



FireAnt (Windows)

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Laurence Anthony, Ph.D.

Center for English Language Education in Science and Engineering, School of Science and Engineering, Waseda University, 3-4-1 Okubo, Shinjuku-ku, Tokyo 169-8555, Japan.

Help file version: 001 (February 22, 2016).

The screenshot displays the FireAnt 0.3b application window. On the left, there's a file list with 'ccp_free_speech_1.csv' and 'ccp_free_speech_2.csv'. The main area is divided into several sections: a filter configuration section with 'Filter: FilterName [id]', a list of filter names, and a search field containing 'C*'. Below this, there are two tables: 'All Hit: 1 of 21' and 'Included Hit: 1 of 3'. The 'All Hit' table lists various user IDs and their frequencies, with 'CCriadoPerez' at the top with a frequency of 21. The 'Included Hit' table shows the results of the filter, listing 'CCriadoPerez', 'Carly_Ball', and 'CanaryDave'. On the right side, there are two data tables. The top one is the 'Input Table' showing a list of tweets with columns for 'id', 'date', and 'text'. The bottom one is the 'Filtered Table' showing the results of the filter, also with columns for 'id', 'date', and 'text'. The interface includes various controls like 'Open', 'Close', 'Add Filter', 'Remove', and 'Apply' buttons, along with a progress bar at the bottom left.

Introduction

FireAnt is a freeware "[F]ilter, [I]dentify, [R]eport & [E]xport [A]nalysis [T]oolkit" for processing small, large, and very large tabular and hierarchical data sets, such as those generated by the Twitter API for use in corpus, time series, and network graph analyses. Data sets in JSON, BSON, CSV, TSV (TXT), and Excel (XLSX) formats that are **UTF-8 encoded** can be loaded directly into *FireAnt* for processing. *FireAnt* can filter the data sets in various ways, such as by date, id, frequency, and column content, and export the results as JSON, CSV, TSV (TXT), or Excel (XLSX) files. For a detailed explanation of the program's features, see the explanation below.

FireAnt runs on any computer running Microsoft Windows (tested on Win 98/Me/2000/NT, XP, Vista, Win 7, Win 8) and Macintosh OS X computers (tested up to OS X 10.9 Mavericks). *FireAnt* is developed in Python and Qt using the *PyInstaller* compiler to generate executables for the different operating systems.

FireAnt is developed in collaboration with Claire Hardaker of Lancaster University, UK.

Getting Started (No installation necessary)

Windows

On Windows systems, simply double click the *FireAnt* icon to launch the program.

Macintosh OS X

On Macintosh systems, simply double click the *FireAnt* zip file. The zip file will unzip the *FireAnt* application. Then, you can drag the *FireAnt* application to your application folder, your desktop, or anywhere else you like. Throw away the zip file when you are finished.

Loading Data Sets

File can be loaded in any of the following ways:

- 1) Click on the File->Open Data File(s) menu option and select the files you want.
- 2) Click on the "Input Data File(s)" Open button in the main display and select the files you want.
- 3) Drag and drop files directly onto the *FireAnt* application.

Note: If you click on the File->Close Data File(s) menu option or the "Input Data Files" Close button in the main display, the files will removed from the list.

Importing an Existing Database

A previously exported database can be loaded in any of the following ways:

- 1) Click on the File->Import Database menu option and select the database that you want to import.
- 2) Click on the "Input Data File(s)" Open button in the main display and select the database that you want to import.
- 3) Drag and drop files directly onto the *FireAnt* application.

Note: If you click on the File->Close Data File(s) menu option or the "Input Data Files" Close button in the main display, the database will removed from the list.

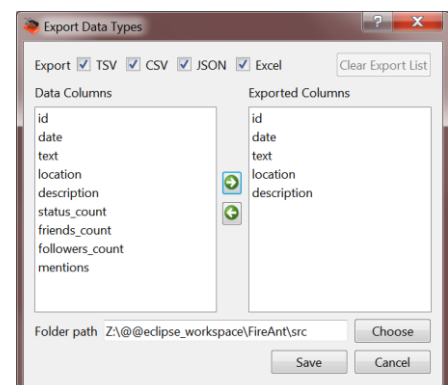
Exporting a Loaded Dataset

Once a dataset (or database) is loaded into *FireAnt*, the database can be exported for future use by clicking on the File->Export Database menu option and selecting an appropriate name and location for the exported database.

Exporting Filtered Data (Raw)

Filtered and processed results can be saved as raw data via the File->Export Data dialog box (see the figure on the right). To export your data, follow the steps below:

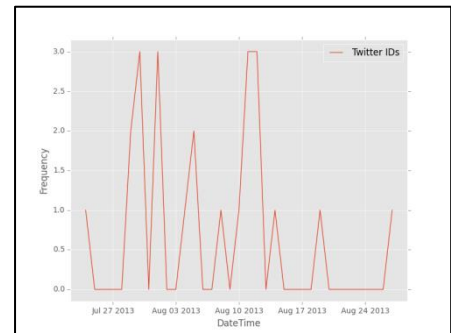
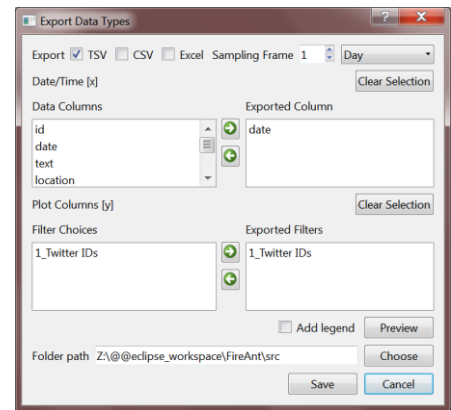
1. Choose which formats to use for the exported data (e.g. CSV, JSON) by checking one or more options of the Export options.
2. Choose which columns of the dataset to export by clicking on one or more of the column names in the left list and then clicking the right arrow button. Any selected column names in the right list can be removed by clicking on the left arrow.
3. Choose a file path for the selected output data. All data will be saved with the name "fireant" with an appropriate file extension (e.g. .csv, .json).
4. Click the "Save" button.



Exporting Filtered Data (Time Series)

Filtered and processed results can be saved as time series data via the File->Export TimeSeries dialog box (see the figure on the right). To export your data, follow the steps below:

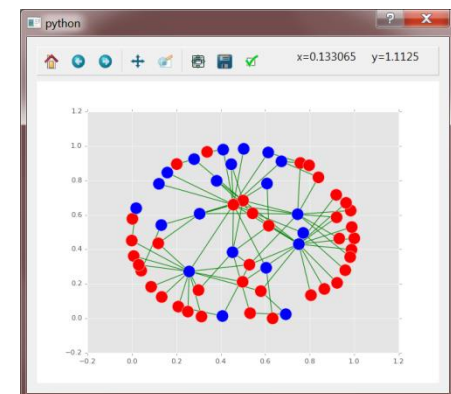
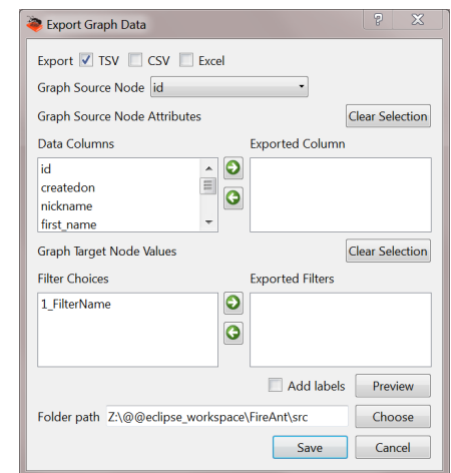
1. Choose which formats to use for the exported data (e.g. TSV, CSV) by checking one or more options of the Export options.
2. Choose the sampling frame (e.g. 1 day, 1 month)
3. Choose which data/time column to use for the time series x axis by clicking on one of the column names in the left list and then clicking the right arrow button.
4. Choose which filter(s) to use for the y axis of the plot.
5. Choose whether or not to add a legend to the plot using the checkbox option.
6. Preview the plot by clicking on the Preview button. The preview window can also be used to save a plot.
7. Choose a file path for the selected output data. All data will be saved with the name "fireant_timeseries" with an appropriate file extension (e.g., .csv).
5. Click the "Save" button.



Exporting Filtered Data (Network Graph)

Filtered and processed results can be saved as network graph data via the File->Export Graph Data dialog box (see the figure on the right). To export your data, follow the steps below:

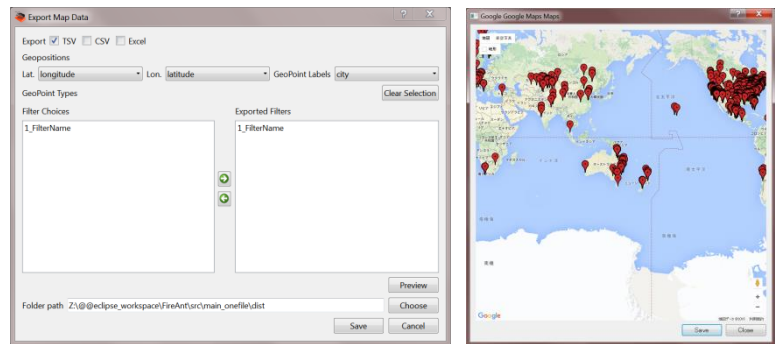
1. Choose which formats to use for the exported data (e.g. TSV, CSV) by checking one or more options of the Export options.
2. Choose the source node column for the graph by selecting one of the columns in the combobox.
3. Choose the source node attributes to include in the graph by clicking on one of the column names in the left list and then clicking the right arrow button.
4. Choose which filter(s) to use for the target node values of the graph.
5. Choose whether or not to add labels to the graph using the checkbox option.
6. Preview the graph by clicking on the Preview button. The preview window can also be used to save a graph (see the figure on the right).
7. Choose a file path for the selected output data. All data will be saved with the name "fireant_graph_nodelist" and "fireant_graph_nodelist" with an appropriate file extension (e.g., .csv).
8. Click the "Save" button



Exporting Geoposition Data (Maps)

Filtered and processed results can be saved as geoposition (map) data via the File->Export Geopositions Data dialog box (see the figure on the right). To export your data, follow the steps below:

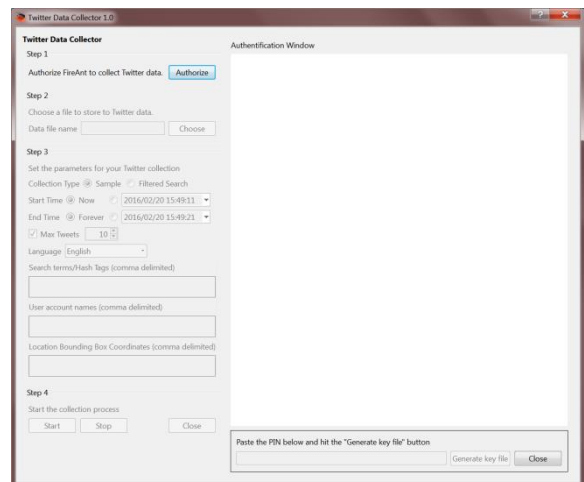
1. Choose which formats to use for the exported data (e.g. TSV, CSV) by checking one or more options of the Export options.
2. Choose the geoposition latitude and longitude columns as well as a column containing map labels by selecting the appropriate column names using the comboboxes.
3. Choose which filter(s) to use for color-coding the map points.
4. Preview the map by clicking on the Preview button. The preview window can also be used to save the map (see the figure on the right).
5. Choose a file path for the selected output data. All data will be saved with the name "fireant_geo" with an appropriate file extension (e.g., .csv).
6. Click the "Save" button.



Importing Twitter Data

Data can be collected from Twitter directly through *FireAnt* via the File->Twitter Data Collection dialog box (see the figure on the right). To export your data, follow the steps below:

1. Click the "Authorize" button to load the Twitter authorization web page, where you can sign in and authorize *FireAnt* to use your account to collect Twitter data. Note that throughout the authorization process, *FireAnt* never sees or needs to store your User ID or Password information. **Your privacy details are completely safe.**
2. After authorizing *FireAnt*, the Twitter webpage will show you a PIN number. Copy and paste the PIN code into the textbox below the page and click "Generate Key File" to complete the authorization process. A key file with your authorization details are stored in a file in the same location where *FireAnt* was launched. Please keep this file together with *FireAnt* so that you do not need to go through the authorization process again.
3. Choose a file to store your Twitter data. This file will be created at the start of the collection process, and updated whenever new data arrives. Note that if you choose a previous file, all data in the file will be erased.
4. Set the parameters for your Twitter collection.
 - a. Start Time: Start immediately or set a date/time in the future.
 - b. End Time: Stop the collection yourself, or set a date/time in the future.
 - c. Max Tweets: Set the maximum number of tweets to collect before the end time specified.
 - d. Language: Set the locale where the Tweets will be collected.



- e. Search filters: Set the search terms, hash tags, account names, and locations boundaries for your search criteria. All filter values should be separated by commas. For more details, see here (<https://dev.twitter.com/streaming/overview/request-parameters>).
5. Click the "Start" button, and wait for the collection to finish. The number of hits and the stream of tweets is shown in the status box on the right of the main window. The results are stored in the JSON format and can be loaded directly into *FireAnt* for further analysis.

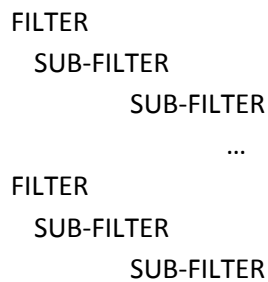
Viewing Input Data

Once a dataset (or database) is loaded into *FireAnt*, the columns of the dataset can be seen in the top right table of *FireAnt*. The number of rows per page can be set using the spinbox, and clicking the "Show" button will update the page if the page size is changed. To see the previous and next pages, click one of the navigation buttons. Any column in a table page can be sorted by clicking on the column header.

Filtering Input Data

To filter the dataset on one or more columns, follow the steps below:

1. Click on either the "Add Filter" or "Add SubFilter" button in the left of the main screen of *FireAnt* to introduce a new filter condition. Each time you press the "Add Filter" button, you will introduce a new **main** filter condition. If you press the "Add SubFilter" button after adding a main filter, you will introduce a new **sub-filter** condition below the main filter. Similarly, if you press the "Add SubFilter" button after adding a sub-filter, you will introduce a new sub-filter condition below that, leading to ever more specific filter conditions. The diagram below illustrates the hierarchical relationship between filters and sub-filters:



2. Once you have chosen to add a filter or sub-filter, *FireAnt* will display a new filter (or sub-filter) listing all possible columns in the dataset. Click on any column name in the filter to reveal a set of custom options that you can use to select data in that column. Depending on the type of data contained in your dataset column, *FireAnt* will pick the most suitable filter options for you. For example, if your dataset column contains data/time information, *FireAnt* will present options to pick the starting and ending year, month, day, and time for your filter. Similarly, if your dataset column contains text information (e.g. tweets), *FireAnt* will present options to find words or phrases in that column. The following custom filters are currently available (see below for examples of each filter):
 - Default filter: A text based filter with word/phrase search options (including regular expression searching)
 - Date filter: A data/time filter with start date/time and end date/time options
 - column headers need to end with the string: "created_at" "createdon"
 - Count filter: A filter designed to choose data based on min. and max values
 - column headers need to end with the string: "count"

- Group filter: A filter that groups names/values in a column and ranks these names/values their frequency of occurrence. Particular groups can be searched for and selected before filtering.
 - column rows containing lists of names/values will be expanded before the grouping is carried out
 - column headers need to end with the string: "id", "name", "location", "hashtags" "mentions"
3. Click the "Apply" button to filter the results. The filtered results are shown in the bottom right table. The number of rows per page can be set using the spinbox, and clicking the "Show" button will update the page if the page size is changed. To see the previous and next pages, click one of the navigation buttons. Any column in a table page can be sorted by clicking on the column header.

Default Filter

Filter: text

Words Case Regex Search logic: AND OR NOT

speech Find Reset

Hit: 1 of 335

Show 25 Rows

	text
1	"@CCriadoPerez: Such a fantastic post by @jembloomfield on how rape threa
2	"@CCriadoPerez: Such a fantastic post by @jembloomfield on how rape threa
3	"@CCriadoPerez: Such a fantastic post by @jembloomfield on hw rape threats a
4	"@tocrease: @CCriadoPerez free speech can be plausibly limited to speech th
5	"It's not free speech it's hate speech" @CCriadoPerez right on sista!

Date Filter

Filter: date

From 2010/01/01 0:00:00 To 2015/01/01 0:00:00 Find Reset

Hit: 1 of 336

Show 10 Rows

	date	Freq
1	Fri Aug 02 08:52:33 2013	1
2	Fri Aug 02 08:53:42 2013	1
3	Fri Aug 02 08:58:49 2013	1
4	Fri Aug 02 09:16:45 2013	1
5	Fri Aug 02 11:38:41 2013	1
6	Fri Aug 02 11:40:34 2013	1

Count Filter

Filter: status_count

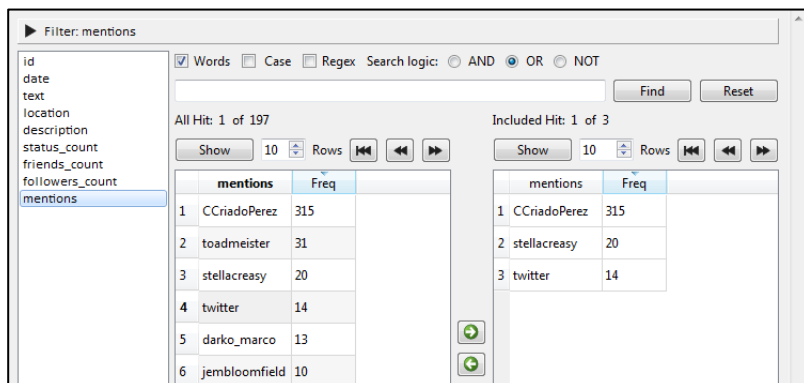
Min 0 Max 99 Find Reset

Hit: 1 of 15

Show 25 Rows

	status_count	Freq
1	99	2
2	98	1
3	97	1
4	96	1
5	82	1
6	80	1

Group Filter



Shortcuts

Information in all tables and filters can be selected, copied, and pasted as is standard on the operating system:

Windows:	CTRL-A ⇨ Select All	CTRL-C ⇨ Copy	CTRL-V ⇨ Paste
Macintosh:	CMD-A ⇨ Select All	CMD -C ⇨ Copy	CMD -V ⇨ Paste

NOTES

Comments/Suggestions/Bug Fixes

All new editions and bug fixes are listed in the revision history below. However, if you find a bug in the program, or have any suggestions for improving the program, please let me know and I will try to address the issues in a future version.

This software is available as 'freeware' according to the license below. It is important for my funding to hear about any successes that people have with the software. Therefore, if you find the software useful, please send me an e-mail briefly describing how it is being used.

ACKNOWLEDGMENT

The development of this software was supported by the ESRC Centre for Corpus Approaches to Social Science, ESRC grant reference ES/L008874/1.

CITING/REFERENCING *FireAnt*

Use the following method to cite/reference *FireAnt* according to the APA style guide:

Anthony, L. and Hardaker, C. (YEAR OF RELEASE). *FireAnt* (Version VERSION NUMBER) [Computer Software]. Tokyo, Japan: Waseda University. Available from <http://www.laurenceanthony.net/>

For example if you download *FireAnt 1.0*, which was released in 2016, you would cite/reference it as follows:
Anthony, L. and Hardaker, C. (2016). *FireAnt* (Version 1.0) [Computer Software]. Tokyo, Japan: Waseda University. Available from <http://www.laurenceanthony.net/>

Note that the APA instructions are not entirely clear about citing, and it is debatable whether or not the "Available from ..." statement is needed. See here for more details:
<http://owl.english.purdue.edu/owl/resource/560/10/>

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KNOWN ISSUES

If a very large file is copied to the "Input Text" box and segmented, once the results are generated, copying the results might use up all the available system memory and cause the program to crash. To avoid this problem, large files should always be segmented using the "Input File" option.

REVISION HISTORY

0.4.0b

This is the first beta version of the program

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