# eclipse

### DSDP Target Management 3.1 In the Galileo Coordinated Release

*Eclipse Development Process version 2.4 – August 20, 2008 Slide deck v1 – June 3, 2009* 

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### Spotlight Talking Points



- TM 3.1 New Features
  - RSE Team Synchronize integration (GSoC contribution)
  - Generic Terminal now also for Telnet
  - Several smaller performance / usability improvements
- API Quality:
  - Few well-reviewed API additions backed by API Tooling.
  - Fully binary compatible with TM 3.0
- End-of-Life issues:
  - Remote CDT Launcher moved to the CDT project, but still very active
  - TM Discovery component no longer actively developed
  - Parts of RSE client moved from Java 1.4 to Java 5
- 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:
  - 10 committers (5 WindRiver, 4 IBM, 1 MontaVista) was 11 in 3.0
  - 18 additional contributors: WindRiver, IBM, Xored, Individual was 23 in 3.
  - Continued high traffic on newsgroup and mailing lists

### **DSDP** Target Management – Introduction



- Major project milestones
  - Project Created June 2, 2005
  - RSE 1.0 Nov 12, 2006
  - TM 2.0 and 3.0 on Europa and Ganymede respectively
- Strong uptake on TCF component this year (still incubating though)
  - EclipseCon 2009 Tutorial on TCF specifically
  - Separate TCF mailing list, lots of contributions
- Remote System Explorer (RSE) stable after strong growth last year
  - 1 new committer but 2 lost due to changing jobs (-1)
  - 10 individual contributors to RSE, mostly from IBM
  - Newsgroup still quite active
- TM 3.1 project size
  - RSE: 356 kLOC + TCF: 162 kLOC (R3.0: 346k + 97k)

### 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
- 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 3.1 New Features

3.1 Plan available at

http://www.eclipse.org/projects/project-plan.php?projectid=dsdp.tm

- New Features mostly smaller items
  - Platform/Team Synchronization (GSoC contribution)
  - Generic Terminal now also for Telnet
  - Locating an item in the RSE tree from other views
  - Configurable sharing of cached files across connections
  - Performance improvements and bug fixes
- Plan items that were deferred
  - Bring TCF and WinCE to maturity, add Terminal public API
- API review and cleanup:
  - Starting to use PropertyTesters
  - New RSE ITerminalService, along with generic IShellService
- 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: 3.1 Status



- During the 3.1 cycle, Eclipse API Tooling was (again) 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: 833 API types / 1354 non-API (3.0: 935 API / 1476 non-API)
  - 3.1 showed that current APIs are maintainable. No new weaknesses added.
- RSE Core Model Subsystem / Services / Filters API
  - 5 clients in RSE, plus 2 examples
  - New ITerminalService created from scratch
  - 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: 3.1 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 (PropertyFileProvieder, MetadataPropertyFileProvider, SerializingProvider)
  - Javadoc
  - No Unit Tests
- Previous RSE 3.0 release is binary compatible

### Architectural Issues



- Well-proven extensible subsystem / services concept
  - New subsystem ideas implemented by Community
- Legacy code (especially RSE) still not fully cleaned up
  - Need to make use of more modern functionality from the Platform
  - Better UI / Non-UI separation and componentization
  - TCF's new technology is much cleaner
- 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
  - Disconnected "Remote Development (RDT)" effort at IBM / PTP

### 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
- Shell and Processes subsystems out of the box, generic framework for vendor-specific subsystems (e.g. Symbian VNClike phone browser)
- Lightweight embeddable Terminal widget
- DNS-SD Service Discovery (no longer maintained)

### End-of-life



- Remote CDT Launcher moved into CDT but still very active
  - New feature: execute shell commands before launch
- Service Discovery no longer actively maintained
- Parts of RSE client switched from Java 1.4 to Java 5
  - Dstore server is still Java 1.4

# Bugzilla



| TM 3.1 Bugs fixed by Target Milestone |    |    |    |    |    |    |     |     |     |           |  |     |       |     |     |        |       |
|---------------------------------------|----|----|----|----|----|----|-----|-----|-----|-----------|--|-----|-------|-----|-----|--------|-------|
|                                       | M2 | M3 | M4 | M5 | M6 | M7 | RC1 | RC2 | RC3 | 3.1 Fixed |  | 3.1 | 3.1.1 | 3.2 |     | Future | Total |
| blocker                               |    |    |    | 1  |    |    | 1   |     |     | 2         |  |     |       |     |     |        | 0     |
| critical                              | 1  | 1  |    | 1  |    | 2  |     |     | 1   | 6         |  |     |       |     | 1   |        | 1     |
| major                                 | 1  | 3  | 3  | 3  | 1  | 1  |     |     |     | 12        |  | 1   | 2     |     | 10  | 2      | 15    |
| normal                                | 26 | 39 | 18 | 20 | 17 | 31 | 6   | 3   | 4   | 164       |  | 137 | 10    | 3   | 96  | 51     | 297   |
| minor                                 | 1  | 2  |    | 1  | 2  | 3  | 1   | 1   |     | 11        |  | 35  | 3     |     | 23  | 37     | 98    |
| trivial                               | 1  | 1  |    |    |    | 1  | -   |     |     | 3         |  | 7   | 2     |     | 4   | 4      | 17    |
| enhanc                                |    |    |    |    |    |    |     |     |     |           |  |     |       |     |     |        |       |
| ement                                 | 2  |    | 6  | 9  | 3  | 5  | 1   | -   |     | 26        |  | 49  | 2     | 4   | 96  | 111    | 262   |
| Total                                 | 32 | 46 | 27 | 35 | 23 | 43 | 9   | 4   | 5   | 224       |  | 229 | 19    | 7   | 230 | 205    | 690   |

### Statistics as of 3-Jun-2009

Currently 224 fixed in 3.1 / 690 open (3.0: 441 fixed / 671 open)

- Backlog constant, did not meet our backlog reduction goals
- Retargeting needed for 229 bugs originally planned for 3.1
- http://www.eclipse.org/dsdp/tm/development/bug\_process.php

### Release Exit Criteria: 0 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 (further diminished in 3.1)
- Localization will be done by IBM (for WebSphere), and Eclipse Babel project

### Schedule



- Original Planning document on the Wiki
- Original XML project plan posted Aug-2008
  - Helped on XML plan format specification
- Milestone dates were hit with max. 3 days delay
- Some Community Contributions still pending
  - "Local Terminal" was not finished due to missing CDT prereq

### 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
- Planned and coordinated testing involving the greater community
  - See http://wiki.eclipse.org/DSDP/TM/Testing/3.1m5

### **Committers and Contributors**



- 10 committers from 3 organizations (WindRiver, IBM, MontaVista)
  - Was 11 committers in 3.0; 1 new committers won, 2 lost due to job change
- Direct contributions from 18 other individuals (was 23 in 3.0)
- Active participation from many others
- Mailing list and Newsgroup participation from ARM, Cisco, Ericsson, Intel, Freescale, QNX, TI and many many others
- Monthly development calls, Bi-weekly committer calls
  - De-facto all calls are committer calls
  - Opportunity to review status
  - Developer/design discussions: committers work closely together

## Community



- 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's since 2007; EclipseSummit Europe since 2006; 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

### **IP** Issues



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 DSDP"
- ... 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 automated IP Log at http://www.eclipse.org/projects/ip\_log.php?projectid=dsdp.tm

### Future Plans



- Service Releases with the Galileo train
  - TM 3.1.1 and 3.1.2
- Shooting for backward compatibility again next year
  - TM 3.2 release in June 10 to be backward compatible
- Moving forward on deferred items from the 3.1 plan
  - Bug backlog reduction
  - Performance, Scalability, Usability
  - TCF Component to exit incubation
  - Multicore better framework for multiple targets
  - Scaling Down Further componentization, becoming more RCPaware and applicable for headless





And please provide feedback...

dsdp-tm-dev@eclipse.org

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















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- User documentation and tutorials
  - http://dsdp.eclipse.org/help/latest/
  - Automatically updated from nightly builds
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#### Bugzilla

Statistics as of 3-Jun-2009

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|----------|--------------------------------|----|----|----|----|----|-----|-----|-----|-----------|--|------------------------|-------|-----|-----|--------|-------|--|
|          | M2                             | мз | M4 | М5 | M6 | М7 | RC1 | RC2 | RC3 | 3.1 Fixed |  | 3.1                    | 3.1.1 | 3.2 |     | Future | Total |  |
| blocker  |                                |    |    | 1  |    |    | 1   |     |     | 2         |  | · ·                    |       |     |     |        | 0     |  |
| critical | 1                              | 1  |    | 1  |    | 2  |     |     | 1   | 6         |  |                        |       |     | 1   |        | 1     |  |
| major    | 1                              | 3  | 3  | 3  | 1  | 1  |     |     |     | 12        |  | 1                      | 2     |     | 10  | 2      | 15    |  |
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