TraceLab

- A research environment designed to allow researchers to visually compose and execute traceability experiments using a library of shared components.
- Components can be written in any memory managed language such as Java, C#, etc. TraceLab also allows calls to tools such as Matlab or R etc.
- TraceLab currently runs in a Windows environment but is designed to port to Linux.
Vision of TraceLab

- Reduce the time a new researcher needs to instrument their research environment.
- Foster the exchange of research ideas
  - Package up and share experiments.
  - Reuse components in order to synthesize and evaluate new ideas.
- Provide a benchmarking environment based around the concept of “contests.” Each contest is:
  - Driven by a research question from the Grand Challenges of Traceability.
  - Data sets
  - Task
  - Metrics
TraceLab Environment
Standardized Metrics

Evaluation Results
Below you can see the evaluation metrics of your results for each dataset.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Standard VSM</th>
<th>Current Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Median</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Mean</td>
<td>0.3692348...</td>
<td>0.3692348674382677</td>
</tr>
<tr>
<td>Max</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.29</td>
<td>0.29</td>
</tr>
</tbody>
</table>
Two Demos

- Evan Moritz from the College of William and Mary is going to show how his team used TraceLab to replicate an ICSM 2011 experiment: *On Integrating Orthogonal Information Retrieval Methods to Improve Traceability Link Recovery*. M. Gethers, D. Poshyvanyk, et al., College of William and Mary

- Adam Czauderna from DePaul University is going to show how a person can download a contest, insert their own solution into the experimental template, upload their results, and compare them to current baseline results.
TraceLab Timeline

- Currently in beta-use at 6 universities.
- Planned public release in July 2012 in conjunction with launching 5-6 research contests – culminating in The Grand Challenges of Traceability at ICSE 2013.
- Will be open-sourced towards the Fall of 2012.
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**TraceLab**: An Experimental Workbench for Equipping Researchers to Innovate, Synthesize, and Comparatively Evaluate Traceability Solutions

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