The Eclipse TPTP Java Profiler
Ganymede Edition

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Content cheerfully taken from presentations by many others
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Eclipse* TPTP Overview

§ Eclipse* Tools Project, Hyades, Dec 2002

§ Promoted to Eclipse* project, 2005

§ **Open-source platform for Automated Software Quality (ASQ) tools including reference implementations for testing, tracing and monitoring software systems**

§ Addresses the entire test and performance life cycle, from early testing to production application monitoring, including test recording, editing and execution, monitoring, tracing and profiling, and log analysis capabilities

§ Integration with tools used in the other processes of a software lifecycle under Eclipse* environment

§ Reduce the cost and complexity of implementing effective automated software quality control processes

§ Share data through an OMG-defined trace, log, statistical and test model implemented via the Eclipse* Modeling Framework (EMF)

§ Active participants:
   IBM, Intel(R), OC Systems

§ Former participants:
   Compuware, SAP, Scapa Technologies

The "New" Java* Profiler (JVMTI) vs. JVMPI

§ "New" Java* Profiler went GA in Europa

§ Java* 5.0 introduced new standards for profiling

- § Prior to Java* 5.0 (Java* 1.4-) the standards and the interfaces to support profiling (JVMPI) were experimental
  - § Java* J2SE 6 eliminated JVMPI interface
- § The new standard (JVMTI): an innovative solution to profiling; enables precise control over application parts to profile
- § Eclipse* TPTP "new" Java profiler is based on this standard (GA since Europa)

§ In Eclipse* TPTP old profiler (JVMPI) still exists

- § Only for backward compatibility with Java 1.4
- § Because of JVMPI/JVMTI interface differences there are some differences in behavior between old and new profiler
- § Eclipse* TPTP will eventually remove old Java* profiler

Eclipse* TPTP Profiler Updates for Ganymede

§ Improve overall usability via assorted fixes

- § Using feedback from users and consumers

§ Reduce usability diffs between JVMPI and JVMTI...

- § e.g., SSL for secure communications
- § e.g., Reduce overuse of dynamic attach/detach

§ Enhancements

- § e.g., Better multithread analysis
  - § Improved visualization
  - § Contended lock analysis
  - § Track more thread states (e.g., join points)
- § e.g., Efficient binary transfer format
- § e.g., Better Java* 6 support

Ganymede Update – Pointing out a few fixes

§Dynamic attach vs pause/resume

> **Workload**
> * **Infinite hello world**

§Start from outside the workbench

§Attach, Detach, Reattach, Pause, Resume

```
set TPTP_AC_HOME=C:/utils/eclipse34/eclipse/dropins/eclipse/plugins/org.eclipse.tptp.\
               platform.ac.win_ia32_4.4.1.v200806171132/agent_controller

set JAVA_PROFILER_HOME=C:/utils/eclipse34/eclipse/dropins/eclipse/plugins/org.eclipse.tptp.\
               platform.jvmti.runtime_4.4.100.v200806180919/agent_files/win_ia32

set PATH=%JAVA_PROFILER_HOME%;%TPTP_AC_HOME%\bin;%PATH%

set AGENT=-agentlib:JPIBootLoader=JPIAgent:server=enabled;CGProf

java %AGENT% hello
```

see http://wiki.eclipse.org/TPTP-standalone-script-TPTP4.4.0.3

Ganymede Update – Thread Contention Analysis

§Better multithread analysis

§ Improved visualization

§ Contended lock analysis

§ Track more thread states (e.g., join points)

Producer	Consumer
• **Processing time** • **Write packet to buffer** • **Wait for buffer-empty**	• **Wait for buffer full** • **Read packet from buffer** • **Processing time**

§Lets configure and run a thread profile session

§Lets quickly see whats new in the views

See http://www.eclipse.org/tptp/groups/Architecture/documents/features/hf_200320.html

TPTP Resources (profiling and beyond)

§ **Learn and Try**

- § http://www.eclipse.org/tptp/home/documents/conferences/eclipseCon2008
- § http://www.eclipse.org/tptp/home/documents/conferences/eclipseCon2008/Eclipsecon08_Profiling.htm

§ **Webs and Wikis**

- § http://eclipse.org/TPTP
- § http://wiki.eclipse.org/TPTP

§ **Downloads and Updates**

- § http://www.eclipse.org/tptp/home/downloads
- § http://www.eclipse.org/tptp/home/downloads/updateManager.php

§ **News and Mail**

- § http://www.eclipse.org/tptp/home/project_info/general/mailnews.php

§ **Use and Participate**

- § http://wiki.eclipse.org/TPTP_User_Experiences_Profiling
- § http://www.eclipse.org/tptp/home/project_info/general