



GIT USE
CASES

JAKE TOBAK

SINGLE
DEVELOPER
PROJECT

MULTI
DEVELOPER
PROJECT

OPEN SOURCE
PROJECT

WORKFLOW

GIT USE CASES

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OUTLINE

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WORKFLOW

1 SINGLE DEVELOPER PROJECT

2 MULTI DEVELOPER PROJECT

3 OPEN SOURCE PROJECT

4 WORKFLOW



BACKUP CODE

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WORKFLOW

- The Wrong Way
Keep your source on Dropbox



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- The Wrong Way
Keep your source on Dropbox
- Why?
For a single developer project, dropbox isn't a terrible alternative to Git for keeping a backup of your current source code, but Git is more than a server to keep a backup of your latest version of code.



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- The Git Way
Use Git!



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For a single developer project, dropbox isn't a terrible alternative to Git for keeping a backup of your current source code, but Git is more than a server to keep a backup of your latest version of code.
- The Git Way
Use Git!
- Why?
Cause Git!



RESTORE PREVIOUS VERSION

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You want to revert to a previous version of your code, back when everything actually worked.

- The Wrong Way
Keep your source on Dropbox



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You want to revert to a previous version of your code, back when everything actually worked.

- The Wrong Way

Keep your source on Dropbox

- Why?

Dropbox does allow you to restore previous versions of your files for up to 30 days, or even longer if you subscribe to their Packrat service, but it's only available to Pro users (starting at \$10/month) and costs \$40/year on top of that. It also doesn't give you a summary of the changes between each version other than the date and user who made them.



RESTORE PREVIOUS VERSION (CONT.)

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- The Wronger Way
Keep multiple versions of your code saved locally



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- The Wronger Way
Keep multiple versions of your code saved locally
- Why?
This can get real messy and real confusing real quick.
There's also no explanation of what was changed in each version or a clear chain of progression.



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- The Wronger Way
Keep multiple versions of your code saved locally
- Why?
This can get real messy and real confusing real quick.
There's also no explanation of what was changed in each version or a clear chain of progression.
- The Wrongest Way
Reopen the source in your editor and hold CTRL+Z until the buffer runs out.



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- The Wronger Way
Keep multiple versions of your code saved locally
- Why?
This can get real messy and real confusing real quick.
There's also no explanation of what was changed in each version or a clear chain of progression.
- The Wrongest Way
Reopen the source in your editor and hold CTRL+Z until the buffer runs out.
- Why?
How far back does your undo buffer go? Will it go back to a working state or stop short? How do you know when you got to that spot where everything is working and not a couple places before/after you changed that = to a ==?



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■ The Git Way

add files to your staging area and then **commit** that every time you want to create a "save point". **push** when you have working changes you want to upload to the server. You can check the **log** to see your history and then **checkout** to revert to a previous version.



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■ The Git Way

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■ Why?

add adds files to your staging area, **commit** creates a checkpoint from your staging area and lets you give a brief explanation of what has changed since the last commit. **push** uploads the **commit** to your git server. The **log** allows you to view your previous commits with an explanation of what you did in each one. You can use **checkout** to start working at that specific point in the history.



WORKING ON DIFFERENT FILES

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- The Wrong Way

Everyone on the team e-mails each other their latest source files and tells everyone what they'll be working on.



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- The Wrong Way

Everyone on the team e-mails each other their latest source files and tells everyone what they'll be working on.

- Why?

This will take forever if you have to wait for someone to e-mail you a piece of code you need and it's very easy to have branches that are extremely divergent to each other.



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- The Also Wrong Way

Share a Dropbox account



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■ The Wrong Way

Everyone on the team e-mails each other their latest source files and tells everyone what they'll be working on.

■ Why?

This will take forever if you have to wait for someone to e-mail you a piece of code you need and it's very easy to have branches that are extremely divergent to each other.

■ The Also Wrong Way

Share a Dropbox account

■ Why?

This will work, but if you're both working at the same time and another developer saves a change to test it, you might sync a broken file and start getting errors for something someone else did. Have fun debugging that.



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- The Git Way
Just do it!



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■ The Git Way

Just do it!

When you **push** to the git server, you're uploading your changes, but you can also **pull** the changes from the server that have been made since the last time you sync'd with it.



WORKING ON DIFFERENT FILES (CONT.)

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- The Git Way

Just do it!

When you **push** to the git server, you're uploading your changes, but you can also **pull** the changes from the server that have been made since the last time you sync'd with it.

- Why?

If you're working on the same **branch**, git will **merge** your changes and any changes other people have made since your last **push/pull**. Git will attempt to automatically combine everyone's changes in a way that won't break anything. Git is really clever.



WORKING ON THE SAME FILES

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- The Wrong Way
I don't even know, just don't.



WORKING ON THE SAME FILES

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- The Wrong Way
I don't even know, just don't.
- The Git Way
Do it, you won't do it!



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- The Wrong Way
I don't even know, just don't.
- The Git Way
Do it, you won't do it!
- Why?
Seriously, Git is REALLY clever when it comes to merging. I'm sure you could break it if you wanted to, but if you don't **push** broken code or really redonkulous changes, everything will probably be fine.



MAKING RADICAL CHANGES

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■ The Wrong Way

I would hope that you would know better than to not use Git by now, but there are wrong ways to use Git too. Pushing too often.



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- The Wrong Way

I would hope that you would know better than to not use Git by now, but there are wrong ways to use Git too. Pushing too often.

- Why?

If you're adding a new feature or something big, you might need to **commit** multiple times, but if you **push** before your code is working perfectly again, anyone who does a **pull** before you're done will have incomplete code merged into their source and it'll cause a lot of headaches. It's also possible that you only **push** working code, but maybe someone had a better solution that your team will go with instead and you'll just be competing against each other every time you **push**.



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- The Git Way
branch! You can create a new **branch**, which is a chain of **commits** that diverges from the current history. When you **push** to a new **branch**, it won't be merged when someone **pulls** from the original. When you're satisfied with your code, you can **pull** your code from the new **branch** into the original and Git will attempt to **merge** everything for you.



CONTRIBUTING TO OPEN SOURCE

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Open Source Projects are Multi Developer Projects, but you don't have write access! How can you contribute while having read-only permission?



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Open Source Projects are Multi Developer Projects, but you don't have write access! How can you contribute while having read-only permission?

The solution is **clone**. When you **clone**, you are creating a copy of the **repository** (repo) that includes all the code, history and branches, but this copy belongs to you and you can do whatever you want with it. **commits** you make will be completely independent of the original source. **forking** is GitHub's version of **clone**, but it creates the repo under your GitHub account.



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Okay, so now you can edit the code, but you're still doing it in your own **repo**. The original project is unaware of your changes, so what good are ya?



CONTRIBUTING TO OPEN SOURCE (CONT.)

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Okay, so now you can edit the code, but you're still doing it in your own **repo**. The original project is unaware of your changes, so what good are ya?

The solution is **request-pull**. **request-pull** generates a summary of the changes you made and a URL to find them. You can then post this to a mailing list or send it to the person incharge of the original project. If they like what they see, they can **pull** from your code and **merge** it into the original project. You can also generate a **patch** that is a list of the changes between your version and the original version, which they might prefer.



CONTRIBUTING TO OPEN SOURCE (CONT.)

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Another solution is GitHub's **Pull Request**. It's similar to the native **request-pull** and **patch** process, but it's much more interactive and can be managed from a web interface. If an Open Source Project is hosted on GitHub, then this is probably how they want you submit your changes.



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The best way to find out how you can contribute to a project is to join its IRC channel and/or mailing list.



GENERAL WORKFLOW

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