Eclipse Project 3.6 Release Review

Eclipse Project PMC

Highlights

- 3.6 new features:
    - New platforms: PPC-64, Ubuntu LTS, Windows 7
    - Flexible resources, open file from command line, WebKitGTK+ browser, help extensibility, new accessibility API, O/S task bar integration, Java formatter improvements, import plugin from CVS, API usage reporting, Junit 4 support in test framework
- API quality:
    - High. 11 entries in porting guides.
    - Binary compatible for compliant plug-ins
    - New API: 181 types, 218 methods
    - Deprecated API: 13 types, 9 methods, 17 fields
    - 10 breaking changes: Platform (10), JDT (0), PDE (0)
- End-of-life issues:
    - Bundles org.eclipse.team.cvs.ssh and org.eclipse.core.resources.compatibility removed (no API)
- 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:
    - 108 committers, 55 active in past 9 months
    - Organizations: IBM, Anywhere Technologies, BestSolution, EclipseSource, Freescale, Intel, Red Hat, Sonatype, Tasktop
    - Geographies: Canada, USA, India, Switzerland, Poland, Germany, Austria, Japan, France
    - Commits: IBM (94%), Individuals (2%), Freescale (2%), others <1% each
    - Over 275 patches accepted from the community this release
    - Consumed by many other Eclipse projects

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Themes and Plan Items

- ## Platforms
  - Windows 7
  - Ubuntu
  - Focus on accessibility

- ## Robustness
  - Help system extensibility
  - Asynchronous debug commands
  - Flexible resources
  - API tools usage scan improvements
  - Focus on compatibility

- ## Consumability
  - Build anywhere
  - Test framework support for JUnit 4
  - Patch enhancements
  - Debug and launch enhancements

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

Themes and Plan Items

- Deferred plan items:
  - Java SE 7 support (due to delayed Java 7 release, and lack of public specifications)
  - BIDI improvements

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

New and Noteworthy - Platform

- Open file from command line
- Resource filters
- Dynamic path variables
- Support for 64-bit PPC
- Virtual folders
- Create links on import
- WebKitGTK+ Browser widget
- Path patterns and relative paths in open resource dialog
- Keybindings in quick access popup
- Search keywords in wizards
- Canceling long-running operations in wizards
- Progress integrated in native task bar
- Print dialog remembers user settings
- UNIX file permissions
- Editable linked resource locations
- New options when dragging and dropping resources
- Grouping by license in install wizard

- NTLMv2 proxy support
- Compare configurations in local history
- Handling unmappable characters on save
- Fix multiple problems in problem hover
- Improved content assist for getter/setter proposals
- Folded annotations visible in editor ruler
- Working sets when applying patches
- Improved CVS configure branches and versions
- Link with editor in Synchronize view
- Logical models in commit wizard
- Sorted diffs in patches
- Apply patch in Synchronize view
- Ignore leading path segments in patch wizard
- Enhanced Open With actions in compare editor
- Columns in Expressions view
- Breakpoint detail panes

New and Noteworthy - Platform

- Customizable help footer
- Customized sorting of help topics
- Reusable intro news reader
- Extensible help UI
- Extension point for help search
- Scoping by criteria in help system
- Headless external tool builders
- Platform test framework support for JUnit 4
- Icon support for GTK text widgets
- Mozilla browser support on Solaris SPARC
- Browser closing API
- Key events for F16-F20
- DnD insertion feedback for tables
- Horizontal mouse wheel support
- Variable tab stops in StyledText
- Customize tab stops by line in StyledText
- Get/set margins in Clabel
- Key location
- New API in Scrollbar
- State mask for selection events
- Orientation event

- Browser#setURL can specify post data and headers
- Wrap indent in StyledText
- Improved bidi segments support
- Right-to-left text support on Cocoa
- Widget skin engine support
- New layout API
- Browser#setText can restrict permissions
- New SWT accessibility API
- SWT#OpenDoc event
- Program working directory support
- XULRunner 1.9.2 support
- TaskItem overlay images and text
- TaskItem progress overlay
- TaskItem menu support
- CTabFolder custom renderer support
- Custom traversals
- Draw background at offset

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New and Noteworthy - JDT

- Export java code style preferences
- New code formatter options
  - Insert new line after label
  - Align element-value pairs in annotations
  - Align method declaration
  - Control formatting in code sections
  - New strategy for wrapping nested method calls
- New comment formatter options
- Javadoc hovers include annotations
- Javadoc hovers render @value
- Extract Method improvements
- Move type to new file refactoring
- Report missing @Override for method implementations
- New "rawtypes" token for @SuppressWarnings
- @SuppressWarnings for optional errors
- Compiler detects unused object allocation
- Type hierarchy computed in background

- Remove nodes from call hierarchy
- New Open Implementation command
- Import/export formatter preferences
- New headless JDT JUnit plugin
- JUnit imports test results with <skipped> nodes
- Two versions of JUnit plugin
- Edit test method in Junit launch configuration
- New categories for JDT preference import/export
- Improved refresh in Call Hierarchy
- Junit view opens test result URL
- Opening attached Javadoc now uses preferred web browser
- Find broken externalized strings improvements
- Instance counts in debugger
- Java breakpoint detail pane
- Source attachment for referenced JARs
- New build path error decorator
- Package name abbreviations

New and Noteworthy - PDE

- XML error reporting in context help editor
- Spelling checking in TOC editor
- Headless launching support
- Console log on by default
- Configurable problem severities for build.properties
- Synchronize Java search with target platform
- Support software installation while running and debugging
- Plug-in specific compiler arguments
- Custom compiler arguments
- Import plug-ins from CVS
- Export target content
- Compare with baseline new reports deprecations

- Add to target platform dialog
- Search repositories quick fix
- API use reports
- Customize API use scan reports
- Enhanced build.properties validation
- API use report filters and details
- OSGi console in Console view
- Enhanced compiler options for PDE build
- Synchronize project settings with PDE build
- API for plug-in project creation
- Feature-based launches
- Feature-based targets

3.6 Plug-in Changes from 3.5

Added Plug-ins (4)

- org.eclipse.ant.launching
- org.eclipse.core.externaltools
- org.eclipse.jdt.junit.core
- org.eclipse.pde.launching

Added 3rd Party Plug-ins (4)

- org.junit version 4.8.1
- org.eclipse.equinox.event
- org.eclipse.equinox.p2.operations
- org.eclipse.equinox.p2.ql

Removed Plug-ins (2)

- org.eclipse.core.resources.compatibility
- org.eclipse.team.cvs.ssh

Removed 3rd Party Plug-ins (1)

- org.eclipse.equinox.p2.exemplarysetup

Note: 3rd party plug-ins are plug-ins consumed in the Eclipse SDK but not produced by the Eclipse Project

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Non-Code Aspects

- The 3.6 release will contain updated User and ISV documentation

- Community is very active
  - Mailing lists, newsgroups, and forums have steady activity
  - Blogs dedicated to Eclipse are active e.g.
    - http://planeteclipse.org
  - Wiki content is growing
    - http://wiki.eclipse.org/index.php/Eclipse_Project
    - E4 wiki: http://wiki.eclipse.org/E4

Non-Code Aspects

- # Internationalization
  - Latin1 and Latin2 locales are supported in all operating environments
  - DBCS locales are supported on all platforms
  - BIDI locales (with mirroring) supported on Windows and Linux GTK, BIDI text supported on Mac.
  - GB18030-1 Chinese codepage standard is supported on Windows, Linux GTK and Mac.

- # Localization
  - Tested for Localization and participating in Babel Project

- # Accessibility
  - Tested for accessibility
  - Open accessibility bugs: 9 major, 0 critical, 0 blocker
  - Major new accessibility API in 3.6; better integration with screen readers

Non-Code Aspects

- ## Articles, examples, and tutorials
  - New and updated articles and tutorials on eclipse.org
  - Numerous Webinars and Podcasts
  - Some of the new/updated articles and tutorials were provided by the Eclipse community
  - Older articles need to be reviewed and updated for 3.6, if applicable

Platform Quality API

- API quality is a collaborative effort that involves the experience of the developers working on the Eclipse project, and feedback from consumers.
- API changes and proposed API additions are often broadcast to mailing lists to raise awareness of the changes and encourage discussion and feedback.
- API changes between 3.5 and 3.6 are checked automatically by API tooling integrated into integration build process.
- The 3.6 migration guide identifies 11 changes:
    - http://dev.eclipse.org/viewcvs/index.cgi/org.eclipse.platform.doc.isv/porting/3.6/incompatibilities.html?view=co
    - http://dev.eclipse.org/viewcvs/index.cgi/org.eclipse.jdt.doc.isv/porting/3.6/incompatibilities.html?view=co

    - For each, a description of the change, what code is affected, and the action that needs to be taken is described.
    - We are not aware of any API compliant plug-ins breaking as a result of these changes.
    - The 3.6 migration guide also describes changes required to adopt mechanisms and APIs that are new in 3.6.
- The PMC is comfortable supporting the API that is in the Eclipse project 3.6

Tool Usability

- Eclipse is a superior IDE for Java tooling and plug-in development
- Many usability enhancements made in 3.6 to continue this tradition
  - Open file in editor from command line
  - Flexible resource model: resource filters, virtual folders, patch variables
  - Improved target platform support in PDE
  - Support to import a running plug-in as source from repositories
  - Many new code and comment formatter options
  - Several patch wizard improvements
  - Breakpoint detail panes
  - And many more tooling improvements!

Architectural Issues

- Primary runtime is still a 1.4 JRE. Complementary functionalities on Java SE 5 (junit4, APT 5) and Java SE 6 (APT 6, compiler API)
- Reference JREs for development and testing updated to most recent releases
- 8 new plug-ins, 3 removed plug-ins
  - 4 new plug-ins in platform
  - 2 removed plug-ins in platform (org.eclipse.team.cvs.ssh, org.eclipse.core.resources.compatibility)
  - 4 new plug-ins due to external dependencies (Equinox, Orbit)
  - 1 plug-in removed due to external dependency (org.eclipse.equinox.p2.exemplarysetup)
- All new platform plug-ins due to refactoring existing capabilities into "headless" bundles with no UI dependencies

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End of Life Issues

- When evolving API the Eclipse Platform will, whenever possible, deprecate the affected API methods and continue to keep them operational.

- Exceptions to this rule are in the 3.6 migration guide.

- Introduced a process for removing invalid/outdated API
  - Balance need for API stability with API simplicity for clients and maintainability for platform developers
  - Process includes announcing through various channels and waiting two years for community feedback prior to removal
  - A small set of candidates identified for removal in 2012
  - http://wiki.eclipse.org/Eclipse/API_Central/API_Removal_Process

Bugzilla

- Between June 25, 2009 and May 28, 2010 (RC3)
  - More than 8,200 reports were created
  - Over 6,600 were resolved
  - 331 were backported to 3.5.x maintenance
- Current state (RC3) is
  - 7 blockers, 40 critical
  - 0 P1, 47 P2
- 3.5 final state was
  - 18 blockers, 41 critical
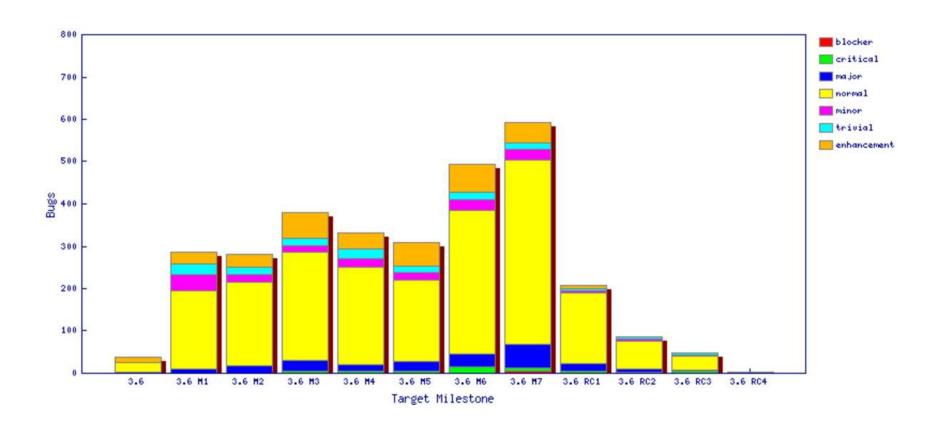 - 0 P1, 49 P2

Bugs fixed during 3.6

Target Milestone

Severity		3.6	3.6 M1	3.6 M2	3.6 M3	3.6 M4	3.6 M5	3.6 M6	3.6 M7	3.6 RC1	3.6 RC2	3.6 RC3	3.6 RC4	Total
	blocker	.	.	.	.	.	1	1	4	.	.	1	.	7
	critical	.	1	1	5	4	4	13	9	4	2	3	.	46
	major	2	10	16	26	17	24	32	56	20	9	4	.	216
	normal	23	184	199	255	229	192	339	435	166	66	33	2	2123
	minor	.	38	16	15	22	18	25	26	5	5	2	.	172
	trivial	1	24	18	19	21	14	17	15	6	3	5	.	143
	enhancement	11	28	32	60	38	56	67	47	7	2	1	.	349
Total		37	285	282	380	331	309	494	592	208	87	49	2	3056

Fixed bugs

Standards

- Annotation Processing APIs
  - com.sun.mirror 1.5
  - javax.annotation.processing 1.6
- Java compiler API
  - javax.tools 1.6
- User Assistance consumes (parses) a small subset of RSS 1.0 to get news from eclipse.org
- JUnit 3.8.2 and JUnit 4.8.1
- J2SE
  - Tools are built against J2SE 1.4
  - Compiler can generate 1.3, 1.4, 1.5, and 1.6 code
  - Clients can run 1.4, 1.5 or 1.6.
- SWT
  - Win32, GDI, GDI+, OLE, IE, Carbon, Cocoa, Core Graphics, Quick Draw, Safari, ATSUI, X Windows, X/t, Motif, GTK, GDK, Pango, cairo, ATK, Mozilla, Uniscribe, WPF, OpenGL

UI Usability

- Strings are externalized to support translation into other languages.

- Extensive use of mnemonics and shortcut keys in the user interface enhances usability.

- Full Bidirectional support (mirroring) on Windows and Linux GTK, bidirectional text on Mac OS X

- Accessibility support for Windows, Linux GTK and Mac OS X

- Eclipse User Interface Guidelines followed

Schedule

- Milestones every 6 weeks, 6 cycle duration
  - API frozen on March 12 (M6), Feature freeze April 20 (M7)
  - http://www.eclipse.org/projects/project-plan.php?projectid=eclipse#release_milestones

- Tracked schedule
  - All milestones delivered as planned

- End game (release candidate) milestones for 4 cycles
  - Duration reduced from 2-week to 1-week cycles at RC2 milestone
  - No new features or API allowed without proper approvals
  - Development to end on June 3, 2010
  - Increasingly stringent approval, checking, and change notification requirements in this stage
  - http://www.eclipse.org/eclipse/development/plans/freeze_plan_3.6.php

Process

- The Eclipse project is developed using an open, transparent, and inclusive process
- Teams rely on Bugzilla, mailing lists and newsgroups for input
- Weekly planning calls conducted with the PMC and component leads
  - Meeting minutes posted to the eclipse-dev mailing list
  - Public PMC minutes: http://wiki.eclipse.org/Eclipse/PMC
- Component teams have publicly available milestone plans
  - Use project's web space on eclipse.org to broadcast component milestone plan items and provide status on each item, per milestone

Community

- Eclipse team members are active in Bugzilla, newsgroups, and mailing lists
- Blogs started by Eclipse committers are evolving
  - Use blogging infrastructure at Eclipse.org
  - http://planeteclipse.org
  - Some teams are using the eclipse-dev IRC channel
  - irc.freenode.net#eclipse-dev
  - irc://irc.freenode.net/#eclipse-e4
  - also see: http://wiki.eclipse.org/index.php/IRC
- The Eclipse team participates in code camps, conference presentations, and tutorials, including
  - EclipseCon, JavaOne, JavaWorld, JAOO, Eclipse Summit Europe, Eclipse Forum Europe, JAX, JAX Asia, Eclipse Day India
- The Eclipse team interacts with other open source projects, standards bodies, and other projects on eclipse.org, including
  - OSGi, Apache Ant, JLS, WTP, Apache Harmony, GCJ, GTK

IP Issues

- All significant and third party contributions have been reviewed and approved by Eclipse legal.

- Eclipse Software User Agreement updated to April 14, 2010 version for all delivered features

- About files and license files are complete and correct.

- Draft project logs:
    - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.platform
    - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.pde
    - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.jdt

Project Plan for Eclipse 3.7/4.x

- 4.0 early adopter release scheduled for July 2010
  - Similar functionality to 3.6, but with new technology from e4
  - New look and feel
  - Widget styling with CSS
  - New programming model using injection and services
  - http://wiki.eclipse.org/Eclipse/Eclipse_SDK_4.0_FAQ
- 3.7 release planned for June 2011
  - Java 7 support
  - Accessibility improvements
  - Focus on stability
- 4.1 release planned for June 2011
  - Exploit new capabilities made available by e4 technology
  - Focus on innovation and improved platform API
  - Will include all features added in 3.7 release