



# **Windard's Python Book**

**Windard**

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## Python-Book

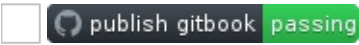
	1.1
	1.2
<a href="#">os</a>	1.2.1
<a href="#">sys</a>	1.2.2
<a href="#">re</a>	1.2.3
<a href="#">json</a>	1.2.4
<a href="#">logging</a>	1.2.5
<a href="#">ast</a>	1.2.6
<a href="#">ply</a>	1.2.7
	1.3
<a href="#">requests</a>	1.3.1
	1.4
	1.5
	1.6
	1.7

## About

<a href="#">Github Project</a>	2.1
<a href="#">My Blog</a>	2.2

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**Python**



python

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[Python](#) | [PythonImagingLibrary](#)

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[Python](#) | [Python Cookbook 3rd Edition Documentation](#)

Python



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python python

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## OS

```
1. -- os.getcwd
2. -- os.chdir
3. -- os.mkdir
4. -- os.makedirs
5. ,-- os.rmdir
6. ,-- os.removedirs
7. -- os.listdir
|
8. -- os.remove
9. -- os.unlink
10. -- os.rename(old new)
11. -- os.path.getsize
12. -- os.stat
13. -- os.chmod
14. -- os.path.join(path, file)
15. -- os.path.split
16. -- os.path.splitext
17. -- os.path.dirname
18. -- os.path.basename
19. -- os.path.isdir
20. -- os.path.isfile
21. ——— os.path.exists
22. -- os.path.isabs
23. -- os.path.abspath os.path.realpath
|   os.path.abspath(os.path.dirname(__file__))
|   os.path.dirname(os.path.abspath(__file__)) os.path.abspath(os.curdir)
24. -- os.path.relpath(path, start)
25. -- os.getenv os.putenv
26. -- os.path.expanduser('~')
27. -- os.name
|   Windows nt Linux/Unix/Mac posix
28. -- os.sep
|   Windows \ Linux / Mac OS /
29. -- os.linesep
|   Windows \r\n ,Linux \n , Mac OS \r Mac \n
30. -- os.pathsep
|   Windows ; Linux : Mac OS :
31. shell-- os.system
```

```

| print
32. shell-- os.popen
| file openreadcommands
33. shell -- os.execlp
| os.execlp('ls','')
34. -- os._exit
| os._exit(0) sys.exit
35. -- os.walk
|
36. -- os.environ
| HTTP
37. -- os.urandom
| os.urandom(num) num ASCII
38. -- os.access(filename, privilege)
39. -- os.fork
| linux unix windows
40. pid-- os.getpid
41. pid-- os.getppid
42. -- os.kill
| os.kill(os.getpid(), 9)

```

```

# coding=utf-8

import os

currentpath = os.getcwd()
print currentpath
changedpath = 'C:\\Users\\dell\\Desktop'
os.chdir(changedpath)
currentpath = os.getcwd()
print currentpath
os.mkdir('hello')
changedpath = changedpath + '\\hello'
print changedpath
os.chdir(changedpath)
currentpath = os.getcwd()
print currentpath
os.makedirs('hello\\hello')
changedpath = changedpath + '\\hello\\hello'
print changedpath
os.chdir(changedpath)
currentpath = os.getcwd()
print currentpath
os.chdir('../')
currentpath = os.getcwd()

```

```
print currentpath
currentlist = os.listdir(currentpath)
print currentlist
os.rmdir('hello')
currentlist = os.listdir(currentpath)
print currentlist
os.chdir('../..')
currentpath = os.getcwd()
currentlist = os.listdir(currentpath)
print currentlist
os.removedirs('hello\\hello')
currentlist = os.listdir(currentpath)
print currentlist
FILE1 = open('test1.txt', 'w')
FILE1.close()
FILE2 = open('test2.txt', 'w')
FILE2.close()
currentlist = os.listdir(currentpath)
print currentlist
os.remove('test1.txt')
currentlist = os.listdir(currentpath)
print currentlist
os.rename('test2.txt', 'newtest.txt')
currentlist = os.listdir(currentpath)
print currentlist
FILE = open('newtest.txt', 'w')
FILE.write('THis is for test')
FILE.close()
FILESIZE = os.path.getsize('newtest.txt')
print FILESIZE
FILESTAT = os.stat('newtest.txt')
print FILESTAT
currentpath = currentpath + "\\newtest.txt"
print currentpath
(splitpath, splitfile) = os.path.split(currentpath)
print splitpath
print splitfile
(splitpath, splitfile) = os.path.splitext(currentpath)
print splitpath
print splitfile
splitpath = os.path.dirname(currentpath)
splitfile = os.path.basename(currentpath)
print splitpath
print splitfile
isdir = os.path.isfile(currentpath)
isfile = os.path.isdir(currentpath)
print isdir
print isfile
os.remove('newtest.txt')
currentpath = os.path.dirname(currentpath)
isdir = os.path.isfile(currentpath)
isfile = os.path.isdir(currentpath)
print isdir
```

```

print isfile
isexist = os.path.exists(currentpath)
print isexist
isabs = os.path.isabs(currentpath)
print isabs
osname = os.name
print osname
linesep = os.linesep
print linesep
os.system('dir')

```

os\_demo.py

```

C:\Users\de11\.ssh\Python_Lib>python os_demo.py
C:\Users\de11\.ssh\Python_Lib
C:\Users\de11\Desktop
C:\Users\de11\Desktop\hello
C:\Users\de11\Desktop\hello
C:\Users\de11\Desktop\hello\hello\hello
C:\Users\de11\Desktop\hello\hello\hello
C:\Users\de11\Desktop\hello\hello
['hello']
[]
['desktop.ini', 'hello', 'SOMETHING']
['desktop.ini', 'SOMETHING']
['desktop.ini', 'SOMETHING', 'test1.txt', 'test2.txt']
['desktop.ini', 'SOMETHING', 'test2.txt']
['desktop.ini', 'newtest.txt', 'SOMETHING']
16
nt.stat_result(st_mode=33206, st_ino=0L, st_dev=0L, st_nlink=0, st_uid=0, st_gid=0, st_size=16L, st_atime=1444984570L, st_mtime=1444984
70L, st_ctime=1444984570L)
C:\Users\de11\Desktop\newtest.txt
C:\Users\de11\Desktop
newtest.txt
C:\Users\de11\Desktop\newtest
.txt
C:\Users\de11\Desktop
newtest.txt
True
False
False
True
True
True
True
nt

驱动器 C 中的卷没有标签。
卷的序列号是 32D7-EC2A

C:\Users\de11\Desktop 的目录
2015/10/16 16:36 <DIR> .
2015/10/16 16:36 <DIR> ..
2015/10/16 16:05 <DIR> SOMETHING
0 个文件 0 字节

```

```

# coding=utf-8

import os

print "File Name: ",__file__
print "Exist File ? ",os.access(__file__,os.F_OK)
print "Read File ? ",os.access(__file__,os.R_OK)
print "Write File ? ",os.access(__file__,os.W_OK)
print "Execute File ? ",os.access(__file__,os.X_OK)

```

```

File Name: /home/windard/github/Python_Lib/code/os_access.py
Exist File ? True
Read File ? True
Write File ? True
Execute File ? False

```



## ubuntu

```
# coding=utf-8

import os

# pid = os.fork()

# if pid:
#     print "Child Pid : %s, Current Pid %s"%(pid,os.getpid())
# else:
#     print "I am the child,Current Pid %s"%(os.getpid())

def create_child():
    pid0=os.getpid()
    print ' ',pid0

    try:
        pid1=os.fork()
    except OSError:
        print u'fork'
        exit()

    if pid1 < 0:
        print u''
    elif pid1==0:
        print ' pid:%d pid: %d: %d ' %(pid1,os.getpid(),o
s.getppid())
    else:
        print ' pid:%d :%d ,: %d ' %(pid1,os.getpid(),os.
getppid())

    print ', '

create_child()
```

```
29511
pid:29512 :29511 ,: 9372
,
pid:0 pid: 29512: 29511
,
```

## shell

```
import os
shell = "dir"
print os.system(shell)
```

os\_shell.py

```

Directory of C:\Users\dell\.ssh\Python_Lib\code
2015/11/17  00:22      <DIR>          .
2015/11/17  00:22      <DIR>          ..
2015/11/15  22:58          588 163mail_smtp_demo.py
2015/11/11  19:26          748 163mail_smtp_html.py
2015/11/11  20:19       1,097 163mail_smtp_multipart.py
2015/10/16  17:26          413 argparse_add_argument.py
2015/10/17  14:01          157 argparse_chose.py
2015/10/16  20:43          628 argparse_count.py
2015/10/16  17:11           74 argparse_demo.py
2015/10/24  12:27          173 base64_demo.py
2015/10/24  12:24          141 base64_encode.py
2015/10/18  19:06          279 create.php
2015/11/11  20:57          644 envelopes_demo.py
2015/10/24  12:00          118 hash_sha1.py
2015/11/15  11:22          385 imageDraw_demo.py
2015/11/15  11:29          552 imageEnhance_demo.py
2015/11/15  15:39          164 imageFilter_demo.py
2015/11/15  12:19          215 imageFont_demo.py
2015/11/14  14:41          548 image_change.py
2015/11/15  14:52          953 image_code.py
2015/11/14  15:10          415 image_create.py
2015/11/13  21:29           64 Image_demo.py
2015/11/15  11:07          159 image_histogram.py

```

os.walk()

```

import os

dirlist = r"C:\Users\dell\Desktop\2048"
filenum = 0
dirnum = 0
for i,j,k in os.walk(dirlist):
    print i
for i,j,k in os.walk(dirlist):
    for item in k:
        print item
    filenum = filenum + 1
    for index in range(len(k)):
        dirnum = dirnum + 1

print filenum
print dirnum

```

os\_walk.py

```

C:\Users\dell\.ssh\Python_Lib\code>python os_walk.py
C:\Users\dell\Desktop\2048
C:\Users\dell\Desktop\2048\css
C:\Users\dell\Desktop\2048\js
index.html
README.md
2048.css
jquery.min.js
main2048.js
showanimation2048.js
support2048.js
3
7

```

```
# coding=utf-8
import os

def showall(path, leavel=0, filenum=0, show=True):
    newnum = filenum
    currentpath = path;
    dirandfile = os.listdir(path)
    for item in dirandfile:
        newpath = os.path.join(currentpath, item)
        if os.path.isdir(newpath):
            num = showall(newpath, leavel+1, newnum, show)
            newnum = num
        else:
            newnum = newnum + 1
            tab_stop = ""
            if show:
                for tab in range(leavel):
                    tab_stop = tab_stop + " "
            print tab_stop + newpath

    return newnum

if __name__ == '__main__':
    num = showall('./', show=False)
    print "File Number : " + str(num)
```

```
# coding=utf-8

import os

environment = os.environ

for i,j in environment.items():
    print "%s : %s"%(i,j)
```

```
TMP : C:\Users\dell\AppData\Local\Temp
COMPUTERNAME : YANGWENQIANG
USERDOMAIN : YANGWENQIANG
GOROOT : C:\Go\
PSMODULEPATH : C:\Users\dell\Documents\WindowsPowerShell\Modules;C:\Program Files\Windows
PowerShell\Modules;C:\WINDOWS\system32\WindowsPowerShell\v1.0\Modules\
COMMONPROGRAMFILES : C:\Program Files (x86)\Common Files
PROCESSOR_IDENTIFIER : Intel64 Family 6 Model 69 Stepping 1, GenuineIntel
PROGRAMFILES : C:\Program Files (x86)
PROCESSOR_REVISION : 4501
PATH : C:\Python27\Lib\site-packages\PyQt4;C:\ProgramData\Oracle\Java\javapath;C:\Program
Files\Dell\DW WLAN Card;C:\Perl64\site\bin;C:\Perl64\bin;C:\Program Files (x86)\Common F
```

```
iles\Intel\Shared Files\cpp\bin\Intel64;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Program Files\WIDCOMM\Bluetooth Software\;C:\Program Files\WIDCOMM\Bluetooth Software\syswow64;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;D:\Program Files (x86)\QuickTime\QTSystem\;D:\Program Files\TorsoiseSVN\bin;C:\WINDOWS\system32;C:\WINDOWS;C:\WINDOWS\System32\Wbem;C:\WINDOWS\System32\WindowsPowerShell\v1.0\;C:\Python34;C:\Python27;C:\Perl64;C:\Program Files\Java\jdk1.8.0_60\bin;D:\Program Files (x86)\Sublime text2\Sublime2\Sublime2\Sublime;C:\Users\dell\AppData\Local\Google\Chrome\Application;C:\mingw;C:\Python27\Scripts;C:\Ruby22-x64;C:\PHP;C:\curl-7.33.0-win64-ssl-sspi;C:\curl-7.33.0-win64-ssl-sspi;C:\Program Files (x86)\MySQL\MySQL Server 5.7\bin;D:\Program Files (x86)\MySQL\MySQL Server 5.7\bin;C:\sqlite3;C:\Apache24\bin;C:\gunwin32\GetGnuWin32\bin;D:\Program Files (x86)\Tesseract-OCR;C:\Users\dell\.ssh\Python_Lib\project;C:\MinGW\bin;D:\Program Files\cmdr\bin;D:\Program Files\cmdr;C:\Users\dell\.ssh\Python_Lib\project;C:\Go\bin;C:\Program Files (x86)\Google\Chrome\Application;D:\Program Files\nodejs\;D:\Program Files\VMare\OVFTool;D:\Program Files (x86)\Git\cmd;D:\Program Files (x86)\Git\bin;C:\Ruby22-x64\bin;D:\Program Files (x86)\Nmap;C:\Users\dell\AppData\Roaming\npm
SYSTEMROOT : C:\WINDOWS
PROGRAMFILES(X86) : C:\Program Files (x86)
C_EM64T_REDIST11 : C:\Program Files (x86)\Common Files\Intel\Shared Files\cpp\
ASL.LOG : Destination=file
TESSDATA_PREFIX : D:\Program Files (x86)\Tesseract-OCR\
TEMP : C:\Users\dell\AppData\Local\Temp
WINDIR : C:\WINDOWS
COMMONPROGRAMFILES(X86) : C:\Program Files (x86)\Common Files
PROCESSOR_ARCHITECTURE : x86
ALLUSERSPROFILE : C:\ProgramData
LOCALAPPDATA : C:\Users\dell\AppData\Local
FPS_BROWSER_USER_PROFILE_STRING : Default
HOMEPATH : \Users\dell
USERDOMAIN_ROAMINGPROFILE : YANGWENQIANG
JAVA_HOME : C:\Program Files\Java\jdk1.8.0_60
PROGRAMW6432 : C:\Program Files
USERNAME : dell
LOGONSERVER : \\MicrosoftAccount
COMSPEC : C:\WINDOWS\system32\cmd.exe
PROGRAMDATA : C:\ProgramData
CLASSPATH : .;D:\Program Files (x86)\QuickTime\QTSystem\QTJava.zip;C:\Program Files\Java\jdk1.8.0_60\bin;C:\Program Files\Java\jdk1.8.0_60\lib\tools.jar;C:\Users\dell\Desktop\python\java
FPS_BROWSER_APP_PROFILE_STRING : Internet Explorer
AWE_DIR : D:\Program Files (x86)\Khrona LLC\Awesomium SDK\1.6.6\
SESSIONNAME : Console
PATHEXT : .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.PY;.RB;.RBW;.CPL
CONFIGSETROOT : C:\WINDOWS\ConfigSetRoot
FP_NO_HOST_CHECK : NO
QTJAVA : D:\Program Files (x86)\QuickTime\QTSystem\QTJava.zip
OPENSSL_CONF : C:\OpenSSL-Win32\bin\openssl.cfg
MOZ_PLUGIN_PATH : C:\Program Files (x86)\Foxit Software\Foxit Reader Plus\plugins\
HOMEDRIVE : C:
SYSTEMDRIVE : C:
NUMBER_OF_PROCESSORS : 4
APPDATA : C:\Users\dell\AppData\Roaming
PROCESSOR_LEVEL : 6
```

```
PROCESSOR_ARCHITECTURE : AMD64
COMMONPROGRAMW6432 : C:\Program Files\Common Files
OS : Windows_NT
PUBLIC : C:\Users\Public
USERPROFILE : C:\Users\de11
```

cgi header

```
# coding=utf-8

import os

environment = os.environ

print "Content-type:text/html\r\n\r\n"

for i,j in environment.items():
    print "%s : %s <br />"%(i,j)
```

```
ALLUSERSPROFILE:C:\ProgramData
APPDATA:C:\Users\de11\AppData\Roaming
ASL.LOG:Destination=file
AWE_DIR:D:\Program Files (x86)\Khrona LLC\Awesomium SDK\1.6.6\
C_EM64T_REDIST11:C:\Program Files (x86)\Common Files\Intel\Shared Files\cpp\
CLASSPATH:.;D:\Program Files (x86)\QuickTime\QTSystem\QTJava.zip;%JAVA_HOME%\bin;%JAVA_HO
ME%\lib\tools.jar;C:\Users\de11\Desktop\python\java
COMMONPROGRAMFILES:C:\Program Files (x86)\Common Files
COMMONPROGRAMFILES(X86):C:\Program Files (x86)\Common Files
COMMONPROGRAMW6432:C:\Program Files\Common Files
COMPUTERNAME:YANGWENQIANG
COMSPEC:C:\WINDOWS\system32\cmd.exe
CONFIGSETROOT:C:\WINDOWS\ConfigSetRoot
Content-type:text/html
CONTENT_LENGTH:
CONTENT_TYPE:text/plain
Date:Thu, 18 Aug 2016 14:05:03 GMT
FP_NO_HOST_CHECK:NO
FPS_BROWSER_APP_PROFILE_STRING:Internet Explorer
FPS_BROWSER_USER_PROFILE_STRING:Default
GATEWAY_INTERFACE:CGI/1.1
GOROOT:C:\Go\
HOMEDRIVE:C:
HOMEPATH:\Users\de11
HTTP_ACCEPT:text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
HTTP_COOKIE:_ga=GA1.1.2013049555.1445440760
HTTP_REFERER:
HTTP_USER_AGENT:Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Geck
o) Chrome/52.0.2743.116 Safari/537.36
JAVA_HOME:C:\Program Files\Java\jdk1.8.0_60
LOCALAPPDATA:C:\Users\de11\AppData\Local
LOGONSERVER:\\MicrosoftAccount
```

```
MOZ_PLUGIN_PATH:C:\Program Files (x86)\Foxit Software\Foxit Reader Plus\plugins\
NUMBER_OF_PROCESSORS:4
OPENSSL_CONF:C:\OpenSSL-Win32\bin\openssl.cfg
OS:Windows_NT
PATH:C:\Python27\Lib\site-packages\PyQt4;C:\ProgramData\Oracle\Java\javapath;C:\Program Files\Dell\DW WLAN Card;C:\Perl64\site\bin;C:\Perl64\bin;C:\Program Files (x86)\Common Files\Intel\Shared Files\cpp\bin\Intel64;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Program Files\WIDCOMM\Bluetooth Software\;C:\Program Files\WIDCOMM\Bluetooth Software\systow64;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;D:\Program Files (x86)\QuickTime\QTSystem\;D:\Program Files\TortoiseSVN\bin;C:\WINDOWS\system32;C:\WINDOWS;C:\WINDOWS\System32\Wbem;C:\WINDOWS\System32\WindowsPowerShell\v1.0\;C:\Python34;C:\Python27;C:\Perl64;C:\Program Files\Java\jdk1.8.0_60\bin;D:\Program Files (x86)\Sublime text2\Sublime2\Sublime2\Sublime;C:\Users\dell\AppData\Local\Google\Chrome\Application;C:\mingw;C:\Python27\Scripts;C:\Ruby22-x64;C:\PHP;C:\curl-7.33.0-win64-ssl-sspi;C:\curl-7.33.0-win64-ssl-sspi;C:\Program Files (x86)\MySQL\MySQL Server 5.7\bin;D:\Program Files (x86)\MySQL\MySQL Server 5.7\bin;C:\sqlite3;C:\Apache24\bin;C:\gunwin32\GetGnuWin32\bin;D:\Program Files (x86)\Tesseract-OCR;C:\Users\dell\.ssh\Python_Lib\project;C:\MinGW\bin;D:\Program Files\cmdr\bin;D:\Program Files\cmdr;C:\Users\dell\.ssh\Python_Lib\project;C:\Go\bin;C:\Program Files (x86)\Google\Chrome\Application;D:\Program Files\nodejs\;D:\Program Files\VMare\OVFTool;D:\Program Files (x86)\Git\cmd;D:\Program Files (x86)\Git\bin;C:\Ruby22-x64\bin;D:\Program Files (x86)\Nmap;C:\Users\dell\AppData\Roaming\npm
PATH_INFO:
PATH_TRANSLATED:C:\Users\dell\Desktop\python
PATHEXT:.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.PY;.RB;.RBW;.CPL
PROCESSOR_ARCHITECTURE:x86
PROCESSOR_ARCHITECTURE_AMD64:AMD64
PROCESSOR_IDENTIFIER:Intel64 Family 6 Model 69 Stepping 1, GenuineIntel
PROCESSOR_LEVEL:6
PROCESSOR_REVISION:4501
PROGRAMDATA:C:\ProgramData
PROGRAMFILES:C:\Program Files (x86)
PROGRAMFILES(X86):C:\Program Files (x86)
PROGRAMW6432:C:\Program Files
PSMODULEPATH:C:\Users\dell\Documents\WindowsPowerShell\Modules;C:\Program Files\WindowsPowerShell\Modules;C:\WINDOWS\system32\WindowsPowerShell\v1.0\Modules\
PUBLIC:C:\Users\Public
QTJAVA:D:\Program Files (x86)\QuickTime\QTSystem\QTJava.zip
QUERY_STRING:
REMOTE_ADDR:127.0.0.1
REMOTE_HOST:YangWenqiang
REQUEST_METHOD:GET
SCRIPT_NAME:/cgi-bin/environment.py
Server:SimpleHTTP/0.6 Python/2.7.10
SERVER_NAME:YangWenqiang
SERVER_PORT:8001
SERVER_PROTOCOL:HTTP/1.0
SERVER_SOFTWARE:SimpleHTTP/0.6 Python/2.7.10
SESSIONNAME:Console
SYSTEMDRIVE:C:
SYSTEMROOT:C:\WINDOWS
TEMP:C:\Users\dell\AppData\Local\Temp
TESSDATA_PREFIX:D:\Program Files (x86)\Tesseract-OCR\
```

```
TMP:C:\Users\de11\AppData\Local\Temp
USERDOMAIN:YANGWENQIANG
USERDOMAIN_ROAMINGPROFILE:YANGWENQIANG
USERNAME:de11
USERPROFILE:C:\Users\de11
WINDIR:C:\WINDOWS
```

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## sys

- 
- 

### argparse

#### 1. sys.argv

```
# coding=utf-8
import sys

#0
print sys.argv[1]

#
print sys.argv[2] + sys.argv[3]

#
print int(sys.argv[2])+int(sys.argv[3])

#
num = 0
for i in sys.argv[2:]:
    num = num+int(i)
print num
```

sys\_argv.py

```
C:\Users\de11\.ssh\Python_Lib\code>python sys_argv.py first 3 5 9 7
first
35
8
24
C:\Users\de11\.ssh\Python_Lib\code>█
```

1. sys.platform() WindowsLinux
2. sys.exit(n) n00

```
sys.exit() os._exit() exit()/quit() Python
sys.exit() Python
os._exit()
exit()/quit() shell
```
3. sys.path python -m site

```
import sys
print sys.platform
path = sys.path
```



```
for i in path:
    print i
sys.exit(0)
print "This won't run"
```

sys\_platform.py

```
C:\Users\de11\.ssh\Python_Lib\code>python sys_platform.py
win32
C:\Users\de11\.ssh\Python_Lib\code
C:\Python27\lib\site-packages\pefile-1.2.10.post139-py2.7.egg
C:\Python27\lib\site-packages\requests-2.8.0-py2.7.egg
C:\Python27\lib\site-packages\nose-1.3.7-py2.7.egg
C:\WINDOWS\SYSTEM32\python27.zip
C:\Python27\DLLs
C:\Python27\lib
C:\Python27\lib\plat-win
C:\Python27\lib\lib-tk
C:\Python27
C:\Python27\lib\site-packages
C:\Python27\lib\site-packages\PIL
C:\Users\de11\.ssh\Python_Lib\code>
```

1. `sys.modules()` python
2. `sys.version` Python
3. `sys.hexversion` Python
4. `sys.maxint` int
5. `sys.maxunicode` Unicode
6. `sys.copyright` Python
7. `sys.version_info` Python
8. `sys.api_version` CAPI
9. `sys.exec_prefix` Python
10. `sys.byteorder` bigbig-endianlittlittl-endian
11. `sys.getdefaultencoding()` Python z.xASCIIPython 3.xUnicode
12. `sys.setdefaultencoding()`
13. `sys.executable` Python
14. `sys.getwindowsversion()` Windows

```
import sys
print sys.version
print sys.version_info
print sys.hexversion
print sys.api_version
print sys.exec_prefix
print sys.executable
print sys.maxint
print sys.maxunicode
print sys.byteorder
print sys.getdefaultencoding()
```

```
print sys.getwindowsversion()
print sys.getfilesystemencoding()
modules = sys.modules
for i in modules.keys():
    print i
print sys.copyright
```

sys\_modules.py

```
C:\Users\de11\.ssh\Python_Lib\code>python sys_modues.py
2.7.10 (default, May 23 2015, 09:40:32) [MSC v.1500 32 bit (Intel)]
sys.version_info(major=2, minor=7, micro=10, releaselevel='final', serial=0)
34015984
1013
C:\Python27
C:\Python27\python.exe
2147483647
65535
little
ascii
sys.getwindowsversion(major=6, minor=2, build=9200, platform=2, service_pack='')
mbcs
copy_reg
sre_compile
locale
_sre
functools
encodings
site
__builtin__
```

1. sys.platform
2. sys.stdout
3. sys.stdin
4. sys.stderr

```
import sys
data = sys.stdin
print data
sys.stdout.write("hello,world")
```

sys\_std.py

```
C:\Users\de11\.ssh\Python_Lib\code>python sys_std.py heh
<open file '<stdin>', mode 'r' at 0x0234D020>
hello,world
C:\Users\de11\.ssh\Python_Lib\code>
```

1. sys.getrecursionlimit() python
2. sys.setrecursionlimit(15000) Mac 1000

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re

- 
- 
- 
- 
- 
- 
- 
- 

python

\	
\d	[0-9]
\D	
\s	[<>\t\n\r\f\v ]
\S	
\w	[a-zA-Z0-9]
\W	[^\w]
\A	
\Z	
\b	
\B	
\\	\
.	\n
*	
+	
{m}	m
{m,n}	mn
^	
\$	
[.....]	

(.....)	
---------	--

pythonmatchsearch

matchsearchMatch,

- `match(pattern, string, flags=0)`
- `search(pattern, string, flags=0)`

python \ `r'XXX'`

```
>>> a = re.match(r"he", "hello , world")
>>> a
<_sre.SRE_Match object at 0xb70afdb0>
>>> a.group()
'he'
>>> b = re.search(r"wo", "hello , world")
>>> b
<_sre.SRE_Match object at 0xb70afdb0>
>>> b.group()
'wo'
>>> c = re.match(r"wo", "hello , world")
>>> c
>>> type(c)
<type 'NoneType'>
>>> re.match(r'(hello) , (world)', a.group(0))
'hello , world'
```

findall,

- `findall(pattern, string, flags=0)`

```
>>> d = re.findall(r"wo", "hello , world")
>>> d
['wo']
>>> e = re.findall(r"\w", "hello , world")
>>> e
['h', 'e', 'l', 'l', 'o', ' ', 'w', 'o', 'r', 'l', 'd']
>>> re.findall(r"\d+", "2333abc3uio890da123")
['2333', '3', '890', '123']
```

subsplit

- `sub(pattern, repl, string, count=0, flags=0)`
- `split(pattern, string, maxsplit=0, flags=0)`

repl

```

>>> a = "hello , world"
>>> b = re.sub(r"o","0","hello , world")
>>> b
'hell0 , w0rld'
>>> a
'hello , world'
>>> c = re.split(r"\s","hello , world")
>>> c
['hello', ' ', 'world']
>>> a
'hello , world'
>>> re.sub(r'(hello) , (world)', r'\2 , \1', a)
'world , hello'
>>> '%s , %s' % re.match(r'(hello) , (world)', a).groups()
'hello , world'
>>> '%s , %s' % (re.match(r'(hello) , (world)', a).group(2), re.match(r'(hello) , (world)', a).group(1))
'world , hello'
>>> re.search(r"(.*?)\1+", 'dxabcabcyyyydxcxcxz').group()
'abcabc'

```

#### subsubsub

```

>>> b = re.subn(r"o","0","hello , world")
>>> b
('hell0 , w0rld', 2)
>>> a
'hello , world'

```

, \1

```

In [4]: re.search(r"(.*?)\1+", 'dxabcabcyyyydxcxcxz').group()
Out[4]: 'abcabc'

In [5]: re.search(r"(.*?)\1+", 'dxabcabcyyyydxcxcxz').groups()
Out[5]: ('abc',)

```

sublime     \$1     \$2

python     \1     \2     \0

- match search
- group groups , groupdict

abb

```
>>> re.compile(r'(a)(b)\2*').search('abbbb').groups()
('a', 'b')
>>> re.compile(r'(a)(b)\2*').search('abbbb').group()
'abbbb'
```

## PatternPatternMatchMatch

```
# coding=utf-8

import re

pattern = re.compile(r"he")

match = pattern.match("hello , world")

if match:
    print match.group()
```

re\_demo.py

```
windard@windard:~/github/Python_Lib/code$ python re_demo.py
he
```

compile compile(pattern, flags=0) flagsflags |

1. re.I(re.IGNORECASE) :
2. re.M(re.MULTILINE) : '^"\$'
3. re.S(re.DOTALL) : '.'
4. re.L(re.LOCALE) : \w \W \b \B \s \S
5. re.U(re.UNICODE) : \w \W \b \B \s \S \d \D unicode
6. re.X(re.VERBOSE) :

## Match

1. string :
  2. re : Pattern
  3. pos :
  4. endpos :
  5. lastindex : None
  6. lastgroup : None
- 
1. group([group1, ...]) : group1group(0),None
  2. groups([default]) : group(1,2,...last)defaultNone
  3. groupdict([default]) : default
  4. start([group]) : stringgroup0

5. `end([group]) : string+1group0`
6. `span([group]) : (start(group), end(group))`
7. `expand(template) : templatetemplate` `\id \g<id> \g<name> 0 \id \g<id> \10 10 \1 '0' \g<1>0`

```
# coding=utf-8

import re

pattern = re.compile(r"(\w{1,6})(\s)(\,)(\s)(\w*)$")
m = re.match(pattern, "hello , world")

print "m.string:", m.string
print "m.re:", m.re
print "m.re.pattern:", m.re.pattern
print "m.pos:", m.pos
print "m.endpos:", m.endpos
print "m.lastindex:", m.lastindex
print "m.lastgroup:", m.lastgroup

print "m.group():", m.group()
print "m.group(1,2):", m.group(1, 2)
print "m.groups():", m.groups()
print "m.groupdict():", m.groupdict()
print "m.start(2):", m.start(2)
print "m.end(2):", m.end(2)
print "m.span(2):", m.span(2)
```

re\_complex.py

```
windard@windard:~/github/Python_Lib/code$ python re_complex.py
m.string: hello , world
m.re: <_sre.SRE_Pattern object at 0xb748b260>
m.re.pattern: (\w{1,6})(\s)(\,)(\s)(\w*)$
m.pos: 0
m.endpos: 13
m.lastindex: 5
m.lastgroup: None
m.group(): hello , world
m.group(1,2): ('hello', ' ')
m.groups(): ('hello', ' ', ', ', ' ', 'world')
m.groupdict(): {}
m.start(2): 5
m.end(2): 6
m.span(2): (5, 6)
windard@windard:~/github/Python_Lib/code$
```

*?	
+?	1
??	01
{n, m}?	nm
{n,}??	n

```
import re

m = re.match(r'<html>(.*?)', "<html><body><title>this is title</title></body></html>>")

print m.group()

m = re.match(r'<html>(.*?)', "<html><body><title>this is title</title></body></html>>")

print m.group()
```

```
<html><body><title>this is title</title></body></html>>
<html>
```

/	
(?:)	
(?P<name>)	
(?P=<name>)	

```
In [1]: import re

In [2]: re.match(r"(?P<key>\w+):(?P<value>\d+)", "haha:1").groups()
Out[2]: ('haha', '1')

In [3]: re.match(r"(?P<key>\w+):(?P<value>\d+)", "haha:1").groupdict()
Out[3]: {'key': 'haha', 'value': '1'}

In [4]: re.search(r"((?P<key>\w+):(?P<value>\d+);)*", "haha:1;laal:2;").groups()
Out[4]: ('laal:2;', 'laal', '2')

In [5]: re.search(r"((?P<key>\w+):(?P<value>\d+);)*", "haha:1;laal:2;").groupdict()
Out[5]: {'key': 'laal', 'value': '2'}

In [6]: re.search(r"(?:(?P<key>\w+):(?P<value>\d+);)*", "haha:1;laal:2;").groups()
Out[6]: ('laal', '2')
```



nginx

```
log_format main '$remote_addr - $remote_user [$time_local] "$request" '
                '$status $body_bytes_sent "$http_referer" '
                '"$http_user_agent" "$http_x_forwarded_for"';
```

```
obj = re.compile(r'(?P<ip>.*?) - \[(?P<time>.*?)\] "(?P<request>.*?)" (?P<status>.*?) (?P<bytes>.*?) "(?P<referer>.*?)" "(?P<ua>.*?)" "(?P<forwarded>.*?)"')
```

```
# -*- coding: utf-8 -*-

import re

def convert_camel_to_snake(hump_str):
    """
    :param hump_str:
    :return:
    """
    #
    p = re.compile(r'([a-z]|\d)([A-Z])')
    #
    sub = re.sub(p, r'\1_\2', hump_str).lower()
    return sub

if __name__ == '__main__':
    print(convert_camel_to_snake("AdId"))
    print(convert_camel_to_snake("CampaignId"))
    print(convert_camel_to_snake("coreUserID"))
    print(convert_camel_to_snake("FromWhereYouGo"))
    print(convert_camel_to_snake("PackageId"))
    print(convert_camel_to_snake("SocketServer"))
    print(convert_camel_to_snake("Python_Lib"))
```

30

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## json

- [2016-01-13](#)
- [2017-03-18](#)
- [2017-10-22](#)
- [2018-06-21](#)
- [2020-09-09](#)

pythonjson json.dumps() json.loads() distPythonjsonjsonPython

ujson simplejson

```
# python json
dump(obj, fp, skipkeys=False, ensure_ascii=True, check_circular=True, allow_nan=True, cls=None, indent=None, separators=None, encoding='utf-8', default=None, sort_keys=False, **kw)

# python json
dumps(obj, skipkeys=False, ensure_ascii=True, check_circular=True, allow_nan=True, cls=None, indent=None, separators=None, encoding='utf-8', default=None, sort_keys=False, **kw)

# json python
load(fp, encoding=None, cls=None, object_hook=None, parse_float=None, parse_int=None, parse_constant=None, object_pairs_hook=None, **kw)

# json python
loads(s, encoding=None, cls=None, object_hook=None, parse_float=None, parse_int=None, parse_constant=None, object_pairs_hook=None, **kw)
```

```
# coding=utf-8

import json

data = {
    'name' : 'ACME',
    'shares' : 100,
    'price' : 542.23,
    'others': ["first thing", "second thing", "third thing"]
}

json_str = json.dumps(data)
print json_str

python_str = json.loads(json_str)
print python_str
print python_str["name"]
print python_str["price"]
print python_str["others"][0]
```

json\_demo.py

```
C:\Users\de11\ssh\Python_Lib\code>python json_demo.py
{"price": 542.23, "name": "ACME", "shares": 100, "others": ["first thing", "second thing", "third thing"]}
{'price': 542.23, u'name': u'ACME', u'shares': 100, u'others': [u'first thing', u'second thing', u'third thing']}
ACME
542.23
first thing
C:\Users\de11\ssh\Python_Lib\code>
```

jsonPython `dist jsonPython` `pprint print key`

```
# coding=utf-8

import json
from pprint import pprint

data = {
    'name' : 'ACME',
    'shares' : 100,
    'price' : 542.23,
    'others': ["first thing", "second thing", "third thing"]
}

json_str = json.dumps(data)

python_str = json.loads(json_str)
pprint(python_str)
```

json\_demo\_2.py,

```
C:\Users\de11\ssh\Python_Lib\code>python json_demo_2.py
{'name': u'ACME',
 u'others': [u'first thing', u'second thing', u'third thing'],
 u'price': 542.23,
 u'shares': 100}
C:\Users\de11\ssh\Python_Lib\code>
```

jsonPython

```
# coding=utf-8

import json

class JSONObject:
    def __init__(self, d):
        self.__dict__ = d

data = {
    'name' : 'ACME',
    'shares' : 100,
    'price' : 542.23,
    'others': ["first thing", "second thing", "third thing"]
}
```

```
json_str = json.dumps(data)

python_str = json.loads(json_str, object_hook=JSONObject)
print isinstance(python_str, object)
print python_str.name
print python_str.price
print python_str.others[1]
```

json\_object.py



```
C:\Users\deli\ssh\Python_Lib\code>python json_object.py
True
ACME
542.23
second thing

C:\Users\deli\ssh\Python_Lib\code>
```

json pprint json dumps() indent=X

**2016-01-13**

Python eval str(unicode) json

```
>>> data = {
...     'name' : 'ACME',
...     'shares' : 100,
...     'price' : 542.23,
...     'others': ["first thing", "second thing", "third thing"]
... }
>>> json_str = str(data)
>>> json_str
'{"price": 542.23, 'name': 'ACME', 'shares': 100, 'others': ['first thing', 'second thing', 'third thing']}'
>>> eval(json_str)
{'price': 542.23, 'name': 'ACME', 'shares': 100, 'others': ['first thing', 'second thing', 'third thing']}
```

json true Python True json false Python False

```
>>> data = '{"name': 'ACMA', 'status': false}"
>>> eval(data)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
  File "<string>", line 1, in <module>
NameError: name 'false' is not defined
```

json

## 2017-03-18

json Python dict json Python

```
+-----+
| Python      | JSON      |
+=====+
| dict        | object    |
+-----+
| list, tuple | array     |
+-----+
| str, unicode| string    |
+-----+
| int, long, float | number  |
+-----+
| True        | true      |
+-----+
| False       | false     |
+-----+
| None        | null      |
+-----+
```

```
JSONEncoder().encode({"foo": ["bar", "baz"]}) # json
JSONDecoder().decode('{"foo": ["bar", "baz"]}') # json
```

## 2017-10-22

json dict

- dict json
- dict json

## 2018-06-21

- `json.dumps(obj, indent=4)`
- `json.dumps(obj, separators=(',', ':'))` . `(',', ':')`
- `json.dumps(obj, ensure_ascii=False)` utf-8 Unicode `\uXXXX`

## 2020-09-09

json `'{"price": 542.23, "name": "ACME", "shares": 100, "others": ["first thing", "second thing", "third thing"]}'` json key value Invalid Control Character ValueError

ASCII `\t` , `\n` , `\r`

ASCII

```
json '{"price": 542.23, "name": "ACME", "sh\rare": 100, "others": ["first thing",
"second\t thing", "third\n thing"]}'
```

```
strict=False
```

```
In [28]: s = '{"price": 542.23, "name": "ACME", "shares": 100, "others": ["first thing",
"second thing", "third thing"]}'
```

```
In [29]: json.loads(s)
```

```
Out[29]:
```

```
{u'name': u'ACME',
 u'others': [u'first thing', u'second thing', u'third thing'],
 u'price': 542.23,
 u'shares': 100}
```

```
In [30]: s = '{"price": 542.23, "name": "ACME", "sh\rare": 100, "others": ["first thing",
, "second\t thing", "third\n thing"]}'
```

```
In [31]: json.loads(s)
```

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-31-48280973ea66> in <module>()
----> 1 json.loads(s)
```

```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/__init__.pyc in loads(s, encoding, cls, object_hook, parse_float, parse_int, parse_constant, object_pairs_hook, **kw)
    337         parse_int is None and parse_float is None and
    338         parse_constant is None and object_pairs_hook is None and not kw):
--> 339     return _default_decoder.decode(s)
    340     if cls is None:
    341         cls = JSONDecoder
```

```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/decoder.pyc in decode(self, s, _w)
    362
    363     """
--> 364     obj, end = self.raw_decode(s, idx=_w(s, 0).end())
    365     end = _w(s, end).end()
    366     if end != len(s):
```

```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/decoder.pyc in raw_decode(self, s, idx)
    378     """
    379     try:
--> 380         obj, end = self.scan_once(s, idx)
    381     except StopIteration:
    382         raise ValueError("No JSON object could be decoded")
```

```
ValueError: Invalid control character at: line 1 column 38 (char 37)
```

```
In [32]: json.loads(s, strict=False)
```

```
Out[32]:
{'u'name': u'ACME',
 u'others': [u'first thing', u'second\t thing', u'third\n thing'],
 u'price': 542.23,
 u'sh\rares': 100}
```

1. json key value
2. json json key `'\n{"price": 542.23,\n "name": "ACME", \t"shares": 100, "others": ["first thing", "second thing",\n "third thing"]}]'`
3. json

```
In [34]: s = '\n{"price": 542.23,\n "name": "ACME", \t"shares": 100, "others": ["first th
ing", "second thing",\n "third thing"]}]'
```

```
In [35]: json.loads(s)
```

```
Out[35]:
{'u'name': u'ACME',
 u'others': [u'first thing', u'second thing', u'third thing'],
 u'price': 542.23,
 u'shares': 100}
```

```
In [37]: s= """"{"price": 542.23, "name": "ACME", "shares": 100, "others": ["first thing",
"second
...: thing", "third thing"]}"""""
```

```
In [38]: s
```

```
Out[38]: '{"price": 542.23, "name": "ACME", "shares": 100, "others": ["first thing", "sec
ond \nthing", "third thing"]}]'
```

```
In [39]: json.loads(s)
```

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-39-48280973ea66> in <module>()
----> 1 json.loads(s)
```

```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/__init__.pyc in loads(s, encodin
g, cls, object_hook, parse_float, parse_int, parse_constant, object_pairs_hook, **kw)
    337         parse_int is None and parse_float is None and
    338         parse_constant is None and object_pairs_hook is None and not kw):
--> 339     return _default_decoder.decode(s)
    340     if cls is None:
    341         cls = JSONDecoder
```

```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/decoder.pyc in decode(self, s, _
w)
    362
    363     """
--> 364     obj, end = self.raw_decode(s, idx=_w(s, 0).end())
    365     end = _w(s, end).end()
    366     if end != len(s):
```



```
/Users/bytedance/miniconda/envs/byted/lib/python2.7/json/decoder.pyc in raw_decode(self,
s, idx)
    378         """
    379         try:
--> 380             obj, end = self.scan_once(s, idx)
    381         except StopIteration:
    382             raise ValueError("No JSON object could be decoded")
```

ValueError: Invalid control character at: line 1 column 84 (char 83)

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## logging

- 
- 
- - 
  -

print

```
logging.info      root_logger      logging.getLogger(__name__)      logger
```

```
root_logger      current_logger
```

```
logging      logging.basicConfig()
```

```
logging.basicConfig(
    level=logging.INFO,
    format='%(name)-25s %(asctime)s %(levelname)-8s %(lineno)-4d %(message)s',
    datefmt='[%Y %b %d %a %H:%M:%S]'
)
```

```
# -*- coding: utf-8 -*-
```

```
import logging
from logging.config import dictConfig
```

```
logging_config = {
    "version": 1,
    "disable_existing_loggers": False,
    "formatters": {"default": {"format": "%(asctime)s %(levelname)-8s %(filename)s:%(line
no)d %(message)s"}},
    "handlers": {
        "console": {"level": "INFO", "class": "logging.StreamHandler", "formatter": "defa
ult"},
        "file_logger": {"level": "INFO", "class": "logging.FileHandler", "formatter": "de
fault", "filename": "douban_spider.log"}
    },
    "root": {"handlers": ["file_logger", "console"], "level": "INFO"},
}
dictConfig(logging_config)
logger = logging.getLogger(__name__)
```

logging

```
# -*- coding: utf-8 -*-

import sys
import logging

logger = logging.getLogger("Socket Logging")
formatter = logging.Formatter('%(name)-12s %(asctime)s %(levelname)-8s %(lineno)-4d %(message)s', '%Y %b %d %a %H:%M:%S',)

file_handler = logging.FileHandler("SocketServer.log")
file_handler.setFormatter(formatter)

logger.addHandler(file_handler)

stream_handler = logging.StreamHandler(sys.stderr)
stream_handler.setFormatter(formatter)

logger.addHandler(stream_handler)

logger.setLevel(logging.DEBUG)
```

```
# coding=utf-8

import logging

def main():
    # Configure the logging system
    logging.basicConfig(
        filename='app.log',
        level=logging.ERROR,
        format='%(levelname)s:%(asctime)s:%(message)s'
    )

    # Variables (to make the calls that follow work)
    hostname = 'www.python.org'
    item = 'spam'
    filename = 'data.csv'
    mode = 'r'

    # Example logging calls (insert into your program)
    logging.critical('Host %s unknown', hostname)
    logging.error("Couldn't find %r", item)
    logging.warning('Feature is deprecated')
    logging.info('Opening file %r, mode=%r', filename, mode)
    logging.debug('Got here')

if __name__ == '__main__':
    main()
```

```
#coding=utf-8

import logging
import sys

LEVELS = {'debug': logging.DEBUG,
          'info': logging.INFO,
          'warning': logging.WARNING,
          'error': logging.ERROR,
          'critical': logging.CRITICAL}

if len(sys.argv) > 1:
    level_name = sys.argv[1]
    level = LEVELS.get(level_name, logging.NOTSET)
    logging.basicConfig(level=level)

logging.debug('This is a debug message')
logging.info('This is an info message')
logging.warning('This is a warning message')
logging.error('This is an error message')
logging.critical('This is a critical error message')
```

logging log Level warning Level

```
#coding=utf-8

import sys
import logging

logger = logging.getLogger("Test Logging")
formatter = logging.Formatter('%(name)-12s %(asctime)s %(levelname)-8s %(lineno)-4d %(message)s', '%Y-%b-%d %a %H:%M:%S')
file_handler = logging.FileHandler("test.log")
file_handler.setFormatter(formatter)
file_handler.setLevel(logging.DEBUG)

stream_handler = logging.StreamHandler(sys.stderr)
stream_handler.setFormatter(formatter)
stream_handler.setLevel(logging.WARNING)

logger.addHandler(file_handler)
logger.addHandler(stream_handler)
logger.setLevel(logging.DEBUG)

logger.debug('This is a debug message')
logger.info('This is an info message')
logger.warning('This is a warning message')
logger.error('This is an error message')
```

```
logger.removeHandler(stream_handler)
logger.critical('This is a critical error message')
```

log log log

log

%(name)s	Logger
%(levelname)s	
%(levelname)s	
%(pathname)s	
%(filename)s	
%(module)s	
%(funcName)s	
%(lineno)d	
%(created)f	UNIX
%(relativeCreated)d	Logger
%(asctime)s	“2003-07-08 16:49:45,896”
%(thread)d	ID
%(threadName)s	
%(process)d	ID
%(message)s	

```
logger.exception logger.error error ,
logger logger.info logger.error
```

```
# coding=utf-8

import sys
import logging

logger = logging.getLogger(__name__)
formatter = logging.Formatter('%(name)-12s %(asctime)s %(levelname)-8s %(lineno)-4d %(mes
```

```

sage)s', '%Y %b %d %a %H:%M:%S',)

stream_handler = logging.StreamHandler(sys.stderr)
stream_handler.setFormatter(formatter)

logger.addHandler(stream_handler)
logger.setLevel(logging.DEBUG)

if __name__ == '__main__':
    logger.info("main start...")
    try:
        1 / 0
    except Exception as e:
        logger.exception("error %s", e)
    logger.info("main end.")

```

logger.error

```

__main__      2019 May 25 Sat 22:23:36 INFO      16  main start...
__main__      2019 May 25 Sat 22:23:36 ERROR     20  error integer division or modulo by z
ero
__main__      2019 May 25 Sat 22:23:36 INFO      21  main end.

```

logger.exception

```

__main__      2019 May 25 Sat 22:23:52 INFO      16  main start...
__main__      2019 May 25 Sat 22:23:52 ERROR     20  error integer division or modulo by z
ero
Traceback (most recent call last):
  File "code/logging_exception.py", line 18, in <module>
    1 / 0
ZeroDivisionError: integer division or modulo by zero
__main__      2019 May 25 Sat 22:23:52 INFO      21  main end.

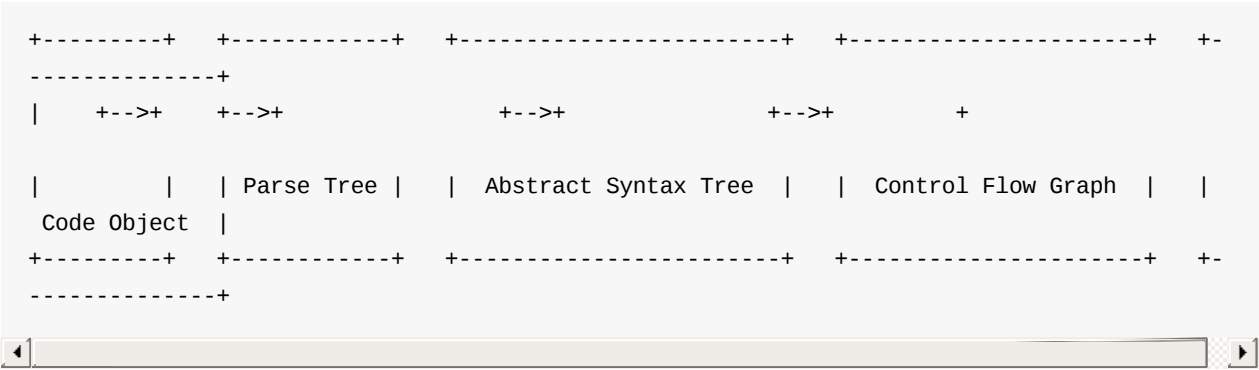
```

logging.handlers.TimedRotatingFileHandler

ast

- 
- 

ast python python



ast ast

```
# coding=utf-8

import ast

code = """
def add(a, b):
    return a + b

add(1, 2)
"""

print "hello world"
print ast.parse(code)
print ast.dump(ast.parse(code))
```

ast.parse compile

```
def parse(source, filename='<unknown>', mode='exec'):
    """
    Parse the source into an AST node.
    Equivalent to compile(source, filename, mode, PyCF_ONLY_AST).
    """
    return compile(source, filename, mode, PyCF_ONLY_AST)
```

\_ast.Module , \_ast.Assign , \_ast.Str , Module

```
Module(body=[FunctionDef(name='add', args=arguments(args=[Name(id='a', ctx=Param()), Name(id='b', ctx=Param())], vararg=None, kwarg=None, defaults=[]), body=[Return(value=BinOp(left=Name(id='a', ctx=Load()), op=Add(), right=Name(id='b', ctx=Load()))], decorator_list=[]), Expr(value=Call(func=Name(id='add', ctx=Load()), args=[Num(n=1), Num(n=2)], keywords=[]), starargs=None, kwargs=None))])
```

```
# coding=utf-8

import ast

code = """
def add(a, b):
    return a + b

print add(1, 2)
"""

class CrazyTransformer(ast.NodeTransformer):

    def visit_BinOp(self, node):
        print node.__dict__
        node.op = ast.Mult()
        print node.__dict__
        return node

def main():
    module = ast.parse(code)
    exec compile(module, '<string>', 'exec')
    transformer = CrazyTransformer()
    multi = transformer.visit(module)
    exec compile(multi, '<string>', 'exec')

if __name__ == '__main__':
    main()
```



```
import ast
import unparsed

code = """
def add(a, b):
    return a + b

print add(1, 2)
"""

class CrazyTransformer(ast.NodeTransformer):

    def visit_BinOp(self, node):
        node.op = ast.Mult()
        return node

def back():
    module = ast.parse(code)
    transformer = CrazyTransformer()
    multi = transformer.visit(module)
    unparsed.Unparser(multi)

if __name__ == '__main__':
    back()
```

```
# coding=utf-8

import ast
import codegen
import astunparse
import astor

code = """
data = {
    "key": "value",
    "list": [1,2,3]
}

def add(a, b):
    return a + b

print add(1, 2)
"""

module = ast.parse(code)
```

```
print codegen.to_source(module)
print astunparse.unparse(module)
print astor.to_source(module)
```

### 3.9 `ast.unparse`

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# ply

- - [Lex&Yacc](#)
- [Lex](#)
  - 
  - 
  -

Python Lex-Yacc, Python Lex-Yacc

\*nix Lex Yacc try it yourself .

if,else

if,else

yacc

ast

if,else yacc

## Lex&Yacc

Lex Yacc

Lex Yacc Lex Yacc

## Lex

lex\_start.lt

```
%{
#include <stdio.h>
%}

%%
stop printf("Stop command received");
start printf("Start command reveived");
%%
```

lex

```

1.  printf      stdio.h C      %{      %}
2.  %%      %%  lex      stop      printf("Stop command received"); ,      start

lex lex_start.lt      lex.yy.c C      cc lex.yy.c -o lex_start -ll      lex_start

      start      Start command reveived ,      stop      Stop command received ,      start
stop

```

```

$ ./lex_start
start
Start command reveived
stop
Stop command received
yes
yes
no
no
!
!
^C

```

lex C

```

[0123456789]+      #
[0-9]+      #
[a-z]      # a-z
[a-z]*      # 0

```

lex\_regex.lt

```

%{
#include <stdio.h>
%}

%%
[0-9]+      printf("NUMBER\n");
[a-zA-Z][a-zA-Z0-9]*      printf("WORD\n");
%%

```

```

$ lex lex_regex.lt
$ cc lex.yy.c -o lex_regex -ll
$ ./lex_regex
2334

```

NUMBER

dervr

WORD

str1

WORD

123avc

NUMBER

WORD

-12

-NUMBER

12.43

NUMBER

.NUMBER

a@a

WORD

@WORD

^C


.

[Lex/YACC](#)

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---

pip python

pip  Redis MySQL

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## requests

requestsHTTP client for human

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---

1. pythonweb, localhost:8080

```
python -m SimpleHTTPServer 8080
```

```
python -m http.server for python 3
```

CGI

```
python -m CGIHTTPServer 8080
```

FTP

```
python -m pyftplib
```

```
python -m pydoc -p 8000
```

PHP 5.4web localhost:8000

```
php -S localhost:8000
```

nodejs

```
npm install http-server -g
```

```
http-server 8080
```

nodejs

```
var http = require('http');
http.createServer(function (req, res) {
  res.send('Hello');
  res.end();
}).listen(3000);
```

```
server.js,cmd node server.js localhost:3000
```

## python

1. Python shell Python , `python -c "import request"`
2. python2 python3 Python2 python , pyhton3 Python34 , pip python3 pip `python34 -m pip install requests , pip3.py`

python3 script

```
python -m pip install requests python
```

```
# coding=utf-8
import sys
import subprocess
print(" ".join(sys.argv))
cmd = "python34 -m pip " + " ".join(sys.argv[1:] + " -i http://pypi.douban.com/s
imple --trusted-host pypi.douban.com")
obj = subprocess.Popen(cmd)
obj.wait()
```

urlencode urldecode

- `urllib.urlencode` <-> `urlparse.parse_qs` | `query_string.query_string`
- `urllib.quote` <-> `urllib.unquote`
- `urlparse.urlparse` <-> `urlparse.urlunparse`
- `re.escape`
- `cgi.escape` XSS

```
# -*- coding: utf-8 -*-

import urlparse
import urllib
from query_string import query_string

data = {
    'name': 'windard',
    'year': 23,
    'price': 100000000.111,
    'company': 'https://ele.me'
}

if __name__ == '__main__':
    raw_data = urllib.urlencode(data)
    print raw_data
    parse_data = urlparse.parse_qs(raw_data)
    print parse_data
    query_data = query_string(raw_data)
    print query_data
```

---

python json

```
cat test.json | python -m json.tool  
echo '{"name": "lucy", "age": "18"}' | python -m json.tool
```

bash jq

```
$ echo '{"name": "lucy", "age": "18"}' | jq  
{  
  "name": "lucy",  
  "age": "18"  
}  
$ echo '{"name": "lucy", "age": "18"}' | jq '.name'  
"lucy"
```

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---

## Gitbook

Gitbook   GitHub Pages

Gitbook + GitHub Page   Gitbook

Gitbook

## Plugins

Gitbook

```
npm install gitbook-plugin-tbfed-pagefooter
```

```
gitbook install
```

### highlight

### lunr

### search

### sharing

### font-settings

"A"

### livereload

### theme-default

```
{
  "plugins": [
    "theme-default"
  ],
  "pluginsConfig": {
```

```
    "theme-default": {
      "showLevel": true
    }
  }
}
```

## search-pro

```
{
  "plugins": [
    "-lunr",
    "-search",
    "search-pro"
  ]
}
```

## search-plus

search

```
{
  "plugins": ["-lunr", "-search", "search-plus"]
}
```

## ga

Google

GitBook doesn't satisfy the requirements of this plugin: >=4.0.0-alpha.0. `ga@1.0.1`

```
{
  "plugins": [
    "ga"
  ],
  "pluginsConfig": {
    "ga": {
      "token": "UA-XXXX-Y"
    }
  }
}
```

## baidu

```
{
```

```
"plugin": ["baidu"],
"pluginsConfig": {
  "baidu": {
    "token": "YOUR TOKEN"
  }
}
}
```

## sharing-plus

☰ A 👁 5215

🔗 🐦 ★ 📧 G+ f ↻ 🔍 🔄

### 介绍

```
{
  "plugins": [
    "-sharing",
    "sharing-plus"
  ],
  "pluginsConfig": {
    "sharing": {
      "douban": false,
      "facebook": false,
      "google": true,
      "pocket": false,
      "qq": false,
      "qzone": true,
      "twitter": false,
      "weibo": true,
      "all": [
        "douban",
        "facebook",
        "google",
        "instapaper",
        "linkedin",
        "twitter",
        "weibo",
        "messenger",
        "qq",
        "qzone",
        "viber",
        "whatsapp"
      ]
    }
  }
}
```

## sitemap

sitemap, `/sitemap.xml`

```
{
  "plugins": [
    "sitemap"
  ],
  "sitemap": {
    "hostname": "https://python-book.windard.com/"
  }
}
```

## hide-element

gitbook `Published with GitBook`

Type to search

readme

one

oneDay

oneH

twoH

two

Published with GitBook

## Introduction

```
{
  "plugins": [
    "hide-element"
  ],
  "pluginsConfig": {
    "hide-element": {
      "elements": [".gitbook-link"]
    }
  }
}
```

## back-to-top-button



#### > back-to-top-button 回到顶部

当文章篇幅较长时，页面底部会显示按钮，一键点击自动回到顶部。

使用方式：

在 book.json 中写入以下内容

```
{
  "plugins": [
    "back-to-top-button"
  ]
}
```



```
{
  "plugins": [
    "back-to-top-button"
  ]
}
```

## donate

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该文件最后修改时间： 2020-09-23 20:10:44

写的不错~👍

打赏

```
{
  "plugins": [
    "back-to-top-button"
  ],
  "pluginsConfig": {
    "donate": {
      "wechat": "https://xxx.jpg",
      "alipay": "https://xxx.jpg",
      "title": "~ ",
      "button": " ",
      "alipayText": " ",
      "wechatText": " "
    }
  }
}
```

## github

GitHub

GitBook doesn't satisfy the requirements of this plugin: >=4.0.0-alpha.0.  
github@2.0.0



Introduction



## Introduction

readme



```
{
  "plugins": [ "github" ],
  "pluginsConfig": {
    "github": {
      "url": "https://github.com/your/repo"
    }
  }
}
```

## github-buttons

GitHub , GitHub

[GitHub:buttons](#)



Follow @windard

Star

```
{
  "plugins": [
    "github-buttons"
  ],
  "pluginsConfig": {
    "github-buttons": {
      "buttons": [{
        "user": "windard",
        "repo": "python-book",
        "type": "star",
        "size": "small"
      }, {
        "user": "windard",
        "type": "follow",
        "width": "160",
        "count": true,
        "size": "small"
      }
    ]
  }
}
```

## disqus

disqus , disqus

```
GitBook doesn't satisfy the requirements of this plugin: >=4.0.0-alpha.0.  
disqus@0.1.0
```

```
{  
  "plugins": ["disqus"],  
  "pluginsConfig": {  
    "disqus": {  
      "shortName": "XXXXXXX"  
    }  
  }  
}
```

## edit-link

Edit on GitHub

← → ↻ 🏠 ⓘ localhost:4000

输入并搜索



✎ 编辑此页面

A

说明1

1.1. Introduction

> 1.2. tcp说明

# Introduction

gitbook build . output

```
{  
  "plugins": [ "edit-link" ],  
  "pluginsConfig": {  
    "edit-link": {  
      "base": "https://github.com/itswl/gitbook/edit/master",  
      "label": "Edit This Page"  
    }  
  }  
}
```

## chapter-fold

Type to search

readme

▼ one

▼ oneDay

oneH

twoH

two

Published with GitBook

☰

A

one

二级目录

```
{
  "plugins": ["chapter-fold"]
}
```

## expandable-chapters-small



```
{
  "plugins": [
    "expandable-chapters-small"
  ]
}
```

## expandable-chapters

## code

```
1 {
2   "plugins" : ["code" ]
3 }
```



```
{
  "plugins" : ["code" ]
}
```

## copy-code-button

```
{
  "plugins": ["copy-code-button"]
}
```

Copy

```
{
  "plugins" : [ "copy-code-button" ]
}
```

## splitter

Type to search

[readme](#)

> one

two

Published with GitBook

## Introduction

### ➤ 安装和使用插件方法

在根目录下创建 book.json

在该文件中按照指定格式插入以下插

共享 查看

> 此电脑 > 其它 (E:) > record > project > gitbookPr



```
{
  "plugins": [
    "splitter"
  ]
}
```

## pageview-count

≡ A 9

🔔 📄 👤 📶 🔄

```
{
  "plugins": ["pageview-count"]
}
```

## tbfd-pagefooter

## anchors

对文章标题都生成锚点，展示效果类似于 GitHub

```
1 {
2   "plugins": ["anchors"]
3 }
```

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该文件最后修改时间: 2020-09-23 20:10:44

写的不错~👍

打赏

```
{
  "plugins": [
    "tbfed-pagefooter"
  ],
  "pluginsConfig": {
    "tbfed-pagefooter": {
      "copyright": "Copyright &copy; 2020",
      "modify_label": "    ",
      "modify_format": "YYYY-MM-DD HH:mm:ss"
    }
  }
}
```

## image-captions

alt title

```
{
  "plugins": ["image-captions"]
}
```

## anchors

GitHub

```
{
  "plugins": ["anchors"]
}
```

## popup

```
{
  "plugins": [ "popup" ]
}
```

## lightbox

```
{
  "plugins": [ "popup" ]
}
```

## custom-favicon

icon icon

```
TypeError [ERR_INVALID_ARG_TYPE]: The "path" argument must be of type string. Received
undefined   icon
```

```
{
  "plugins" : ["custom-favicon"],
  "pluginsConfig" : {
    "favicon": "path/to/favicon.ico"
  }
}
```

,

- [favicon-custom](#)
- [custom-favicon-new](#)
- [custom-favicon-fix](#)
- [custom-favicon-pro](#)

## favicon

icon Gitbook icon

```
{
  "plugins": ["favicon"],
  "pluginsConfig": {
    "favicon":{
      "shortcut": "assets/images/favicon.ico",
      "bookmark": "assets/images/favicon.ico",
      "appleTouch": "assets/images/apple-touch-icon.png",
      "appleTouchMore": {
        "120x120": "assets/images/apple-touch-icon-120x120.png",
        "180x180": "assets/images/apple-touch-icon-180x180.png",
      }
    }
  }
}
```

```
}  
}
```

## toc

```
<!-- toc-->
```



## re

- [正则表达式基本语法](#)
- [简单使用](#)
- [后向引用](#)
- [高级使用](#)
- [贪婪与懒惰](#)
- [分组与捕获](#)
- [常用正则](#)
- [参考链接](#)

python 的正则表达式库，现在几乎所有的编程语言都支持正则表达式了，无可否认，正则表达式确实强大。

```
{  
  "plugins": [ "toc" ]  
}
```

## atoc

```
{  
  "plugins": [ "atoc" ]  
}
```

## page-toc

```
---  
showToc: true  
---
```



## logging

标准的输出日志库，比每次用 print 输出不知道高到哪里去了。

## 常用配置

### Table of Contents

logging

常用配置

简单使用

使用技巧

打印异常堆栈

日志滚动

```
{
  "plugins": [ "page-toc" ]
}
```

## autocover

```
{
  "title": "Windard's Python Book",
  "description": "Python ",
  "author": "Windard",
  "plugins": ["autocover"],
  "pluginsConfig": {
    "autocover": {
      "font": {
        "size": null,
        "family": "Impact",
        "color": "#FFF"
      },
      "size": {
        "w": 1800,
        "h": 2360
      },
      "background": {
        "color": "#09F"
      }
    }
  }
}
```

svg

```
error: error while generating page "README.md":
Error: Error converting /tmp/tmp-281LPVxSm5Bv6U1/842cb21f.svg into /tmp/tmp-281LPVxSm5Bv6U1/302430b8.png
```

svgexport

puppeteer

---

```
npm i --unsafe-perm -g svgexport@0.3.2
```

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