bzr - The Bazaar source revision control system

Lenz Grimmer
<lenz@grimmer.com>
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Agenda

- Introduction to DVCS
- Features of Bazaar
- Terminology
- Workflows, Commands, Examples
- Related Tools / Links
DVCS: Concepts

- No central instance
- Every branch a full copy (incl. History)
- Disconnected operation
- Easy to create new branches
- Merging of revisions from other repos
- Multi-Protocol support (http, SSH, SMTP, local filesystem)
DVCS: Benefits

- Empowering developers: local commits
- Encourage experimenting
- Easy collaboration: sharing and merging
- Patches don't bit-rot
Benefits (2)

- Parallel development of new features
- Maintaining local modifications
- Faster: local operations vs. Network
- Every branch is a full backup
Bazaar: Features

- Python
- Centralized and decentralized workflows
- Shared repositories to save space
- One single .bzc directory
- Various transport protocols
Features (2)

- Merge tracking
- Moved files retain history
- Hooks and Scripts
- Plugins (e.g. GUI extensions)
- Command Aliases
Bazaar: Terminology

- **Revision**
  - Snapshot of a tree of files/directories
  - Includes Metadata (date, author, comment, parent revisions)
  - Can be exported

- **Working Tree**
  - Version-controlled directory
  - Contains editable files and directories
Bazaar: Terminology (cont.)

- **Branch**
  - An ordered series of revisions
  - Can be split (cloned) and merged back together
  - Checkouts

- **Repository**
  - A store of revisions
  - Default: one repository/branch
  - Shared repositories to save space and improve performance
General Syntax

bzr [global opts] command [opts] [args]
Getting Help

bzr help <command>
bzr help commands
bzr help topics
Solo Workflow

- Create project
- Commit changes
- Review/browse history
- Package release
- Apply new changes
- Rinse & Repeat
Initializing a Repository

`bzr init <directory>`
Adding/Modifying Files

bzr add <files>
bzr diff <files>
Committing Changes

bzr commit <files>
bzr gcommit
bzr qcommit
Looking at revision history

bzr log
bzr diff
bzr visualize
bzr visualize

mysql 5.1 revision history

<table>
<thead>
<tr>
<th>Revision No</th>
<th>Summary</th>
<th>Committer</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2670.1.3</td>
<td>Merge from mysql-5.1.27 release tree.</td>
<td>Davi Arnaut</td>
<td>2008-07-22 19:41</td>
</tr>
<tr>
<td>2655.3.8</td>
<td>Bug#33812: mysql client incorrectly parsing DELIMITER</td>
<td>Davi Arnaut</td>
<td>2008-07-17 20:20</td>
</tr>
<tr>
<td>2655.3.7</td>
<td>Set version number to 5.1.27</td>
<td>mysqldev</td>
<td>2008-07-14 16:46</td>
</tr>
<tr>
<td>2670.1.2</td>
<td>merge</td>
<td>Sergei Gol...</td>
<td>2008-07-22 16:02</td>
</tr>
<tr>
<td>2646.18.7</td>
<td>auto merge</td>
<td>Kristofer P...</td>
<td>2008-07-22 13:33</td>
</tr>
<tr>
<td>1820.3751.3</td>
<td>merge 5.0-&gt;5.0-bugteam</td>
<td>Kristofer P...</td>
<td>2008-07-22 12:55</td>
</tr>
<tr>
<td>1820.3751.3</td>
<td>Disabled two test cases in 5.1 because of random failures.</td>
<td>Kristofer P...</td>
<td>2008-07-22 13:04</td>
</tr>
<tr>
<td>1820.3751.3</td>
<td>merge 5.1-&gt;5.1-bugteam</td>
<td>Kristofer P...</td>
<td>2008-07-22 12:56</td>
</tr>
<tr>
<td>1820.3751.2</td>
<td>Auto merge</td>
<td>Kristofer P...</td>
<td>2008-07-22 12:41</td>
</tr>
<tr>
<td>2646.18.3</td>
<td>auto-merge</td>
<td>Tatiana A...</td>
<td>2008-07-22 08:54</td>
</tr>
<tr>
<td>2646.25.4</td>
<td>BUG#38269: pushbuild gives valgrind error in ha_statistic...</td>
<td>Sven Sand...</td>
<td>2008-07-22 21:05</td>
</tr>
<tr>
<td>2646.25.3</td>
<td>Corrected merge mistake.</td>
<td>Kristofer P...</td>
<td>2008-07-21 16:41</td>
</tr>
<tr>
<td>2646.25.2</td>
<td>Auto merge</td>
<td>Kristofer P...</td>
<td>2008-07-21 14:00</td>
</tr>
<tr>
<td>2646.25.1</td>
<td>Manual merge</td>
<td>Kristofer P...</td>
<td>2008-07-21 11:18</td>
</tr>
<tr>
<td>1810.3751.1</td>
<td>Bug#37027 expire_logs_days and missing binlogs cause ...</td>
<td>Kristofer P...</td>
<td>2008-07-24 14:28</td>
</tr>
<tr>
<td>2646.18.2</td>
<td>auto-merge + post-merge fixes</td>
<td>Tatiana A...</td>
<td>2008-07-21 11:20</td>
</tr>
</tbody>
</table>

Revert fix for this bug as it introduced a regression reported in Bug#38158.
Pair programming

Create repository

Commit

Hack

Push, pull, merge

Commit

Hack

Commit

Developer A

Developer B
Branching

bzr branch FROM TO
Publishing changes

bzr push
bzr send
Retrieving updates

bzr pull
bzr merge
bzr missing
Centralized Workflow

Central repository

Checkout

Developer A

Checkout

Developer B
Code deployment

Upstream project

Commit

Hack

Live site

Branch

Merge

Push

Developer
Related tools / Links

- Project Home Page: http://bazaar-vcs.org/
- BundleBuggy: http://code.aaronbentley.com/bundlebuggy/
- Hacking on Drupal with Bazaar http://drupal.org/node/45368 https://code.launchpad.net/drupal
- PQM (Patch Queue Management): https://launchpad.net/pqm
- LaunchPad: https://launchpad.net
- #bzr on irc.freenode.net http://planet.bazaar-vcs.org/
Questions, Comments?
Thank you!
Lenz Grimmer <lenz@grimmer.com>