Mercurial Comes to the NetBeans™ IDE, Bringing the OpenJDK™ Code Base to the Party

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Understanding Mercurial Support in NetBeans

- And be able to use it in your Daily Workflow
- On Large OpenSource Projects
Agenda

- Introduction
- Setup
  - Demo
- Workflow & View
  - Demo
- Workflow & Push
  - Demo
- Merge Conflicts
  - Demo
- Q&A
Introduction

> Mercurial
  - Distributed revision control
    - Fast lightweight, targeted at large distributed development
    - Strong community support 1.0 released

> NetBeans IDE 6.1
  - New Version Control Framework: CVS, SubVersion, Mercurial ...

> Mercurial Repository
  - Self contained, has its own history
  - Each clone is a repository

> Workflow
  - Clone shared repository, work locally, push changes back
  - Pull changes from shared repository, merge locally
## Mercurial

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small – 37k lines of code</td>
<td>Young System (Apr 2005)</td>
</tr>
<tr>
<td>Extensible – easy to extend</td>
<td>Can't Clone partial Repo</td>
</tr>
<tr>
<td>Fast – cheap local clones</td>
<td>Can't Clone for Time Period</td>
</tr>
<tr>
<td>Decentralized – offline ops</td>
<td>Massive renames Repo Size ++</td>
</tr>
<tr>
<td>Community – active</td>
<td></td>
</tr>
<tr>
<td>Portable - python</td>
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Setup

- Install NetBeans 6.1
  - http://netbeans.org
- Install Mercurial 1.0
  - http://mercurial.berkwood.com
- Get Mercurial Forest Extension
  - $hg clone http://hg.akoha.org/hgforest/ forest
  - Setup Mercurial
    - Windows: <Hg Install Dir>\Mercurial.ini or Unix: <Hg Install Dir>/.hgrc
      
      [ui]
      username = foo@bar.com
      [extensions]
      forest = <Path to Forest>\forest.py

- Get OpenJDK
  - $hg fclone http://hg.openjdk.java.net/jdk7/tl openjdk
Setup OpenJDK

Working on Swing Using the NetBeans IDE

This Swing NetBeans project allows a developer to interact with, test, and/or fix bugs in swing to modify, build, run standalone manner as well as generating the jars.

**README FIRST**

`make/netbeans/README` to get started with NetBeans working with the OpenJDK NetBeans projects.

**WORKING WITH SWING**

falling leaves
<table>
<thead>
<tr>
<th>SHA1: 567b3daa2d320</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision: 174</td>
<td>Author: <a href="mailto:jmr@netbeans.org">jmr@netbeans.org</a> 2008-04-29 12:40:55</td>
<td></td>
</tr>
<tr>
<td>Committer: <a href="mailto:jmr@netbeans.org">jmr@netbeans.org</a> 2008-04-29 12:40:55</td>
<td>Parent: 173:92ea3ac777d2f (6692027: Custom subclasses of QueryEval don't serialize)</td>
<td></td>
</tr>
<tr>
<td>Child: 173:ae247e5d51d (Adding Help)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### File: SampleTree.java

```java
public SampleTree() {
    // Force SampleTree to come up in the Cross Platform JRE
    try {
        UIManager.setLookAndFeel(UIManager.getCrossPlatformLookAndFeelClassName());
    } catch (NoSuchLookAndFeelException e) {
        // If you want the System JRE instead, comment out the above line and
    }
}
```
Repository View

- Displays the Repository Graph
  - Supported on OpenSolaris, Linux
  - and Windows
  - Port of gtitk from GIT

Setup

- Windows:
  - ActiveTCL 8.5.2
  - hgk script
  - Windows: `<Hg Install Dir>\Mercurial.ini`

```plaintext
[extensions]
hgext.hgk=

[hgk]
path=<Mercurial Install Dir>\hgk.tcl ← Windows only
```
Workflow and View
OpenJDK
Clone Repository

- Open Swing Project
- Clone jdk
  - You clone the Repository not the Project!!
- 16k+ files
  - Takes around 5 mins for local clone
  - Jdk Repository contains 9 NetBeans Projects

```
Mercurial Clone
-------------
resolving manifests
generating .hgignore
generating .hgtags
...
16661 files updated, 0 files merged, 0 files removed, 0 files unresolved
The number of output lines is greater than 500; see message log for complete output
INFO Clone From: Swing - C:\openjdk\jdk
INFO To: Swing - C:\openjdk\jdk_clone0

INFO: End of Clone
```
Hg Standard Workflow in NetBeans IDE

1. **edit file(s)**
   - **save files locally**
   - **view status to list modified files** (Status)

2. **Diff**
   - (between your working directory and local repo)
   - **commit modified files to local repo** (Commit)
   - (creates local changesets that will be sent to shared repo when you push)

3. **success?**
   - **push changes to the shared repo** (Push)
     - (sends locally created changesets to shared repo)
   - **fetch an updated copy of the shared repo** (Fetch)
     - (fetch performs a pull, then update. If there are new changesets from the shared repo, it will also perform a merge and commit)
   - **view changes to your local repo** (Show Out)
     - (displays all locally created changesets)
Relationships

Repository Structure

- working directory
  - status / commit
  - update / merge update
  - fetch
- local repository
  - show output / push
  - pull
- shared repository
WorkFlow and Push
OpenJDK
Repository Diff

- Built in Diff support
  - 2 Way diff
- Merge
  - Use Internal 2-Way Diff
  - External Diff 3 Way Diff

KDiff3
- Kdiff3
- Win: `<Hg Install Dir>\Mercurial.ini`
- Unix: `<Hg Install Dir>/.hgrc`

```
[hgmerge]
interactive = kdiff3
noninteractive = diff3
```
Merge Conflicts
OpenJDK
Using Team Repositories

➢ Set up a clone of Main Repository
   • Make sure it is OK

➢ Team members clone team this repo
   • Pull from it, push to it
   • If the team repo is broken, you know who to blame!

➢ When things are stable (clean build & tests)
   • Push to Main Repository

➢ OpenJDK
   • MASTER → Project Repositories [RO]
   • Gate Repos: Project Repositories [R/W] <-> Push/Pull Developers
   • Verify Gate Repos → sync to Project Repos [RO]
For More Information

> Mercurial Version Control in NetBeans
  - [http://wiki.netbeans.org/MercurialVersionControl](http://wiki.netbeans.org/MercurialVersionControl)
  - Using Mercurial to work with NetBeans Sources in the IDE
    - [http://wiki.netbeans.org/HgNetBeansSources](http://wiki.netbeans.org/HgNetBeansSources)

> NetBeans Mercurial Training Materials
  - [http://wiki.netbeans.org/HgTrainingMaterials](http://wiki.netbeans.org/HgTrainingMaterials)
  - Mercurial Book
    - [http://hgbook.red-bean.com/](http://hgbook.red-bean.com/)

> Mercurial Home

> OpenJDK NetBeans Project Group
  - [http://openjdk.java.net/groups/nb-projects/](http://openjdk.java.net/groups/nb-projects/)
  - [http://openjdk.java.net/guide/repositories.html](http://openjdk.java.net/guide/repositories.html)
THANK YOU

Q & A

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