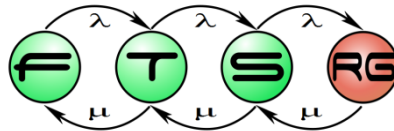


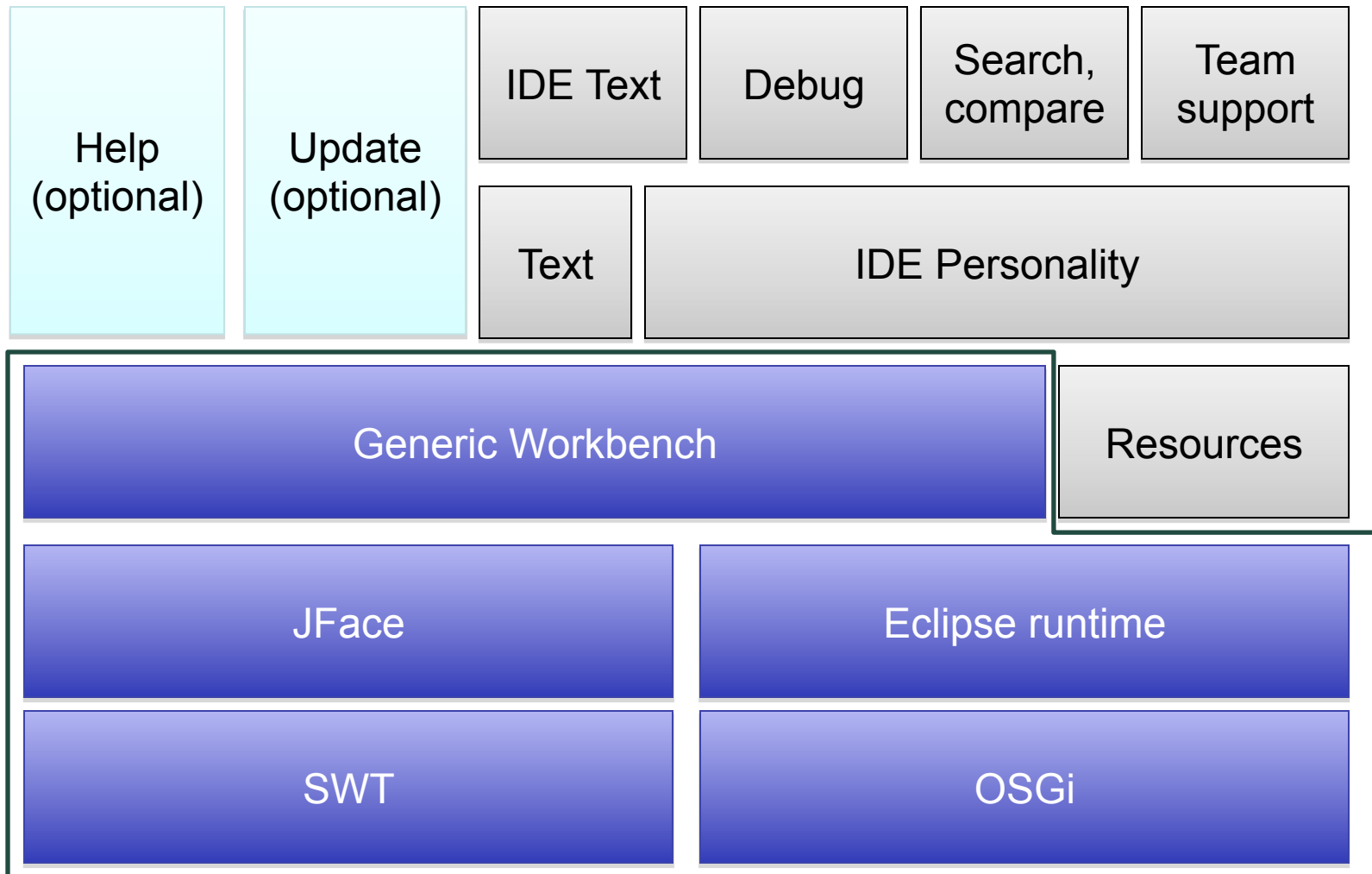
Application Development with Eclipse RCP



Eclipse RCP

- Rich Client Platform
 - Technology for desktop application development
 - Reuses Eclipse architecture
 - Modular development
 - Every Eclipse plug-in reusable
 - Available since Eclipse 3.0

RCP architecture



Further components

- EMF
- Forms API
- BIRT: report development
- Welcome page
- Cheat Sheets: short, clickable help sites
- Outline and Properties view support
- ...
- And every Eclipse plug-in available

Platform size

- RCP 3.5.1:
 - Download (binary, runtime): 15 MB
 - Extracted: 17 MB
 - Consists of 32 plug-ins

 - Does not contain additional plug-ins

RCP applications

- IBM Lotus Symphony
 - Office and collaboration software

The screenshot displays the IBM Lotus Symphony interface. The top window shows a 'ZetaBank Corporate Customers' view with a table of prospects. The 'Kraja Systems' category is highlighted in red. Below this, a 'Sales Lead Report' spreadsheet is open, featuring a table with columns for LOANTYPE, STATUS, REVENUE, and SALESREPS. A pie chart titled 'Sales Revenue Chart' is also visible, showing the distribution of revenue across different prospect statuses.

Status	ID	Subject	Contact	Size
Kraja Systems				
Closed				
	205	Kraja Systems	SpasenievaKrylov@llama.ibm.com	GA Under \$10 million
New				
	238	Kraja Systems	GasparMilosz@llama.ibm.com	FL \$10-100 million
	288	Kraja Systems	JennyVanButsel@llama.ibm.com	NC \$1-10 billion
Opportunity				
	289	Kraja Systems	ChanLaRocheinoire@llama.ibm.com	MS Under \$10 million
Pending				
	231	Kraja Systems	SalvatoreAragazzi@llama.ibm.com	NC \$10-100 million
	256	Kraja Systems	LindaGéza@llama.ibm.com	CA Under \$10 million
	249	Kraja Systems	PaulaVonGruenigen@llama.ibm.com	AR \$10-100 million
	251	Kraja Systems	NickVanDerWouwer@llama.ibm.com	NC Under \$10 million
	266	Kraja Systems	LizaEötvos@llama.ibm.com	NC \$1-10 billion
	240	Kraja's job in Sacramento	JenniferVonSibenthal@llama.ibm.com	CA Under \$10 million

LOANTYPE	STATUS	REVENUE	SALESREPS
Venture Capital	Closed	200	Anastasia Buteyko
Real Estate	New	30	Amita Sansu
Business Development	New	36	Anastasia Buteyko
Business Development	Opportunity	294	Lin Lui
Venture Capital	Pending	70	Linda Mangi
Venture Capital	Pending	160	Liza Han
Venture Capital	Pending	128	Isha Centa
Business Development	Pending	480	Isha Centa
Real Estate	Pending	90	Isha Centa
Business Development	Pending	280	Dawn Di Centa
Real Estate	Qualification	84	Dawn Di Centa
Business Development	Qualification	3	Dawn Di Centa
Real Estate	Qualification	500	Dawn Di Centa

RCP applications

■ Tasktop – Task list management

The screenshot displays the Eclipse IDE with the Tasktop application running. The main browser window shows the 'Technology Awards Guidelines' page from Eclipse.org. The 'Task List' on the right contains several tasks, including '1778: make Tasktop nomi' and '1811: sketch business cases'. A calendar widget is overlaid on the bottom right, showing tasks for January 25th, 2008, such as 'Tasktop: Dev Planning (11:00 AM-11:30 AM)' and 'Tasktop: STS Planning (11:30 AM-12:00 PM)'. The calendar also shows a table for January 2008.

January, 2008						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

RCP applications

■ XMIND – Mind Mapper

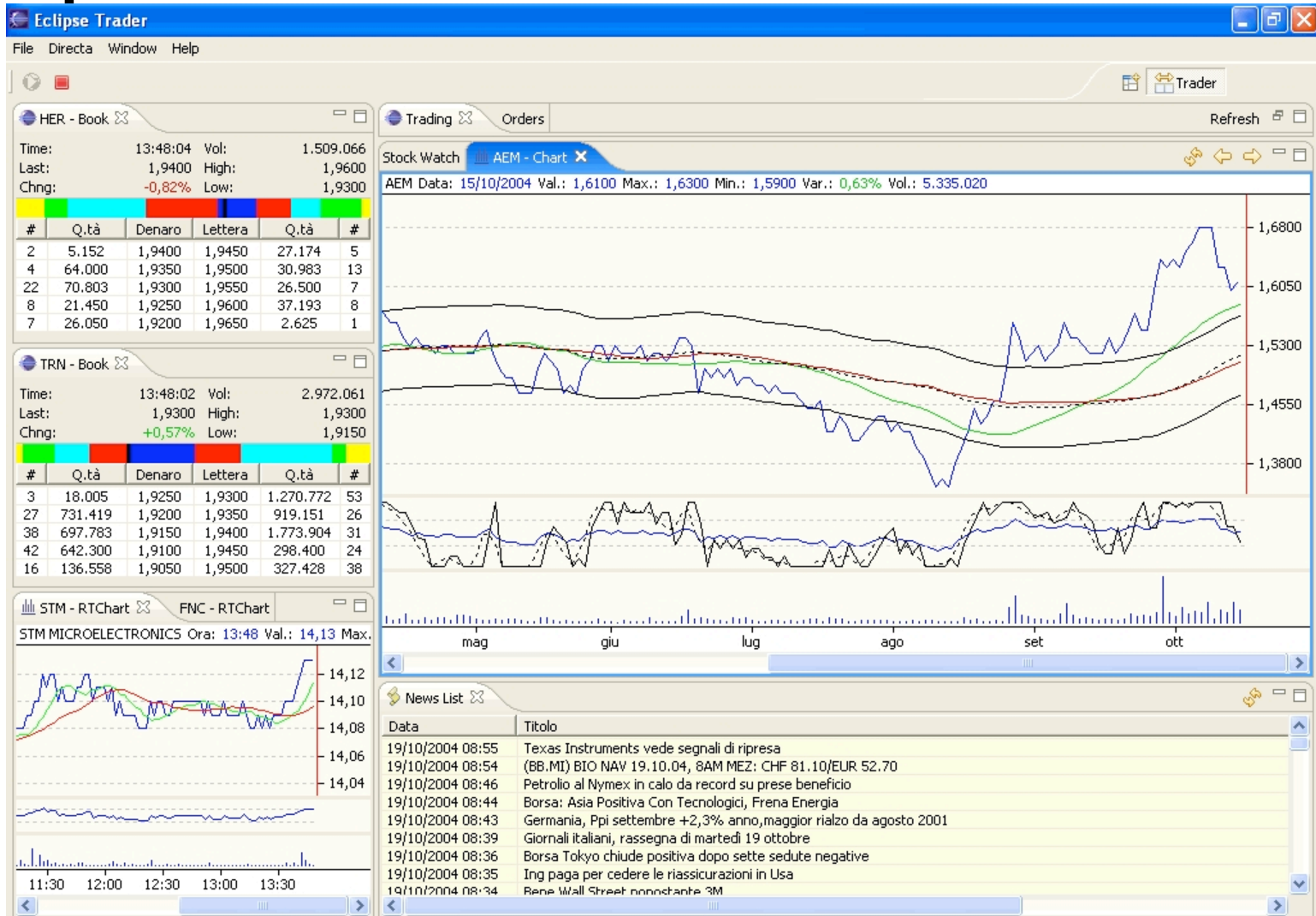
The screenshot displays the XMIND 2007 application window. The main workspace shows a mind map with a central node 'Sitemap' (blue oval) connected to several branches:

- Home** (red line):
 - What's New
 - Overview
 - Screenshots
 - Tech Notes
 - Downloads
 - Purchase
- Products** (orange line):
 - Overview
 - Screenshots
 - Tech Notes
 - Downloads
 - Purchase
- Features** (green line):
 - 1. Structure for human brains
 - 2. Rich expression
 - 3. Boundary and Relationship
 - 4. Markers and Legend
 - 5. Strong auto-numbering
 - 6. Customized Templates
 - 7. Open Eclipse Plug-in Platform
 - 8. Filter and delamination
 - 9. Powerful workbook and asso
 - 10. Seamless integration with of
 - 11. Import other mindmaps to sa
- Four Special Features** (yellow smiley icon):
 - 8. Filter and delamination
 - 9. Powerful workbook and asso
 - 10. Seamless integration with of
 - 11. Import other mindmaps to sa
- Support** (blue globe icon):
 - FAQ
 - Install
 - Forum
- About** (yellow document icon):
 - Pictures
 - Map
 - Privacy
- Solutions** (blue person icon):
 - Individual:
 - Presentation
 - Decision Maker
 - Writing Helper
 - Time Management
 - Education:
 - Innovation
 - Teaching
 - Key Notes
 - Teamwork:
 - Brainstorming
- Analytics** (white oval):
 - Pageviews
 - Visits
 - PV
- Next Version** (white oval):
 - Solutions
 - Tech Notes
 - Downloads
 - Cases

The interface includes a menu bar (File, Edit, View, Insert, Modify, Map, Window, Help), a toolbar, and several panels on the right: Outline (showing a tree view of the map), Notes, Markers (with a filter), and a list of XMIND Markers (Priority, Smiley, Task Complete, Flags). At the bottom, there are template thumbnails for Default Template, XMIND Classic, XMIND Simple, XMIND Business, XMIND Academese, and XMIND Comic. The status bar at the bottom indicates '1 topic (" Sitemap ") selected.'

RCP applications

■ Eclipse Trader – Stock market watcher



What is an RCP application?

Eclipse Application

- An extension for the `org.eclipse.core.runtime.applications` extension point

```
<extension id="application"  
  point="org.eclipse.core.runtime.applications">  
  <application>  
    <run class="hu.bme.mit.rcpdemo.Application">  
    </run>  
  </application>  
</extension>
```

- Referred class implements `IApplication`

IApplication

```
public class Application implements
    IApplication {
    public Object
    start (IApplicationContext context)
    throws Exception {
        System.out.println ("Hello,
        world");
    }

    public void stop () {}
}
```

IApplication

```
public class Application implements
    IApplication {
    public Object
    start(IApplicationContext context)
    throws Exception {
        System.out.println("
world");
    }

    public void stop() {}
}
```

Executing application

IApplication

```
public class Application implements
    IApplication {
    public Object
    start (IApplicationContext context)
    throws Exception {
        System.out.println ("Hello,
    world");
    }

    public void stop () {}
}
```

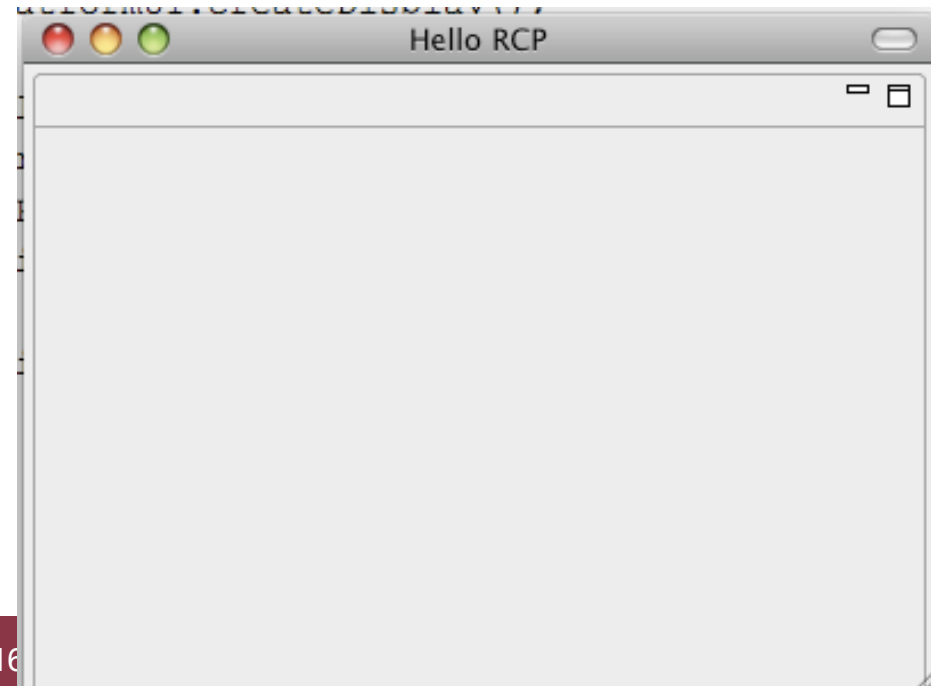
Stopping application

RCP application

- **RCP application:**
 - Special Eclipse application
 - Uses Workbench for event handling
- **Workbench**
 - Fixed selection of elements (same as IDE)
 - Some elements can be disabled

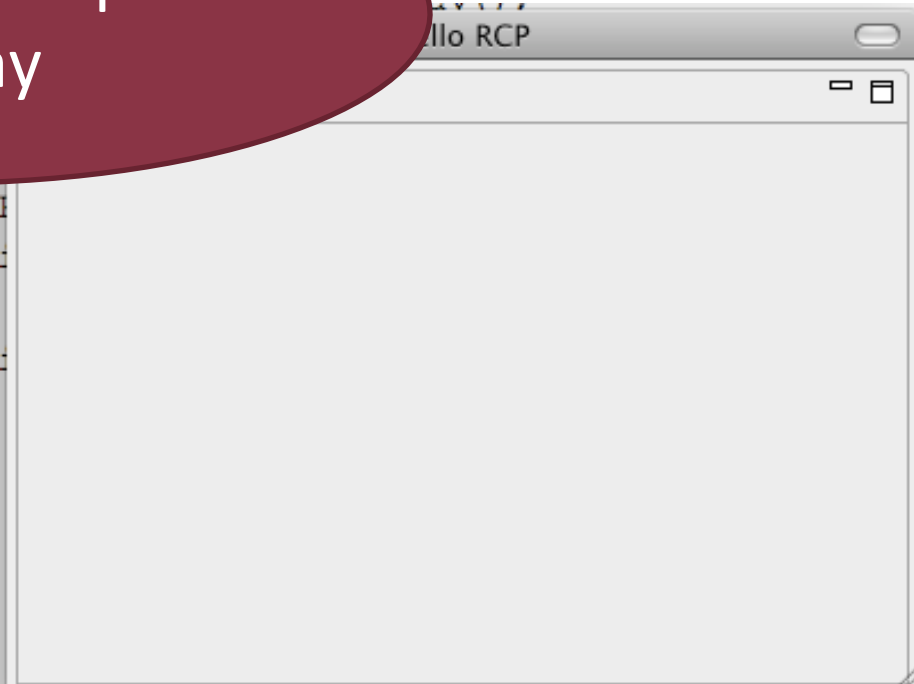
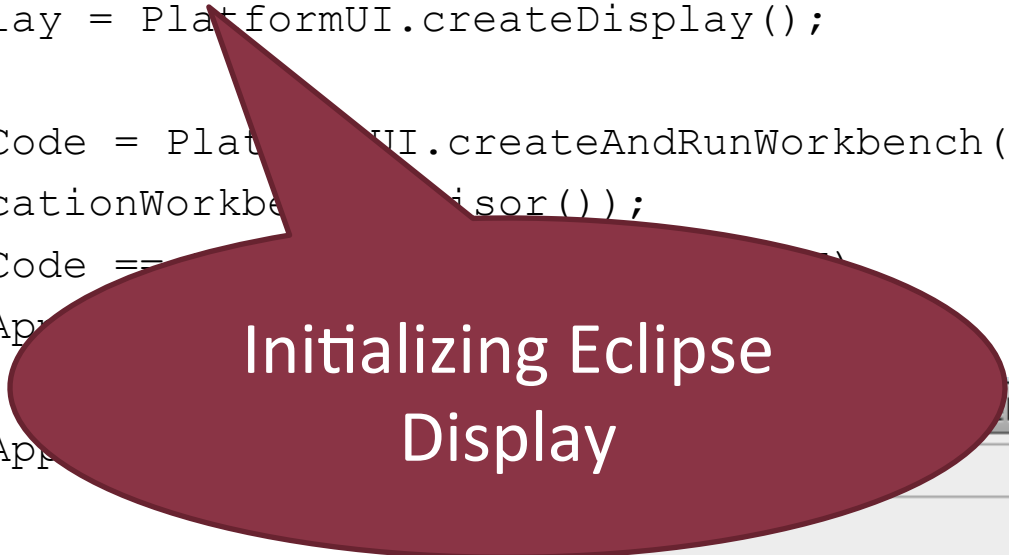
What is an RCP application?

```
public Object start(IApplicationContext context) throws Exception {
    Display display = PlatformUI.createDisplay();
    try {
        int returnCode = PlatformUI.createAndRunWorkbench(display,
            new ApplicationWorkbenchAdvisor());
        if (returnCode == PlatformUI.RETURN_RESTART)
            return IApplication.EXIT_RESTART;
        else
            return IApplication.EXIT_OK;
    } finally {
        display.dispose();
    }
}
```



What is an RCP application?

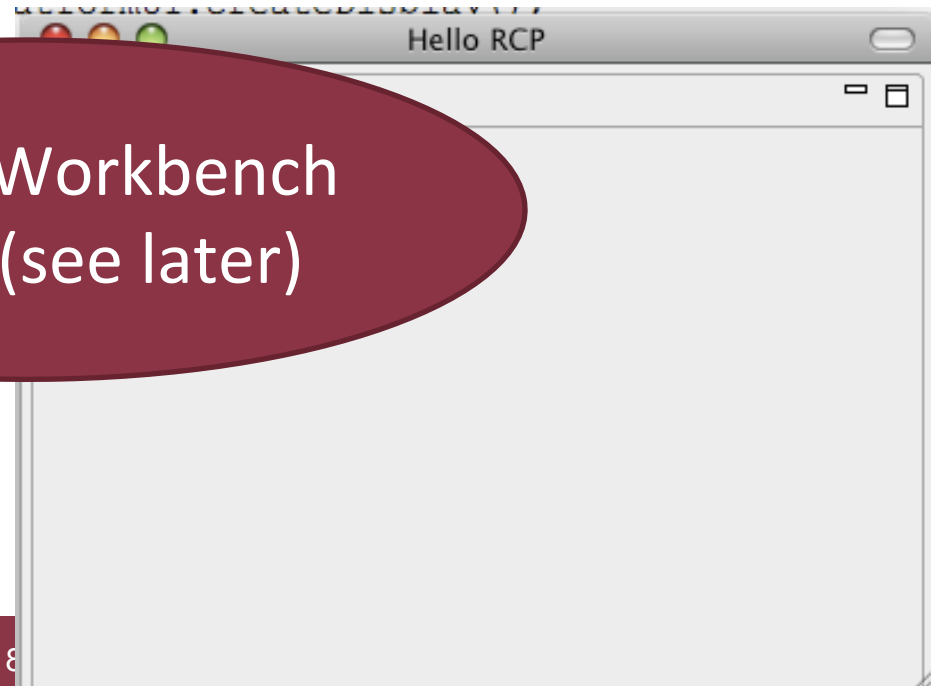
```
public Object start(IApplicationContext context) throws Exception {  
    Display display = PlatformUI.createDisplay();  
    try {  
        int returnCode = PlatformUI.createAndRunWorkbench(display,  
            new ApplicationWorkbenchAdvisor());  
        if (returnCode == ...) {  
            return IApp...  
        } else {  
            return IApp...  
        }  
    } finally {  
        display.dispose();  
    }  
}
```



What is an RCP application?

```
public Object start(IApplicationContext context) throws Exception {
    Display display = PlatformUI.createDisplay();
    try {
        int returnCode = PlatformUI.createAndRunWorkbench(display,
            new ApplicationWorkbenchAdvisor());
        if (returnCode == PlatformUI.RETURN_RESTART)
            return IApplication.EXIT_RESTART;
        else
            return IApplication.EXIT_OK;
    } finally {
        display.dispose();
    }
}
```

Creating Workbench
Advisor (see later)



What is an RCP application?

```
public Object start(IApplicationContext context) throws Exception {
    Display display = PlatformUI.createDisplay();
    try {
        int returnCode = PlatformUI.createAndRunWorkbench(display,
            new ApplicationWorkbenchAdvisor());
        if (returnCode == PlatformUI.RETURN_RESTART)
            return IApplication.EXIT_RESTART;
        else
            return IApplication.EXIT_OK;
    } finally {
        display.dispose();
    }
}
```



Running Workbench

What is an RCP application?

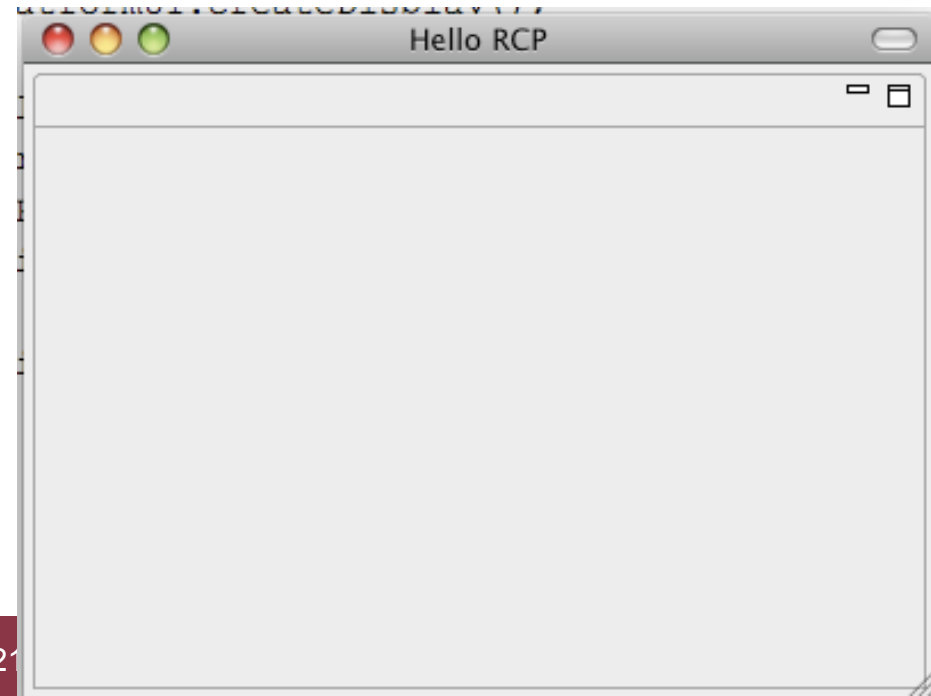
```
public Object start(IApplicationContext context) throws Exception {  
    Display display = PlatformUI.createDisplay();  
    try {  
        int returnCode = PlatformUI.createAndRunWorkbench(display,  
            new ApplicationWorkbenchAdvisor());  
        if (returnCode == PlatformUI.RETURN_RESTART)  
            return IApplication.EXIT_RESTART;  
        else  
            return IApplication.EXIT_OK;  
    } finally {  
        display.dispose();  
    }  
}
```

Handling return value



What is an RCP application?

```
public Object start(IApplicationContext context) throws Exception {
    Display display = PlatformUI.createDisplay();
    try {
        int returnCode = PlatformUI.createAndRunWorkbench(display,
            new ApplicationWorkbenchAdvisor());
        if (returnCode == PlatformUI.RETURN_RESTART)
            return IApplication.EXIT_RESTART;
        else
            return IApplication.EXIT_OK;
    } finally {
        display.dispose();
    }
}
```



Stopping an RCP application

```
public void stop() {
    final IWorkbench workbench = PlatformUI.getWorkbench();
    if (workbench == null)
        return;
    final Display display = workbench.getDisplay();
    display.syncExec(new Runnable() {
        public void run() {
            if (!display.isDisposed())
                workbench.close();
        }
    });
}
```

Stopping an RCP application

```
public void stop() {  
    final IWorkbench workbench = PlatformUI.getWorkbench();  
    if (workbench == null)  
        return;  
    final Display display = workbench.getDisplay();  
    display.syncExec(new Runnable() {  
        public  
  
    }  
});  
}
```

No workbench ->
program not running

Stopping an RCP application

```
public void stop() {  
    final IWorkbench workbench = PlatformUI.getWorkbench();  
    if (workbench == null)  
        return;  
    final Display display = workbench.getDisplay();  
    display.syncExec(new Runnable() {  
        public void run() {  
            if (!display.isDisposed())  
                workbench.close();  
        }  
    });  
}
```

Workbench needs to
be shut down in UI
thread

Stopping an RCP application

```
public void stop() {  
    final IWorkbench workbench = PlatformUI.getWorkbench();  
    if (workbench == null)  
        return;  
    final Display display = workbench.getDisplay();  
    display.syncExec(new Runnable() {  
        public void run() {  
            if (!display.isDisposed())  
                workbench.close();  
        }  
    });  
}
```

Dispose if needed

Advisors – Application Settings

- Application of Strategy (or policy) design pattern
 - Allows the configuration of
 - Settings
 - Algorithms
 - Value selection happens during runtime

RCP Application Advisors

- Multiple advisors available
 - WorkbenchAdvisor
 - Callbacks for application lifecycle events
 - WorkbenchWindowAdvisor
 - Window configuration
 - ActionBarAdvisor
 - Menu, toolbar and status bar settings
- Usage
 - Rely on default implementation
 - Override required methods

WorkbenchAdvisor

- Stores workbench properties
 - Selecting default perspective
 - Use IWorkbenchConfigurer for further settings
- Application lifecycle callbacks
 - initialize
 - preStartup
 - postStartup
 - ...

WorkbenchAdvisor example

```
private static final String PERSPECTIVE_ID =
    "hu.bme.mit.rcpdemo.gui.perspective";

public void initialize(IWorkbenchConfigurer configurer){
    super.initialize(configurer);
    configurer.setSaveAndRestore();
}

public WorkbenchWindowAdvisor
    createWorkbenchWindowAdvisor(IWorkbenchWindowConfigurer configurer)
    {
        return new
            ApplicationWorkbenchWindowAdvisor(configurer);
    }

public String getInitialWindowPerspectiveId() {
    return PERSPECTIVE_ID;
}
```

WorkbenchAdvisor example

```
private static final String PERSPECTIVE_ID =  
    "hu.bme.mit.rcpdemo.gui.perspective";  
  
public void initialize(IWorkbenchConfigurer configurer){  
    super.initialize(configurer);  
    configurer.setSaveAndRestore();  
}  
  
public WorkbenchWindowAdvisor createWorkbenchWindowAdvisor(IWorkbenchWindowConfigurer configurer)  
{  
    return new WorkbenchWindowAdvisor(this, configurer)  
        {  
            ApplicationWindowConfigurer configurer)  
        }  
}  
  
public String getInitialWindowPerspectiveId() {  
    return PERSPECTIVE_ID;  
}
```

Enable state saving

WorkbenchAdvisor example

```
private static final String PERSPECTIVE_ID =
    "hu.bme.mit.rcpdemo.gui.perspective";

public void initialize(IWorkbenchConfigurer configurer){
    super.initialize(configurer);
    configurer.setSaveAndRestore();
}

public WorkbenchWindowAdvisor
createWorkbenchWindowAdvisor(IWorkbenchWindowConfigurer configurer)
{
    return new
        ApplicationWorkbenchWindowAdvisor(configurer);
}

public String getId()
{
    return PERSPECTIVE_ID;
}
```

Factory method

WorkbenchAdvisor example

```
private static final String PERSPECTIVE_ID =  
    "hu.bme.mit.rcpdemo.gui.perspective";  
  
public void initialize(IWorkbenchConfigurer configurer){  
    super.initialize(configurer);  
    configurer.setSaveAndRestore();  
}  
  
public WorkbenchWindowAdvisor createWorkbenchWindowAdvisor(IWorkbenchConfigurer configurer)  
{  
    return new  
        ApplicationWorkbenchWindowAdvisor(configurer);  
}  
  
public String getInitialWindowPerspectiveId() {  
    return PERSPECTIVE_ID;  
}
```

Return default
perspective

WorkbenchWindowAdvisor

- Setting window properties
 - Sets up IWorkbenchWindowConfigurer
- Window properties
 - setTitle: title line
 - setInitialSize: initial size
- Visible elements
 - setShowCoolBar
 - setShowMenuBar
 - setShowPerspectiveBar
 - setShowFastViewBar
 - setShowProgressIndicator
 - setShowStatusLine

ActionBarAdvisor

- Adding Actions to menus and toolbars
- Not required for Command framework
 - No further information here

RCP applications

Application, Product
Branding

Applications and Products

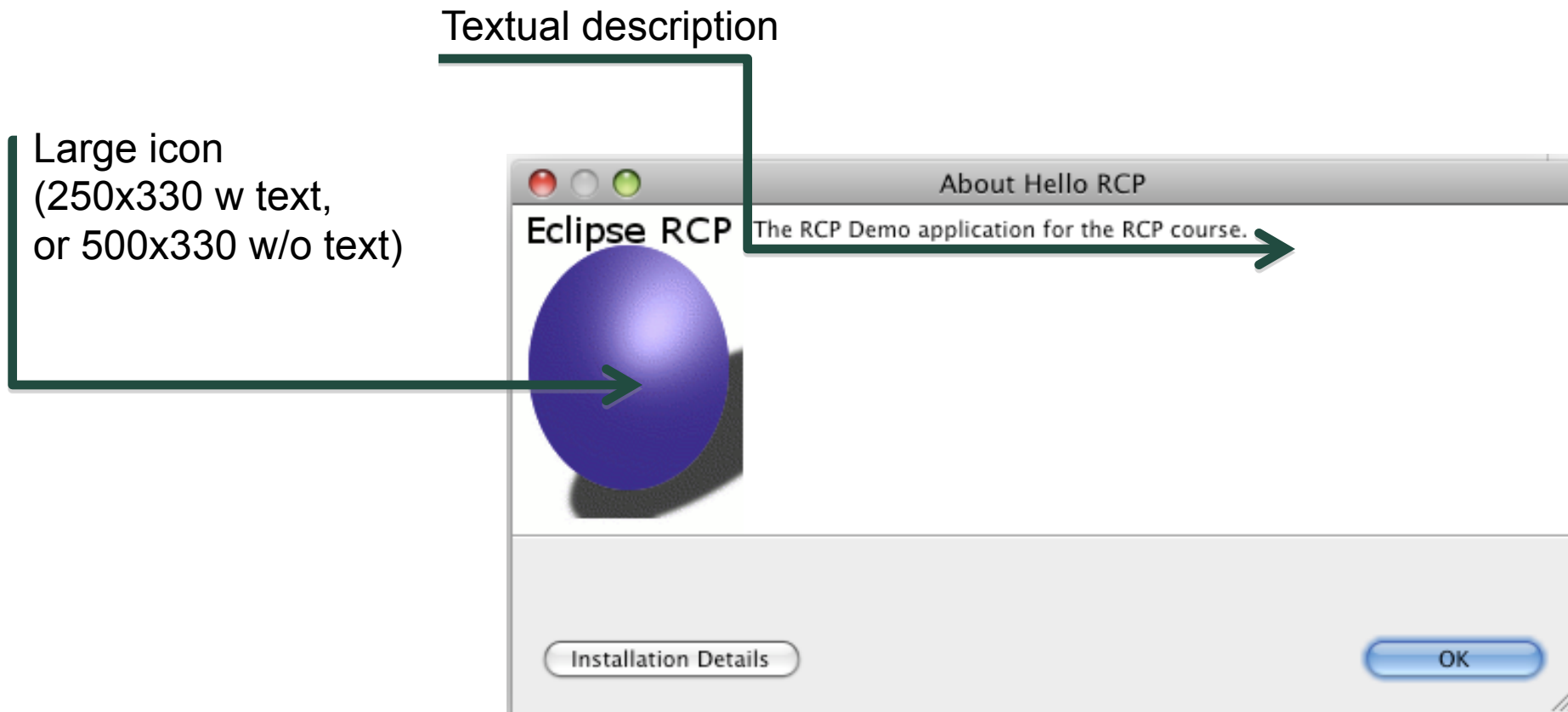
- Extra metainformation required for packaging
 - Branding information
 - Additional configuration files
- Products are used to set them up
 - Extension point:
`org.eclipse.core.runtime.products`
- Alternatively:
 - Creating .product file
 - Synchronization option with corresponding plugin.xml

Branding – Application Icon

- Icon assignment (platform dependent)
 - Windows: 6 types of icons (bmp or ico format)
 - Linux: XPM format
 - OSX: ICNS format
- Main icon:
 - 5 different sizes (from 16x16 to 128x128)
 - Multiple formats possible

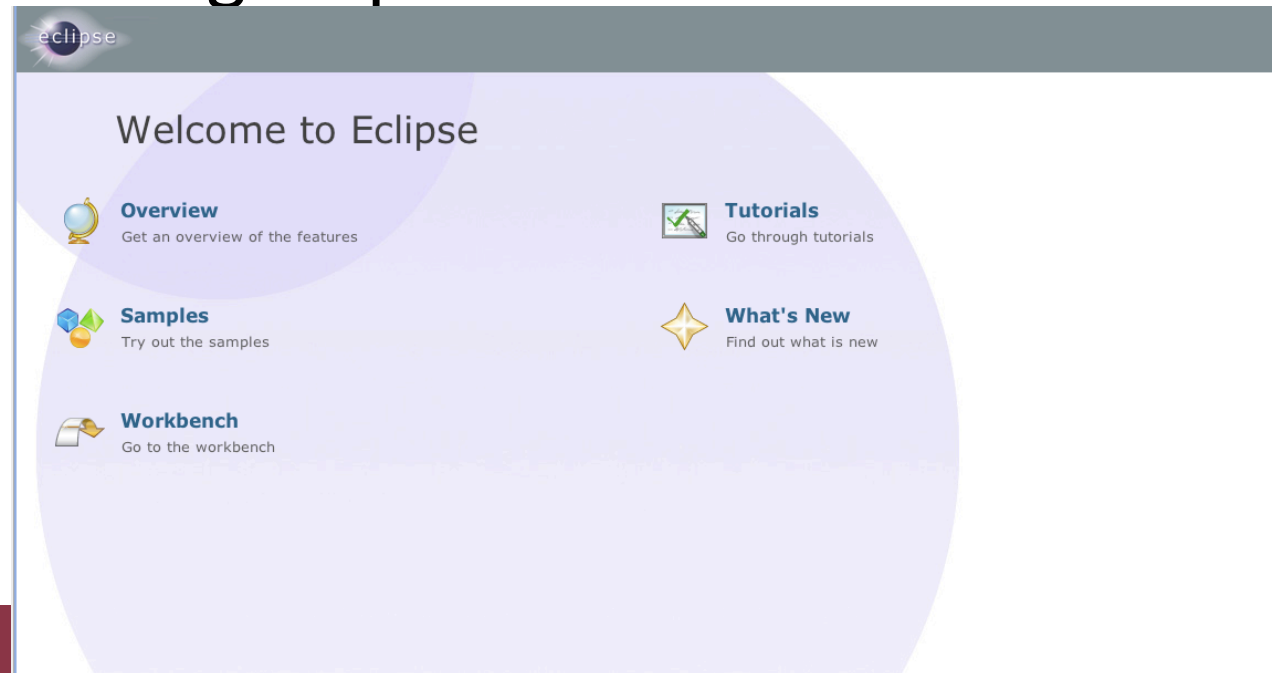
Branding – About Box

- Default About dialog reusable



Branding - Intro

- Welcome page for the application
 - Similar to Eclipse Welcome
- Based on HTML/CSS **or** SWT
- Can execute commands
- Extension point: `org.eclipse.ui.intro`



Extending HTML Intro Screen

- CustomizableIntroPart can be extended via
 - org.eclipse.ui.intro.configExtension extension
- Extensions are described in XML

Branding - Themes

- Definition of custom formatting
- Extension point: `org.eclipse.ui.themes`
- Theme:
 - Colors and fonts
 - Uses JFace `colorRegistry` and `fontRegistry`
 - Available for other plug-ins as well
 - Workbench works the same way
 - Categorization

Theme – plugin.xml

```
<extension
    point="org.eclipse.ui.themes">
    <themeElementCategory
        id="hu.bme.mit.eclipsecourse.rcpdemo.category"
        label="RCP Demo">
        <description>
            This category describes the RCP colors and fonts.
        </description>
    </themeElementCategory>
    <colorDefinition
        categoryId="hu.optxware.eclipsecourse.rcpdemo.category"
        id="hu.optxware.eclipsecourse.rcpdemo.text"
        label="Text color"
        value="55,112,231">
    </colorDefinition>
</extension>
```

Theme – plugin.xml

```
<extension
    point="org.eclipse.ui.themes">
    <themeElementCategory
        id="hu.bme.mit.eclipsecourse.rcpdemo.category"
        label="RCP Demo">
        <description>
            This category describes RCP colors and fonts.
        </description>
    </themeElementCategory>
    <colorDefinition
        categoryId="hu.bme.mit.eclipsecourse.rcpdemo.category"
        id="hu.optxware"
        label="Text color"
        value="55,112,231">
    </colorDefinition>
</extension>
```

Category selection

Theme – plugin.xml

```
<extension
    point="org.eclipse.ui.themes">
    <themeElementCategory
        id="hu.bme.mit.ecli
        label="RCP Demo"
        <description>
            This category descri
        </description>
    </themeElementCategory>
    <colorDefinition
        categoryId="hu.optxware.eclipsecourse.rcpdemo.category"
        id="hu.optxware.eclipsecourse.rcpdemo.text"
        label="Text color"
        value="55,112,231">
    </colorDefinition>
</extension>
```

Default color as RGB constant

Accessing Theme from Code

//Getting the current theme

```
IThemeManager themeManager = PlatformUI.getWorkbench()  
.getThemeManager();  
ITheme currentTheme = themeManager.getCurrentTheme();
```

//Getting a color from the Theme

```
ColorRegistry colorRegistry = theme.getColorRegistry();  
Color textColor= colorRegistry  
.get("hu.bme.mit.eclipsecourse.rcpdemo.text");
```

Accessing Theme from Code

```
//Getting the current theme
```

```
IThemeManager themeManager = PlatformUI.getWorkbench()  
.getThemeManager();
```

```
ITheme currentTheme = themeManager.getCurrentTheme();
```

```
//Getting a color from the Theme
```

```
ColorRegistry colorRegistry = currentTheme.getColorRegistry();
```

```
Color textColor = colorRegistry  
.get("hu.bme.mit.edu");
```

Select Current Theme

Accessing Theme from Code

//Getting the current theme

```
IThemeManager themeManager = PlatformUI.getWorkbench()  
.getThemeManager();  
ITheme currentTheme = themeManager.getCurrentTheme();
```

//Getting a color from the Theme

```
ColorRegistry colorRegistry = theme.getColorRegistry();  
Color textColor= colorRegistry  
.get("hu.bme.mit.eclipsecourse.rcpdemo.text");
```

Access Color Contant

Additional Features

Eclipse Help; External Libraries

Eclipse Help

- Help
 - Extension point: org.eclipse.help.toc
- Consists of TOC (Table of Contents) elements
 - Tree structure
 - Contains sub-TOC elements and topics
 - Main TOC stored in toc.xml (by convention)
- Topics: HTML file
 - Full content
- Do not forget to package the pages
- Web service available for browsing

- Topic elements
 - Label
 - Reference to HTML content
 - Any HTML content usable
 - Images, links, etc.
 - Parsed by very strict XML parser!
 - Content must be well-formed

Eclipse Help

GO [Search scope:](#) All topics

Using the help system

Browse topics in the **Contents** frame () on the left. Click on a topic to have it displayed. Use the **Back** and **Forward** buttons to navigate within the history of viewed topics.

Searching

To quickly locate topics on a particular subject in the documentation, enter a query in the **Search** field in the **Search** frame () to display the Search view. You can narrow the **scope** of your search by selecting sections you are interested in.

Synchronizing

Clicking the **Show in Table of Contents** button () will select that topic in the navigation tree. The **Link Contents** button () keeps the navigation tree synchronized to the current topic.

Capabilities

To show documentation about capabilities that are disabled in the application, select the **Show All To** button (). This affects the table of contents and search results.

Keyword Index

Eclipse Help

GO [Search scope:](#) All topics

Using the help system

Browse topics in the **Contents** frame (📁) to select a topic to have it displayed. Use the **Back** (⏪) and **Forward** (⏩) buttons to navigate between topics.

Searching

To quickly locate a topic, use the **Search** field (🔍) in the **Search** frame (🔍). Enter a search term and press **Enter** to search by selecting sections you are interested in.

Synchronizing

Clicking the **Show in Table of Contents** button (📁) will select that topic in the navigation tree. The **Link Contents** button (🔗) keeps the navigation tree synchronized to the current topic.

Capabilities

To show documentation about capabilities that are disabled in the application, select the **Show All To** button (📁). This affects the table of contents and search results.

Keyword Index

Table of Contents hierarchy

Navigation pane items:

- Rich User Guide
- Development user guide
- Plug-in Developer Guide
- Developer's Guide
- Welcome to Eclipse
- Platform architecture
- Simple plug-in example
- Runtime overview
- Logging into the workbench
- Dialogs and wizards
- SWT UI framework
- Standard Widget Toolkit
- Forms
- Controls
- Layouts
- Advanced Topics
- Multi-page form editors
- Common Navigator Framework
- Source overview
- Advanced resource concepts
- Advanced workbench concepts
- Editors

Eclipse Help

GO [Search scope:](#) All topics

Using the help system

Browse topics in the **Contents** frame () on the left. Click on a topic to have it displayed. Use the **Back** and **Forward** buttons to navigate within the history of viewed topics.

Searching

To quickly locate topics on a particular subject in the documentation, enter a query in the **Search** field in the **Search** frame () to display the Search view. You can narrow the **scope** of your search by selecting sections you are interested in.

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Clicking the **Show in Table of Contents** button () will select that topic in the navigation tree. The **Link Contents** button () keeps the navigation tree synchronized to the current topic.

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To show documentation about capabilities that are disabled in the application, select the **Show All To** button (). This affects the table of contents and search results.

Keyword Index

Eclipse Help

GO [Search scope:](#) All topics

ch User Guide
evelopment user guide
Plug-in Developer Guide
ammer's Guide
elcome to Eclipse
tform architecture
mple plug-in example
ntime overview
gging into the workbench
alogs and wizards
ce UI framework
ndard Widget Toolkit
Forms
Controls
Layouts
Advanced Topics
Multi-page form editors
mmon Navigator Framework
sources overvie
vanced p
vance
itors

Using the help system

Browse topics in the **Contents** frame (📁) on the left. Click on a topic to have it displayed. Use the **Back** and **Forward** buttons to navigate within the history of viewed topics.

Searching

To quickly locate topics on a particular subject in the documentation, enter a query in the **Search** field of the **Search** frame (🔍) to display the Search view. You can narrow the **scope** of your search by selecting the search sessions you are interested in.
















Synchronizing

Clicking the **Show Contents** button (🔗) will select that topic in the navigation tree. The **Link Contents** button (🔗) keeps the navigation tree synchronized to the current topic.
















that are disabled in the application, select the **Show All Topics** button (🔗) to display all topics and search results.

Content area

Content Hierarchy
















- [-]  **Platform Plug-in Developer Guide**
 - [-]  Programmer's Guide
 - [+]  Welcome to Eclipse
 - [+]  Platform architecture
 - [+]  Simple plug-in example
 - [+]  Runtime overview
 - [+]  Plugging into the workbench
 - [+]  Dialogs and wizards
 - [+]  JFace UI framework
 - [+]  Standard Widget Toolkit
 - [-]  UI Forms
 - [+]  Controls
 - [+]  Layouts
 - [+]  Advanced Topics
 -  Multi-page form editors

Content Hierarchy

- [-]  **Platform Plug-in Developer Guide**
 - [-]  Programmer's Guide
 -  Welcome to Eclipse
 -  Platform architecture
 -  Plug-in example
 -  Overview
 -  Getting into the workbench
 - [+]  Dialogs and wizards
 - [+]  JFace UI framework
 - [+]  Standard Widget Toolkit
 - [-]  UI Forms
 - [+]  Controls
 - [+]  Layouts
 - [+]  Advanced Topics
 -  Multi-page form editors
















Top-level TOC

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- [-]  **Platform Plug-in Developer Guide**
 - [-]  Programmer's Guide
 - [+]  Welcome to Eclipse
 - [+]  Platform architecture
 - [+]  Simple plug-in example
 - [+]  Runtime overview
 - [+]  Plugging in
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TOC

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- [-]  **Platform Plug-in Developer Guide**
 - [-]  Programmer's Guide
 - [+]  Welcome to Eclipse
 - [+]  Platform architecture
 - [+]  Simple plug-in example
 - [+]  Runtime overview
 - [+]  Plugging into the workbench
 - [+]  Plug-ins, logs and wizards
 - [+]  Plug-in framework
 - [+]  Plug-in Budget Toolkit
 - [+]  Plug-in tests
 - [+]  Controls
 - [+]  Layouts
 - [+]  Advanced Topics
 - [+]  Multi-page form editors

Help site

Context Sensitive Help

- Help context extension
 - Extension point: *org.eclipse.help.context*
 - Uses XML
 - Maps contexts and topics
 - Provides generic description
- Mapping
 - `WorkbenchHelp.setHelp(Control, String)`
 - `PlatformUI.getWorkbench().getHelpSystem().setHelp(Control, String)`

Accessing External Libraries

- External libraries
 - JDBC driver
 - JPA implementation
 - ...
- Making it available for our plug-ins

External Eclipse plug-in Dependencies

- Add it to the target platform
- Set up as additional dependency in
 - Plug-in manifest
 - Product definition

External non-Eclipse Dependencies

- Look at Eclipse Orbit
 - Contains many external libraries as Eclipse plug-ins
 - Same legal review as any other project release
- Create custom plug-in
 - Embed corresponding jar file into a new plug-in
 - Jar is added to plug-in classpath
 - Packages needs to exported to other plug-ins

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Packaging RCP applications

Distributing RCP Applications

- Most important tasks:
 - Create executable version
 - Use Product export wizard
 - Distribution
 - Archives (for install)
 - p2 repositories (for updates)
 - Software update
 - p2 integration

Feature

- Plug-in is too fine-grained for distribution
 - Eclipse SDK (Classic) 3.5.1: 364 plug-in
 - RCP Platform: 32
 - A single plug-in is often not meaningful
 - Grouping is needed
- Feature
 - A group of plug-ins
 - Provides some common functionality
 - Smallest installable unit

Feature information

- Feature project
 - Descriptor: feature.xml
 - No source code, manifest, etc.
- Most important information
 - Identifier (hierarchical, see plug-in)
 - Version number (semantic versioning, see plug-in)
 - Name – especially required for updates
- Textual information
 - Description
 - Copyright
 - Licence text

Feature information – 2.

■ Structural information

○ Contained plug-ins

- Name
- Version number
- Optionally download/extracted file size (for updater)

○ Contained features

■ Dependencies

○ Plug-in dependencies

○ Feature dependencies

Feature information – 3.

- For updating
 - Update site (repository) name and URL
 - To download updates
 - Further update sites
 - Dependency updates
- Platform-specific options
 - Describing supported platforms
 - Operating system, language, windowing toolkit
 - Allows platform-specific plug-in selection

Product export

- Goal:
 - Provide executable package
 - Create repository (for refresh)
- Application plug-ins not enough for execution
 - Target platform setup needed

Target Platform

- Plug-in and feature selection
 - Different for IDE, RCP and RAP applications
 - Custom ones can be created
 - Default target platform: Eclipse installation
- Used during build time
 - For accessing dependencies
- Used during execution
 - Target Platform and developed plug-ins are executed together

RCP Target Platform

- RCP application
 - Can be executed with IDE platform
 - But easy to include something with many dependencies
 - RCP Target platform
 - Separate download from eclipse.org
 - Delta Pack – Multiplatform support
 - Target Platform extension
 - Separate download from Eclipse.org (~70 MB)

Exported Application

- RCPFolder/
 - artifacts.xml
 - eclipse.exe
 - eclipse.ini
 - configuration/
 - config.ini
 - p2/
 - plugins/
 - «RCP Target platform plug-ins»
 - «Application plug-ins»
 - features/
 - «RCP Target platform features»
 - «Application features»

Exported Application

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 - artifacts.xml
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 - «Application features»



Installed plugins

Exported Application

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 - artifacts.xml
 - eclipse.exe
 - eclipse.ini
 - configuration/
 - config.ini
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 - plugins/
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 - «Application plug-ins»
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 - «RCP Target platform features»
 - «Application features»



Executable and ini file

Exported Application

- RCPFolder/
 - artifacts.xml
 - eclipse.exe
 - eclipse.ini
 - configuration/
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Describes default product, splash screen

Exported Application

- RCPFolder/
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Files required for
update support

Exported Application

- RCPFolder/
 - artifacts.xml
 - eclipse.exe
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Application plug-ins

Installation and Execution

■ Installation

- No specific installation required
 - Extract archive
 - Start executable
- Requires JVM installed before

■ Update

- Include p2 for support

p2 provisioning

- Available since Eclipse 3.4
- Complete rewrite of previously used Update Manager
- Functions:
 - Managing software repositories
 - Following dependencies
 - Multi-protocol downloads
 - Including password support

- Help menu
 - About/Installation Details
 - List installed **features**
 - Uninstall installed **features**
 - List installed **plug-ins**
 - Check for Updates
 - Automatic updates
 - Install new software...
 - Starts install wizard

■ Help menu

○ About/Installation Details

- List installed **features**
- Uninstall installed **features**
- List installed **plug-ins**

○ Check for Updates

- Automatic updates

○ Install new software...

- Starts install wizard

This is a very surprising location!

Installation Details

Eclipse SDK Installation Details

Installed Software | Installation History | Features | Plug-ins | Configuration

Name	Version	Id
Galileo Capability Definitions	1.0.0.v20090618-23	org.eclipse.galileo.feature.group
Graphical Editing Framework Draw2d	3.5.1.v20090724-11	org.eclipse.draw2d.feature.group
Graphical Editing Framework Draw2d SDK	3.5.1.v20090724-11	org.eclipse.draw2d.sdk.feature.group
Graphical Editing Framework Draw2d Source Feature	3.5.1.v20090724-11	org.eclipse.draw2d.source.feature.group
Graphical Editing Framework GEF	3.5.1.v20090724-11	org.eclipse.gef.feature.group
Graphical Editing Framework GEF All-In-One SDK	3.5.1.v20090724-11	org.eclipse.gef.all.feature.group
Graphical Editing Framework GEF Examples	3.5.1.v20090813-13	org.eclipse.gef.examples.feature.group
Graphical Editing Framework GEF SDK	3.5.1.v20090724-11	org.eclipse.gef.sdk.feature.group
Graphical Editing Framework GEF Source Feature	3.5.1.v20090724-11	org.eclipse.gef.source.feature.group
Graphical Editing Framework Zest Visualization Toolkit	1.1.1.v20090724-11	org.eclipse.zest.feature.group
Graphical Editing Framework Zest Visualization Toolkit S	1.1.1.v20090724-11	org.eclipse.zest.sdk.feature.group
Graphical Editing Framework Zest Visualization Toolkit S	1.1.1.v20090724-11	org.eclipse.zest.source.feature.group
Graphical Modeling Framework Documentation	1.3.0.v20090729-20	org.eclipse.gmf.doc.feature.group
Graphical Modeling Framework Examples PDE	1.2.0.v20090114-09	org.eclipse.gmf.examples.pde.feature.grc
Graphical Modeling Framework Notation	1.2.0.v20090729-20	org.eclipse.gmf.runtime.notation.feature.
Graphical Modeling Framework Runtime	1.2.1.v20090729-20	org.eclipse.gmf.feature.group
Graphical Modeling Framework Runtime Developer Reso	1.2.1.v20090729-20	org.eclipse.gmf.source.feature.group
Graphical Modeling Framework SDK	2.2.1.v20090814-10	org.eclipse.gmf.sdk.feature.group

Update... | Uninstall... | Properties | Close

Package install with p2

Check the items that you wish to install.



Work with: Galileo - <http://download.eclipse.org/releases/galileo>

Add...

Find more software by working with the ['Available Software Sites'](#) preferences.

type filter text

Name	Version
▼ Modeling	
<input type="checkbox"/> Acceleo SDK (Incubation)	0.8.1.v200909161003
<input type="checkbox"/> ATL SDK - ATLAS Transformation Language SDK	3.0.1.v200909150941
<input type="checkbox"/> CDO Model Repository SDK	2.0.0.v200906160459
<input type="checkbox"/> Eclipse Modeling Framework Data Integrity Frame	1.3.1.v20090819-1457-4778_90GCMOEJccl
<input type="checkbox"/> Ecore Tools SDK (Incubation)	0.9.0.v200906221231
<input type="checkbox"/> EMF - Eclipse Modeling Framework SDK	2.5.0.v200906151043
<input type="checkbox"/> EMF Compare SDK	1.0.1.v200909161031
<input type="checkbox"/> EMF Teneo Eclipselink SDK	1.0.0.v200909151729-31184E43QYgJOQQF
<input type="checkbox"/> EMF Teneo Hibernate SDK	1.1.1.v200909151729-42188FAELofKYL_Kd

Details

- Show only the latest versions of available software
 - Hide items that are already installed
 - Group items by category
 - Contact all update sites during install to find required software
- What is [already installed?](#)

Package install with p2

Check the items that you wish to install.

Work with: Galileo - <http://download.eclipse.org/releases/galileo>

Add...

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type filter text

Name

Modeling

- Acceleo SDK (Incubation)
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- Eclipse Modeling Framework
- Ecore Tools SDK (Incubation)
- EMF - Eclipse Modeling Framewo
- EMF Compare SDK
- EMF Teneo Eclipselink SDK
- EMF Teneo Hibernate SDK

Selected repository
(URL)

Details

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Package install with p2

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<input type="checkbox"/> EMF - Eclipse Modeling Framework
<input type="checkbox"/> EMF Compare SDK
<input type="checkbox"/> EMF Teneo Eclipse SDK

Details

Show only the latest version of items that are already installed

Group items by category [installed?](#)

Contact all

Selected repository (URL)

Installable features (categorized)

Software Repositories

- For automatic updates
- Different terminologies
 - Repository
 - Software Site
 - Update Site
- Contents
 - Installable plug-ins and features
 - Metadata files (dependencies)
- Any web server works
 - Only file sending is required

Software Repositories

- For automatic updates
- Different terminologies
 - Repository
 - Software Site
 - Update Site
- Contents
 - Installable plug-ins and features
 - Metadata files (dependencies)
- Any web server works
 - Only file sending is required

Similar; Update Site
legacy terminology

Repository Management

- Update Site procekt
 - Defines feature categories
 - Can export features
 - Export directly

Deprecated

Repository Management – p2

- Instead of update site project
 - Create category.xml file
 - Use the *Export deployable features* wizard
- Keep older versions in release repository
 - Compatibility with older users
 - Keep URLs stable!

RCP repositories

- Product export wizard also creates repository
 - Contains RCP platform as well
 - BUT: Uncategorized
 - BUT: No descriptions for features

Using p2 in RCP applications

- Reuse p2 UI:
 - org.eclipse.equinox.p2.user.ui feature
 - Several different plug-ins
 - Complex, IDE-specific user interface
 - Might be too complex for RCP application
- Reuse p2 core
 - org.eclipse.equinox.p2.core feature
 - No UI component
 - Custom update needs to be written
- Details
 - https://wiki.eclipse.org/Equinox/p2/Adding_Self-Update_to_an_RCP_Application

p2 UI inclusion

- Add p2 menu items
 - Check for updates command
 - ID: org.eclipse.equinox.p2.ui.sdk.update
 - Install new software command
 - ID: org.eclipse.equinox.p2.ui.sdk.install
- Requires
 - Status line
 - Progress indicator

Package installation in RCP application

Check the items that you wish to install.



type filter text

	Name	Version
<input type="checkbox"/>	Eclipse Platform Launchers	3.3.200.R35x_v20090724-7M-FneFF9aMTy;
<input type="checkbox"/>	Hello RCP	1.1.0.200910080027

Details

- Show only the latest versions of available software
- Hide items that are already installed
- Group items by category

What is [already installed](#)?

Package installation in RCP application

Check the items that you wish to install.



type filter text

	Name	Version
<input type="checkbox"/>	Eclipse Platform Launcher	3.3.200.R35x_v20090724-7M-FneFF9aMTy;
<input type="checkbox"/>	Hello RCP	1.1.0.200910080027

No repository selection

Details

- Show only the latest versions of available software
 - Hide items that are already installed
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- What is [already installed?](#)

Package installation in RCP application

Check the items that you wish to install.



type filter text

	Name	Version
<input type="checkbox"/>	Eclipse Platform Launchers	3.3.200.R35x_v20090724-7M-FneFF9aMTy;
<input type="checkbox"/>	Hello RCP	1.1.0.200910080027

Details

Show only the items that are already installed

Group items

No categories

p2 in RCP Applications

- Not the most common option
 - p2 is relatively new project
 - User interface is complex
- In practice
 - Custom solutions
 - E.g., IBM Expeditor platform