

Outline for Git

CAT&DOG Git study 2013

Day 1

Eon Jeong

March 31, 2013

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About revision control

*Version **c**ontrol **s**ystem*

- ▶ Or alternatively, *revision control* or *source code control*

Version **control** system

- ▶ Or alternatively, *revision control* or *source code control*
- ▶ Similar to what you may have experienced as:

History features found in wikis or documentations, e.g. Wikipedia

Undo/redo features in most text editors (including even Windows notepad), word processor, spreadsheets, etc.

Why do we need a VCS?

What if when you are writing a document or a software,

- ▶ you are hacked by super mighty 127.0.0.1
- ▶ then lose everything. :P

Why do we need a VCS?

What if when you are writing a document or a software,

- ▶ you are hacked by super mighty 127.0.0.1
- ▶ then lose everything. :P
- ▶ or just made a huge wrong modification;
- ▶ how about writing something together?

Note that any data or transmission can be very volatile with our electric computers.

What VCS does

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Assume you are translating an article about something the readers aren't aware of.

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- ▶ As you have more translations day by day,
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- ▶ or tomorrow you may want to revert the changes you made today.

Assume you are translating an article about something the readers aren't aware of.

- ▶ As you have more translations day by day,
- ▶ some sections should be reviewed later;
- ▶ some need to be reorganized totally;
- ▶ some are candidates, now unused but to be merged;
- ▶ or tomorrow you may want to revert the changes you made today.

Likewise, development is a hard thing. IDEs such as Visual Studio or Eclipse have functions like undo/redo. **It ain't enough though.**

Section 2

Common concepts

Repository

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A typical *version control* **repository** is whatever includes a historical set of objects (files, folders and references onto them), managed by a VCS.

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A typical *version control* **repository** is whatever includes a historical set of objects (files, folders and references onto them), managed by a VCS.

- ▶ Hence, **VCS** is a kind of DBMS around version control operations.

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- ▶ **Local** means the repository or its copy is on the workspace.

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- ▶ Hence, **VCS** is a kind of DBMS around version control operations. (Thus we can assume a good one should follow *ACID*.)
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- ▶ **Server** or **remote** means the repository can be accessed via network.
- ▶ **Centralized** means every client should work on the same repository on a server.
- ▶ **Distributed** means there are local repository which may have some references to other repos.

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A **revision** is the status of contents in the repository at a specific timepoint.

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A **revision** is the status of contents in the repository at a specific timepoint.

- ▶ **Commit** is task making a new revision, or the revision itself.

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- ▶ **Commit** is task making a new revision, or the revision itself.
- ▶ **Checkout** is task switching the repository to one of its revisions.
- ▶ **Difference**, or just simply **diff**, is *changeset* between two or more revisions.
- ▶ **Head** is a reference pointing the last committed (or the last checked out) revision.

Source tree

Source tree, or *stream*, is the relationship of order among whole revisions of a repository.

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- ▶ **Branch**, or *codeline*, is a named timeline of revisions with start and end, each is committed on the base of the previous revision of the branch.

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Source tree, or *stream*, is the relationship of order among whole revisions of a repository.

- ▶ **Branch**, or *codeline*, is a named timeline of revisions with start and end, each is committed on the base of the previous revision of the branch.
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- ▶ **Tag**, or *label*, is a meaningful snapshot with name, usually a version number.

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- ▶ **Merging** two or more branches cause them share one ongoing revision.
- ▶ **Tag**, or *label*, is a meaningful snapshot with name, usually a version number.
- ▶ **Fork** means copying a repo to maintain it independently. The word represents relation among related branches, each having its tail on another branch and its head far forward.

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```
* 512651d (HEAD, k9mail/master, Uni-/master, master) Make notification task back stack consistent to activity flow.
* 195686c Fix NPE when clicking on a notification with >= 2 messages on SDK < 16.
* a60ad91 Merge pull request #282 from janekx/master
+
+ 6a831cd meaning tuning
+ | 7d0fa12 Remove "Last" from the text of the "Refreshed" string
+
+ 1cc9d97 (tag: 4.329) Bumped manifest to 4.329
+ 520801f Update changelog
+ 04c599d Merge pull request #281 from k9mail/fix_webview_autoscroll
+
+ * a3802a7 (k9mail/fix_webview_autoscroll) Only Jelly Bean seems to have the auto-scroll issue
+ * 8dc6769 Hack around WebView's initial auto-scrolling past the message header
+ * 3168162 Fix a number of lint warnings by marking list value arrays as untranslatable.
+ * 3ff522c Include a full activity back stack when building notification intents.
+ * d523caa Also clear back stack when a new intent arrives.
+ * a619a9d Hide delete policy "Mark as read on server" for POP3 accounts
+
+ 625c5f1 Fix "Empty trash" functionality for POP3 accounts
+ 0319ae4 (Uni-/ko_translation, ko_translation) Move KOI8-U -> KOI8-R fixup to charset fall-back table
+ 4b42d0e Code cleanup
+ * c5802ed Java5 style "for"
+ * a5f4dda Enhancement for charset fallback. Fallback rule is defined in CHARSET_FALLBACK_MAP. Multi-level fallback is supported.
+ 337487e Merge pull request #211 from colund/master
+
+ * bbd6c62 Fix for StrictMode error.
+ | d89519c Merge pull request #276 from Uni-/master
+ \ \
+ \ \ | cb765da Fix Korean translations
+ \ \ | eae70b7 Modify Korean translations
+ \ \ | 1 9d58914 Modify Korean translations on Classes
+ \ \ | 4612a1e Update Ko translations (complete list)
+ \ \ | 29c7732 Update Korean translations
+ \ \ | aea95b1 Disable server side full text search for the moment
+ \ \ | e118917 Use theme-specific image for 'add contact' button
+ \ \ | 1 6c1688c Change style for button bar in setup (Android 3+)
+ \ \ | 658505b Fix and vastly simplify the query for the threaded message list
+ \ \ | d03a1f7 Fix message list item background color
+ \ \ | aee2b1a Center folders without status (e.g. outbox) in folder list again.
+ \ \ | 1 * b315ce7 (Uni-/easy_new_account, easy_new_account) Add account chip color setting to AccountSetupNames
+ [eon@localhost k-9] $
```

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```

53830b1b HEAD, k9mail/master, Uni-/master, master) Make notification task back stack consistent to activity flow.
195686c Fix NPE when clicking on a notification with >= 2 messages on SDK < 16.
a6db9d1 Merge pull request #282 from janezx/master

* 6a831cd meaning tuning
17d9fa12 Remove "Last" from the text of the "Refreshed" string

1ccd9d7 (tag: 4.329) Burped manifest to 4.329
528861f Update changelog
64c599d Merge pull request #281 from k9mail/fix_webview_autoscroll

* a388267 (k9mail/fix_webview_autoscroll) Only Jelly Bean seems to have the auto-scroll issue
8dc7c69 Hack around WebView's initial auto-scroll past the message header
318f812 Fix a number of lint warnings by marking list value arrays as untranslatable.
475232c Include a full activity back stack when building notification intents.
5253c3a Also clear back stack when a new intent arrives.
1619a9d Hide delete policy "Mark as read on server" for POP3 accounts

6265cf51 Fix "Empty string" functionality for POP3 accounts
83186e4 (Uni-/ko-translation, ko-translation) Move KO18-R -> KO18-R fixup to charset fall-back table
4b42d9a Code cleanup
c5892de Java5 style 'for'
c574dd4 Enhancement for charset fallback. Fallback rule is defined in CHARSET_FALLBACK_MAP. Multi-level fallback is supported.
337487e Merge pull request #211 from colund/master

* bbdce62 Fix for StrictMode error.
bd9519c Merge pull request #276 from Uni-/master

* cbf650e Fix Korean translations
a9e707b Modify Korean translations
9d58914 Modify Korean translations on Classes
4612a1e Update Ko translations (complete list)
199c7732 Update Korean translations
1ae995b Disable server side full text search for the moment
4191971 Use theme-specific image for "add contact" button
616b88c Change style for button bar in setup (Android 4+)
658b5db Fix and vastly simplify the query for the threaded message list
16b3a3f7 Fix message list item background color
ae2b1be Center folders without status (e.g. outbox) in folder list again.
1955e9c (easy_new_account, easy_new_account) Add account chip color setting to AccountSetupNames
[En]localhost k-915

```

1. revision, diff, head

A typical Git repository

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파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)

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* 51265d1 (HEAD, k9mail/master, Uni-/master, master) Make notification task back stack consistent to activity flow.
* 195686c Fix NPE when clicking on a notification with >= 2 messages on SDK < 16.
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* b4c599d Merge pull request #281 from k9mail/fix_webview_autoscroll
*
* a382a7 (k9mail/fix_webview_autoscroll) Only Jelly Bean seems to have the auto-scroll issue
* 8dc769 Hack around WebView's initial auto-scrolling past the message header
* 318f162 Fix a number of lint warnings by marking list value arrays as untranslatable.
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* d523caa Also clear back stack when a new intent arrives.
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* 337487e Merge pull request #211 from colund/master
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* | 1 b315ce7 (Uni-/easy_new_account, easy_new_account) Add account chip color setting to AccountSetupNames
[eon@localhost k-9]$
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1. **revision**, diff, head
2. **source tree**, branch, merge

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* a3882a7 (k9mail/fix_webview_autoscroll) Only Jelly Bean seems to have the auto-scroll issue
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1. **revision**, diff, head
2. **source tree**, branch, merge
3. ???
4. **PROFIT!**

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Section 3

About Git



- ▶ git-scm.com
- ▶ Linus Torvalds, 2005 ~
- ▶ written in C, Perl and shell scripts

- ▶ *As-is (I suggest)*
 - ▶ `git <command>` in terminal
 - ▶ many direct features associated with software configuration management (SCM) issues
 - ▶ Git is fast!
- ▶ Or with GUI (front-ends)
 - ▶ Git-GUI
 - ▶ SourceTree
 - ▶ SmartGitHg
 - ▶ GitHub for Windows (or GitHub for Mac)
 - ▶ TortoiseGit

Section 4

Websites



- ▶ bitbucket.org
- ▶ 2008 ~
- ▶ free public/private Git/Mercurial repository for small teams
- ▶ fast fork, pull request, tree graph, issue tracker, wiki
- ▶ star, fast diff
- ▶ similar: Launchpad

[John Mang](#) (2010~) supports only SVN, not Git.

[Google Code](#) (2005~) supports Git as well as CVS and Subversion.

[Sourceforge](#) (1999~) supports Git, Mercurial, Bazaar, Subversion, CVS.

[KLDN.net](#) (2002~) supports same VCSs as Google code; Naver Developer Center uses the same engine, nForge.

1. Install Git

- ▶ Get *MSysGit* to use Git in command line, Windows.
- ▶ If you want a good GUI, Don't use *TortoiseGit*.

2. Sign up GitHub

- ▶ This is necessary for the upcoming second assignment.