Git基础

从入门到工作2020版

Git是什么？Github是什么？

- Git是一个代码版本管理的工具
- Github是一个网站，用来存放代码

Github项目管理

在Github网站直接创建项目、文件增删改查

命令行管理项目（场景1）

clone已有项目到本地、命令行管理、推送到github

clone到本地

- ## git clone git@github.com:xxx/yyy.git

✓ **注意**

- 项目地址用git@ 开头的地址
- 遇到图1卡住时输入: yes
- 遇到图2报错(Permission denied)时，需要先配置通信公钥

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ git clone git@github.com:jirengu/test-project.git
Cloning into 'test-project'...
The authenticity of host 'github.com (52.74.223.119)' can't be established.
RSA key fingerprint is SHA256:nThbg6kXUpJWGl7E1IGOCspRomTxdCARLviKw6E5SY8.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes_
```

图1

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ git clone git@github.com:jirengu/test-project.git
Cloning into 'test-project'...
Warning: Permanently added the RSA host key for IP address '13.250.177.223' to the list of known hosts.
git@github.com: Permission denied (publickey).
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
```

图2

clone到本地

- ## git clone git@github.com:xxx/yyy.git
- ✓ 注意
  - 项目地址用git@ 开头的地址
  - 遇到图1卡住时输入: yes
  - 遇到图2报错(Permission denied)时，需要先配置通信公钥

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
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图1

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
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Warning: Permanently added the RSA host key for IP address '13.250.177.223' to the list of known hosts.
git@github.com: Permission denied (publickey).
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
```

图2

配置公钥

1. 打开Gitbash（或者终端）
2. 粘贴如下代码
   - ✓ ssh–keygen –t rsa –b 4096 –C "your_email@example.com"
   - ✓ 字符串里的邮箱替换为github注册邮箱
   - ✓ 注意命令之间的空格
3. 一直按回车
   - ✓ 生成 ~/ssh/id_rsa.pub 公钥文件
4. 把公钥文件里的内容拷贝到github的个人设置里

配置公钥（图）

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ ssh-keygen -t rsa -b 4096 -C "hunger@jirengu.com"
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/ruoyu/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/ruoyu/.ssh/id_rsa.
Your public key has been saved in /c/Users/ruoyu/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:cJ1e6k6ZfH8wsvKpuwH7B93bTsyA9NMc/7xizCg+MGs hunger@jirengu.com
The key's randomart image is:
+---[RSA 4096]----+
|                 |
|      . .        |
|     . . o o  .  |
|      o . + o oo |
|       S o...+ + |
|      o =.oo +*. |
|       = B.=o =* |
|      E *.+oB..+ |
|       . ..OB+ o+.|
+----[SHA256]-----+

ruoyu@BEAA MINGW64 ~/project/     (master)
$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQCvMvvZG4DoAzKlXv8icS4M1MWo2ym5uyCb57ml28UP3mWa/fzOiuYPeAV2F9kPTjejFrGJO3e0fRMJ8Nmz
lo2k86Jodu7oCatXeHYBBtqCpQDSxdocRHXDyfwaQPYHketalSw7UITojSA2O1z1FMJoYah5HMr5z9jUYds0CPSej208IJDqml0VJVRGexl3aWgHoM4eiuYo
Cho32V6aF1uAUQ2HNB7Larvv73GORAijakdgU6GnTSAjFidoIw0RJye4CLPFcR96YjbEGMMyNvS0+epQRRHJSBmIGQTsY+ELNWOlEbqPCcyQ/RSGYjcvnSOe
UkgMl+x/U+1IB8FL4E27NBO13bigGecduuHwBK71YaaLk5Gxtsspi+H+9g8fcRDjox2j6TvAT/4BfNxvOZ4s8tG94O7x8a15qgp7lyAwZoer/8oe4/LcPFYXx
1NwfSq1VECNhlTK6gjTPu7hEHx92Cenku/q/PWeqnl3QccW/mo1t+ZLxFzgZ+LGmTGrYsRsXE5vRXtOg91aVfPHK5UA6LIL++GntnAMyVm1Csr/+v9cMPO+Z
IdjagrzYx2U19gTn+IpJDleb/M9iDz7Bc56s1iL7Lu8eDwYGGCWVzQxQyzzQztCHr49W3CKC5XU4YkTOR4wdVn5GqjzL4tV6xR8j1+zuMl4hJ25y/KubiVA7
JQ== hunger@jirengu.com
```
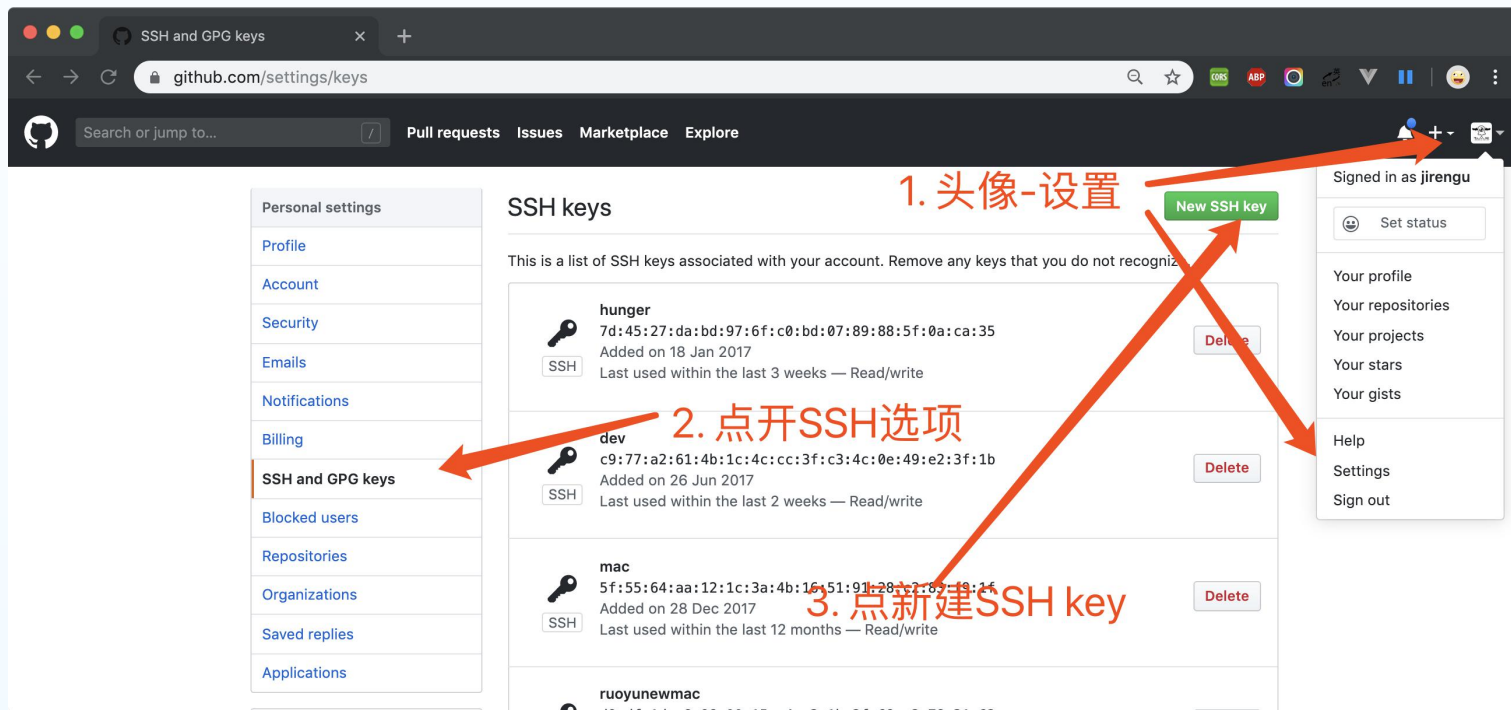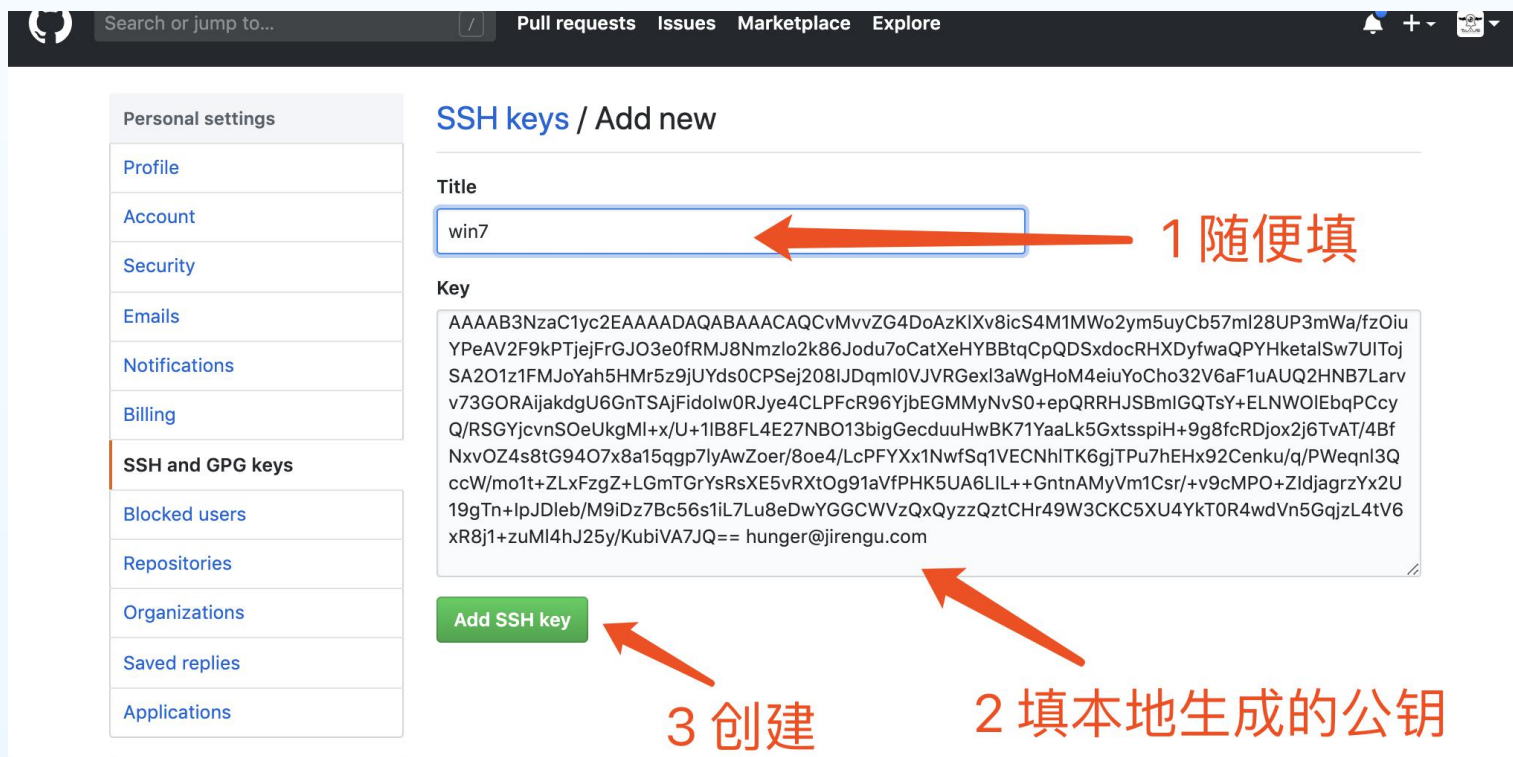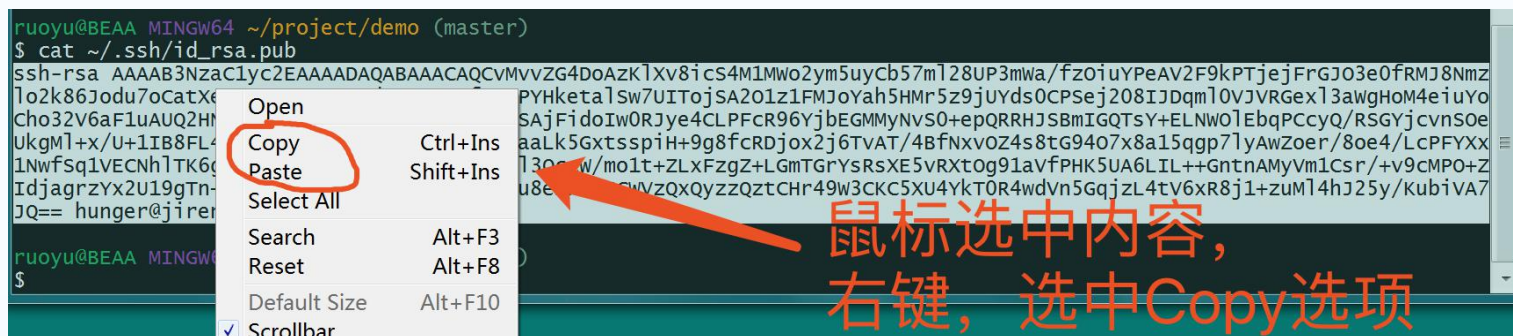
执行这个命令

这里一直按回车

cat命令查看公钥文件内容

配置公钥（图）

配置公钥（图）

再次执行clone到本地

✓ 配置好公钥后再次执行clone操作
✓ 执行成功

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ git clone git@github.com:jirengu/test-project.git
Cloning into 'test-project'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
Receiving objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
```

新增文件

- 切换进项目目录新增一个文件
  - ✓ 注意一定要先切换到项目目录，再操作

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ cd test-project

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ ls
README.md

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ touch index.html
```

提交到本地仓库

- 执行
- ✓ git add .
- ✓ git commit –am "add new file"

- ✓ 注意：
  - 命令行不要写错，比如点、空格
  - 引号里面的内容可以随便填
  - 第一次执行commit可能不会成功出现如下报错

```
ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git add .

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git commit -am "add new file"

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'ruoyu@BEAA.(none)')
```

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设置邮箱和名字

- 按提示先执行
  - ✓ git config ––global user.name "abc@xyz.com"
  - ✓ git config ––global user.name "yourname"

- 然后再次commit：
  - ✓ git commit –am "add new file"

```
ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git config --global user.email "hunger@jirengu.com"

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git config --global user.name "ruoyu"

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git commit -am "add new file"
[master 4ba3b12] add new file
 1 file changed, 3 insertions(+)
 create mode 100644 index.html
```

推送到远程仓库

- 执行
  - ✓ git push origin master

```
ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 6 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 299 bytes | 299.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To github.com:jirengu/test-project.git
   4ba3b12..20e44dd  master -> master
```

常见报错

- ## clone时报错提示没权限

```
ruoyu@BEAA MINGW64 ~/project/demo (master)
$ git clone git@github.com:jirengu/test-project.git
Cloning into 'test-project'...
Warning: Permanently added the RSA host key for IP address '13.250.177.223' to the list of known hosts.
git@github.com: Permission denied (publickey).
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
```

✓ 原因：未配置公钥
✓ 解决：需先配置公钥

常见报错

- ## 提示不是一个git仓库

```
ruoyu@BEAA MINGW64 ~/project/demo
$ git add .
fatal: not a git repository (or any of the parent directories): .git
```

✓ 原因：没在仓库目录操作
✓ 解决：需要先 cd 到git仓库目录

常见报错

- ## Windows出现如下警告

```
ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git add .
warning: LF will be replaced by CRLF in index.html.
The file will have its original line endings in your working directory
```

✓ 原因：文件内容里有回车换行，未提前配置换行方式

✓ 解决：执行 git config --global core.autocrlf input

常见报错

- ## commit失败

```
ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git add .

ruoyu@BEAA MINGW64 ~/project/demo/test-project (master)
$ git commit -am "add new file"

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'ruoyu@BEAA.(none)')
```

✓ 原因：为提前配置用户名和邮箱。只需配置一次即可
✓ 解决：执行
  - git config --global user.email "xx@yy.com"
  - git config --global user.name "xx"

命令行管理项目（场景2）

本地命令行创建项目、推送到github

操作流程

- Github上创建新的空项目
  ✓ 获取空项目的地址，如 git@github.com:jirengu/test-project.git

- 本地操作
  ✓ mkdir myproject
  ✓ cd myproject
  ✓ echo "hello world" >> index.html
  ✓ git add .
  ✓ git commit –am "add some file"
  ✓ git remote add origin git@github.com:jirengu/test-project.git
  ✓ git push origin master
  ✓ touch b.html
  ✓ git add .
  ✓ git commit –am "add new file"
  ✓ git push origin master

下次课讲Git进阶

不见不散