Eclipse Europa: New Features and Technical Integrations

Mike Milinkovich and Bjorn Freeman-Benson

Executive Director and Director, Process
Eclipse Foundation
http://www.eclipse.org/

TS-9920

Some New Features in Eclipse Europa

Better for Java™ platform, for web, for C++, for Ruby…

We assume you already know about Eclipse [open source Java™ integrated development environment (IDE) and so much more].

This talk is about new features and new languages.

Europa: New and Noteworthy

Eclipse Ecosystem

New Java Platform and Web Features

Some New APIs

New CDT Features

Dynamic Languages

Conclusion

The Members of Eclipse

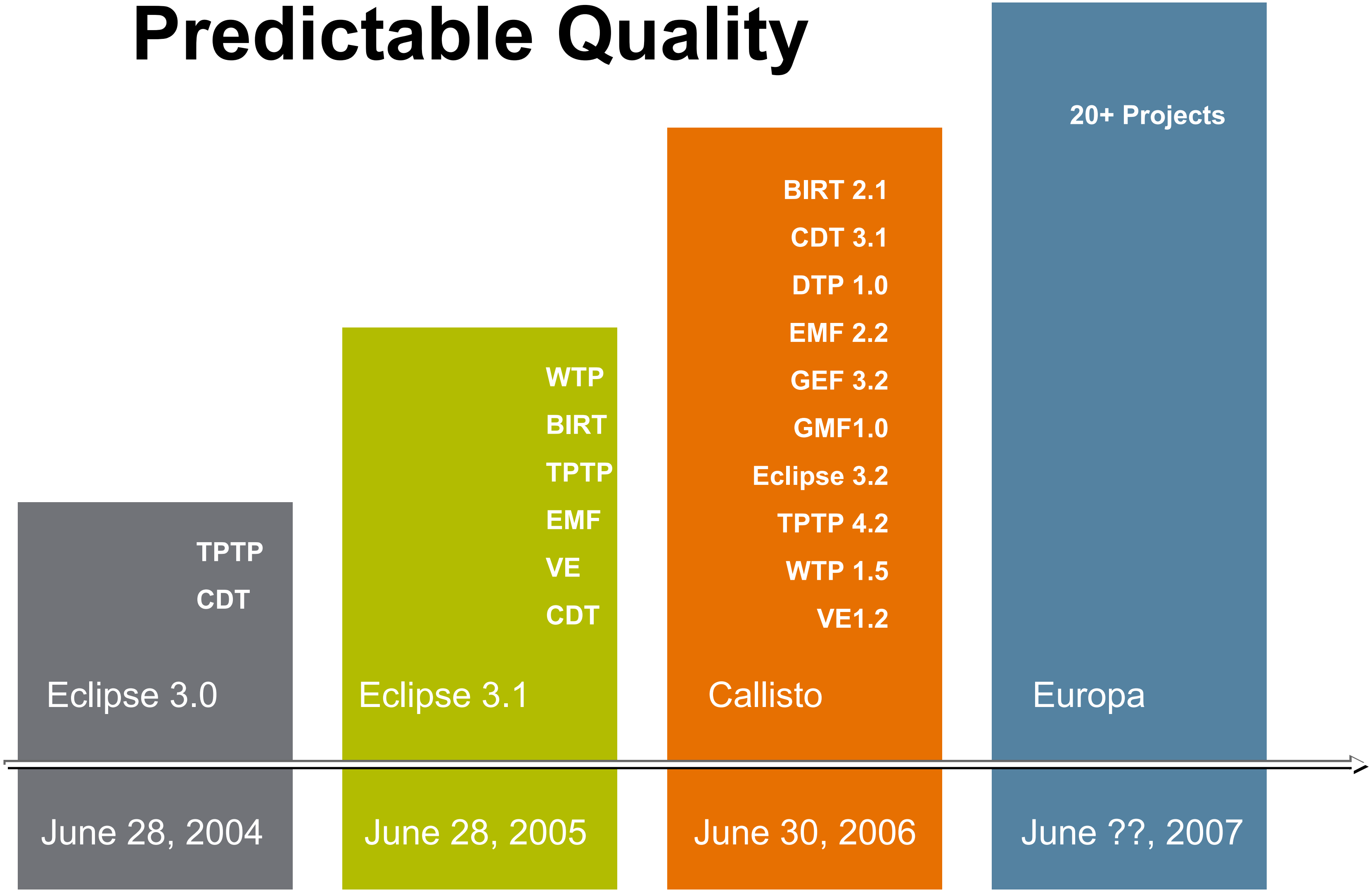
- 157 members (from 130 in March 2006)
  - 20 Strategic Members (from 16 in June 2006)
- 768 committers, representing 50+ organizations

Strategic Members

bea
Borland
ca Computer Associates
INNOOPRACT
ACTUATE
SYBASE
SAP
IBM
intel
WIND RIVER
COMPUWARE
NOKIA
ORACLE
open methods
simulalabs
Zend The php Company
SERENA
IONA

AccuRev
The new face of COBOL
ACUCORP
ARM
VTT
KJC
INSTITUT FÜR SOFTWARE
acm queue tomorrow's computing today
SocialPhysics.org
ETRI
ca Computer Associates
IONA
Borland
Agitar SOFTWARE
optena
INTALIO
Fraunhofer Institut für Offene Kommunikationssysteme
FOKUS
GENITECH
InetSoft open standards innovation
Carleton UNIVERSITY Canada's Capital University
COGNOS
intervoice
COLLABNET
SAP
NOKIA
ERICSSON
Discovery Machine Inc. Accelerating Innovation
Exadel
CAPE CLEAR Business Integration, Simplified.
ORACLE
TEI OF WESTERN MACEDONIA
OC SYSTEMS
IDG INTERNATIONAL DATA GROUP
Inpriva
IMEDIC
MICRO FOCUS
IBM
blackduck
Business Objects
Telelogic
mks Build Better Software
BANDXI INTERNATIONAL
genuitec
FORTIFY
EMBARCADERO TECHNOLOGIES
ALDON
SYBASE
AMD
slickedit
CMA
bea
montavista
nexaweb
ILOG Changing the rules of business
catalyst SYSTEMS CORPORATION
CODIGN SOFTWARE, LLC
salesforce.com Success On Demand
S&S Software & Support Verlag
anyware
ENEA
NEC Empowered by Innovation
FUJITSU
AvantSoft, Inc.
OCDemon MACRAIGOR SYSTEMS
palmsource
TIBCO The Power of Now
PARASOFT
MySQL
mValent
hp invent
helmi
LogicLibrary
EADS
Addison Wesley
Adobe
SUGARCRM COMMERCIAL OPEN SOURCE
JASPERSOFT
THALES
compeople technology in motion
DSDM CONSORTIUM
BZ Media
redhat
nexB
Novell
teamprise
Lombardi
PERFORCE
QNX Build a more reliable world
RTC Group
omondo THE LIVE UML COMPANY
Mentor Graphics
AdaCore The GNAT Pro Company
TimeSys
TECHNOLOGIC ARTS INCORPORATED
IBS Powerful software Passionate people
intel
SoftLanding
ObjectWeb Open Source Middleware
MB Project MEDICAL BANKING POLICY RESEARCH
PALAMIDA
Oregon State UNIVERSITY OSU
BROCADE
PROGRESS SOFTWARE
DDC-I
IVIS
tensilica
FTP FAWCETTE TECHNICAL PUBLICATIONS 1990-2005 15
TransMend
sas
software AG THE XML COMPANY
symbian
AlterPoint
HITACHI Inspire the Next
krugle
KPIT Cummins Infosystems Limited
TEXAS INSTRUMENTS
tni SOFTWARE
spike SOURCE
POLARION
Sony Ericsson
Laszlo
M1 Global
OpenSystems Publishing
instantiations
jiva MEDICAL
vector
TietoEnator Building the Information Society
ST
WIND RIVER
Secure Software
DataMirror
META-1
itemis Software | Consulting | Coaching
virtualLogix
iWay Software Accelerating Business Integration
ProSyst
webMethods.
Zend The php Company
Scapa Technologies
simulalabs
OMG OBJECT MANAGEMENT GROUP
LYNUXWORKS
metallect
Klocwork Automated Solutions for Understanding and Perfecting Software
serena Automating Change to Enterprise Code and Content
ACTUATE
MicroDoc
MERCURY GLOBAL ALLIANCE PARTNER
COMPUWARE
gentleware just model

Predictable Quality



TPTP

CDT

Eclipse 3.0

June 28, 2004

WTP

BIRT

TPTP

EMF

VE

CDT

Eclipse 3.1

June 28, 2005

BIRT 2.1

CDT 3.1

DTP 1.0

EMF 2.2

GEF 3.2

GMF1.0

Eclipse 3.2

TPTP 4.2

WTP 1.5

VE1.2

Callisto

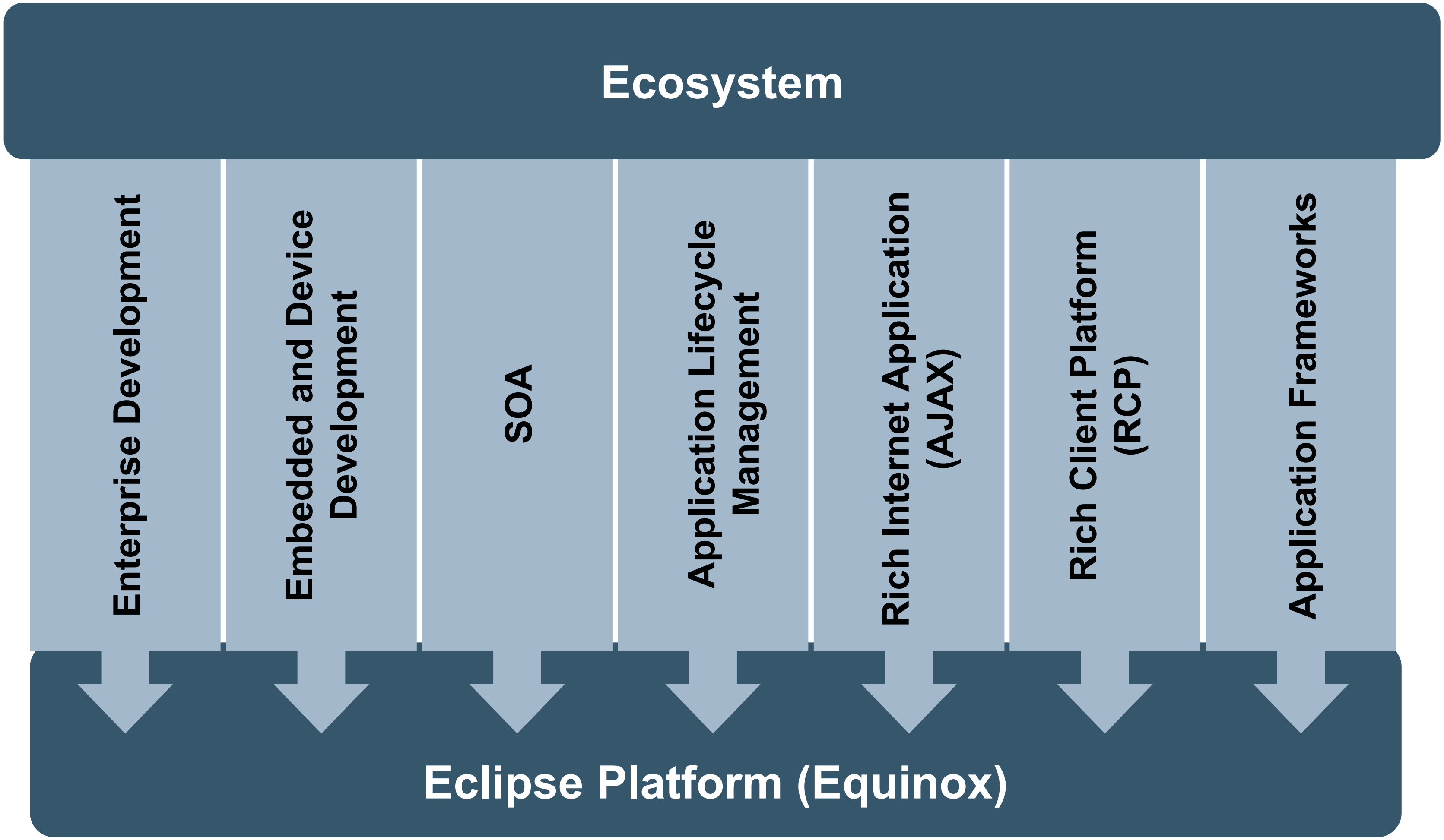
June 30, 2006

20+ Projects

Europa

June ??, 2007

Pillars of Eclipse



Ecosystem

Enterprise Development

Embedded and Device Development

SOA

Application Lifecycle Management

Rich Internet Application (AJAX)

Rich Client Platform (RCP)

Application Frameworks

Eclipse Platform (Equinox)

Europa: New and Noteworthy

Eclipse Ecosystem

New Java Platform and Web Features

Even More Cool Java Platform Stuff

Some New APIs

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New and Noteworthy

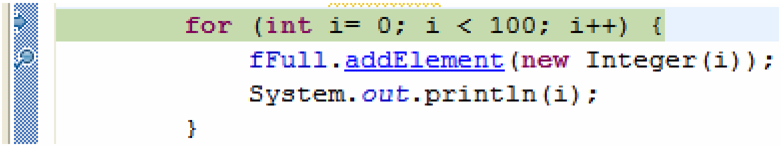
150+ pages of new stuff

- Major Eclipse projects publish new and noteworthy for each 6-week milestone…
- M6, Platform + JDT + Webtools = 46 pages
- M5 = 26 pages
- M4 = 29 pages
- M3 = 12 pages
- M2 = 22 pages
- M1 = 17 pages

JDT = Java Development Tools

Hyperlink Stepping

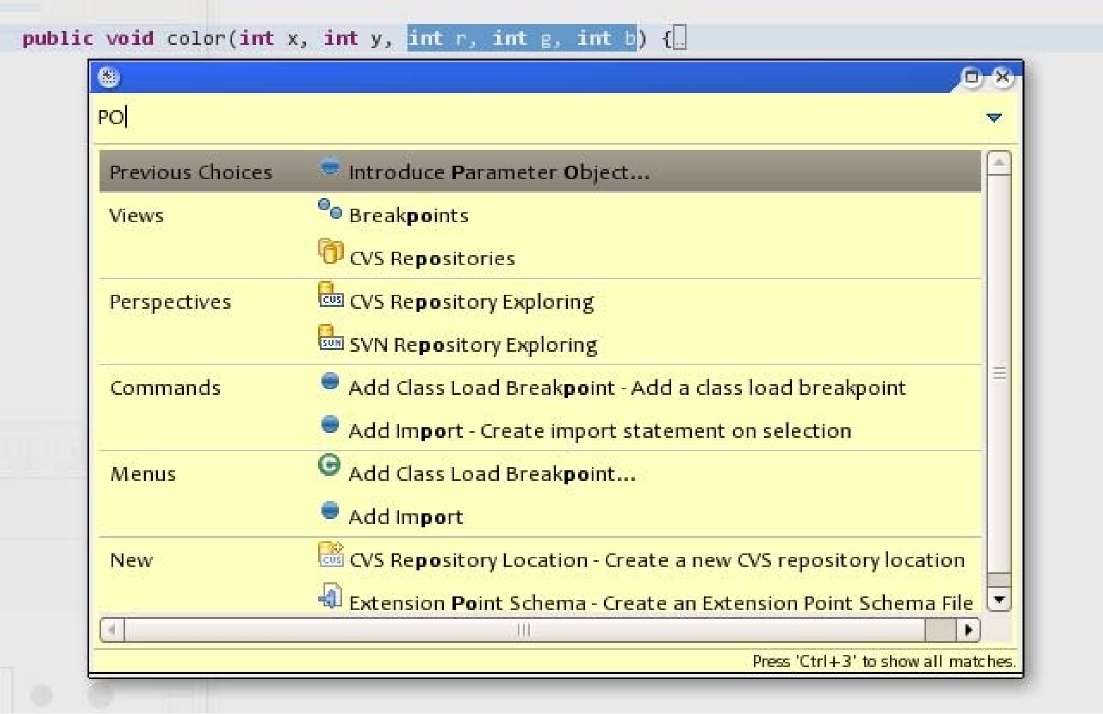
- **Ctrl+Alt** keys to step into the method (rather than **Ctrl** which will navigate to the source code)



```
        for (int i= 0; i < 100; i++) {
            fFull.addElement(new Integer(i));
            System.out.println(i);
        }
```

Quick Assist

- **Ctrl+3** makes available ALL the UI elements—views, menu entries, even refactorings all in one single place



```
public void color(int x, int y, int r, int g, int b) {
```

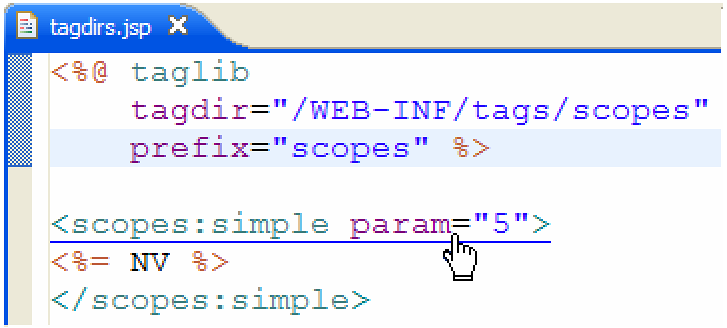
PO

Previous Choices	Introduce Parameter Object...
Views	Breakpoints
	CVS Repositories
Perspectives	CVS Repository Exploring
	SVN Repository Exploring
Commands	Add Class Load Breakpoint - Add a class load breakpoint
	Add Import - Create import statement on selection
Menus	Add Class Load Breakpoint...
	Add Import
New	CVS Repository Location - Create a new CVS repository location
	Extension Point Schema - Create an Extension Point Schema File

Press 'Ctrl+3' to show all matches.

Hyperlink to Custom Tag Declarations

- Open the tag library descriptor or tag file that declares the custom tag

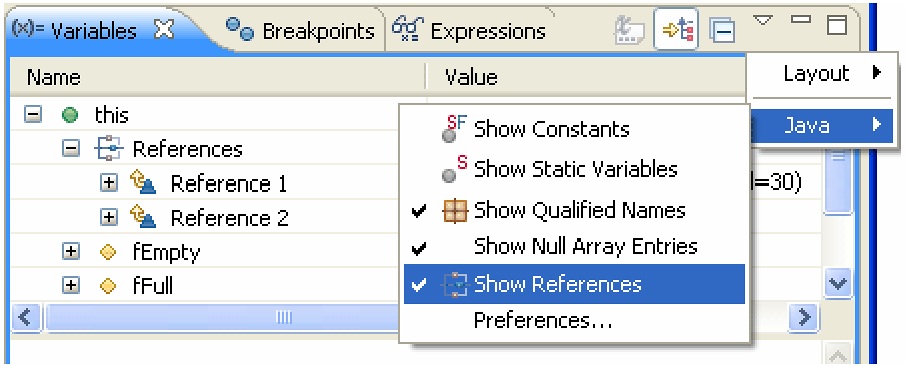


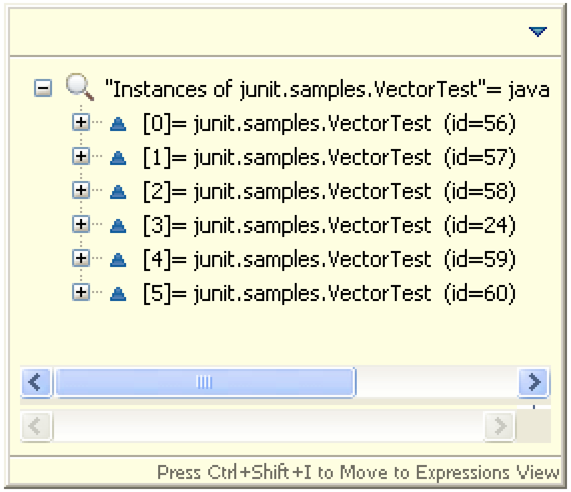
```
<%@ taglib
    tagdir="/WEB-INF/tags/scopes"
    prefix="scopes" %>

<scopes:simple param="5">
<%= NV %>
</scopes:simple>
```

Browse Object References/Instances

- Only available when using a Java Platform, Standard Edition (Java SE platform) 6 VM



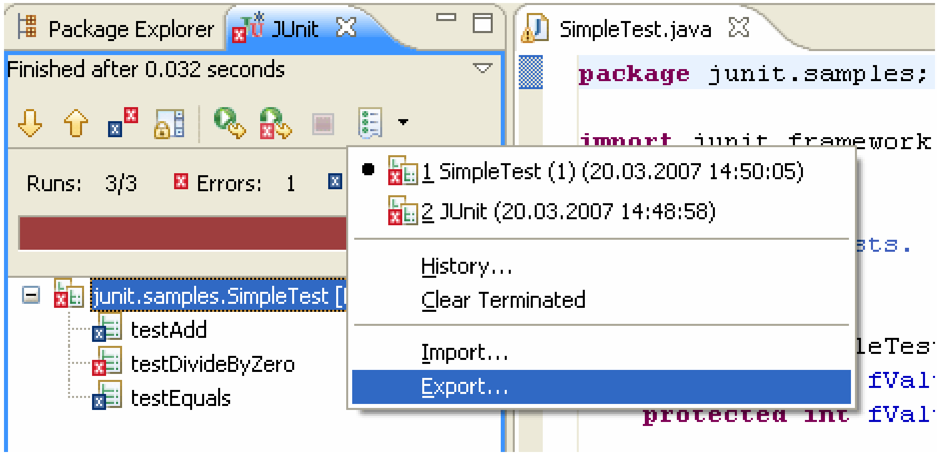


"Instances of junit.samples.VectorTest"= java
[0]= junit.samples.VectorTest (id=56)
[1]= junit.samples.VectorTest (id=57)
[2]= junit.samples.VectorTest (id=58)
[3]= junit.samples.VectorTest (id=24)
[4]= junit.samples.VectorTest (id=59)
[5]= junit.samples.VectorTest (id=60)

Press Ctrl+Shift+I to Move to Expressions View

Export/Import JUnit Test Runs

- e.g., import test runs from your nightly build



Finished after 0.032 seconds

Runs: 3/3 Errors: 1

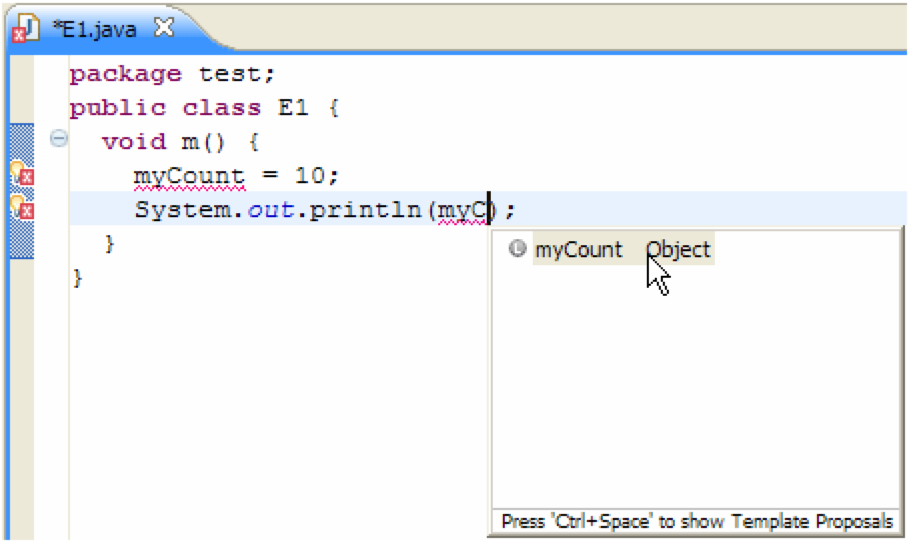
● 1 SimpleTest (1) (20.03.2007 14:50:05)
2 JUnit (20.03.2007 14:48:58)
History...
Clear Terminated
Import...
Export...
junit.samples.SimpleTest [
testAdd
testDivideByZero
testEquals

```
package junit.samples;

import junit.framework
```

Proposes Unresolved Names

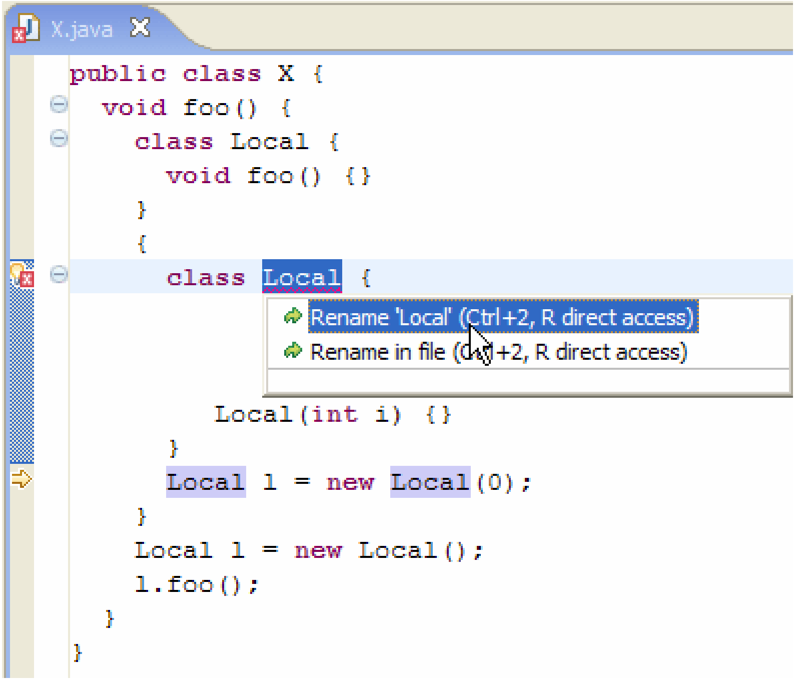
- When completing a name reference, content assist now proposes unresolved names found in other parts of the code



```
package test;
public class E1 {
  void m() {
    myCount = 10;
    System.out.println(myC);
  }
}
```

Improved Handling of Local Types

- Duplicate local types in Java code are now handled better



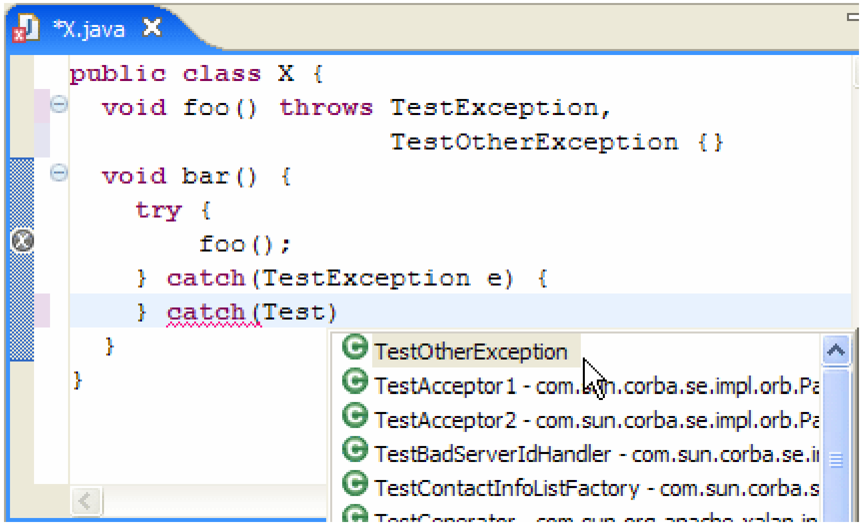
```
public class X {
  void foo() {
    class Local {
      void foo() {}
    }
    {
      class Local {
```

Rename 'Local' (Ctrl+2, R direct access)
Rename in file (Ctrl+2, R direct access)

```
        Local(int i) {}
      }
      Local l = new Local(0);
    }
    Local l = new Local();
    l.foo();
  }
}
```

Completion in Catch Clause

- Content Assist inside a try-catch clause now infers exception type names based on exceptions thrown in the corresponding try block

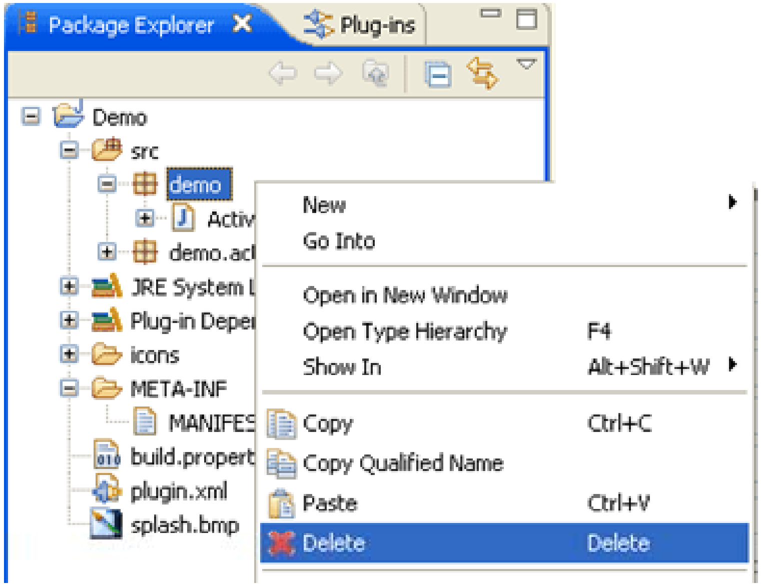


```
public class X {
  void foo() throws TestException,
                    TestOtherException {}
  void bar() {
    try {
        foo();
    } catch(TestException e) {
    } catch(Test)
  }
}
```

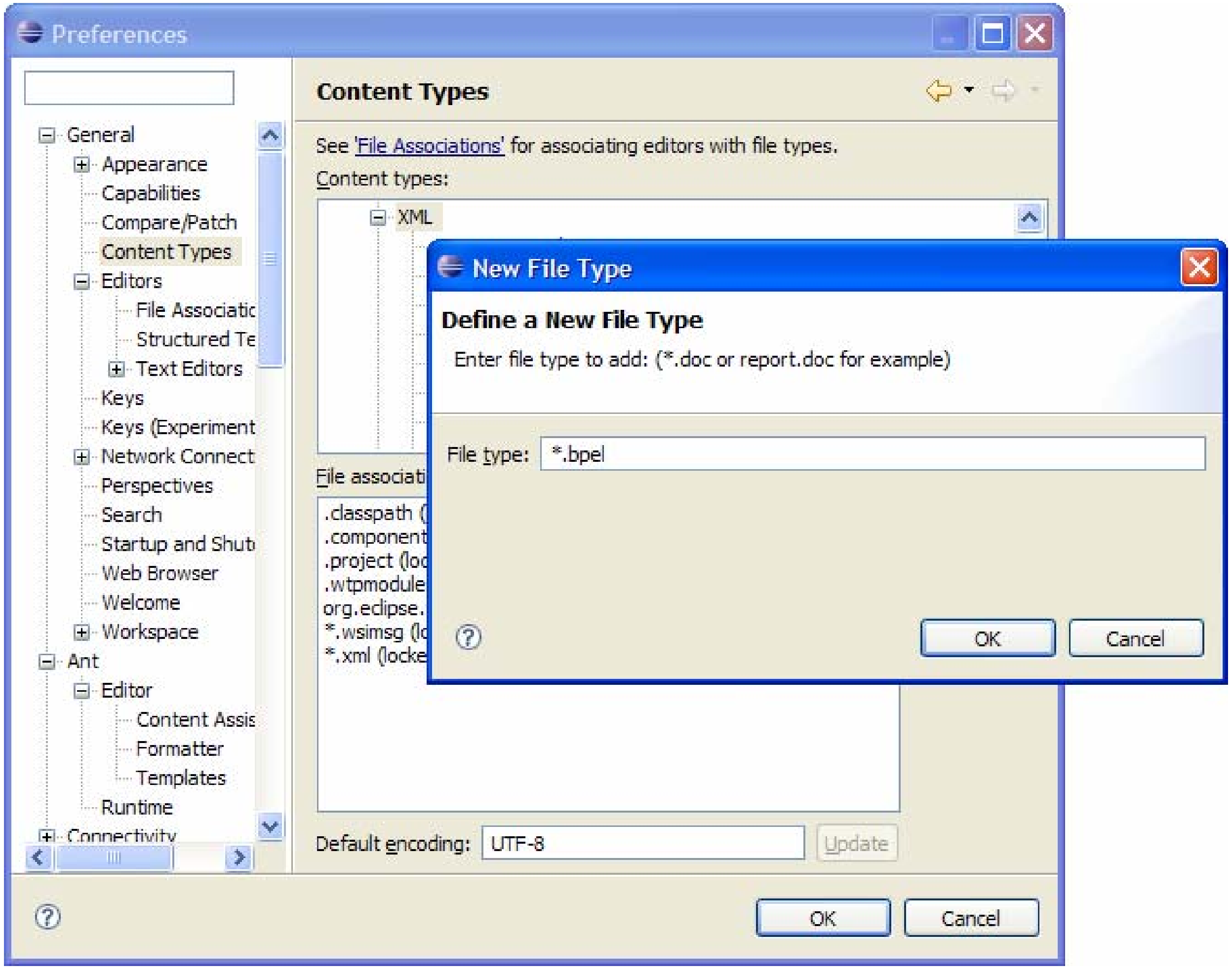
```
TestOtherException
TestAcceptor1 - com.sun.corba.se.impl.orb.Pa
TestAcceptor2 - com.sun.corba.se.impl.orb.Pa
TestBadServerIdHandler - com.sun.corba.se.i
TestContactInfoListFactory - com.sun.corba.s
TestGenerator - com.sun.org.apache.xalan.in
```

Undo Delete in Package Explorer

- **Edit > Undo** is now also available for deletions of Java technology elements in the Package Explorer and other Java technology views



More Flexible Validation



Content Types

See 'File Associations' for associating editors with file types.

Content types:

File associati

.classpath (
.component
.project (loc
.wtpmodule
org.eclipse.
*.wsimsg (lo
*.xml (locke

Default encoding: UTF-8

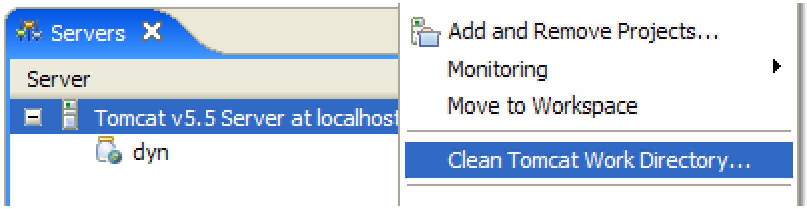
Define a New File Type

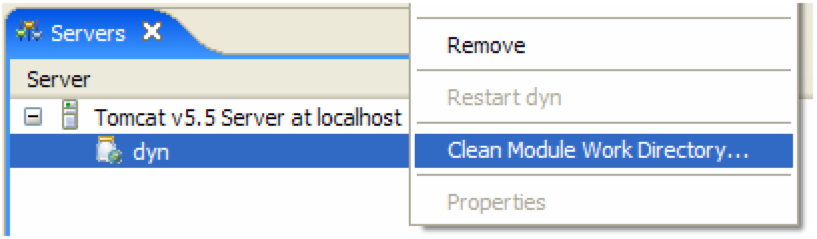
Enter file type to add: (*.doc or report.doc for example)

File type: *.bpel

Manage Tomcat Work Directories

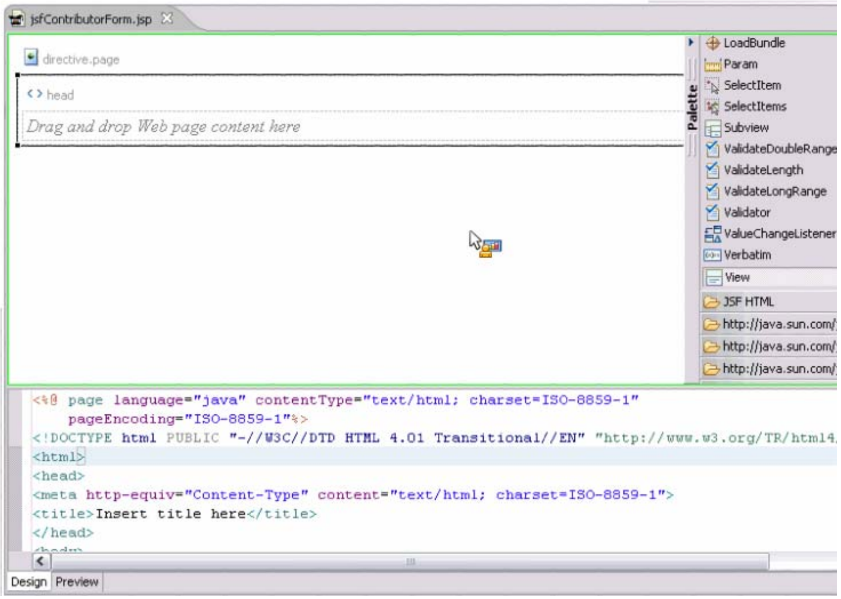
- Two new menu items in the Servers view allow you to **Clean Tomcat Work Directory** or **Clean Module Work Directory** without leaving Eclipse


Servers
Server
Tomcat v5.5 Server at localhost
dyn
Add and Remove Projects...
Monitoring
Move to Workspace
Clean Tomcat Work Directory...


Servers
Server
Tomcat v5.5 Server at localhost
dyn
Remove
Restart dyn
Clean Module Work Directory...
Properties

Visual Page Designer

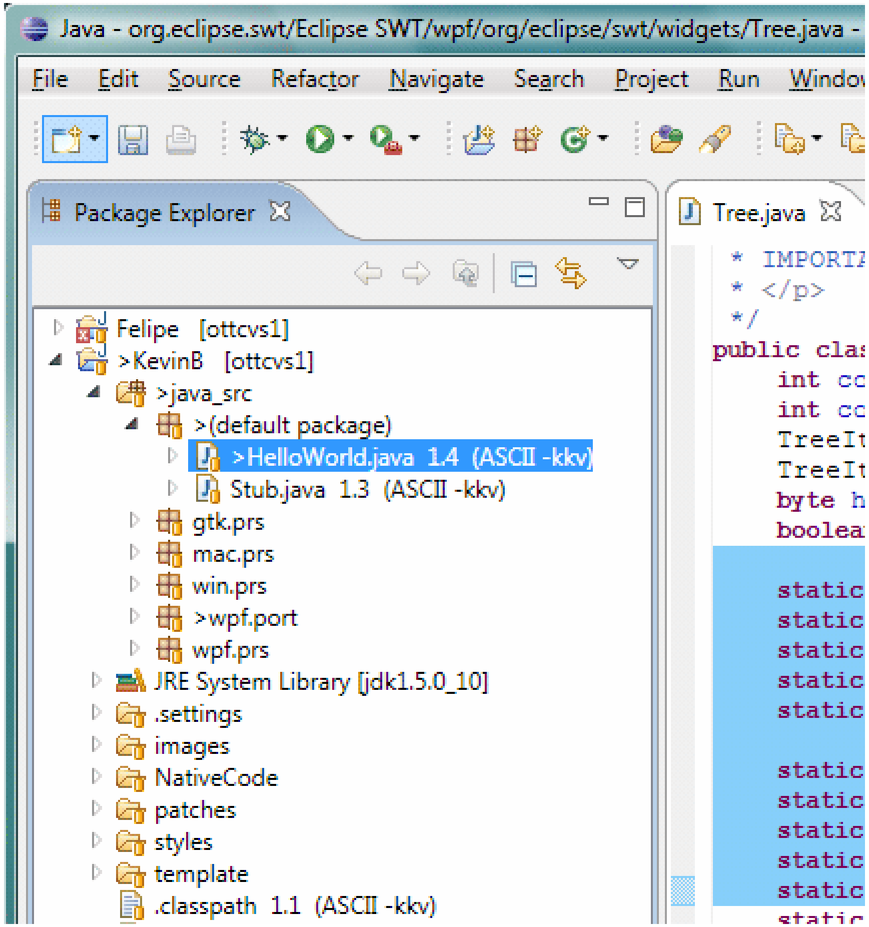
- Provides simultaneous synchronized visual and source editing of a Faces JavaServer Pages™ (JSP™ page)



```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Insert title here</title>
</head>
```

SWT Runs Native on Vista WPF

- Transparent windows, native double-buffering, GPU acceleration, and the whole nine yards!



```
  * IMPORTA
  * </p>
  */
public clas
    int cc
    int cc
    TreeIt
    TreeIt
    byte h
    boolea

    static
    static
    static
    static
    static

    static
    static
    static
    static
    static
    static
```

Europa: New and Noteworthy

Eclipse Ecosystem

New Java Platform and Web Features

Even More Cool Java Platform Stuff

Some New APIs

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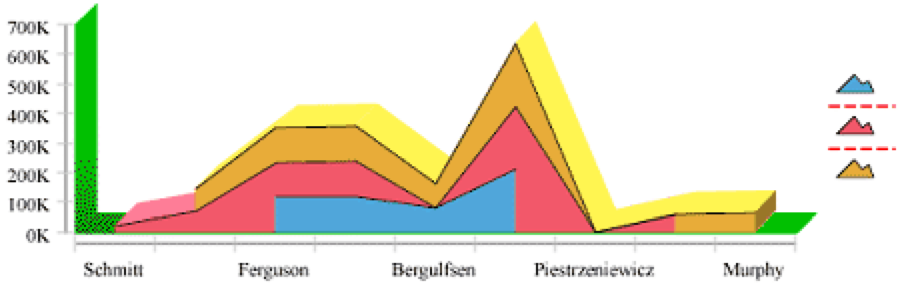
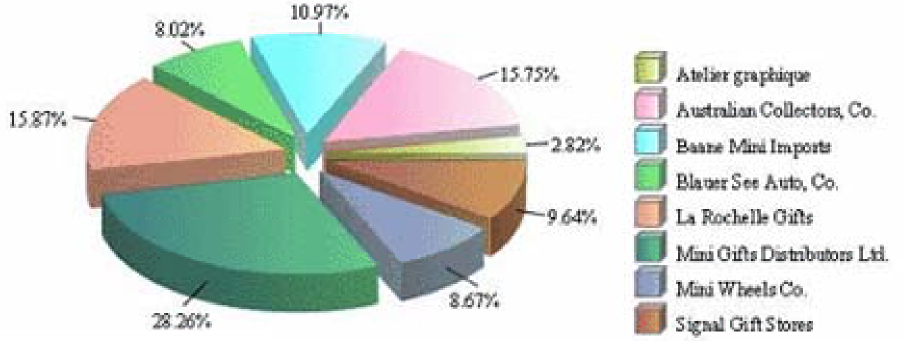
Dynamic Languages

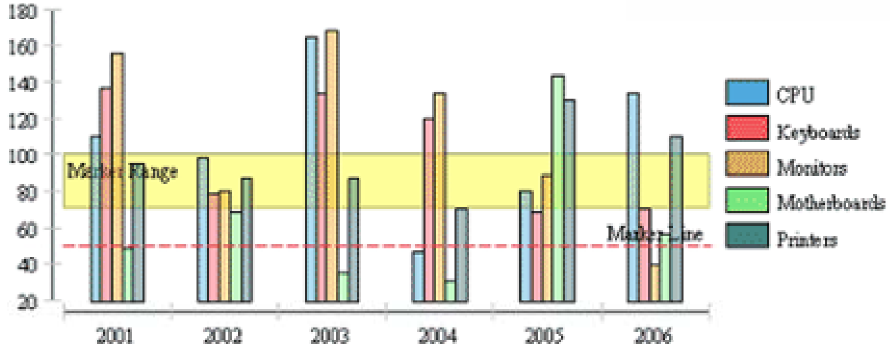
Conclusion

BIRT (Business Reporting)

- New chart types and options



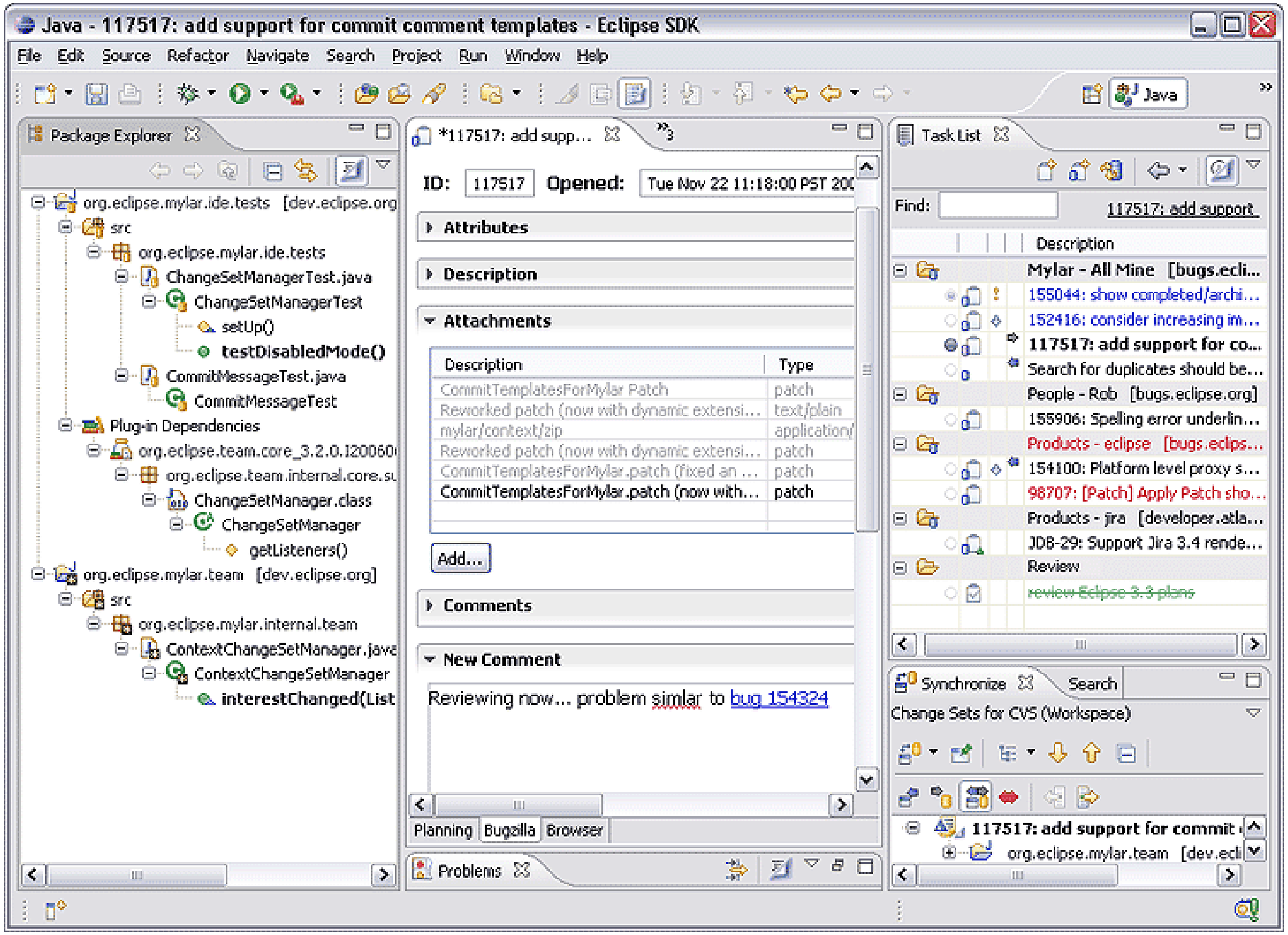




BIRT

- Deployment: JSP page tags and integration with WTP
- Smart Labels
- JavaScript™ technology APIs (and integrated JavaScript technology editor)
- Cross-linking debugging to the visual and configuration artifacts
- New Word, Excel, and Postscript output formats
- Predicates in XPath expressions
- Use web services as data sources

Mylar



Java - 117517: add support for commit comment templates - Eclipse SDK

```
org.eclipse.mylar.ide.tests [dev.eclipse.org
  src
    org.eclipse.mylar.ide.tests
      ChangeSetManagerTest.java
        ChangeSetManagerTest
          setUp()
          testDisabledMode()
      CommitMessageTest.java
        CommitMessageTest
  Plug-in Dependencies
    org.eclipse.team.core_3.2.0.120060
      org.eclipse.team.internal.core.su
        ChangeSetManager.class
          ChangeSetManager
            getListeners()
org.eclipse.mylar.team [dev.eclipse.org]
  src
    org.eclipse.mylar.internal.team
      ContextChangeSetManager.java
        ContextChangeSetManager
          interestChanged(List
```

ID: 117517 Opened: Tue Nov 22 11:18:00 PST 200

Attributes

Description

Attachments

Description	Type
CommitTemplatesForMylar Patch	patch
Reworked patch (now with dynamic extensi...	text/plain
mylar/context/zip	application/
Reworked patch (now with dynamic extensi...	patch
CommitTemplatesForMylar.patch (fixed an ...	patch
CommitTemplatesForMylar.patch (now with...	patch

Comments

New Comment

Reviewing now... problem simlar to bug 154324

Find: 117517: add support

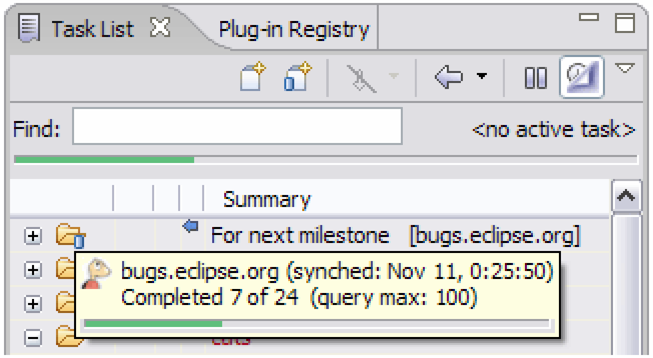
Description
Mylar - All Mine [bugs.ecli...
155044: show completed/archi...
152416: consider increasing im...
117517: add support for co...
Search for duplicates should be...
People - Rob [bugs.eclipse.org]
155906: Spelling error underlin...
Products - eclipse [bugs.eclips...
154100: Platform level proxy s...
98707: [Patch] Apply Patch sho...
Products - jira [developer.atla...
JDB-29: Support Jira 3.4 rende...
Review
~~review Eclipse 3.3 plans~~

Change Sets for CVS (Workspace)

```
117517: add support for commit
  org.eclipse.mylar.team [dev.ecli
```

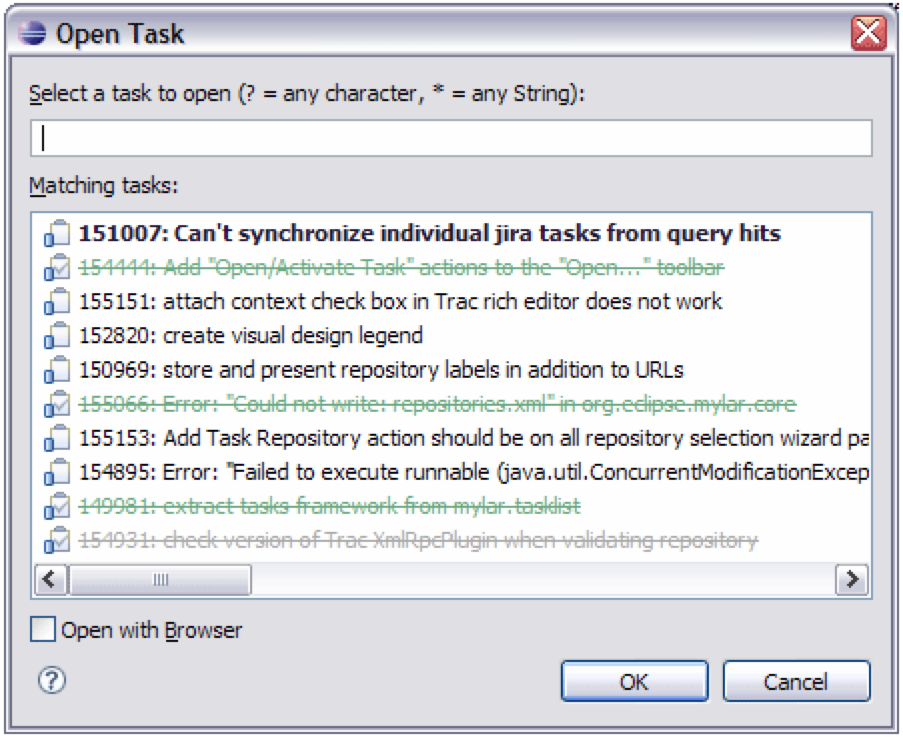
Mylar

- Mylar focuses the UI to show only information relevant to the task-at-hand



For next milestone [bugs.eclipse.org]

bugs.eclipse.org (synched: Nov 11, 0:25:50)
Completed 7 of 24 (query max: 100)



Select a task to open (? = any character, * = any String):

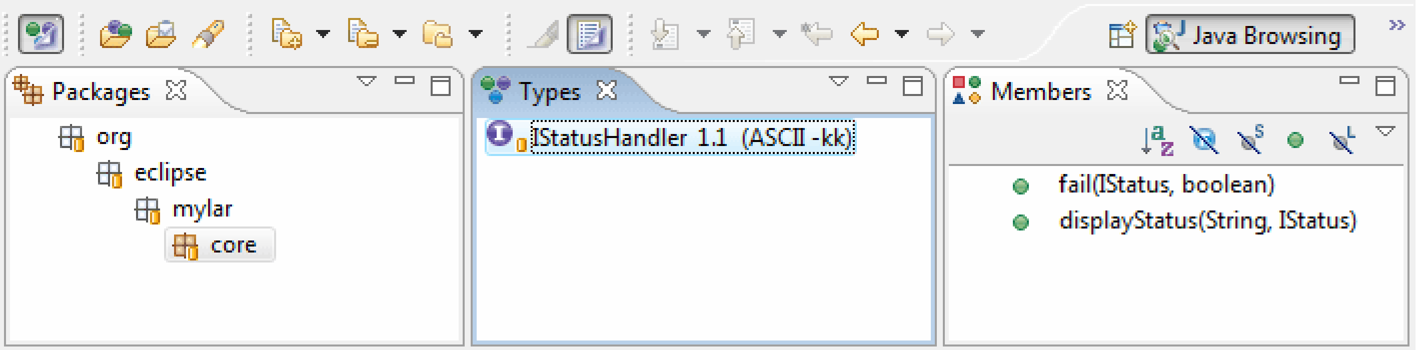
Matching tasks:

151007: Can't synchronize individual jira tasks from query hits
~~154444: Add "Open/Activate Task" actions to the "Open..." toolbar~~
155151: attach context check box in Trac rich editor does not work
152820: create visual design legend
150969: store and present repository labels in addition to URLs
~~155066: Error: "Could not write: repositories.xml" in org.eclipse.mylar.core~~
155153: Add Task Repository action should be on all repository selection wizard pa
154895: Error: "Failed to execute runnable (java.util.ConcurrentModificationExcep
~~149981: extract tasks framework from mylar.tasklist~~
~~154931: check version of Trac XmlRpcPlugin when validating repository~~

☐ Open with Browser

Mylar

- Multi-tasking becomes effortless



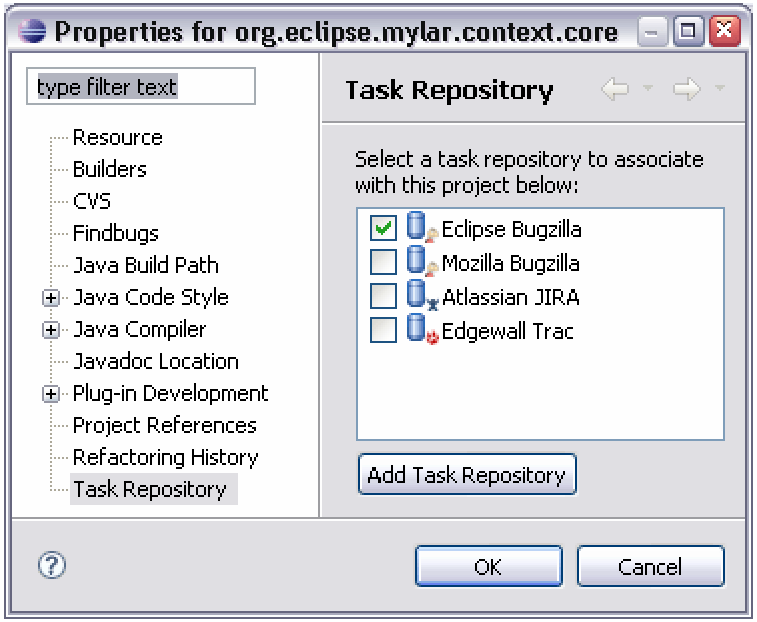
org
eclipse
mylar
core

IStatusHandler 1.1 (ASCII -kk)

● fail(IStatus, boolean)
● displayStatus(String, IStatus)

Mylar: Framework

- Eclipse for tasks instead of just for code
- Easy to extend and integrate



Properties for org.eclipse.mylar.context.core

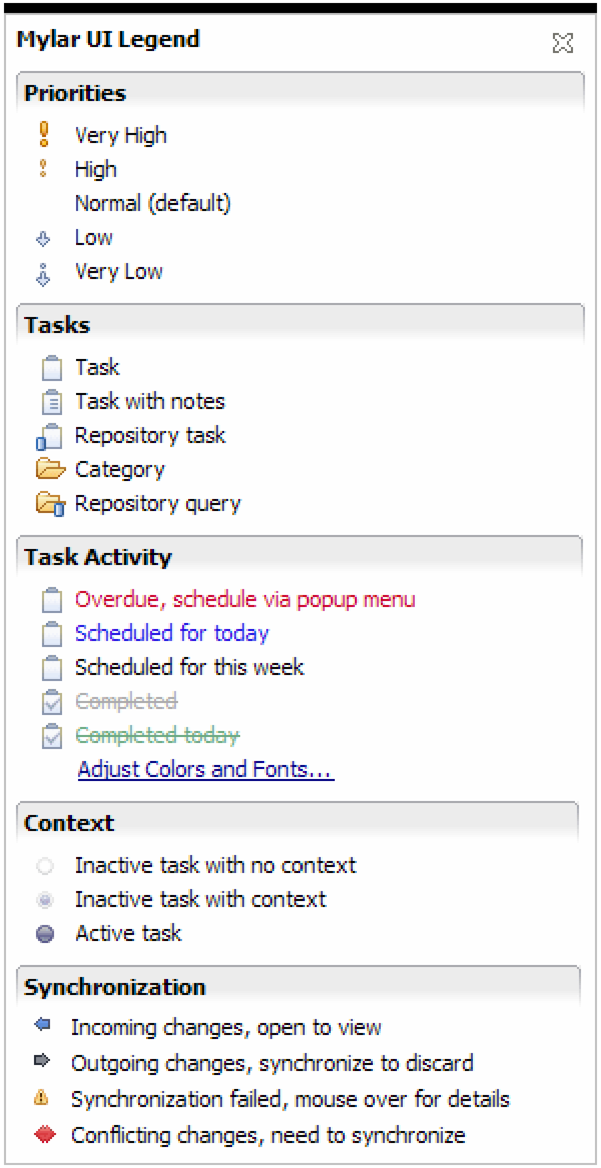
type filter text

- Resource
- Builders
- CVS
- Findbugs
- Java Build Path
- Java Code Style
- Java Compiler
- Javadoc Location
- Plug-in Development
- Project References
- Refactoring History
- Task Repository

Task Repository

Select a task repository to associate with this project below:

- ☑ Eclipse Bugzilla
- ☐ Mozilla Bugzilla
- ☐ Atlassian JIRA
- ☐ Edgewall Trac



Mylar UI Legend

Priorities

- Very High
- High
- Normal (default)
- Low
- Very Low

Tasks

- Task
- Task with notes
- Repository task
- Category
- Repository query

Task Activity

- Overdue, schedule via popup menu
- Scheduled for today
- Scheduled for this week
- ~~Completed~~
- ~~Completed today~~
- Adjust Colors and Fonts...

Context

- ○ Inactive task with no context
- Inactive task with context
- ● Active task

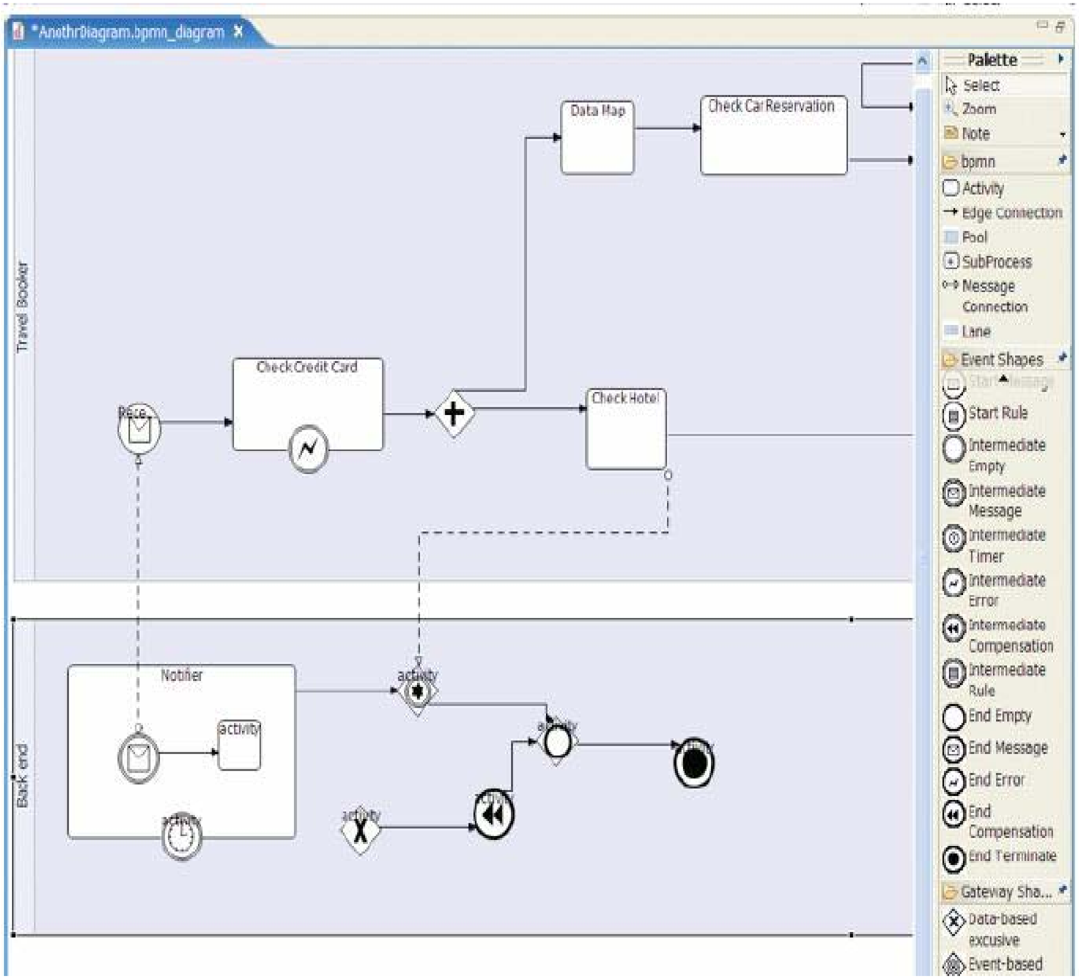
Synchronization

- Incoming changes, open to view
- Outgoing changes, synchronize to discard
- Synchronization failed, mouse over for details
- Conflicting changes, need to synchronize

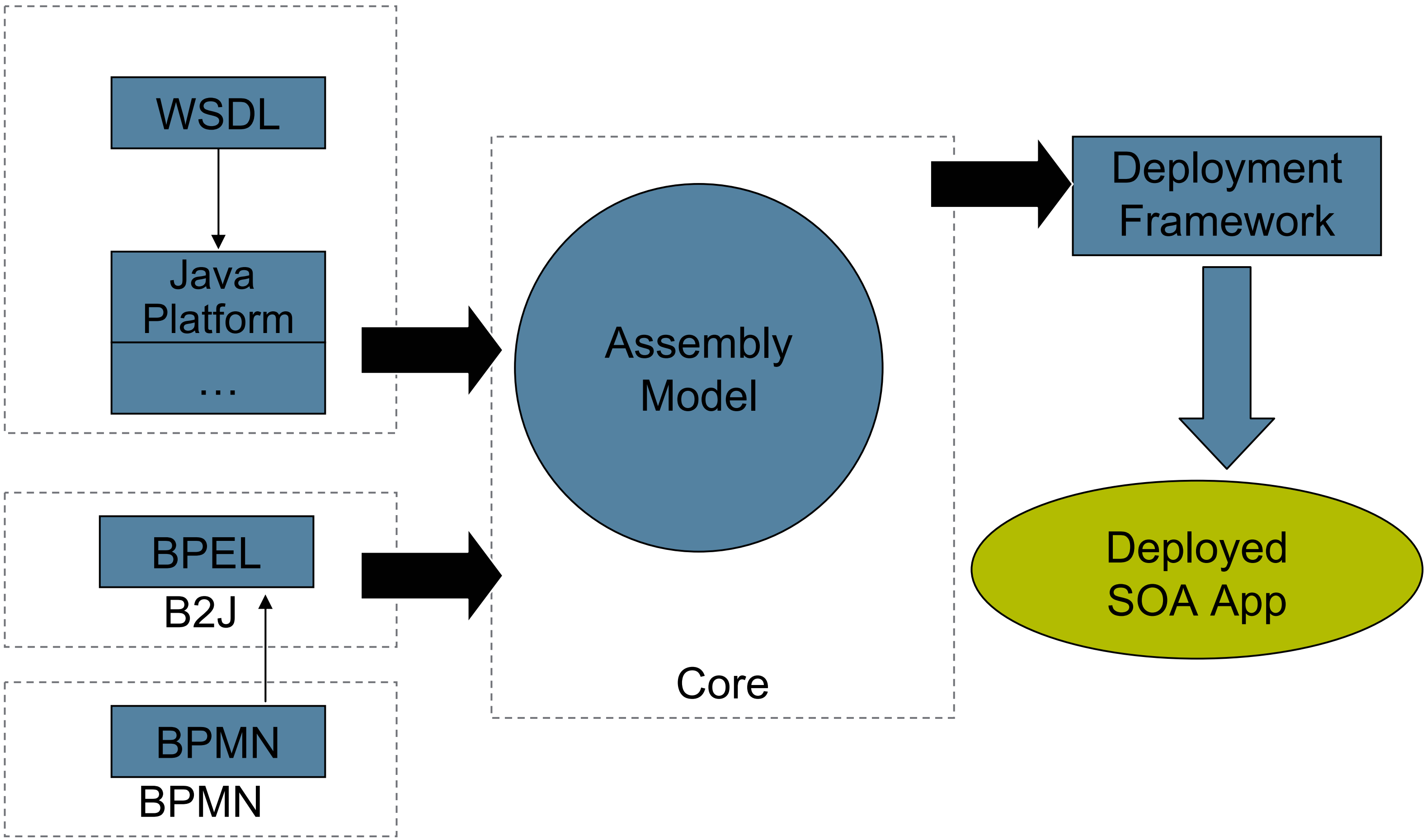
STP

- STP, included with the Europa release, covers:
  - Service Component Architecture standard Java code development
  - Service Component Architecture SCDL for constructing composites that include services
  - Java API for XML Web Services (JAX-WS) service development
  - BPMN diagramming
  - BPEL editing and deployment

BPMN Diagraming



STP Project Structure



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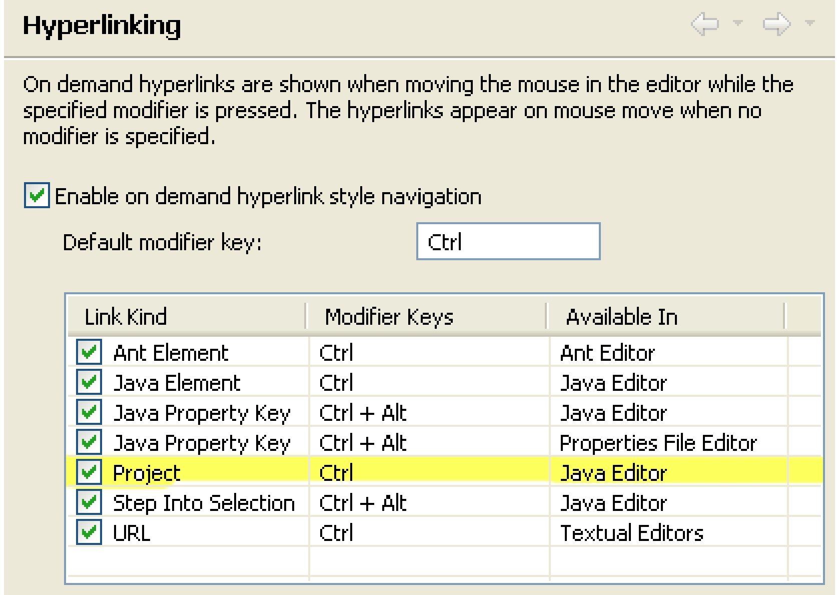
Configurable and Extendable Hyperlink Detectors

- Hyperlink detection in text editors configured via **General > Editors > Text Editors > Hyperlinking** preference page



Hyperlinking

On demand hyperlinks are shown when moving the mouse in the editor while the specified modifier is pressed. The hyperlinks appear on mouse move when no modifier is specified.

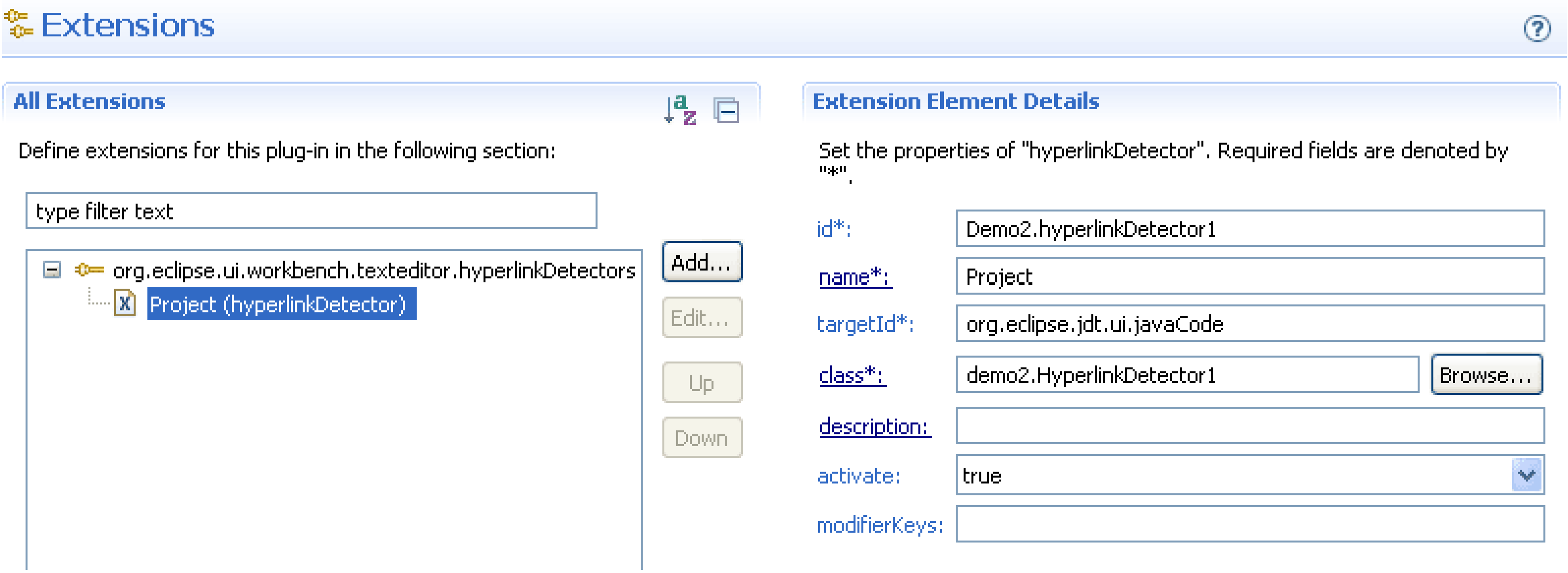
☑ Enable on demand hyperlink style navigation

Default modifier key: Ctrl

	Link Kind	Modifier Keys	Available In
☑	Ant Element	Ctrl	Ant Editor
☑	Java Element	Ctrl	Java Editor
☑	Java Property Key	Ctrl + Alt	Java Editor
☑	Java Property Key	Ctrl + Alt	Properties File Editor
☑	Project	Ctrl	Java Editor
☑	Step Into Selection	Ctrl + Alt	Java Editor
☑	URL	Ctrl	Textual Editors

Implementation: (1) Extensions

- …ui.workbench.texteditor.hyperlinkDetectors



Extensions

All Extensions

Define extensions for this plug-in in the following section:

type filter text

- org.eclipse.ui.workbench.texteditor.hyperlinkDetectors
  - Project (hyperlinkDetector)

Extension Element Details

Set the properties of "hyperlinkDetector". Required fields are denoted by "*".

id*:	Demo2.hyperlinkDetector1
name*:	Project
targetId*:	org.eclipse.jdt.ui.javaCode
class*:	demo2.HyperlinkDetector1
description:	
activate:	true
modifierKeys:	

Implementation: (1b) if You Like XML…

```
<plugin>
   <extension
      point="org.eclipse.ui.workbench.
             texteditor.hyperlinkDetectors">
      <hyperlinkDetector
            activate="true"
            class="demo2.HyperlinkDetector1"
            id="Demo2.hyperlinkDetector1"
            name="Project"
            targetId="org.eclipse.jdt.ui.javaCode">
      </hyperlinkDetector>
   </extension>
</plugin>
```

Implementation: (2) Detector Class

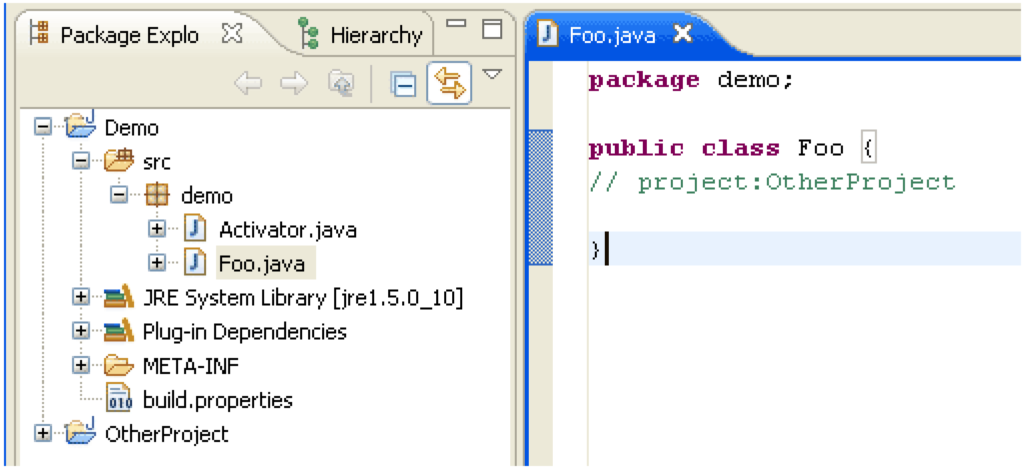
```
public class HyperlinkDetector1
             extends AbstractHyperlinkDetector {
  public IHyperlink[] detectHyperlinks(…) {
   IDocument doc = textViewer.getDocument();
   String s = doc.get();
   Pattern p = Pattern.compile("project:(\\w+)");
   Matcher m = p.matcher(s);
   if( m.find() ) {
     String s2 = m.group(1);
     IRegion r = new Region(j,s2.length()+8);
     IHyperlink[] result = new IHyperlink[1];
     result[0] = new ProjectHyperlink(s2, r);
     return result;
     }
   }
   return null;
  }
}
```

Implementation: (3) Hyperlink Class

```
public void open() {
  try {
   IWorkbench wb = PlatformUI.getWorkbench();
   IWorkbenchWindow ww = wb.getActiveWorkbenchWindow();
   IWorkbenchPage p = ww.getActivePage();
   IViewPart vp = p.showView(
              "org.eclipse.jdt.ui.PackageExplorer");
   vp.setFocus();
   PackageExplorerPart pep = (PackageExplorerPart) vp;
   JavaModelManager jmm = JavaModelManager
                    .getJavaModelManager();
   JavaModel jm = jmm.getJavaModel();
   IJavaProject jp = jm.getJavaProject(s);
   pep.selectAndReveal(jp);
  } catch (PartInitException e) {
   // no part? that's ok
}}}
```

New Hyperlink Code in Action…

Before…

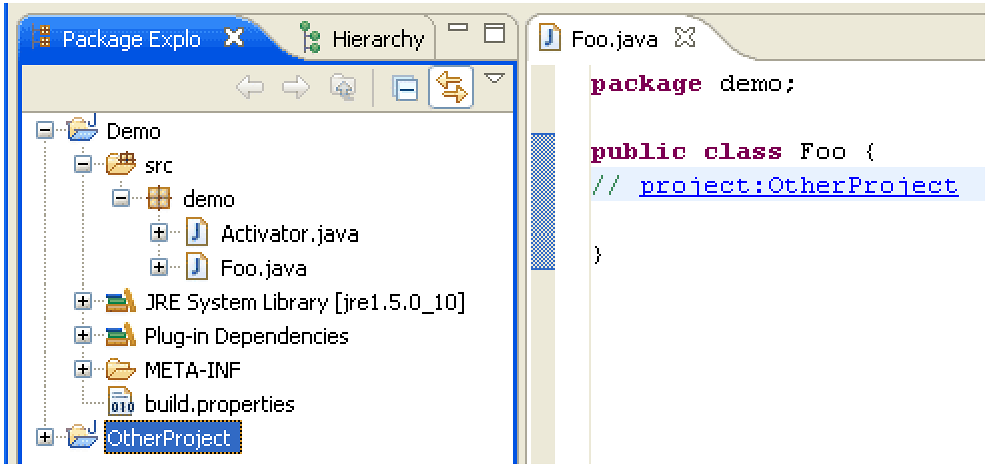


```
package demo;

public class Foo {
// project:OtherProject

}
```

After…

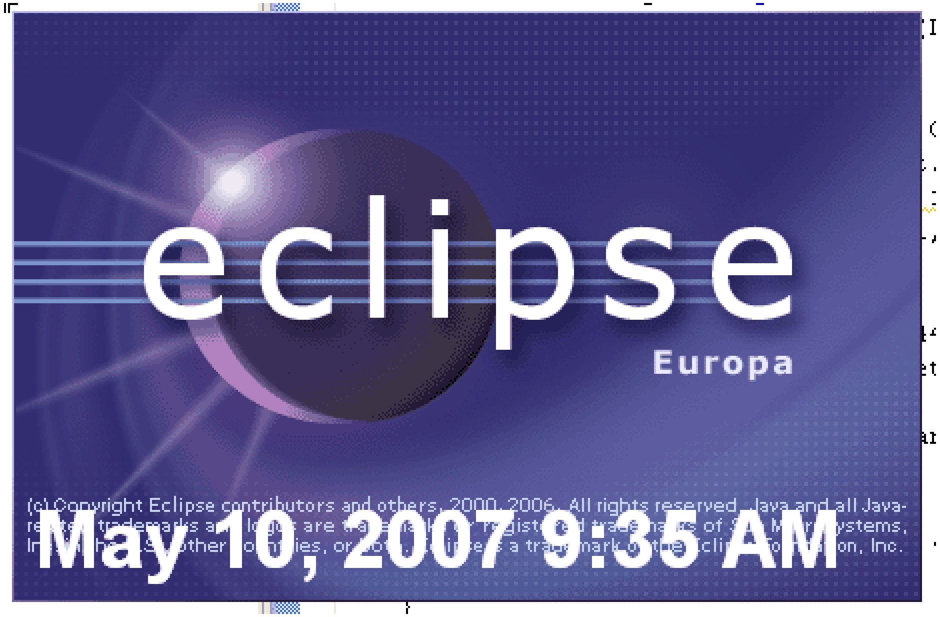


```
package demo;

public class Foo {
// project:OtherProject

}
```

Custom Splash Screen



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May 10, 2007 9:35 AM

Implementation: (1) Extensions

```
<extension point="org.eclipse.ui.splashHandlers">
  <splashHandler
    class="demo3.splashHandlers.ExtensibleSplashHandler"
   id="demo3.splashHandlers.extensible">
  </splashHandler>
</extension>
```

Implementation: (2) Handler Class

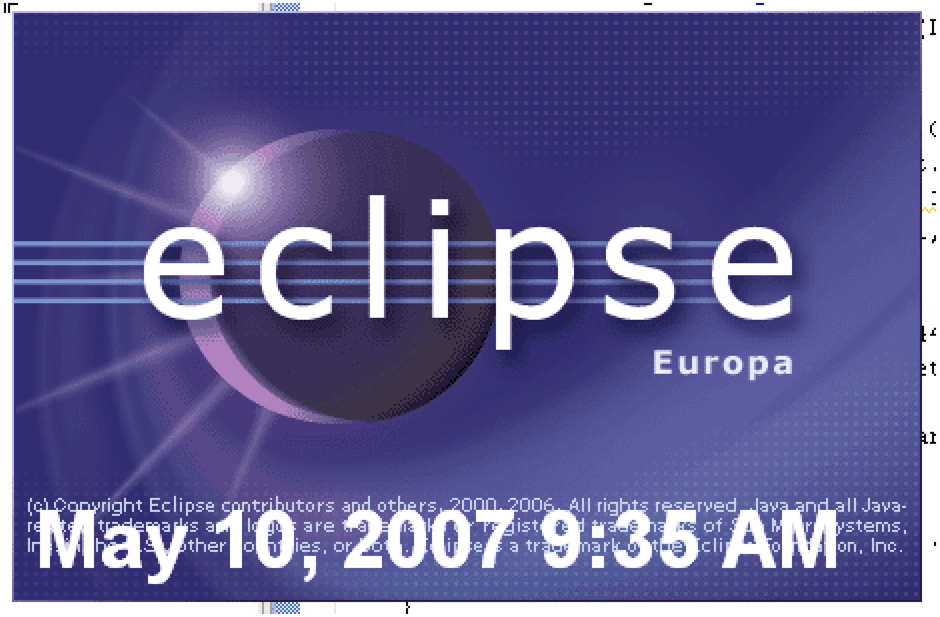
```
public class ExtensibleSplashHandler
             extends AbstractSplashHandler {
 public void init(Shell splash) {
  super.init(splash);
  splash.setBackgroundMode(SWT.INHERIT_DEFAULT);
  Canvas iconPanel = new Canvas(splash, SWT.NONE);
  iconPanel.addPaintListener(new PaintListener() {
   public void paintControl(PaintEvent e) {
    GC gc = e.gc;
    Font font = new Font(Display.getCurrent(),
                    "Arial", 30, SWT.BOLD);
    gc.setFont(font);
    gc.setForeground(new Color(Display.getCurrent(),
                    255, 255, 255));
    String s = DateFormat.getDateTimeInstance(
       DateFormat.MEDIUM, DateFormat.SHORT).format(
                       new Date());
    gc.drawString(s, 1, 1, true); }});
```

Implementation: (2b) Handler...

```
   Point panelSize = new Point(440, 50);
   iconPanel.setBounds(splash.getSize().x - panelSize.x
    - 5, splash.getSize().y
    - panelSize.y - 5, panelSize.x, panelSize.y);
   iconPanel.layout(true);
   iconPanel.update();

   while (iconPanel.getDisplay().readAndDispatch())
    ;
 }
 public void dispose() {
   super.dispose();
 }
}
```

New Splash Screen in Action…



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Europa: New and Noteworthy

Eclipse Ecosystem

New Java Platform and Web Features

Even More Cool Java Platform Stuff

Some New APIs

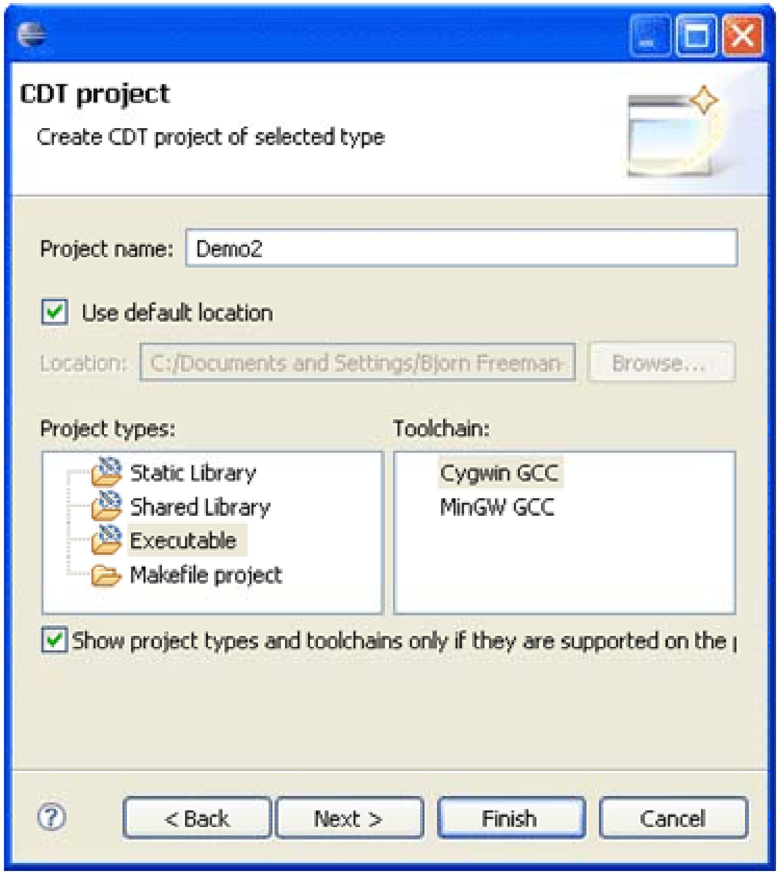
New CDT Features

Dynamic Languages

Conclusion

CDT 4.0: New Project Model

- Easily extensible tool chain and build system
- More capable indexer: call scopes, templates, etc.
- Pre-built indices e.g., external libraries



CDT project

Create CDT project of selected type

Project name: Demo2

☑ Use default location

Location: C:/Documents and Settings/Bjorn Freeman Browse...

Project types:
- Static Library
- Shared Library
- Executable
- Makefile project

Toolchain:
- Cygwin GCC
- MinGW GCC

☑ Show project types and toolchains only if they are supported on the

CDT: Compiled Languages Tooling

- Easily extendable to other statically compiled languages
- Examples already exist for:
  - Ada
  - C/C++
  - C#
  - Fortan

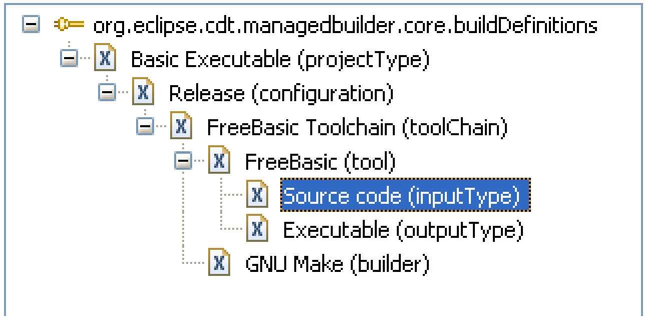
Example: Adding BASIC Tool Chain

- http://sourceforge.net/projects/fbc/

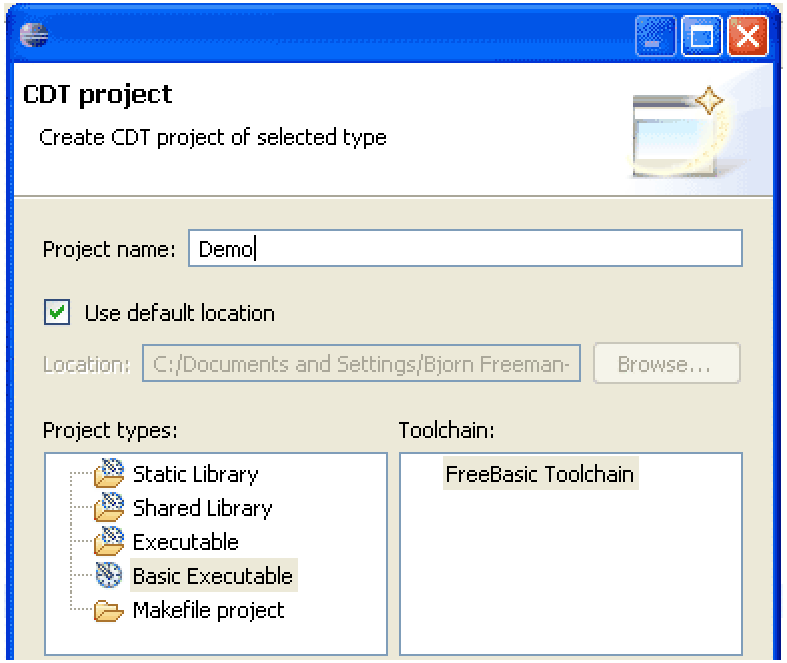
- There are three build systems in CDT
  - Standard (makefile)
  - Managed (generates a makefile from project data)
  - Internal (calls the tools individually)

Adding BASIC Tool Chain

1. Install FreeBasic
2. Create a plug-in to define the tool chain…
3. Run eclipse
4. File > New to create a new project using the tool chain…
5. Write BASIC program
6. Save and run



```
org.eclipse.cdt.managedbuilder.core.buildDefinitions
  Basic Executable (projectType)
    Release (configuration)
      FreeBasic Toolchain (toolChain)
        FreeBasic (tool)
          Source code (inputType)
          Executable (outputType)
        GNU Make (builder)
```



CDT project

Create CDT project of selected type

Project name: Demo

☑ Use default location

Location: C:/Documents and Settings/Bjorn Freeman-

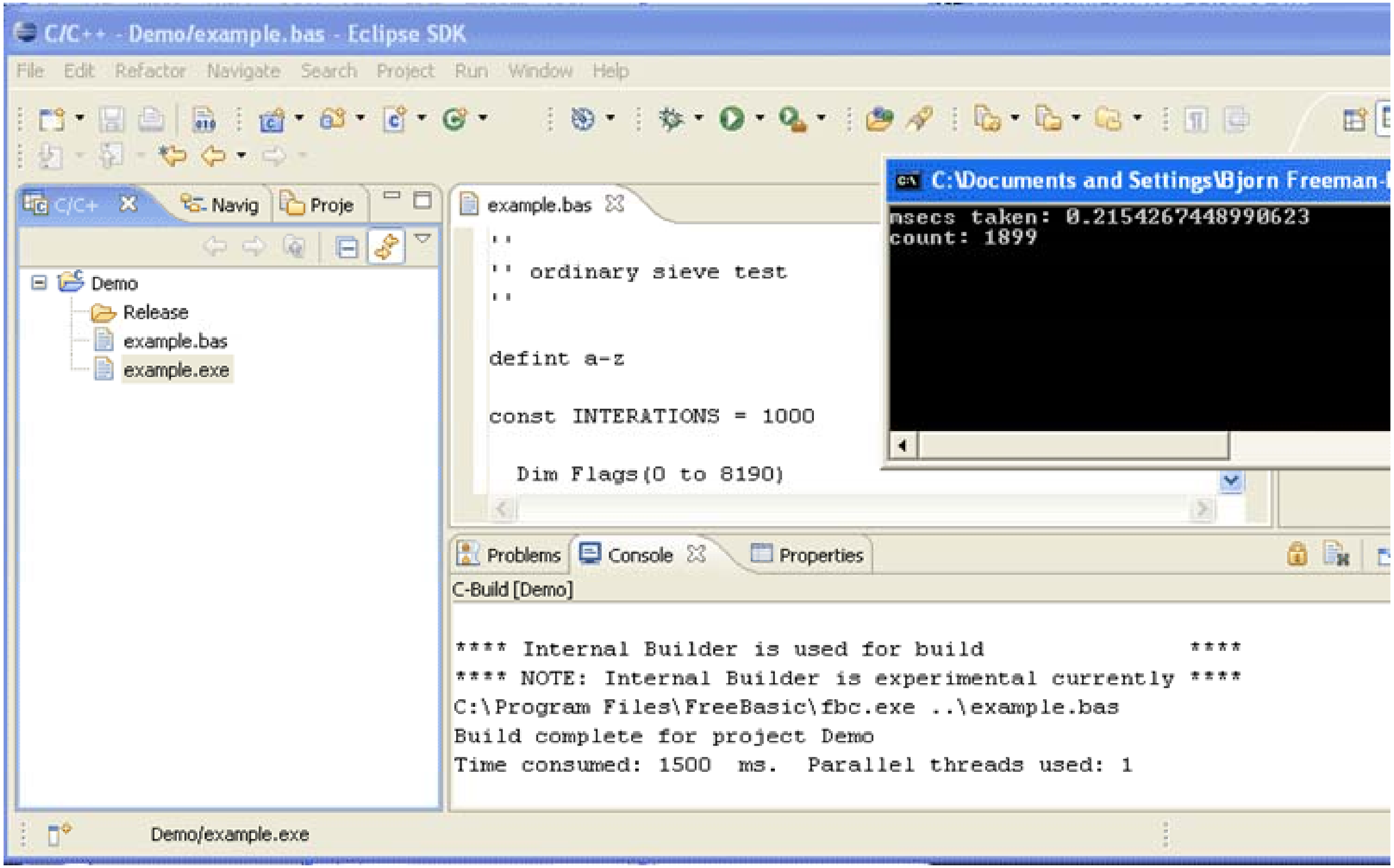
Project types:

- Static Library
- Shared Library
- Executable
- Basic Executable
- Makefile project

Toolchain:

- FreeBasic Toolchain

Using the BASIC Tool Chain


C/C++ - Demo/example.bas - Eclipse SDK
File Edit Refactor Navigate Search Project Run Window Help
C/C+
Navig
Proje
Demo
Release
example.bas
example.exe
example.bas
C:\Documents and Settings\Bjorn Freeman-
Problems
Console
Properties
Demo/example.exe

```
''
'' ordinary sieve test
''

defint a-z

const INTERATIONS = 1000

  Dim Flags(0 to 8190)
```

```
msecs taken: 0.2154267448990623
count: 1899
```

C-Build [Demo]

```
**** Internal Builder is used for build               ****
**** NOTE: Internal Builder is experimental currently ****
C:\Program Files\FreeBasic\fbc.exe ..\example.bas
Build complete for project Demo
Time consumed: 1500  ms.  Parallel threads used: 1
```

Eclipse for Embedded Developers

- CDT is just the beginning
- DSDP has six sub-project for device (embedded)—and the commercial community provides many more
  - Debugging and target management
  - C on device, Java code on device
  - Hardware-software co-design
  - etc.

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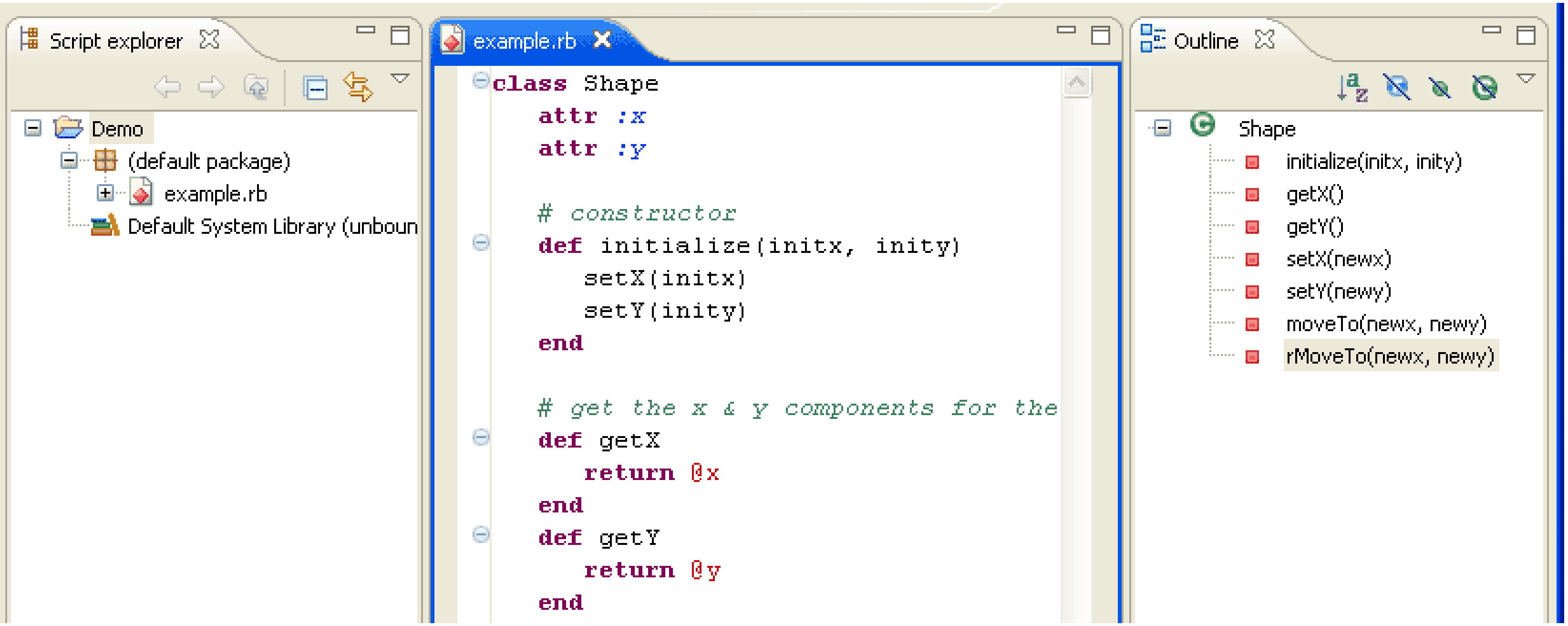
Dynamic Languages Toolkit

- Support for Tcl, Ruby, Python, JavaScript technology…
  - Future: Perl, Lua, PHP, Groovy, ActionScript…
- Integrates with Mylar and JDT
- Major challenge: type inference
  - Content assistance
  - Code navigation
  - Search
  - Refactoring
  - …

DLTK Technologies

- Type Inference: demand-driven type inference with Subgoal Pruning (DDP) http://www.lexspoon.org/ti/
- Launch and debug using open DBGp http://www.xdebug.org
- Interactive console
- All the views, wizards, properties, etc.

DLTK Ruby

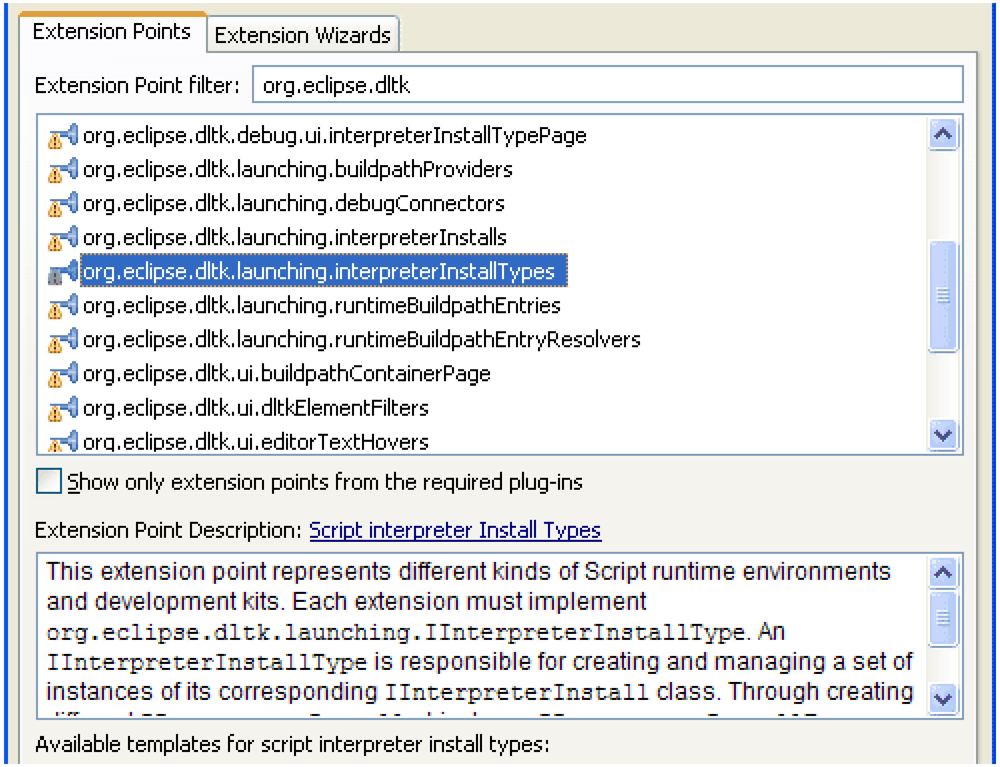


```
class Shape
    attr :x
    attr :y

    # constructor
    def initialize(initx, inity)
        setX(initx)
        setY(inity)
    end

    # get the x & y components for the
    def getX
        return @x
    end
    def getY
        return @y
    end
```

- Shape
  - initialize(initx, inity)
  - getX()
  - getY()
  - setX(newx)
  - setY(newy)
  - moveTo(newx, newy)
  - rMoveTo(newx, newy)

DLTK Framework for Other Languages

- 20+ extension points (today)—more soon
- What other languages can the community contribute?



Extension Point filter: org.eclipse.dltk

- org.eclipse.dltk.debug.ui.interpreterInstallTypePage
- org.eclipse.dltk.launching.buildpathProviders
- org.eclipse.dltk.launching.debugConnectors
- org.eclipse.dltk.launching.interpreterInstalls
- org.eclipse.dltk.launching.interpreterInstallTypes
- org.eclipse.dltk.launching.runtimeBuildpathEntries
- org.eclipse.dltk.launching.runtimeBuildpathEntryResolvers
- org.eclipse.dltk.ui.buildpathContainerPage
- org.eclipse.dltk.ui.dltkElementFilters
- org.eclipse.dltk.ui.editorTextHovers

□ Show only extension points from the required plug-ins

Extension Point Description: Script interpreter Install Types

This extension point represents different kinds of Script runtime environments and development kits. Each extension must implement `org.eclipse.dltk.launching.IInterpreterInstallType`. An `IInterpreterInstallType` is responsible for creating and managing a set of instances of its corresponding `IInterpreterInstall` class. Through creating

Available templates for script interpreter install types:

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Europa: Simultaneous Release

- AJDT
- BIRT
- Buckminster
- CDT
- Corona
- DLTK
- DSDP DD
- DSDP TM
- DTP
- Dash
- EMF
- EMFT (Query Trans Validation)
- EMFT (JET)
- GEF
- GMF
- JDT
- MDT
- Mylar
- PDE
- Platform
- STP
- TPTP
- WTP

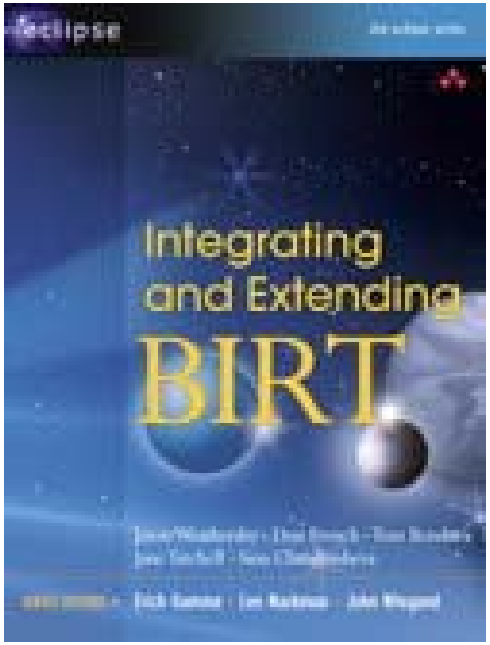
Eclipse: More and Better

- Base platform continues to improve
- Java platform and web tooling is better and better
- CDT 4.0 improvements: project model, builds…
- DLTK with type inference; supports four languages today, many more soon
- 20+ other projects coordinated in Europa
- And there's the ecosystem of commercial plug-ins and products as well…

For More Information

- http://www.eclipse.org/projects/
- Visit the Eclipse Foundation booth

- **TS-1419** “Best OSGi Practices”
- **BOF-9622** “Lessons Learned in Writing and Supporting a Plug-In for IDEA, the NetBeans IDE, and Eclipse”
- **BOF-6042** “Ajax for Average Joes: Enterprise Ajax Adoption Without Rocket Scientists”
- **BOF-9307** “What’s Been Happening with AspectJ and AJDT?”
- Addison-Wesley Eclipse Series books…



Q&A

Eclipse Europa: New Features and Technical Integrations

Mike Milinkovich and Bjorn Freeman-Benson

Executive Director and Director, Process
Eclipse Foundation
http://www.eclipse.org/

TS-9920