to find it.
- Click on the link to **Historical** and then the link to **FW13**.

- Enter the **Station ID** and **Observation Start** and **End Dates**. Select **Hourly** observations. Click **Finish** when done.

- The data report can take some time. You can click on **Select a delivery method** and enter your email rather than waiting. The report will be mailed to you when it has finished processing.



- Change the file name to *StationID_StationName_DW.fw13* (e.g., “420403_BuesCanyon_DW.fw13”) before saving the file to your computer.



*NOTE that the file extension is **csv**. This is incorrect – it is actually an **fw13** file. COGNOS is unable to change the file extension to the correct one. Change the extension to **.fw13** when saving the file to avoid confusion in the future. You may need to use quotes around the name depending on the browser used. You do not need to change the file type. If you have the files emailed, change the file name when you save it to your local drive.*

Weather Data from the CEFA Website

The Program for Climate, Ecosystem, and Fire Applications (CEFA) website stores hourly weather data beginning with the period of record for hourly data with solar radiation and ending on 31 December 2017. Most records start between 2000 and 2002. Modeled snow flags have been added.

Tip: Weather data for the entire period of record for a RAWS (without snow flags) can be obtained from the [Western Regional Climate Center](#) (WRCC). A username and password are required for data past 30 days.

The CEFA and WRCC websites are hosted by the Desert Research Institute (DRI). DRI attempts to clean up the raw weather data, fix errors and update files on the CEFA website, giving a message if there are known errors. Regardless, all data files (flagged or not) should be examined and errors resolved before analysis.

Weather Data: CEFA

- Go to the [CEFA RAWS FW13](#) website. **Tip:** NFDRS16 refers to NFDRS version 4. There are two options.
 - NFDRS16 RAWS List:** Data from WRCC for period of record containing solar radiation data. Snow flags have been added.
 - Gap Filled RAWS List:** Data in the NFDRS16 RAWS List that have been gap-filled to provide a complete dataset. **Tip:** If this is available for your state (e.g., CA), use this dataset.

Tip: Click on the title to download an Excel spreadsheet containing a list of stations in each dataset.

- Type the Weather Station ID number for the weather station in the **Please enter NWSID** box in the **NFDRS16 RAWS List** section.

Tip: The Weather Station ID is called the WIMS ID, Station Number, Station ID, or NWS ID depending on the website where the data are stored.
- Click on the **locate FW13 file** button.

- Scroll down and click on **download “xxxxxx.fw13” in FW13 format....**
 - The download location depends on your computer setup.
 - If you are using default browser settings, the file downloads automatically and is most likely saved in your **Downloads** folder (C:/Users/Name/Downloads). Move the file to the folder where you are creating your database so that it doesn’t get deleted accidentally.
 - If you have previously changed the setting in your browser to select a location, there will a pop-up window where you can select a folder to download the data.
- Using the naming convention described above, the file name for this example would be *420403_BuesCanyon_CEFA.fw13*.

NFDRS16 RAWS List

Please enter NWSID: [locate FW13 file](#)

Gap Filled RAWS List

Files last updated: 220223

Please enter NWSID: [locate gap filled FW13 file](#)

[download "420403.fw13" in FW13 format ...](#)

Import Weather Files into FireFamilyPlus

Once you have downloaded the station catalogs and weather data, import the files into FireFamilyPlus in the following sequence.

- Import the Station Catalog.
- Import the CEFA fw13 data file.
- Import the FAMWeb Data Warehouse FW13 data file.

Importing the Station Catalog

You can import one or more station catalogs at once.

- Click on **Data > Import**.
- In the *Import Fire and Weather Data* window, select **WIMS Station Catalogs**.
- Navigate to the location with the Station Catalog(s). Select the files and click **Open**.
- It is good practice to review the import by clicking on **View Log**.
Common errors include the following.
 - Invalid Latitude or Longitude
 - Invalid County
 - Invalid Start values for 1000-h fuel moisture or KBDI.
 - Invalid Greenup date.
- Correct any errors for Latitude, Longitude, and the Start values.
- Most other errors, including County and Greenup date, can be ignored for NFDRS v4 calculations.

Importing fw13 Files

The order that weather files are imported is key to obtaining the best combined dataset. The preferred method is to first import fw13 data from CEFA and second import fw13 data from the Data Warehouse.

FireFamilyPlus will retain the first file imported and add missing data from the second file. You can import multiple fw13 files at once.

Data from CEFA

- If necessary, click on **Data > Import**.
- Select the **FW9/FW13 Files** button. Select **all CEFA files** using the **Ctrl** key and clicking on each file to select it. Click on it again to unselect it if desired.
- Select **Open**.
- A pop-up window will ask if you want to overwrite the data. Since you haven't imported any weather data yet, say **Yes**.
The import may take a bit. Be patient.
- When the import is complete, and even if it shows 0 errors, select **View Log**.
Each weather station is shown with any errors or warnings and how many records were imported (appended) to the database. You may see warnings for precipitation amounts greater than two inches in one day. While we are not going to clean the data, you are looking for any major issues with data (e.g., small number of records imported compared to original).
- **Close** the *Import Error* log. **Close** the *Import Complete* window.

Data from the Data Warehouse

- Select the **FW9/FW13 Files** button again. This time select only **Data Warehouse (DW)** weather files.
- Select **Open**.
- The pop-up window will always ask if you want to overwrite the data. Since we are not sure if the snow flag data in WIMS is correct, click **No** to overwrite and let the Data Warehouse data fill in any gaps that exist. *If you trusted that someone has been setting snow flags correctly in WIMS since 2014, or if you don't have snow in your area, you could click **Yes** to overwrite the modeled CEFA snow data.*
- When data are imported, view the log for errors. Then, close the error log and the Import Complete window.
- At the main Working Set window, click on **Data > Compact** to compact the database (reduce its size and remove any temporary files).

Generic Weather Data

Occasionally, you may need to import weather data that are not in the standard FW13 format. We will not cover this in S491.

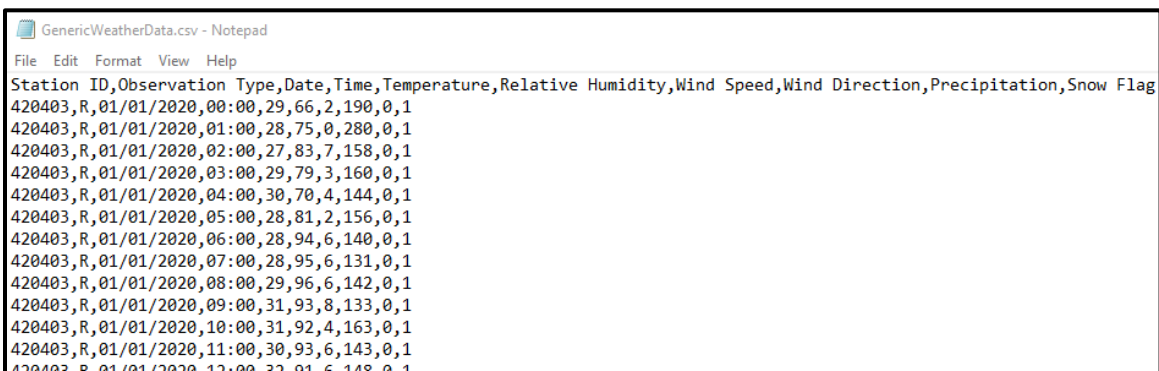
To import this data, create a comma-delimited file that contains the necessary data. The data can be in any order, and you will need to know the order.

You must include the Station ID, Observation Date, and Observation Time. Change the formatting in Excel to match the requirements for FireFamilyPlus.

- To format the date in Excel, right click on the date column and select **Format Cells...** and click on **Custom**.
- Select the date format that most closely matches (e.g., m/d/yyyy). Change the **Type:** to mm/dd/yyyy and click **OK**.
- Next format the time. Right click on the time column and select **Format Cells...** and click on **Custom**.

- Select the time format that most closely matches (e.g., h:mm). Change the **Type:** to hh:mm and click **OK**.
- Save the file as a *.xlsx file to preserve the formatting.
- Finally, save the file as a comma-delimited (csv) file for import into FireFamilyPlus.

By default, a csv file has no formatting, especially when opened in Excel. To retain the formatting you created, open the csv file with Notepad in the future. If you open it in Excel by accident, use the Excel file you saved to create another csv file as the date and time formatting will be lost.



- If necessary, click on **Data > Import**.
- Click on Generic Wx Import. Using your notes on the file structure, select the fields in your csv file. Those fields with an * are required. Either double-click on a field or click on it and press the >>>> button. You can only select one field at a time. Change the field order using the arrows below the **Selected Fields**.
- Verify that the **Field Delimiter** is Comma, and the **Date/Time Formats** are correct.
 - Date: MM/DD/YYYY
 - Time: HH:MM
- When you are finished, click on **Import Wx Data**.

Using the example in the image above, I selected the fields on the next page.

Import Generic Weather Data

Select the Fields you wish to input.
Column order will be same as order in the Selected Fields list from top to bottom.
Fields denoted with an * are mandatory.

Available Fields

SOW

OMC 10

Obs MC (Wood)

OMC Wood Date

Temp - Max

Temp - Min

RH - Max

RH - Min

Precip Duration

Season

Herb Greenness

Woody Greenness

1-hr Moisture

10-hr Moisture

100-hr Moisture

>>>>

<<<<

Select All

Selected Fields

Station ID*

Obs Type*

Obs Date*

Obs Time*

Temp

RH

Wind Speed

Wind Dir

Precip Amt

Snow Flag

↑

↓

↕

↕

Remove All

Field Delimiter

Tab

Comma

Semicolon (;)

Date Format

MM/DD/YYYY

MMDDYYYY

YYYYMMDD

Time Format

HH:MM

HHMM

Optional Default Values

StationID: ☐

Obs Type: ☐

Obs Time: ☐ 17:05

☐ Include All Stations in List

Duplicate Handling

Duplicate checking will be byStationID + Obs Type + Date + Time.

Overwrite Duplicates

Reject Duplicates

Import Wx Data

Cancel

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