Eclipse Plug-ins Development

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Plug-ins Development

- What's a plug-in?
  - A software component that adds a specific feature to an existing software application
- Standard Java lacks an explicit notion of components
- OSGi Framework
  - **Bundle**: a group of Java classes and additional resources equipped with a detailed manifest MANIFEST.MF
  - **Life-cycle**: INSTALLED, RESOLVED, STARTING, ACTIVE, STOPPING, or UNINSTALLED
- Equinox
  - Eclipse project that provides a certified implementation of the OSGi
- Eclipse plug-in extension system : possibility to add and customize features
  - All kinds of UI elements
  - Application specific logic

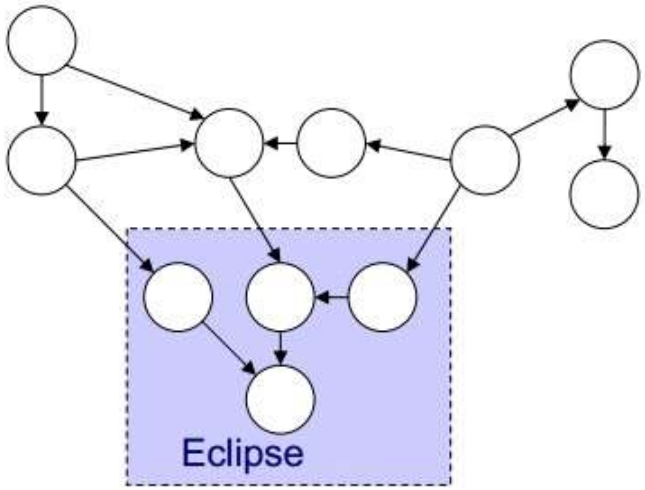
OSGI and Equinox

•**Components == OSGi Bundles == Eclipse Plug-in**

• OSGi support dynamic update and install

•Downstream components can access upstream components through the extension mechanism

- •Downstream component registers (declaratively) an extension point
- •Dependent components register (declaratively) extensions



Eclipse Plug-ins Interactions

Plug-in Development Concepts

- Plug-in
  - Used to group your code into a modular, extendable and sharable unit.
- Feature
  - Used to package a group of plug-ins together into a single installable and updatable unit
- Extensions and Extension Points
  - When a plug-in wants to allow other plug-ins to extend or customize portions of its functionality, it will declare an extension point
  - Plug-ins that want to connect to that extension point must implement that contract in their extension
- Fragment
  - Used to replace or extend the functionality of an existing plug-in
- Target Platform
  - Refers to the plug-ins which your workspace will be built and run against

MANIFEST.MF and plugin.xml

- MANIFEST.MF
  - ID
  - Name
  - Activator class – start() and Stop() methods
  - Execution Environment
  - Runtime dependencies – required plug-ins
  - Exported packages
  - Java classpath

- Plugin.xml
  - Extensions
  - Extension points
  - Build

- Plug-in Registry View

Extension Points

```
<extension
      point="org.eclipse.ui.editors">
   <editor
         name="Sample Multi-page Editor"
         extensions="mpe"
         icon="icons/sample.gif"
         contributorClass="firstplugin.editors.MultiPageEditorContributor"
         class="firstplugin.editors.MultiPageEditor"
         id="firstplugin.editors.MultiPageEditor">
   </editor>
</extension>
```

- Exercise – Create a multi-page editor

- Exercise – Create a pop-up menu action

How Do I Work with Extension Points?

- Find extension points
- – Documentation
  - – Plugin.xml editor – ‘Add…’
  - – Plug-ins registry editor
  - – Load SDK plug-in as projects with source folders
- Read extension point description
- Look for examples
  - – Existing places where the extension points have been previously used
- Deploying your solution
  - – export wizard via *File → Export → Plug-in Development → Deployable plug-ins and fragments*.