

Git para principiantes

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Taller de Git, Semestre 2025-1

Información del Taller

Tiempo estimado

Aproximadamente 120 minutos de taller.

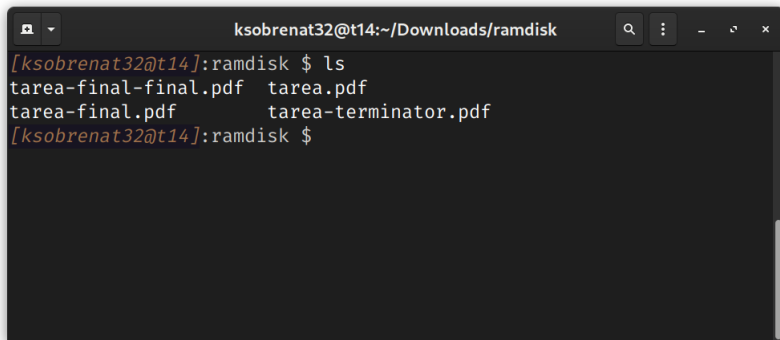
Objetivos

Que los participantes entiendan:

- ▶ Que es un sistema de control de versiones y su utilidad
- ▶ Flujo de trabajo básico con git
- ▶ Comandos básicos de git
- ▶ Uso de ramas
- ▶ Uso de repositorios remotos
- ▶ Creación de un repositorio en GitHub

Introducción al tema

Un sistema de control de versiones es una herramienta que permite llevar un registro de los cambios realizados en un proyecto a lo largo del tiempo.



```
ksobrenat32@t14:~/Downloads/ramdisk
[ksobrenat32@t14]:ramdisk $ ls
tarea-final-final.pdf  tarea.pdf
tarea-final.pdf        tarea-terminator.pdf
[ksobrenat32@t14]:ramdisk $
```

Qué es Git

- ▶ Git es un sistema de control de versiones distribuido.
- ▶ Fue creado por Linus Torvalds en 2005.
- ▶ Es software libre y de código abierto.

Flujo de trabajo básico con Git

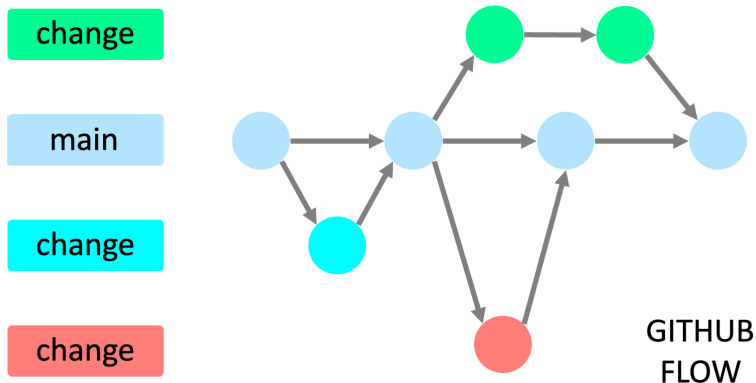


Figura 2: Github-flow

Conceptos básicos

Snapshot

Representa el estado de los archivos en un momento dado.

Commit

Es un snapshot con un mensaje descriptivo.

Branch

Es una línea de desarrollo independiente.

Repositorio

Es un conjunto de archivos y directorios que git controla.

Usando Git

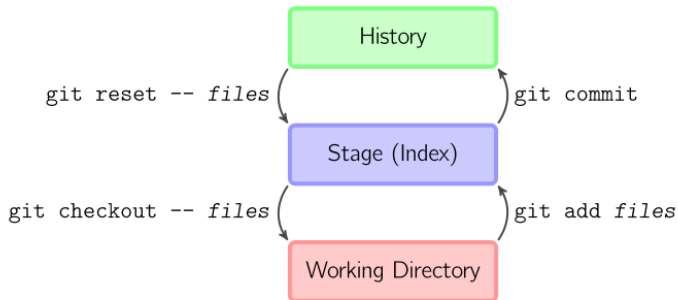


Figura 3: Zonas de trabajo

Usando Git

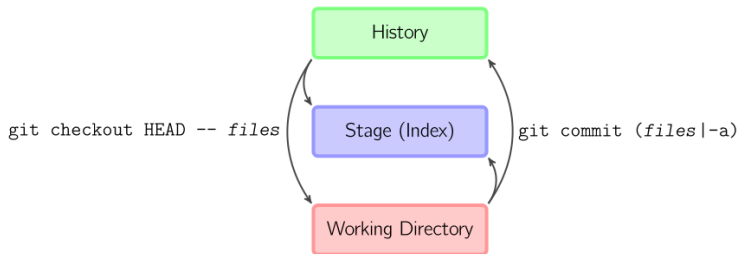


Figura 4: Zonas de trabajo

Usando Git

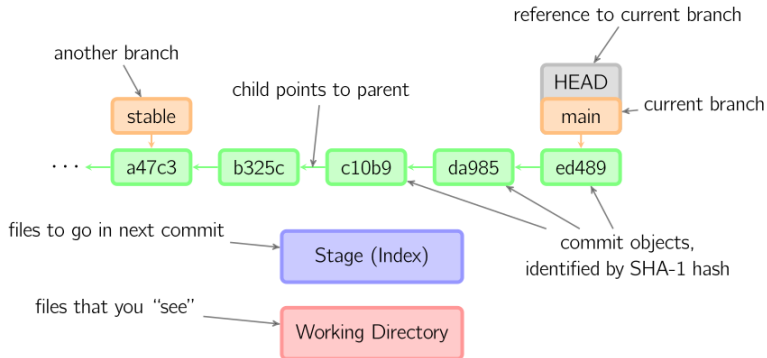


Figura 5: Convenciones

Comandos básicos

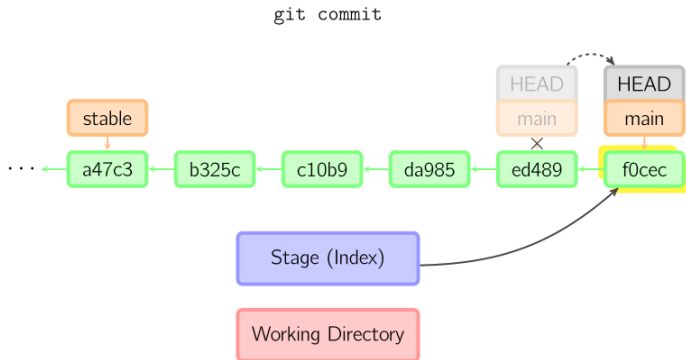


Figura 6: Commit

Comandos básicos

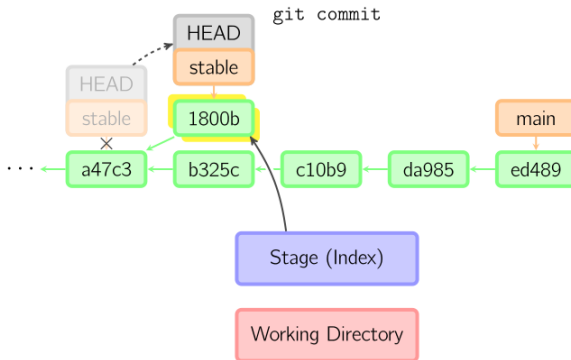


Figura 7: Commit stable

Comandos básicos

```
git commit --amend
```

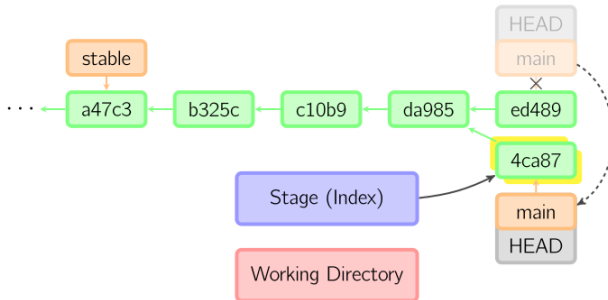


Figura 8: Commit amend

Comandos básicos

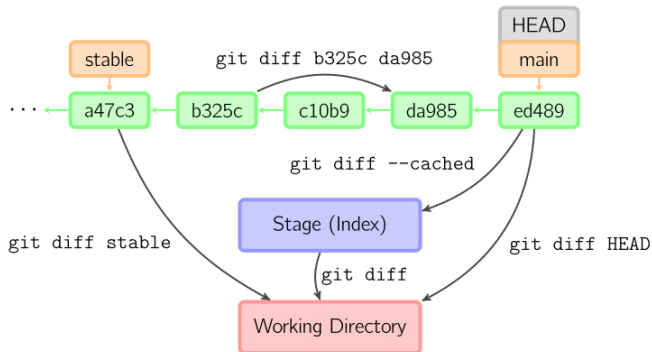


Figura 9: Diff

Comandos básicos

```
git checkout HEAD~ files
```

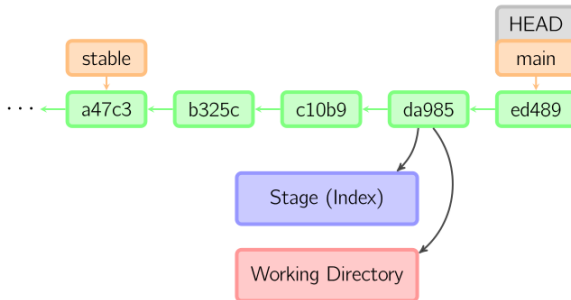


Figura 10: Checkout

Comandos básicos

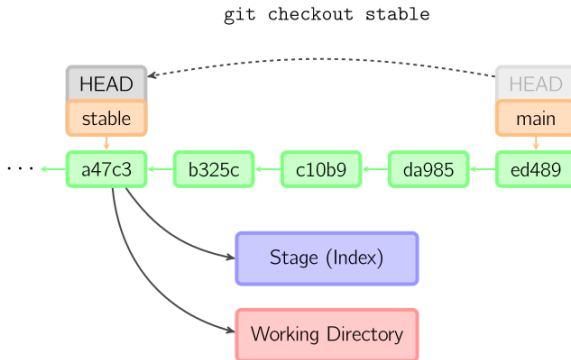


Figura 11: Checkout branch

Comandos básicos

```
git checkout main~3
```

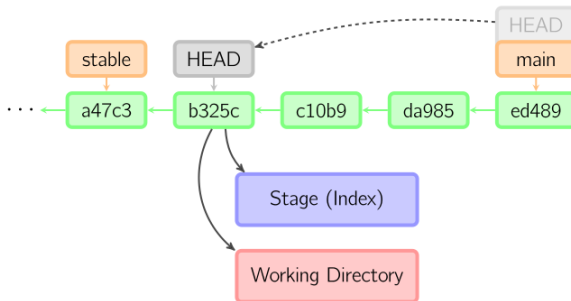


Figura 12: Checkout detached

Comandos básicos

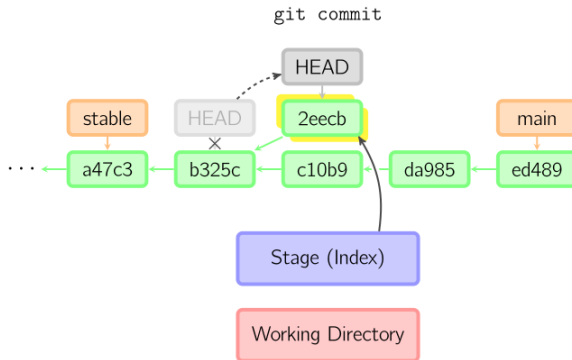


Figura 13: Commit detached

Comandos básicos

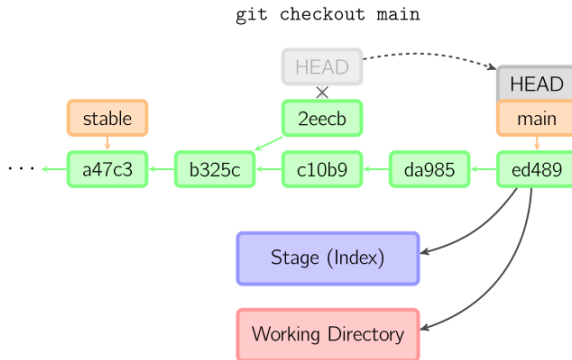


Figura 14: Checkout after detached

Comandos básicos

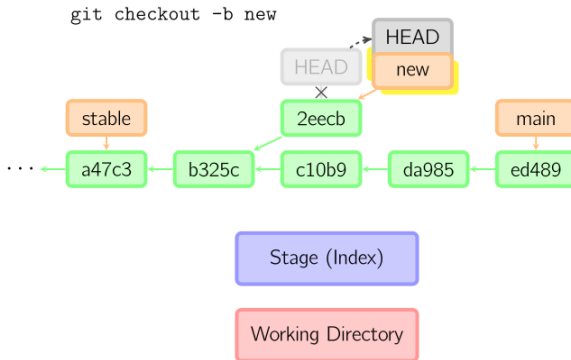


Figura 15: Checkout b detached

Comandos básicos

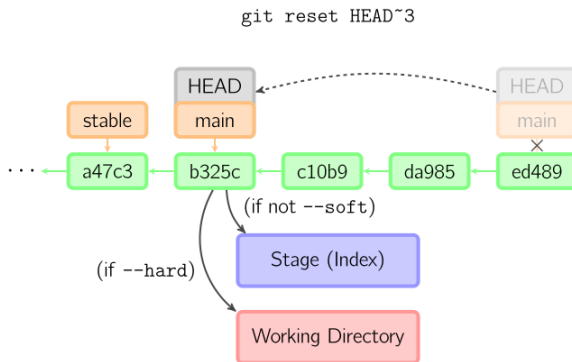


Figura 16: Reset commit

Comandos básicos

`git reset`

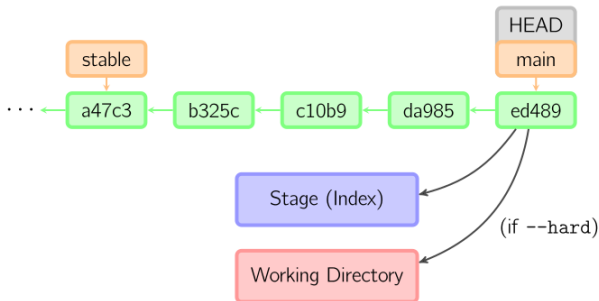


Figura 17: Reset

Comandos básicos

```
git reset -- files
```

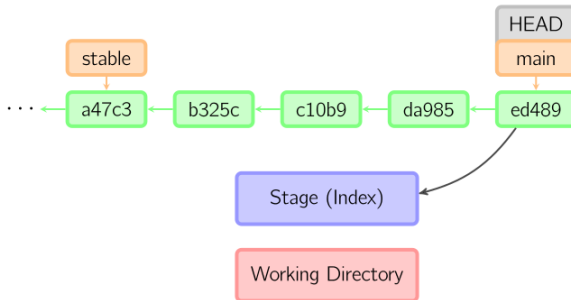


Figura 18: Reset files

Comandos básicos

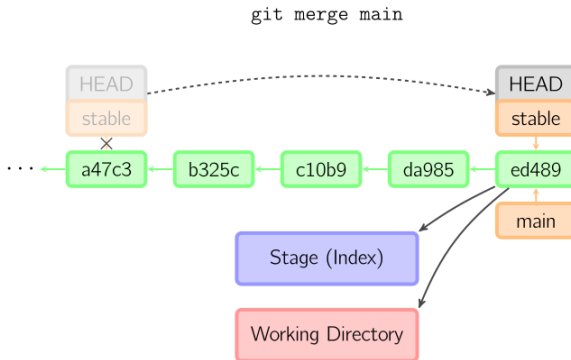


Figura 19: Merge Fast Forward

Comandos básicos

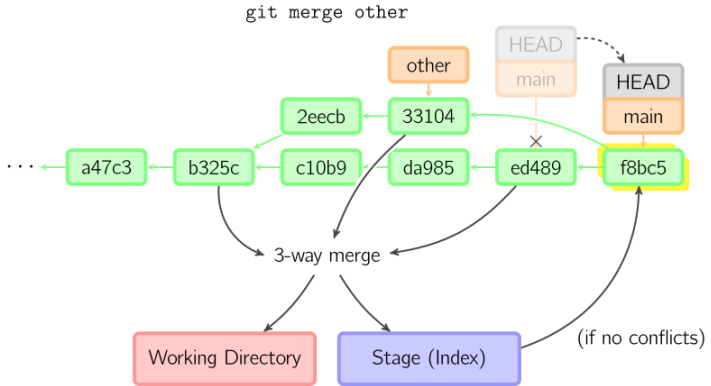


Figura 20: Merge

Comandos básicos

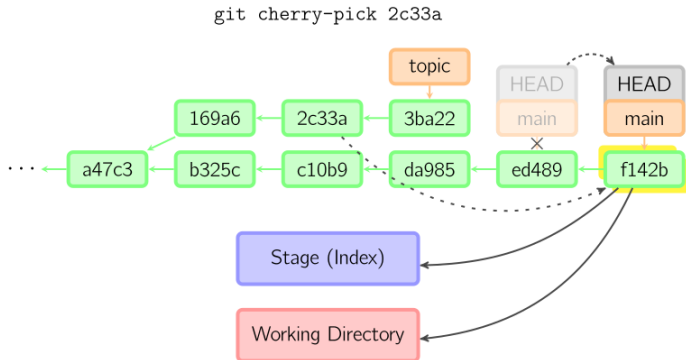


Figura 21: Cherry pick

Comandos básicos

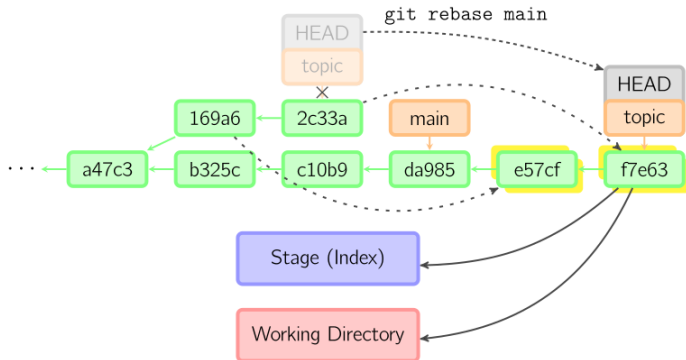


Figura 22: Rebase

Comandos básicos

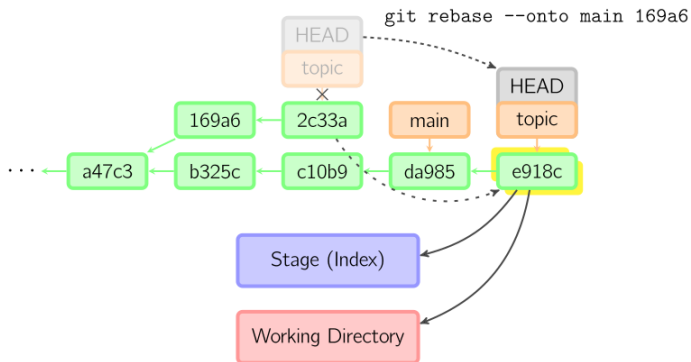
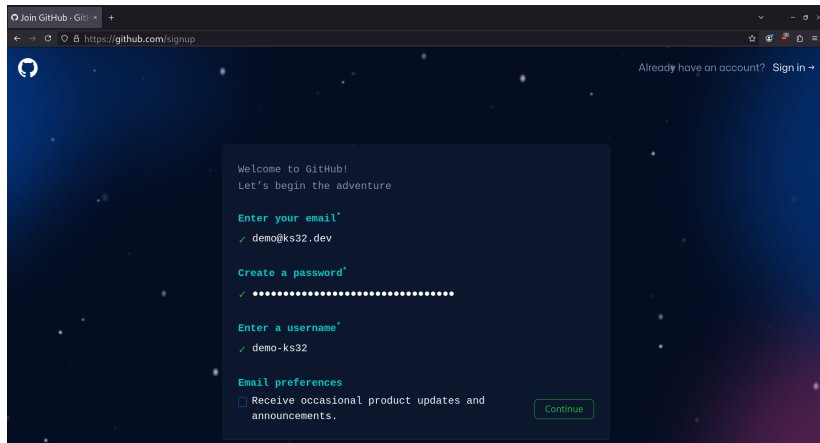


Figura 23: Rebase onto

Creación de un repositorio en GitHub



The image shows a web browser window with the GitHub sign-up page. The browser's address bar shows the URL `https://github.com/signup`. The page has a dark blue background with a starry pattern. In the top left corner is the GitHub logo, and in the top right corner is the text "Already have an account? Sign in →". The main content area is a white box with the following text:

Welcome to GitHub!
Let's begin the adventure

Enter your email*
✓ demo@ks32.dev

Create a password*
✓ ••••••••••••••••••••

Enter a username*
✓ demo-ks32

Email preferences
☐ Receive occasional product updates and announcements.

At the bottom right of the white box is a green "Continue" button.

Creación de un repositorio en GitHub

The screenshot shows the GitHub homepage with a dark theme. On the left, there's a sidebar with the GitHub logo and 'Dashboard'. The main content area is titled 'Home' and includes a search bar. Below the search bar, there are three main sections: 'Start writing code', 'Introduce yourself with a profile README', and 'Explore repositories'. The 'Start writing code' section has a button to 'Create repository' and an option to 'Import repository'. The 'Introduce yourself with a profile README' section shows a preview of a README file for 'demo-ks32' with a 'Create' button. The 'Explore repositories' section lists several repositories, including 'flutter / website', 'neomutt / neomutt', and 'libbpf / libbpf-rs'.

GitHub Dashboard

Home

Send feedback Filter

Start writing code

Start a new repository for demo-ks32

A repository contains all of your project's files, revision history, and collaborator discussion.

Repository name *

name your new repository...

☐ Public
Anyone on the internet can see this repository

☒ Private
You choose who can see and commit to this repository

Create a new repository

Introduce yourself with a profile README

Share information about yourself by creating a profile README, which appears at the top of your profile page.

demo-ks32 / README.md Create

```
1 - Hi, I'm @demo-ks32
2 - I'm interested in ...
3 - I'm currently learning ...
4 - I'm looking to collaborate
5 - How to reach me ...
6 - Pronouns: ...
7 - Fun fact: ...
8
```

Explore repositories

flutter / website

Flutter documentation web site

☆ 2.8k Dart

neomutt / neomutt

Teaching an Old Dog New Tricks -- IRC: #neomutt on irc.libera.chat

☆ 3.2k C

libbpf / libbpf-rs

Minimal and opinionated eBPF tooling for the Rust ecosystem

☆ 717 Rust

Explore more →

Creación de un repositorio en GitHub

New repository

https://github.com/new

New repository

Type / to search

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Required fields are marked with an asterisk (*).

Owner * / Repository name *

demo-ks32 / demo-ks32

demo-ks32 is available.

demo-ks32/demo-ks32 is a **special** repository that you can use to add a README.md to your GitHub profile. Make sure it's public and initialize it with a README to get started.

Great repository names are short and memorable. Need inspiration? How about **literate-octo-guacamole**?

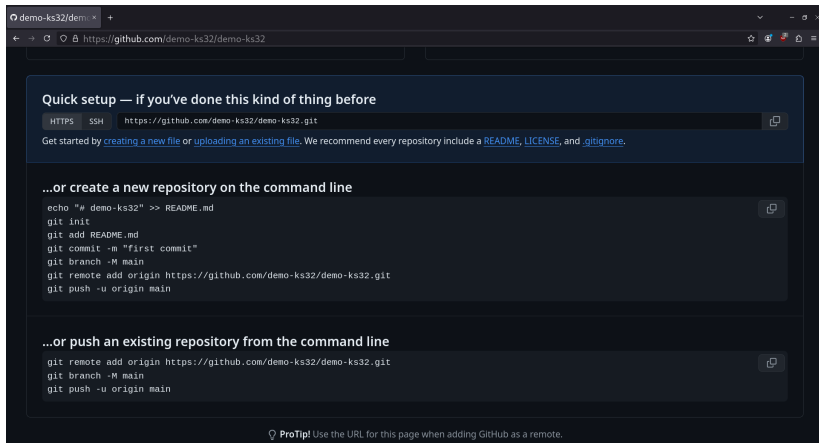
Description (optional)

My description

☒ **Public**
Anyone on the internet can see this repository. You choose who can commit.

☐ **Private**
You choose who can see and commit to this repository.

Creación de un repositorio en GitHub



The screenshot shows a web browser window displaying the GitHub repository page for 'demo-ks32/demo-ks32'. The page has a dark theme and provides instructions for setting up the repository. At the top, there's a 'Quick setup' section for users familiar with the process, offering both HTTPS and SSH URLs. Below this, a section titled '...or create a new repository on the command line' provides a series of terminal commands to initialize a new repository, create a README, commit, and push. A third section, '...or push an existing repository from the command line', shows commands to add a remote origin and push an existing local repository. A 'ProTip!' at the bottom suggests using the page's URL as the remote.

demo-ks32/demo-ks32

https://github.com/demo-ks32/demo-ks32

Quick setup — if you've done this kind of thing before

HTTPS SSH `https://github.com/demo-ks32/demo-ks32.git`

Get started by [creating a new file](#) or [uploading an existing file](#). We recommend every repository include a [README](#), [LICENSE](#), and [.gitignore](#).

...or create a new repository on the command line

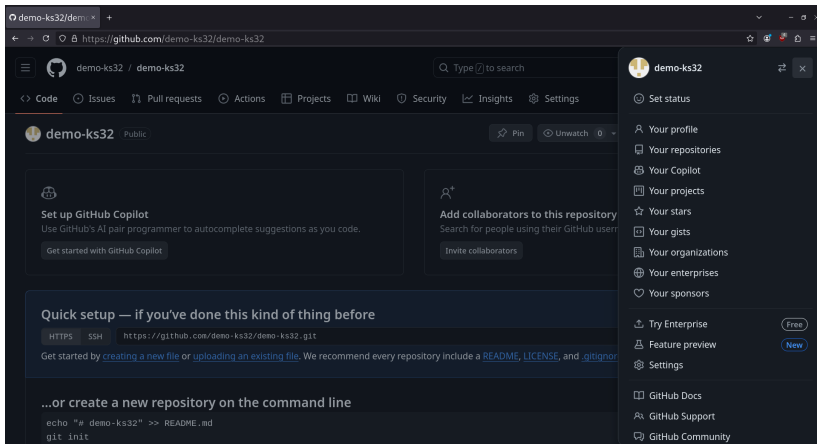
```
echo "# demo-ks32" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/demo-ks32/demo-ks32.git
git push -u origin main
```

...or push an existing repository from the command line

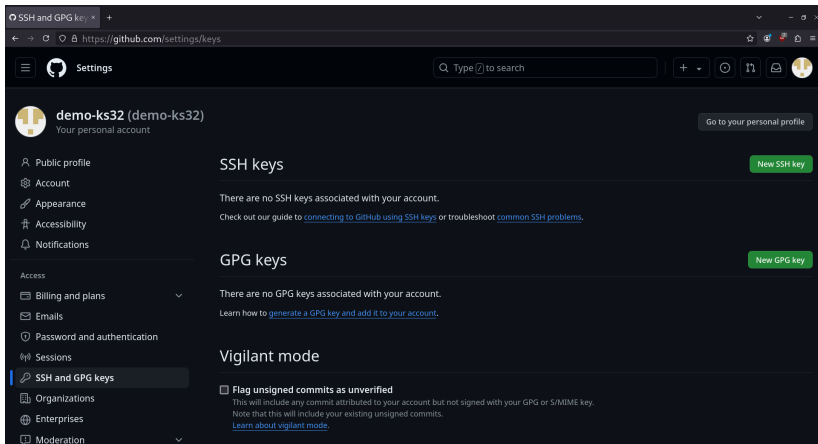
```
git remote add origin https://github.com/demo-ks32/demo-ks32.git
git branch -M main
git push -u origin main
```

ProTip! Use the URL for this page when adding GitHub as a remote.

Creación de un repositorio en GitHub



Creación de un repositorio en GitHub



Creación de un repositorio en GitHub

```
ks32@ccb9a1969735: /
ks32@ccb9a1969735:/$ ssh-keygen -o -a 100 -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/ks32/.ssh/id_ed25519):
Created directory '/home/ks32/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ks32/.ssh/id_ed25519
Your public key has been saved in /home/ks32/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:/3HAZ4BP8jLE3vgSAkx4R4d5N+VsYiqnF4fKr9m138 ks32@ccb9a1969735
The key's randomart image is:
+--[ED25519 256]--+
|
|  =+0 .
|  . = +. . +
|  o *. *. o.
|  . +. @ B .
|  S. + % =
|  . o. . *
|  + ... o .
|  ...ooo.+ E
|  . =+0. ...
+----[SHA256]-----+
ks32@ccb9a1969735:/$ cat ~/.ssh/id_ed25519.pub
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIPHuQidDTNiVfOV0SuP9MrBRLJGkGaXDqL52ClGx+6D ks32@ccb9a1969735
ks32@ccb9a1969735:/$
```

Creación de un repositorio en GitHub

Add new SSH key x

https://github.com/settings/ssh/new

Your personal account

- Public profile
- Account
- Appearance
- Accessibility
- Notifications
- Access
- Billing and plans
- Emails
- Password and authentication
- Sessions
- SSH and GPG keys**
- Organizations
- Enterprises
- Moderation
- Code, planning, and automation
- Repositories
- Codespaces

Add new SSH Key

Title

Demo key

Key type

Authentication Key

Key

```
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIPH9uQldDTNlVfOVOSuP9MrBRlJGkGaXDqI52CIGx+6D ks32@ccb9a1969735
```

Add SSH key

Creación de un repositorio en GitHub

```
ks32@ccb9a1969735: /  
ks32@ccb9a1969735:/$ ssh -T git@github.com  
The authenticity of host 'github.com (140.82.113.4)' can't be established.  
ED25519 key fingerprint is SHA256:+DiY3wvvV6TuJJhbpZisF/zLDA0zPMSvHdkr4UvCOqU.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.  
Hi demo-ks32! You've successfully authenticated, but GitHub does not provide shell access.  
ks32@ccb9a1969735:/$
```

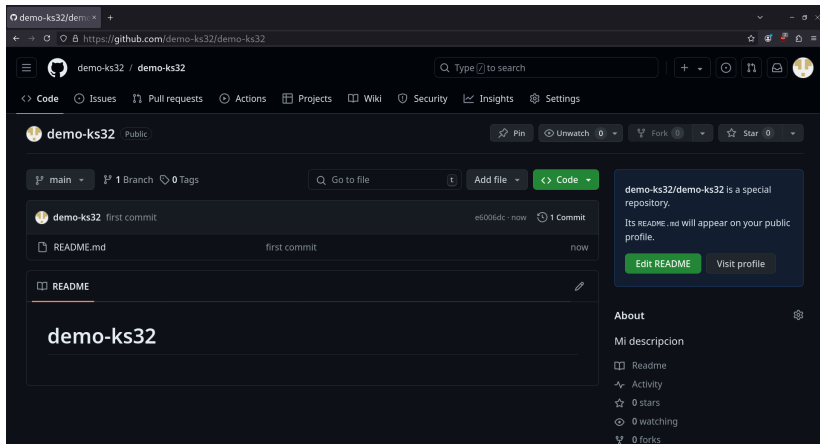
Creación de un repositorio en GitHub

```
ks32@ccb9a1969735: ~/demo-ks32
ks32@ccb9a1969735:~$
ks32@ccb9a1969735:~$
ks32@ccb9a1969735:~$ git config --global user.name "Demo test"
ks32@ccb9a1969735:~$ git config --global user.email "demo@ks32.dev"
ks32@ccb9a1969735:~$
ks32@ccb9a1969735:~$ mkdir demo-ks32
ks32@ccb9a1969735:~$ cd demo-ks32/
ks32@ccb9a1969735:~/demo-ks32$ echo "# demo-ks32" >> README.md
ks32@ccb9a1969735:~/demo-ks32$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ks32/demo-ks32/.git/
ks32@ccb9a1969735:~/demo-ks32$ git add README.md
ks32@ccb9a1969735:~/demo-ks32$ git commit -m "first commit"
[master (root-commit) e6006dc] first commit
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
ks32@ccb9a1969735:~/demo-ks32$
```

Creación de un repositorio en GitHub

```
ks32@ccb9a1969735: ~/demo-ks32
ks32@ccb9a1969735:~/demo-ks32$ git branch -M main
ks32@ccb9a1969735:~/demo-ks32$ git remote add origin git@github.com:demo-ks32/demo-ks32.git
ks32@ccb9a1969735:~/demo-ks32$ git push -u origin main
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 218 bytes | 218.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:demo-ks32/demo-ks32.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
ks32@ccb9a1969735:~/demo-ks32$
```

Creación de un repositorio en GitHub



Bibliografía

- ▶ <https://git-scm.com/book/en/v2>
- ▶ <https://marklodato.github.io/visual-git-guide/index-es.html>
- ▶ <https://blog.kinto-technologies.com/posts/2023-03-07-From-Git-flow-to-GitHub-flow/>