

CVS Concurrent Versions System

<http://www.cvshome.org>



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CVS is an example of:

- An S.E. tool
- Several activities
- Supported by processes

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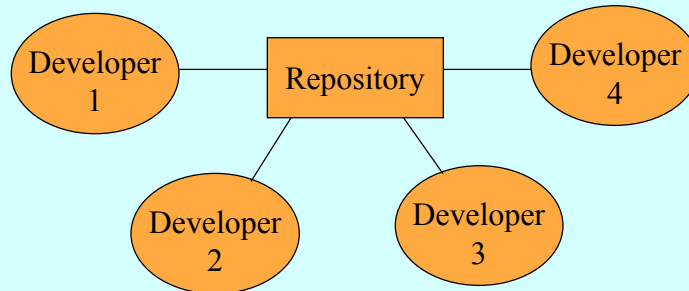
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- Records history of source files
- Efficiently records every version
- Helps developers work concurrently

Does not

- Build an executable
 - use *make*
- Keep track of change requests, change orders
 - use Bugzilla or GNATS
- Enforce a particular process

CVS



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Things to do with CVS

- Get source code
- Put new version back into repository
- Compare differences between versions
- Create, delete, change permissions, etc

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Checking out source code

```
% cvs checkout poker
% cd poker
% ls
CVS makefile cards.c cards.h poker.c
```

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Checking in source code

```
% emacs poker.c
...
% cvs commit poker.c
```

CVS will ask you for a comment to describe
the change

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Conflict



```
$ cvs update driver.c
```

```
RCS file:
```

```
  /usr/local/cvsroot/uiuc/poker/poker.c,v
```

```
retrieving revision 1.4
```

```
retrieving revision 1.6
```

```
Merging differences between 1.4 and 1.6 into  
poker.c
```

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Conflict (continued)



```
rcsmerge warning: overlaps during merge
```

```
cvs update: conflicts found in poker.c
```

```
C poker.c
```

```
% emacs poker.c
```

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Cleaning up

```
% cvs release -d poker
M poker.c
You have [1] altered files in this repository.
Are you sure you want to release (and delete)
  module `poker': n
** `release' aborted by user choice.
%
```

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Basic activity of using CVS

- Check out code.
- Modify and test it.
- Check it back in. If there are conflicts, fix them and check back in again.

The longer your code is checked out, the more conflicts there will be.

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Coordinating developers

cvswatch on [files] - make readonly
cvswatch off [files]
cvswatch add [files] - notify me if written
cvswatch remove [files]
cvswatch edit [files] - let me write, notify others
cvswatch unedit [files]

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Revisions

- Revision number: 2.4 or 1.7.3.3 or 6.3.1.3.1.1
- Normal commit will increment last number
- Creating a *branch* will add .1.1 to the end
- Different files will have different revision numbers

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Tag

- A release of a system will have many different revision numbers
- To let you find all the files in a release, use *tags*.
- `cvstag poker-2-2 *.c *.h makefile`

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Branch

Reasons to branch:

- fix bugs in product while working on next version
- work on subproject that will take a week to finish

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Branches



Create a branch

```
cvstag -b poker2.0-beta
```

Create a directory holding a branch

```
cvsc checkout -r poker2.0-beta poker
```

Change your directory to a particular branch

```
cvsup date -r poker2.0-beta poker
```

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For more info on CVS see:



- <http://www.cvshome.org>
- <http://cvsbook.red-bean.com/>
- http://www.loria.fr/~molli/cvs/doc/cvs_toc.html
- www.sourceforge.net

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Next time



Read “Streamed Lines” at

<http://www.enteract.com/~bradapp/acme/>

Is Appleton’s “base level” the same as a “baseline”?

What is the difference between early branching and late branching? Between relaxed merging and restricted merging?

What assumptions does he make about the group of developers?