



Aalto University  
Media Factory

# Digital\_Fabrication\_Studio.02

## Projects and Information - managing and retrieving information from databases and objects

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# Today:

- \* Content Management Systems
- \* Version Control Systems
- \* QR Codes
- \* Blueprints

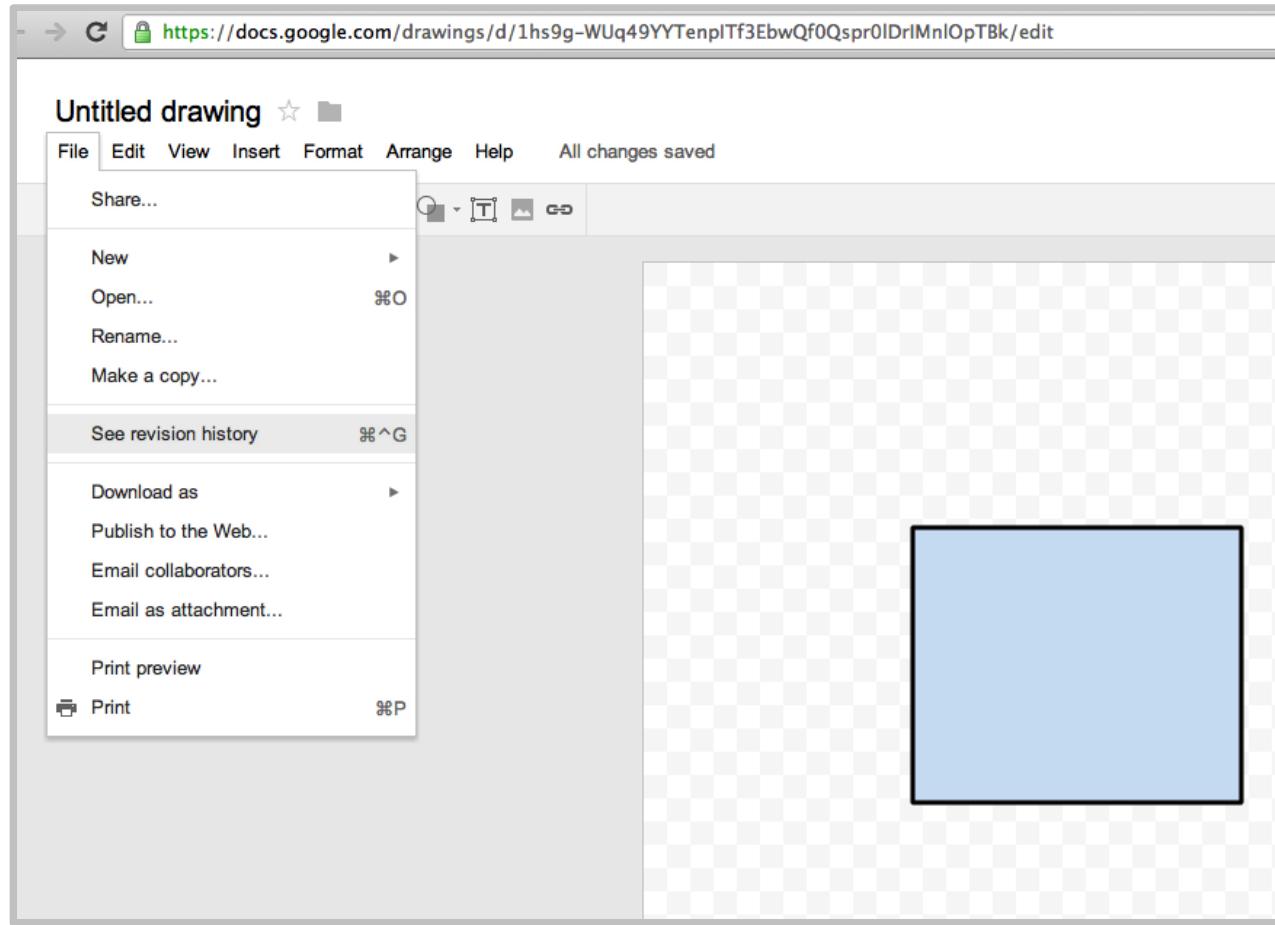


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01.

# Content Management Systems: web interfaces to databases

# Versioning: you've already seen it on Google Docs...



Even Google Docs has a very simple versioning system available. It is an important mechanism for keeping track of the history of a project.

# Blog: Wordpress.org

The screenshot shows the WordPress.org website. At the top, there's a navigation bar with links for Home, Showcase, Themes, Plugins, Mobile, About, Docs, Blog, Forums, Hosting, and a prominent red Download button. To the right of the navigation is a search bar with a 'Go' button. Below the navigation is the main content area. On the left, a sidebar displays a site menu with options like Home, Updates (3), Posts, Media, Links, Pages, and Comments (1). The main content area features a large 'Dashboard' section with a house icon. Below it, a 'Right Now' summary shows 2 Posts, 1 Page, 1 Category, and 0 Tags. To the right of this summary is a descriptive text block about WordPress, followed by a 'Ready to get started?' link and a 'Download WordPress 3.3.2' button. At the bottom of the main content area is a yellow banner stating 'WordPress is also available in Suomi and Svenska.'

WORDPRESS.ORG

Home Showcase Themes Plugins Mobile About Docs Blog Forums Hosting Download

Search WordPress.org Go

My Awesome Site

Dashboard

Home

Updates 3

Posts

Media

Links

Pages

Comments 1

Dashboard

Right Now

Content

2 Posts

1 Page

1 Category

0 Tags

WordPress is web software you can use to create a beautiful website or blog. We like to say that WordPress is both free and priceless at the same time.

The core software is built by hundreds of community volunteers, and when you're ready for more there are thousands of [plugins](#) and [themes](#) available to transform your site into almost [anything you can imagine](#). Over 60 million people have chosen WordPress to power the place on the web they call "home" — we'd love you to join the family.

Ready to get started? [Download WordPress 3.3.2](#)

WordPress is also available in [Suomi](#) and [Svenska](#).

The easiest way to manage content (and a bit of versioning).

Source: <http://wordpress.org/>

# Blog: Wordpress.org (+ plugin)

Plugin Directory

Username  Password  [Log in](#) ([forgot?](#)) or [Register](#)

Extend Home

Plugins [Developer Center](#)

Themes

Mobile

Ideas

Kvetch!

Search Plugins  [Search](#)

Popular Tags [More »](#)

- widget (3047)
- Post (2019)
- plugin (1897)
- admin (1542)
- posts (1484)

The Revisions Meta box

## Revision Control

Revision Control allows finer control over the Post Revision system included with WordPress

[Download Version 2.1](#)

Description Screenshots Other Notes Changelog Stats

Compare	Date Created	Author	Actions
<input checked="" type="radio"/>	9 January, 2010 @ 13:31 [Current Revision]	admin	
<input type="radio"/>	9 January, 2010 @ 13:31	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input type="radio"/>	9 January, 2010 @ 13:31	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input type="radio"/>	9 January, 2010 @ 13:31	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input type="radio"/>	9 January, 2010 @ 13:30	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input type="radio"/>	9 January, 2010 @ 13:28	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input type="radio"/>	9 January, 2010 @ 13:28	admin	<a href="#">Restore</a>   <a href="#">Remove</a>
<input checked="" type="radio"/>	9 January, 2010 @ 13:11 [Autosave]	admin	<a href="#">Restore</a>   <a href="#">Remove</a>

Requires: 3.2 or higher  
Last Updated: 2011-8-19  
Downloads: 107,773

Average Rating

 (95 ratings)

FYI  
[Other Versions »](#)  
[Subversion Repository »](#)

 [Forums Posts](#)

Revision Control allows finer control over the Post Revision system included with WordPress.

Source: <http://wordpress.org/extend/plugins/revision-control/>

# Blog: Wordpress.org (+ plugin)

Plugin Directory

Username  Password  Log in (forgot?) or Register

Extend Home

Plugins

- Developer Center

Themes

Mobile

Ideas

Kvetch!

Search Plugins

Popular Tags More »

- widget (3047)
- Post (2019)
- plugin (1897)
- admin (1542)
- posts (1484)
- sidebar (1348)
- comments (1056)
- twitter (1024)
- google (1016)
- images (997)
- page (951)
- image (870)
- links (815)

WP Document Revisions

A document management and version control plugin that allows teams of any size to collaboratively edit files and manage their workflow.

[Download Version 1.3](#)

Description Installation FAQ Screenshots Other Notes Changelog Stats

**WP Document Revisions** is a [document management](#) and [version control](#) plugin. Built for time-sensitive and mission-critical projects, teams can collaboratively edit files of any format — text documents, spreadsheets, images, sheet music... anything — all the while, seamlessly tracking the document's progress as it moves through your organization's existing workflow.

**Average Rating**

★★★★★ (22 ratings)

**FYI**

[Other Versions »](#)  
[Subversion Repository »](#)  
[Donate to this plugin »](#)

A document management and version control plugin that allows teams of any size to collaboratively edit files and manage their workflow.

Source: <http://wordpress.org/extend/plugins/wp-document-revisions/>

# CMS: Drupal.org

Get Started   Community   Documentation   Support   Download & Extend   Marketplace   About

## Drupal™

Come for the software, stay for the community

Drupal is an open source content management platform powering millions of websites and applications. It's built, used, and supported by an active and diverse community of people around the world.

Drupal Homepage   Log In / Register

**Why Choose Drupal?**

Use Drupal to build everything from personal blogs to enterprise applications. Thousands of add-on modules and designs let you build any site you can imagine. Join us!

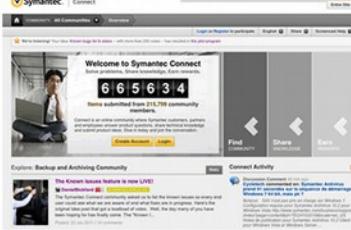
[Get Started with Drupal](#)

**Drupal Distributions**

Distributions are a collection of pre-configured themes and modules for feature-rich web sites giving you a head start on building your site. Build your own online communities, media portal, online store, and more!

[Learn about Distributions](#)

**Sites Made with Drupal**



**Symantec Connect Case Study**

Drupal is used by some of the biggest sites on the Web, like [The Economist](#), [Examiner.com](#) and [The White House](#). Read more Drupal [case studies](#).

**Search drupal.org**

Refine your search

All    Documentation  
 Modules    Forums & Issues  
 Themes    Groups

Search

**Develop with Drupal**

15,814 Modules   1,369 Themes   407 Distributions   17,543 Developers   This week 3,743 [Code commits](#) 6,441 [Issue comments](#)

[Drupal Core](#)   [Security Info](#)   [Developer Docs](#)   [API Docs](#)

**Get Drupal Security Announcements**  
Keep your site secure.

Drupal contains basic features common to a cms: user account registration and maintenance, menu management, RSS-feeds, page layout customization...

Source: <http://wordpress.org/extend/plugins/wp-document-revisions/>

## CMS: Drupal.org (+modules)

You can extend the versioning system of Drupal with these modules:

- \* <http://drupal.org/project/revisioning>
  - \* [http://drupal.org/project/revision\\_fu](http://drupal.org/project/revision_fu)
  - \* <http://drupal.org/project/revisionreference>
  - \* [http://drupal.org/project/block\\_revisions](http://drupal.org/project/block_revisions)
  - \* [http://drupal.org/project/diff\\_revision](http://drupal.org/project/diff_revision)
  - \* [http://drupal.org/project/revision\\_all](http://drupal.org/project/revision_all)
  - \* [http://drupal.org/project/user\\_revision](http://drupal.org/project/user_revision)
  - \* [http://drupal.org/project/user\\_diff](http://drupal.org/project/user_diff)
-

# CMS: Drupal.org -> fablab.aalto.fi

The screenshot shows a Drupal-based website for the Aalto Fablab. The header features a large red banner with the text "A? Aalto Fablab" and "digital fabrication laboratory at Media Factory". Below the banner, the Aalto University Media Factory logo is visible. The main content area has a white background. A news article titled "Aalto Fablab – the first Finnish Fablab" is displayed, submitted by Anu on Mon, 12/05/2011 - 11:48. The article discusses the establishment of the first Finnish Fablab at Aalto Media Factory, mentioning its small-scale nature, digital fabrication machines, and community support. It also notes the arrival of equipment and the planned grand opening in February 2012. The article is followed by a section titled "Tags:" which includes links to "3d printing", "aalto fablab", "anu malatta", "digital fabrication", and "fablab". To the right of the main content, there is a sidebar titled "Discussions on Twitter" containing several tweets from the @AaltoFablab account, discussing topics like #fabbings, #3D modeling, #3Dprinting, and maker faires.

**Aalto Fablab – the first Finnish Fablab**

Submitted by Anu on Mon, 12/05/2011 - 11:48

Fab Lab (fabrication laboratory) is a small-scale workshop for digital fabrication, started by MIT. Fablabs typically have a few digitally controlled manufacturing machines: larger CNC router for furniture and house-sized objects, smaller precision CNC milling machine for making cast molds, engraving different materials or printed circuit boards, laser cutter for cutting and engraving wood, plastic, fabric and other materials, vinyl cutter for making signs, stickers and flexible circuits, video conferencing system to be in continuous touch with other Fablabs, and in many cases also a 3D printer and scanner. This basic set of manufacturing machines enables you to 'make just about anything' – this may be a prototype of a product, work of art, and can even contain electronics.

There are now about 50 Fablabs all around the world, with plans for many more on the way. Fablab blueprint dictates the commonalities between labs: standard inventory of machines, work processes, communication pathways and access policies, but each lab can and has interpreted the blueprints to suit the needs of their local community. As peer to peer learning in the way of mutual support in learning to work at the space is at the core of Fablab philosophy, community needs can really shape how an individual lab turns out.

We are currently putting all the pieces together to start the first Finnish Fablab here at Aalto Media Factory: finding local suppliers for the machines and raw materials, designing the space to fit our needs, building the website, educating ourselves about Fablab practices and mingling with other maker-minded groups in Helsinki region (there's quite a bit going on now that the World Design Capital year is almost at hand). Most of the machines should have arrived by early January, and the grand opening is planned to take place around the beginning of February 2012.

Aalto Fablab adds digital fabrication onto the service menu of the Aalto Media Factory. We aim to provide assistance with digital fabrication and will be offering online scheduling to book time on the Fablab machines (including assistance in machine usage). Part of the Fablab model is also to have the space open to everyone at least the part of the time – we will host open days weekly. Two courses are being organized at the Fablab sprint term 2012 as part of the Media Lab curriculum (but they are open to all Aalto students): Digital Workshop Basics (an intensive hands-on course to get acquainted with the Fablab machines) and Digital Fabrication Studio (offering more background and design context and completion of a more complex project realized using the Fablab machines)

Before we open our doors early next year, you're most welcome to visit the Fablab space and ask any questions you may have or [contact us](#), if you don't have time to stop by!

Tags:

[3d printing](#) [aalto fablab](#) [anu malatta](#) [digital fabrication](#) [fablab](#)

**Discussions on Twitter**

@AaltoFablab  
RT @openp2pdesign:  
About to start my #fabbings  
course at @aaltomedia  
@AaltoFablab, here is the  
first presentation about  
#fabbings + #fablab  
<http://t.co/nJSMxdon>

@AaltoFablab  
RT @core77:  
Using Digital  
Manufacturing to Create a  
Condiment Mystery:  
<http://t.co/y6edvzYI>

@AaltoFablab  
Need any help for a free  
software for #3D modeling  
+ #3Dprinting ? Here's an  
introduction to Blender for  
you  
<https://t.co/FqQV5gXS>

@AaltoFablab  
RT @openp2pdesign:  
FABFUSE2012 is the first  
international Grassroots  
#fablab event. Amersfoort  
(NL) on 8 - 11 August.  
<http://t.co/RjAo1uZX>

@AaltoFablab  
Manchester Mini Maker  
Faire 28th July - 29th July  
2012  
[#makers #makerfaire #uk](http://t.co/iYNxeOk3)

We will soon have our website here ...

# Wiki: Mediawiki.org

MediaWiki.org logo featuring a sunflower and the word "MediaWiki".

Page Discussion Read View source View history Search

Our updated Terms of Use will become effective on May 25, 2012. Find out more.

## Welcome to MediaWiki.org

MediaWiki is a free software open source wiki package written in PHP, originally for use on Wikipedia. It is now used by several other projects of the non-profit Wikimedia Foundation and by many other wikis, including this website, the home of MediaWiki.

Use the links below to explore the site contents. You'll find some content translated into other languages, but the primary documentation language is English.

For general questions about MediaWiki see the communication page or ask at the support desk.

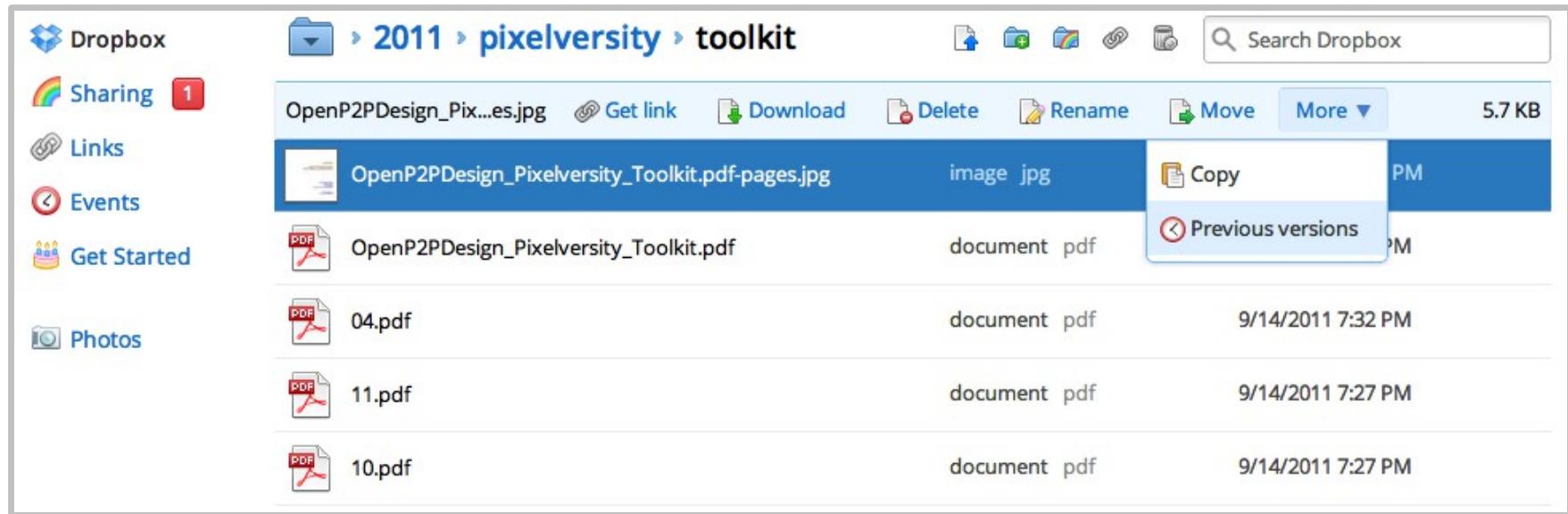
About this site | About MediaWiki | Download | Help and support

<b>Users</b>  What is a wiki? <ul style="list-style-type: none"><li>Learn how to navigate</li><li>Learn how to edit a page</li><li>Get more help</li></ul>	<b>System administrators</b>  Install & configure MediaWiki <ul style="list-style-type: none"><li>Upgrade an existing MediaWiki installation</li><li>Add features with third-party extensions</li><li>Get more sysadmin help</li></ul>	<b>Developers</b>  Become a MediaWiki hacker <ul style="list-style-type: none"><li>Learn to use the API and write extensions</li><li>Browse the developer docs and class reference</li><li>Already a hacker? Visit the developer hub</li></ul>
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MediaWiki is a free software open source wiki package written in PHP, originally for use on Wikipedia.

Source: <http://www.mediawiki.org/wiki/MediaWiki>

# Backup: DropBox



The screenshot shows a Dropbox interface with a sidebar on the left containing links for Sharing, Links, Events, Get Started, and Photos. The main area displays a folder structure: 2011 > pixelversity > toolkit. Inside the toolkit folder, there are several files listed:

File Name	Type	Size
OpenP2PDesign_Pix...es.jpg	image jpg	5.7 KB
OpenP2PDesign_Pixelversity_Toolkit.pdf-pages.jpg	image jpg	(highlighted)
OpenP2PDesign_Pixelversity_Toolkit.pdf	document pdf	
04.pdf	document pdf	9/14/2011 7:32 PM
11.pdf	document pdf	9/14/2011 7:27 PM
10.pdf	document pdf	9/14/2011 7:27 PM

A context menu is open over the highlighted file "OpenP2PDesign\_Pixelversity\_Toolkit.pdf-pages.jpg", showing options like Copy and Previous versions.

---

DropBox has a limited versioning system, that goes back to 30 days only.

# Backup: ownCloud

The screenshot shows the ownCloud web interface. At the top, there's a navigation bar with links for News, Support, Developer, Contact, Commercial, and a green 'Try it out!' button. Below the navigation is a search bar and a toolbar with icons for New, Up, and Down.

The main area displays a file list:

Name	Size	Modified
Music	65.5	10 minutes ago
Shared	0	years ago
Demo Code - C++	< 0.1	10 minutes ago
Demo Code - PHP	< 0.1	10 minutes ago
Demo Image - Laser Towards Milky Ways Centre	0.3	10 minutes ago
Demo Movie MOV - Big Bug Bunny Trailer.mov	10.5	10 minutes ago

Below the file list, a banner reads: "ownCloud 3 Your files, music, calendars and more. Wherever you are." The banner also includes a link to "DEUTSCH - BLICK ZURÜCK".

The page is divided into several sections:

- Contribute**: ownCloud is open source software, built by a vibrant community of people like you!
  - Write code
  - Report problems
  - Help others
  - Translate
- Get started!**: Sign up with a provider for a free plan!
  - OwnCube
  - GetFreeCloud

The above providers are recommended because it is easy to sign up and they have a free plan. Other providers are [cloudbay](#), [nxServer](#), [Hostingbase](#) (German), [Black Point Arts](#) (German), [AIXPRO](#) (German). If you provide a public instance, [contact us](#)!

Got a server? [install your own!](#)

Then connect your devices with the [sync clients](#)
- Company support**: ownCloud is perfect for use inside your company. Your data on your servers, under your control.

ownCloud Inc offers Business and Enterprise editions with extensive support.

An open source version of DropBox, in case you have a server available.

Source: <http://owncloud.org/>

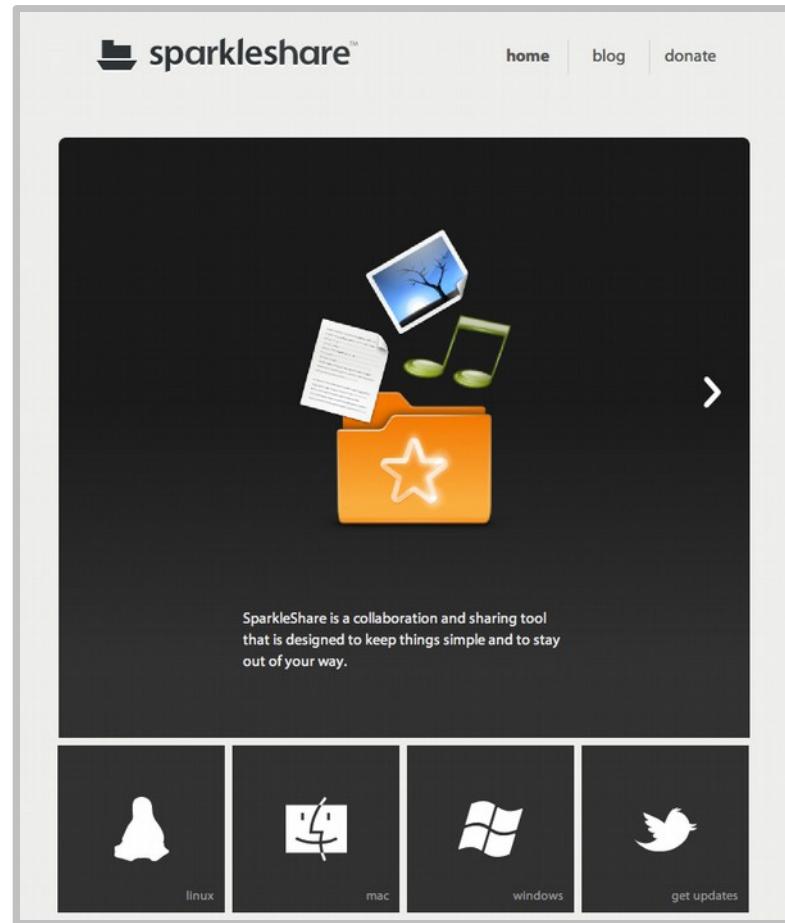
# Backup: ownCloud (with versioning)

The screenshot shows a GitHub repository page for 'craig0990 / ownCloud'. The repository is described as a 'Personal clone of ownCloud, containing an in-development versioning app (I would seriously advise against cloning and pulling from this repository at the moment) — [Read more](#)'. It includes links for 'Clone in Mac', 'ZIP', 'HTTP', 'Git Read-Only' (with URL <https://github.com/craig0990/ownCloud.git>), and 'Read-Only access'. The repository has 6 issues and 1 wiki page. The 'Files' tab is selected, showing a commit history for the 'files\_versioning' branch. The latest commit, authored by 'craig0990' 3 days ago, fixed a minor new folder bug. The commit hash is b9d3a66d28. Below this, a table lists file commits:

name	age	message	history
.tx	7 months ago	integrated and updated calendar translations [Jan-Christoph Borchardt]	
3rdparty	a month ago	Added Granite library v0.2.0 to '3rdparty/' [craig0990]	
apps	3 days ago	Fixed minor new folder bug [craig0990]	
config	a month ago	make it possible to connect to other ocs appstores and other ocs know... [Frank Karlitschek]	
core	a month ago	Merge commit 'refs/merge-requests/102' of git://gitorious.org/ownclou... [CBiX]	
files	a month ago	webdav needs to load authentication apps [Arthur Schiwon]	

“Personal clone of ownCloud, containing an in-development versioning app (I would seriously advise against cloning and pulling from this repository at the moment)”

# Backup: Sparkleshare

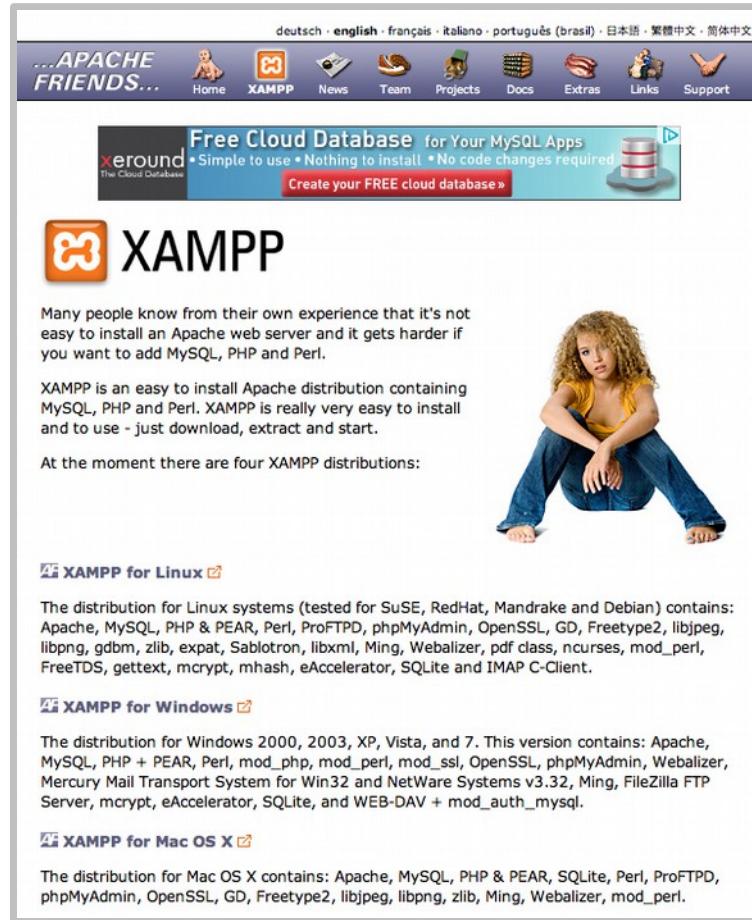


---

An open source version of DropBox, in case you have a server available (based on Git!).

Source: <http://sparkleshare.org/>

# Need a local server? XAMPP



The screenshot shows the Apache Friends XAMPP website. At the top, there's a navigation bar with links for Home, XAMPP (which is highlighted), News, Team, Projects, Docs, Extras, Links, and Support. Below the navigation, there's a banner for "xeround The Cloud Database" with text about it being free, simple to use, and requiring no installation or code changes. A "Create your FREE cloud database" button is also present. The main content area features a large orange XAMPP logo icon followed by the word "XAMPP". Below the logo, there's a paragraph about the difficulty of installing an Apache web server and adding MySQL, PHP, and Perl. It then describes XAMPP as an easy-to-install distribution containing these components. A woman sitting cross-legged on the floor is shown on the right side of the page. Below the main text, there are three sections with links to "XAMPP for Linux", "XAMPP for Windows", and "XAMPP for Mac OS X", each providing a brief description of the included software.

Many people know from their own experience that it's not easy to install an Apache web server and it gets harder if you want to add MySQL, PHP and Perl.

XAMPP is an easy to install Apache distribution containing MySQL, PHP and Perl. XAMPP is really very easy to install and to use - just download, extract and start.

At the moment there are four XAMPP distributions:

[XAMPP for Linux](#)

The distribution for Linux systems (tested for SuSE, RedHat, Mandrake and Debian) contains: Apache, MySQL, PHP & PEAR, Perl, ProFTPD, phpMyAdmin, OpenSSL, GD, Freetype2, libjpeg, libpng, gdbname, zlib, expat, Sablotron, libxml, Ming, Webalizer, pdf class, ncurses, mod\_perl, FreeTDS, gettext, mcrypt, mhash, eAccelerator, SQLite and IMAP C-Client.

[XAMPP for Windows](#)

The distribution for Windows 2000, 2003, XP, Vista, and 7. This version contains: Apache, MySQL, PHP + PEAR, Perl, mod\_php, mod\_perl, mod\_ssl, OpenSSL, phpMyAdmin, Webalizer, Mercury Mail Transport System for Win32 and NetWare Systems v3.32, Ming, FileZilla FTP Server, mcrypt, eAccelerator, SQLite, and WEB-DAV + mod\_auth\_mysql.

[XAMPP for Mac OS X](#)

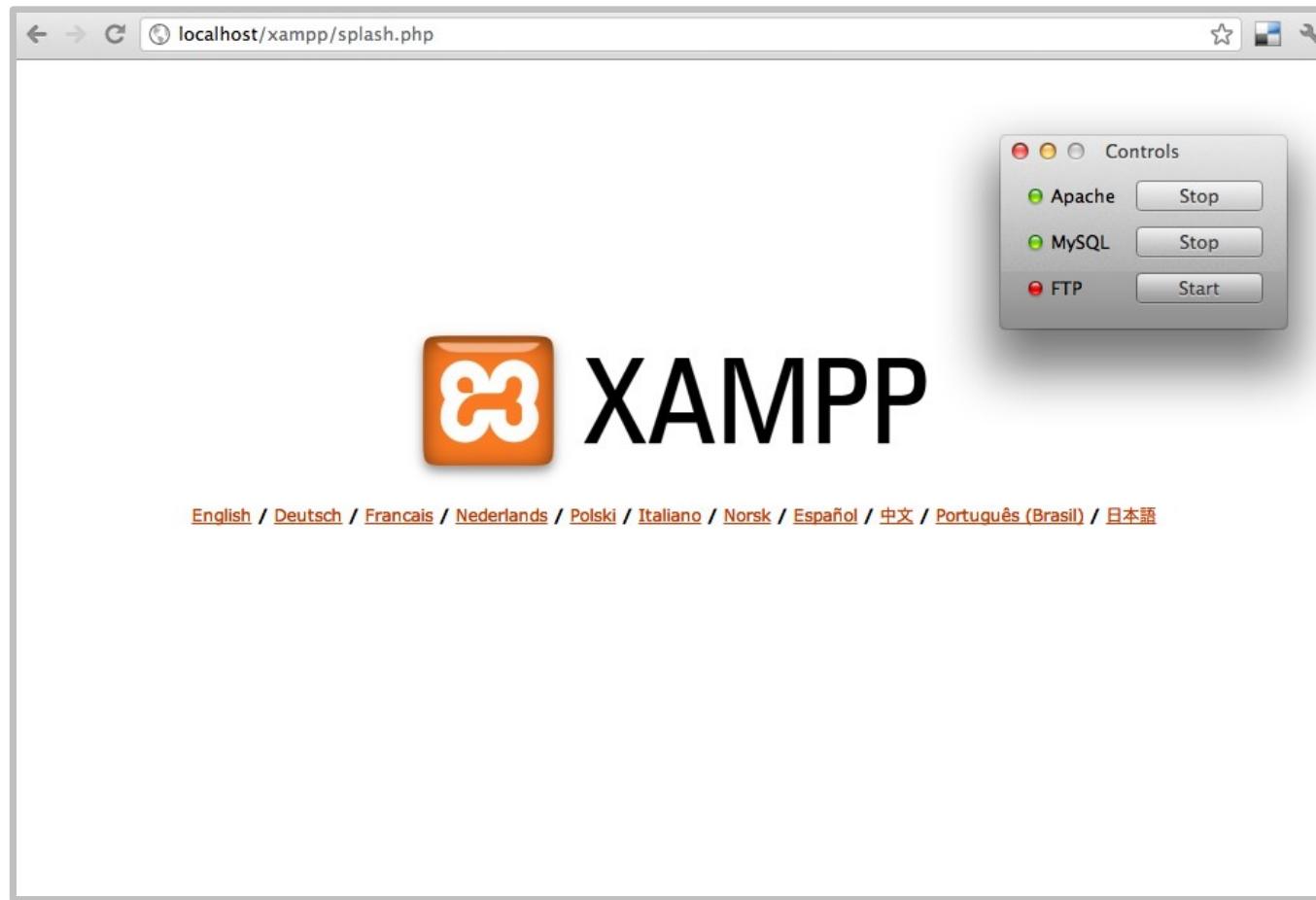
The distribution for Mac OS X contains: Apache, MySQL, PHP & PEAR, SQLite, Perl, ProFTPD, phpMyAdmin, OpenSSL, GD, Freetype2, libjpeg, libpng, zlib, Ming, Webalizer, mod\_perl.

---

If you want to use Wordpress, Drupal, MediaWiki locally  
on your computer.

Source: <http://www.apachefriends.org/en/xampp.html>

# Your local server, `http://localhost/`



Look for the `htdocs` folder in your XAMPP application, all the files accessible through `http://localhost` should be there.

Source: <http://localhost/>

# Your local database, <http://localhost/phpmyadmin>

The screenshot shows the phpMyAdmin interface for MySQL localhost. The top navigation bar includes links for Databases, SQL, Status, Variables, Charsets, Engines, Privileges, Processes, Export, and Import. The left sidebar lists databases: cdcoll (1), django, drupal (171), information\_schema (28), mysql (23), openp2pdesign (153), test, and wp (20). A message says 'Please select a database'. The main content area has sections for Actions (Create new database, MySQL connection collation), Interface (Language: English, Theme / Style: Original, Custom color, Font size), MySQL (Server: Localhost via UNIX socket, Server version: 5.1.44, Protocol version: 10, User: root@localhost, MySQL charset: UTF-8 Unicode (utf8)), Web server (Apache/2.2.14 (Unix) DAV/2 mod\_ssl/2.2.14 OpenSSL/0.9.8l PHP/5.3.1, MySQL client version: 5.1.44, PHP extension: mysql), and phpMyAdmin (Version information: 3.2.4, Documentation, Wiki, Official Homepage, [ChangeLog] [Subversion] [Lists]). A yellow warning bar at the bottom left says 'The additional features for working with linked tables have been deactivated. To find out why click [here](#)'. A red error bar at the bottom left says 'Your configuration file contains settings (root with no password) that correspond to the default MySQL privileged account. Your MySQL server is running with this default, is open to intrusion, and you really should fix this security hole by setting a password for user \'root\'.' A link 'Open new phpMyAdmin window' is at the bottom right.

You can easily create a database with PhpMyAdmin (but you will probably have to change the password for installing MediaWiki).



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02.

# Version Control Systems: managing the history of a project

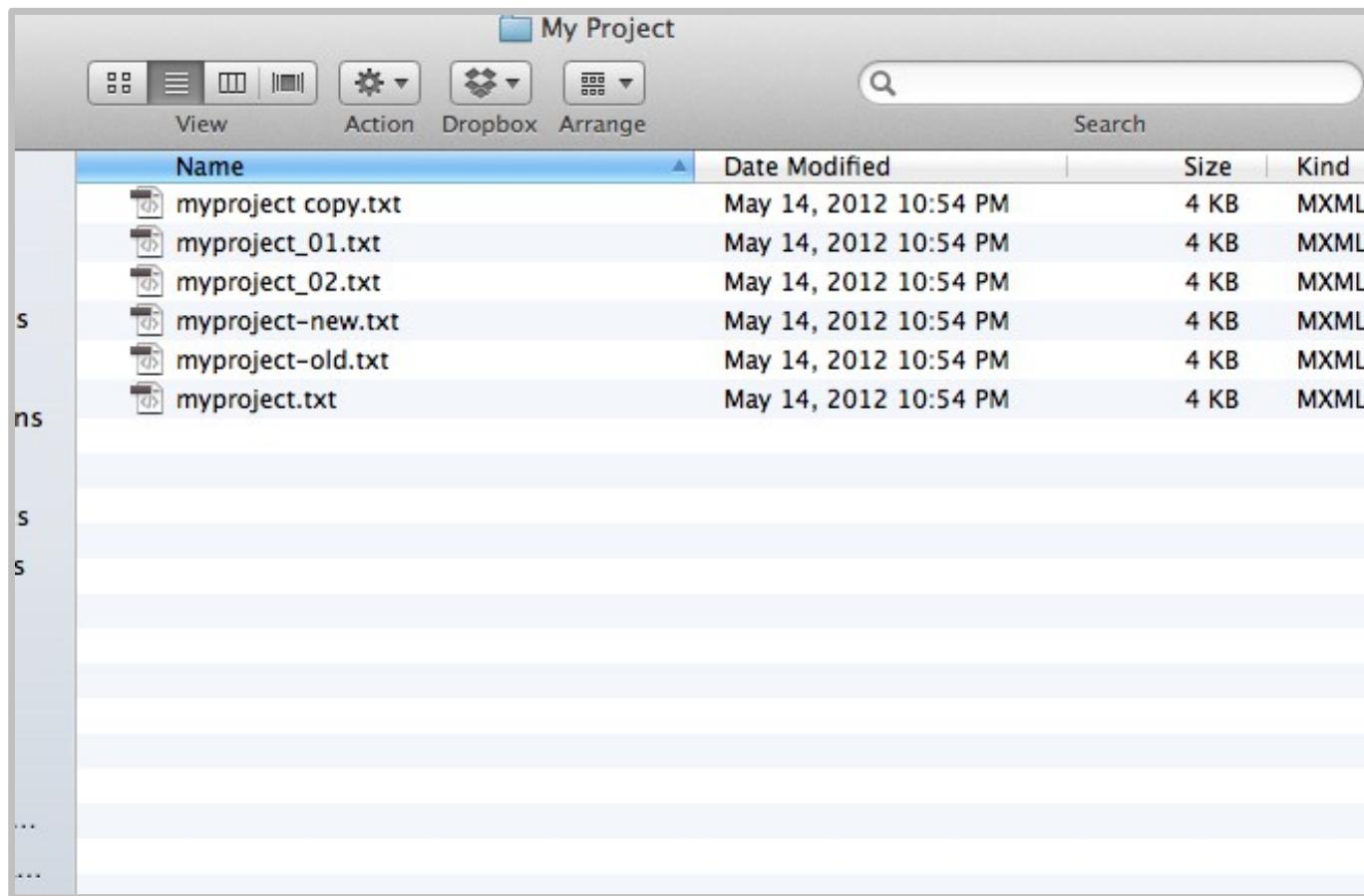


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02.01

# Version Control Systems: Subversion (SVN)

# Control? Organization?



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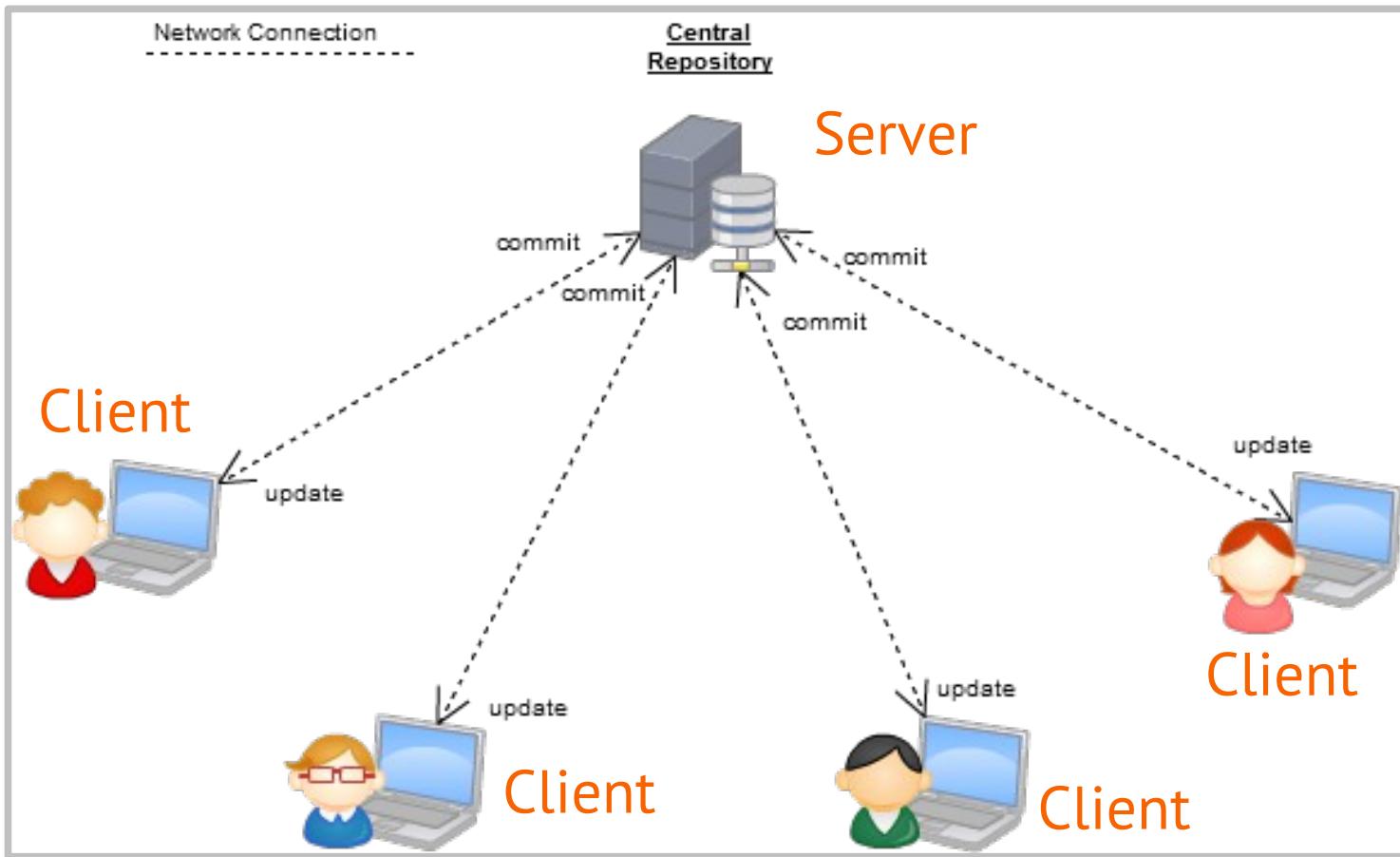
Something very common, that I don't want to see in this course!!

# Version Control Systems

A version (or revision) control system is a system that **tracks incremental versions (or revisions)** of files and directories over time. It allows you to explore the changes which resulted in each of those versions and facilitates the arbitrary recall of the same.

- \* Backup and Restore
  - \* Synchronization
  - \* Short-term undo + Long-term undo
  - \* Track Changes
  - \* Track Ownership
  - \* Branching and merging
  - \* not in real time!
-

# Server/client-based Version Control System



The first architecture to appear, you need to be connected and you need a server (unless you want to work alone on your computer).

# Version Control System: Subversion (SVN)



## SUBVERSION®

<http://www.apache.org/> 

About Subversion  
[News](#)  
[Features](#)  
[Documentation](#)  
[FAQ](#)  
[Roadmap](#)  
[Security](#)

Getting Subversion  
[Source Download](#)  
[Binary Packages](#)  
[Release Notes](#)

Community  
[Mailing Lists](#)  
[Reporting Issues](#)  
[Wiki](#)  
[Getting Involved](#)

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[Donate](#) ↗  
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Search...

## Apache™ Subversion®

*"Enterprise-class centralized version control for the masses"*

Welcome to **subversion.apache.org**, the online home of the Apache Subversion™ software project. Subversion is an open source version control system. Founded in 2000 by CollabNet, Inc., the Subversion project and software have seen incredible success over the past decade. Subversion has enjoyed and continues to enjoy widespread adoption in both the open source arena and the corporate world.

Subversion is developed as a project of the [Apache Software Foundation](#), and as such is part of a rich community of developers and users. We're always in need of individuals with a wide range of skills, and we invite you to participate in the development of Apache Subversion. Here's [how to get started](#).

For helpful hints about how to get the most out of your visit to this site, see the [About This Site](#) section below.

### Our Vision

Subversion exists to be universally recognized and adopted as an open-source, centralized version control system characterized by its reliability as a safe haven for valuable data; the simplicity of its model and usage; and its ability to support the needs of a wide variety of users and projects, from individuals to large-scale enterprise operations.

Subversion manages files and directories, and the changes made to them, over time. Think of it as a sort of “time machine” of changes.

# An introduction to SVN

*The Standard in Open Source Version Control*

*Version Control with*

# Subversion

## Introduction

This is the home of [Version Control with Subversion](#), a [free](#) book about the ubiquitous [Apache™ Subversion®](#) version control system and written by some of the developers of Subversion itself.

As you may have guessed from the layout of this page, we are quite pleased that some versions of this book have been [published](#) by O'Reilly Media. You can certainly [buy](#) a traditionally published print copy of the book if you'd like to, but you'll always find the most recent versions here on this site, available in both HTML and PDF formats.

## Online Versions of the Book

Versions of this book use a numbering system designed to match those used by the Subversion software itself—version 1.7 of [Version Control with Subversion](#) covers Subversion 1.7, for example. Here are the latest versions of the book which are available online:

### For Subversion 1.7

- View the [multiple-page HTML edition](#) of the book. [[tar.bz](#)]
- View the [single-page HTML edition](#) of the book. [[tar.bz](#)]
- View the [PDF edition](#) of the book.
- View the book's [DocBook XML sources](#).

An open source book about using SVN.

# Version Control System: the vocabulary (01)

- \* **Change**: A change (or diff) represents a specific modification to a document under version control.
- \* **Checkout** : A check-out (or co) is the act of creating a local working copy from the repository. A user may specify a specific revision or obtain the latest. Also refers to the same files.
- \* **Commit** : A commit (checkin, ci) is the action of writing or merging the changes made in the working copy back to the repository. Also refers to the same files.
- \* **Head** : The most recent commit.

# Version Control System: the vocabulary (02)

## \* **Conflict**

A conflict occurs when different parties make changes to the same document. A user must resolve the conflict by combining the changes, or by selecting one change.

## \* **Merge**

A merge or integration is an operation in which two sets of changes are applied to a file or set of files.

## \* **Update**

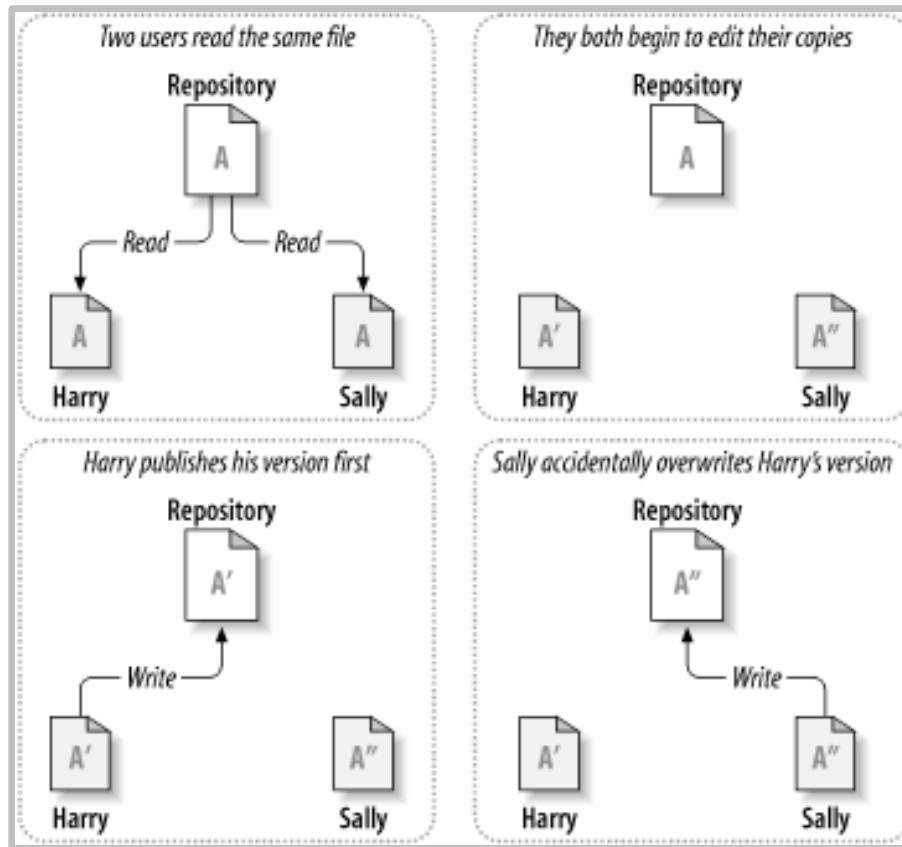
An update (or sync) merges changes made in the repository (by other people, for example) into the local working copy.

## \* **Working copy**

The working copy is the local copy of files from a repository, at a specific time or revision. Conceptually, it is a *sandbox*.

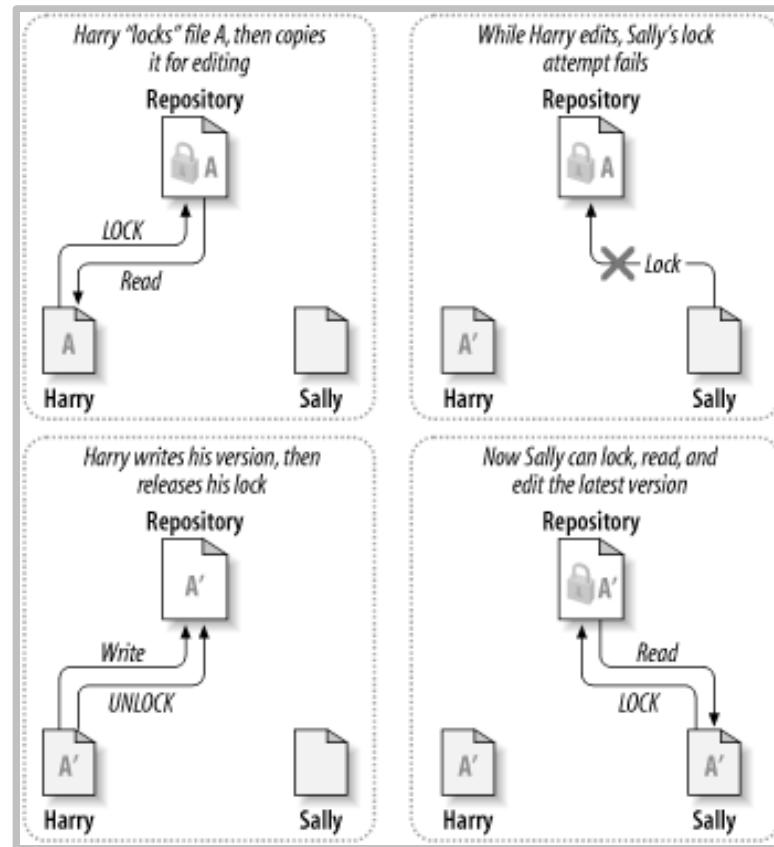
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# Versioning: the problem



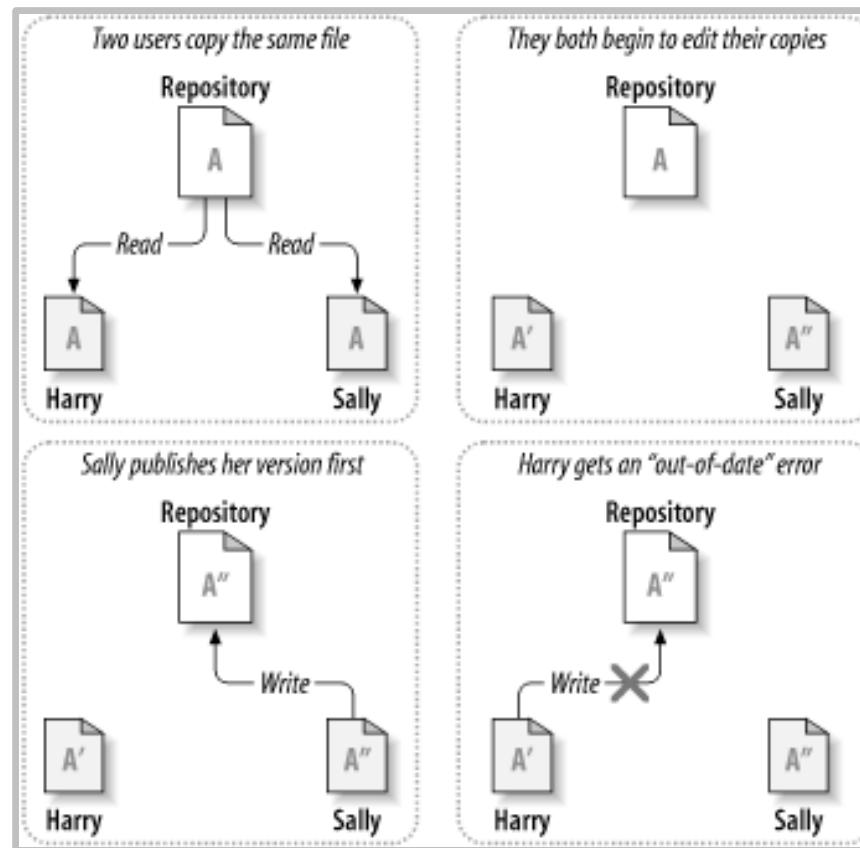
How will the system allow users to share information,  
but prevent them from accidentally overwriting?

# Versioning: the lock-modify-unlock solution



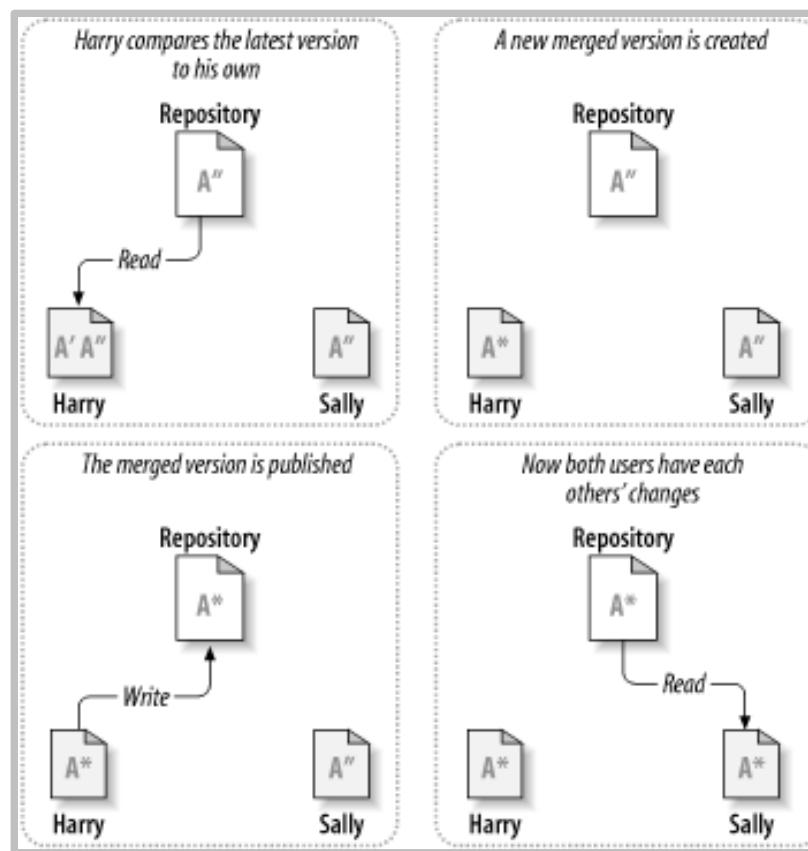
In this model, the repository allows only one person to change a file at a time, by locking it.

# Versioning: the copy-modify-merge solution (01)



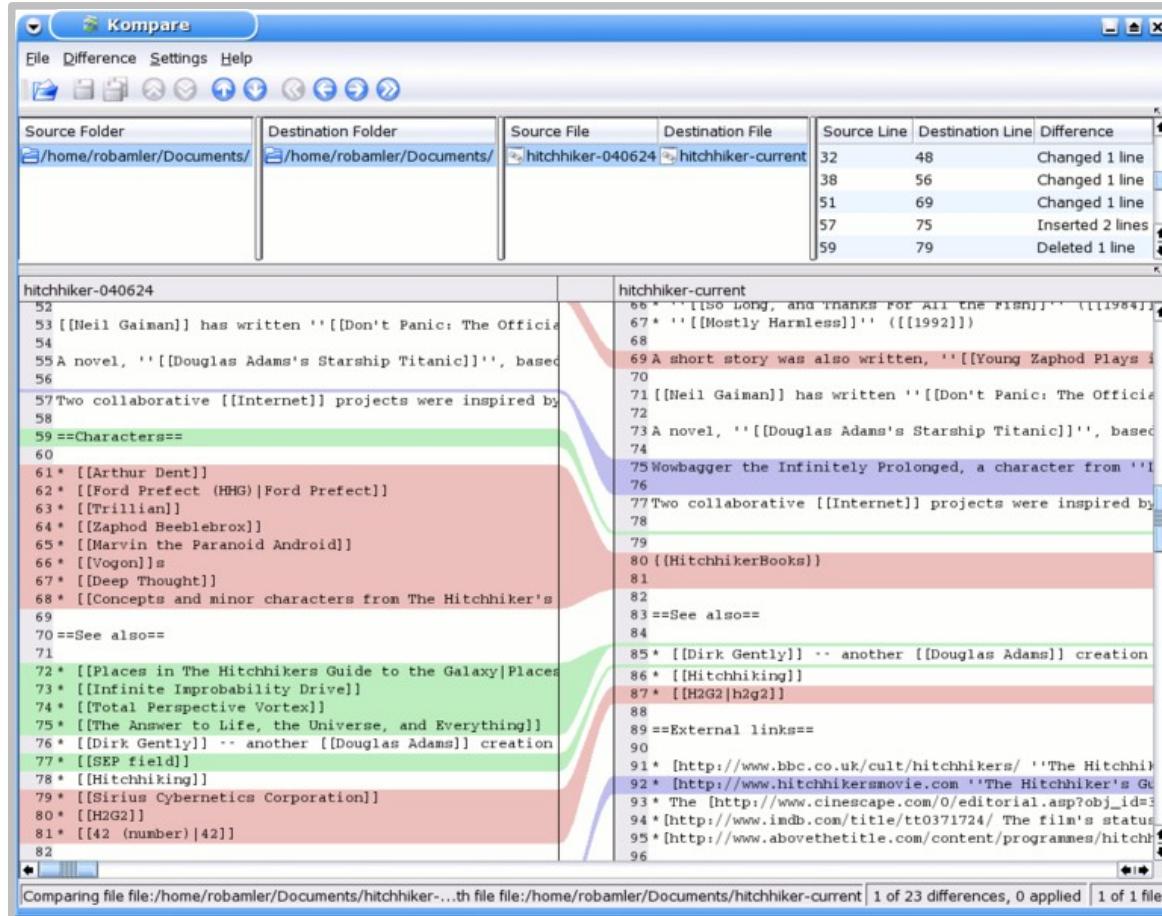
In this model, each user's client contacts the project repository and creates a personal working copy. The private copies are merged together into a new version.

# Versioning: the copy-modify-merge solution (02)



In this model, each user's client contacts the project repository and creates a personal working copy. The private copies are merged together into a new version.

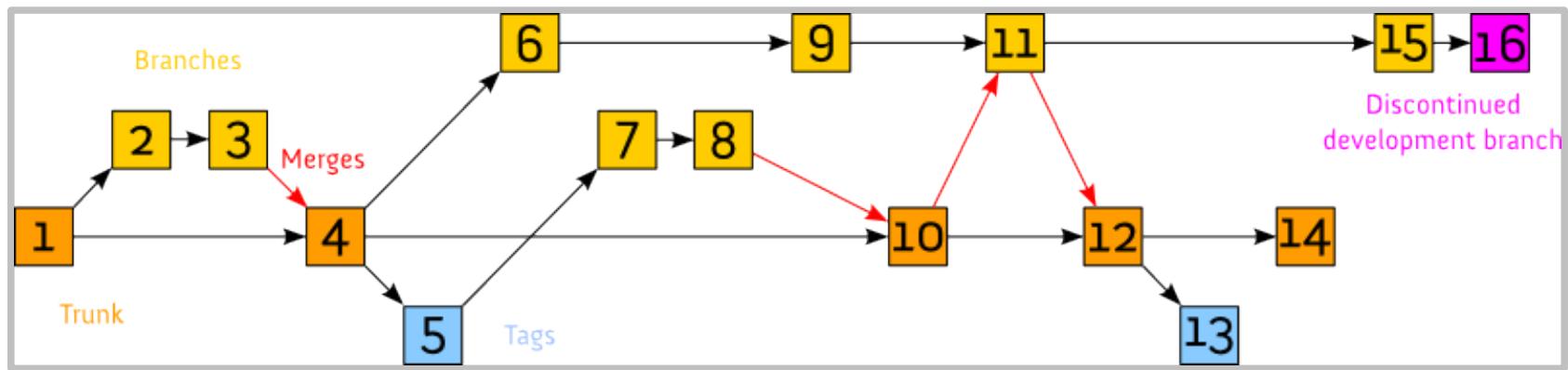
# **Diff: how to understand the changes**



The best way of understanding what has changed is to compare different revisions with a diff software.

Source: <http://en.wikipedia.org/wiki/Diff>  
<http://en.wikipedia.org/wiki/Kompare>

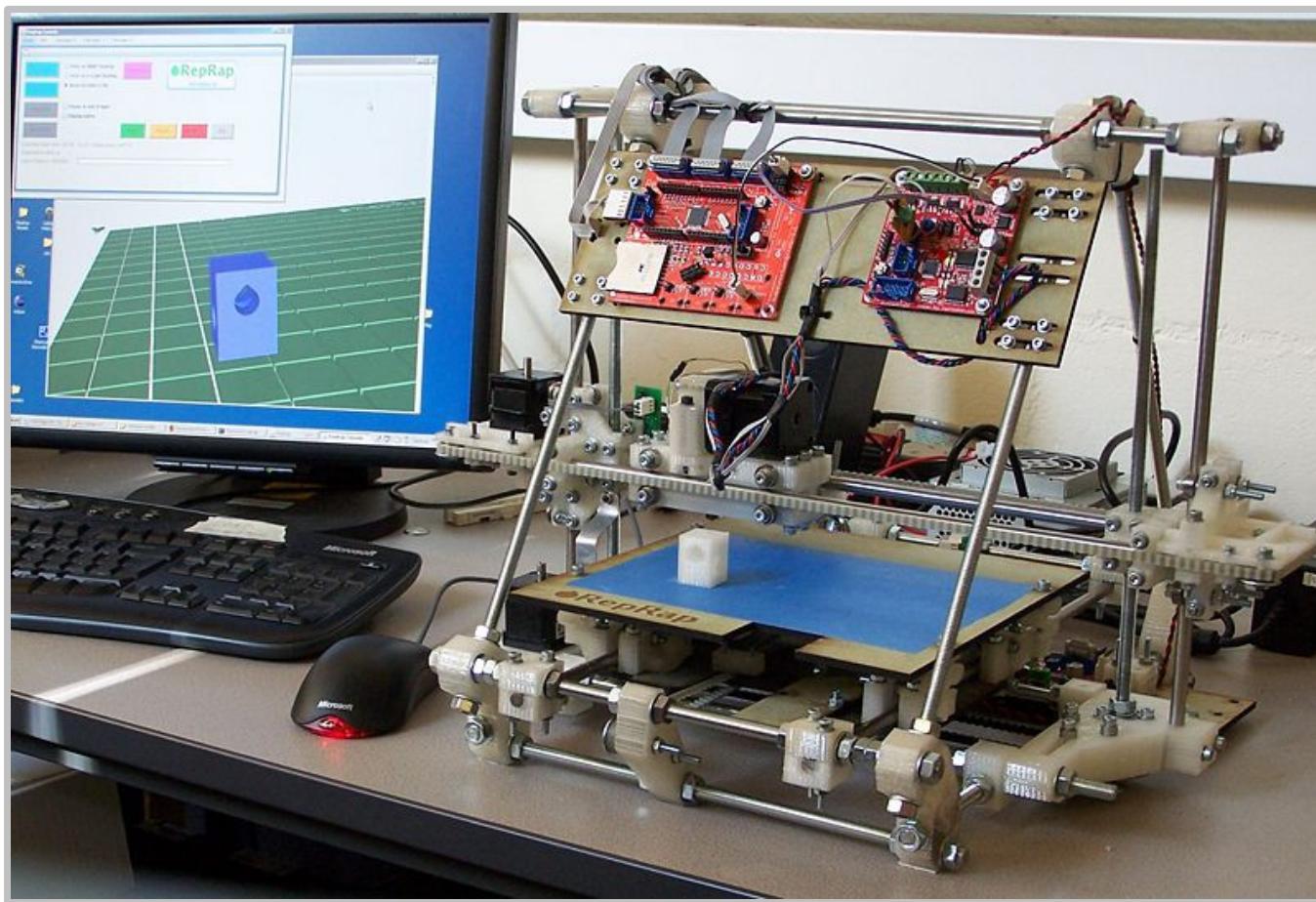
# A typical SVN project



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Development happens in *trunk*, testing alternatives in *branches* and storing good versions (1.0, 1.1,...) in *tags*.

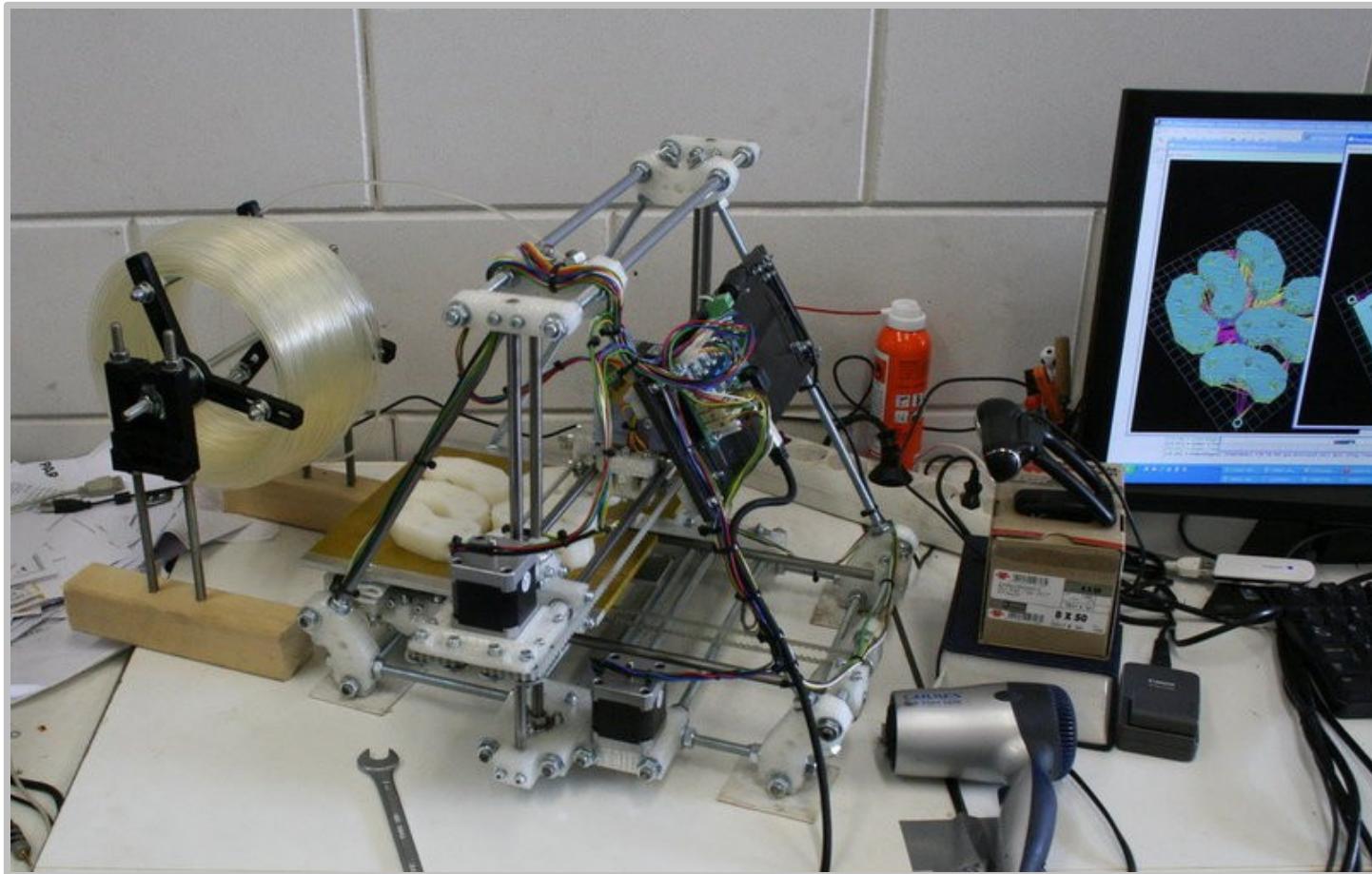
# Example: a spool for the RepRap Mendel



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The second version of the RepRap, the first to be easier to build and calibrate.

# A spool for the RepRap Mendel: an improvement

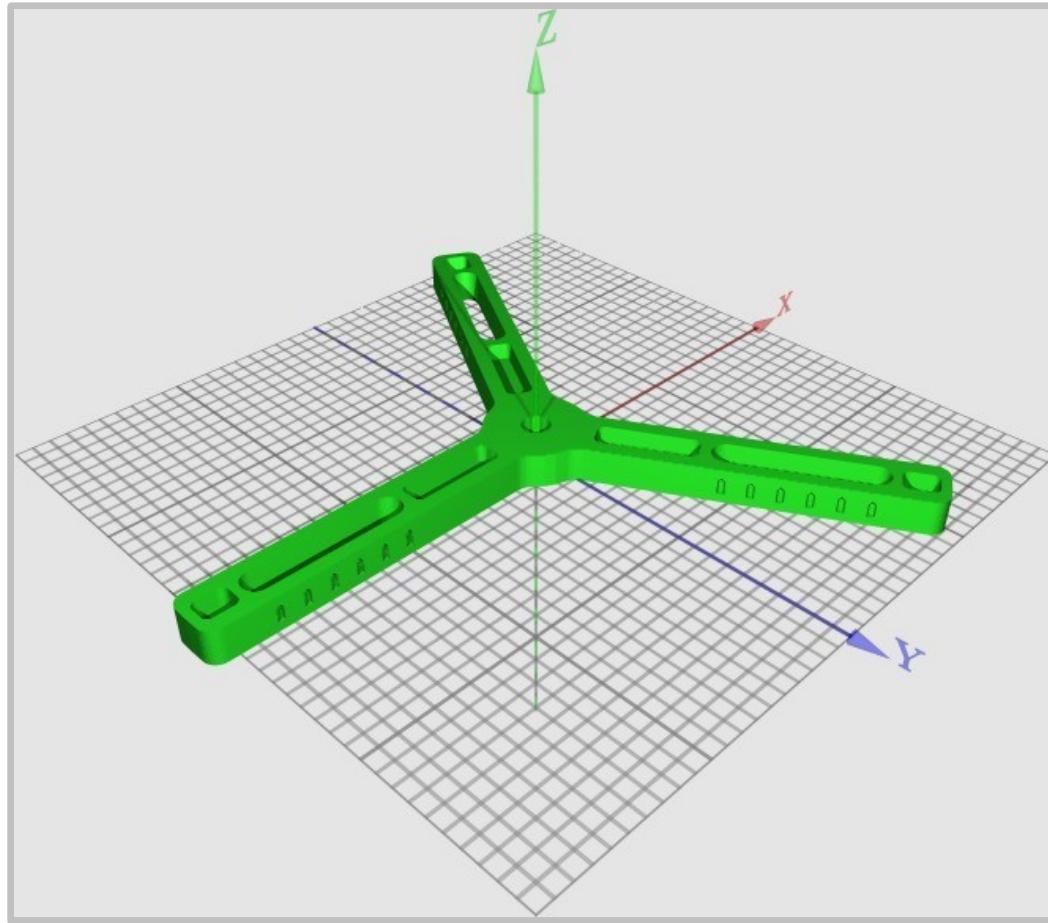


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A spool added for handling the plastic wire and published on Thingiverse.

Source: <http://www.thingiverse.com/thing:3866>

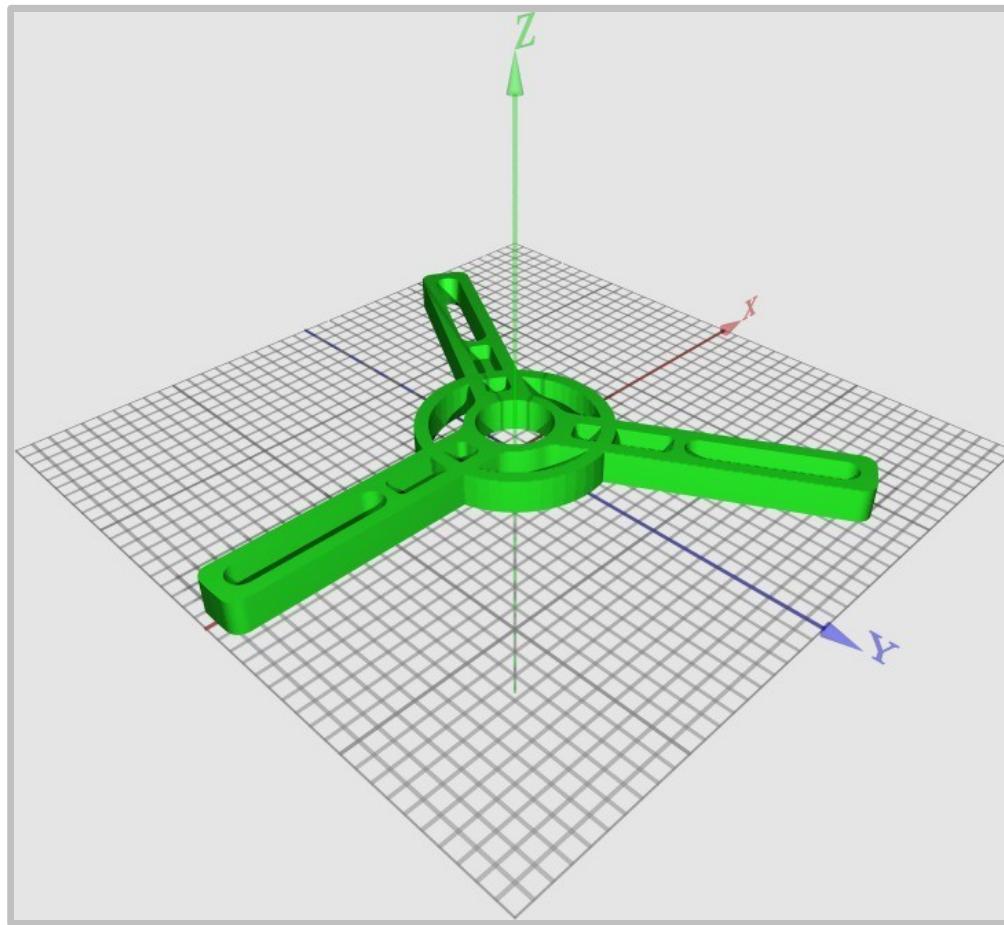
# A spool for the RepRap Mendel: an improvement (01)



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*"Well i wanted to have a very simple, but bearing based spool system."* Camiel

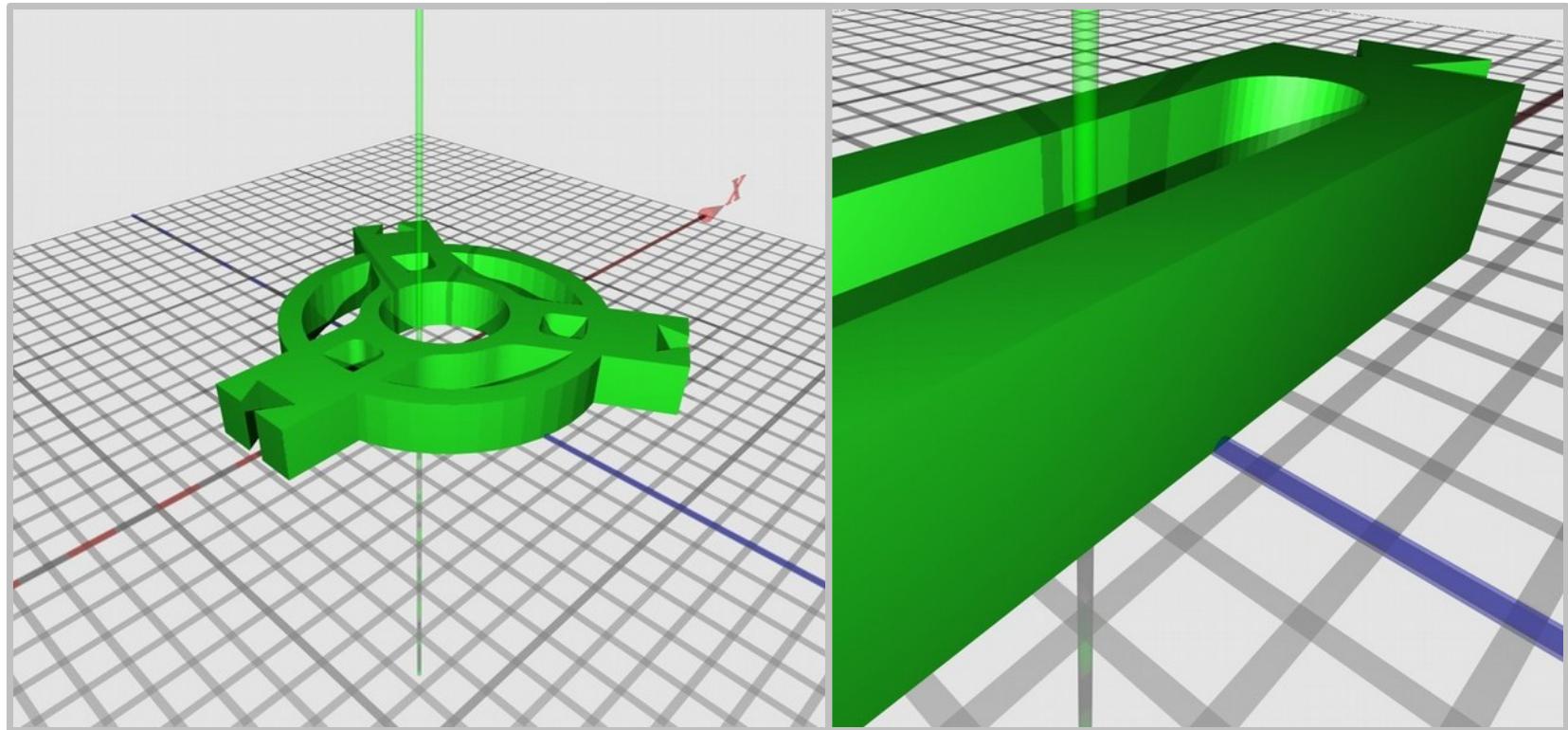
# A spool for the RepRap Mendel: an improvement (02)



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*"I have changed the design to put the bearings in the spool itself. This way you can be more flexible in what you use to support the axle." Brokentoaster*

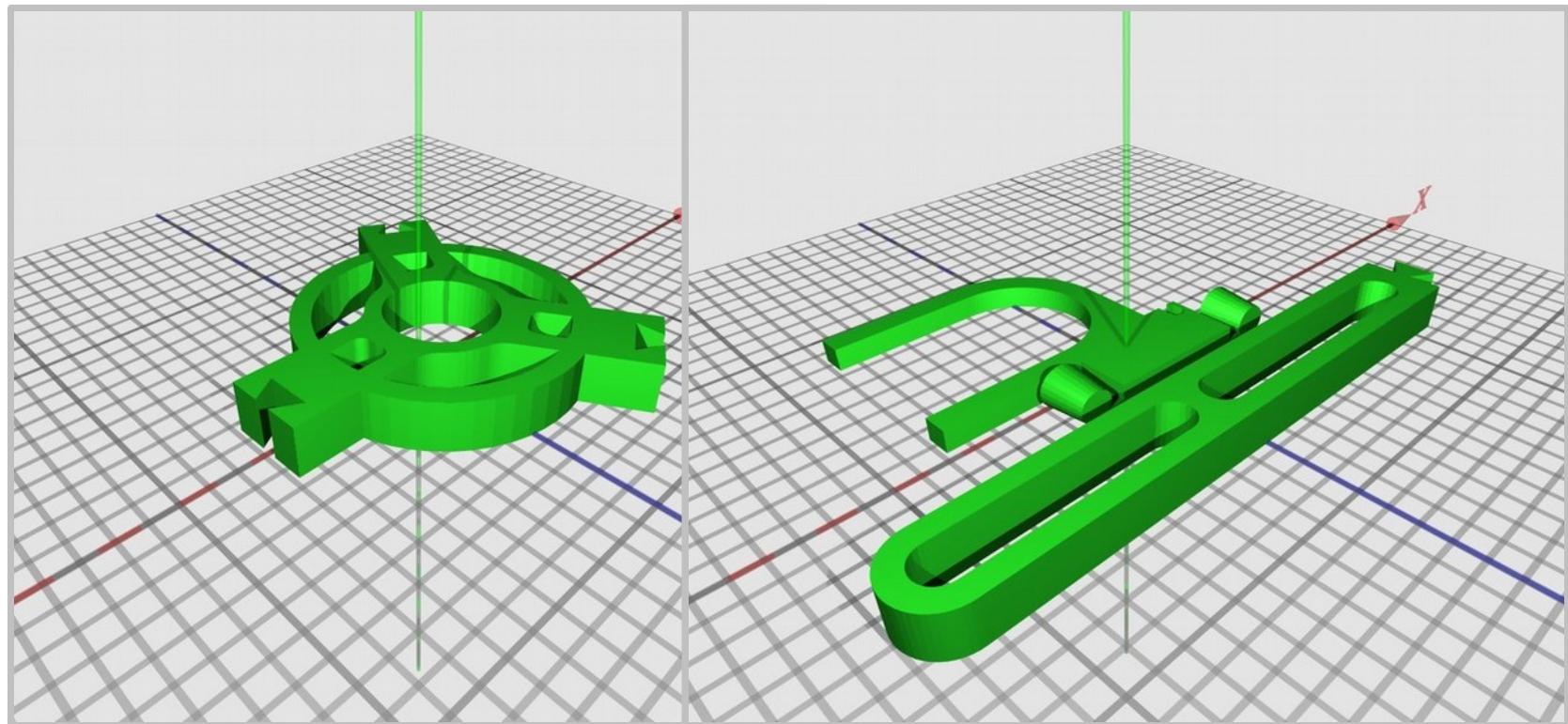
# A spool for the RepRap Mendel: an improvement (03)



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*"I liked BrokenToaster's idea of a bearing-driven filament spool holder, but that version was too big to fit on a Makerbot print bed. [...]"* Randyy

# A spool for the RepRap Mendel: an improvement (04)



*“This takes advantage of the larger print area on RepRaps by printing the arm as one piece, [...] also saving material.”* Fil

# SVN Client + File comparison: TortoiseSVN (Win)

## TortoiseSVN *the coolest interface to (Sub)version control*

Home | Donate | Downloads | Translations | Support/Docs | Other tools



# TortoiseSVN

**About TortoiseSVN**  
TortoiseSVN is an easy-to-use SCM / source control software for Microsoft Windows and possibly the best standalone Apache™ Subversion® client there is. It is implemented as a Windows shell extension, which makes it integrate seamlessly into the Windows explorer. Since it's not an integration for a specific IDE you can use it with whatever development tools you like.

**New version of grepWin**  
*Posted on September 4, 2011*

**Subversion Client Windows**  
Download Now! Windows, Linux, OSX Subversion Repository Browser  
[www.aquafold.com](http://www.aquafold.com)

AdChoices ▾

A new version of **GrepWin** is available. This new version contains a few bugfixes and enhancements.

List of completed **issues**  
Download from [here](#)

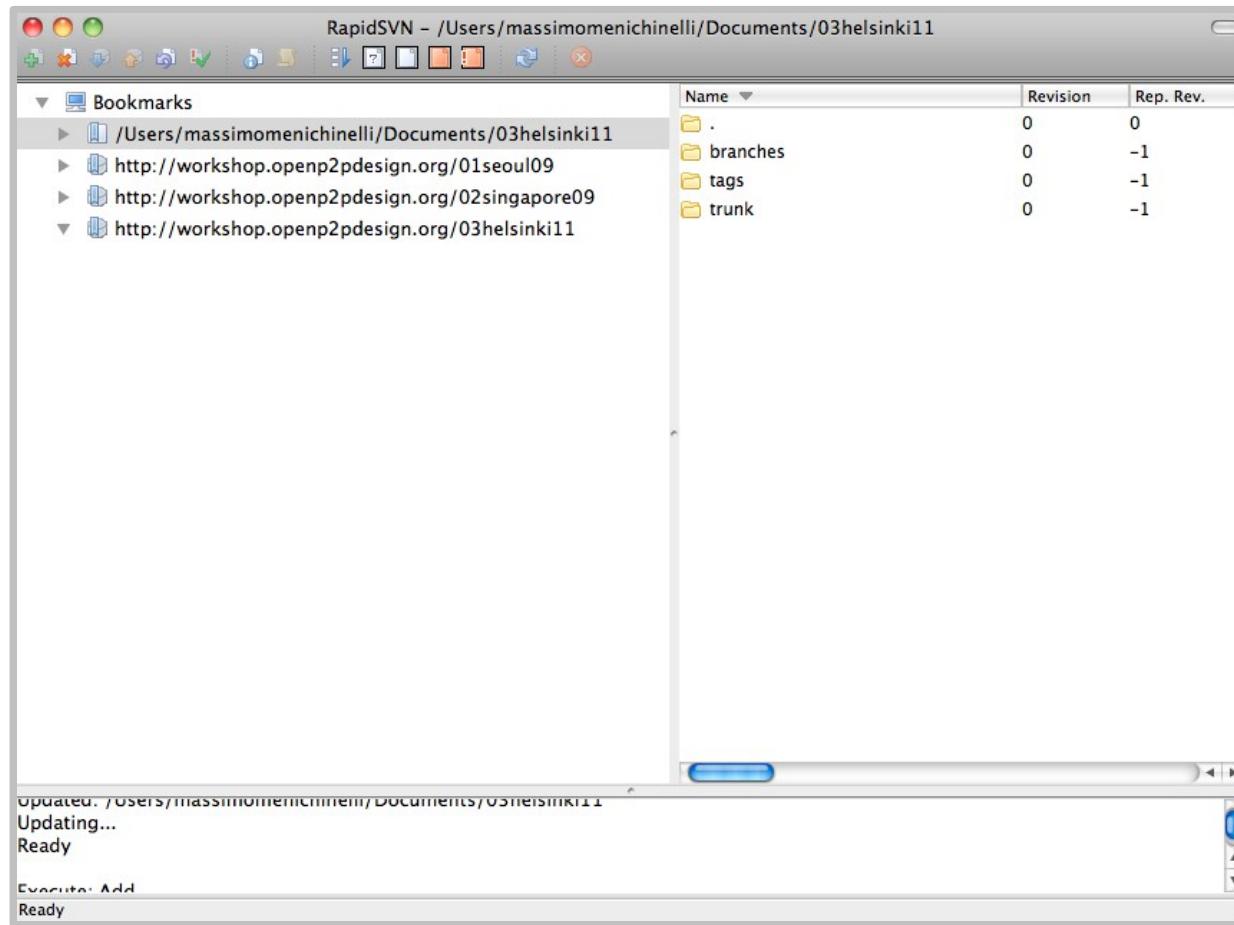
**Release candidate of TortoiseSVN 1.7**  
*Posted on September 1, 2011*

**Info**  
**News**  
[News archive](#)

The most popular SVN client on Windows, it can also compare images.

Source: <http://tortoisessvn.net/>

# SVN Client: RapidSVN (Windows, Mac, Linux)



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Open Source and multi-platform, but without file comparison.

# SVN Client: Versions (Mac)

The screenshot shows the official website for Versions, a Subversion client for Mac. At the top, there's a navigation bar with links for SOFA, Home, Release Notes, Support, Buy, and Download. The main visual is a large green lotus flower growing out of a mound of grass against a dark background. Below the flower, the word "VERSIONS" is written in large white letters, with a yellow starburst containing "1.1" positioned above the letter "S". Underneath "VERSIONS", it says "SUBVERSION CLIENT FOR MAC". To the left, there's a testimonial in white text: "Versions offers the best way to work with Subversion on the Mac. Thanks to its clear-cut approach, you'll hit the ground running." To the right, there are two prominent buttons: a green "Download Now" button with a download icon and a blue "Buy for €39" button with a shopping cart icon.

Free trial for one month...

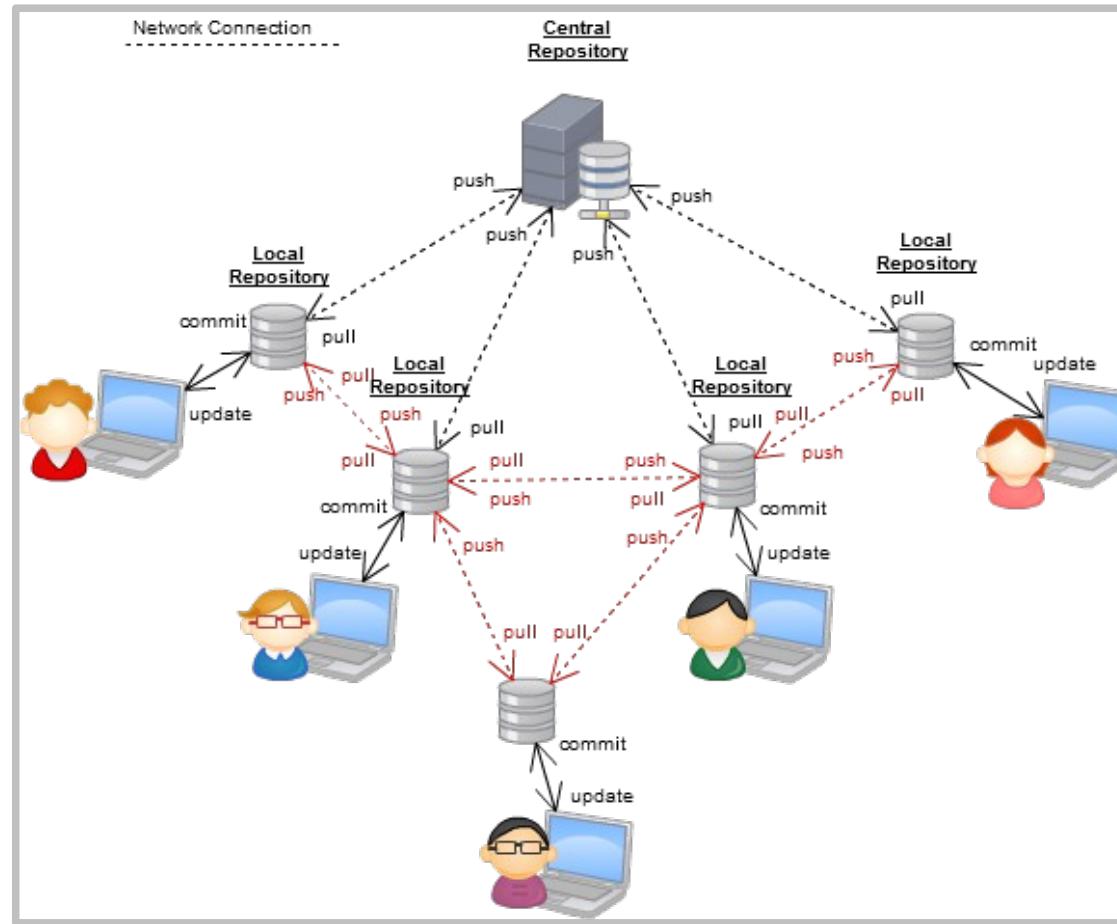


Aalto University  
Media Factory

02.02

# Version Control Systems: Git and Mercurial (Hg)

# Distributed Version Control System



A more recent architecture, more evolved and popular. It usually tracks the state of the files, not just the changes.

Source: <http://www.kalekold.net/index.php?post=13>

<http://betterexplained.com/articles/intro-to-distributed-version-control-illustrated/>

# Version Control System: the vocabulary (03)

Distributed Version Control Systems add new terms to the vocabulary:

- \* **Clone**: create a working copy on your computer from another repository.
  - \* **Push** : send a change to another repository (may require permission), even to your server.
  - \* **Pull** : download the latest changes from an online repository.
-

# Distributed Version Control System: Git

The screenshot shows the official Git website at <http://git-scm.com/>. The header features the word "git" in large, bold, black letters with a green outline, followed by the tagline "the fast version control system". To the left of the main title is a small icon with three red '+' symbols and the word "git". To the right is a cartoon illustration of a brown, worm-like character holding a green sprout. Below the header is a navigation bar with links: Home, About Git, Documentation, Download, Tools & Hosting, and Wiki. The main content area is divided into several sections:

- Git is...**: A yellow box containing text about Git's purpose, its distributed nature, and its use for branching and merging.
- Projects using Git**: A list of projects that use Git, including [Git](#), [Linux Kernel](#), [Perl](#), [Eclipse](#), [Gnome](#), [KDE](#), [Qt](#), [Ruby on Rails](#), [Android](#), [PostgreSQL](#), [Debian](#), and [X.org](#).
- Download Git**: A red box highlighting the latest stable release, v1.7.6.1, with release notes from August 24, 2011. It includes download links for Windows, Mac OS X, and Source, along with icons for each operating system and a Linux penguin.

Developed by Linus Torvalds, for improving the distributed development of the Linux Kernel.

# An introduction to Git

# Pro Git professional version control

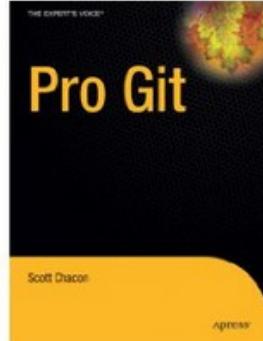
[Home](#) [Book](#) [Blog](#) [About](#) [Support Us](#) [GitHub](#) [Twitter](#)

## 1. Getting Started

- 1.1 - [About Version Control](#)
- 1.2 - [A Short History of Git](#)
- 1.3 - [Git Basics](#)
- 1.4 - [Installing Git](#)
- 1.5 - [First-Time Git Setup](#)
- 1.6 - [Getting Help](#)
- 1.7 - [Summary](#)

## 2. Git Basics

- 2.1 - [Getting a Git Repository](#)
- 2.2 - [Recording Changes to the Repository](#)



The book cover for "Pro Git" by Scott Chacon, published by Apress. The cover is black with yellow text and features a colorful, abstract graphic at the top right.

Support this site by buying a print version of [Pro Git](#)

An open source book about using Git.

# Git project hosting: GitHub.com

The screenshot shows the GitHub homepage. At the top, it displays "github" in a logo, "Signup and Pricing", "Explore GitHub", "Features", "Blog", and "Login". A prominent banner states "1,568,188 people hosting over 2,693,380 repositories". Below the banner is a search bar with the placeholder "Find any repository" and a list of popular projects: jQuery, reddit, Sparkle, curl, Ruby on Rails, node.js, ClickToFlash, Erlang/OTP, CakePHP, Redis, and many more. Logos for various companies are displayed below the search bar, including Facebook, Twitter, Microsoft, VMware, Red Hat, LinkedIn, and Mozilla. Two boxes are shown side-by-side: one for "git" (version control system) and one for "git·hub" (collaboration platform). Both boxes include a blue button for "Plans, Pricing and Signup" with the subtext "Unlimited public repositories are free!". Below these boxes, a list of features is provided: Team management, Code review, Reliable code hosting, and Open source collaboration. Each feature has a brief description and a "More about" link.

github

Signup and Pricing Explore GitHub Features Blog Login

1,568,188 people hosting over 2,693,380 repositories

jQuery, reddit, Sparkle, curl, Ruby on Rails, node.js, ClickToFlash, Erlang/OTP, CakePHP, Redis, and many more

Find any repository

facebook. twitter. Microsoft. vmware. redhat. LinkedIn. mozilla

**git** /'git/

Git is an extremely fast, efficient, distributed version control system ideal for the collaborative development of software.

**git·hub** /'git,həb/

GitHub is the best way to collaborate with others. Fork, send pull requests and manage all your **public** and **private** git repositories.

**Plans, Pricing and Signup**  
Unlimited public repositories are **free!**

Free public repositories, collaborator management, issue tracking, wikis, downloads, code review, graphs and much more...

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<b>Team management</b> 30 seconds to give people access to code. No SSH key required. Activity feeds keep you updated on progress. <a href="#">More about collaboration</a>	<b>Code review</b> Comment on changes, track issues, compare branches, send pull requests and merge forks. <a href="#">More about code review</a>	<b>Reliable code hosting</b> We spend all day and night making sure your repositories are <b>secure</b> , <b>backed up</b> and <b>always available</b> . <a href="#">More about code hosting</a>	<b>Open source collaboration</b> Participate in the most important open source community in the world today—online or at one of our meetups. <a href="#">More about our community</a>
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The most popular (and refined) Git hosting available now, free plans for open source projects (you have to pay for private spaces).

Source: <https://github.com/>

# GitHub for Mac: a Git client (Mac)

The screenshot shows the official GitHub for Mac website. At the top, there's a navigation bar with the GitHub logo, a "Download the latest" button (version 1.2.6 from April 13th, 2012), and links for "Mac OS X 10.6+ 64-bit". Below the header, a large orange button says "Download GitHub for Mac" with the subtext "Free to download, free to use". To the right of this is a screenshot of the GitHub for Mac application interface, showing a list of repositories and pull requests. Below the download button are tabs for "Overview", "Help", and "Release Notes". A section titled "At GitHub, we think that sharing code should be as simple as possible. That's why we created GitHub for Mac." follows. Three callout boxes at the bottom demonstrate features: "Synchronize branches" (Sync Branch button), "Clone repositories in one click" (repository list view), and "Powerfully simple branching" (branching interface).

At GitHub, we think that sharing code should be as simple as possible.  
That's why we created GitHub for Mac.

**Synchronize branches**  
The sync button pushes your changes to GitHub and pulls down other's changes in one operation. It notifies you when you have changes you haven't pushed or there are new changes on GitHub you haven't pulled down.

**Clone repositories in one click**  
When you add repositories to GitHub for Mac, we automatically match them up with any organizations you belong to. Want to pull down a repository from GitHub.com? Check out the [Clone in Mac](#) button on the website.

**Powerfully simple branching**  
Branching is one of Git's best features. We've made it easy to try out remote branches, create new local branches and publish branches to share with others.

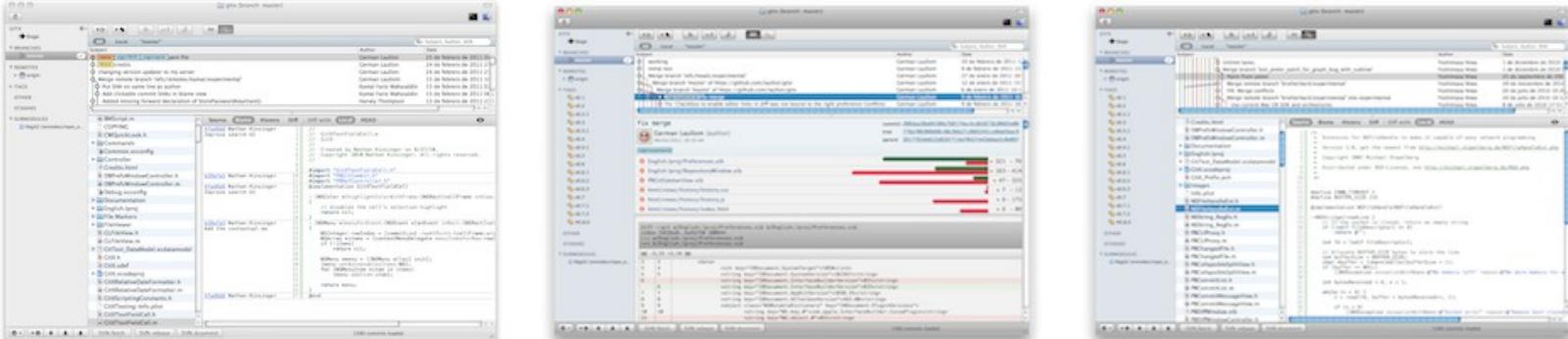
GitHub as its own freeware client (for Mac).

# Git Client: GitX (Mac)



**GitX (L)**  
Open Source Mac OS X Git client

[Download GitX \(L\) v0.8.4](#)  
[License GPL v2](#)



**Commit view**

- Commit/Parents/Tree SHA links
- File changes counts
- File Diffs
- Commit Tags and Refs

**File view**

- Source Code Highlight
- Blame
- File History (log)
- Diff with local and HEAD

**Sidebar**

- Branches
- Remotes
- Stashes
- Submodules

**Stage view**

- Unstaged/Staged files
- Stage/Discard by lines
- Amend
- File diff

Actually, more than one GitX can be found...

# Git project hosting: Gitorius.org

The screenshot shows the Gitorius.org website. The top navigation bar includes links for HOME, ABOUT, CONTACT, REGISTER, and LOG IN. The main headline reads "The best way to collaborate on distributed open source projects". Below it, a sub-headline states "Gitorious provides free open source infrastructure for open source projects that use Git." A call-to-action button says "TRY IT — it's free!" followed by "— OR —" and a "LOG IN" button. The bottom section, titled "FEATURES — what we bring to the table.", lists six features with icons: Project hosting (repo icon), Activity monitoring (RSS icon), Public merge requests (two people icon), Project Wikis (book icon), Team contributions (two people icon), and Project centric (database icon). To the right, a project dashboard for "gitorious" is shown, displaying repository details like "git://gitorious.local/gitorious/gitorious.git", branches (master), and activity logs with entries from "johan".

The best way to collaborate on distributed open source projects

Gitorious provides free open source infrastructure for open source projects that use Git.

LEARN MORE [ABOUT](#) OR THE PROJECTS WE HOST.

TRY IT — it's free! — OR — [LOG IN](#)

FEATURES — *what we bring to the table.*

**Project hosting**  
Host your open source projects and their repositories for free on Gitorious to enable community contributions.

**Project Wikis**  
Document your project using Gitorious' built-in wiki.

**Activity monitoring**  
Keep track of project activity for both your personal projects and team projects.

**Team contributions**  
Create development teams to encourage and organize cooperative development.

**Public merge requests**  
Allow other developers to submit contributions to your project and merge them easily.

**Project centric**  
Maintain all code repositories related to a single project under a single project area on Gitorious.

gitorious → gitorious

git://gitorious.local/gitorious/gitorious.git

Branches: master

Commit log Source tree Merge requests (0)

Activities

Wednesday April 07 2010

PUSH 07:49 johan commented on gitorious/gitorious/22e03ac  
Ipsum decided to leave for the Far World of Grammar.

PUSH 07:49 johan commented on gitorious/gitorious/22e03ac  
place and supplies it with the necessary regelatio. It is a p

Source: <http://www.gitorious.org/>

Free plans, and open source software itself.

# Distributed Version Control System: Mercurial (hg)

The screenshot shows the official Mercurial website at <http://mercurial.selenic.com/>. The header includes the Mercurial logo, navigation links for 'about', 'guide', 'download', 'extensions', 'news/wiki', and 'sponsors', and a search bar. A prominent blue button on the right says 'Download now' with a 'Mercurial 2.0.2' badge and a download arrow icon. Below it, there's a link for 'Another OS?' with options for Mac OS X, Windows, and other platforms. The main content area features a large heading 'Work easier Work faster' and a brief introduction to Mercurial as a free, distributed source control management tool. On the left, there's a section titled 'How you can benefit from Mercurial' with three icons: a lightbulb for being fast and powerful, a brain for being easy to learn, and a hand for working well. On the right, there's a 'Quick Start' section with two code snippets demonstrating basic commands: one for cloning and pushing changes, and another for initializing and committing a new project.

Work easier  
Work faster

Mercurial is a free, distributed source control management tool. It efficiently handles projects of any size and offers an easy and intuitive interface.

How you can benefit from Mercurial

- It is **fast and powerful**  
Mercurial efficiently handles **projects of any size and kind**. Every clone contains the whole project history, so most actions are local, fast and convenient. Mercurial supports a multitude of **workflows** and you can easily enhance its functionality with **extensions**.
- It is **easy to learn**  
You can follow our simple **guide** to learn how to revision your documents with Mercurial, or just use the **quick start** to get going instantly. A short overview of Mercurial's decentralized model is also **available**.
- And it just works  
Mercurial strives to deliver on each of its promises. Most tasks simply work on the first try and without requiring arcane knowledge.

Quick Start

*Clone a project and push changes*

```
$ hg clone http://selenic.com/re
$ cd hello
$ (edit files)
$ hg add (new files)
$ hg commit -m 'My changes'
$ hg push
```

*Create a project and commit*

```
$ hg init (project-directory)
$ cd (project-directory)
$ (add some files)
$ hg add
$ hg commit -m 'Initial commit'
```

Open Source and distributed as Git, usually the most used in FabLabs.

# An introduction to Mercurial

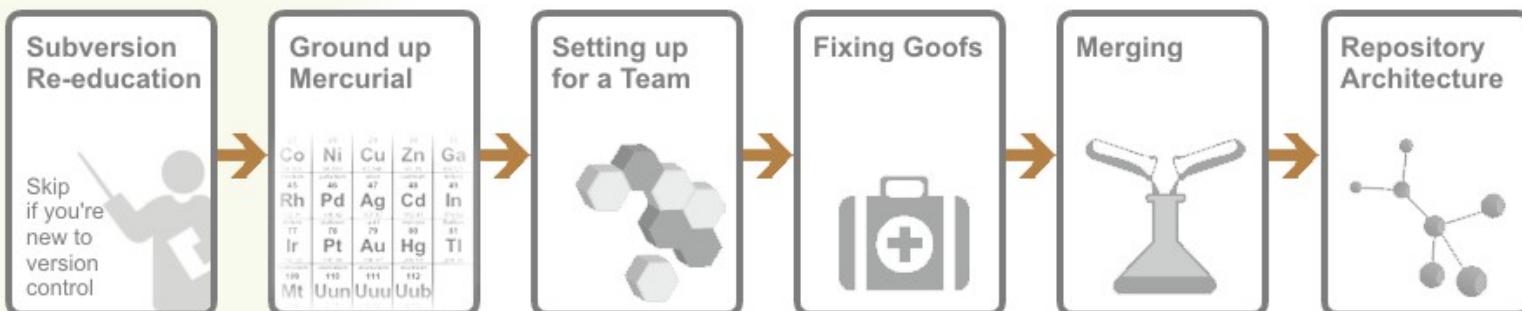
80

## Hg Init

200.59

## Hg Init: a Mercurial tutorial

Mercurial is a modern, open source, distributed version control system, and a compelling upgrade from older systems like Subversion. In this user-friendly, six-part tutorial, [Joel Spolsky](#) teaches you the key concepts.



A complete and easy introduction to using Mercurial.

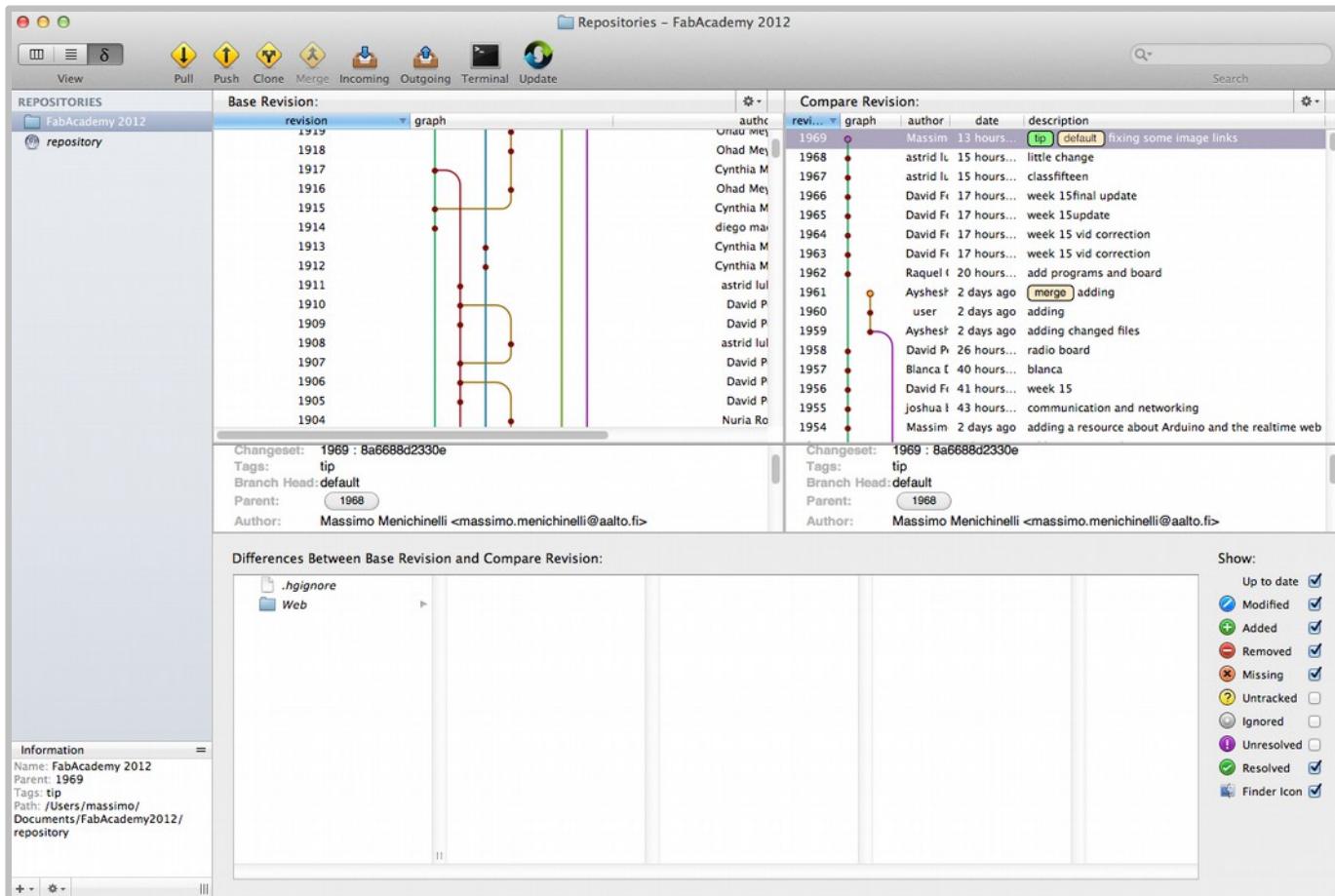
# Git / Hg project hosting: Bitbucket.org

The screenshot shows the Bitbucket homepage at the top, featuring the Atlassian logo and navigation links for Home, Documentation, Support, Blog, and Forums. Below the homepage is a large repository interface window. The repository name is 'bitbucket/staging'. The interface includes tabs for Overview, Discussions (30), Pull requests (0), Source, Console, Admin, Followers (0), and Forks (0). A pull request titled 'BB-717: Add "task" as an issue type' is shown, with status 'Accepted' and a note that all changes have been pulled and merged. The commit history shows a single commit from 'joseph' on 2011-07-20. The commit message is: 'BB-717: add "task" as an issue type, and fix saving issue default open state'. The commit details show files modified: 'app/controllers/admin.js', 'app/views/admin/tasks/\_task.html.haml', and 'models/taskIssueAdmin.js'. The repository URL is https://bitbucket.org/bitbucket/staging. Below the repository interface is a section titled 'Bitbucket Features' with several cards:

- Fork, code, pull**: A card showing a pull request from 'mvnemos' to 'staging' with a note: 'All changes have been pulled and merged in default branch'.
- Secure code hosting**: A card showing a repository named 'hgsubversion / setup.py' with a note: 'Browse and search your repository from the web. Every commit, directory, file and line gets a unique URL.'
- Collaborate and get social**: A card showing a user profile for 'Marcin Kuzminski (marcinkuz)' with a note: 'Give your work a home on the web. Share what you're working on with your colleagues, collaborators or potential employers.'
- Old repository**: A card showing a Subversion repository configuration with fields for Source, URL, and User authentication.
- Unlimited repositories**: A card with a note: 'Keep all your code in one place, using Git or Mercurial without having to pay for new repos. Use our Subversion importer to migrate to DVCS.'
- Contractors access**: A card showing a list of contractors with their access levels: 'Brenda Pae (basic)', 'David (basic)', 'David (basic)', 'David (basic)', 'Eric van Zijl (basic)', 'joseph', 'Mahmud S. Celabas (invitation)', and 'Natalia Vargas (basic)'.
- Work as a team**: A card with a note: 'With group-based permissions, user management is easy and ensures everyone has access to the code they need.'
- Integrate**: A card with a note: 'Integrates with email, Twitter, Jenkins, JIRA, Pivotal, Lighthouse and more. Use our REST API to create your own integration.'

For both Git and Hg, free plan also for private projects.

# Mercurial (hg) client: MacHg



Much better than the terminal for starting, and it has Mercurial packaged (no need to install it separately).

Source: <http://jasonfharris.com/machg/>

# File comparison: Kaleidoscope (Mac)

*Compare files with...*

# KALEIDOSCOPE

Use Kaleidoscope to **spot the differences** in text and image files. Review changes in seconds with the world's **most advanced** file comparison application.

[Download ↓](#)    [Buy for €29 ❤](#)

[30 Day Demo](#)    [Introductory Price](#)

[Learn more...](#)

A screenshot of the Kaleidoscope application interface. At the top, there's a large, vibrant color wheel. Below it, a window shows a comparison between two text files, with the number '37' in a green circle indicating differences. To the right, there are sections for 'Text Scope' (described as 'Compare text and source code'), 'Image Scope' (described as 'Review mockups and photos'), 'Workflow' (described as 'Integrate with just about anything'), and 'Details' (described as 'Skim through the feature list').

Free trial for one month...

# File comparison: Perforce P4Merge (Win, Mac, Linux)

 **PERFORCE**

Company Partners Resources

Products Downloads Documentation Customers Services Purchase Support

**Create. Develop. Version everything with Perforce.**

Only Perforce products have the Perforce Server – the fast version management platform that powers productive teamwork. Built from the ground up to be scalable and easy to manage, Perforce helps thousands of the world's leading organizations innovate and succeed.

**NYSE Euronext.** uses Perforce throughout the entire technology lifecycle of the exchange.

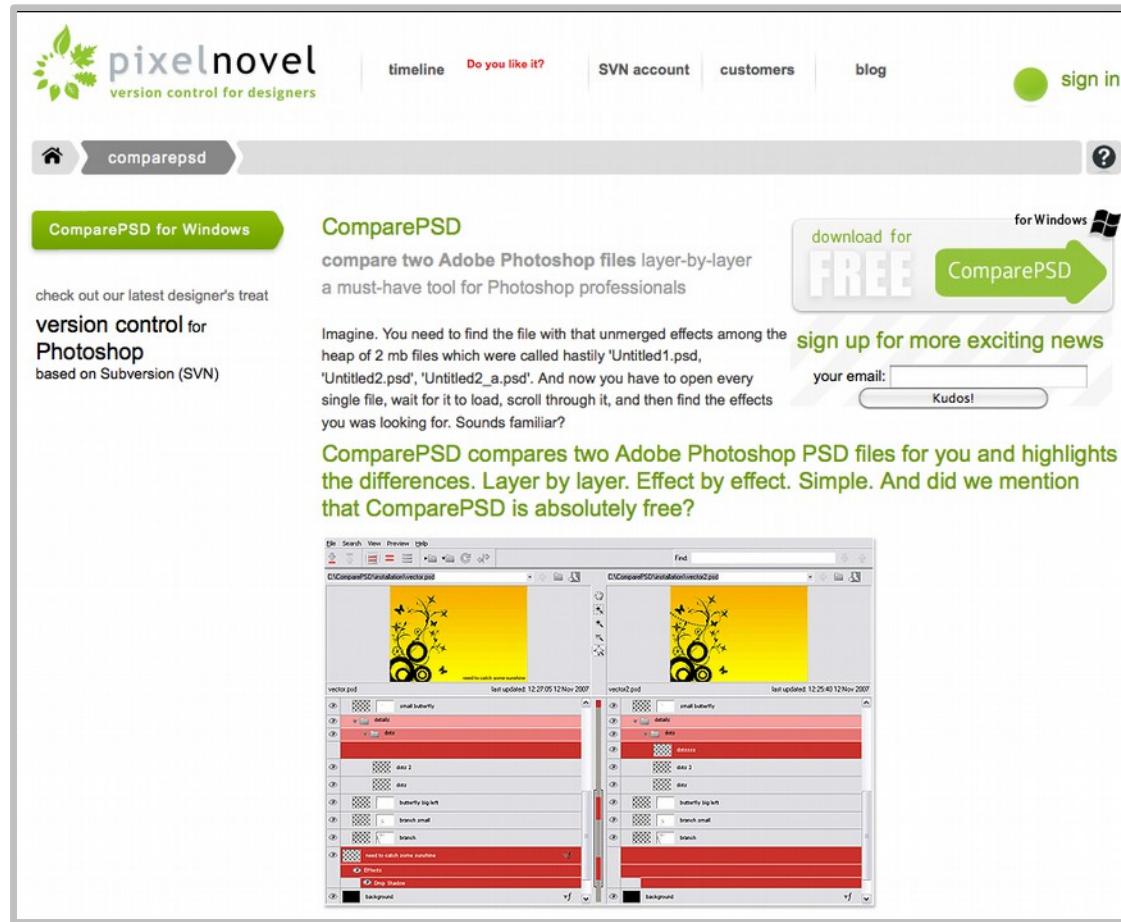
**"We're really not even close to maxing out the scalability of the Perforce server."**

**Why Perforce** Get the fast track on better SCM... **Try Perforce** Free 2 user trial or multi-seat evaluation...  Get the Perforce 2011.1 Beta Release. Check out the [beta features](#) or [download the beta now](#).

Perforce is another version control system, but it is interesting for its visual diff applications (freeware).

Source: [http://www.perforce.com/product/components/perforce\\_visual\\_merge\\_and\\_diff\\_tools](http://www.perforce.com/product/components/perforce_visual_merge_and_diff_tools)

# File comparison: ComparePSD (Windows)



Freeware for Windows, can compare Photoshop .psd files.

Source: <http://pixelnovel.com/comparepsd/>

# Subversion hosting service: Pixelnovel

The screenshot shows the Pixelnovel website's SVN account section. At the top, there's a navigation bar with links for 'timeline', 'Do you like it?', 'SVN account', 'customers', and 'blog'. On the right, there's a 'sign in' button. Below the navigation, a breadcrumb trail shows 'account' as the current page. The main heading is 'PIXELNOVEL ACCOUNT IS A SUBVERSION HOSTING FOR DESIGNERS'. To the left, there are two buttons: 'SVN account' (highlighted) and 'Pricing & plans'. The central content area lists several features in a bulleted list:

- 3 plans for your convenience, a **free account** is available
- View all your files online along with **previews and history\***
- Is based on Subversion (SVN), a proved version control system
- Add more users to your account and manage their rights

\* only available if used along with Timeline, the Subversion client for Adobe Creative Suite

On the right side of the feature list are two buttons: 'SEE PLANS' and 'SIGN UP'.

In the bottom right corner of the main content area, there's a testimonial box containing the following text:

**“**If you don't have your own SVN repository, a PixelNovel account will provide you with a hassle-free alternative, plus you get the extra features such as user management system and automatic back up

Integrated with Photoshop: free plan (100 MB) and better paid plans.

Source: <http://pixelnovel.com svn-account/>

# SVN / Git / Hg hosting service: Beanstalk

The screenshot shows the Beanstalk website homepage. At the top, there is a dark header with navigation links: Home (highlighted in yellow), Feature Tour, Partners & Tools, API, Guides, Blog, and Pricing & Sign Up. Below the header is the Beanstalk logo, which features a stylized green leaf icon above the word "beanstalk". A tagline below the logo reads "The easiest way to manage code, collaborate and deploy." The page is divided into three main sections: "Version Control", "Collaboration", and "Deployments", each with a brief description and an icon. Below these sections is a yellow banner featuring the HappyCog logo (a black cog with "HAPPY COG EST. 1999" text) and the text "HappyCog easily scales for an MTV audience with Beanstalk". It also includes a "Read the story" button and a "View Plans & Pricing" link. At the bottom, there is a footer section titled "Our customers:" with logos for Wufoo, Philips, brightcove, blue flavor, and Hello Enjoy.

Paid plans (with free trial).

# SVN / Git hosting service: Codesion

The screenshot shows the homepage of the Codesion website. At the top, there's a navigation bar with links for 'Login', 'Status Site', 'Help', 'Get Free Hosting', 'SIGN UP', and several menu items: 'Tour', 'Partners', 'Buzz', 'Training', 'Blog', and 'Pricing & Signup'. A green frog logo is on the left, with a note 'we're now COLLABNET.' next to it. The main headline reads 'GET G+ ON CODESION' in large green letters. Below it is a list of features: 'Git and Subversion Hosting under the same roof', 'Enterprise Security, Backup & Support', and 'Scalable and Guaranteed 99% Uptime SLA'. To the right, there are three call-to-action boxes: 'WATCH DEMO' (with a link to see how it works), 'FREE TRIAL' (with a link to try it for 30 days), and 'CONTACT US'. At the bottom, there are three sections: 'EUROPEAN DATA CENTER NOW LIVE' (with a link to request access), 'INSTANT SUBVERSION AND GIT' (with a link to check it out), and 'PCI LEVEL 1 COMPLIANT SECURITY' (with a link to more security details). The footer has an orange horizontal bar with the text 'Paid plans (with free trial)'.

codesion CLOUD SERVICES

we're now COLLABNET.

Get Free Hosting

SIGN UP

Tour Partners Buzz Training Blog Pricing & Signup

# GET G+ ON CODESION

- Git and Subversion Hosting under the same roof
- Enterprise Security, Backup & Support
- Scalable and Guaranteed 99% Uptime SLA

TRY IT

1 2 3 4

Serving 70,000 active users in 90 countries

EUROPEAN DATA CENTER NOW LIVE

Request Access

INSTANT SUBVERSION AND GIT

Check It Out

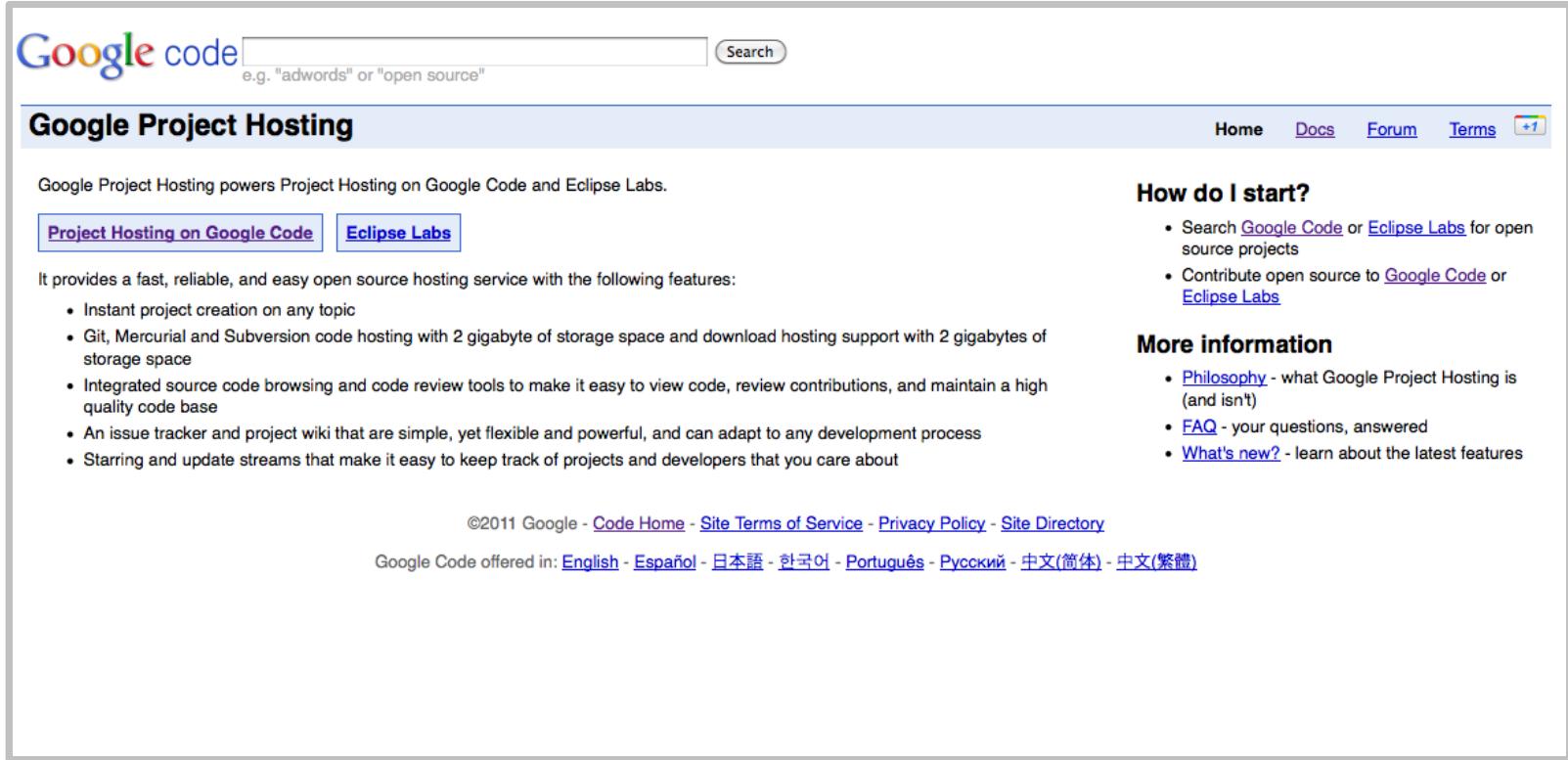
PCI LEVEL 1 COMPLIANT SECURITY

More on Security

PCI

Paid plans (with free trial).

# SVN / Git / Hg hosting service: Google Code



The screenshot shows the Google Project Hosting homepage. At the top, there's a search bar with placeholder text "e.g. 'adwords' or 'open source'" and a "Search" button. Below the search bar, the title "Google Project Hosting" is displayed in a large, bold, dark blue font. To the right of the title are links for "Home", "Docs", "Forum", "Terms", and a plus sign icon. A horizontal line separates the header from the main content area. In the main content area, there's a brief introduction: "Google Project Hosting powers Project Hosting on Google Code and Eclipse Labs." Below this, two buttons are visible: "Project Hosting on Google Code" and "Eclipse Labs". A paragraph explains the service: "It provides a fast, reliable, and easy open source hosting service with the following features:" followed by a bulleted list of features. At the bottom of the page, there are copyright and language information.

Google code  e.g. "adwords" or "open source"

**Google Project Hosting**

Google Project Hosting powers Project Hosting on Google Code and Eclipse Labs.

[Project Hosting on Google Code](#) [Eclipse Labs](#)

It provides a fast, reliable, and easy open source hosting service with the following features:

- Instant project creation on any topic
- Git, Mercurial and Subversion code hosting with 2 gigabyte of storage space and download hosting support with 2 gigabytes of storage space
- Integrated source code browsing and code review tools to make it easy to view code, review contributions, and maintain a high quality code base
- An issue tracker and project wiki that are simple, yet flexible and powerful, and can adapt to any development process
- Starring and update streams that make it easy to keep track of projects and developers that you care about

©2011 Google - [Code Home](#) - [Site Terms of Service](#) - [Privacy Policy](#) - [Site Directory](#)  
Google Code offered in: [English](#) - [Español](#) - [日本語](#) - [한국어](#) - [Português](#) - [Русский](#) - [中文\(简体\)](#) - [中文\(繁體\)](#)

Free for open source projects.



Aalto University  
Media Factory

# 03. QR Code: bits about a project from its atoms

# Retrieving the source code of an object

The screenshot shows a blog post titled "ARDUINO TOOL THAT CONNECTS EACH BOARD TO ITS OWN SOURCE" by Dave Vondle on March 15, 2012. The post includes a screenshot of the Arduino IDE interface with the "Tools" menu open, highlighting the "Retrieve Source" option. A callout box provides a link to the GitHub page and a direct download link. The right side of the image shows a portion of the IDEO LABS website, featuring an "ABOUT" section, a "SUBSCRIBE TO RSS" button, and a "CATEGORIES" sidebar with links like 3D, Arduino, flash, Hack, iPhone, multi-touch, and open source.

15 MAR '12 ARDUINO TOOL THAT CONNECTS EACH BOARD TO ITS OWN SOURCE ARDUINO, OPEN SOURCE BY DAVE VONDLE

Arduino File Edit Sketch Tools Help

Auto Format ⌘T  
Archive Sketch  
Fix Encoding & Reload  
Serial Monitor ⌘⌘M  
Retrieve Source  
Upload Source to Github  
Board  
Serial Port  
Programmer  
Burn Bootloader

If you create something with Arduino and put it out into the world, there is no well-established link to the source. If you personally made the device, the source can get lost over time. If you didn't create it, you could have a tough time tracking the source down. You have the physical device, why can't it tell you where its code lives?

I made a tool for Arduino called "Upload-And-Retrieve-Source" that for the most part solves this problem.

Github page [here](#), direct download link [here](#)

HOME ABOUT CONTACT

ABOUT IDEO LABS

IDEO Labs is a place where we can show bits of what we're working on, talk about prototyping, and share our excitement over the tools that help us create.

MORE

SUBSCRIBE TO RSS

CATEGORIES

3D  
Arduino  
flash  
Hack  
iPhone  
multi-touch  
open source

What about retrieving the information about a project, in order to be able to modify it? If we work with Arduino, there is this software from IDEO.

Source: <http://labs.ideo.com/2012/03/15/arduino-tool-that-connects-each-board-to-its-own-source/>

# Dead Drops: local (really!) information

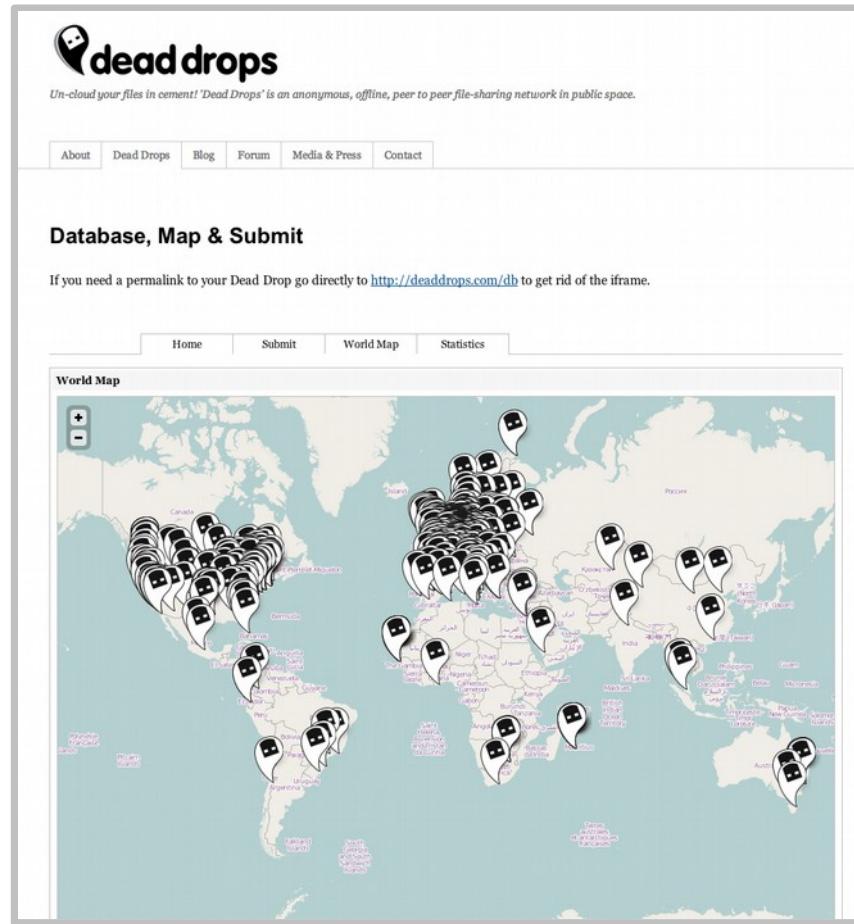
The screenshot shows the 'About' page of the Dead Drops website. At the top is the project's logo, a stylized 'dd' inside a circle, followed by the text 'dead drops'. Below the logo is a subtitle: 'Un-cloud your files in cement! "Dead Drops" is an anonymous, offline, peer to peer file-sharing network in public space.' A navigation bar below the subtitle includes links for 'About', 'Dead Drops', 'Blog', 'Forum', 'Media & Press', and 'Contact'. The main content area features a heading 'About' and a photograph of a small USB drive embedded in a brick wall. To the right of the main content is a sidebar containing a search bar, a 'Pages' section with a list of links, social sharing buttons (Facebook 'Like' and 'Flattr'), and a Twitter feed from the account @dead\_drops.

'Dead Drops' is an anonymous, offline, peer to peer file-sharing network in public space. USB flash drives are embedded into walls, buildings and curbs accessible to anybody in public space. Everyone is invited to drop or find files on a dead drop. Plug your laptop to a wall, house or pole to share your favorite files and data. Each dead drop is installed empty except a readme.txt file explaining the project. 'Dead Drops' is open to participation. If you want to install a dead drop in your city/neighborhood follow the ['how to' instructions](#) and submit the location and pictures.

'Dead Drops' is an anonymous, offline, peer to peer file-sharing network in public space. USB flash drives are embedded into walls accessible to anybody.

Source: <http://deaddrops.com/>

# Dead Drops: how to find them



‘Dead Drops’ is an anonymous, offline, peer to peer file-sharing network in public space. USB flash drives are embedded into walls accessible to anybody.

Source: <http://deaddrops.com/dead-drops/db-map/>

# Spime: sp(ace) + (ti)me of an object



**Shaping Things**  
Bruce Sterling  
Designed by Lorraine Wild

► [Table of Contents and Sample Chapters](#)

"*Shaping Things* is about created objects and the environment, which is to say, it's about everything," writes Bruce Sterling in this addition to the Mediawork Pamphlet series. He adds, "Seen from sufficient distance, this is a small topic."

Sterling offers a brilliant, often hilarious history of shaped things. We have moved from an age of artifacts, made by hand, through complex machines, to the current era of "gizmos." New forms of design and manufacture are appearing that lack historical precedent, he writes; but the production methods, using archaic forms of energy and materials that are finite and toxic, are not sustainable. The future will see a new kind of object—we have the primitive forms of them now in our pockets and briefcases: user-alterable, baroquely multi-featured, and programmable—that will be sustainable, enhanceable, and uniquely identifiable. Sterling coins the term "spime" for them, these future manufactured objects with informational support so extensive and rich that they are regarded as material instantiations of an immaterial system. Spimes are designed on screens, fabricated by digital means, and precisely tracked through space and time. They are made of substances that can be folded back into the production stream of future spimes, challenging all of us to become involved in their production. Spimes are coming, says Sterling. We will need these objects in order to live; we won't be able to surrender their advantages without awful consequences.

The vision of *Shaping Things* is given material form by the intricate design of Lorraine Wild. *Shaping Things* is for designers and thinkers, engineers and scientists, entrepreneurs and financiers—and anyone who wants to understand and be part of the process of technosocial transformation.

**About the Author**

Hugo Award-winning science fiction author and futurist Bruce Sterling has been called by *Time* "perhaps the sharpest observer of our media-choked culture working today in any genre." Three of his novels have been *New York Times* Notable Books of the Year, and he has been a contributing writer for *Wired* since its conception. In 2005 he is "Visionary-in-Residence" at Art Center College of Design, Pasadena. Bruce Sterling's blog *Beyond the Beyond* has been active since 2003.

**ADD TO CART**

**Other Editions**  
[Cloth \(2005\)](#)

**Series**  
[Mediaworks Pamphlets](#)

*Spime* is a neologism for a currently theoretical object that can be tracked through space and time throughout the lifetime of the object.

Source: <http://mitpress.mit.edu/catalog/item/default.asp?id=10603&ttype=2>  
<http://en.wikipedia.org/wiki/Spime>

# Evrythng.com

The screenshot shows the homepage of Evrythng.com. The header features the "EVRYTHNG" logo with a trademark symbol, set against a background of various icons related to technology and objects. The main navigation menu includes links for "LOG IN", "HOME", "PRODUCTS AND SERVICES", "ABOUT US", and "DEVELOPERS". A central black rectangular area contains a small white circle icon and a call-to-action button labeled "MORE ►". To the right of this area, there is a text box with the heading "Find out more about Active Digital Identities" and a subtext stating "We can help personalize individual products for every customer." Below this, another "MORE ►" button is visible. The bottom section of the page has a red header "Because every physical thing can be digitally connected." followed by a descriptive paragraph and two columns of text: "Engine ►" and "Services ►", each with a list of bullet points and corresponding icons.

LOG IN ►

HOME PRODUCTS AND SERVICES ABOUT US DEVELOPERS

Find out more about Active Digital Identities

We can help personalize individual products for every customer.

MORE ►

**Because every physical thing can be digitally connected.**

EVRYTHNG is a software engine for creating Active Digital Identities. These are unique online profiles for products and other objects to make them part of the Web. Now every physical thing can be digitally connected.

**Engine ►**

- Give a unique online profile to any physical thing
- Share and manage access with others
- Use a rich set of APIs to build apps and services

**Services ►**

- Design how to connect each product with customers
- Build connected product experiences and services
- Use our portfolio of existing product applications

EVRYTHNG is a software engine for creating Active Digital Identities, unique online profiles for objects to make them part of the Web and digitally connected.

Source: <http://evrythng.com/>

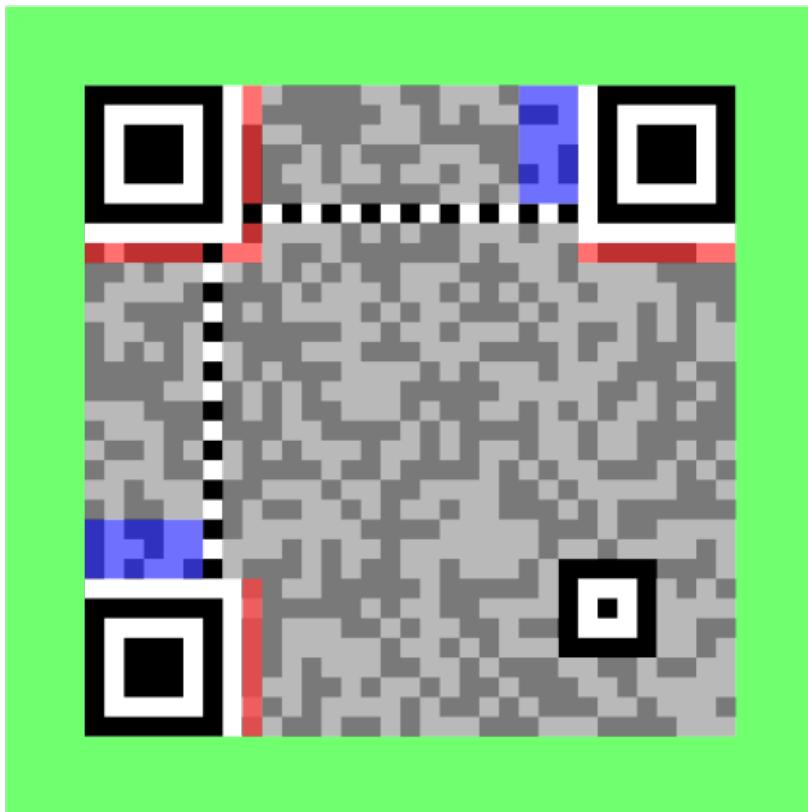
# Tales of things (.com)

The screenshot shows the homepage of the Tales of things beta website. At the top, there's a logo with three fish and the text "it's a memory thing" above "tales of things beta". Below the logo is a search bar with placeholder text "Search things, tales and groups" and a magnifying glass icon. To the right of the search bar are navigation links: "tales of things", "my things", "world of things", "scan a thing", and "groups". There are also "Username:" and "Password:" fields with a "Login" button. A large blue arrow-shaped callout on the left side contains the text "Connecting anything with any media, anywhere!" followed by a descriptive paragraph about linking objects to video memories or articles. On the right side of the arrow is a "Sign up and start sharing your tales" button with the subtext "It's free and anyone can join". Below the callout, there are sections for "Latest Things", "Recently Viewed", and "Popular Tales", each showing small thumbnail images and titles like "Justin's Cartoon" and "Chris's Cartoon". To the right, there's a "Learn More" section with a video player, an "App Store" badge for iPhone and Android, and a "Powering Oxfam's Shelflife" section featuring a poster. At the bottom, there's a footer with links to "Powered by TOTeM Labs © 2010 & Funded by the Digital Economy", "Help: support@talesofthings.com", "Info: info@talesofthings.com", "Media Enquiries: media@talesofthings.com", "About Terms and Conditions", "Privacy Policy", and "FAQs". It also mentions a collaboration between Brunel University, Edinburgh College of Art, University College London, University of Dundee, and University of Salford. A Twitter "follow us" button is at the bottom right.

Tales of Things allows just that with a quick and easy way to link any media to any object via small printable tags known as QR codes.

Source: <http://www.talesofthings.com/>

# Q(uick)R(esponse) Code



1. Version information
2. Format information
3. Data and error correction keys
4. Required patterns
  - 4.1. Position
  - 4.2. Alignment
  - 4.3. Timing
5. Quiet zone

QR Code is the trademark for a type of matrix / 2D barcode that can encode four standardized kinds of data (numeric, alphanumeric, byte/binary, Kanji).

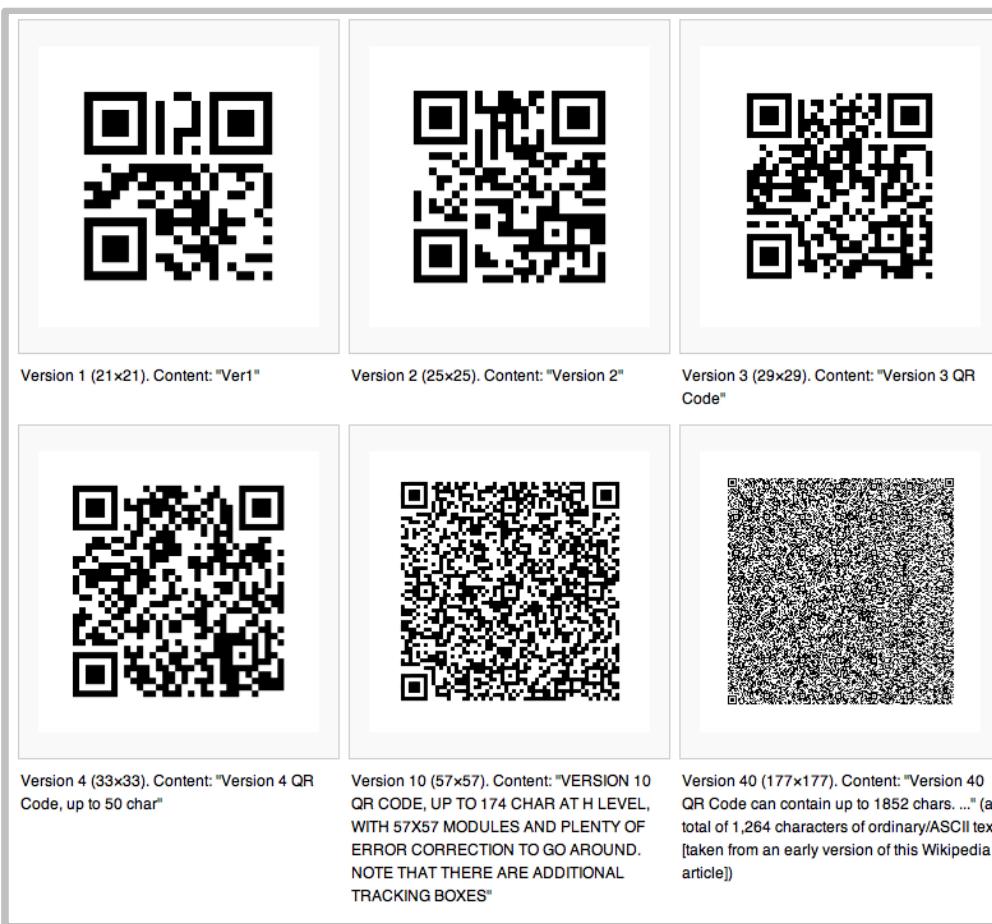
Source: [http://en.wikipedia.org/wiki/Qr\\_code](http://en.wikipedia.org/wiki/Qr_code)

# QR Code: data storage

The amount of data that can be stored in the QR Code symbol depends on the **datatype** (mode, or input character set), **version** (1,...,40, indicating the overall dimensions of the symbol), and **error correction level** (L[ow], M[edium], Q[uality], H[igh]). The maximum storage capacities are:

- \* **Numeric only:** max. 7,089 characters (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
  - \* **Alphanumeric:** max. 4,296 characters (0–9, A–Z [upper-case only], space, \$, %, \*, +, -, ., /, :)
  - \* **Binary/byte:** max. 2,953 characters (8-bit bytes) (23624 bits)
  - \* **Kanji/Kana:** max. 1,817 characters
-

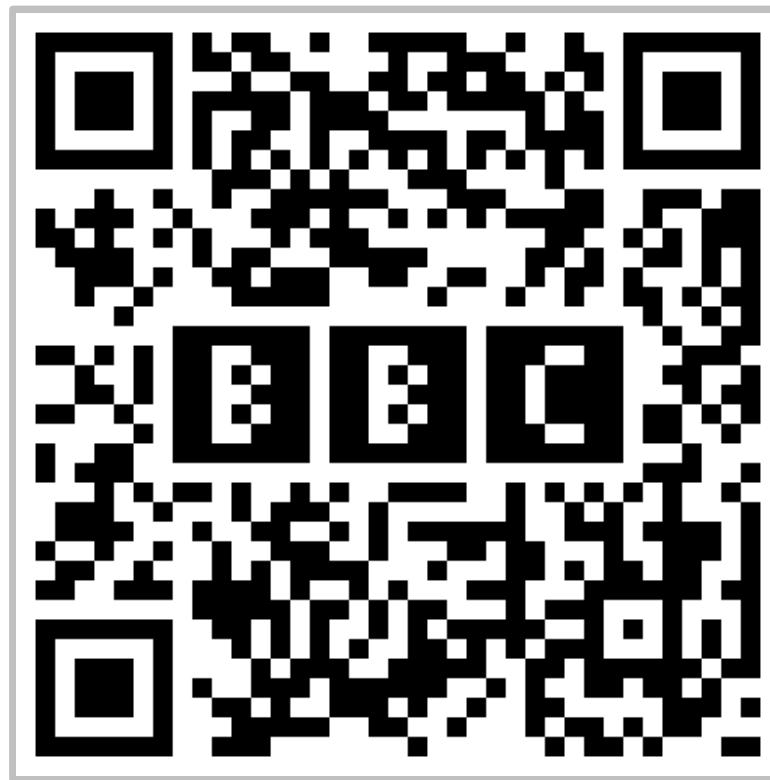
# QR Code: data storage



The more information is encoded, the finer the details of the code.

Source: [http://en.wikipedia.org/wiki/Qr\\_code](http://en.wikipedia.org/wiki/Qr_code)

# QR Code: error tolerance and customization



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You can “hack” a QR Code thanks to its tolerance to errors.

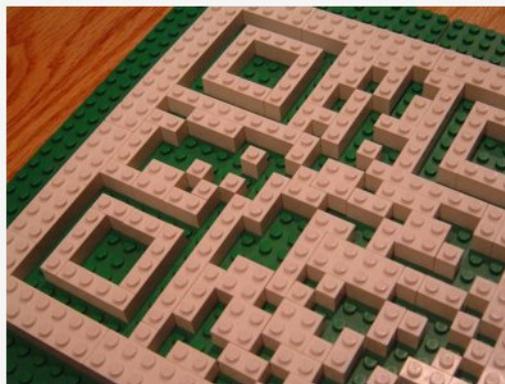
# QR Codes: not just printed paper

## QR codes in Lego

I've been experimenting with [QR codes](#) (2-d bar codes) with my mobile phone. While helping my daughter assemble a Lego® spaceship, I had the random thought that maybe I could build a QR code out of Lego. Would such a QR code be readable, or would the bumps and gaps mess it up?

To find out, I generated a QR code and started assembling it out of my daughter's spare Lego pieces. This would have been much easier if she had a lot of small white pieces, so I needed to really dig to find the necessary 1x1 blocks. (I'm pretty sure that determining if a code can be tiled with a specific set of blocks is a NP-complete problem, but my manual heuristics were sufficient to get it assembled.)

The moment of truth... would it scan? No, not at all. The problem was I needed a border around the code block and I'd put the pieces too close to the edge. So I laboriously shifted all the pieces over and added a white border.



LEGO Star Wars  
MagnaGuard Starfighte...  
LEGO

Buy from amazon.com

Privacy Information

With the border, the QR code scanned amazingly well. Here's a camera-eye view. If you have a barcode-enabled phone, you can probably scan this off the screen:



You can create QR codes with existing materials, objects and building blocks...

Source: <http://www.arcfn.com/2009/01/qr-codes-in-lego.html>

# QR Codes: not just printed paper

A QR CODE BUILT FROM EVERYDAY OBJECTS  
THURSDAY 12.15.2011 , POSTED BY BENJAMIN STARR

SHARE: [Tweet](#) 25 [Like](#) 16 [+1](#) 4 [Pin it](#) [Submit](#)



QR codes seem to be cropping up everywhere you look, from tags in electronics stores to flyers stapled to telephone poles... so it's really nice to see this [completely original project](#) from David Sykes. To promote his newly launched website, Sykes created an 8 foot square model of a QR code using objects sourced directly from his studio. He then photographed the 'cityscape' of stuff from above and made 8x10 prints retaining the full frame of the shot. By including the studio floor and rebates in the image, he gave the whole piece a further sense of depth. Possibly my favorite aspect of the project was the mysterious way each print arrived at its recipient: in an anonymous photograph mailer with no mention of who it was from. Brilliant!

You can create QR codes with existing materials, objects and building blocks...

Source: <http://www.visualnews.com/2011/12/15/a-qr-code-built-from-everyday-objects/>

# QR Codes: not just printed paper



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You can create QR codes with existing materials, objects and building blocks...

Source: <http://www.elenabelmann.blogspot.com/2011/02/objekt-als-informationstrager.html>

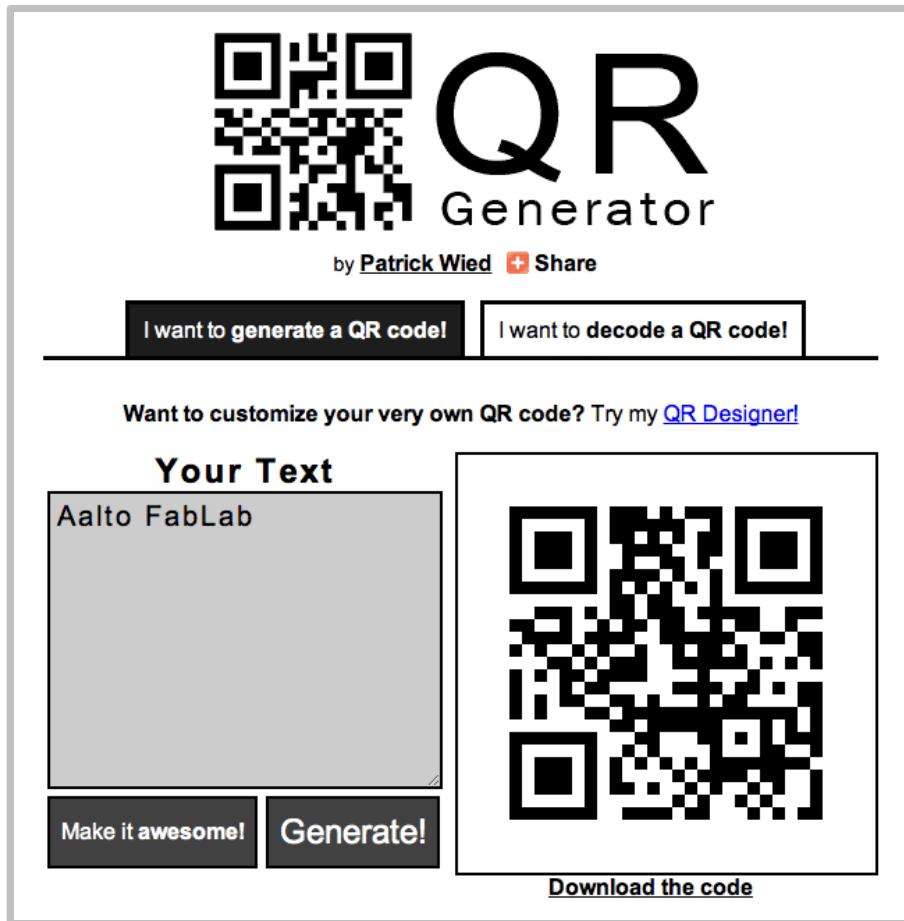
# QR Codes: an easy way to create them

The screenshot shows a web-based tool for generating QR codes. At the top, there's a QR code icon and text explaining the service: "Create QR codes from different kinds of data, and download your code both in a rasterized (PNG) and vector format (PDF, SVG, EPS). Feedback/suggestions? Leave your message." Below this is a large, bold heading: "What do you want to turn into a QR code?". On the left, a vertical list of options includes "Regular text" (which is highlighted in a teal box), "Hyperlink", "Phone number", "Email address", "meCard", "vCard", and "WiFi settings". To the right of this list is a text input field for "Regular text" with the placeholder "Regular text will not be interpreted by most QR readers, so it will just be displayed as it is.". Below the input field is a "more options" button with a gear icon. At the bottom right is a prominent "CREATE" button. At the very bottom of the interface, there are social sharing links for "Like" (Facebook) and "Tweet" (Twitter).

Many online free services will create QR Codes for you starting from many different kinds of information.

Source: <http://qrcode.littleidiot.be/>

# QR Codes: an easy way to create (and decode) them



Many online free services will create QR Codes for you starting from many different kinds of information.

Source: <http://www.patrick-wied.at/static/qrgen/>

# QR Codes: an easy way to create them

The screenshot shows the homepage of QRStuff.com. At the top, there's a navigation bar with links for HOME, ABOUT THIS SITE, QR CODES, PHONE SOFTWARE, EXAMPLES, FAQS, and AFFILIATES. There are also social media links for Twitter, Facebook, and a BLOG. A login form with fields for Email and Password is visible, along with links for Register and Forgot Password?.

The main content area features four numbered steps for creating a QR code:

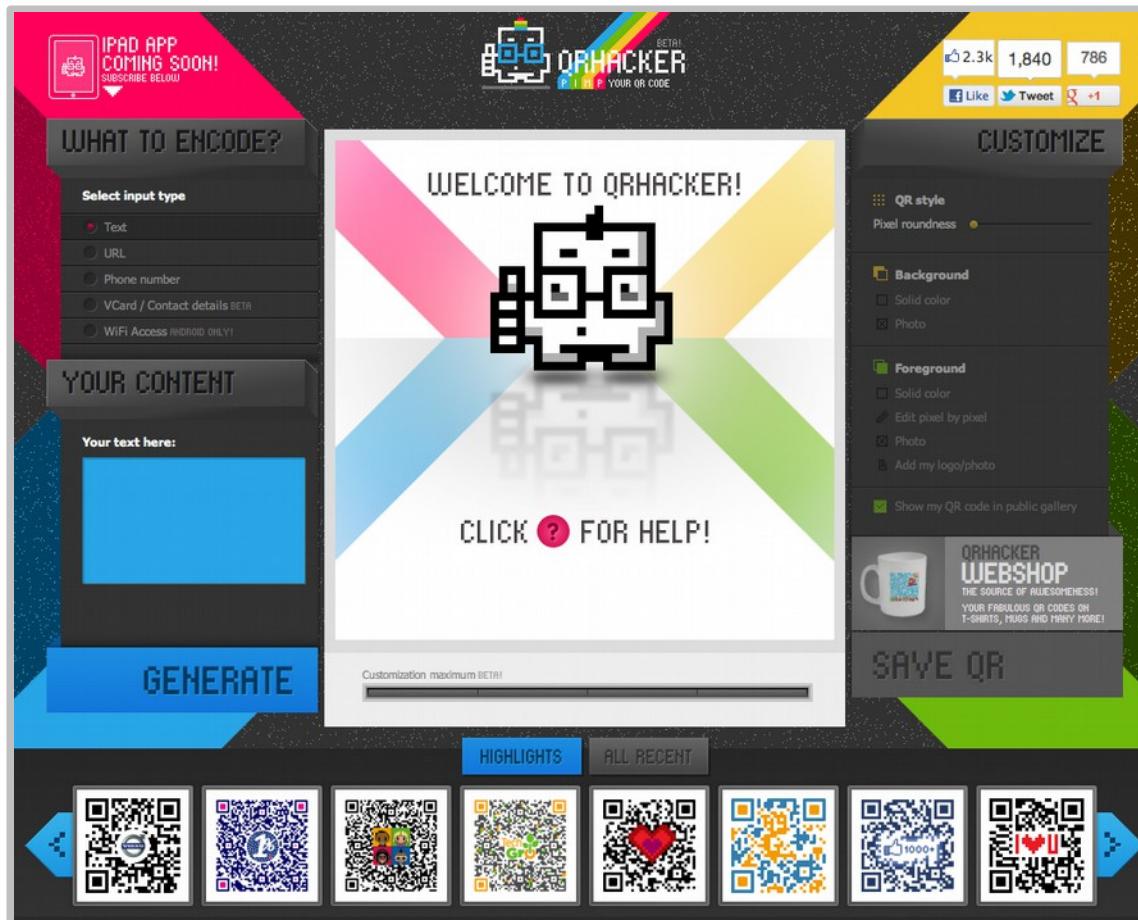
- 1 DATA TYPE:** A list of options including Website URL (selected), YouTube Video, Google Maps Location, Twitter, Facebook, LinkedIn, Foursquare, iTunes Link, Plain Text, Telephone Number, Skype Call, SMS Message, Email Address, Email Message, Contact Details (VCARD), Event (VCALENDAR), Wifi Login (Android Only), and Paypal Buy Now Link.
- 2 CONTENT:** A section where you can enter a Website URL (http://) and choose between Embed URL into code as-is or Use our qrs.ly URL shortener. It also mentions that Subscribers get analytics and dynamic QR code editing when using our URL shortener.
- 3 FOREGROUND COLOUR:** A color picker with a gradient from purple to red. It includes a Hex color code input field (000000) and a note for Subscribers about specifying image size and resolution.
- 4 OUTPUT TYPE:** Options for DOWNLOAD, PRINT, EMAIL, and BATCH FILE UPLOAD. It also features a section for PUT YOUR CODE ON OTHER STUFF, showing examples like QR codes on shirts, mugs, and bags.

On the right side, there's a large preview of a QR code and a blue button labeled "DOWNLOAD QR CODE". Above the preview, a banner says "SUBSCRIBE NOW FROM \$3.95".

Many online free services will create QR Codes for you starting from many different kinds of information.

Source: <http://www.qrstuff.com/>

# QR Codes: an easy way to create them



Many online free services will create QR Codes for you starting from many different kinds of information.

Source: <http://www.qrhacker.com/>

# QR Codes: an easy way to create a stencil

The screenshot shows a web page from the Make: magazine website. The header features the 'Make:' logo with the tagline 'technology on your time'. Below the header are four navigation tabs: 'Blog' (highlighted in green), 'MAKE Magazine' (red), 'Videos/Podcasts' (blue), and 'Make: Projects' (orange). A breadcrumb navigation bar indicates the current location: 'Home / Culture jamming / QR Stenciler'. The main title of the article is 'QR Stenciler'. To the left of the main content, there is a sidebar with text from Golan Levin at [fffff.at](http://fffff.at) and a small image of a QR code stencil. The main content area contains a large photograph of a QR code stencil painted on a concrete surface. Below the image, there is a paragraph of text.

Golan  
Levin at  
[fffff.at](http://fffff.at)  
writes:

Yep,  
it's a  
QR  
code  
stencil

generator! We present **QR\_STENCILER**, a free, fully-automated utility which converts QR codes into vector-based stencil patterns suitable for laser-cutting. Additionally, we present **QR\_HOBO\_CODES**, a series of one hundred QR stencil designs which, covertly marked in urban spaces, may be used to warn people about danger or clue them into good situations. The QR\_STENCILER and the QR\_HOBO\_CODES join the [Adjustable Pie Chart Stencil](#) in our suite of homebrew "infoviz graffiti" tools for locative and situated information display.

... and there are even libraries for creating stencil of QR Codes that you can laser cut!

Source: <http://blog.makezine.com/2011/07/20/qr-stenciler/>

# QR Codes: you can track the position as well

**springwise.com**  
YOUR ESSENTIAL FIX OF ENTREPRENEURIAL IDEAS

## In Croatia, postage stamps made trackable via QR code

Croatia's Hrvatska Pošta has created postage stamps featuring QR codes that can be used to track mail and confirm delivery.

The image shows a collection of Croatian postage stamps on the left, each featuring a QR code and the text "TT379K" and "www.gimarks.posta.hr". To the right is a map of Central Europe, specifically focusing on Austria, Slovenia, Croatia, and Serbia. Numerous red and black circular markers are placed on the map, some containing letters like A or B, representing tracked locations.

**1st November 2011 in Government.**

As postal services around the globe struggle to keep up with the online era, we've already seen all-digital stamps rolled out in Denmark. Now it looks like Croatia's own Hrvatska Pošta has come up with a different solution: postage stamps featuring QR codes that can be used to track the mail and confirm delivery.

As you can link an identity to an object with a QR Code, then we can track where this identity moves.

Source: <http://www.springwise.com/government/croatia-postage-stamps-trackable-qr-code/>

# QR Codes: you can add related information

**springwise.com**  
YOUR ESSENTIAL FIX OF ENTREPRENEURIAL IDEAS

## On cigarette packages, QR codes reveal a nearby place to smoke

Ronhill has begun to use QR codes on its cigarette packaging to help consumers find a nearby place to smoke.



8th September 2011 in Lifestyle & Leisure.

Just as today's prevalent smoking bans can lead to a lot of cigarette butts on the doorsteps of public places, so the increasingly smoke-free world can make it difficult for smokers to find a place to enjoy their habit. Enter Croatian cigarette brand Ronhill, which has begun to use QR codes on its packaging to help consumers find a nearby place to smoke.

You can provide related information and build apps and services around an object!

Source: [http://www.springwise.com/lifestyle\\_leisure/cigarette-packages-qr-codes-reveal-nearby-place-smoke/](http://www.springwise.com/lifestyle_leisure/cigarette-packages-qr-codes-reveal-nearby-place-smoke/)

# QR Codes: you can add related information

**Steelcase**

PRODUCTS SERVICES RESOURCES SHOP COMPANY

## Leap: QR Codes

Overview Gallery Environmental Adjustability QR Codes

QR codes help users learn how to properly adjust the Leap chair.

To help users quickly find information on how to properly adjust their chairs to be more comfortable, Steelcase will be adding QR codes to the arms of its best selling ergonomic task chairs, such as Leap (available fall 2011).

**How does the QR code work?**

Once a user scans the QR code with a mobile device, they are taken to a mobile-friendly site that plays an interactive video showing chair adjustments.

The QR code connects users to information about their chair that is relevant to them:

- how to adjust the chair
- how to clean the chair
- how they can purchase a chair for their home office

Find a dealer near you.



You can provide the instruction manual of an object!

Source: <http://www.steelcase.com/en/products/category/seating/task/leap/pages/qr-codes.aspx>  
<http://www.fastcodesign.com/1665090/an-office-chair-with-built-in-video-instruction-manual>

# QR Codes: you can add the source code!

**SUPERMECHANICAL** objects that connect us

Objects Blog About



**REV->TABLE**

Products used to be less disposable; they came with repair manuals and a personal history. rev->table picks up where they left off.

This side table is built to last with quality components. And when those have outlived their useful life, the digital blueprint is a permanent part of rev->table. Use your smartphone to read the digital design file embedded in each part and create replacements. Modify the legs to make them longer or angled or art deco. This is furniture for the future of manufacturing.

Solid oak, powder-coated steel, laser-etched aluminum. Crafted in the United States using the best of traditional and digital construction.

21"H x 16"W x 16"L; 10.5 lbs.

 Tweet

... and finally you can even provide directly the source code of an object, not just a link to its source online!

Source: <http://supermechanical.com/rev/>

[http://www.springwise.com/style\\_design/future-repairs-tables-digital-blueprints-etched-surface/](http://www.springwise.com/style_design/future-repairs-tables-digital-blueprints-etched-surface/)

# QR Codes: you can add the source code!

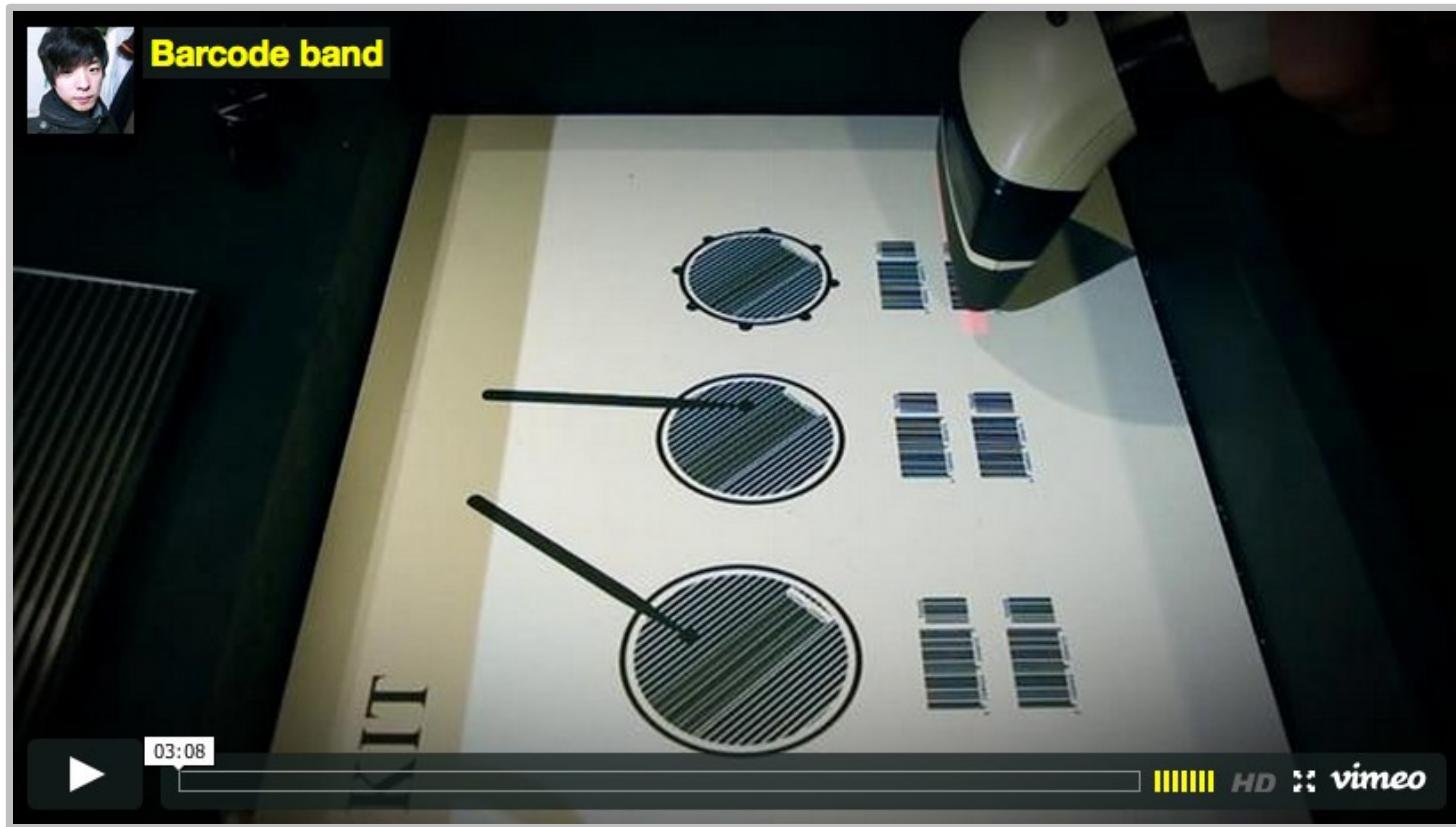


... and finally you can even provide directly the source code of an object, not just a link to its source online!

Source: <http://supermechanical.com/rev/>

[http://www.springwise.com/style\\_design/future-repairs-tables-digital-blueprints-etched-surface/](http://www.springwise.com/style_design/future-repairs-tables-digital-blueprints-etched-surface/)

# Bar Codes: retrieving information through design!



... you can even use codes and existing objects to design a new system based on retrieving information!

Source: <http://www.designboom.com/weblog/cat/16/view/22271/barcode-band-scans-its-way-to-new-music.html>  
<http://vimeo.com/41132461>

# QR Codes: which bits?

PCWorld » Security

Recommend: 0 Comments Print

## Beware of Malicious QR Codes

By Hamish Barwick, Computerworld-Australia

Cyber criminals have taken advantage of the proliferation of quick response (QR) codes on posters and marketing material by putting their own malicious stickers over the top of legitimate ones, warns security vendor AVG Australia and New Zealand.

QR codes can be read by scanning the sticker or typing in the code using a smartphone with a QR code reader.

In its latest report, entitled AVG Community Powered Threat Q4 2011, the company warns that cyber criminals are now producing their own QR codes which contain text and URLs with hidden malware. For example, one piece of malware called 'JimmRussia' sends costly SMS messages to premium numbers and also redirects to a URL which downloads a malicious file.

AVG Technologies chief technology officer, Yuval Ben-Itzhak, said in a statement that the smartphone user does not know what lurks behind the code until the malware is installed and running. "Putting a malicious QR code sticker onto existing marketing material or replacing a website's bona fide QR code with a malicious one could be enough to trick many unsuspecting people," he said.



We are embedding information on an object, and we use a device for retrieving it... but which kind of information?

Source: [http://www.pcworld.com/article/248843/beware\\_of\\_malicious\\_qr\\_codes.html](http://www.pcworld.com/article/248843/beware_of_malicious_qr_codes.html)

# Virus: a dangerous information



---

Some kind of information (like viruses) can modify, deform and damage an object...

Source: <http://www.platform21.nl/page/3915/en>  
<http://www.nextnature.net/2009/04/ikea-lamp-ca...>

# Sound: a dangerous information



---

Some kind of information (like sound) can modify, deform and damage an object...

Source: <http://www.dezeen.com/2012/07/13/noize-chairs-by-estudio-guto-requena/>  
<http://vimeo.com/45568573>

# QR Code: you can even print it (in 3D)

The screenshot shows a Thingiverse page for a "Data Matrix Dualstrusionator". The main image is a photograph of a 3D printer printing a large square QR code. Below the image, the title "Data Matrix Dualstrusionator" is displayed, along with a small profile picture of the creator, tbuser, and the creation date, Oct 1, 2011. A brief description explains that the script creates a Data Matrix barcode suitable for experimental dual extruders. Below the description, there's a note about encoding the whole Thingiverse URL or just the thing number. The page includes social sharing buttons for Twitter, Facebook, Pinterest, and Flattr, and sections for "Downloads" (listing three files: datamatrix dual...scad, datamatrix duals...rb, and number a.stl) and "Comments" (with a link to leave a comment). On the right side, there's a sidebar titled "Latest From The Thingiverse Blog" featuring a post about a 3D printed electron microscope.

Welcome, friend.  
Please [REGISTER](#) or [LOGIN](#) to rock.

THINGS TOOLS TAGS BLOG SEARCH UPLOAD A THING

Digital designs for real, physical objects. A Universe of Things!

## Data Matrix Dualstrusionator

Created by [tbuser](#)

Created on Oct 1, 2011

Derived from [OpenSCAD Bitmap Fonts Module](#) by [tbuser](#)

This script lets you create a positive/negative Data Matrix[1] Bar Code suitable for feeding into your experimental dual extruders. Or if you just want a negative space object barcode to cut into another model.

You can encode the whole thingiverse url in your barcode, but the result will be pretty big. Probably too large to stamp into another model. However, you can just encode the Thingiverse thing number to get a pretty small code!

1: [en.wikipedia.org/wiki/Data\\_Matrix](http://en.wikipedia.org/wiki/Data_Matrix)

[Twitter](#) 4 [Like](#) 0 [Pin It](#) [submit](#) [Flattr](#) 2

### Downloads

Sort By Date Popular File Type

- [datamatrix dual...scad](#)  
2 kb / 33 downloads / 7 months ago
- [datamatrix duals...rb](#)  
924 b / 34 downloads / 7 months ago
- [number a.stl](#)  
114 kb / 39 downloads / 7 months ago

### Instructions

Install OpenSCAD, download my OpenSCAD bitmap library, and make sure you have Ruby on your system. Then run gem install semacode. Now you can edit the variables in datamatrix\_dualstrusionator.scad and .rb and run the .rb script. It will shell out to OpenSCAD and generate an a.stl and a b.stl. You'll probably get the best results if you print it vertically. Note: the bigger the string, the painfully longer it takes. OpenSCAD is slow. :(

### Comments

[Leave a comment](#)

### Latest From The Thingiverse Blog

[You Know You're Onto Something...](#)

...when you're having electron microscopes take the final photos of your 3D prints. This car is a little under 300 microns long, or just about the right size to sit inside the more fine-pitch extruder nozzle tips you can get these days for your thermoplastic printers. Atoms are the

If you have a 3D printer that can print at least two different materials....

Source: <http://www.thingiverse.com/thing:12104>

# QR Code: for real walls

## QR code stickers turn real-world objects into digital conversations

QRawr enables users to transform physical objects into Facebook-style walls, with QR code stickers containing text and photo messages.



19th January 2012 in **Lifestyle & Leisure**.

We've seen QR codes being used to convey playful messages before when we covered [Qkies](#) cookies. Now San Diego-based [QRawr](#) is giving users the ability to transform any physical object into a Facebook-style digital wall, with QR code stickers linking to the users' own photos, videos or text.

QRawr hope their stickers, printed with unique QR codes, will turn real-world items into online conversations. Users must first download the QRawr iOS app to create their own message on the QR code stickers. QRawr encourage users to be creative, suggesting the stickers could be left in restaurants linking to photos of ordered meals, or at the end of a hiking trail with a message for others who complete the trek. Spotters of QRawr stickers can scan them — once they've downloaded the app — and post comments, pictures and videos in response. QRawr have built the initial version of the iPhone app and are seeking funding via [Kickstarter](#) to create an Android version and add features such as geolocation.

QRawr's founders believe the entertainment potential of QR codes has to-date been neglected. If you agree, this could this be an opportunity for you.

Website: [www.qrawr.com](http://www.qrawr.com)

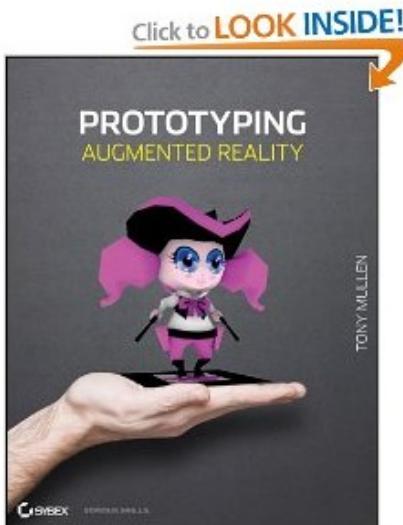
Contact: [team@qrawr.com](mailto:team@qrawr.com)

---

Not only Dead Drops can be used for embedding information on a wall!

Source: [http://www.springwise.com/lifestyle\\_leisure/qr-code-stickers-turn-real-world-objects-digital-conversations/](http://www.springwise.com/lifestyle_leisure/qr-code-stickers-turn-real-world-objects-digital-conversations/)  
<https://qrawr.com/>

# After QR Code, Augmented Reality?



## Prototyping Augmented Reality [Paperback]

Tony Mullen (Author)

★★★★★ (1 customer review) | Like (2)

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Kindle Edition	\$25.00	--	--
Paperback	<b>\$21.96</b>	\$17.97	\$17.95

AR can be useful for adding a layer of bits on a space or object, and we can possibly think about its source code...

Source: <http://amzn.to/KUwNk6>

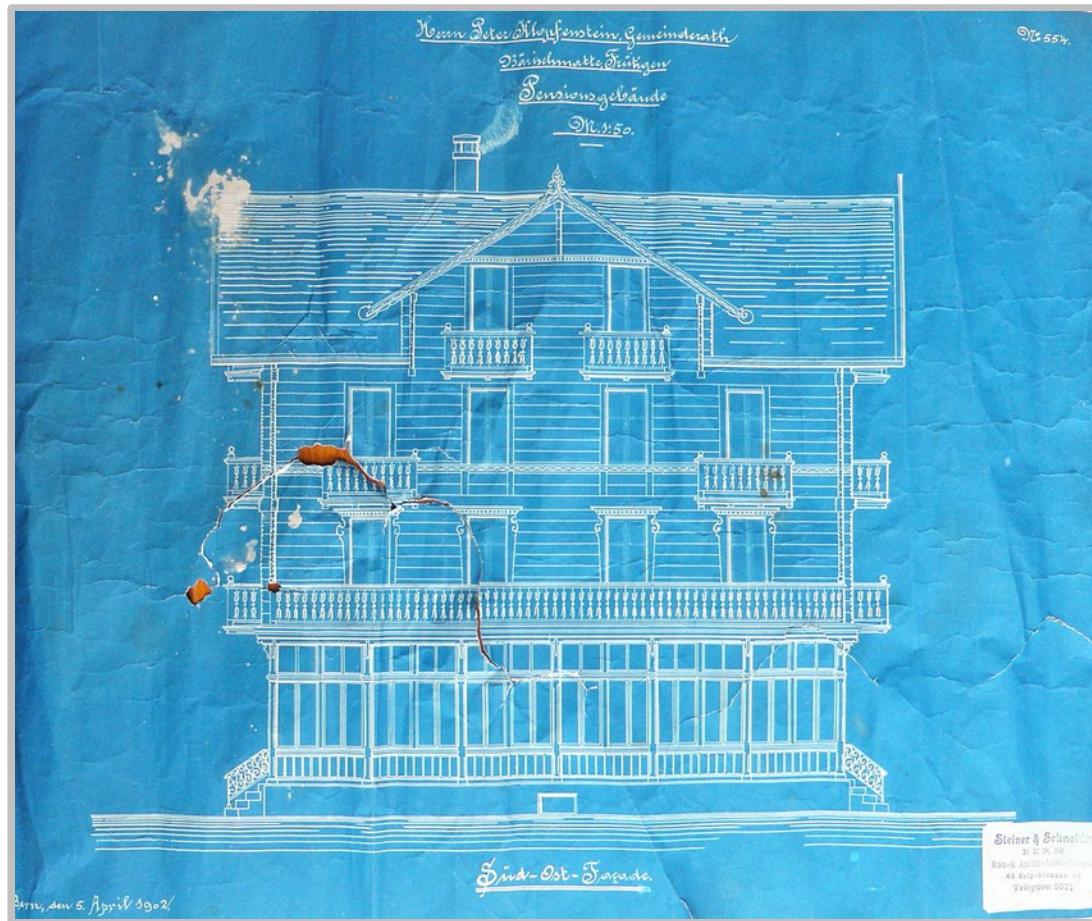


Aalto University  
Media Factory

04.

# Blueprints – suggestions for the documentation of the projects

# Ok, the blueprints...



We need all the possible documentation for being able to replicate the project in other FabLabs.

Source: <http://commons.wikimedia.org/wiki/Category:Blueprints>

# Patents (?)

Google 3d printing Massimo Merichinelli 1 + Share

Patents

Result 1 of 6 in this book for 3d printing - < Previous Next > - View all

**Apparatus and methods for 3D printing**  
David Russell et al.

Overview  
Abstract  
Drawings  
Description  
Claims

3d printing Go

Patent number: 7291002  
Filing date: Apr 2, 2004  
Issue date: Nov 6, 2007  
Application number: 10/817,159

**(12) United States Patent**  
Russell et al.

**(10) Patent No.:** US 7,291,002 B2  
**(45) Date of Patent:** Nov. 6, 2007

**(54) APPARATUS AND METHODS FOR 3D PRINTING**

**(75) Inventors:** David Russell, Burlington, MA (US); Andre Hernandez, Malden, MA (US); Joshua Kinsley, Arlington, MA (US); Andrew Berlin, Gloucester, MA (US)

**(73) Assignee:** Z Corporation, Burlington, MA (US)

**(\* ) Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 422 days.

**(21) Appl. No.:** 10/817,159  
**(22) Filed:** Apr. 2, 2004  
**(65) Prior Publication Data**  
US 2004/0265413 A1 Dec. 30, 2004

**Related U.S. Application Data**  
**(60) Provisional application No. 60/472,922, filed on May 23, 2003.**

**(51) Int. Cl.**  
**B28B 13/02** (2006.01)  
**(52) U.S. Cl.** 425/447; 425/375; 425/744; 264/308; 700/119

**(58) Field of Classification Search**  
425/174.4; 264/308; 401; 700/119; 120  
See application file for complete search history.

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**(10) Patent No.:** US 7,291,002 B2  
**(45) Date of Patent:** Nov. 6, 2007

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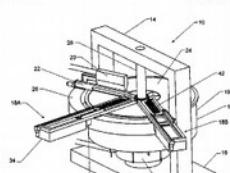
(Continued)

**Primary Examiner:** Robert Davis  
**Assistant Examiner:** Maria Veronica Ewald  
**(74) Attorney, Agent, or Firm:** Goodwin Procter LLP

**(57) ABSTRACT**

The invention relates to apparatus and methods for producing three-dimensional objects and auxiliary systems used in conjunction with the apparatus and methods. The apparatus and methods involve continuous printing radially about a circular and/or rotating build table using multiple printheads. The apparatus and methods also include optionally using multiple build tables. The auxiliary systems relate to build material supply, printhead cleaning diagnostics, and monitoring operation of the apparatus.

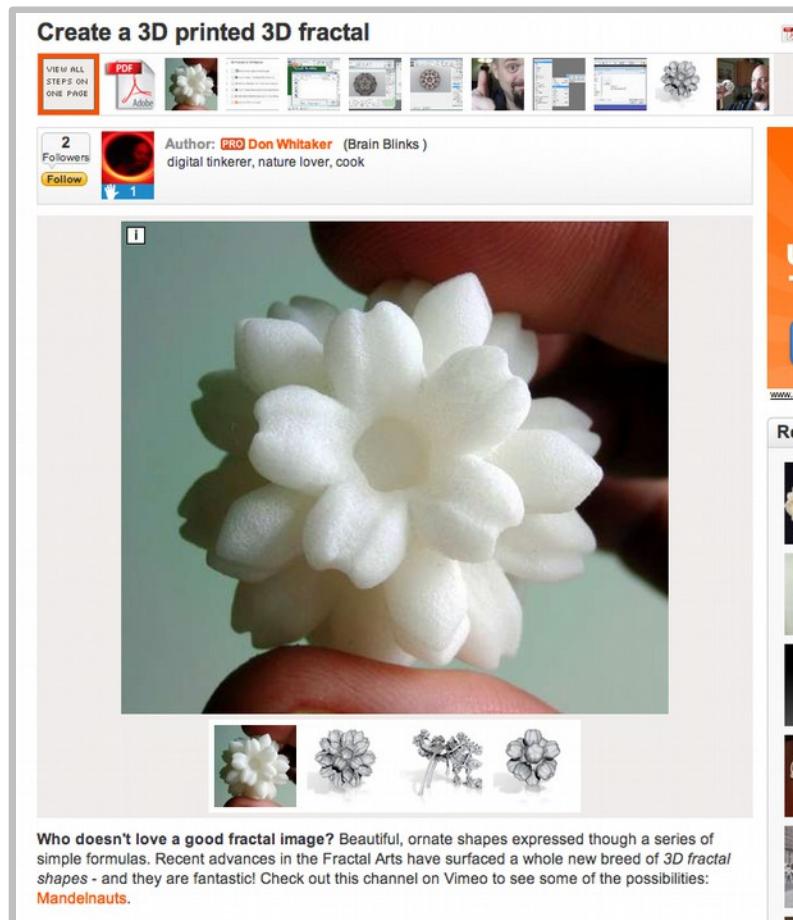
26 Claims, 19 Drawing Sheets



A very formal way of representing a project, but it could be useful.

Source: <http://bit.ly/K3YgxN>

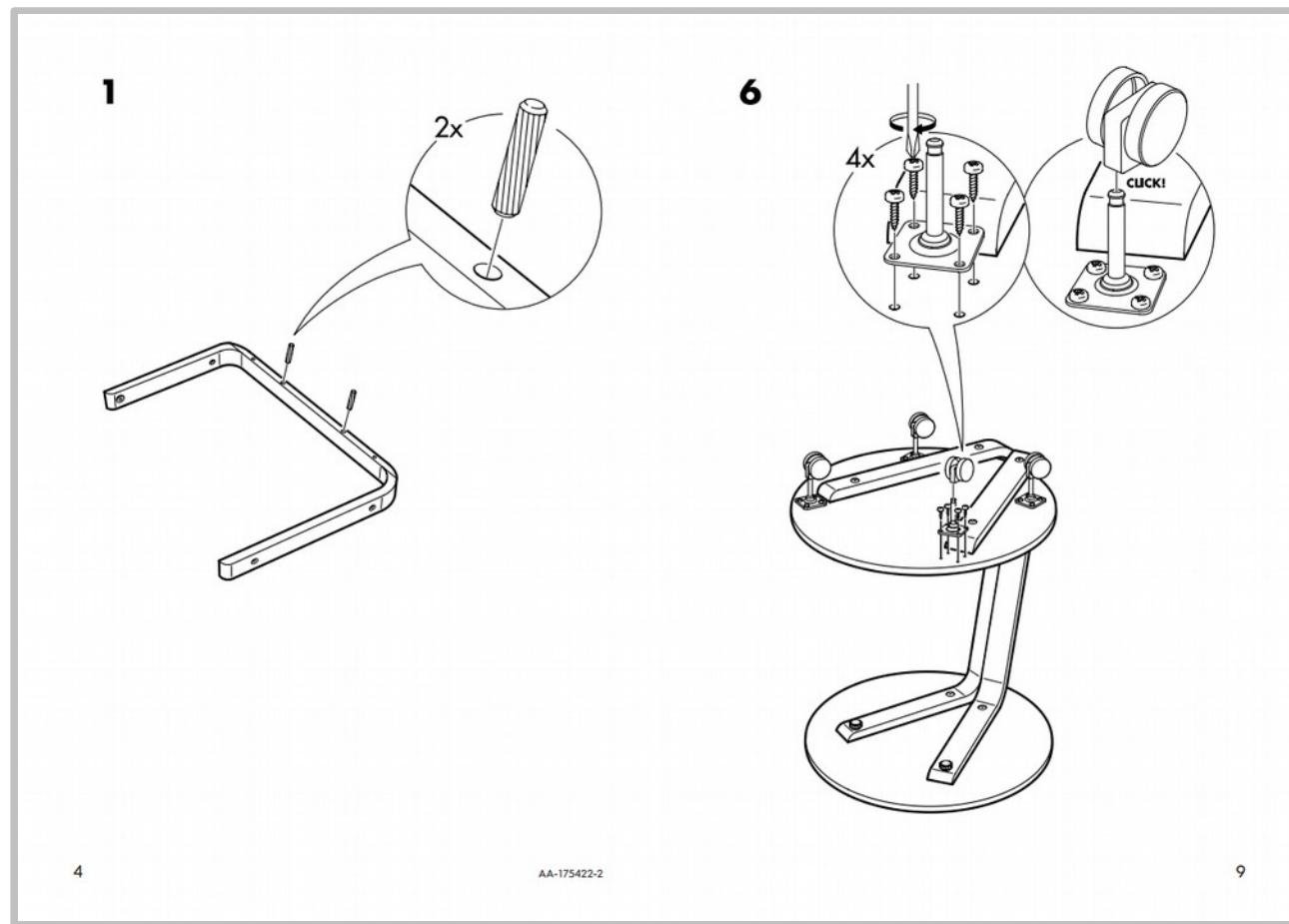
# Instructions (process): Instructables.com



You can explain in a simple way the whole process...

Source: <http://www.instructables.com/id/Create-a-3D-printed-3D-fractal/?ALLSTEPS>

# Instructions (process): IKEA



You can provide simple instructions...

# Instructions (process) for dummies: IKEA



---

... simple instructions that can be understood by any culture!

## Even videos...



Nowadays it is almost impossible to find a tutorial that it is not made with a video! Even researchers present their papers with a video.

Source: <http://youtu.be/dfNByi-rr04>



Aalto University  
Media Factory

# Thank you!!

Massimo Menichinelli  
Aalto Media Factory  
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