



Pacific
Community
Communauté
du Pacifique

1 Introduction to Git and GitHub

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SPC Git/GitHub Workshop
Noumea, 13 April 2022



Overview

Examples *SPC software/analyses/information*
fisheries software, open data, personal notes

Benefits *track changes, backups, collaboration, dissemination*

Git concepts *repositories, commits, tags, branches, gitignore*

GitHub features *releases, assets, forks, pull requests, issues,*
browse, access control, authentication

Level of Expertise

1. Have downloaded things from GitHub *for example, `install_github("somePackage")`*
2. Have a GitHub account and Git is installed on my computer
3. Have created my own repo *personal or within an organization*
4. Have forked a repo and submitted a pull request *contributing to a project*
5. Have helped a colleague with Git/GitHub and starred a repo
6. Have tagged a commit and created a GitHub release
7. Happy with my Git tools and configuration *edit, commit, browse, etc.*
8. Have worked across branches and solved a merge conflict
9. Could give a one-day workshop on using Git and Github 😊

Installing Git



git windows



All



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<https://git-scm.com> > downloads  6

Downloads - Git SCM

Downloads. macOS · **Windows** · Linux/Unix · Older releases are available and the **Git** source repository is on GitHub.

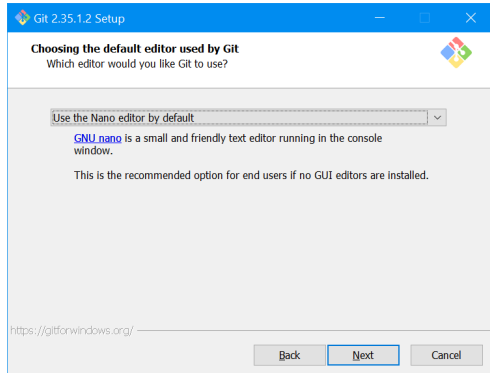
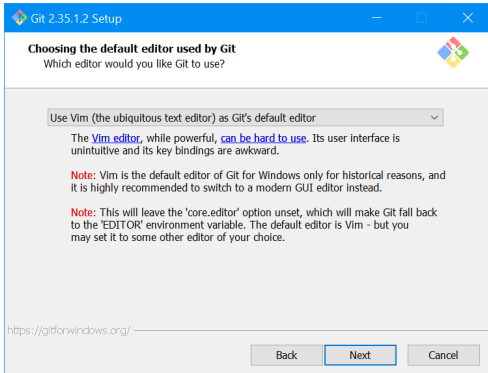
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<https://git-scm.com> > download > win  6

Downloading Package - Git SCM

Download for **Windows**. Click here to download the latest (2.35.1) 32-bit version of **Git** for **Windows**. This is the most recent maintained build.

Default Editor



GitHub Examples



Search or jump to...



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Pacific Community (SPC)

Pacific Community (SPC) Official GitHub Organization

[New Caledonia](#) <http://www.spc.int/> hostmaster@spc.int

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ofp-sam-yft-review

Public

Yellowfin tuna assessment review

☆ 0 🍴 0 🔄 0 📄 0 Updated 3 hours ago



OFP-Ikamoana

Private

Jupyter Notebook ☆ 1 🍴 1 🔄 0 📄 0 Updated 8 hours ago



OFP-FEMA-BioDaSys

Private

Local front-end for the Biological Database System (Tissue Bank)

C# ☆ 0 🍴 0 🔄 6 📄 0 Updated 11 hours ago



tuf_common

Private

Common Tuf code shared between Tuf instances like Tufman2

C# ☆ 0 🍴 0 🔄 0 📄 0 Updated 15 hours ago



tufman2

Private

C# ☆ 0 🍴 1 🔄 11 (1 issue needs help) 📄 0 Updated 16 hours ago



People



[View all](#)

Top languages

R C# JavaScript HTML

TypeScript

Repositories

SPC software	TUFMAN2, MD2, MFCL, MFCL viewer, FLR4MFCL, LaTeX utilities
SPC analyses	CPUE analysis, Yellowfin 2020 assessment, Skipjack 2022 assessment
SPC information	Yellowfin review, Condor tutorial, Condor notes, TAF demo
Fisheries software	ADMB, TMB, VAST, SAM, Gadget, CASAL, Stock Synthesis, TAF
Open data	US West Coast fisheries, Covid data
Personal notes	Covid analysis, Computer settings

Benefits of Using Git and GitHub

Benefits

Track changes Who changed what, when, and why

Backups Online

Restore previous state

Collaboration Local, regional, international

Software development, analyses, other projects

Dissemination Software

Open science, data hub

Products

Git Concepts

Git and GitHub

Git

A program *that you can install*

Version control software *tracking changes*

Load and save project snapshots *clone, commit*

Free software *created by Linus Torvalds in 2005*

GitHub

A website *open 'github.com' in a browser*

Service for Git projects *pull requests, issues*

Browse online *view changes, download*

Basic functionality is free *created 2008, owned by Microsoft since 2018*

Popular in fisheries science since around 2015, taking over from previous (similar) technologies

Git Concepts

Repository Project folder with tracked changes *a sequence of commits*

Commit Saved snapshot *example: bc4b374*

Tag Nickname for a significant commit *example: 2.0.0*

Branch Parallel sequence of commits *can be merged later with the main branch*

Gitignore List of local files that should be ignored *not uploaded to remote repo*

GitHub Features

GitHub Features

Release GitHub page pointing to a tag *guaranteed to work, human-readable history*

Assets Downloadable files for a given release *installer.exe, everything.zip, poster.pdf*

Fork Personal copy of a collaborative project repo *edit things, add features*

Pull request Request project owner to consider your additions *from your fork to main repo*

Issue Discussion related to project *question, bug, idea*

GitHub Features (cont)

Browse Organization/user *repos (pinned/starred/search), people, teams*

Repo *activity, releases, contributors, files, issues, pull requests, review comment*

Commits *history, log entries, changed files, changed lines*

Access control public, private *read/write/admin, teams*

Authentication login, clone, push *password, windows credentials, ssh keys*

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