

Git Tutorial for Beginners - GitHub Version Control

This git tutorial for beginners will show you how to manage your code using remote repositories on GitHub. I will be showing how to use git and all of its commands. This video is geared towards beginners just learning how to use git as it only shows the basics of git.

Step 1: Installation

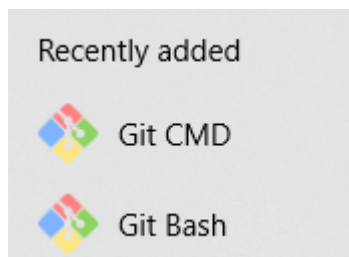
Download and install GIT:

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

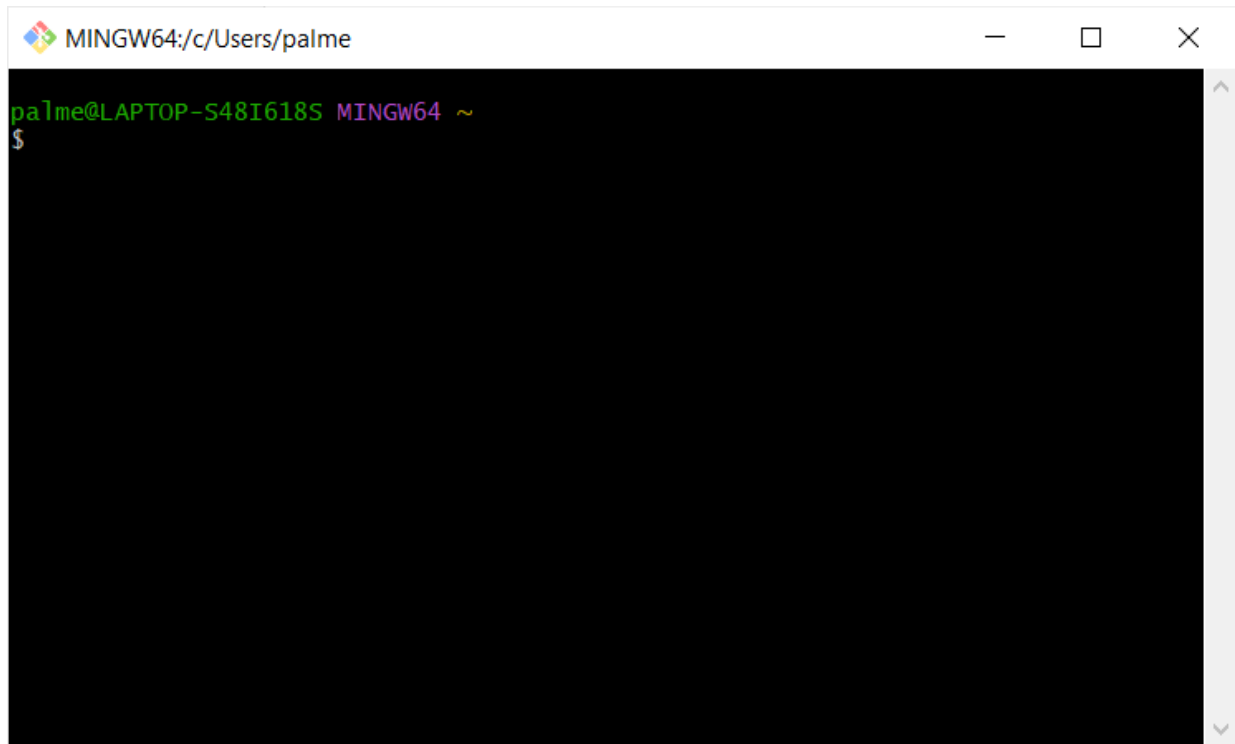
It is good to keep the default settings unless you know what you are changing.

Step 2: Local repository creation

If you are on Microsoft Windows, you will find git CMD and git bash on your computer:



本教程采用git Bash，其界面如下。



首先，我们进入需要创建为库的文件夹（本教程中以路径 `D:\04_coding\Python\00_Projects\00_gitTutorial\gitTutorial` 为例），在 git Bash 中输入以下 commands to change our working directory to the target one:

```
cd d:/  
cd 04_coding/Python/00_Projects/00_gitTutorial/gitTutorial/
```

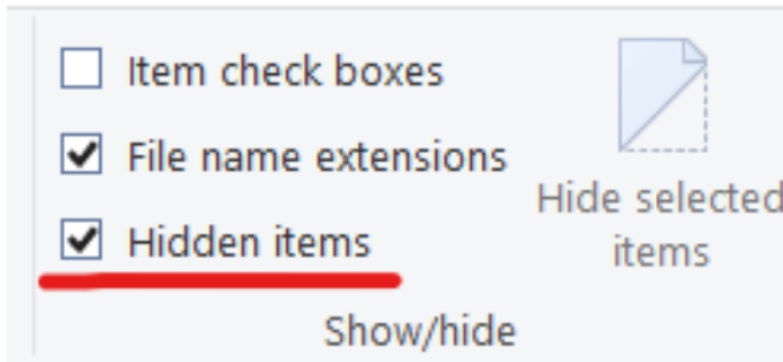
Note that we use forward slash (/) as the path separator rather than backward slash (\) in git Bash. Then we can initialize the repository by:

```
git init
```

命令执行后，git Bash 将返回以下内容：

```
$ git init  
Initialized empty Git repository in D:/04_coding/Python/00_Projects/00_gitTutorial/gitTutorial/.git/  
palme@LAPTOP-S48I618S MINGW64 /d/04_coding/Python/00_Projects/00_gitTutorial/gitTutorial (master)
```

Now you should see a hidden folder named `.git` in the target directory if the `show hidden items` is activated as below:



创建文件命令：

```
touch readme.md
```

文件创建但并不意味这在repository里面，而是需要将文件添加进去后才能有效执行commit. 我们使用以下命令将目录下所有文件添加进去并查看git的状态：

```
git add ./
git status
```

```
palme@LAPTOP-S48I618S MINGW64 /d/04_coding/Python/00_Projects/00_gitTutorial/gitTutorial (master)
$ git add .

palme@LAPTOP-S48I618S MINGW64 /d/04_coding/Python/00_Projects/00_gitTutorial/gitTutorial (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   Git Tutorial for Beginners - GitHub Version Control.md
        new file:   readme.md
```

这是，我们就可以提交修改了：

```
git commit -m "first change"
```

```
palme@LAPTOP-S48I618S MINGW64 /d/04_coding/Python/00_Projects/00_gitTutorial/gitTutorial (master)
$ git commit -m "first change"
[master (root-commit) ea4c1cf] first change
2 files changed, 84 insertions(+)
create mode 100644 Git Tutorial for Beginners - GitHub Version Control.md
create mode 100644 readme.md
```

删除现有文件(for example, the `readme.md` file):

```
git rm --cached readme.md  
git status
```

we've delete the file and we can commit it to the repository then:

```
git commit -m "delete readme.md"  
git status
```

此时文件夹下的 `readme.md` 文件已经不被追踪了，但还需要手动删除。如果想还原该文件则可以：

```
git checkout -- readme.md
```

查看git状态命令：

```
git status
```

Difference between git Bash and git CMD¹

Git CMD is just like regular Windows command prompt with the `git` command. It lets you use all of Git features through command line. Useful if you are already familiar with `windows cmd` and you only work on Windows.

Git Bash emulates a bash environment on windows. It lets you use all git features in command line plus most of [standard unix commands](#). Useful if you are used to Linux and want to keep the same habits.

Step 3: Create and merge branches

create and switch to the branch named `login`:

```
git branch login  
git checkout login
```

此时我们可以在本地文件夹下对文件做任意修改或者创建新文件，并添加 and commit to the repository。然后我们在切换回原来的 master 分支，会发现文件并没有被更改：

```
git branch master
```

If we want to merge the changes in branch login to the master, we need to switch to `master` and simply type:

```
git merge login
```

Step 4: Set up a remote repository

注意，`git remote add <name> <url>` 中的 `<name>` 一旦确定，不能更改，对任何分支都是一样的！

```
git remote add gittutorial  
https://github.com/binyang424/CollaborationTest.git
```

使用 `git push -u <name> <branch>` 将本地内容推送到远程仓库：

```
git push -u gittutorial master  
git push -u gittutorial login
```

此时，远程仓库里应该有了和本地一样的文件。使用以下方式可以使每次推送都包含推送人的信息：

```
git config --global user.name Bin Yang  
git config --global user.email bin.yang@polymtl.ca
```

修改库 `url` 地址可以使用以下方式：

```
git remote set-url gittutorial  
https://github.com/binyang424/test.git
```

版本回退

```
git log
```

or

```
git log --pretty=oneline
```

退回到上一个版本：

```
git reset --hard HEAD^
```

还可以根据版本号再选择回到最新的版本，如果不记得版本号可以使用 `git reflog` 查看所有的操作命令及其对应版本号。

```
git reset --hard 62dcc
```

Git在内部有个指向当前版本的 `HEAD` 指针，当你回退版本的时候，Git仅仅是把HEAD从指向 `append GPL`，因此实际操作起来速度很快。

Step 5: Clone a repository to local machine

创建文件夹

```
mkdir chess  
cd chess  
git init  
git pull <url>
```

Rename or move files in git²

We can use the `git mv` command in git to rename and move files. The syntax is shown below.

Syntax

Rename file

```
git mv <options> oldFilename newFilename
```

- `oldFilename`: The name of the file that we rename
- `newFilename`: The new name of the file

Options

The options we can use with the `mv` command are:

- `[-f]`: Force move or rename operation. Moves or renames the file even if another file of the same name exists.
- `[-n]`: Does not do the actual operation; only shows what would happen.
- `[-k]`: Skips operation that can cause an error.
- `[-v]`: Report the filenames as they are renamed or moved.

Move file

```
git mv filename foldername
```

- `filename`: The name of the file that is moved
- `foldername`: The name of the folder where the file is moved

Code

Consider the code snippet below which demonstrates the use of the `mv` command:

```
git mv file1.txt file2.txt
git commit -m "file1.txt renamed to file2.txt"
```

Note that although the code snippet above renames the file `file1.txt` to `file2.txt` using the `mv` command, it actually deletes the file `file1.txt` and creates a new file `file2.txt` that has the same contents as `file1.txt`.

Reference:

[Git Tutorial for Beginners - GitHub Version Control - YouTube](#)

1. [Difference between Git GUI, Git Bash, Git CMD - Stack Overflow](#) 
2. [How to rename or move files in git](#) 