GATE, Twitter, & Robots

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## Acknowledgement

http://sobigdata.eu/

Licence

1 Unpacking files from the USB stick

This can take 10 or 15 minutes, so let it run during the first part of the presentation to save time later. Create a `twitter` folder on your `Desktop`, then right-click on each of these two files and do *extract all* to the `Desktop\twitter` folder.

- `gate-developer-8.6-distro.zip`

- `headstart-2019.zip`

(You can unzip them both at the same time.)
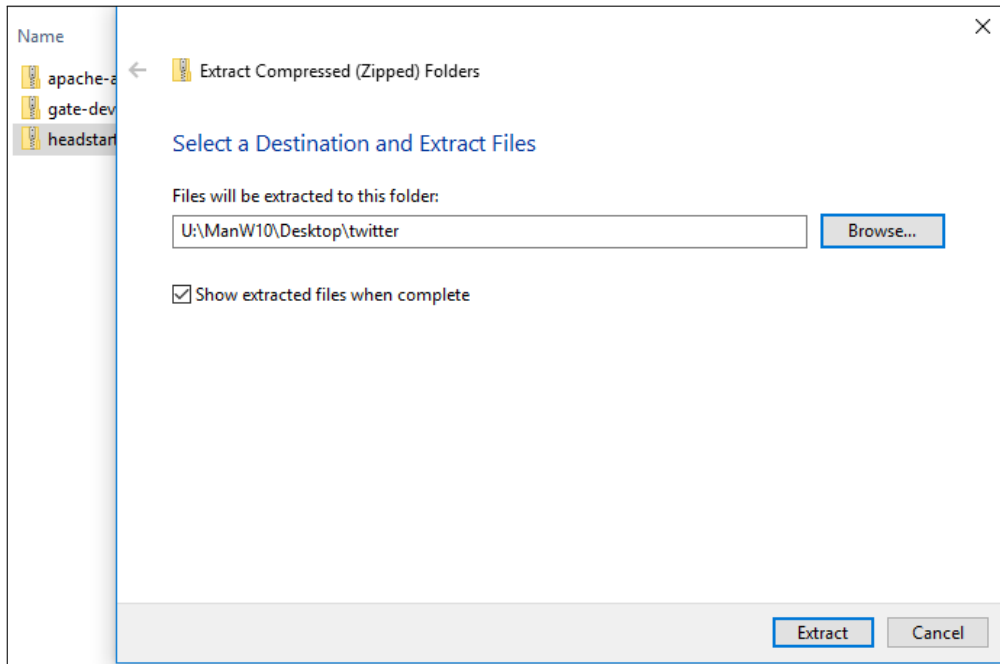
When it's finished, the `twitter` folder should look like this:
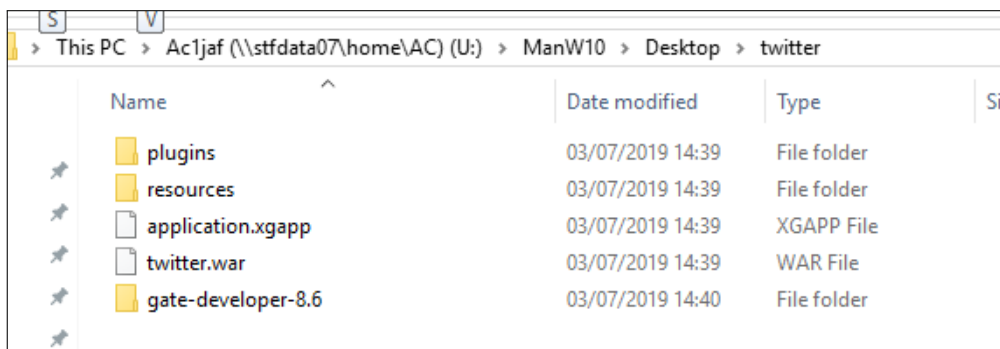
2 Running GATE Developer

In a command prompt window, change into the GATE directory and run the GATE program.

```
cd U:\ManW10\Desktop\twitter\gate-developer-8.6
```

```
gate.exe
```

3 Loading the application in GATE Developer

Load the starter application in GATE Developer using *Applications → Restore Application from File*. Be sure to select a directory marked U: before drilling down into ManW10, Desktop, and twitter to find application.xgapp.
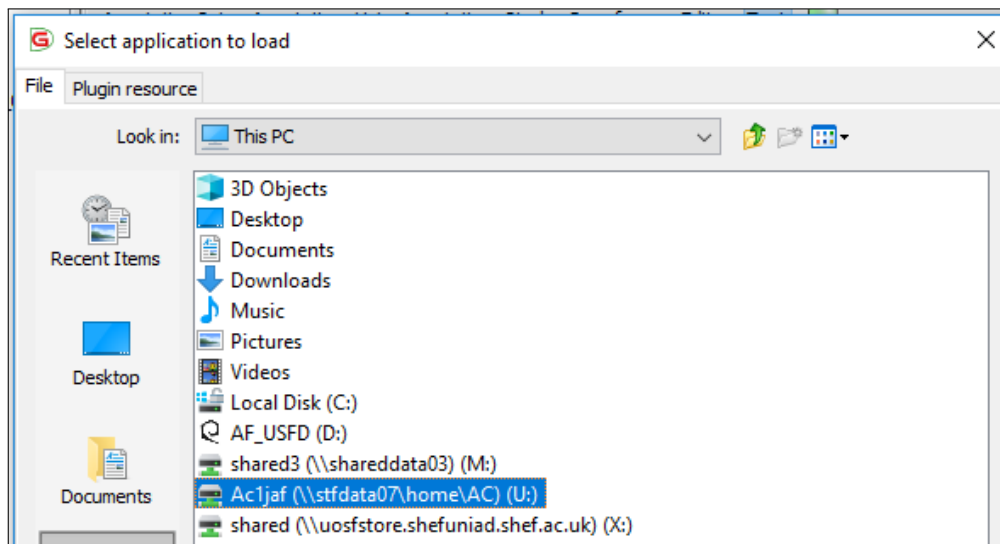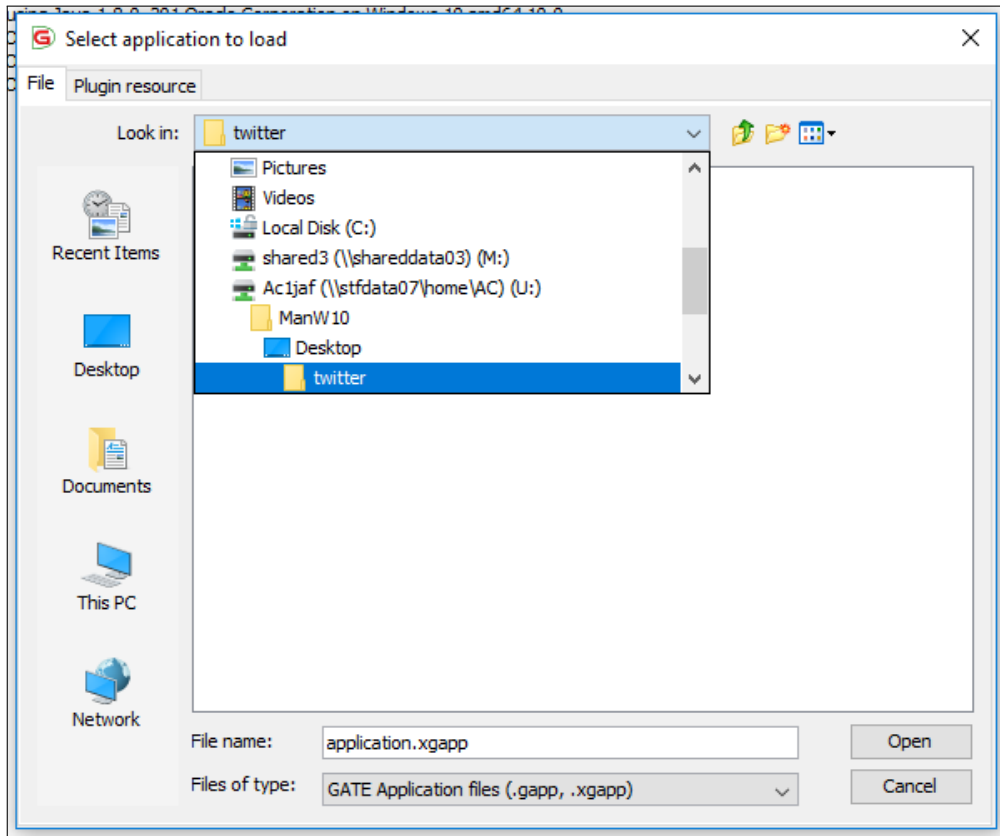
Double-click on the *JAPE Transducer* PR in the *Processing Resources* list, then click on the list of features in the bottom left. Find the *robot* and *exampleName* pair, and change *exampleName* to the WiFi name of your robot (the same as you use to call `getRobot(name)` in your previous code).
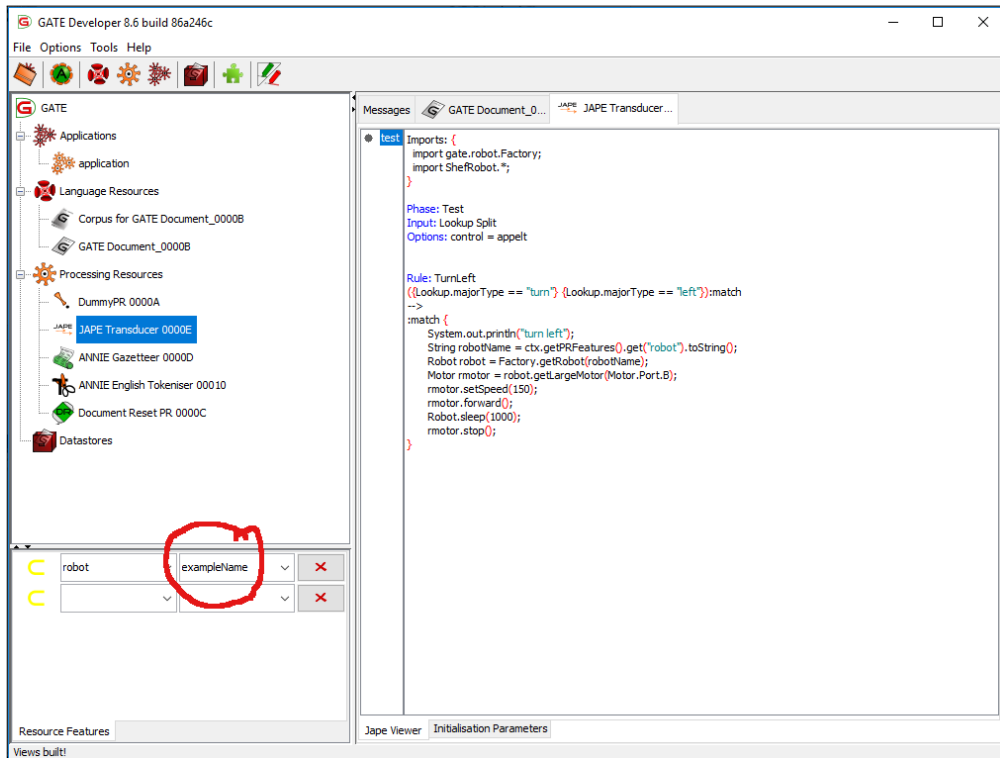
Create a new empty GATE document using *Language Resources → New GATE Document*, then clicking *OK* without changing any of the parameters. Open it by double-clicking on it in the list on the left, and type "turn left" into the big document content pane.
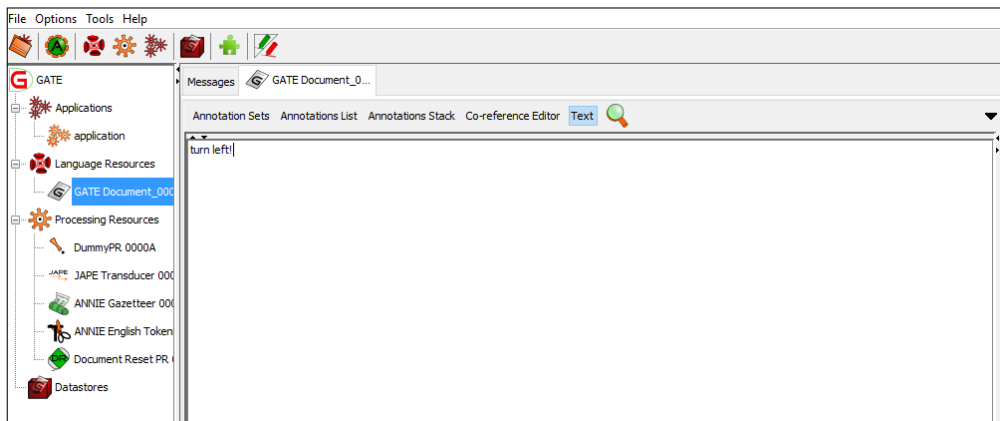
Right-click on the document in the list on the left and select *New Corpus for this Document*, then double-click on the application in the list on the left.

Now double-click on the application (in the list on the left) and make sure the corpus with the test document is selected.

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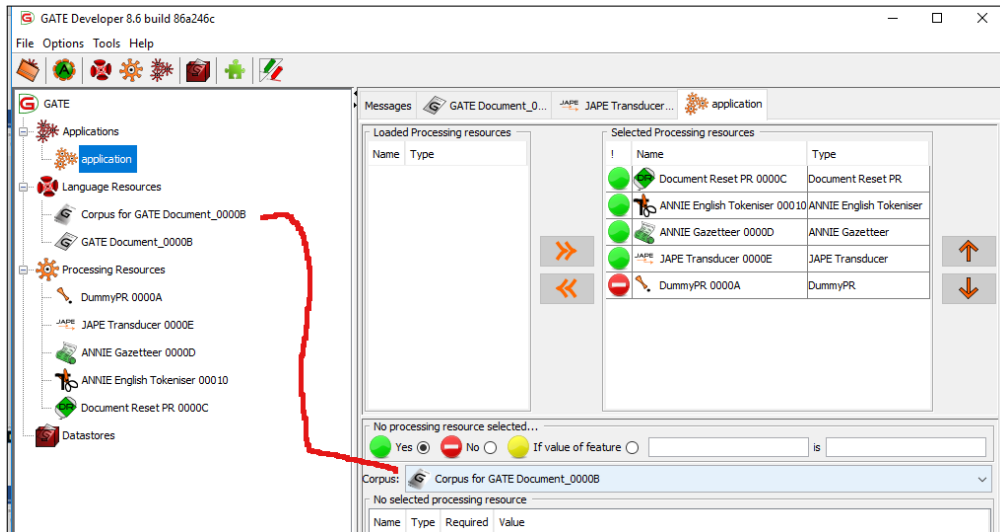
Then right-click on *application* in the left pane or at the top and select *Run this Application*. The robot should move a bit to the left!

Now change the *Corpus* pulldown in the GATE application to <none>, right-click on the application name, select *Save Application State*, and save the slightly modified application in the same file, `application.xgapp`. This will keep your robot name set when you use the application again.

4 Gazetteers and JAPE rules

The gazetteer consists of three files in the `resources\gazetteer` folder:

- `lists.def` the master file that points to the others and tells it what features to use for matches;

- `left.lst` the list of matches that mean *left*;

- `left.lst` the list of matches that mean *move* or *turn*.

You can edit these files in jEdit, then right click on the gazetteer in GATE and select *Reinitialise*.

You can also make changes in the gazetteer editor in GATE Developer, then select *Save and Reinitialise*.
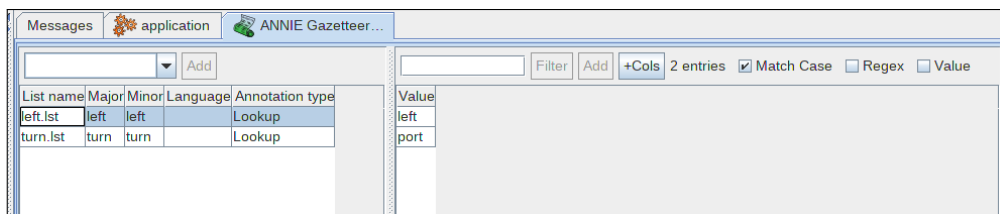
Hint: you will need to add another entry to `lists.def` and create a matching file for *right* and for any other new direction or command you want to add.

The JAPE grammar consists of one file, `resources\jape\test.jape`, which currently has one rule to match a lookup from the *turn* list followed by a match from the *left* list. There can be other unmatched words in the middle, so *make a left* should also work. The JAPE viewer in GATE is read-only, so you need to use jEdit to add or modify rules, then right-click on the JAPE PR in GATE and select *Reinitialise*. You will need to add rules to match the new *Lookup* annotations' features and tell the robot to carry out different tasks.

5 Running the Twitter Collector

The Twitter Collector takes a while to start up and needs to be stopped and restarted when you change the GATE application or its resources, so you probably want to develop your gazetteers and rules extensively in the GATE Developer GUI before using it.

Using the command prompt, go into the `twitter` directory and run the JAR file.

```
cd U:\ManW10\Desktop\twitter

java -jar twitter.war
```

You will get a lot of messages in the command window and (usually) a security popup from the firewall because you are trying to expose a web service—just click *Cancel* whenever it appears. The twitter collector web interface will still be available to the web browser on the same machine where it is running.
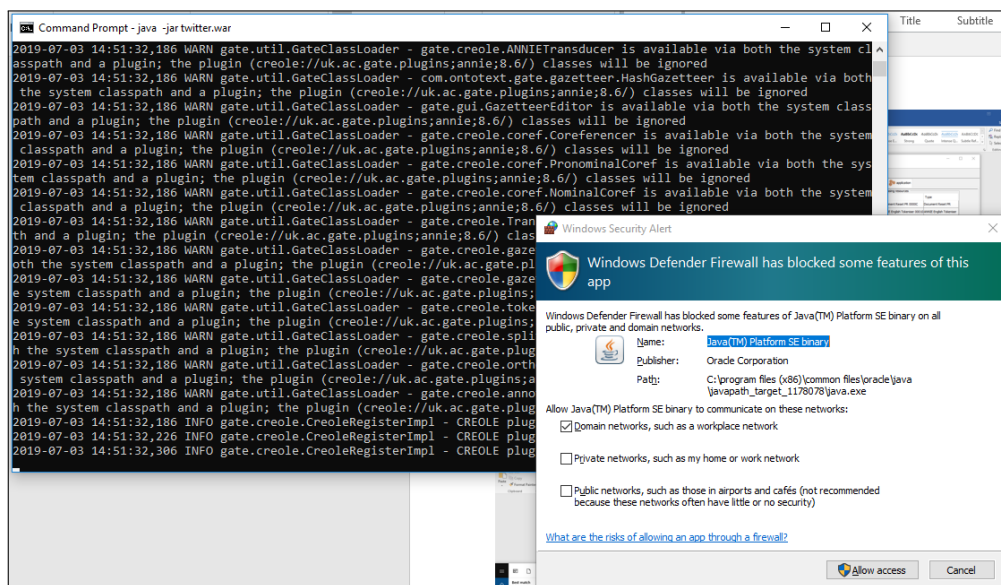
The web interface is at `http://localhost:8081/` in your browser; just typing `localhost:8081` in the address bar should usually work. Use `admin` and `gatecloud` to log into the collector itself, then click *Authenticate*, log into Twitter and allow the GATE Cloud Twitter Collector to use your account. Then work through the other configuration sections.
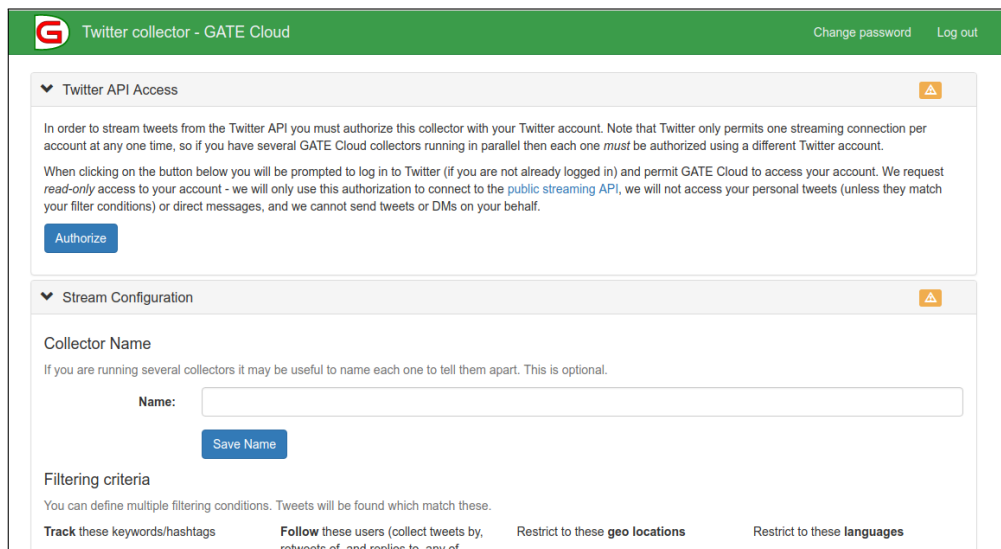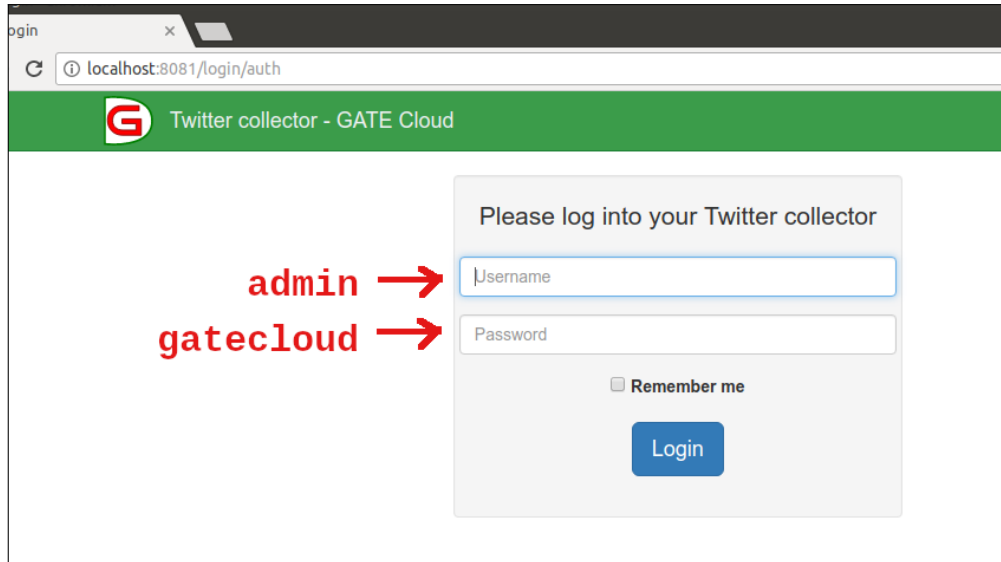
Give the collector a name (anything) and set the twitter collector to follow the account you want to use to send robot commands—use the *manage users* link under *follow*. (This can be the same account that you used to log in.) The collector also requires a non-blank filename for results delivery ("`test`" works).

If you have filled in all the required fields, the *Collector Status* section will indicate that the collector is ready, and you can click *Start collecting*.

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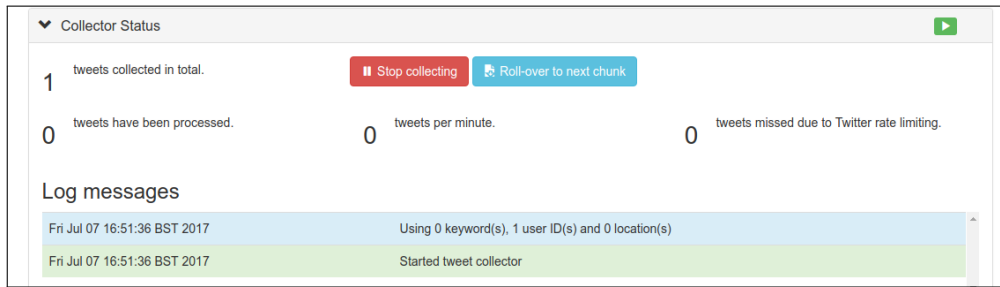
Tweets sent from the followed account will be processed by the GATE application and will increase the count in the web interface. Note that Twitter does not allow duplicate tweets close together in time, so if you want to turn left more than once, you may need to add extra words or numbers to your tweets.

When you modify the GATE application (including the JAPE rules and gazetteer lists it uses), you need to stop the twitter collector and restart it. To stop it, go to the command prompt window where it was running, press control-C once, and wait for it to shut down. Restart it by using the `java -jar twitter.war` command again.

6 Adding your own Java classes

If you want to add your own Java classes to the plugin so you can use custom methods in the JAPE rules, put your Java source files in the same source directory.

`U:\ManW10\Desktop\twitter\plugins\robot\src\gate\robot`

and copy the following package directive to the top of each new source code file

`package gate.robot;`

You will also need to unzip the `apache-ant-1.10.6-bin.zip` file from the USB stick in order to recompile the plugin with the added classes. This will also require stopping and restarting the twitter collector.

```
cd U:\ManW10\Desktop\twitter\plugins\robot\src\gate\robot

set JAVA_HOME=C:\Program Files\Java\jdk1.8.0_201

..\..\apache-ant-1.10.6\bin\ant
```