

# Learn the Basics of Version Control with Git

Patrick McKinney  
Cumberland County

[pmckinney@ccpa.net](mailto:pmckinney@ccpa.net)

<https://pnmcartodesign.com/>



pmacMaps

# Download/Install Git

- <https://git-scm.com/downloads>
- Available on Windows, MacOS, and Linux



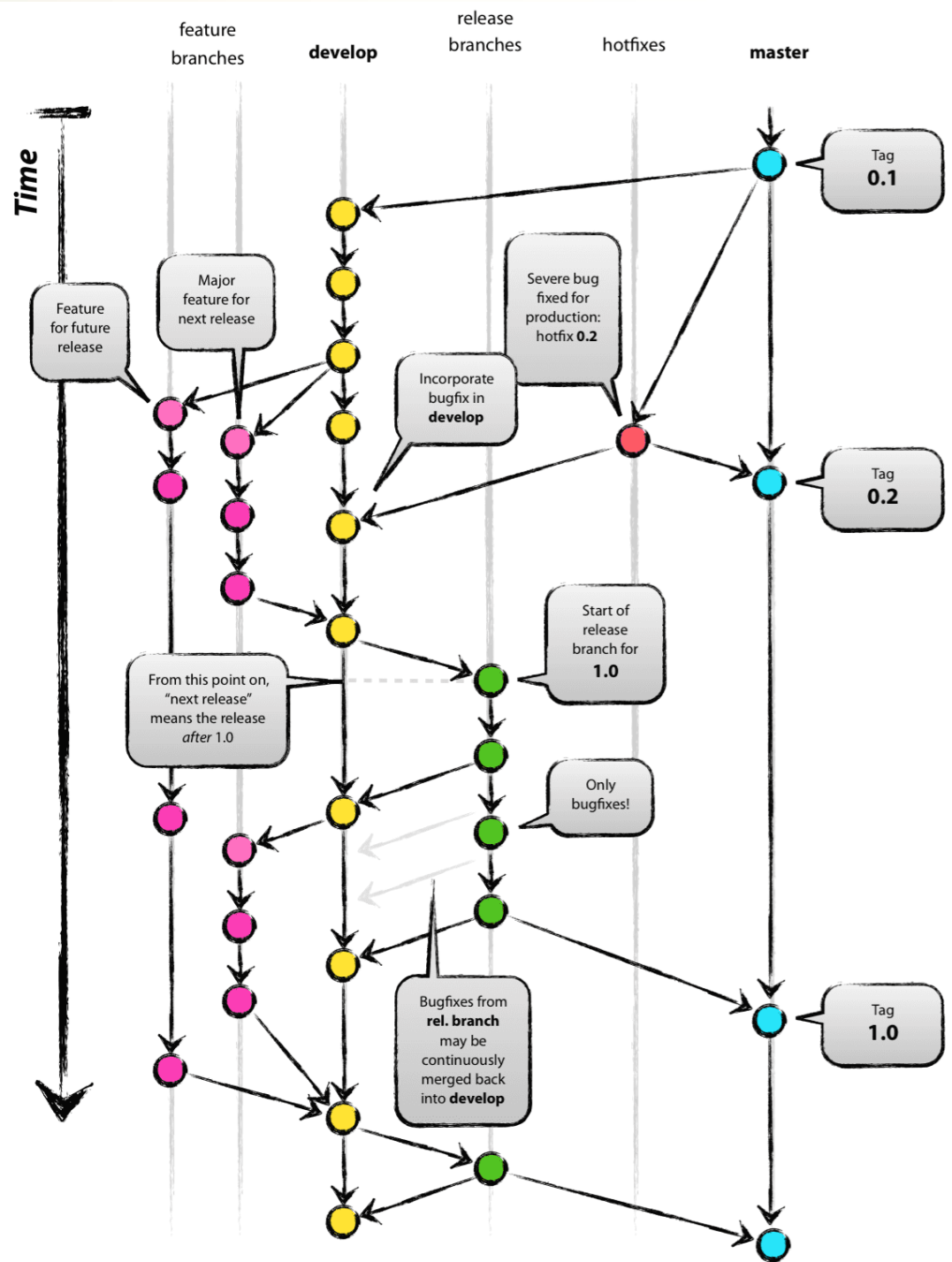
# What Is Version Control

- "system that records changes to a file or set of files over time so that you can recall specific versions later"
- Git is a Distributed Version Control System
  - Clients fully mirror the repository

# Why Use Version Control

- great way to manage projects
- multiple people can collaborate
- can separate bug fixes, enhancements, and upgrades into separate branches
- standard practice in software development

# Version Control Branching Model Example



Source:  
<https://nvie.com/posts/a-successful-git-branching-model/>

# Command Line Interface (CLI)

- processes commands to a computer program in the form of lines of text ([Wikipedia](#))
- Move across directories
- Execute Git commands

# Directory Related Commands

- **pwd** (print current directory)
- **cd [directory]** (change directory)
- **ls** (list contents of current directory)
- **mkdir [name]** (creates a new directory)
- **touch [name]** (creates a new file)

# Git Commands

- **git init** (enable version control in directory)
- **git remote add [name of remote] [path to]** (connect to another project to push/pull changes)
- **git remote -v** (list all remote branches)
- **git clone [url or path]** (clones an existing Git project in directory)



# Git Commands

- **git fetch [remote] [branch]** (downloads commits and files, but no merge)
- **git pull [remote] [branch]** (downloads commits and files, and merge)
- **git checkout -b [name]** (create and switch to a new branch)
- **git checkout [name]** (switch to a different branch)

# Git Commands

- `git diff [file]` (view changes made to a file)
- `git add [file]` (add file to staging)
- `git commit (...)`
- `git push [remote] [branch]` (pushes commits to remote)

# Git Commands

- **git status** (see status of project)
- **git checkout -- [file]** (resets file)
- **git stash** (temporary "save" of changes)
- **git stash pop** (restores stashed changes)

# How Can You Use Version Control?



# Web Resources

- [Pro Git book](#)
- [Git Crash Course](#)
- [Getting Git Right](#)
- [Resources to learn Git](#)