



Eclipse Project Juno Release Review

Eclipse Project PMC



Highlights

- Shipping two platform releases simultaneously with Juno
- 4.2 primary platform, 3.8 with focus on stability
- New features appearing in both:
 - Cairo graphics on Linux, global debug toolbar, tracing preference page, custom PDE target API, new OSGi console, updated to Jetty 8 and Servlet 3.0, OSGi Core R5 spec implementation, SWT TreeCursor, custom colors in ColorDialog
 - Java tooling features: camel-case filtering in quick outline, improved bracket matching, better switch statement diagnostics, more quick fixes, smarter resource leak detection, Annotation-based null reference analysis
- 4.2 new features:
 - Improved drag support, styling refinements, animated part transitions, robustness
- API quality:
 - Both releases binary compatible for compliant plug-ins
 - Deprecated API: 10 types, 17 methods, 2 fields
 - Some documented breaking changes
 - New 4.2 API still internal and subject to change
- End-of-life issues:
 - Several non-API bundles removed in 4.2 – see End of Life Issues slide for details
- 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:
 - 50 active committers in past 9 months
 - Active organizations: BestSolution, Eclipse Source, Freescale, IBM, Intel, Manumitting Technologies, Red Hat
 - Geographies: Canada, India, Poland, U.K., USA, Switzerland, Germany, Austria, Japan, France
 - Many community patch contributions



Themes and Plan Items

- **Platforms**
 - Support for Java 7
 - BIDI enhancements
 - Migrate SWT graphics to Cairo
- **Robustness**
 - Transition to Git
 - Make Eclipse 4 enterprise ready
 - Build system consolidation
- **Ease of Use**
 - Annotations for null checking

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



Themes and Plan Items

- Deferred plan items:
 - Start work on Java SE 8 features
 - Note some work was completed in this area, but the plan item as a whole was deferred to a future release
 - Adopt new Windows 7 APIs
 - Support different target platforms per project

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



New and Noteworthy - Platform

- Editor area styling
- Multi-drag sash
- Fade transition on maximize
- Delete project dialog shows location
- VoiceOver context menu
- Short for context menu on Mac
- Editor area tab navigation
- New high resolution icon and splash
- Lightweight refresh on by default
- Full screen support on Mac
- Ant updated to 1.8.3
- Enhanced Ant editor support
- Add all known buildfile types to Ant view
- Saturated colors in overview ruler
- Filters in CVS sync view
- Global debug toolbar
- Improved editing of environment vars
- Improved launch config name validation
- Debug tracing
- Breakpoint view sorting
- Eclipse code migrated to Git
- Flexible viewer refactored
- Refactored Eclipse 4 event API
- Trim styling
- CSS-based theme change events
- Changes to CSS extension points
- New RelaunchLastAction API
- New breakpoint API
- Custom find in Variables view
- Help updated to run on Jetty 8
- Highlight TrayItem image
- New StyledText scroll and event API
- Configurable default SWT browser
- FontDialog effects
- New Combo API
- New TreeCursor API
- Upgraded to XULRunner 10
- Provide context menu trigger
- Custom colors in ColorDialog
- SWT browser function access
- SWT runtime introspection
- Overlay scrollbars



New and Noteworthy - JDT

- CamelCase in Quick Outline
- Quick assist for enhanced for loop
- Improved editor bracket matching
- Javadoc hover shows parameter annotations
- Pluggable class file viewer
- Quick assists in properties editor
- Default implementations for corrections
- Content assist in package-info.java
- Selectively ignore errors from source folders
- Incomplete switch over enum warning
- Better incomplete switch diagnostics
- Smarter resource leak detection
- New options to detect resource leaks
- Quick fix for using try-with-resources
- New batch compiler warning options
- New build path option for overlapping folders
- Annotation-based null analysis
- Batch compiler support for null annotations
- Improved messages for null analysis
- Detection of missing default null annotations
- Assert support in null analysis
- Faster Java search with pre-built indexes
- Encoding for source attachments
- Highlighting on errors/warnings pref page
- Export detail formatters
- Show monitors by default
- Toggle breakpoint modifier keys
- Now shipping JUnit 4.10



New and Noteworthy - PDE

- Plug-in vendor history
- Tracing preference page
- Import from repo in Package Explorer
- Add required in feature-based product
- Improved extension editor
- Cancelable workspace deletion
- Custom target locations
- Bundle classpath resolution API
- Non *.jar plug-ins in target platform
- Target definition configure phase
- API tools tracing
- EE descriptions updated



New bundles in 3.8 and 4.2

- com.sun.el
- javax.el
- org.apache.felix.gogo.command
- org.apache.felix.gogo.runtime
- org.apache.felix.gogo.shell
- org.apache.jasper.glassfish
- org.eclipse.equinox.bidi
- org.eclipse.equinox.console
- org.eclipse.jdt.annotation
- org.eclipse.ui.trace
- org.slf4j.api
- org.eclipse.jetty.continuation
- org.eclipse.jetty.http
- org.eclipse.jetty.io
- org.eclipse.jetty.security
- org.eclipse.jetty.server
- org.eclipse.jetty.servlet
- org.eclipse.jetty.util



Removed bundles

Removed bundles in 4.2

- org.apache.commons.el
- org.apache.commons.xpath
- org.apache.jasper
- org.eclipse.core.runtime.compatibility.auth
- org.eclipse.e4.core.contexts.debug
- org.eclipse.e4.emf.xpath
- org.mortbay.jetty.server
- org.mortbay.jetty.util

Removed bundles in 3.8

- org.apache.commons.el
- org.apache.commons.xpath
- org.apache.jasper
- org.mortbay.jetty.server
- org.mortbay.jetty.util
- org.eclipse.equinox.concurrent

Bundles never in 4.x stream

- org.eclipse.core.boot
- org.eclipse.help.appserver
- org.eclipse.ui.presentations.r21
- org.eclipse.ui.workbench.compatibility
- org.eclipse.update.core
- org.eclipse.update.scheduler
- org.eclipse.update.ui



Non-Code Aspects

- Project migrated to Git source control from CVS
- Major restructuring of build system
 - Fully migrated away from IBM-owned hardware
 - Fully hosted build and tests on eclipse.org
 - Test suites running on Hudson – some remaining test issues specific to test environment unresolved
- Participating in effort led by Eclipse Foundation to build Eclipse SDK with Common Build Infrastructure



Non-Code Aspects

- **Internationalization**
 - Latin1 and Latin2 locales are supported in all operating environments
 - DBCS locales are supported on all platforms
 - BIDI locales supported on all platforms
 - GB18030-1 Chinese codepage standard is supported on Windows, Linux GTK and Mac.
 - Significant BIDI work in 3.8: new Equinox text processor and text input widgets
- **Localization**
 - Tested for Localization and participating in Babel Project
- **Accessibility**
 - Tested for accessibility
 - Open accessibility bugs: 9 major, 0 critical, 0 blocker



Non-Code Aspects

- The 3.8 and 4.2 releases will contain updated User and ISV documentation
- First major user documentation update for 4.x stream
- Articles, examples, and tutorials
 - Several new and updated tutorials for Eclipse 4:
<http://wiki.eclipse.org/Eclipse4/Tutorials>
 - Numerous Webinars and Podcasts
 - Some of the new/updated articles and tutorials were provided by the Eclipse community



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 3.7 and 4.2 are checked automatically by API tooling integrated into integration build process.
- The 4.2 migration guide identifies 7 incompatible changes:
 - http://www.eclipse.org/eclipse/development/porting/eclipse_4_2_porting_guide.html
 - For each, a description of the change, what code is affected, and the action that needs to be taken is described.
 - Biggest impact is old presentation API which is incompatible with CSS theme engine
 - The 4.2 migration guide also describes changes required to adopt mechanisms and APIs that are new in 4.2.
- The PMC is comfortable supporting the API that is in the Eclipse project 4.2
- All new 4.x stream API is still x-internal and subject to change



Tool Usability

- Eclipse SDK is a superior IDE for Java tooling and plug-in development
- Many usability enhancements made in 3.8/4.2 to continue this tradition
 - Clean and skinnable new Eclipse 4 presentation
 - Detached editors and stacking views with editors
 - Mac full screen support
 - Numerous debugger improvements
 - Annotation-based null reference analysis
 - New quick fixes and assists for Java 7 features such as try-with-resources, enum switch, multi-catch



Architectural Issues

- First fully mature release of new Eclipse 4 user interface architecture: modeled user interface, pluggable rendering and skinning, dependency injection service design
- Primary runtime has moved to Java SE 6. Added Java 7 as reference platform
- Reference JREs for development and testing updated to most recent releases
- Windows (86%) still dominant download, above Linux (8%), Mac (6%)
- Starting transition towards GTK+ 3 with switch to Cairo graphics
- 18 new bundles, 15 removed bundles
 - 5 removed bundles and 11 added for move to Jetty 8 / Servlet 3.0
 - 8 removed bundles, related to functionality obsolete 6 or more years ago
 - 2 removed e4 bundles containing experimental or debugging function
 - 4 added bundles for new OSGi console
 - 3 added bundles for new BIDI API, JDT annotations, and dynamic tracing



End of Life Issues

- Removed legacy keyring encryption implementation. This was long ago replaced with Equinox secure storage API
- Removed some code that allowed plugins compiled against Eclipse 1.0-2.1 to run in Eclipse 3.0 without recompilation
- Removed Update Manager from Eclipse 4.2 SDK. It is unusable because it cannot read p2 repositories or metadata
- `org.eclipse.equinox.concurrent` no longer in Eclipse Platform: it was never part of the platform feature but included by an optional ECF dependency in the past
- When evolving API the Eclipse Platform will, whenever possible, deprecate API methods and continue to keep them operational
- Exceptions to this rule are in the 4.2 migration guide.
- A process in place for removing invalid/outdated API
 - http://wiki.eclipse.org/Eclipse/API_Central/API_Removal_Process



Bugzilla

- Between June 26, 2011 and June 5, 2012 (RC3)
 - More than 5,254 reports were created
 - Over 3,098 were resolved
 - Over 370 back-ported to 3.7.x and 4.1.x maintenance
- Current state (RC3) is
 - 5 blockers, 145 critical
 - 0 P1, 69 P2
- 3.7 final state was
 - 7 blockers, 98 critical
 - 1 P1, 50 P2



Bugs fixed during 3.8

Target Milestone

	3.8	3.8 M1	3.8 M2	3.8 M3	3.8 M4	3.8 M5	3.8 M6	3.8 M7	3.8 RC1	3.8 RC2	3.8 RC3	3.8 RC4	Total
Severity													
blocker	.	.	.	.	<u>1</u>	<u>2</u>	.	<u>2</u>	.	.	.	<u>1</u>	<u>6</u>
critical	.	<u>2</u>	<u>1</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>3</u>	<u>2</u>	.	<u>1</u>	.	<u>1</u>	<u>17</u>
major	.	<u>3</u>	<u>8</u>	<u>19</u>	<u>12</u>	<u>5</u>	<u>18</u>	<u>17</u>	<u>7</u>	<u>3</u>	<u>5</u>	.	<u>97</u>
normal	<u>10</u>	<u>46</u>	<u>68</u>	<u>114</u>	<u>102</u>	<u>108</u>	<u>132</u>	<u>128</u>	<u>36</u>	<u>11</u>	<u>10</u>	<u>3</u>	<u>768</u>
minor	<u>1</u>	<u>4</u>	<u>7</u>	<u>12</u>	<u>9</u>	<u>16</u>	<u>9</u>	<u>17</u>	<u>1</u>	.	<u>1</u>	.	<u>77</u>
trivial	.	<u>4</u>	<u>3</u>	<u>9</u>	<u>2</u>	<u>5</u>	<u>8</u>	<u>4</u>	<u>3</u>	<u>1</u>	.	<u>2</u>	<u>41</u>
enhancement	<u>2</u>	<u>4</u>	<u>10</u>	<u>27</u>	<u>12</u>	<u>17</u>	<u>25</u>	<u>17</u>	.	<u>3</u>	.	.	<u>117</u>
Total	<u>13</u>	<u>63</u>	<u>97</u>	<u>182</u>	<u>143</u>	<u>154</u>	<u>195</u>	<u>187</u>	<u>47</u>	<u>19</u>	<u>16</u>	<u>7</u>	<u>1123</u>



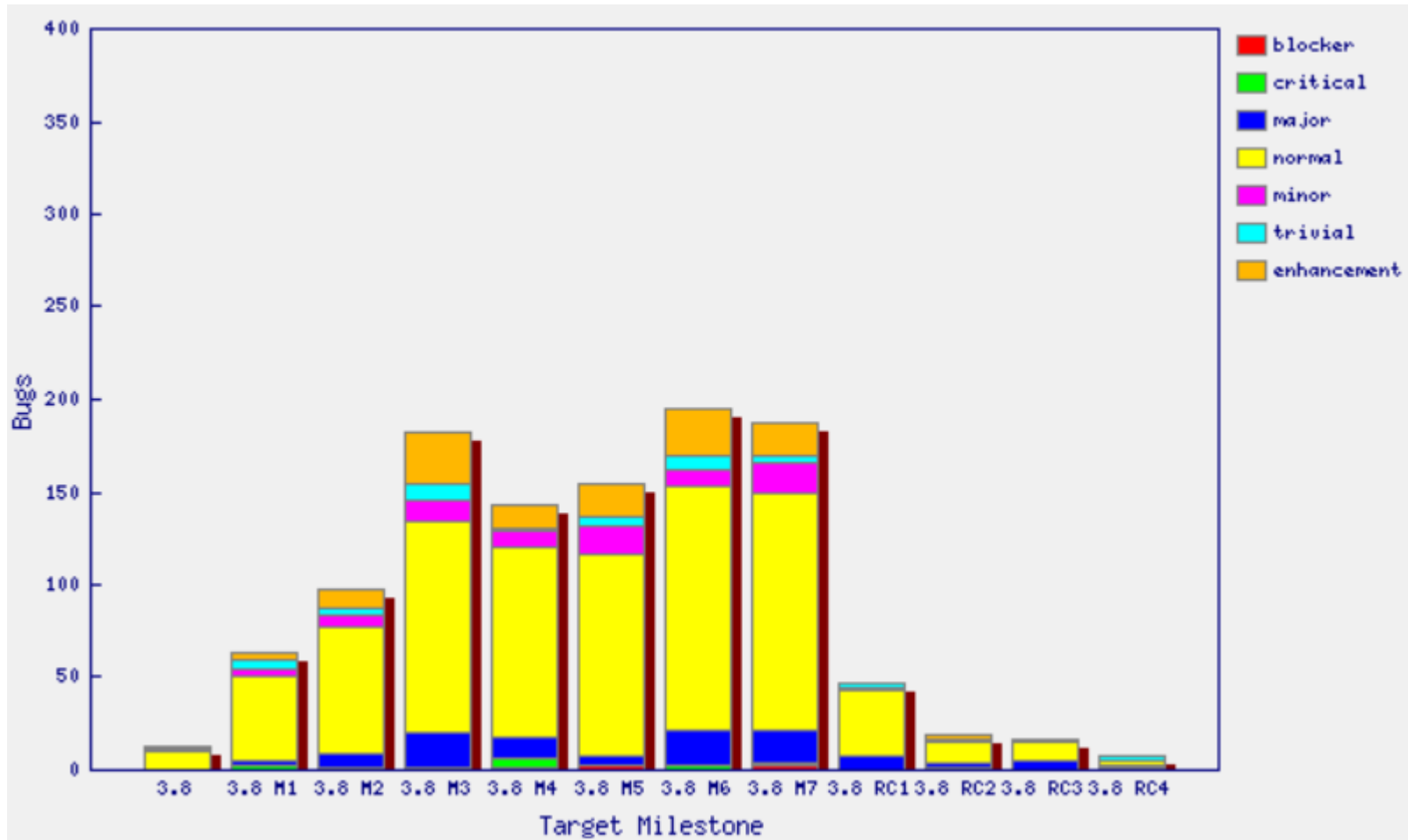
Bugs fixed during 4.2

		Target Milestone												
		4.2	4.2 M1	4.2 M2	4.2 M3	4.2 M4	4.2 M5	4.2 M6	4.2 M7	4.2 RC1	4.2 RC2	4.2 RC3	4.2 RC4	Total
Severity	blocker	.	<u>1</u>	<u>2</u>	.	<u>2</u>	.	<u>1</u>	<u>2</u>	.	.	<u>1</u>	.	<u>9</u>
	critical	.	<u>1</u>	<u>1</u>	<u>3</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>7</u>	<u>1</u>	<u>1</u>	.	.	<u>20</u>
	major	<u>1</u>	<u>4</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>7</u>	<u>12</u>	<u>23</u>	<u>2</u>	<u>3</u>	<u>2</u>	.	<u>72</u>
	normal	<u>1</u>	<u>14</u>	<u>21</u>	<u>49</u>	<u>48</u>	<u>48</u>	<u>71</u>	<u>138</u>	<u>32</u>	<u>19</u>	<u>13</u>	<u>3</u>	<u>457</u>
	minor	.	<u>1</u>	.	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	.	<u>1</u>	.	<u>10</u>
	trivial	.	.	.	.	.	<u>2</u>	<u>1</u>	<u>1</u>	.	<u>1</u>	<u>2</u>	<u>1</u>	<u>8</u>
	enhancement	<u>4</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>4</u>	<u>1</u>	<u>1</u>	.	.	.	<u>17</u>
	Total	<u>6</u>	<u>22</u>	<u>29</u>	<u>61</u>	<u>63</u>	<u>62</u>	<u>92</u>	<u>174</u>	<u>37</u>	<u>24</u>	<u>19</u>	<u>4</u>	<u>593</u>

Note: 1071 bugs fixed in 3.8 were also fixed in 4.2 but not included in the above table. A total of 1664 bugs were fixed in the 4.2 stream.

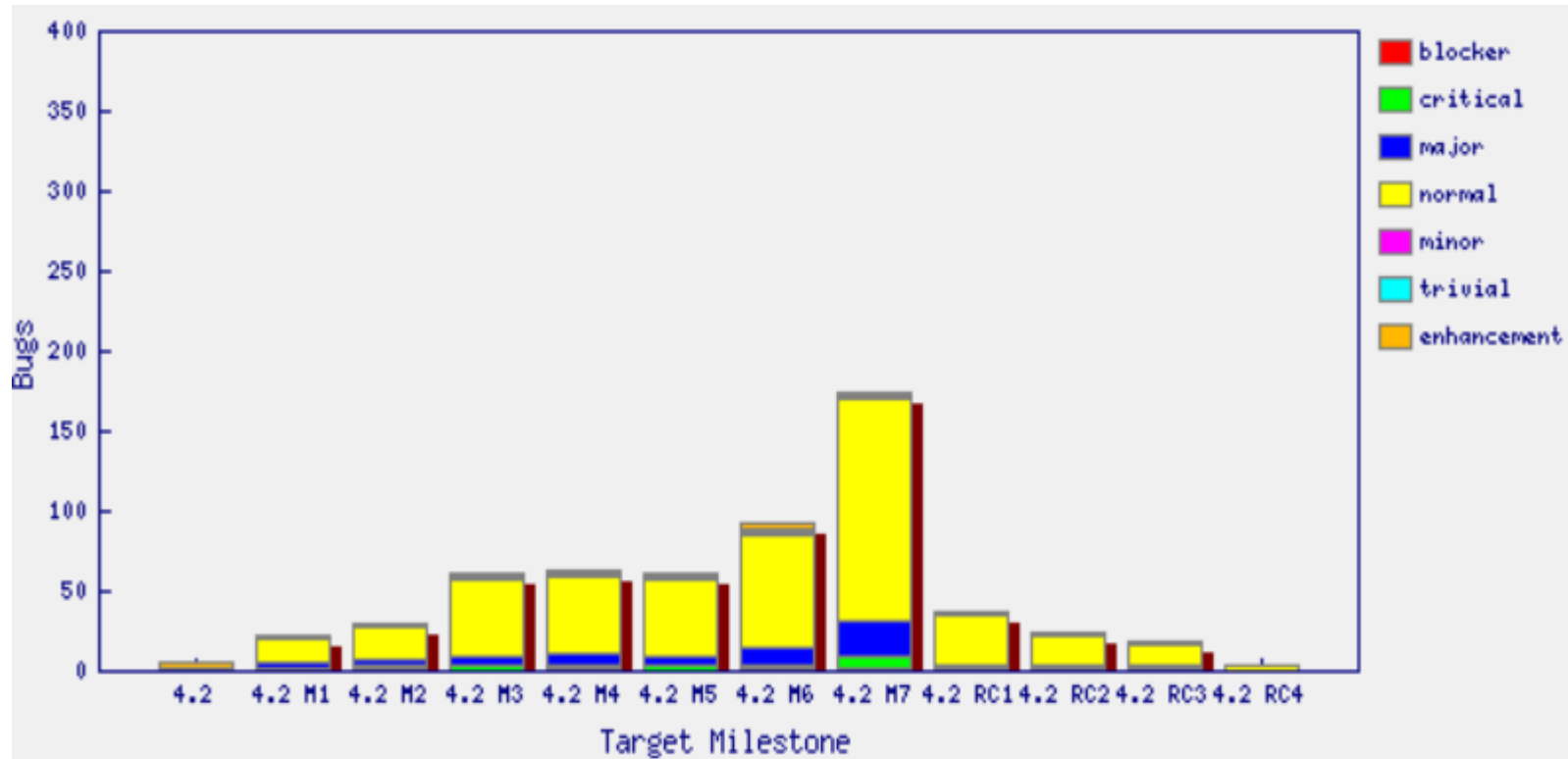


Fixed bugs – 3.8





Fixed bugs – 4.2





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 4.10
- Java SE
 - Tools are built against Java SE 6
 - Compiler can generate Java 1.1 through Java 1.7 code
 - Eclipse Platform can run on Java SE 6 or 7
- SWT
 - Win32, GDI, GDI+, OLE, IE, Cocoa, Core Graphics, Quick Draw, Safari, ATSUI, X Windows, X/t, GTK+, GDK, Pango, Cairo, ATK, Mozilla, Uniscribe, 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 16 (M6), Feature freeze May 4 (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
 - No new features or API allowed without proper approvals
 - Development to end on June 8, 2012
 - Increasingly stringent approval, checking, and change notification requirements in this stage
 - http://www.eclipse.org/eclipse/development/plans/freeze_plan_4_2.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: http://wiki.eclipse.org/Eclipse/Juno_Plan
 - 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 active in Bugzilla, forums, and mailing lists
- Many Eclipse blogs on <http://planet.eclipse.org>
- Some teams are using IRC to communicate
 - <irc://irc.freenode.net#eclipse-dev>
 - <irc://irc.freenode.net/#eclipse-e4>
 - also see: <http://wiki.eclipse.org/index.php/IRC>
- Major Eclipse presence on <http://stackoverflow.com>
- Large Android Eclipse community
- The Eclipse team participates in code camps, conference presentations, and tutorials, including
 - EclipseCon, EclipseCon Europe, Eclipse Demo Camps, JavaOne, JavaWorld, JAOO, JAX, JAX Asia, JSConf
- The Eclipse team interacts with other open source projects, standards bodies, and other projects on eclipse.org, including
 - OSGi, Apache Ant, JCP, WTP, GCJ, GTK



IP Issues

- All significant and third party contributions have been reviewed and approved by Eclipse legal.
- Eclipse Software User Agreement updated to February 1, 2011 version for all delivered features
- About files and license files are complete and correct.
- Final approved IP log:
 - <http://www.eclipse.org/eclipse/development/project-log-files/eclipse-project-4.2-log.html>



Future Plans

- 4.3 release planned for June 2013
 - Initial work on Java SE 8
 - Eclipse 4 API, robustness, and performance
 - Investigate port to GTK+ 3
 - Support running on Windows 8
- 3.8.1 and 4.2.1 maintenance releases
 - Bug fixes only