Twitteranalyser User Documentation

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# Terms and meanings

In this section, important terms and what they mean in the context of the application are discussed.

|  |  |
| --- | --- |
| Term | Meaning |
| Event | a single, real world event which can be searched for by one or more tags, and for which an analysis of sentiments is desired |
| Twitter-Tweet | a single tweet of some person, with the message text as main property |
| Sentiment-Analysis | analysis of sentiments present in tweets (based on word comparisons) |
| Filter | A view configured to filter the amount of tweets shown for a specific event (only showing the tweets that match the filter properties) |

# Versions

|  |  |  |
| --- | --- | --- |
| Version | Date of publish | Author |
| Sprint 1 | 9.4.2014 | Max Kesselbacher |
| Sprint 2 | 30.4.2014 | Max Kesselbacher |
| Sprint 3 | 14.5.2014 | Max Kesselbacher |
| Sprint 5 | 4.6.2014 | Max Kesselbacher |
| Sprint 5 | 11.6.2014 | Max Kesselbacher |
| Release | 18.6.2014 | Max Kesselbacher |

# Overview

‘Twitteranalyser’ is an application operated through a web GUI which makes it possible to produce an analysis of sentiments for events, based on twitter tweet messages.

Several events can be tracked at the same time – each event is configured with its own set of keywords upon which tweets are gathered, stored and their sentiment is rated.

For the stored tweets of an event, the application can perform a sentiment analysis based on counting and weighting the positive and negative connotated words in the tweet messages to produce a graphical overview of the sentiments present in the twitter messages.  
The sentiment is rated with pre-defined as well as configurable words and their weighting.

The gathered tweets and the sentiment analysis results can also be exported in the .csv format.

# Use of the application

The application is operated through a web GUI. Currently, the newest version of the Mozilla Firefox browser is supported.

In order to use the application, the newest version of the Mozilla Firefox browser has to be installed (older versions are not guaranteed to work), and a working network connection to the application main site has to be established. With these requirements met, the application can properly be used. Following is a discussion of the use cases that can be handled by the application.

## The events table view

When navigating to the application site in the browser, the main application site is loaded, which consists of a table of already created events and various buttons which are used to maintain this table of events. On initial startup, this table will be empty. When events are configured, the following information is displayed in the table view:



* Name
* From / To dates of tweets fetching
* Description
* Status of the tweet fetching
* Threshold tweet number needed for analysis
* Number of displayed events

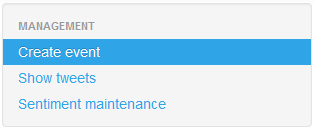
The status has three possible values:

* New events are initialized and considered in the next scheduled tweets fetching – ‘initialized’
* When the collection is currently running for an event, the status is ‘collection running’
* When the collection is finished, the newest tweets for the time frame of the events are fetched – ‘collection finished’

The following functions can be performed on this main application site:

* Adding a new event (with the global ‘Create new event’ button)
* Editing an existing event (with the ‘edit event’ button of the event to be edited), editing also opens the detail view of the event
* Deleting an existing event (with the ‘delete event’ button of the event to be deleted)
* Searching for specific events by names (by clicking on the ‘Search’ button)

Switching between the management views can be done by the navigation elements at the left of the site.

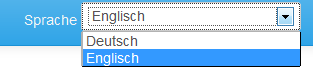


Switching between the configuration views and the data analysis views can be done by the navigation elements at the top of the site.

topnavBar.png

Moreover, a dropdown menu to change the working language the GUI is displayed in is available. Currently, the following languages are supported:

* English
* German

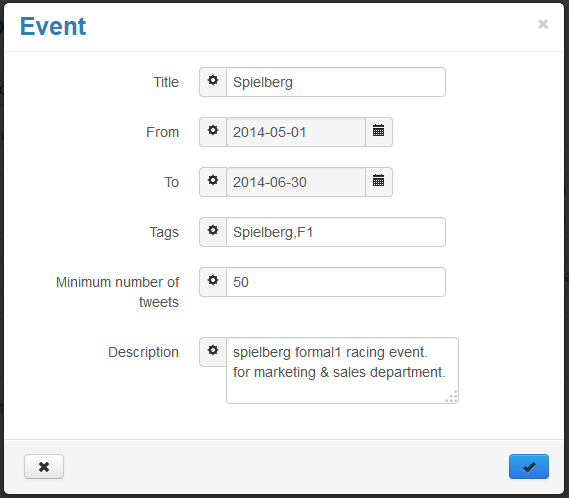


### Adding an event

Before the sentiment analysis can be started, a new event has to be added to the system. To accomplish this, the global ‘Create new event’ button in the events table view has to be pressed. Upon doing so, a new form will be shown where the information about an event has to be entered. The following table summarizes the fields that can be entered:

|  |  |  |  |
| --- | --- | --- | --- |
| Field name | Restrictions | Mandatory | Description |
| Title | Alphanumeric, 45 characters | Yes | Title of the event |
| Date From | No Dates before current date, no dates after ‘Date To’ | Yes | Start date of tweet fetching |
| Date To | No Dates before current date | Yes | End date of tweet fetching |
| Tags | Alphanumeric, 45 characters | Yes | Text tags for the tweets fetching |
| Minimum number of tweets | Numeric, 45 digits | No | Minimum number of tweets needed for valid analysis |
| Description | All characters allowed, 300 characters | No | Description of the event |

After entering the required information, the event can be saved and added to the system. As there are not yet any tweets linked to this event, no analysis is possible. The main events table view is loaded, with the newly created event also in the table. On the next scheduled tweets fetching, the new event will also be considered.



### Editing an event

The properties of existing events that are configured when adding those can later be edited. To accomplish this, the ‘edit event' button of the corresponding event to be added has to be clicked. Upon doing so, the details view of the event will be loaded. In this view, the configured properties that are currently defined are shown. These properties can be edited and filled with new values. If the new values are valid ones and all mandatory properties are filled, the changes to the event can be saved. If the time frame is changed, possibly new tweets for the event will be fetched.

The details view where the properties of the event can be changed is the same form as for adding an event.

### Deleting an event

When an event is not needed anymore in the system, it can be deleted. To accomplish this, the ‘delete event’ button for the corresponding event to be deleted has to be pressed in the events table view. Upon doing so, a confirmation dialog shows up, requesting confirmation to the deletion of the selected event. When this confirmation is granted, the event will be deleted from the system.

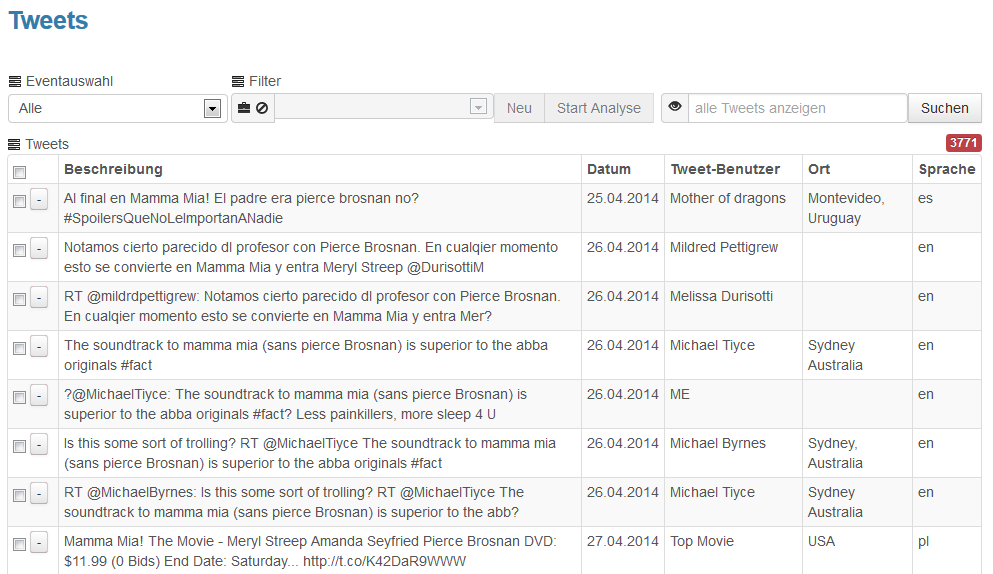
## The tweets table view

For the created events, tweets are gathered in the background, according to the configured tags of each event and the configured ‘from’ and ‘until’ dates capping the tweet gathering. The fetched tweets can be viewed in the tweets table. This view can be invoked by selecting the ‘View tweets’ navigation element on the left of the screen.

In this table, the following information about tweets is displayed:

* The tweet text message
* The date of the tweet
* The user name of the user that tweeted
* Location (if any) of the tweet
* Number of tweets in this view

Furthermore, the tweets can be filtered by one specific event, selected in a dropdown menu. They can also be filtered by the text input field on the right side of the screen. This text input matches for the tweet text and user name and is invoked by clicking on the ‘Search’ button.



Single tweets can be ignored from analysis in the current filter by clicking the toggle button ‘ignore’. Single tweets (or all tweets with the top-most checkbox) can be selected with the checkbox at each tweet. The selected tweets can be deleted with the button ‘delete Tweets’ at the bottom of the site.

With the ‘Filter’ dropdown list, filter to each event can be selected, if an event is selected. Initially, no filter is selected and therefore all tweets for the selected event are displayed.

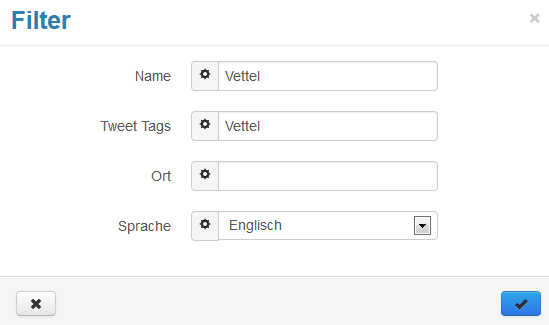
Filter for the tweets of one event can be created (button ‘New’), edited (button ‘edit filter’) and deleted (button ‘delete filter’). From this view, it is also possible to start the sentiment analysis for the selected event and filter.

### Filter creation

After selecting an event in the tweets table view, all tweets fetched for the event (with respect to the timeframe configured in the event and the tweet tags) are listed. With the button ‘Create new filter’, a filter creation and editing form is opened. The following table summarizes the fields that can be entered in the form.

|  |  |  |  |
| --- | --- | --- | --- |
| Field name | Restrictions | Mandatory | Description |
| Name | Alphanumeric, 35 characters | No | Displayed name of the filter |
| Tweet tags | Alphanumeric, 35 characters | Yes (one of those) | Tags in the tweets to be filtered |
| Location | Alphanumeric, 35 characters | Yes (one of those) | Location in the tweets to be filtered |
| Language | Only configured languages from database | Yes (one of those) | Language of the tweets to be filtered |

Properties that are not filled are not used for filtering. After filling in the desired properties and clicking ‘Save’, the filter is saved to the event. It can then be selected with the filters dropdown list, and is applied upon selection. Only tweets matching the filter properties are shown.



### Filter editing

The existing filters can also be edited in the tweets table view. After selecting an event and one of the already existing filters, the filter properties can be edited with the button ‘edit filter’. The filter creation and editing form is opened, where the properties can be altered and saved again. After saving, the updated filter is applied to the tweets of the event (only the tweets matching the filter are shown).

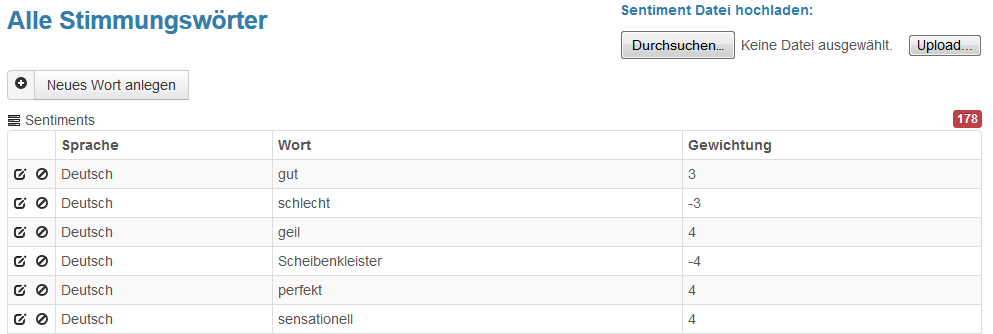
## Sentiment analysis

In the tweets table view, the sentiment analysis which assigns sentiment values to the fetched tweets can be started. First, an event and one of the configured filters (or the standard no-filter) has to be selected. The sentiments analysis is then invoked by clicking the button ‘Start analysis'.

The results of the analysis are saved on the server and can be viewed in the ‘Statistic’ tab.

## Sentiments maintenance view

In the sentiments maintenance view, every user can maintain the list of additional words for the sentiments analysis. Those words will be used for the appropriate language, and add to the big pre-configured standard word list for English tweets.



In the sentiment words table, the following information can be seen:

* Language of each configured sentiment word, the word and its weight of the word
* The total number of user-configured words

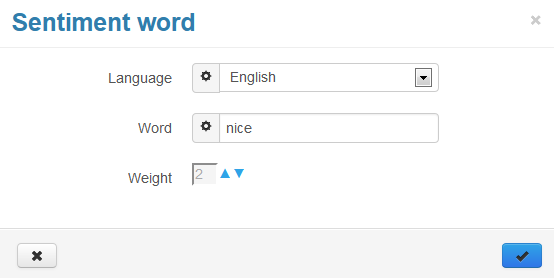
Furthermore, the following functionality can be invoked in the sentiment words table:

* Editing of a configured sentiment word (with the button ‘edit word’)
* Deletion of a configured sentiment word (with the button ‘delete word’)

Lastly, new sentiment words can be configured by clicking on the button ‘Create new word’.

The following tables summarizes the fields that can be configured in the sentiment word form.

|  |  |  |  |
| --- | --- | --- | --- |
| Field name | Restrictions | Mandatory | Description |
| Language | Only configured languages from database | yes | The language the word is configured for |
| Word | Alpha-Characters, 35 characters | Yes | The sentiment word |
| Weight | Between -5 and +5, selectable by the spinner | Yes | The weight of the configured sentiment word |



### Import

With the elements on the right side of the sentiments maintenance view, a text file in the .csv format containing sentiment words that shall be added can be uploaded. This feature is especially useful if one wants to add an arbitrary number of sentiment words, but does not want to configure them all one by one in the web interface. The import file can be written in any text editor or MS Excel, but has to be saved with the file extension ‘.csv’.

\*screenshot\*

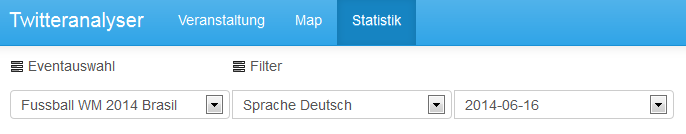
The CD version of the application comes with a sample import file. The format of the import file is given below.

* The first line of the file has to contain the following header:
* Each subsequent line contains one sentiment word entry, in the following format:

## Statistic tab

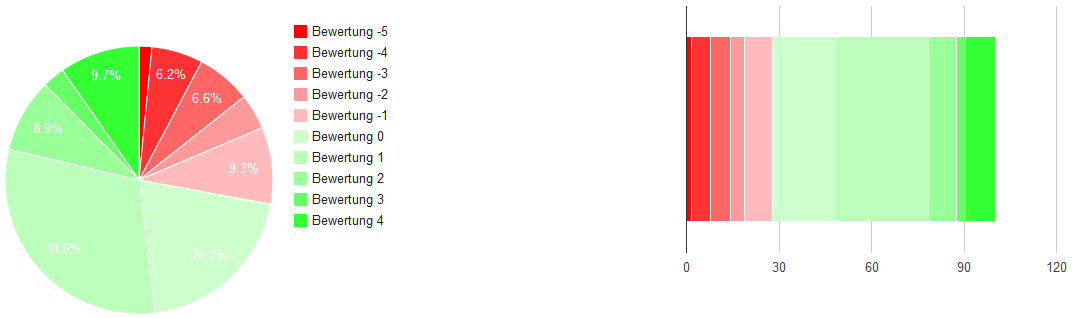
With the navigation elements at the top of the site, the ‘Statistic’ tab can be selected. In this view, the results from the sentiment analysis can be seen. The standard view consists of the following elements:

* Dropdown-list to choose from the events that are configured in the system
* Dropdown-list to choose a filter from the configured filter of the selected event
* Dropdown-list to choose an analysis made for the filter (or made for an event if no filter is selected)



After selecting an analysis, the evaluation of the sentiments analysis is shown below.

First, the distribution of the sentiments of the analyzed tweets is summarized in a table, ranging from tweets which have sentiment values of -5 to tweets which have sentiment values of +5. This data is then also shown in two different charts, which visualize the distribution of the positive and negative sentiment values of tweets.



## Export

After selecting an event , a filter and an analysis for this filter, the ‘export’ button on the right side of this view becomes available. On click of this button, the assigned sentiment values of the tweets along with event and filter information can be exported and saved to the disk.



## Paging

On all views that feature a table with possibly multiple entries, paging is implemented so that only a subset of all the entries are fetched at any time. The following information is shown at the bottom of tables:

* The number of shown entries
* The number of total entries in this view
* Paging navigation elements to navigate through the pages of this table.