The Git Tutorial
EclipseCon 2012

http://eclipse.org/jgit
http://eclipse.org/egit
http://code.google.com/p/gerrit
Agenda

Introduction

Exercises
Setup & Cloning the Sample Repository
Local Development with EGit
Gerrit Code Review
Mylyn Integration
GitHub Eclipse Support

Q & A
Git

… a distributed revision control system built by the Linux project to facilitate code review

Distributed means no central repository
- No central authority!
- Easy offline usage
- Easy to branch a project
- Protected against manipulation by cryptographic hashes

Really good at merging
- Coordination only needed "after the fact"
- Easier to rejoin (or refresh) branches

Structured around commits (i.e. patches)
- Tools for identifying problem commits (git bisect)
- Tools for restructuring branches w/ specific commits
**Git at Eclipse**

**JGit** is a lightweight Java library implementing Git


**EGit** is an Eclipse Team provider for Git based on JGit


**Gerrit Code Review** is a Git server based on JGit adding permission control and review workflow

[http://code.google.com/p/gerrit](http://code.google.com/p/gerrit)

**Gerrit @ Eclipse** went live 🌐

[https://git.eclipse.org/r/](https://git.eclipse.org/r/)
Eclipse is Moving to Git

CVS has been deprecated and will be retired end of 2012

Project & code repository breakdown as of 2012-03-25

http://eclipse.org/projects/scmcountdown.php
Gerrit Code Review @ Eclipse

https://git.eclipse.org/r/ is now available for all projects

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now used by:
EGit, Jetty, JGit, Jubula, Libra, Lyo, Mylyn, Platform, R4E, Recommenders, Skalli, Tycho
Modern Code Review – What is it?

When one developer writes code, another developer is asked to review that code

A careful line-by-line critique

Happens in a non-threatening context

Goal is cooperation, not fault-finding

Integral part of coding process

Otherwise this will happen:
Debugging someone else's broken code
– Involuntary code review: Not so good; emotions may flare

Code Review – Benefits

Guido van Rossum [1]

Four eyes catch more bugs
Catch bugs early to save hours of debugging

Mentoring of new developers / contributors
Learn from mistakes without breaking stuff

Establish trust relationships
Prepare for more delegation

Good alternative to pair programming
asynchronous and across locations

Coding standards
Keep overall readability & code quality high

- clone repository
- fetch / push changes

- verify proposed changes
- continuous integration builds

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fetch master to get updates

push improved change 10

submit accepted change 12

fetch change 23 to try it

Gerrit

git

git

git

git

git

fetch master
to get updates

push improved change 10

submit accepted change 12

fetch change 23 to try it

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Local Development with EGit
clone repository
Sample Application
Git Exercises

1. Setup & Clone the example repository
2. Develop a feature
3. Develop 2nd feature and use staging view
4. Work on branches in parallel
5. Fetch the latest state
6. Merging, Rebasing, Resolving Conflicts
Git Exercises

7  History view
8  Reset branch to previous state
9  Change a series of commits
10 Git blame
11 Stash
12 Submodules
Gerrit Code Review
Gerrit

Server managing central Git repositories
Gerrit

Access Control

Gerrit

- review_site
  - git
    - calculator.git
    - meeting-organizer.git
    - room-booker.git
    - schedule-app.git
    - travel-booking.git
    - vacation-planner.git
Gerrit

Access Control

git push
Gerrit

Access Control

Gerrit

review_site

git

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- meeting-organizer.git
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Code Review

Gerrit

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Gerrit

Code Review

Gerrit

git push

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  - travel-booking.git
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Gerrit

Code Review

Gerrit

git push
Gerrit

Code Review

git push <for_review>
Matthias Sohn: June workbench complains: Attribute 'repository' of element ...

Tomasz Zarna: You will need to update Eclipse to 3.8 M6, which is coming out this week ...

Matthias Sohn: don't know how to fix this

Tomasz Zarna: Hmm, I've just upgraded

Matthias Sohn: I tried eclipse-SDK-1202

Matthias Sohn: where can I find the p2 repo for 1202?

Matthias Sohn: I tried again with 3.8 [120120320-1400] and 4.2 [120120321-0610] (Mac OS X 64bit) and still hit the same problems. Don't know what is wrong here. If you are visiting EclipseCon we could meet and have a look at my workspace.

Dani Megert: Patch Set 7: Very strange. I assume you already tried to re-add the ...

Matthias Sohn: Patch Set 8: I tried importing org.eclipse.swt and mac platform fragment ...

Dani Megert: Patch Set 7: Matthias, something must be broken on your side (workspace) ...

Matthias Sohn: Patch Set 8:
Gerrit

Discussing & Improving

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Gerrit Voting

Verified:
- +1 Verified
- 0 No score
- -1 Fails

Code Review:
- +2 Looks good to me, approved
- +1 Looks good to me, but someone else must approve
- 0 No score
- -1 I would prefer that you didn’t submit this
- -2 Do not submit

IP Clean:
- +1 IP review completed
- 0 No score
- -1 Unclean IP, do not check in

Cover Message:

Publish Comments  Publish and Submit  Cancel
Gerrit

Do not miss:

Talk by Shawn Pearce (Gerrit founder and Project Lead)

Harnessing Peer Code Reviews

Wednesday, 14:15, Ballroom A
http://git.eclipse.org/r/

- clone repository
- fetch / push changes

- verify proposed changes
- continuous integration builds
Gerrit Exercises

1. Configure push to Gerrit
2. Push change to Gerrit
3. Review change
4. Improve a change
5. Submit a change to the codebase
6. View Gerrit review notes
7. Starting Demo Gerrit Server (backup)
Mylyn Integration
90% Irrelevant
Task-focused IDE
Exercises: Mylyn Integration

1 Mylyn / EGit Integration
Exercises: Mylyn Integration

2 Use Gerrit from within the IDE
Exercises: Mylyn Integration

1  Mylyn / EGit Integration

2  Use Gerrit from within the IDE

Related talk
Wednesday, 1:30PM - 2:15PM
Build, Stage, Review, Merge: Task-focused Development the Eclipse Mylyn Way
GitHub Eclipse Support
GitHub Eclipse Support

- https://github.com/eclipse
  - 248 mirrored repositories

- Browsing source code
- Comparing branches and tags
- Activity feeds
- Charts & graphs
- Downloading snapshots
GitHub Eclipse Support

eclipse / eclipse.platform.swt

Commits Branches Tags Downloads

Files

October 28, 2011
- v3810
  Silenio Quarti authored 2 days ago
- Bug 362375 - GPF on AIX when showing links in the editor
  Silenio Quarti authored 2 days ago
- Add Snippet 359
  Bogdan Gheorghe authored 2 days ago

October 26, 2011
- Bug 356571 - Exception in org.eclipse.swt.graphics.Image.getImageData()
  Silenio Quarti authored 4 days ago

October 24, 2011
- v3809
  Silenio Quarti authored October 24, 2011
- no maps directory in new maps repo
  Silenio Quarti authored October 24, 2011
- underline and strikeout color have priority over selection
  heidrich authored October 24, 2011
GitHub EGit Integration

GitHub Mylyn Connector
  Issues
  Gists
  Pull Requests
  Import Wizard

GitHub Java API
  Maven plugins
  Reporting
  Automating tasks
GitHub Exercises: EGit Integration

1 Setup Share on GitHub
Q&A
Give Feedback on the Sessions

1. Sign In: www.eclipsecon.org

2. Select Session Evaluate

3. Vote