

# Git and Github Example and Tutorial

## Sync with Multiple Repositories, Store Password etc.

Go back to [fan's Tex4Econ and Miscellaneous Repository](#).

### 1 Download Programs

1. Install [git for windows](#): after install, try “cd ~/PyFan”
2. Install [atom](#)
3. Might need to install [putty](#) possibly

### 2 git and Github Security Set-up

1. open up git bash
2. generate rsa
  - `ssh-keygen -t rsa -C "wangfanbg75@live.com"`
  - when prompted, do not enter “file in which save the key”, when prompted for passphrase, enter “WHATEVERPASSWORDIS”
3. copy key
  - WINDOWS: `clip < ~/.ssh/id_rsa.pub`
  - LINUX: `cat ~/.ssh/id_rsa.pub`
4. log on to github ssh section, generate new ssh rsa key
  - SSH and GPG keys, choose New SSH key, paste in clipped text.

```
# inside git bash
ssh-keygen -t rsa -C "wangfanbg75@live.com"
# this copies the text in the .pub file generated
clip < ~/.ssh/id_rsa.pub
```

### 3 Start and Sync Key Repositories

Inside git bash (open as *administrator*), Sync Several Key Repositories that should be synced on all computers:

1. fanwangecon.github.io: Github root repo
2. PyFan: Private Repo with Python Support Files
3. [Tex4Econ](#): Latex, installation, and various other support files, public repo.
4. [R4Econ](#): Public repo, R package, R research programs
5. [M4Econ](#): Public repo, Matlab package, Matlab examples and research files
6. [Py4Econ](#): Public repo, Python package, Python research programs
7. Teaching: Private teaching repository

Other repositories can be synced when needed on an ad-hoc basis. The repositories above are essential repositories.

#### 3.1 Repo Folders and Global config

Remember git bash or bash should be in windows opened as *administrator*.

```
# cd to root folder
cd ~
# generate all needed key repositories
mkdir fanwangecon.github.io PyFan Tex4Econ R4Econ M4Econ Py4Econ Teaching

# Set global config settings, in ~/.gitconfig
git config --global user.name "Fan Wang"
git config --global user.email wangfanbsg75@live.com
```

### 3.2 Inititalize and add remote repo for each:

```
# Initialize Repositories
cd ~/fanwangecon.github.io
git init
git remote add github git@github.com:fanwangecon/fanwangecon.github.io.git
cd ~/PyFan
git init
git remote add github git@github.com:fanwangecon/PyFan
cd ~/Tex4Econ
git init
git remote add github git@github.com:fanwangecon/Tex4Econ
cd ~/R4Econ
git init
git remote add github git@github.com:fanwangecon/R4Econ
cd ~/M4Econ
git init
git remote add github git@github.com:fanwangecon/M4Econ
cd ~/Py4Econ
git init
git remote add github git@github.com:fanwangecon/Py4Econ
cd ~/Teaching
git init
git remote add github git@github.com:fanwangecon/Teaching
```

### 3.3 Sync Repo in SSH Secure Session

Pull latested from multiple repositories. Just Paste the following lines.

1. start ssh-agent secure session
2. pull from multiple Repositories upon start of working session.
3. commit changes as work on one computer
4. upon leaving a computer with committed changes, push all
5. create bash file to make it easier to repeat steps

Start and end ssh session:

```
# To avoid having to enter password each time, start background authentication agent.
eval "$(ssh-agent)"
ssh-add ~/.ssh/id_rsa

# to stop the ssh session
kill $SSH_AGENT_PID
```

Pull from repos:

```

# Pull from Repositories, do these one by one first
cd ~/fanwangecon.github.io
git pull github master
cd ~/PyFan
git pull github master
cd ~/Tex4Econ
git pull github master
cd ~/R4Econ
git pull github master
cd ~/M4Econ
git pull github master
cd ~/Py4Econ
git pull github master
cd ~/Teaching
git pull github master

```

Push from repos committed changes

```

# Push to Repositories, do these one by one first
cd ~/fanwangecon.github.io
git push -u github master
cd ~/PyFan
git push -u github master
cd ~/Tex4Econ
git push -u github master
cd ~/R4Econ
git push -u github master
cd ~/M4Econ
git push -u github master
cd ~/Py4Econ
git push -u github master
cd ~/Teaching
git push -u github master

```

to create bash file to store these (from git bash in windows):

```

# store bash file in ~\PyFan\bin
mkdir ~/PyFan/bin
cd ~/PyFan/bin

# create bash file
vim pull_repos
vim push_repos

# paste the text below over, confirm bash loc with: which bash
#!/usr/bin/bash
echo start fan github pull
# Security
eval "$(ssh-agent)"
ssh-add ~/.ssh/id_rsa
# Pull from Persistent Repos
cd ~/fanwangecon.github.io
git pull github master
# Stop Secured SSH
kill $SSH_AGENT_PID

```

```
# change permission to make file an executable  
chmod u+x ~/PyFan/bin/pull_repos  
chmod u+x ~/PyFan/bin/push_repos  
# execute script  
bash ~/PyFan/bin/pull_repos
```