



# DSDP Target Management 3.0 In the Ganymede Coordinated Release

*Eclipse Development Process version 2.3.1 – January 17, 2007*  
*Slide deck v1 – May 27, 2008*

Martin Oberhuber, Wind River  
TM Project Lead

# Spotlight Talking Points



- TM 3.0 New Features
  - Target Communication Protocol Framework (TCF) (contributed)
  - Windows CE RAPI wrappers and RSE Subsystems (contributed)
  - RSE Terminal Integration (contributed)
  - RSE User Actions and Compile Commands
- API Quality:
  - Extensive use of API Tooling to get rid of API Leakage and document usage restrictions; continued API Review, documentation, refactoring; many Unit tests added.
- End-of-Life issues:
  - Some API Refactoring (IFileService), but no EOL'd APIs or components in 3.0
- IP Clearance and Licenses:
  - All licenses and about files are in place as per the Eclipse Development Process, the Due Diligence Process was followed for all contributions.
- Community and Committer Diversity:
  - 11 committers (5 WindRiver, 4 IBM, 1 ProSyst, 1 private) – was 8 in 2.0
  - 2 former committers, 1 GSoC project, 23 additional contributors – was 5 in 2.0
  - Commercial adoption by at least 13 companies. Involvement with other Eclipse projects (Platform/Team, ECF, CDT, Orbit, EPP, PDT, Babel).

# *DSDP Target Management – Introduction*



- Major project milestones
  - Project Created – June 2, 2005
  - RSE 1.0 – Nov 12, 2006
  - TM 2.0 – June 26, 2007
- Continuing to expand community
  - EclipseCon tutorials – 2007, 2008
  - Strong growth in number of contributors (+19) and committers (+5)
  - Well recognized in the Eclipse Ecosystem, part of the JEE package
  - Commercial adoption by at least 13 companies
- TM 3.0 project size
  - RSE: 346 kLOC + TCF: 97 kLOC (R2.0: 290k, R1.0: 242k)

# Target Management vs. RSE



„Data models and frameworks to configure and manage remote systems, their connections, and their services“.

- **org.eclipse.tm.core**: Core Components (few dependencies)
  - Terminal Widget and View
  - RAPI wrappers, Jakarta Commons/Net 3<sup>rd</sup> party library
  - Discovery Framework and Zeroconf impl (needs EMF)
- **Target Communication Framework (TCF, Incubating)**: Extensible protocol framework for development-time tooling
- **org.eclipse.tm.rse**: A consistent framework and UI for accessing remote compute resources from Eclipse.
- Remote System Explorer (RSE) integrates core components.  
**TM is the “project”, RSE is the “product”.**



# TM 3.0 New Features

- 3.0 Plan available at  
<http://www.eclipse.org/projects/project-plan.php?projectid=dsdp.tm>
- New Features
  - Target Communication Protocol Framework (TCF - Incubating)
  - Windows CE RAPI Wrappers and RSE Subsystems
  - RSE Terminal Integration
  - RSE User Actions and Compile Commands
  - RSE Import/Export of Connections and Profiles
  - Improved Lazy Loading, reduced plugin activation, componentization
- Focus on API review and cleanup:
  - Use API Tooling to avoid API leakage and document intended API usage
  - Improve UI/Non-UI splitting, API/Non-API splitting
  - Increase Unit Test Coverage
- Exact descriptions of changes and migration docs available from each milestone's build notes

# Non-code aspects



- User documentation and tutorials
  - <http://dSDP.eclipse.org/help/latest/>
  - Automatically updated from nightly builds
- ISV documentation and tutorials
  - Includes Javadoc, Architectural overview and 3 tutorials
  - EclipseCon Tutorials with code, Webinar, Wiki-based FAQ
  - Elaborate New&Noteworthy / Build Notes with each Milestone
- Working Example Code
  - Adding a custom subsystem, Adding a custom service, Adding a remote popup menu action, Adding a remote Preference page
- Externalization and Accessibility guidelines followed, Localization by IBM as well as the Babel project
- Publications and Conference talks as part of DSDP

# API: 3.0 Status



- During the 3.0 cycle, Eclipse API Tooling was used to ensure
  - Proper split of API and non-API without API Leakage
  - Proper version numbering, documentation and @since tags
  - Proper documentation of intended API usage
  - Without examples & tests: 935 API types / 1476 non-API (2.0: 828 API, 986 non-API)
- Some breaking API refactorings (e.g. IFileService), but no loss of functionality
- RSE Core Model - Subsystem / Services / Filters API
  - 5 clients in RSE, plus 2 examples
  - Additional commercial clients at Wind River and IBM
  - Full Javadoc, architectural overview, tutorials, examples
  - Some automated Unit tests
- Dstore Miners API
  - 4 clients in RSE, additional commercial clients at IBM
  - Full Javadoc, architectural overview
  - Currently no Unit tests



## *API: 3.0 Status (cont.)*

- UI Extensions and API
  - Widgets, menus and pages for remote, similar to Eclipse Platform
  - Several internal and commercial clients
  - Full Javadoc, tutorial and examples
  - Manual Test Plans, No Unit Tests
- Persistence Providers
  - 3 clients in RSE (PropertyFileProvider, MetadataPropertyFileProvider, SerializingProvider)
  - Javadoc
  - No Unit Tests
- Previous RSE 2.0 release is not source or binary compatible
  - Migration docs exist on each [api] Bugzilla item, and in the build notes: will be consolidated into a single Migration doc for the final release



# Tool Usability



- Seamless access to remote files
  - Edit, Compare, search and move remote files as if they were local
  - Browse remote archives as virtual filesystem
  - Optimized for minimal data transfer (as opposed to EFS)
  - Popular with remote Web page and PHP editing
  - New: User Actions and Compile Commands
- Shell and Processes subsystems out of the box, generic framework for vendor-specific subsystems (e.g. Symbian VNC-like phone browser)
- Lightweight embeddable Terminal widget
- DNS-SD Service Discovery usable standalone or integrated
- CDT Remote Launch Integration

# Architectural Issues



- Well-proven extensible subsystem / services concept
- Legacy code still not fully cleaned up
  - Need to make use of more modern functionality from the Platform
    - Platform “internal” access reduced for 3.0 but not yet fully removed
    - Need to make more UI / Non-UI separation for headless and RCP usage
  - XML SystemMessages for localization diminished in 3.0
- Need more Unit Tests
  - Hard to do for UI-heavy parts
- Overlaps with other projects - Many remote access APIs
  - E.g. Remote File Service – 5 APIs: Platform EFS, ECF fileshare, TPTP Agent File Interfaces, Platform/Team target API, RSE IFileService
  - Talking with all those projects; going to absorb Platform/Team WebDAV and synchronization support partially in Gsoc projects
  - Disconnected “Remote Development” effort at IBM / PTP

## *End-of-life*



- No concepts or tools were abandoned in TM 3.0.
- Some APIs were removed when equivalent functionality is available from other APIs

- Statistics as of 27-May-2008

TM 3.0 Bugs by TargetMilestone													
	M3	M4	M5	M6	M7	RC1	RC2	RC3	3.0	3.0 Total	---	3.0.1	Future
blocker	.	.	.	.	.	.	<u>1</u>	.	.	1	<u>2</u>	.	.
critical	.	.	<u>1</u>	<u>2</u>	.	<u>2</u>	<u>1</u>	.	.	6	<u>2</u>	.	.
major	<u>1</u>	<u>8</u>	<u>3</u>	<u>5</u>	<u>4</u>	<u>8</u>	<u>5</u>	<u>2</u>	<u>1</u>	36	<u>13</u>	.	<u>1</u>
normal	<u>24</u>	<u>31</u>	<u>29</u>	<u>61</u>	<u>33</u>	<u>27</u>	<u>33</u>	<u>3</u>	<u>88</u>	305	<u>134</u>	<u>2</u>	<u>50</u>
minor	<u>6</u>	<u>4</u>	<u>3</u>	<u>3</u>	<u>4</u>	<u>7</u>	<u>8</u>	.	<u>31</u>	60	<u>40</u>	.	<u>39</u>
trivial	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>1</u>	.	<u>7</u>	24	<u>8</u>	.	<u>4</u>
enhance ment	<u>11</u>	<u>11</u>	<u>15</u>	<u>38</u>	<u>14</u>	<u>3</u>	<u>16</u>	.	<u>21</u>	118	<u>99</u>	.	<u>124</u>
Total	<u>44</u>	<u>56</u>	<u>55</u>	<u>111</u>	<u>58</u>	<u>52</u>	<u>65</u>	<u>5</u>	<u>148</u>	550	<u>298</u>	<u>2</u>	<u>218</u>

- Currently 441 issues fixed / 671 open (2.0: 572 fixed / 301 open)
- For actual reports, see the Bug Process page at [http://www.eclipse.org/dsdp/tm/development/bug\\_process.php](http://www.eclipse.org/dsdp/tm/development/bug_process.php)
- Release Exit Criteria
  - 0 Major or Critical Bugs, Release Test Pass

# Standards



- RFC 959 FTP
  - Also supports RFC 1579 firewall-friendly FTP
  - Supported through Jakarta Commons/Net
  - For details, see <http://jakarta.apache.org/commons/net/>
- RFC 4251 ssh2
  - Also supports RFC 4252, 4253, 4254, 4256 (KI-authentication)
  - draft-ietf-secsh-filexfer-13 for sftp
  - Supported through com.jcraft.jsch
  - For details, see <http://www.jcraft.com/jsch/>

# UI Usability



- Externalization and Accessibility guidelines followed
  - Keyboard accessibility of all items verified
  - Menu items for special keys
  - Messages marked up properly for screen readers
- All UI-visible Strings are externalized
- Externalization mostly through Eclipse NLS mechanism, partially through systemMessages.xml (diminished in 3.0)
- Localization will be done by IBM (for WebSphere), and Eclipse Babel project

# Schedule



- Original Planning document on the Wiki
- Original project plan posted 11-Oct-2007
  - Migrated to XML format on 27-May-2008
- All milestone dates were hit except M7
  - 1 week delay due to delay in Platform and CDT
  - Used extra time to finish API Review with API Tooling for the API Freeze
- Community Contributions integrated in time
- Focus on API and hi-priority issues: Many low-priority bugs deferred to TM 3.0.1 or Future

# Process



- Strong focus on Open, Transparent Planning and Execution:
  - Collected [Use Cases](#) available from the Web
  - Open Planning process, Features and Technical Working Groups maintained on Bugzilla, with “Overview” index entries on the [Wiki](#)
  - Made all communications public on the Mailing List, Regular phone conferences open to the public
- Committers: set up and documented guidelines for bug handling, due diligence, compiler warnings and code ownership
  - All linked from the Committer HOWTO on <http://www.eclipse.org/dsdp/tm/development/>
- Infrastructure: Automated nightly builds, CVS Changelog, Automated nightly infocenter update
  - Adopting Modeling Releng on [dsdp.eclipse.org](http://dsdp.eclipse.org)
- Planned and coordinated testing involving the greater community
  - See [http://wiki.eclipse.org/index.php/TM\\_3.0\\_Testing](http://wiki.eclipse.org/index.php/TM_3.0_Testing)



# *Committers and Contributors*



- 11 committers from 3 organizations (WindRiver, IBM, ProSyst, private)
  - Was 8 committers in 2.0; 5 new committers won, 2 de-committerized
- Direct contributions from 23 other individuals (was 5 in 2.0)
- Active participation (tests) from many others
- Mailing list and Newsgroup participation from Accelerated Technology, ARM, Cisco, Ericsson, Intel, Freescale, QNX, TI and many others
- Monthly development calls, Weekly committer calls
  - Opportunity to review status
  - Developer/design discussions: committers work closely together



- RSE “out of the box” is a useful tool for lots of people
  - Ssh, sftp, ftp file transfer; remote and local shell access
  - More and more development happens in “connected” environments
- Embedded is rapidly adopting Eclipse
  - Commercial Adoption according to a Survey by ACCESS, Ames DOE Lab, Atmel, Elastos, EMAC Inc, IBM, Festo Inc, Freescale, Montavista, QNX, Symbian, Tradescape, WindRiver
- Talks at EclipseCon 2007, 2008; EclipseSummit Europe 2006, 2007; Webinar
- Press activity as part of DSDP, individual articles in magazines
- A well-respected and known member of the Community

# *Publications and Conference Talks*



- Publications and Conference Talks
  - TM Webinar, April 2007,  
<http://live.eclipse.org/node/229>
  - DSDP Drives Adoption of Eclipse in Embedded, April 2007,  
<http://www.eclipse.org/org/press-release/20070403embedded.php>
  - EclipseCon Tutorial, March 2007,  
<http://www.eclipsecon.org/2007/index.php?page=sub/&id=3651>
  - Eclipse Summit Europe, October 2007,  
<http://www.eclipsecon.org/summiteurope2007/index.php?page=detail/&id=21>
  - EclipseCon Tutorial, March 2008,  
<http://www.eclipsecon.org/2008/?page=sub/&id=38>
  - Eclipse Magazin (German), May 2008, 6-page project article



As per the Eclipse IP Policy, the project verifies that:

- ... the about files and use licenses are in place as per the Guidelines
- ... all contributions (code, documentation, images, etc) have been committed by individuals who are Members of the Foundation and are abiding by the Eclipse IP Policy (training through Committer HOWTO)
- ... all significant contributions have been reviewed by the Foundation's legal staff – even if written by committers prior to joining Eclipse
- ... third-party libraries, have been documented in the release and reviewed by the Foundation's legal staff
- ... all contribution questionnaires have been completed
- ... the "provider" field of each plug-in is set to "Eclipse.org"
- ... the "copyright" field of each plug-in is set to the copyright owner
- ...there are no 3<sup>rd</sup> party logos or fonts to be licensed under the EPL
- See the IP Log at <http://www.eclipse.org/dsdp/tm/development/tm-log.csv>



## *Future Plans*

- Service Releases with the Ganymede train
  - TM 3.0.1 and 3.0.2
- Shooting for backward compatibility next year
  - TM 3.1 release in June 09 to be backward compatible
- A preliminary collection of potential plan items has been collected on the Wiki at [http://wiki.eclipse.org/index.php/TM\\_Future\\_Planning](http://wiki.eclipse.org/index.php/TM_Future_Planning)
  - Most likely items
    - TCF – Component to exit incubation
    - Multicore – better framework for multiple targets
    - Scaling Down – Further componentization, becoming more RCP-aware and applicable for headless
    - Launch Action Framework in TM Core

# Thank You



And please provide feedback...

- Join the Testers on

[http://wiki.eclipse.org/index.php/TM\\_3.0\\_Testing](http://wiki.eclipse.org/index.php/TM_3.0_Testing)

- [https://bugs.eclipse.org/bugs/enter\\_bug.cgi?product=Target%20Management&component=RSE](https://bugs.eclipse.org/bugs/enter_bug.cgi?product=Target%20Management&component=RSE)

- Talk to Developers on

[dsdp-tm-dev@eclipse.org](mailto:dsdp-tm-dev@eclipse.org)

<news://news.eclipse.org/eclipse.dsdp.tm>