Introduction to git

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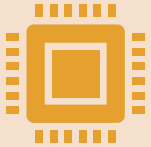
1. Version control

WHAT IS? HOW TO USE IT?

Version Control – VCS



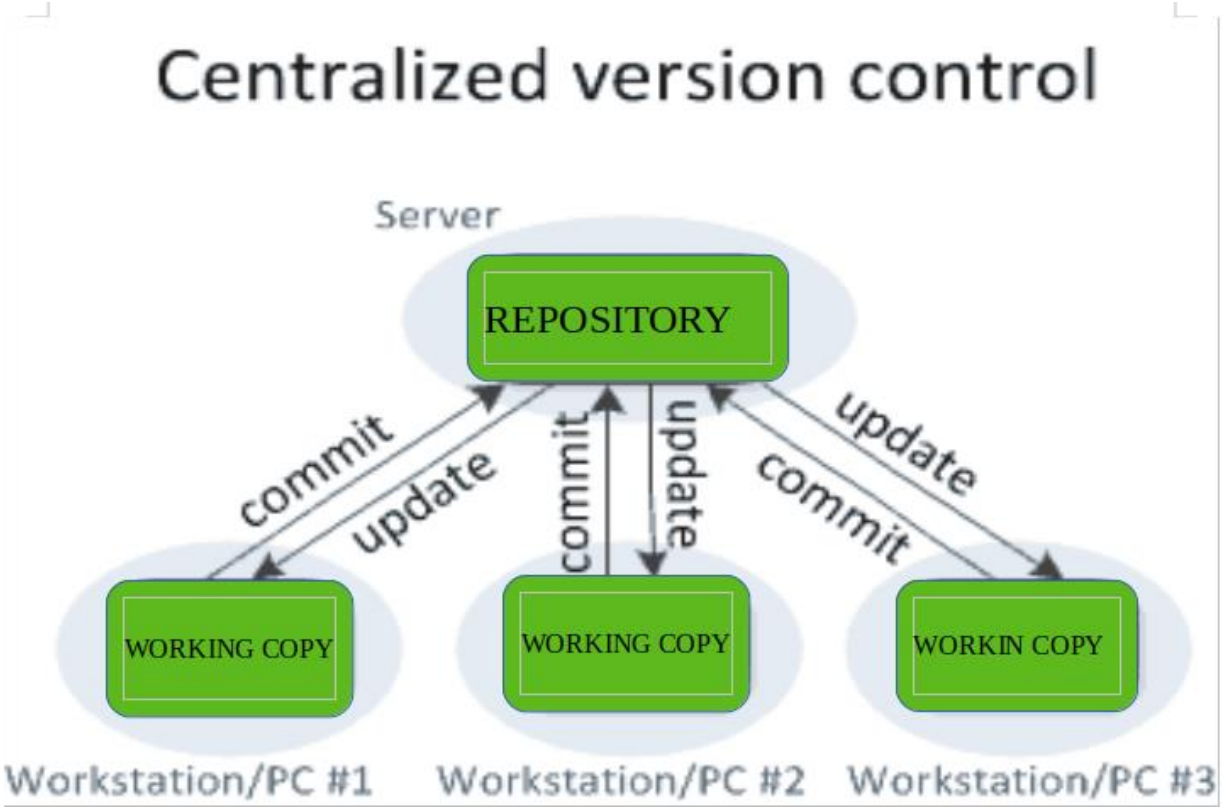
A VCS (Version Control System) is a software that allows us to check how something has been changed during the time.

What files can be versioned?

Easy. Every file

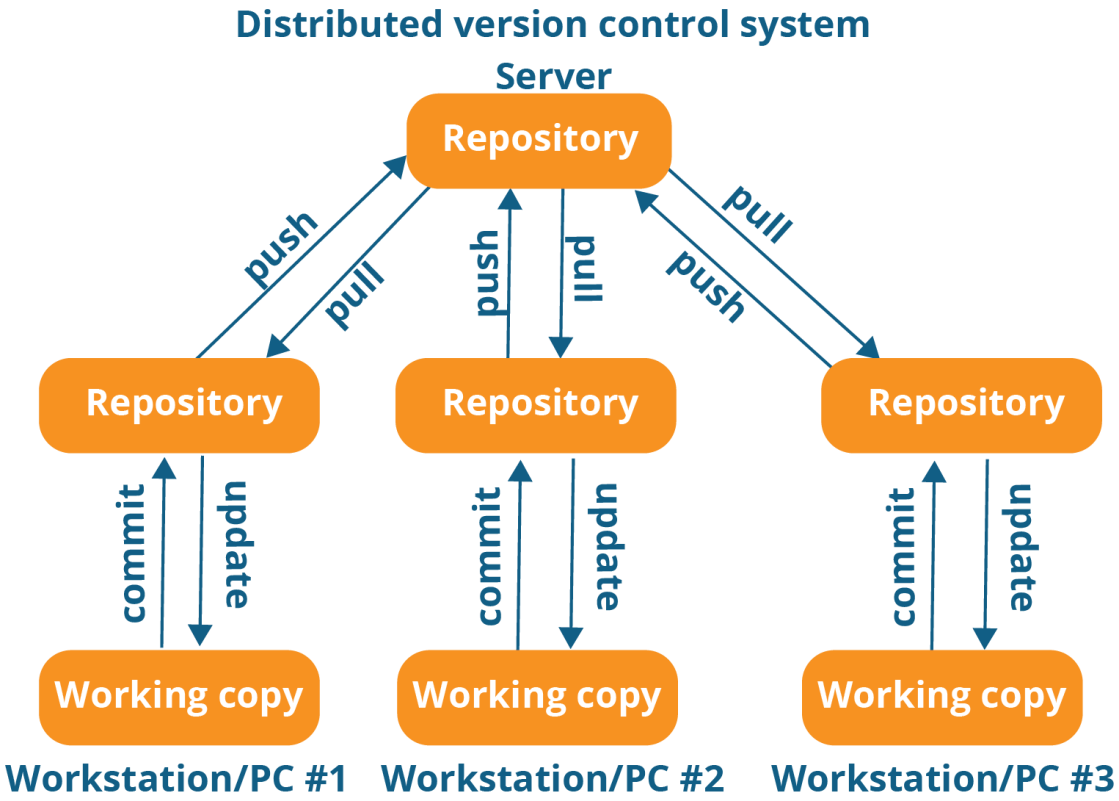
The VCS “records” the story of the file, allowing us also to restore a file or the entire project.

Centralized VCS



Distributed VCS

Git



Distributed VCS

When we say that git is a distributed VCS, we mean that basically it allows us to access our **repositories** from everywhere.

In order to make our changes permanent, we need an Internet connection.

Git

HOW DOES IT WORK?

File Management System

The basic concept about git is:

Git considers its data as a sort of snapshot. It means that it takes a sort of “picture” of the files and it stores those pictures.

And if I do not change anything from a file?

Git won’t save anything about that file. It will keep the current version.

It saves changes if and only if you change something.

Git also guarantees the «history» of our project. It means that it stores every change that we do, allowing us to recover the previous versions.

File Stages

In git, files can be in three different stages:

- **Modified;**
- **Staged;**
- **Committed**

Git download link

HTTPS://GIT-SCM.COM/DOWNLOADS

Use and configuration

HOW TO CONFIGURE YOUR GIT

git config

The **git config** command allows us to set and know the configuration variables.

They can be:

- **System** and you use the – **system** parameter;
- **User** if you use the --**global** parameter;
- **Repository** if you do not use any parameter;

Configuration Commands

- git config -- list → shows your information
- git config --global user.name "Alessio" → it sets the user name to "Alessio"
- Git config --global user.email "youremail@gmail.com" → sets the user email
- Git help config → shows the git manual

Repository creation

1) Convert a folder into a repository → git init

2) Clone an existing repository → git clone <url>

Add files to repository

After you created a repository, you just need to add your files to the tracked ones.

How to do it?

git add . → adds every file that has been changed

git add filename.extension → adds only the specified file

How does it work?

When you modify a file, it becomes **modified**.

After that, you need to perform an **add** to let it be **staged**.

The final step is a commit.

git commit

git commit –m "Little explanation of the changes made"

This command commits the staging area and stores the snapshots.

Be careful. It commits only what you put in the staging area.

git push

It stores the snapshots

git diff

If you need what are the changes made that are not in the staging area, you need to type **git diff.**

Pay attenction that it shows only what is not in the staging area.

If you want to see what there will be in the next commit, you need to use **git diff --chaced**

git rm

git rm filename.extension

It removes the specified file from the repository (and also from the disk!)

git mv

git mv "oldfilename.extension" "newfilename.extension"

It renames the old file with the name specified in the second parameter.

git log

It shows some informations about the previous commits, from the most recent to the oldest.

git undo

git reset HEAD filename.extension → removes a file from the staging area

git checkout --nomefile → removes a file from the staging area and it restores its status to the last commit

git pull

The **git pull** command is used to **fetch** and download content from a remote repository and immediately update the local repository to match that content.

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Thank You