

Virtualenv

一、实验介绍

1.1 实验内容

虚拟的 Python 环境（简称 venv）是一个能帮助你在本地目录安装不同版本的 Python 模块的 Python 环境，你可以不再需要在你系统中安装所有东西就能开发并测试你的代码。

1.2 实验知识点

- virtualenv 的安装
- 创建虚拟环境
- 激活虚拟环境
- 使用多个虚拟环境
- 关闭虚拟环境

1.3 实验环境

- python3.5
- Xfce终端
- Vim

1.4 适合人群

本课程属于初级级别课程，不仅适用于那些有其它语言基础的同学，对没有编程经验的同学也非常友好

二、实验步骤

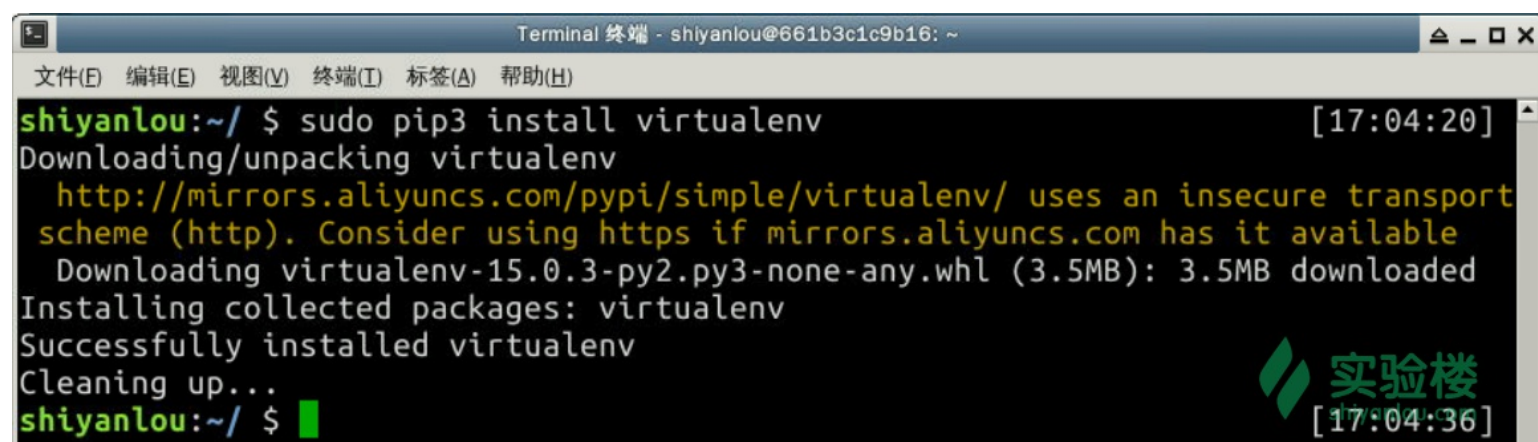
2.1 安装

首先安装 pip3。

```
$ sudo apt-get update  
$ sudo apt-get install python3-pip
```

用如下命令安装 virtualenv：

```
$ sudo pip3 install virtualenv
```

A terminal window titled "Terminal 终端 - shiyanlou@661b3c1c9b16: ~" showing the command "sudo pip3 install virtualenv" being executed. The output shows the download and installation of virtualenv-15.0.3. A warning message is displayed about using an insecure transport scheme (http) for the mirror mirrors.aliyuncs.com. The installation is successful, and the terminal shows the prompt "shiyanlou:~/ \$". The time [17:04:36] is shown in the bottom right corner. A logo for "实验楼" (Experiment Building) is visible in the bottom right corner of the terminal window.

```
Terminal 终端 - shiyanlou@661b3c1c9b16: ~  
文件(E) 编辑(E) 视图(V) 终端(T) 标签(A) 帮助(H)  
shiyanlou:~/ $ sudo pip3 install virtualenv [17:04:20]  
Downloading/unpacking virtualenv  
http://mirrors.aliyuncs.com/pypi/simple/virtualenv/ uses an insecure transport  
scheme (http). Consider using https if mirrors.aliyuncs.com has it available  
Downloading virtualenv-15.0.3-py2.py3-none-any.whl (3.5MB): 3.5MB downloaded  
Installing collected packages: virtualenv  
Successfully installed virtualenv  
Cleaning up...  
shiyanlou:~/ $ [17:04:36]
```

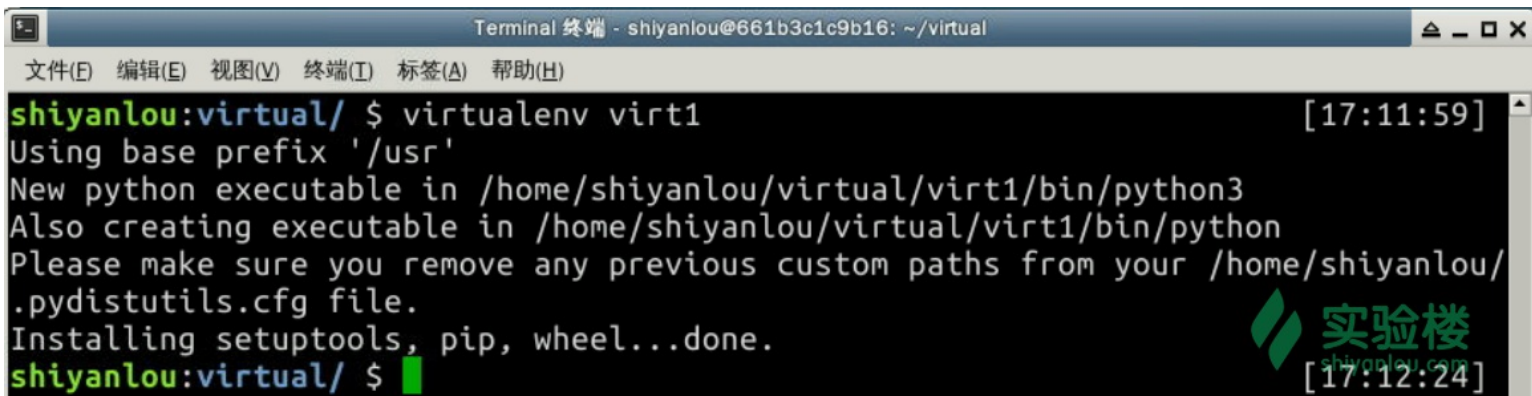
2.2 用法

我们会创建一个叫做 virtual 的目录，在里面我们会有两个不同的虚拟环境。

```
$ mkdir virtual
```

下面的命令创建一个叫做 virt1 的环境。

```
$ cd virtual
$ virtualenv virt1
```



```
Terminal 终端 - shiyanlou@661b3c1c9b16: ~/virtual
文件(E) 编辑(E) 视图(V) 终端(T) 标签(A) 帮助(H)
shiyanlou:virtual/ $ virtualenv virt1 [17:11:59]
Using base prefix '/usr'
New python executable in /home/shiyanlou/virtual/virt1/bin/python3
Also creating executable in /home/shiyanlou/virtual/virt1/bin/python
Please make sure you remove any previous custom paths from your /home/shiyanlou/.pydistutils.cfg file.
Installing setuptools, pip, wheel...done.
shiyanlou:virtual/ $ [17:12:24]
```

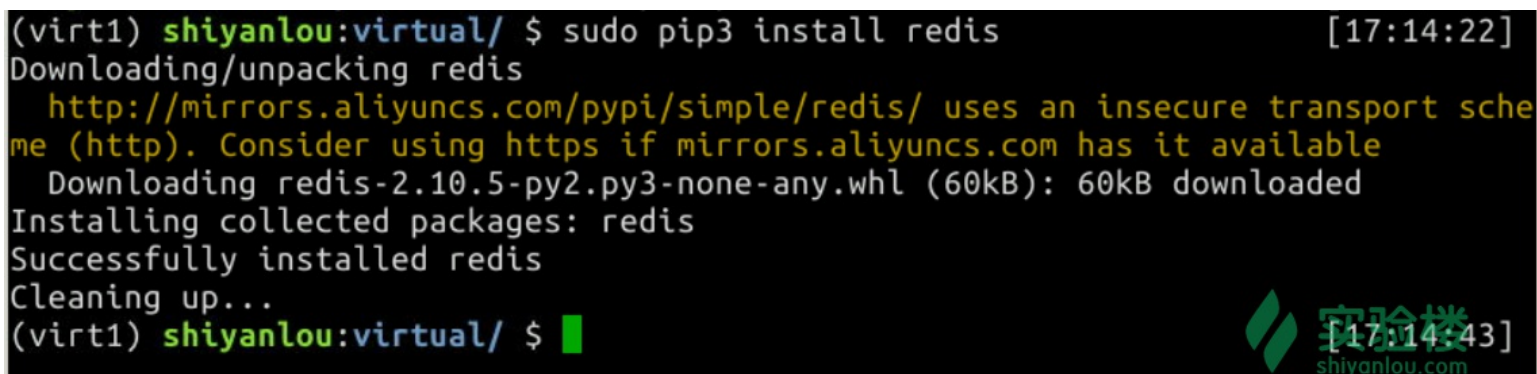
现在我们激活这个 virt1 环境。

```
$ source virt1/bin/activate
(virt1)shiyanlou: ~/$
```

提示符的第一部分是当前虚拟环境的名字，当你有多个环境的时候它会帮助你识别你在哪个环境里面。

现在我们将安装 redis 这个 Python 模块。

```
(virt1)$ sudo pip3 install redis
```



```
(virt1) shiyanlou:virtual/ $ sudo pip3 install redis [17:14:22]
Downloading/unpacking redis
http://mirrors.aliyuncs.com/pypi/simple/redis/ uses an insecure transport scheme (http). Consider using https if mirrors.aliyuncs.com has it available
Downloading redis-2.10.5-py2.py3-none-any.whl (60kB): 60kB downloaded
Installing collected packages: redis
Successfully installed redis
Cleaning up...
(virt1) shiyanlou:virtual/ $ [17:14:43]
```

使用 deactivate 命令关闭虚拟环境。

```
(virt1)$ deactivate
$
```

现在我们将创建另一个虚拟环境 virt2，我们会在里面同样安装 redis 模块，但

版本是 2.8 的旧版本。

```
$ virtualenv virt2
$ source virt2/bin/activate
(virt2)$ sudo pip3 install redis==2.8
```

```
(virt2) shiyanlou:virtual/ $ sudo pip3 install redis==2.8 [17:18:18]
Downloading/unpacking redis==2.8
  http://mirrors.aliyuncs.com/pypi/simple/redis/2.8 uses an insecure transport scheme (http). Consider using https if mirrors.aliyuncs.com has it available
  http://mirrors.aliyuncs.com/pypi/simple/redis/ uses an insecure transport scheme (http). Consider using https if mirrors.aliyuncs.com has it available
  Downloading redis-2.8.0.tar.gz (286kB): 286kB downloaded
  Running setup.py (path:/tmp/pip_build_root/redis/setup.py) egg_info for package redis

Installing collected packages: redis
  Found existing installation: redis 2.10.5
  Uninstalling redis:
    Successfully uninstalled redis
  Running setup.py install for redis

Successfully installed redis
Cleaning up...
(virt2) shiyanlou:virtual/ $ [17:18:45]
```

这样可以为你的所有开发需求拥有许多不同的环境。

三、总结

永远记住当开发新应用时创建虚拟环境，这会帮助你的系统模块保持干净。

*本课程内容，由作者授权实验楼发布，未经允许，禁止转载、下载及非法传播。

上一节：迭代器、生成器、装饰器 (/courses/596/labs/2050/document)

下一节：测试 (/courses/596/labs/2052/document)