Tutorial 3: Running an Imitation Agent

Generating case bases and running agents can be accomplished from either a GUI or the command prompt. Both methods will produce the exact same results. In the following tutorial, you can try both methods, but it is not required.

Preparation

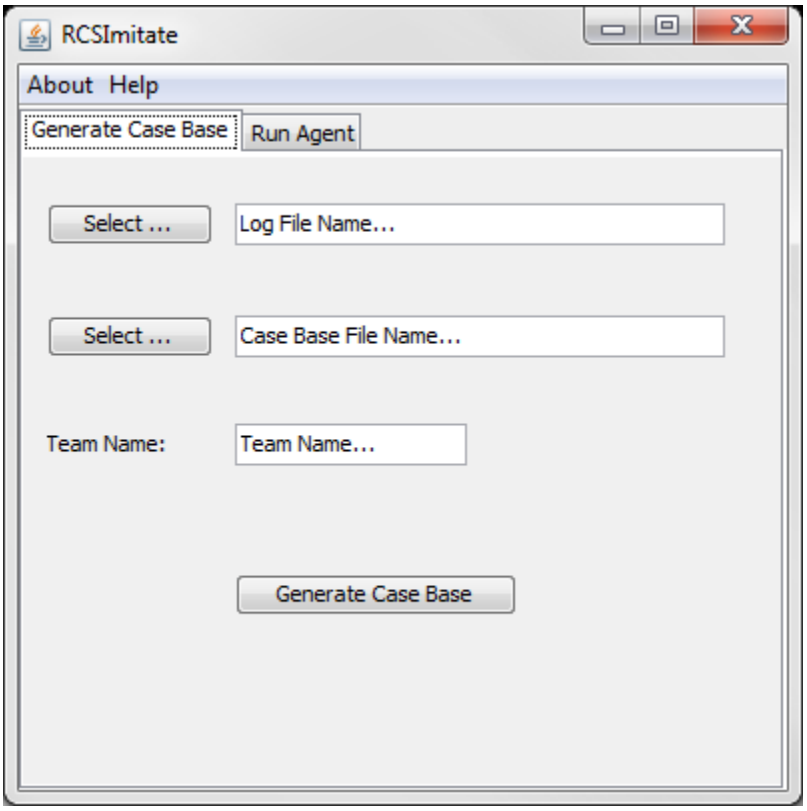
1. Complete *Tutorial 2: Logging a RoboCup Agent in Windows.*
    a. Do not delete any files that were created during Tutorial 1 or Tutorial 2.
2. Visit http://www.nmai.ca/research-projects/agent-imitation and download the current JIFSA jar file
    a. Download the file to the RCSS directory created in *Tutorial 1: Setting up a Game of RoboCup Soccer on Windows*.
3. On the same page, click the “Downloads” link and download the current version of “RCSImitate JAR” to the RCSS directory.

Generate the Case Base with the GUI

1. Open a command prompt and move to the RCSS directory. Run the RCSImitate GUI (Figure 1) by entering the following:
   `java -cp RCSImitate-0.4.jar;JIFSA-0.5.jar;RCSLogServer-0.3.jar;. org.RCSImitate.RCSImitate gui`
2. Enter information into the fields
    a. Select the location of a log file generated in *Tutorial 2*
        i. By default, the log server will name the log files *TeamName_PlayerNumber*.lsf.
    b. Select a name for the Case Base file.
    c. Enter the name of the team that the logged player was on.
3. Press the **Generate Case Base** button to generate the case base.
    a. The case base file will be generated in the same directory as the RCSImitate jar file.

Do not close the RCSImitate window.

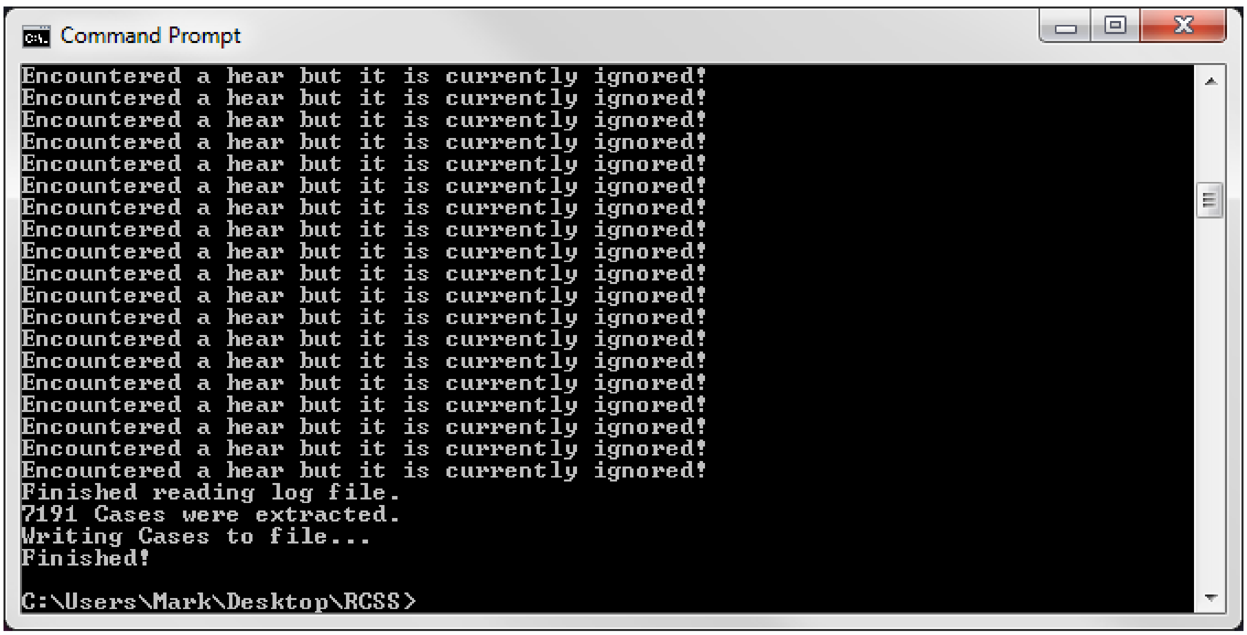
Figure 1: RCSImitate GUI



Generate the Case Base from the Command Prompt

1. Open a command prompt and move to the RCSS directory.
2. Run the following command (all on one line):
   ```
   java -cp RCSImitate-X.X.jar;JIFSA-X.X.jar;. org.RCSImitate.casebasebuilder.LogFile2CaseBase in-file out-file team-name
   ```
   where *in-file* is the name of the log file, *out-file* is the name for the new case base, and *team-name* is the team that the logged agent was playing on. (Figure 2)

Figure 2: Generating a case base from the command prompt

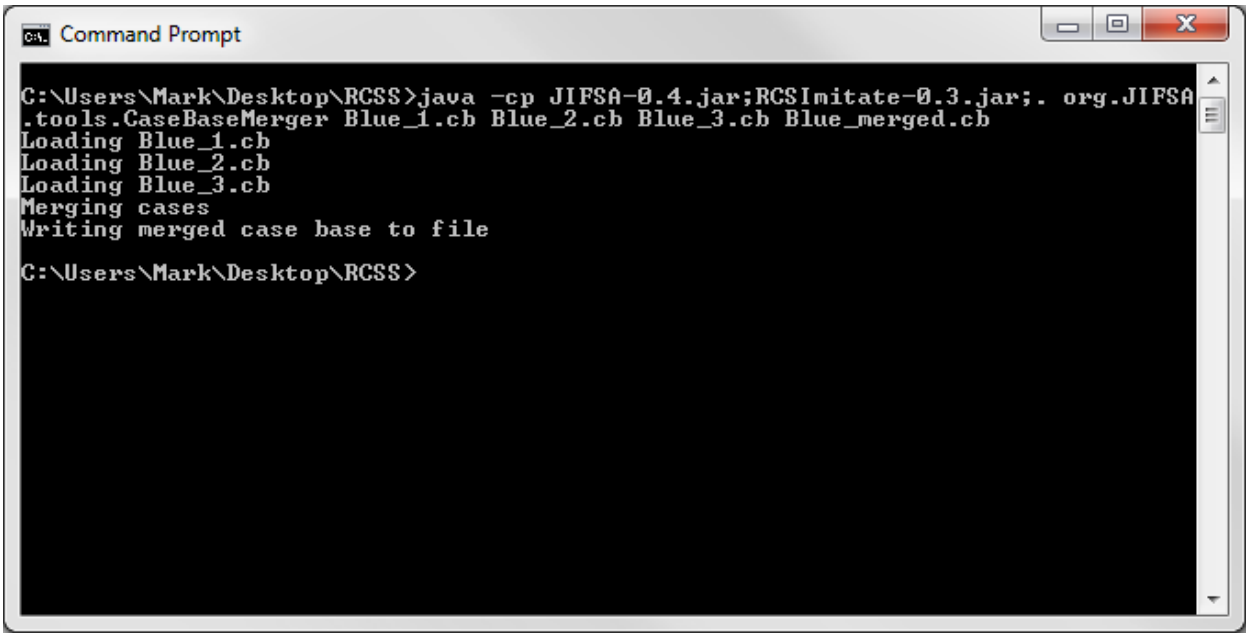


(Optional) Merge Case Bases

To merge case bases, run the following command (all on one line) (Figure 3):
`java -cp JIFSA-X.X.jar;RCSImitate-X.X.jar;. org.JIFSA.tools.CaseBaseMerger` *`case-base1 case-base2 out-file`*
where:

- *case-base1* and *case-base2* are files containing the case bases to be merged
    - more than two case bases may be merged at once, if desired
    - merging too many case bases may cause Java to run out of memory and crash
- *out-file* is the file to output the new case base toj

Figure 3: Merging case bases



Run an Agent from the GUI

1. Run a server and monitor as described in *Tutorial 1*.
2. If the GUI is not already open, run the it with the command from Step 1 of *Generate the Case Base with the GUI*.
3. Click the “Run Agent” tab in the RCSImitate window (Figure 4).
4. Enter the name of the team that the agent should play on.
    a. The “Server” and “Port” values do not need to be changed unless the the game is being run on multiple computers or the match is being logged.
5. Choose a case base for the agent to use.
6. Select a feature(s) that the agent will be spawned with.
    a. Feature Distance Presort - Changes the case bases so all features are sorted by the distance where the closes objects are first in the list;
    b. Sequential Backward Generation - Replaces the weights with the highest

evaluation weights selected from the all possible configurations of the feature set;

c. Zero Weight Filter - Removes zero weighted features from a case.

7. Press the **Spawn Agent** button and wait for the agent to connect. The initialization of the agent can take some time; during this time, the window will not be responsive (Figure 5).
8. After the agent has connected to the server, more agents can be connected or the game can be started by selecting KickOff from the Referee menu.

Figure 4: "Run Agent" tab of RCSImitate window

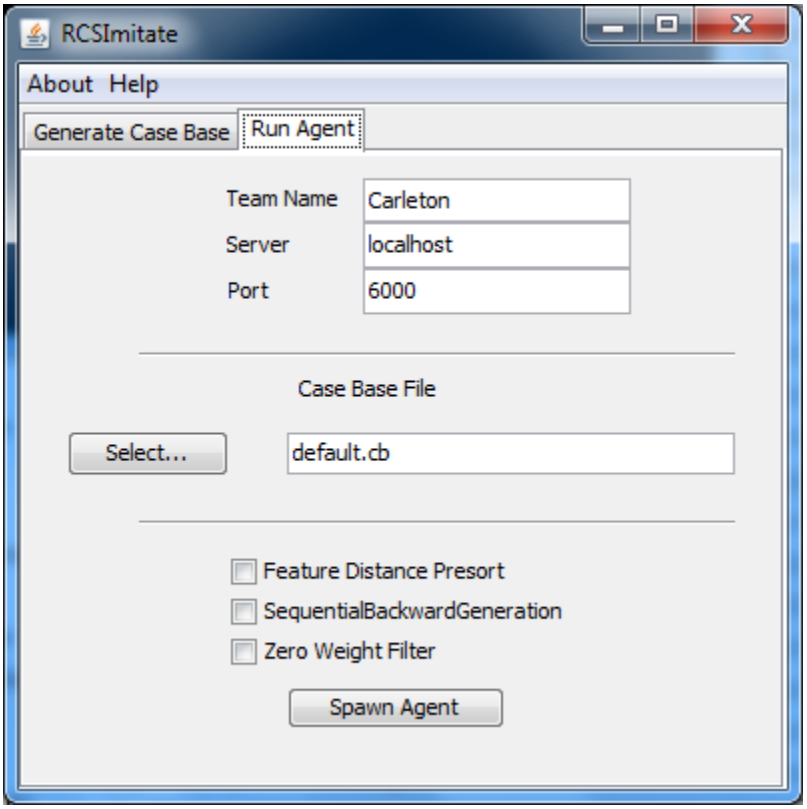
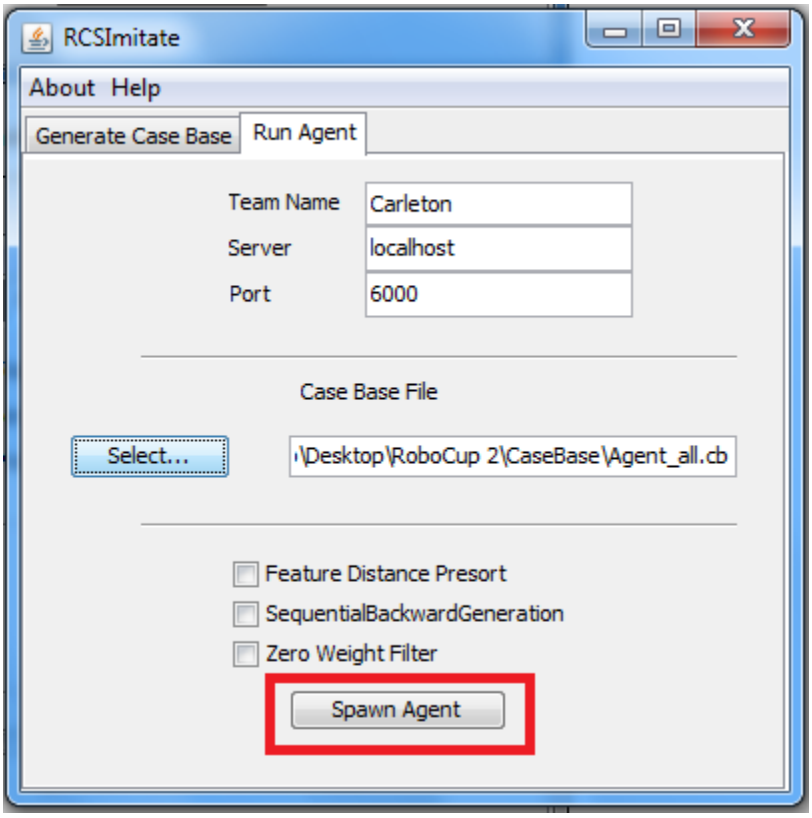


Figure 5: Unresponsive RCSImitate window



Run an Agent from the Command Prompt

1. Open a command prompt and move to the RCSS directory.
2. Run the following command (all on one line) (Figure 6):
   `start java -cp RCSImitate-0.4.jar;JIFSA-0.5.jar;RCSLogServer-0.3.jar;. org.RCSImitate.RCSImitate -team` *`TeamName`* `-casebasename` *`CaseBase`* `-port` *`Port`* `-host` *`Host`*
   All arguments are optional; the defaults are:
   TeamName: Carleton
   CaseBase: default.cb
   Port: 6000
   Host: localhost

To run an agent with feature selection run the command in step 2 with:
`-enable-featureselection` - To apply Sequential Backward Generation
`-enable-zeroweightfilter` - To apply Zero Weight Filter

Figure 6: Running an agent from the command prompt