A Doomsday Vault of Software Engineering Tools

Archiving Software Engineering Tools from ICSE and FSE 2011 through 2014

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ABSTRACT

Many innovative software engineering tools appear at the field's premier venues, the International Software Engineering Conference (ICSE) and the Foundations of Software Engineering (FSE). But what happens to these tools after they were presented? In this paper, we spend 10,000 hours trying to obtain, download, use, and repackage 150 tools from ICSE and FSE's tool demonstration tracks. Our results enumerate the practical and accidental reasons that software engineering tools fail to work over time, and provide practical implications for creating lasting tools.

CCS Concepts

•**General and reference** → *Empirical studies;*

Keywords

Software engineering tools; replication

1. INTRODUCTION

What tool demos are. Why they're important.

Why it's important that they last. - future work must built on past work - one other way to figure out what those in the past did and learned

why its hard to get tools to last. - no requirement for archiving tools - shifting platforms - data loss - implicit information

in this paper, we contribute: - an evaluation of how difficult it is to get past tools working - re-package existing tools with an eye towards maximizing durability (do we need a word?)

2. RELATED WORK

Artifact evaluation committees. (SIGPLAN, where else?)

Other fields: - Data science (doing better - http://zenodo.org) - MPC journal requires code submission (tarball) - In general, Math not doing a lot with code sub submissions - Security, should be able to do VM, but don't (but see Will's paper) - HPC doesn't (and maybe can't) - RTC is starting to do it, but maybe shouldn't

Constant worry is protecting IP in security and HPC

3. RESEARCH QUESTIONS

Henceforth, we will simply say *tool* to refer to software engineering tools presented at the International Conference on Software Engineering or Foundations of Software Engineering in their respective tool demonstration tracks.

1. How much effort is required to get tools to work?
2. What are the barriers to get tools to work?
3. How much effort is required to get tools to work in virtual machines?
4. What are the barriers to get tools to work in virtual machines?

4. PROCEEDURE

5. RESULTS

5.1 RQ1 and RQ2

5.1.1 Effort

Average person-hours per tool, distribution (min, max, box plot)

Time invested in evaluating non-working tools.

5.1.2 Challenge: Tool Cannot Be Obtained

What percent of tool links were dead? What percent of tools said they were available in the paper, but the tool could not be obtained? What percent of tools were being planned to be commercialized? What were actually commercial? What percent of tools could we use if we had paid for them?

5.1.3 Challenge: Author non-responsive

5.1.4 Challenge: Technical Difficulties

5.2 RQ3 and RQ4

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5.2.1 Challenge: Tool Licensing

University grey area.

5.2.2 Challenge: Technology Stack Licensing

5.2.3 Challenge: Author Doesn't Want Redistribution

Even when tool is available

6. CONCLUSIONS

Some other things.

7. ADDITIONAL AUTHORS

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8. REFERENCES