First Experiences with TIRA for Reproducible Evaluation in Information Retrieval

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Public search engine for the ClueWeb collection.
Open Search Lab
Webis Group Assets

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Cluster with 200 cores today, with 1,000 cores next year.
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Open source experimentation platform.
Why we started

To compile one of our group’s papers:

- Checkout the \LaTeX\ resources.
- Open the frame file with a \LaTeX\ editor.
- Click on ‘Compile’.
- Click on ‘View PDF’.

Is the same possible for our experiment software?
TIRA

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Is the same possible for our experiment software?

- Checkout the experiment resources.
- Open the experiment with TIRA.
- Click on ‘Execute’.
- Click on ‘View Results’.

How do we get there?
TIRA

Logical View

One program to rule them all:

```
java -jar ...
Researcher
execute
call
tira
```

```
java -jar ...
hadoop ...
python ...
```
TIRA

Technical View

Challenge:

- Experiment software may have system requirements your local computer does not meet.
- Experiment may require a non-trivial amount of data to be present.

Solution:

- Implement TIRA as a platform for the Web.
- Deploy experiment programs onto a dedicated machine with TIRA installed.
- Provide remote access to the experiment.
TIRA

Experiments as a Service

1. http://tira.de/programs/examples/MyProgram

2. tira@node1:~$ ./myprogram.sh -p1 42 -p2 "method1"
   tira@node2:~$ ./myprogram.sh -p1 42 -p2 "method2"

3. tira@node1:~$ ./myprogram.sh -p1 42 -p2 "method1"
4. tira@node2:~$ ./myprogram.sh -p1 42 -p2 "method2"

5. | Parameter 1 | Parameter 2   | Output Directory | Performance |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>42</td>
<td>Method1</td>
<td>output-directory</td>
<td>0.89</td>
</tr>
<tr>
<td>42</td>
<td>Method2</td>
<td>output-directory</td>
<td>0.71</td>
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</tbody>
</table>
TIRA was installed on two virtual machines (Windows and Ubuntu).
- A dispatcher (third TIRA instance) connected the virtual machine instances.
- Assistants deployed the competition software to the correct TIRA hosts.
- The supervisor pressed the run button to evaluate the submissions.
Goal for next year:

- No longer require student assistant support.
- Support automated deployment of software submissions.
- Keep the TIRA host running continuously.
Hope to see you at the poster session.

Thank you!