Customizing Eclipse Functionality Using Ant and Plugin Development Environment

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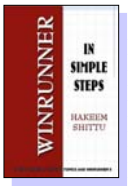

Slides

- The slides for this session can be found at

http://www.genixcorp.com/eclipseworld

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Scope of this session

- Ant: A brief overview
- How Eclipse uses Ant
- Customization through Ant
- The inevitable need for extension
- Extension through PDE

Scope of this talk

Ant: Overview

- Ant is a cross-platform build tool that was created as a replacement to the `make` application
- It accepts input from a file written using XML tags and utilizing the following hierarchical structures
  - `project` – top level of an ant build file
    - `target` – functional work units of an ant file
      - `tasks` – atomic operation
- Usage of Ant usage has extended beyond its original use as a build system
- Ant allows the creation of custom tasks

Do I need Eclipse?

- If you're adventurous, all you need for writing most Java/JEE applications, are:
  - A text editor (vi, emacs, Textpad or Notepad)
  - A Java Development Kit
  - Appropriate runtime libraries
  - **And *absolutely* no deadline**
- For the rest of us, we need tools:
  - Eclipse provides them
  - Each Eclipse sub project provides a set of tools

Extending Eclipse

- What?
  - Expansion of the platform to provide functionality suiting a specific need.
- Why?
  - Integrating tools within the IDE simplifies the development process and promotes uniformity of access.
- How?
  - Using Ant – Eclipse uses Ant, the equally popular (and capable) build tool for a litany of internal operations. It provides support for customisation of a project's build script.
  - Using PDE – The Plug-In Development Environment provides a powerful tool that can be used in the creation/customization of plug-ins for Eclipse.

Extension using Ant

- Eclipse uses Ant internally for its build operations and provides facility for extension.
- It is the easiest form of extension with the least learning curve.
- Ability to reuse existing build files created for other IDEs that support Ant integration.

How?

Steps for Ant Extension

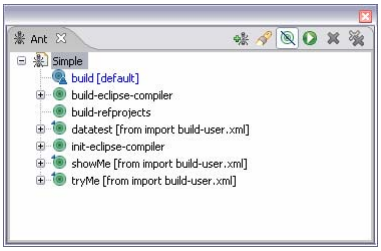
1. Export build file from project
2. Create your buildfiles(s) in the same directory
3. Add the `<?eclipse.ant.import?>` processing instruction
4. Re-export the build file from the project

The pre-Eclipse 3.2 way:

- Export build file from project
- Add targets to build-user.xml

Ant View [Method 1]

Window ▸ Ant
Window ▸ Show View ▸ Other ▸ Ant ▸ Ant

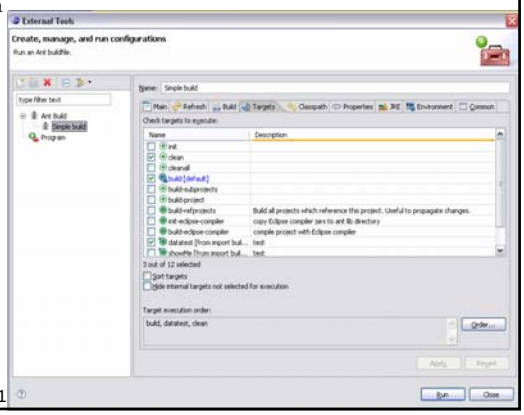


- Shows all your targets
  [Tip: Hide internal targets to reduce clutter]

Create Configuration [Method 2]

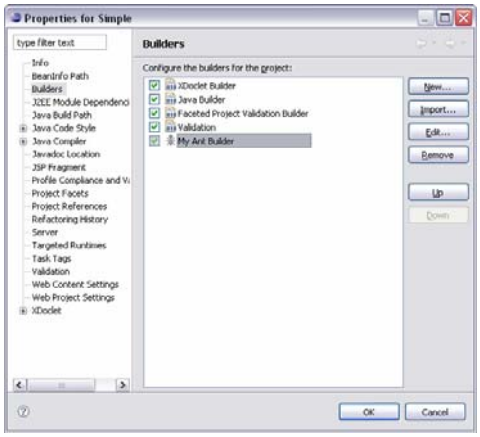
Run ▸ External Tools ▸ External Tools ▸ Ant Build

- Supports the invocation of a composition of targets
- Could be replicated with a target that uses `<antcall>` tasks
- Allows sharing configuration



Ant Builder [Method 3]

Project Properties ▸ Builders



- Automates your build process using your defined targets

Limitations of Ant Integration

- Suited for transient operations
  - Context based support is not available and the usage of command-line arguments to simulate this is arguably cumbersome.
- Cannot support functionality that requires integration with Eclipse. E.g.
  - Supporting a new server runtime definition
  - Integration with actions/views

Extension using PDE

- Two mechanisms exist for PDE extension:
  - Fragments
  - Plug-ins
- Fragments extend the behaviour of a host plug-in to provide additional functionality without the need of a full release. E.g.
  - Providing support for additional server runtimes
  - Plug-in internationalisation
- Plug-ins are pluggable modules that can be used to extend the functionality of the Eclipse platform. A plug-in can extend other plug-ins and provide extension points so that it can itself be extended.

Steps for PDE Extension

1. Create Plug-In or Fragment
   a. Create PDE Project
   b. Create class(es)
   c. Add libraries (as needed)
   d. Add Extension to reference class(es)
2. Package for deployment by:
   - Packaging as a plug-in jar
   - Creating a Feature
     - Packaging as a feature jar
   - Creating an Update Site
3. Deploy

Challenges of using PDE

- An associated learning curve.
- Finding the appropriate extension point for plug-ins.
- Version dependency.

Questions/ Comments?

Project files will be available at
http://www.genixcorp.com/eclipseworld