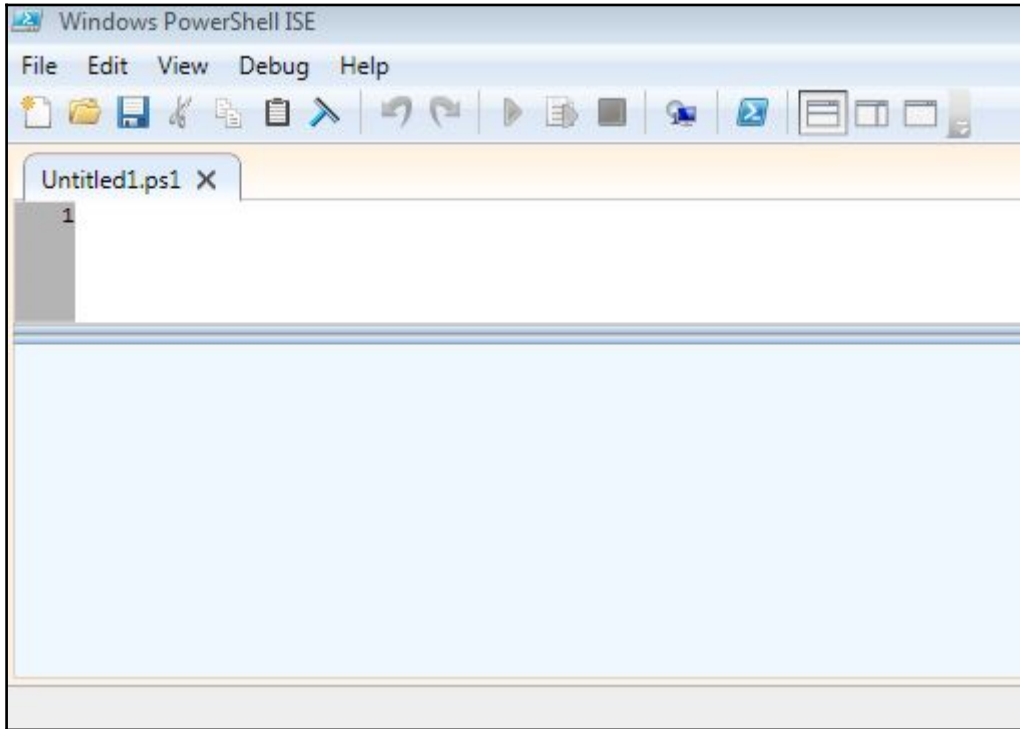
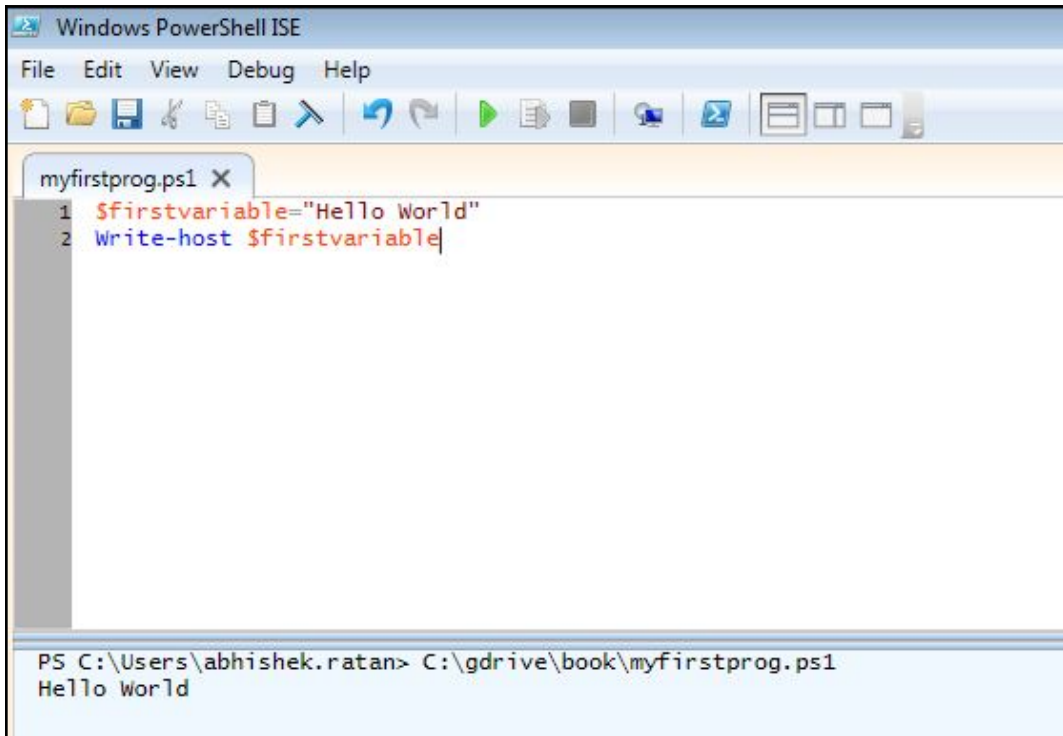


Chapter 1: Fundamental Concepts



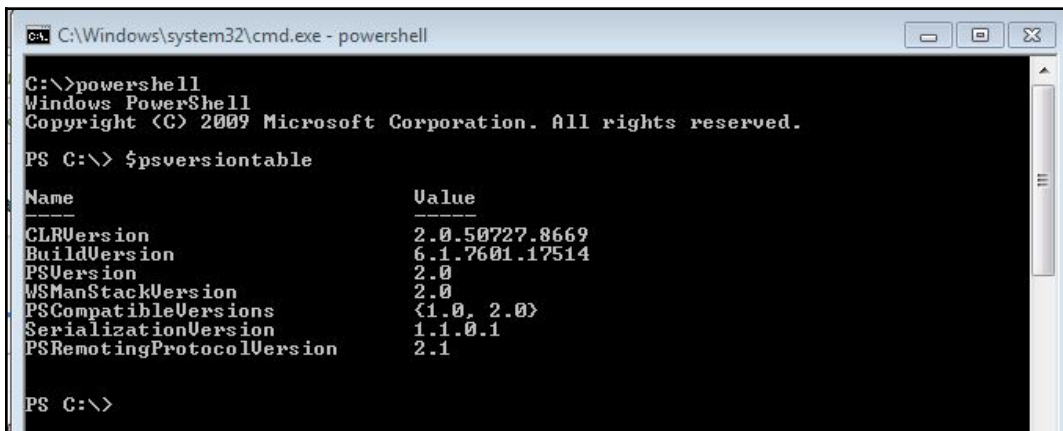


The screenshot shows the Windows PowerShell ISE interface. The menu bar includes File, Edit, View, Debug, and Help. The toolbar contains icons for file operations and execution. A script file named 'myfirstprog.ps1' is open, containing two lines of PowerShell code:

```
1 $firstvariable="Hello World"
2 Write-host $firstvariable
```

The console output at the bottom shows the command being executed and the result:

```
PS C:\Users\abhishek.ratan> C:\gdrive\book\myfirstprog.ps1
Hello World
```



The screenshot shows a Windows command prompt window titled 'C:\Windows\system32\cmd.exe - powershell'. The user has entered the command 'powershell' and the prompt has changed to 'PS C:\>'. The user then enters '\$psversiontable', which displays the following version information:

Name	Value
CLRVersion	2.0.50727.8669
BuildVersion	6.1.7601.17514
PSVersion	2.0
WSManStackVersion	2.0
PSCompatibleVersions	{1.0, 2.0}
SerializationVersion	1.1.0.1
PSRemotingProtocolVersion	2.1

The prompt returns to 'PS C:\>'.

```
Windows PowerShell

C:\>powershell
Windows PowerShell
Copyright (C) 2014 Microsoft Corporation. All rights reserved.

PS C:\> $psversiontable

Name                           Value
----                           -
PSVersion                      4.0
MSManStackVersion              3.0
SerializationVersion           1.1.0.1
CLRVersion                     4.0.30319.42000
BuildVersion                   6.3.9600.18728
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0}
PSRemotingProtocolVersion      2.2

PS C:\>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> |
```

```
helloworld.py - C:/gdrive/book/helloworld.py (3.6.1)
File Edit Format Run Options Window Help
newvalue="hello world"
print (newvalue)

Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/gdrive/book/helloworld.py =====
hello world
>>>
```

```
C:\Windows\system32\cmd.exe
C:\>
C:\>python
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print ("hello world")
hello world
>>> exit()
C:\>
```

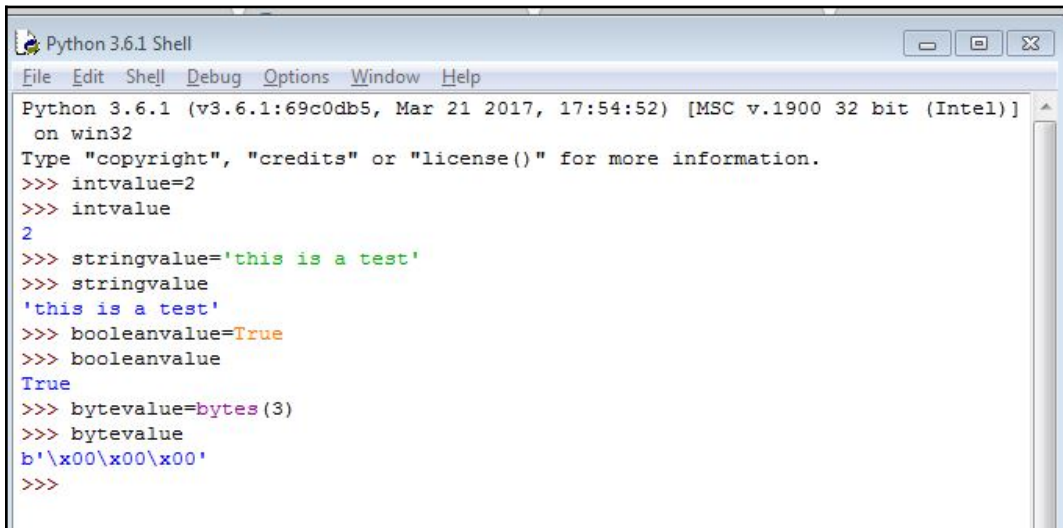
```
Windows PowerShell
PS C:\> Invoke-RestMethod -Uri https://blogs.msdn.microsoft.com/powershell/feed/
! format-table -property title

title
-----
PowerShell Documentation Migration
PowerShell 6.0 Roadmap: CoreCLR, Backwards Compatibility, and More!
DSC Resource Kit Release July 2017
Getting Started with PowerShell Core on Windows, Mac, and Linux
DSC Resource Kit Release May 2017
Coming Soon - PowerShell in Azure Cloud Shell
Windows 10 Creators Update and PowerShell DSC
Announcing PowerShell for Visual Studio Code 1.0!
PowerShell Core 6 Beta.1 Release
OpenSSH Security Testing Kick Off

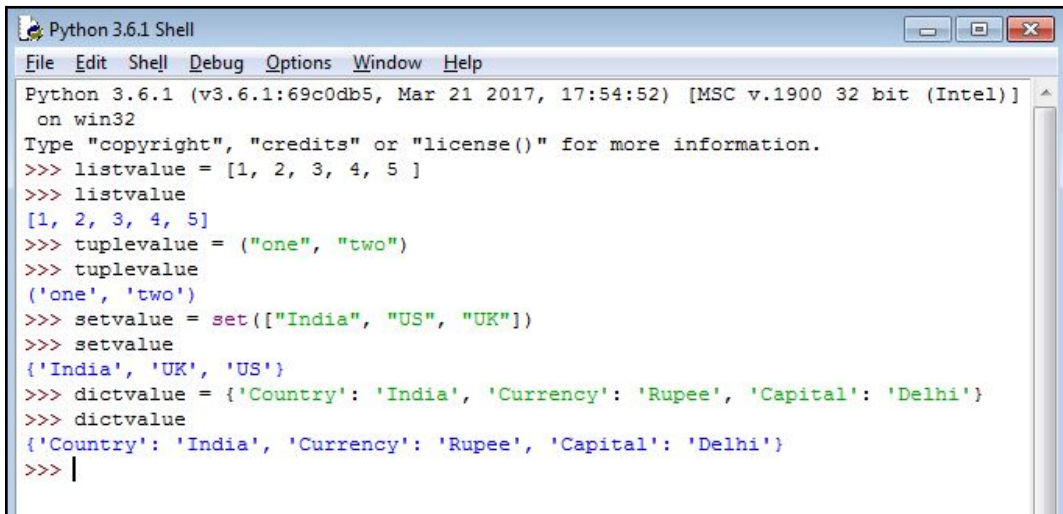
PS C:\> _
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> import requests
>>> r=requests.get('http://maps.googleapis.com/maps/api/geocode/json?address=google')
>>> r.json()
{'results': [{'address_components': [{'long_name': '111', 'short_name': '111', 'types': ['street_number']}, {'long_name': '8th Avenue', 'short_name': '8th Ave', 'types': ['route']}, {'long_name': 'Manhattan', 'short_name': 'Manhattan', 'types': ['political', 'sublocality', 'sublocality_level_1']}, {'long_name': 'New York', 'short_name': 'New York', 'types': ['locality', 'political']}, {'long_name': 'New York County', 'short_name': 'New York County', 'types': ['administrative_area_level_2', 'political']}, {'long_name': 'New York', 'short_name': 'NY', 'types': ['administrative_area_level_1', 'political']}, {'long_name': 'United States', 'short_name': 'US', 'types': ['country', 'political']}, {'long_name': '10011', 'short_name': '10011', 'types': ['postal_code']}], 'formatted_address': '111 8th Ave, New York, NY 10011, USA', 'geometry': {'location': {'lat': 40.7406375, 'lng': -74.0020388}, 'location_type': 'ROOFTOP', 'viewport': {'northeast': {'lat': 40.7419864802915, 'lng': -74.00068981970848}, 'southwest': {'lat': 40.7392885197085, 'lng': -74.00338778029149}}, 'place_id': 'ChIUh_XxFL9ZwokR8F3XW7NaG8w', 'types': ['establishment', 'point_of_interest']}, 'status': 'OK'}]
>>>
```

Chapter 2: Python for Network Engineers

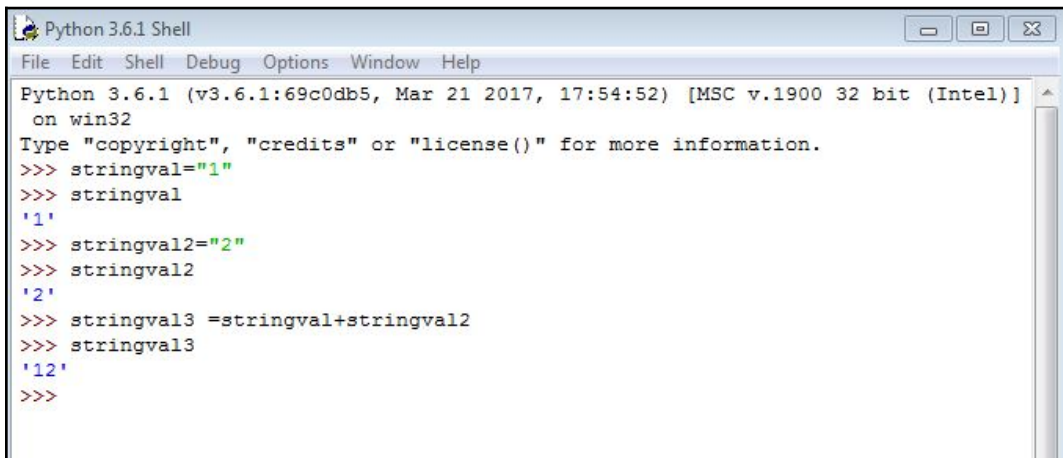


```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> intvalue=2
>>> intvalue
2
>>> stringvalue='this is a test'
>>> stringvalue
'this is a test'
>>> booleanvalue=True
>>> booleanvalue
True
>>> bytevalue=bytes(3)
>>> bytevalue
b'\x00\x00\x00'
>>>
```



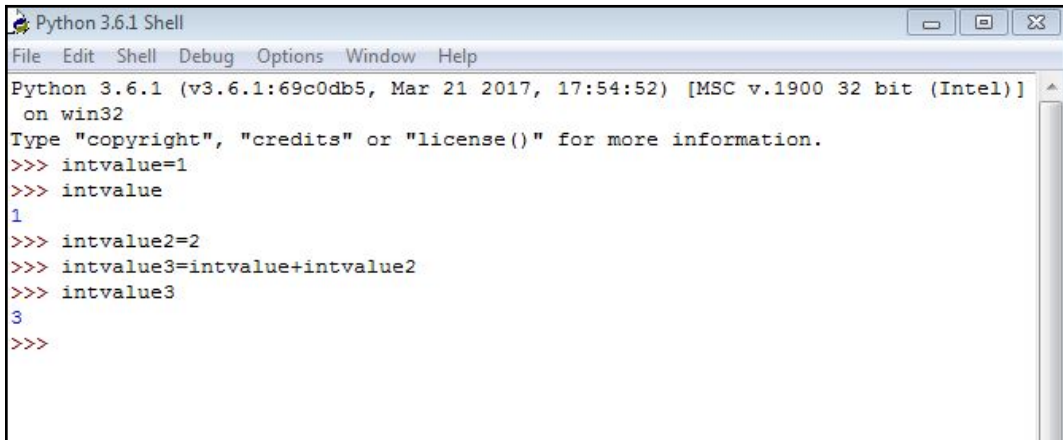
```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> listvalue = [1, 2, 3, 4, 5]
>>> listvalue
[1, 2, 3, 4, 5]
>>> tuplevalue = ("one", "two")
>>> tuplevalue
('one', 'two')
>>> setvalue = set(["India", "US", "UK"])
>>> setvalue
{'India', 'UK', 'US'}
>>> dictvalue = {'Country': 'India', 'Currency': 'Rupee', 'Capital': 'Delhi'}
>>> dictvalue
{'Country': 'India', 'Currency': 'Rupee', 'Capital': 'Delhi'}
>>> |
```

```
>>> type(listvalue)
<class 'list'>
>>> type(setvalue)
<class 'set'>
>>> type(dictvalue)
<class 'dict'>
>>> type(tuplevalue)
<class 'tuple'>
>>> |
```



The screenshot shows a Python 3.6.1 Shell window with a menu bar (File, Edit, Shell, Debug, Options, Window, Help) and a title bar (Python 3.6.1 Shell). The main text area displays the following code and output:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> stringval="1"
>>> stringval
'1'
>>> stringval2="2"
>>> stringval2
'2'
>>> stringval3 =stringval+stringval2
>>> stringval3
'12'
>>>
```



The screenshot shows a Python 3.6.1 Shell window with a menu bar (File, Edit, Shell, Debug, Options, Window, Help) and a title bar (Python 3.6.1 Shell). The main text area displays the following code and output:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> intvalue=1
>>> intvalue
1
>>> intvalue2=2
>>> intvalue3=intvalue+intvalue2
>>> intvalue3
3
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> stringvalue='1'
>>> intvalue=2
>>> mixedvalue=stringvalue+intvalue
Traceback (most recent call last):
  File "<pyshell#2>", line 1, in <module>
    mixedvalue=stringvalue+intvalue
TypeError: must be str, not int
>>> |
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> if 2>3:
    print ("left value is greater")
else:
    print ("right value is greater")

right value is greater
>>>
```

```
nestedcondition.py - C:/a1/nestedcondition.py (3.6.1)
File Edit Format Run Options Window Help
marks=85
if marks <= 45:
    print ("Grade C")
elif marks > 45 and marks <= 75:
    print ("Grade B")
elif marks > 75:
    print ("Grade A")
else:
    print ("Unable to determine")

Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/nestedcondition.py =====
Grade A
>>> |
```

```
nestedcondition.py - C:/a1/nestedcondition.py (3.6.1)
File Edit Format Run Options Window Help
car_details="Car is blue color and a sedan"

if "Car" in car_details:
    if "blue" in car_details:
        if "sedan" in car_details:
            print ("I will buy this car")
        else:
            print ("This is not a sedan")
    else:
        print ("This is not a blue car")
else:
    print ("This is not a car")

Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/nestedcondition.py =====
I will buy this car
>>>
```



```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> for x in range(1,10):
    print (x)

1
2
3
4
5
6
7
8
9
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> countries=['India','UK','USA','France']
>>> for country in countries:
    print (country + " is good")

India is good
UK is good
USA is good
France is good
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>> x=1
>>> while True:
    print (x)
    if x>=10:
        break
    x=x+1

1
2
3
4
5
6
7
8
9
10
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/book/checkvowel.py =====
Enter country name:India
Vowel found
>>>
===== RESTART: C:/a1/book/checkvowel.py =====
Enter country name:UK
No vowel found
>>>
===== RESTART: C:/a1/book/checkvowel.py =====
Enter country name:USA
Vowel found
>>>
```

The image shows a Python IDE window titled "checkfunction.py - C:/gdrive/bookwriting/checkfunction.py (3.6.1)". The code in the editor is as follows:

```
def checkgreaternumber(number1,number2):
    if number1 > number2:
        print ("Greater number is ",number1)
    else:
        print ("Greater number is",number2)
checkgreaternumber(2,4)
checkgreaternumber(3,1)
```

Below the editor is a "Python 3.6.1 Shell" window. It displays the output of the script:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/gdrive/bookwriting/checkfunction.py =====
Greater number is 4
Greater number is 3
>>>
```

The image shows a Python IDE window titled "checkfunction.py - C:/gdrive/bookwriting/checkfunction.py (3.6.1)". The code in the editor is as follows:

```
def checkgreaternumber(number1,number2=5):
    if number1 > number2:
        return number1
    else:
        return number2
print ("Greater value is",checkgreaternumber(3))
print ("Greater value is",checkgreaternumber(6))
print ("Greater value is",checkgreaternumber(1,4))
```

Below the editor is a "Python 3.6.1 Shell" window. It displays the output of the script:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/gdrive/bookwriting/checkfunction.py =====
Greater value is 5
Greater value is 6
Greater value is 4
>>>
```

The image shows a screenshot of a Python IDE with two windows. The top window is titled "checkfunction.py - C:/gdrive/bookwriting/checkfunction.py (3.6.1)" and contains the following Python code:

```
globalval=6

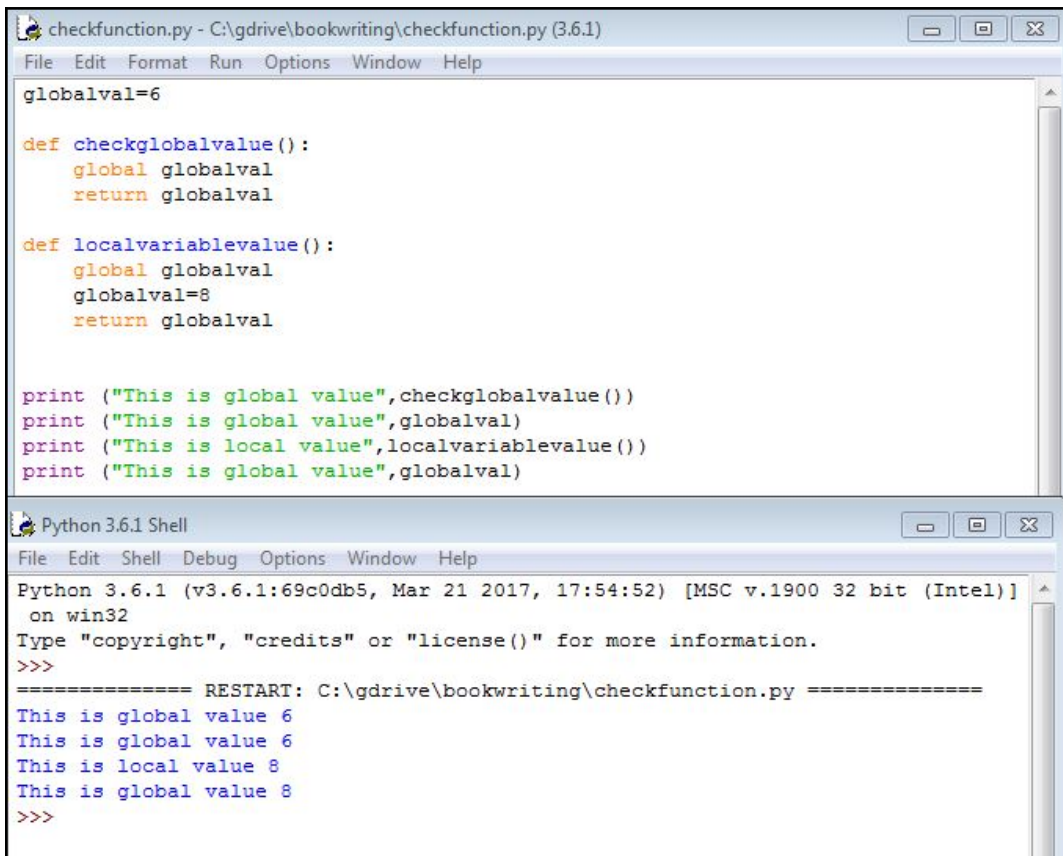
def checkglobalvalue():
    return globalval

def localvariablevalue():
    globalval=8
    return globalval

print ("This is global value",checkglobalvalue())
print ("This is global value",globalval)
print ("This is local value",localvariablevalue())
print ("This is global value",globalval)
```

The bottom window is titled "Python 3.6.1 Shell" and shows the execution output:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/gdrive/bookwriting/checkfunction.py =====
This is global value 6
This is global value 6
This is local value 8
This is global value 6
>>>
```



The image shows a screenshot of a Python IDE window titled "checkfunction.py - C:\gdrive\bookwriting\checkfunction.py (3.6.1)". The window contains a Python script with the following code:

```
globalval=6

def checkglobalvalue():
    global globalval
    return globalval

def localvariablevalue():
    global globalval
    globalval=8
    return globalval

print ("This is global value",checkglobalvalue())
print ("This is global value",globalval)
print ("This is local value",localvariablevalue())
print ("This is global value",globalval)
```

Below the script is a "Python 3.6.1 Shell" window showing the execution output:

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\gdrive\bookwriting\checkfunction.py =====
This is global value 6
This is global value 6
This is local value 8
This is global value 8
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/book/checkparallel.py =====
22:11:31.791000
22:11:31.795000
22:11:31.797000
22:11:31.799000
22:11:31.802000
22:11:31.804000
22:11:31.806000
22:11:31.807000
22:11:31.809000

Now printing parallel threads

22:11:31.813000
22:11:31.814000
22:11:31.814000
22:11:31.814000
22:11:31.815000

22:11:31.814000
22:11:31.815000

22:11:31.815000
22:11:31.816000

>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/checknetmiko.py =====
Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-M), Version 12.4(15)T14
, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Tue 17-Aug-10 12:55 by prod_rel_team

ROM: ROMMON Emulation Microcode
ROM: 3700 Software (C3745-ADVENTERPRISEK9-M), Version 12.4(15)T14, RELEASE SOFTW
ARE (fc2)

|testrouter uptime is 2 minutes
System returned to ROM by unknown reload cause - suspect boot_data[BOOT_COUNT] 0
x0, BOOT_COUNT 0, BOOTDATA 19
System image file is "tftp://255.255.255.255/unknown"

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco 3745 (R7000) processor (revision 2.0) with 249856K/12288K bytes of memory.
Processor board ID FTX0945WOMY
R7000 CPU at 350MHz, Implementation 39, Rev 2.1, 256KB L2, 512KB L3 Cache
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/checknetmiko.py =====
Before config push
Building configuration...

Current configuration : 102 bytes
!
interface FastEthernet0/0
 ip address 192.168.255.249 255.255.255.252
 duplex auto
 speed auto
end

After config push
Building configuration...

Current configuration : 123 bytes
!
interface FastEthernet0/0
 description my test
 ip address 192.168.255.249 255.255.255.252
 duplex auto
 speed auto
end

>>>
```


this product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: <http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

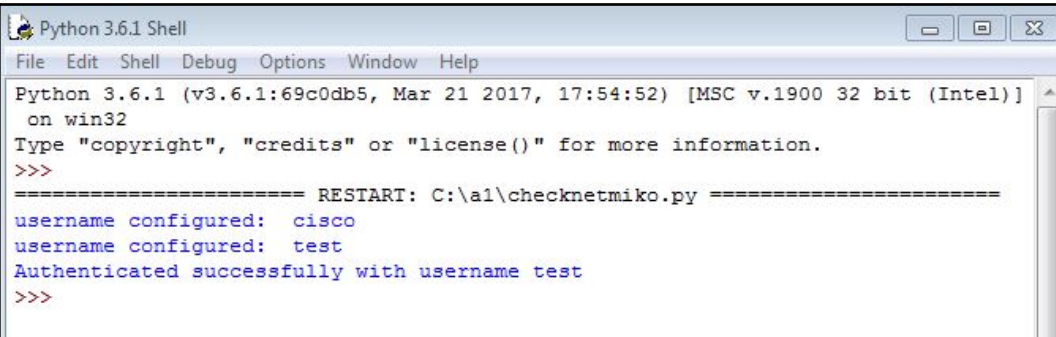
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco 3745 (R7000) processor (revision 2.0) with 249856K/12288K bytes of memory.
Processor board ID FTX0945WOMY
R7000 CPU at 350MHz, Implementation 39, Rev 2.1, 256KB L2, 512KB L3 Cache
3 FastEthernet interfaces
1 Serial(sync/async) interface
DRAM configuration is 64 bits wide with parity enabled.
151K bytes of NVRAM.

Configuration register is 0x2102

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.255.249	YES	NVRAM	up	up
Serial0/0	unassigned	YES	NVRAM	administratively down	down
FastEthernet0/1	unassigned	YES	NVRAM	administratively down	down
FastEthernet1/0	unassigned	YES	NVRAM	administratively down	down

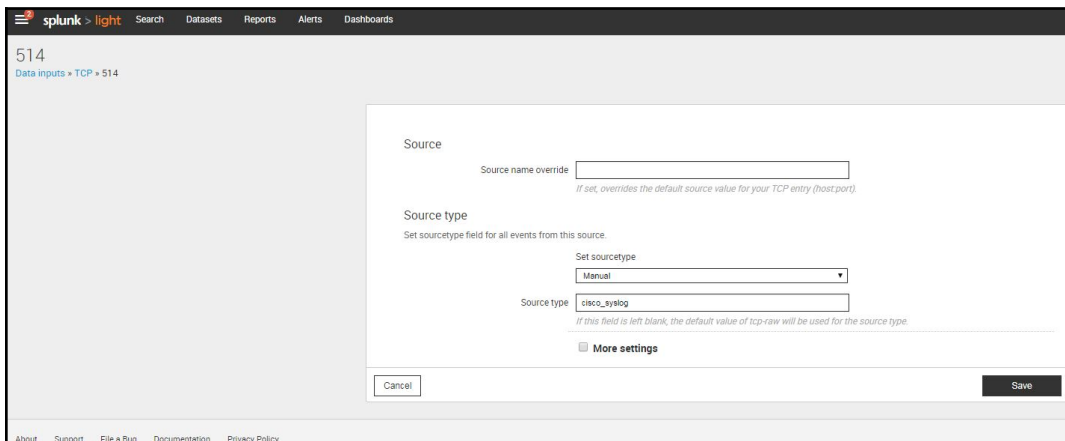
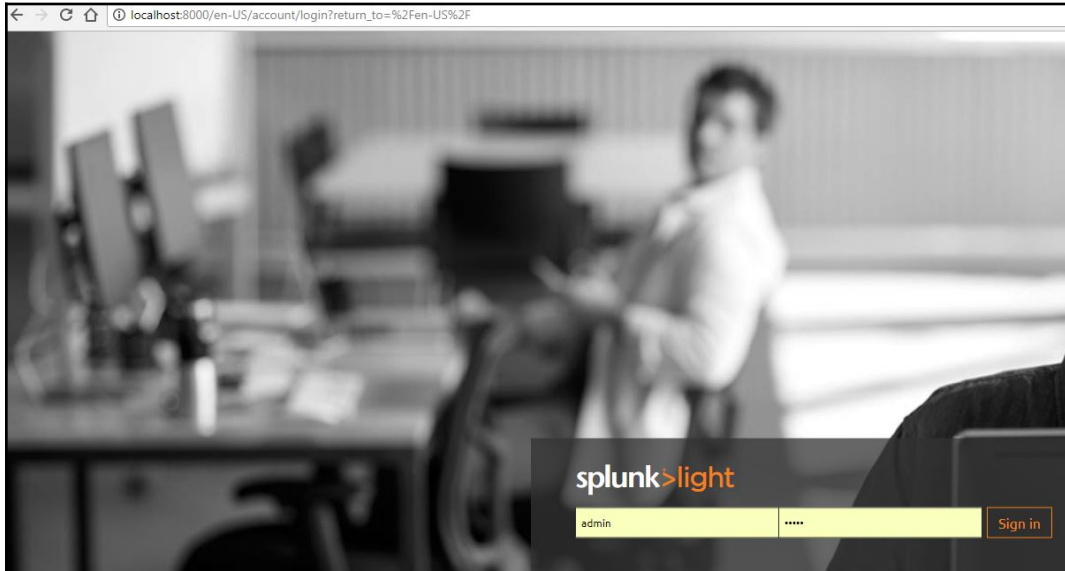
*00:26:48.907 UTC Fri Mar 1 2002
username configured: cisco
>>>



```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\a1\checknetmiko.py =====
username configured: cisco
username configured: test
Authenticated successfully with username test
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\a1\checknetmiko.py =====
username configured: test
>>>
```

Chapter 3: Continuous Integration for Network Engineers




```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/bgpconfigpush.py =====
config term
Enter configuration commands, one per line. End with CNTL/Z.
testrouter(config)#router bgp 200
testrouter(config-router)# neighbor 192.168.255.248 remote-as 200
testrouter(config-router)#end
testrouter#
Building configuration...
[OK]
Now sleeping for 5 seconds....
Remote IP 192.168.255.248 on local router 192.168.255.249 is in ESTABLISHED state
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/bgpconfigpush.py =====
config term
Enter configuration commands, one per line. End with CNTL/Z.
testrouter(config)#router bgp 200
testrouter(config-router)# neighbor 192.168.255.248 remote-as 400
testrouter(config-router)#end
testrouter#
Building configuration...
[OK]
Now sleeping for 5 seconds....
Remote IP 192.168.255.248 on local router 192.168.255.249 is NOT IN ESTABLISHED state
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/bgpipaddressiter.py =====
[Building configuration...']
[Current configuration : 1514 bytes]
[Version 12.4]
[service timestamps debug datetime msec]
[service timestamps log datetime msec]
[no service password-encryption]
[hostname testrouter]
[boot-start-marker]
[boot-end-marker]
[no aaa new-model]
[no ip icmp rate-limit unreachable]
[ip cef]
[no ip domain lookup]
[ip domain name mycheck.com]
[multilink bundle-name authenticated]
[username test privilege 15 secret 5 $1$TmPC$DCmserSyR7AOyzMMDYpKp.]
[username cisco privilege 15 secret 5 $1$JOrL$9176BjgDfV1Y80AlhJILf1']
[username checkme password 0 checkme]
[archive, ' log config', ' hidekeys']
[ip tcp synwait-time 5]
[ip ssh version 2']
[interface FastEthernet0/0, ' description my test', ' ip address 192.168.255.249 255.255.255.0', ' duplex auto', ' speed auto']
[interface Serial0/0, ' no ip address', ' shutdown', ' clock rate 2000000']
[interface FastEthernet0/1, ' description this is checkme', ' no ip address', ' shutdown', ' duplex auto', ' speed auto']
[interface FastEthernet1/0, ' no ip address', ' shutdown', ' duplex auto', ' speed auto']
[router bgp 200, ' no synchronization', ' bgp log-neighbor-changes', ' neighbor 192.168.255.248 remote-as 200', ' no auto-summary']
[ip forward-protocol nd]
[no ip http server]
[no ip http secure-server]
[snmp-server community public RO]
[no cdp log mismatch duplex]
[control-plane]
[line con 0, ' exec-timeout 0 0', ' privilege level 15', ' logging synchronous']
[line aux 0, ' exec-timeout 0 0', ' privilege level 15', ' logging synchronous']
[line vty 0 4, ' exec-timeout 5 0', ' login local', ' transport input ssh']
[end]
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/bgpipconfig.py =====
Remote ip: 192.168.255.248
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/bgpwhois.py =====
AS info for hostname :google.com
15169
GOOGLE - Google Inc., US
AS info for IP : 107.155.8.0
3356
LEVEL3 - Level 3 Communications, Inc., US
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/apvlanpush.py =====
config term
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet2/0
R3(config-if)#switchport mode trunk
R3(config-if)#switchport trunk encapsulation dot1q
R3(config-if)#switchport trunk native vlan 10
R3(config-if)#switchport trunk allowed vlan add 10,100,200
R3(config-if)#no shut
R3(config-if)#end
R3#
Name: Fa2/0
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: down
Administrative Trunking Encapsulation: dot1q
Negotiation of Trunking: Disabled
Access Mode VLAN: 0 ((Inactive))
Trunking Native Mode VLAN: 10 ((Inactive))
Trunking VLANs Enabled: ALL
Trunking VLANs Active: none
Priority for untagged frames: 0
Override vlan tag priority: FALSE
Voice VLAN: none
Appliance trust: none
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/apvlanpush.py =====
config term
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet2/0
R3(config-if)#switchport mode trunk
R3(config-if)#switchport trunk encapsulation dot1q
R3(config-if)#switchport trunk native vlan 10
R3(config-if)#switchport trunk allowed vlan add 10,100,200
R3(config-if)#no shut
R3(config-if)#end
R3#

Validating switchport....FastEthernet2/0
Name: Fa2/0
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: down
Administrative Trunking Encapsulation: dot1q
Negotiation of Trunking: Disabled
Access Mode VLAN: 0 ((Inactive))
Trunking Native Mode VLAN: 10 ((Inactive))
Trunking VLANs Enabled: ALL
Trunking VLANs Active: none
Priority for untagged frames: 0
Override vlan tag priority: FALSE
Voice VLAN: none
Appliance trust: none

Now changing native VLAN on switchport FastEthernet2/0
config term
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet2/0
R3(config-if)#switchport trunk native vlan 20
R3(config-if)#end
R3#
```



```
Validating switchport...FastEthernet2/0
Name: Fa2/0
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: down
Administrative Trunking Encapsulation: dot1q
Negotiation of Trunking: Disabled
Access Mode VLAN: 0 ((Inactive))
Trunking Native Mode VLAN: 20 ((Inactive))
Trunking VLANs Enabled: ALL
Trunking VLANs Active: none
Priority for untagged frames: 0
Override vlan tag priority: FALSE
Voice VLAN: none
Appliance trust: none
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/iphonepush.py =====
config term
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet2/5
R3(config-if)#switchport mode access
R3(config-if)#switchport access vlan 100
R3(config-if)#switchport voice vlan 200
R3(config-if)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single host.
Connecting hubs, concentrators, switches, bridges, etc.to this interface
when portfast is enabled, can cause temporary spanning tree loops.
Use with CAUTION

%Portfast has been configured on FastEthernet2/5 but will only
have effect when the interface is in a non-trunking mode.
R3(config-if)#no shut
R3(config-if)#end
R3#

Validating switchport....FastEthernet2/5
Name: Fa2/5
Switchport: Enabled
Administrative Mode: static access
Operational Mode: down
Administrative Trunking Encapsulation: dot1q
Negotiation of Trunking: Disabled
Access Mode VLAN: 100 (VLAN0100)
Trunking Native Mode VLAN: 1 (default)
Trunking VLANs Enabled: ALL
Trunking VLANs Active: none
Priority for untagged frames: 0
Override vlan tag priority: FALSE
Voice VLAN: 200
Appliance trust: none
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/a1/checksolarwindsipam.py =====
My IPAM test:
{'results': [{'Status': 2, 'DisplayName': '10.15.10.2'}]}
Avaliable: 10.15.10.2
>>>
```

localhost/test/prepostch x

localhost/test/prepostcheck.html

Pre/Post check selection

Host IP: (Multiple IPs seperated by comma)

Commands (Select):

- show version
- show ip int brief
- show interface description
- show clock
- show log (last 100)
- show run
- show ip bgp summary
- show ip route
- show ip route summary
- show ip ospf
- show interfaces status

Maintenance ID:

Pre/Post:

Precheck

Postcheck

localhost/test/prepostcheck.html

localhost/test/prepostcheck.html

Pre/Post check selection

Host IP: (Multiple IPs seperated by comma)

Commands (Select):

- show version
- show ip int brief
- show interface description
- show clock
- show log (last 100)
- show run
- show ip bgp summary
- show ip route
- show ip route summary
- show ip ospf
- show interfaces status

Maintenance ID:

Pre/Post:

Precheck

Postcheck

! Please fill out this field.

localhost/test/prepostch x

localhost/test/prepostcheck.html

Pre/Post check selection

Host IP: (Multiple IPs seperated by comma)

Commands (Select):

- show version
- show ip int brief
- show interface description
- show clock
- show log (last 100)
- show run
- show ip bgp summary
- show ip route
- show ip route summary
- show ip ospf
- show interfaces status

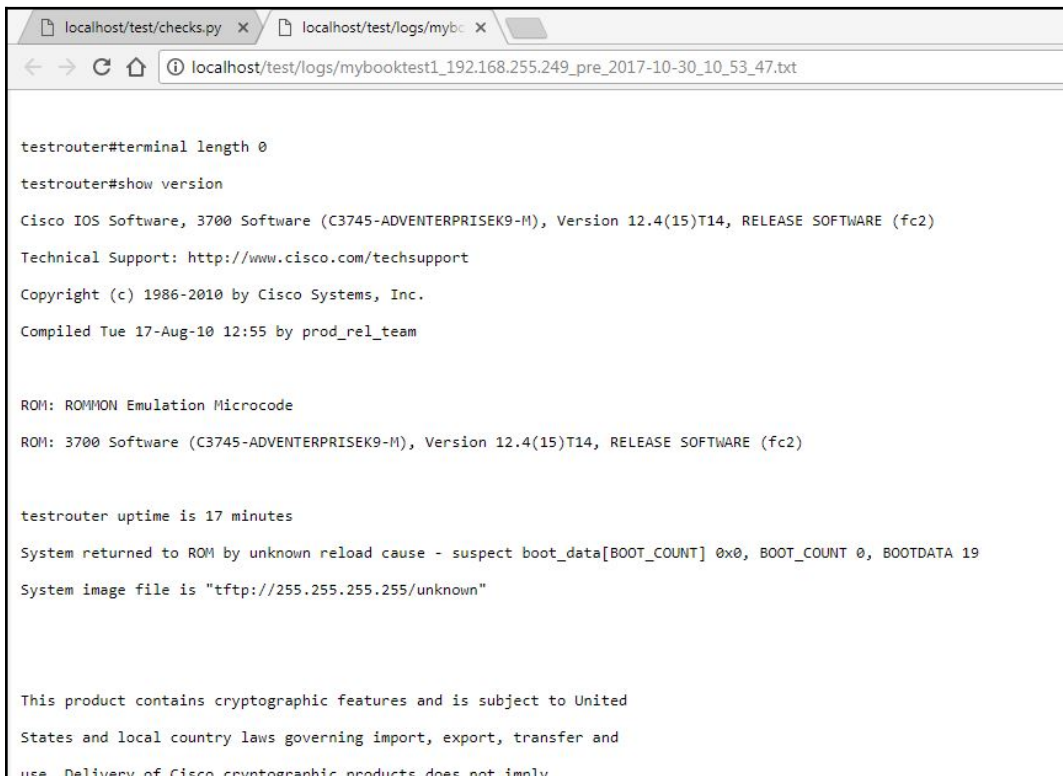
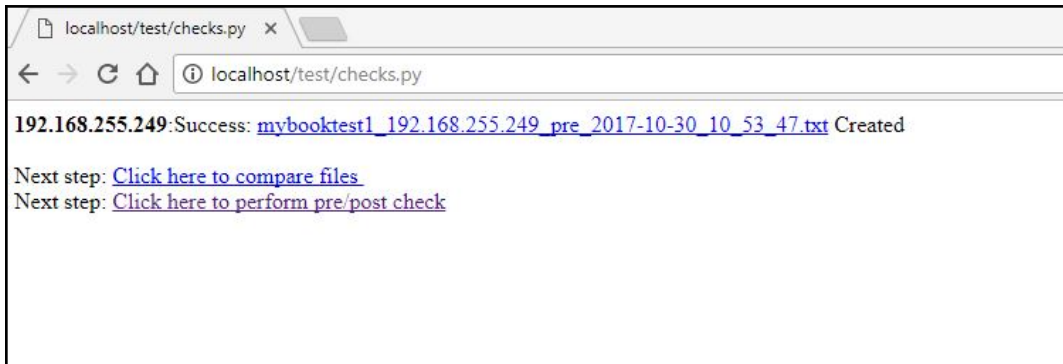
Maintenance ID:

Pre/Post:

Precheck

Postcheck

Please be Patient.... Gathering results!!!



localhost/test/prepostch x

localhost/test/prepostcheck.html

Pre/Post check selection

Host IP: (Multiple IPs seperated by comma)

192.168.255.249

Commands (Select):

- show version
- show ip int brief
- show interface description
- show clock
- show log (last 100)
- show run
- show ip bgp summary
- show ip route
- show ip route summary
- show ip ospf
- show interfaces status

Maintenance ID:

Pre/Post:

Precheck

Postcheck

Please be Patient.... Gathering results!!!

localhost/test/checks.py x

localhost/test/checks.py

192.168.255.249:Success: [mybooktest1_192.168.255.249_post_2017-10-30_11_01_46.txt](#) Created

Next step: [Click here to compare files](#)

Next step: [Click here to perform pre/post check](#)

localhost/test/selectfiles: x

localhost/test/selectfiles.aspx

Pre check files (Sorted by Last Modified Date)

mybooktest1_192.168.255.249_pre_2017-10-30_10_53_47.txt (10/30/2017 10:54:02 AM)

Post check files (Sorted by Last Modified Date)

mybooktest1_192.168.255.249_post_2017-10-30_11_01_46.txt (10/30/2017 11:02:01 AM)

Submit

localhost/test/selectfiles: x

localhost/test/selectfiles.aspx

Pre check files (Sorted by Last Modified Date)

mybooktest1_192.168.255.249_pre_2017-10-30_10_53_47.txt (10/30/2017 10:54:02 AM)

Post check files (Sorted by Last Modified Date)

mybooktest1_192.168.255.249_post_2017-10-30_11_01_46.txt (10/30/2017 11:02:01 AM)

Submit

localhost/test/compare: x

localhost/test/comparefiles.aspx

Context size (optional):

Pre check **Post check**

```

testrouter#terminal length 0
testrouter#show version
Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Tue 17-Aug-10 12:55 by prod_rel_team

ROM: ROMMON Emulation Microcode
ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)

```

Side by Side Diff | Inline Diff

Base Text	New Text
1	1
2 testrouter#terminal length 0	2 testrouter#terminal length 0
3	3
4 testrouter#show version	4 testrouter#show version
5	5
6 Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)	6 Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
7	7
8 Technical Support: http://www.cisco.com/techsupport	8 Technical Support: http://www.cisco.com/techsupport
9	9
10 Copyright (c) 1986-2010 by Cisco Systems, Inc.	10 Copyright (c) 1986-2010 by Cisco Systems, Inc.
11	11
12 Compiled Tue 17-Aug-10 12:55 by prod_rel_team	12 Compiled Tue 17-Aug-10 12:55 by prod_rel_team
13	13
14	14
15	15
16 ROM: ROMMON Emulation Microcode	16 ROM: ROMMON Emulation Microcode
17	17
18 ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)	18 ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
19	19
20	20
21	21
22 testrouter uptime is 17 minutes	22 testrouter uptime is 25 minutes
23	23

localhost/test/compare/ X

localhost/test/comparefiles.aspx

Context size (optional):

Pre check

```
testrouter#terminal length 0
testrouter#show version
Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Tue 17-Aug-10 12:55 by prod_rel_team

ROM: ROMMON Emulation Microcode
ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
```

Post check

```
testrouter#terminal length 0
testrouter#show version
Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Tue 17-Aug-10 12:55 by prod_rel_team

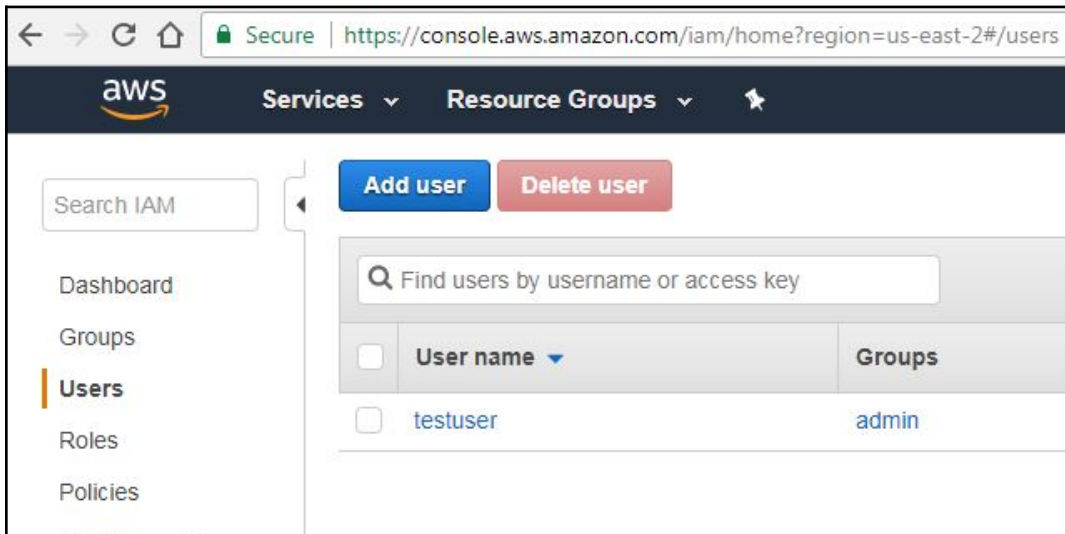
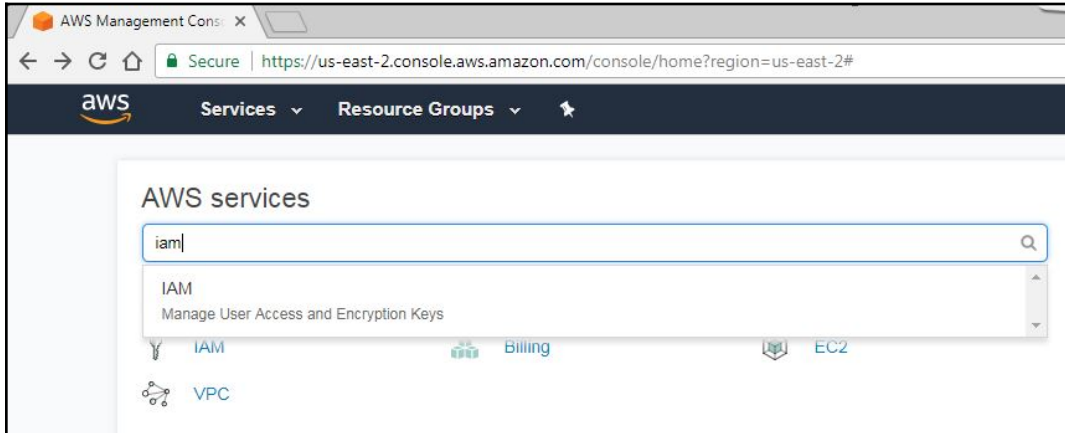
ROM: ROMMON Emulation Microcode
ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
```

Side by Side Diff Inline Diff

Base Text vs. New Text

1	1
2	2 testrouter#terminal length 0
3	3
4	4 testrouter#show version
5	5
6	6 Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
7	7
8	8 Technical Support: http://www.cisco.com/techsupport
9	9
10	10 Copyright (c) 1986-2010 by Cisco Systems, Inc.
11	11
12	12 Compiled Tue 17-Aug-10 12:55 by prod_rel_team
13	13
14	14
15	15
16	16 ROM: ROMMON Emulation Microcode
17	17
18	18 ROM: 3700 Software (C3745-ADVENTERPRISEK9-H), Version 12.4(15)T14, RELEASE SOFTWARE (fc2)
19	19
20	20
21	21
22	22 testrouter uptime is 17 minutes
23	23 testrouter uptime is 20 minutes
24	24

Chapter 4: SDN Concepts in Network Automation



Add user



Details

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

[+ Add another user](#)


Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

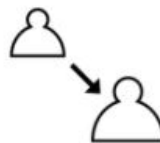
- Access type*
- Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS AP
 - AWS Management Console access**
Enables a **password** that allows users to sign-in to the AWS Mana

aws Services ▾ Resource Groups ▾


Set permissions for booktest



Add user to group



Copy permissions from existing user



Attach existing policies directly

Add user to an existing group or create a new one. Using groups is a best-practice way to manage users.

Create group
Refresh

	Group ▾	Attached policies
<input checked="" type="checkbox"/>	admin	AdministratorAccess

Add user

1 Details
2 Permissions
3 Review

Success

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: <https://425388426042.signin.aws.amazon.com/console>

Download .csv

	User	Access key ID	Secret access key
<input checked="" type="checkbox"/>	booktest	AKIAI44QH8D8EXAMPLE	***** Show

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\abhishek.ratan>aws configure
AWS Access Key ID [*****GC4A]:
AWS Secret Access Key [*****UmSm]:
Default region name [us-east-2]:
Default output format [json]:

C:\Users\abhishek.ratan>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.190
on win32
Type "copyright", "credits" or "license()" for more information
>>>
===== RESTART: C:\a1\checkaws.py =====
ec2.Instance(id='i-036213d00a2891480')
i-036213d00a2891480 {'Code': 16, 'Name': 'running'}
ec2.Instance(id='i-04e997e0366f01090')
i-04e997e0366f01090 {'Code': 16, 'Name': 'running'}
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 b
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\a1\checkaws.py =====
i-036213d00a2891480 172.31.47.84
i-04e997e0366f01090 172.31.33.197
>>>
```

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start 1 to 34 of 34 AMIs

Category	AMI Name	Description	Root Device Type	Virtualization Type	Architecture	Action
My AMIs						
AWS Marketplace						
Community AMIs						
<input checked="" type="checkbox"/> Free tier only	Amazon Linux AMI 2017.09.0 (HVM), SSD Volume Type - ami-c5062ba0	The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.	ebs	hvm	64-bit	Select
	Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type - ami-cfdafaaa	Red Hat Enterprise Linux version 7.4 (HVM), EBS General Purpose (SSD) Volume Type	ebs	hvm	64-bit	Select
	SUSE Linux Enterprise Server 12 SP3 (HVM), SSD Volume Type - ami-1e785a7b	SUSE Linux Enterprise Server 12 Service Pack 3 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.			64-bit	Select

ARISTA Command API Explorer Overview Command Documentation

Request

```

{
  "jsonrpc": "2.0",
  "method": "runCmds",
  "params": {
    "version": 1,
    "cmds": [
      "show version",
      "show hostname"
    ],
    "format": "json",
    "timestamps": false
  },
  "id": "CapiExplorer-123"
}

```

Submit POST request

Response

```

{
  "jsonrpc": "2.0",
  "result": [
    {
      "modelName": "vE05",
      "internalVersion": "4.14.5F-2208015.4145F",
      "systemMacAddress": "08:00:27:0e:bf:31",
      "serialNumber": "",
      "memTotal": 2028800,
      "bootupTimestamp": 1418722057.28,
      "memFree": 264300,
      "version": "4.14.5F",
      "architecture": "i386",
      "internalBuildId": "34f48cf0-e8b0-4c86-96ce-f032ddccdd0",
      "hardwareRevision": ""
    },
    {
      "fqdn": "myswitch",
      "hostname": "myswitch"
    }
  ],
  "id": "CapiExplorer-123"
}

```

ARISTA Command API Explorer Overview Command Documentation

Search Commands

SHOW COMMANDS

- aaa
- aaa counters
- aliases
- arp [vrf <vrfName>] [resolve] [...]
- arp [vrf <vrfName>] [resolve] [...] summary
- arp monitor [vrf <vrfName>]
- arp monitor summary
- banner login
- banner motd
- boot-config
- boot-extensions
- class-map [type qos] [<cmName>]
- class-map type control-plane [<cmName>]
- class-map type pbr [<cmName>]
- cvx
- cvx connections
- cvx connections all
- cvx connections brief
- cvx connections client <hostname>
- cvx connections client <macAddr>

Command Response Documentation

All commands are guaranteed to have structured response format, documented here. If an attribute is marked as *optional*, its presence is not guaranteed in the resulting JSON responses.

show boot-config

BootConfig		
aboutPassword	string	Encrypted about password.
consoleSpeed	integer - optional	Baud rate of console.
memTestIterations	integer	Iterations of Memtest to perform at boot time.
softwareImage	string	Location of software image.

Admin > Node Management > Add Node

Add Node

DEFINE NODE > CHOOSE RESOURCES > ADD APPLICATION MONITORS > ADD POLLERS > ADD UDT PORTS > CHANGE PROPERTIES >

Define Node

Specify the node you want to add by completing the fields below. [Are you adding a large number of nodes? Try the Network Discovery.](#)

Polling Hostname or IP Address: IPv4 and IPv6 formats are both valid

Dynamic IP Address (DHCP or BOOTP)

Polling Method: [Help me choose a polling method](#)

- External Node: No Status
No data is collected for this node. Useful for monitoring a hosted application or other element on the node but not the node itself.
- Status Only: ICMP
Limited data (status, response time, and packet loss) is collected using ICMP (ping). Useful for devices which do not support SNMP or WMI.
- Most Devices: SNMP and ICMP
Standard polling method for network devices such as switches and routers, as well as Linux and Unix servers.

SNMP Version: SNMPv2c SNMPv2c is used, by default, when SNMPv3 is neither required nor supported.

SNMP Port: 161

Allow 64 bit counters

Community String: public Press down arrow to view all

Read/Write Community String:

Configuration Management

CONFIG MANAGEMENT | TRANSFER STATUS | INVENTORY STATUS | SCRIPT MANAGEMENT

GROUP BY: [No grouping]

DOWNLOAD | COMPARE NODE(S) CONFIGS | UPLOAD | EXECUTE SCRIPT | EDIT PROPERTIES | UPDATE INVENTORY

There is no selected node(s)

Page 1 of 15 | Page size 25

Name	IP Address	Last	Last action date	Error
10.0.252.1	10.0.252.1			
10.120.252.1	10.120.252.1			

HOME	▶	CONFIGS	
NETWORK	▶	Config Summary	Configuration Management
APPLICATIONS	▶	Config Change Templates	Reports
CONFIGS	▶	Jobs	Compliance
IP ADDRESSES	▶	Firmware Upgrades	End of Support
VOIP & NETWORK QUALITY	▶		
WEB	▶		
NETFLOW	▶		
DEVICE TRACKER	▶		

CONFIG MANAGEMENT	TRANSFER STATUS	INVENTORY STATUS	SCRIPT MANAGEMENT
-------------------	-----------------	------------------	--------------------------

A script is a string of text you can save to the NCM database for re-use - either in direct uploading/executing to one node or a group, or in editing an existing config file.

🔍 Arrange your scripts by Name, Creation Time, or Modified Time (when script was last changed).

⊕ ADD NEW SCRIPT | ✎ EDIT SCRIPT | 🗑️ DELETE [show running](#)

Script name ▲	Creation Time	Modified Time	Comments
<input checked="" type="checkbox"/> show running config	11/4/2017 11:38 pm	11/4/2017 11:38 pm	

Create New Job

CREATE JOB > CHOOSE NODES > ENTER NOTIFICATION DETAILS > ADD JOB SPECIFIC DETAILS > REVIEW >

New Job Details

Name of Job


Job Type

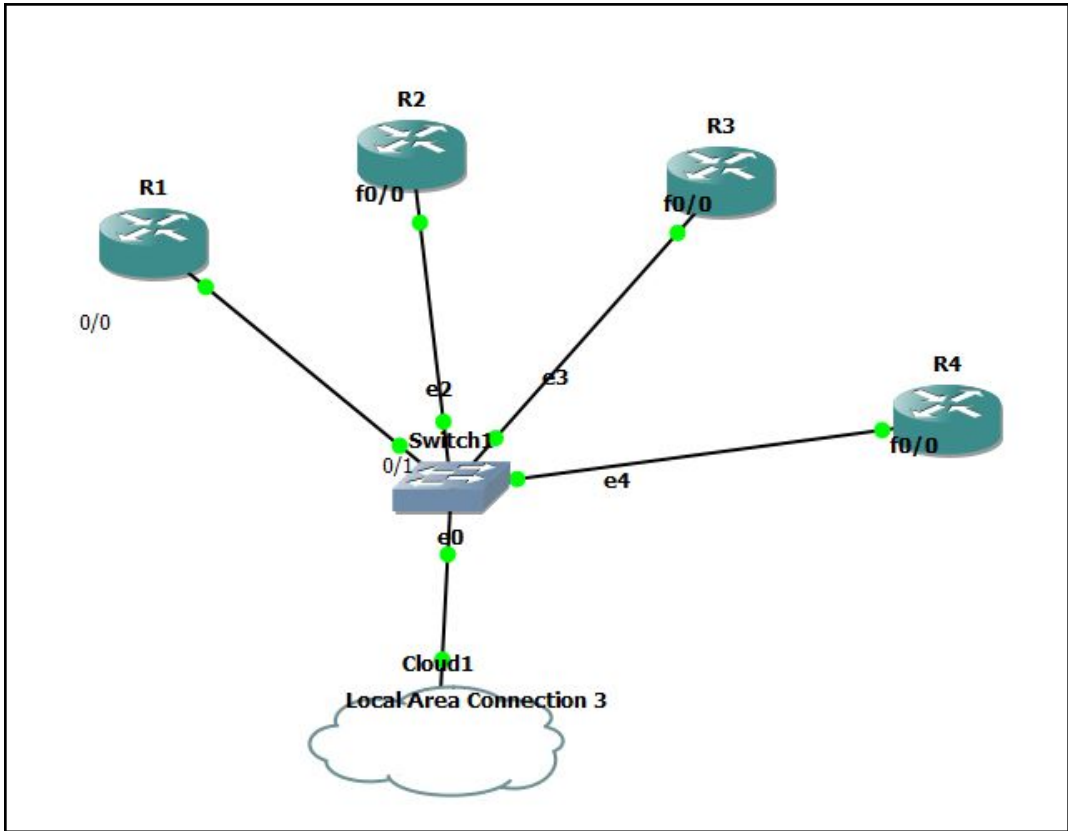
- Download Configs from Devices
- Execute Command Script on Devices
- Upload Changes to Devices
- Export Configs
- Perform Routine Database and Archive Maintenance
- Update Inventory
- Generate a Config Change Report
- Generate a Policy Report
- Purge Old Configs from Database
- Download Configs from Devices
- Reboot Selected Devices
- Baseline Entire Network

» Help me decide

Start time: Enter time values from 00:00 through 24:00. Use HH:MM format (NCM Server time: 11:09 UTC -7)

Starting On: 

Ending On: 



```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\pingmesh\getmeshvalue2.py =====
checking for.....192.168.255.240
checking for.....192.168.255.245
checking for.....192.168.255.248
checking for.....192.168.255.249
checking for.....4.2.2.2
Error connecting to ...4.2.2.2
[('192.168.255.240:192.168.255.240', 'True'), ('192.168.255.240:192.168.255.245',
'True'), ('192.168.255.240:192.168.255.248', 'True'), ('192.168.255.240:192.16
8.255.249', 'True'), ('192.168.255.240:4.2.2.2', 'False'), ('192.168.255.245:192
.168.255.240', 'True'), ('192.168.255.245:192.168.255.245', 'True'), ('192.168.2
55.245:192.168.255.248', 'True'), ('192.168.255.245:192.168.255.249', 'True'), (
'192.168.255.245:4.2.2.2', 'False'), ('192.168.255.248:192.168.255.240', 'True')
, ('192.168.255.248:192.168.255.245', 'True'), ('192.168.255.248:192.168.255.248
', 'True'), ('192.168.255.248:192.168.255.249', 'True'), ('192.168.255.248:4.2.2
.2', 'False'), ('192.168.255.249:192.168.255.240', 'True'), ('192.168.255.249:19
2.168.255.245', 'True'), ('192.168.255.249:192.168.255.248', 'True'), ('192.168.
255.249:192.168.255.249', 'True'), ('192.168.255.249:4.2.2.2', 'False'), ('4.2.2
.2:192.168.255.240', 'False'), ('4.2.2.2:192.168.255.245', 'False'), ('4.2.2.2:1
92.168.255.248', 'False'), ('4.2.2.2:192.168.255.249', 'False'), ('4.2.2.2:4.2.2
.2', 'False')]
>>>
```

```
Python 3.6.1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 17:54:52) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\pingmesh\pingmesh.py =====
checking for.....192.168.255.240
checking for.....192.168.255.245
checking for.....192.168.255.248
checking for.....192.168.255.249
checking for.....4.2.2.2
Error connecting to ...4.2.2.2
All done!!!!
>>>
```

localhost/test/pingmesh x
localhost/test/pingmesh.html

Network Health Dashboard

Last Modified: Sun Nov 05 2017 13:26:21 GMT+0530

Ping Matrix

Devices	R1	R2	R3	R4	Random
R1	True	True	True	True	False
R2	True	True	True	True	False
R3	True	True	True	True	False
R4	True	True	True	True	False
Random	False	False	False	False	False

Ping Matrix

Devices	R1	R2	R3	R4	Random
R1	True	True	True	True	False
R2	True	True	True	True	False
R3	True	True	True	True	False
R4	True	True	192.168.255.248:192.168.255.248		
Random	False	False	False	False	False

Ping Matrix

Devices	R1	R2	R3	R4	Random
R1	True	False	True	True	False
R2	False	False	False	False	False
R3	True	False	True	True	False
R4	True	False	True	True	False
Random	False	False	False	False	False

Ping Matrix

Devices	R1	R2	R3	R4	Random
R1	True	True	True	True	False
R2	True	True	True	False	False
R3	True	True	True	True	False
R4	True	False	True	True	False
Random	False	False	192.168.255.249:192.168.255.245		

Chapter 5: Low-Level Network Device Interactions

INTEROP Las Vegas

MAR 31-APR 4, 2014 EXPO: APR 1-3 -3

1993

```
Router> enable
Router# configure terminal
Router(config)# enable secret cisco
Router(config)# ip route 0.0.0.0 0.0.0.0 20.2.2.3
Router(config)# interface ethernet0
Router(config-if)# ip address 10.1.1.1 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# interface serial0
Router(config-if)# ip address 20.2.2.2 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# router rip
Router(config-router)# network 10.0.0.0
Router(config-router)# network 20.0.0.0
Router(config-router)# exit
Router(config)# exit
Router# copy running-config startup-config
Router# disable
Router>
```

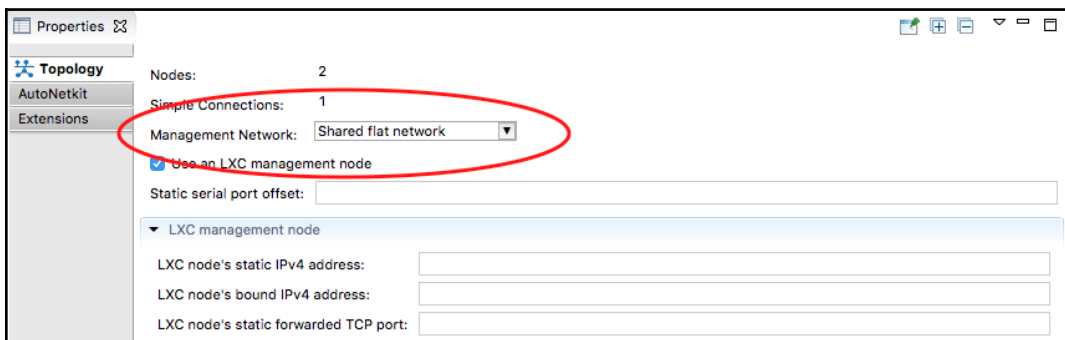
Terminal Protocol: **Telnet**

2013

```
Router> enable
Router# configure terminal
Router(config)# enable secret cisco
Router(config)# ip route 0.0.0.0 0.0.0.0 20.2.2.3
Router(config)# interface ethernet0
Router(config-if)# ip address 10.1.1.1 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# interface serial0
Router(config-if)# ip address 20.2.2.2 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# router rip
Router(config-router)# network 10.0.0.0
Router(config-router)# network 20.0.0.0
Router(config-router)# exit
Router(config)# exit
Router# copy running-config startup-config
Router# disable
Router>
```

Terminal Protocol: **SSH**





Chapter2.virl | ansible.virl

virl:topology

iosv-1
192.168.0.1

iosv-2
192.168.0.2

Properties

Node

AutoNetkit

Configuration

Extensions

Name: iosv-1

Subtype: IOSv

IPv4: 192.168.0.1

IPv6:

Static Serial Ports

(C)onsole port:

(A)uxiliary port:

(M)onitor port:

(E)xtra port:


VM Image: Browse...

VM Flavor: Browse...

Exclude node from simulation launch.

Other

Management interface static IPv4 address:


[Discover](#)
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[Log In](#) | [Register](#)

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[Learning Tracks](#)

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[Innovation Challenge](#)


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Cloud



Networking



Data Center



Security


Analytics & Automation



Open Source


Collaboration


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Why dCloud?


Fully scripted, customizable environments



Easy to get started

Login using your Cisco.com account and run

Download Documentation Community Marketplace Academy Login Sign Up

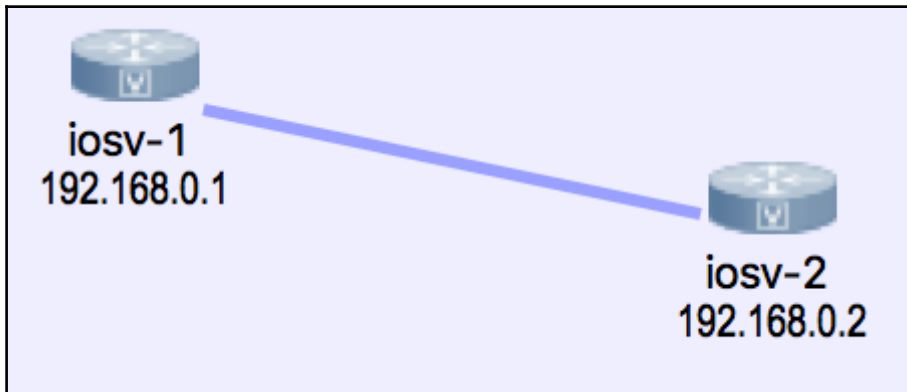


THE SOFTWARE THAT EMPOWERS NETWORK PROFESSIONALS.

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[Free Download](#) [Watch the Video](#)

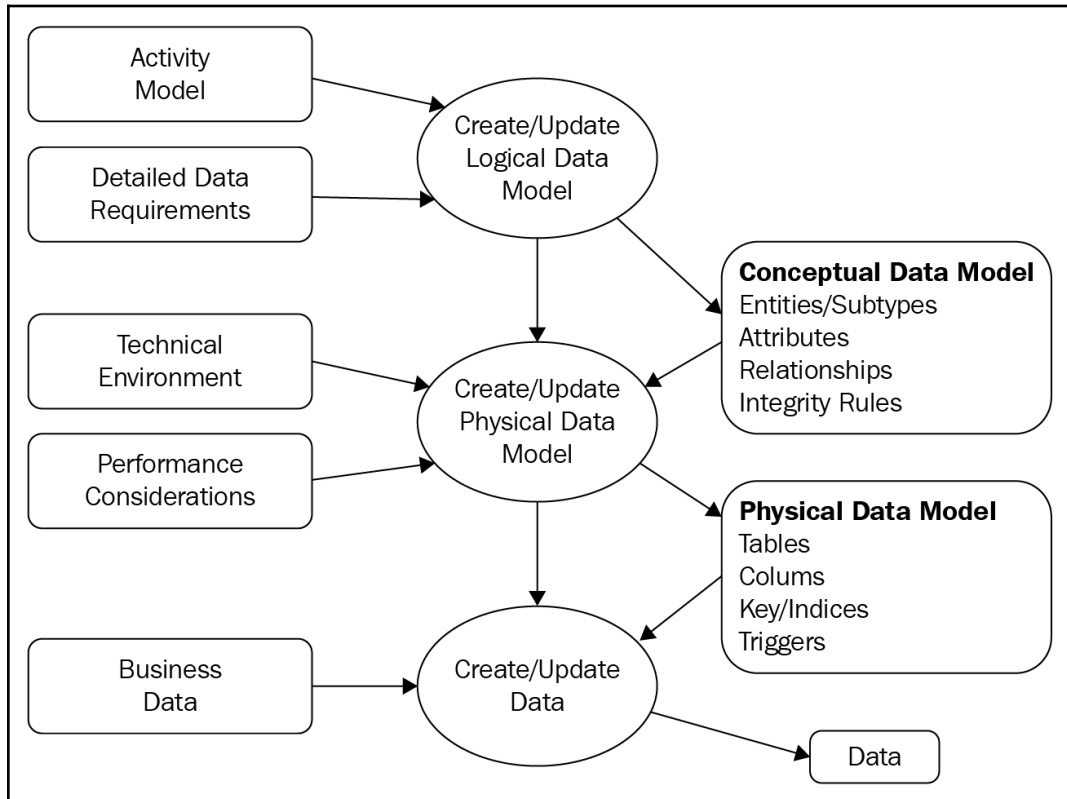
New GNS3 Software Release >> Check Out Version 1.5.3!

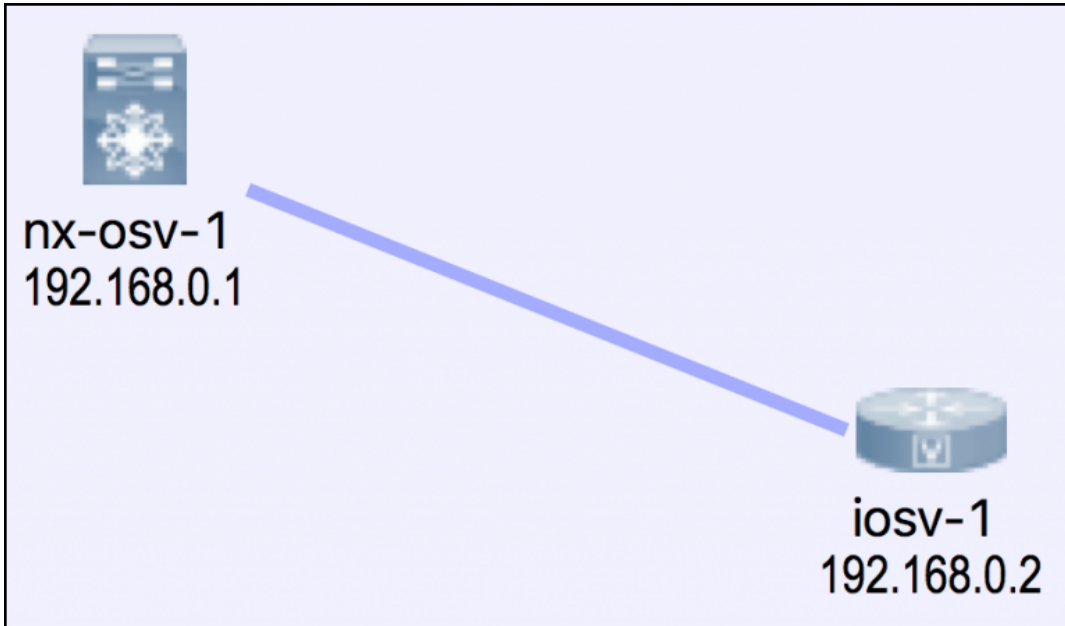


```
chapter2_topology.virt
1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <topology xmlns="http://www.cisco.com/VIRL" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" schem
3 <extensions>
4 <entry key="management_network" type="String" flat/>
5 </extensions>
6 <node name="iosv-1" type="SIMPLE" subtype="IOSv" location="90,64" ipv4="192.168.0.1">
7 <extensions>
8 <entry key="static_ip" type="String">172.16.1.20</entry>
9 <entry key="config" type="string">! IO Config generated on 2018-07-08 23:58
10 ! by autonetkit_0.24.0
11 !
12 hostname iosv-1
13 boot-start-marker
14 boot-end-marker
15 !
16 vrf definition Mgmt-intf
17 !
18 address-family ipv4
19 exit-address-family
20 !
21 address-family ipv6
22 exit-address-family
23 !
24 !
25 !
26 no aaa new-model
27 !
28 !
29 </node>
30 </topology>
```

The image shows a code editor window with a file explorer on the left and a code editor on the right. The file explorer shows a project named 'Chapter02' with several files including 'chapter2_topology.virt'. The code editor displays the content of 'chapter2_topology.virt', which is an XML file containing a Cisco IOS configuration. A red oval highlights the entire code block. Three red arrows point from specific XML elements to their corresponding configuration lines: one from the 'static_ip' entry to the 'hostname iosv-1' line, one from the 'config' entry to the 'boot-start-marker' line, and one from the 'node' element to the 'vrf definition Mgmt-intf' line.

Chapter 6: APIs and Intent-Driven Networking





Cisco NX-API Sandbox

172.16.1.90

NX-API Developer Sandbox Quick Start Logout

Enter CLI commands here, one command per line.

Message format: json-rpc xml json

Command type: cli cli_ascii

POST Reset Output Schema

REQUEST: Copy Python

RESPONSE: Copy

Copyright © 2014 Cisco Systems, Inc. All rights reserved. NX-API version 1.0

Cisco NX-API Developer Sandbox

172.16.1.90

Message format: **json-rpc** | xml | json

Command type: **cli** | cli_ascii

show version

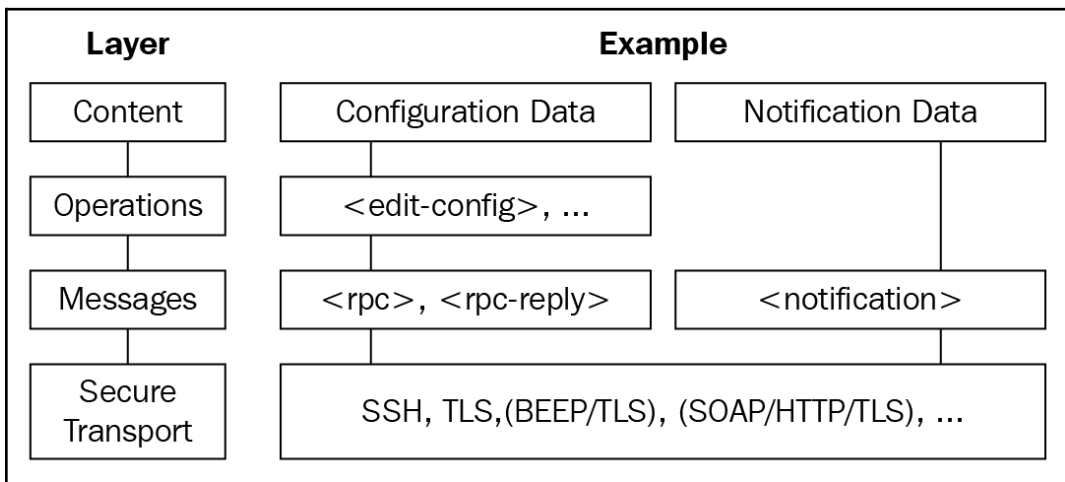
POST Reset Output Schema

REQUEST:

```
{
  "jsonrpc": "2.0",
  "method": "cli",
  "params": {
    "cmd": "show version",
    "version": 1.2
  },
  "id": 1
}
```

RESPONSE:

```
{
  "jsonrpc": "2.0",
  "result": {
    "body": {
      "header_str": "Cisco Nexus Operating System (NX-OS) Software\nTAC support: http://www.cisco.com/tac",
      "loader_ver_str": "N/A",
      "kickstart_ver_str": "7.2(0)D1(1) [build 7.2(0)ZD(0.120)]",
      "sys_ver_str": "7.2(0)D1(1) [build 7.2(0)ZD(0.120)]",
      "kick_file_name": "bootflash://titanium-d1-kickstart.7.2.0.ZD.0.120.bin",
      "kick_cmpl_time": " 3/8/2015 1:00:00",
      "kick_tmstp": "03/08/2015 11:04:12",
      "isan_file_name": "bootflash://titanium-d1.7.2.0.ZD.0.120.bin",
      "isan_cmpl_time": " 3/8/2015 1:00:00",
    }
  }
}
```



Not Secure https://192.168.199.158/explorer.html

ARISTA Command API Explorer Overview Command Documentation

Simple Request Script Editor

Simple eAPI request editor

This page lets you craft a single eAPI request, and explore the returned JSON. Note that this form creates real eAPI requests, so any configuration you perform will apply to this switch. Don't know where to start? Read the [API overview](#) or try one of these examples: [Check version](#), [Create an ACL](#), [Show virtual router](#), or [View running-config](#)!

API Endpoint Version

Commands

```
1
```

Format Timestamps ID

Request Viewer

```
1 "Enter commands above and click 'Submit POST request'"
```

Response Viewer

```
1
```

ARISTA Command API Explorer Overview Command Documentation

API Endpoint Version

Commands

```
1 show version
2
```

Format Timestamps ID

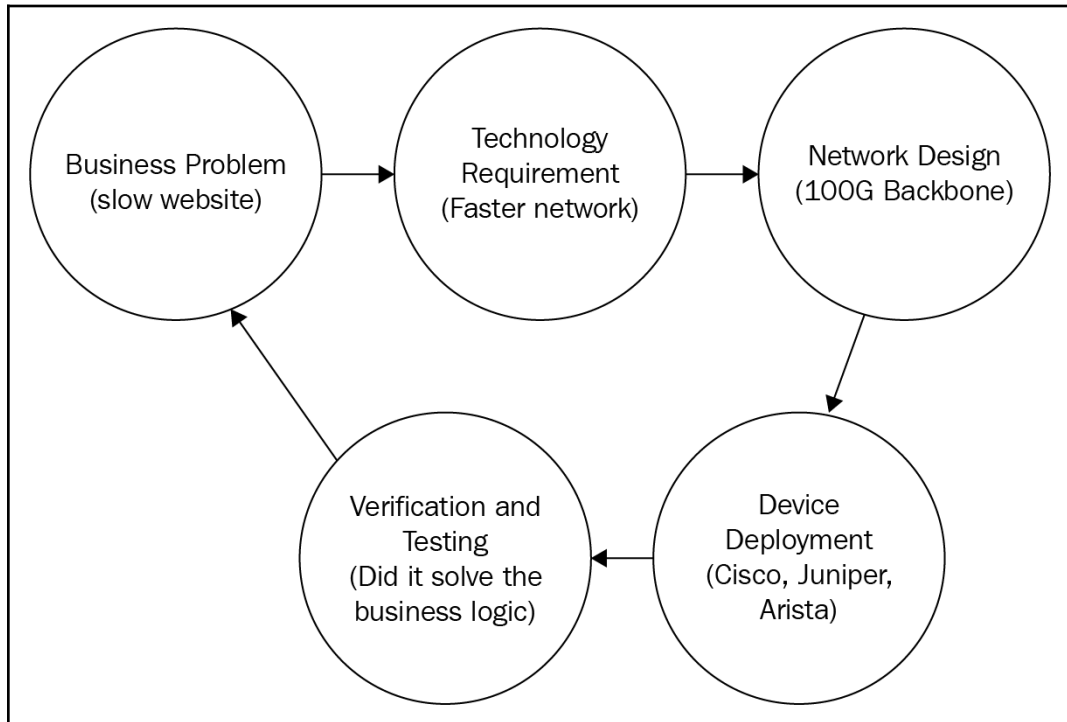
Request Viewer

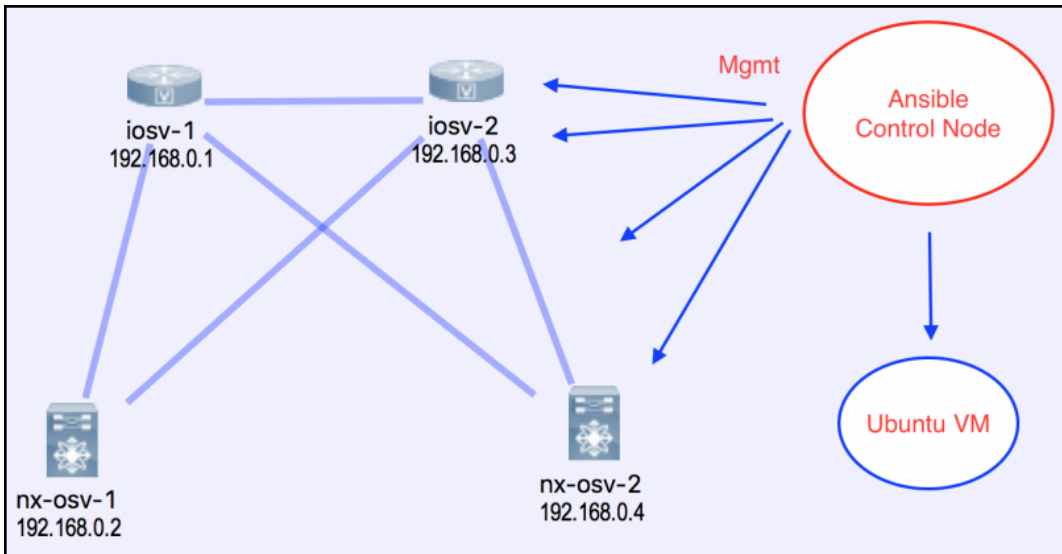
```
1- {
2   "jsonrpc": "2.0",
3   "method": "runCmds",
4-  "params": {
5     "format": "json",
6     "timestamps": false,
7-   "cmds": [
8     "show version"
9   ],
10  "version": 1
11 },
12 "id": "EapiExplorer-1"
13 }
```

Response Viewer

```
1- {
2   "jsonrpc": "2.0",
3-  "result": [
4-   {
5     "modelName": "DCS-7050QX-32-F",
6     "internalVersion": "4.16.6M-3205780.4166M",
7     "systemMacAddress": "00:1c:73:38:4a:f1",
8     "serialNumber": "JPE13131723",
9     "memTotal": 3978148,
10    "bootupTimestamp": 1465964219.71,
11    "memFree": 257952,
12    "version": "4.16.6M",
13    "architecture": "i386",
14    "isIntlVersion": false,
15    "internalBuildId": "373dbd3c-60a7-4736-8d9e-bf5e7d207689",
16    "hardwareRevision": "00.00"
17   }
18 ],
19 "id": "EapiExplorer-1"
20 }
```


Chapter 7: The Python Automation Framework - Ansible Basics





```

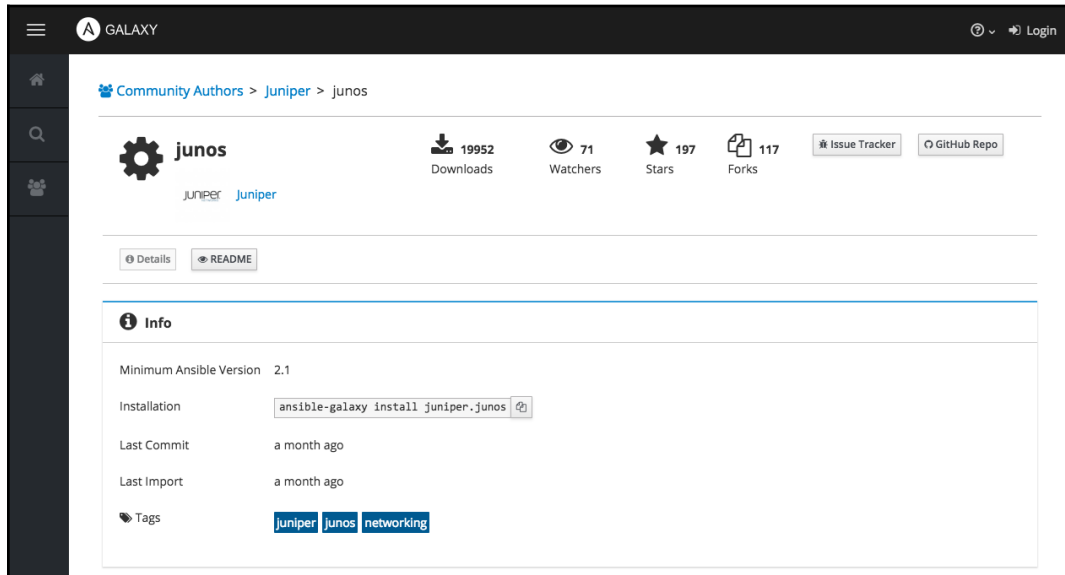
---
- hosts: 192.168.199.170
  tasks:
    - name: check disk usage
      shell: df > df_temp.txt
  
```

PLAYBOOK

PLAY

TASK

Chapter 8: The Python Automation Framework - Beyond Basics



The screenshot shows the Ansible Galaxy interface for the 'junos' collection. The page header includes the 'GALAXY' logo and a 'Login' link. The breadcrumb trail is 'Community Authors > Juniper > junos'. The main header features the 'junos' logo, 'JUNIPER Juniper' branding, and statistics: 19952 Downloads, 71 Watchers, 197 Stars, and 117 Forks. There are links for 'Issue Tracker' and 'GitHub Repo'. Below the header, there are tabs for 'Details' and 'README'. The 'Info' section provides the following details:

- Minimum Ansible Version: 2.1
- Installation: `ansible-galaxy install juniper.junos`
- Last Commit: a month ago
- Last Import: a month ago
- Tags: `juniper`, `junos`, `networking`

Chapter 9: AWS Cloud Networking

The screenshot displays the AWS Free Tier landing page. At the top is a dark navigation bar with the AWS logo, a menu icon, and links for 'Contact Sales', 'Products', 'Solutions', 'Pricing', 'Getting Started', 'More', 'English', 'My Account', and a 'Sign In to the Console' button. Below the navigation is a hero section with a purple-to-orange gradient background, featuring the title 'AWS Free Tier' and a sub-headline: 'The AWS Free Tier enables you to gain free, hands-on experience with the AWS platform, products, and services.' A prominent yellow button labeled 'Create a Free Account' is centered in this section. Underneath is a horizontal navigation bar with three tabs: 'Free Tier Details' (selected), 'Get Started', and 'Free Tier Software'. The main content area is titled 'AWS Free Tier Details' and includes a filter bar with options: '★ FEATURED', '📅 12 MONTHS FREE', '♻️ ALWAYS FREE', '🕒 TRIALS', '📂 PRODUCT CATEGORIES', and '👉 ALL'. Three product cards are displayed in a row. The first card, under the 'FEATURED' filter, is titled '12 months free and always free products' and states 'AWS Free Tier includes offers that expire 12 months following sign up and others that never expire.' The second card, under the 'COMPUTE' filter, is for 'Amazon EC2' and offers '750 Hours per month' of 'Resizable compute capacity in the Cloud'. The third card, under the 'ANALYTICS' filter, is for 'Amazon QuickSight' and offers '1 GB of SPICE capacity' as a 'Fast, easy-to-use, cloud-powered business analytics service at 1/10th the cost of traditional BI solutions'. Each card includes a 'Learn more' link.

aws Services Resource Groups

AWS services

Find a service by name or feature (for example, EC2, S3 or VM, storage).

Recently visited services

- EC2
- Route 53

All services

- Compute
 - EC2
 - Lightsail
 - Elastic Container Service
 - EKS
 - Lambda
 - Batch
 - Elastic Beanstalk
- Storage
 - S3
 - EFS
 - Glacier
 - Storage Gateway
- Database
 - RDS
 - DynamoDB
 - ElastiCache
 - Neptune
 - Amazon Redshift
- Migration
 - AWS Migration Hub
 - Application Discovery Service
 - Database Migration Service
- Management Tools
 - CloudWatch
 - AWS Auto Scaling
 - CloudFormation
 - CloudTrail
 - Config
 - OpsWorks
 - Service Catalog
 - Systems Manager
 - Trusted Advisor
 - Managed Services
- Media Services
 - Elastic Transcoder
 - Kinesis Video Streams
 - MediaConvert
 - MediaLive
 - MediaPackage
 - MediaStore
 - MediaTailor
- Machine Learning
 - Amazon SageMaker
 - Amazon Comprehend
 - AWS DeepLens
 - Amazon Lex
 - Machine Learning
- Certificate Manager
- Cognito
- Billing
- Mobile Services
 - Mobile Hub
 - AWS AppSync
 - Device Farm
 - Mobile Analytics
- AR & VR
 - Amazon Sumerian
- Application Integration
 - Step Functions
 - Amazon MQ
 - Simple Notification Service
 - Simple Queue Service
 - SWF
- Customer Engagement
 - Amazon Connect
 - Pinpoint
 - Simple Email Service
- Business Productivity
 - Alexa for Business
 - Amazon Chime
 - WorkDocs

Helpful tips

- Manage your costs
Monitor your AWS costs, usage, and reservations using AWS Budgets. [Start now](#)
- Create an organization
Use AWS Organizations for policy-based management of multiple AWS accounts. [Start now](#)

Explore AWS

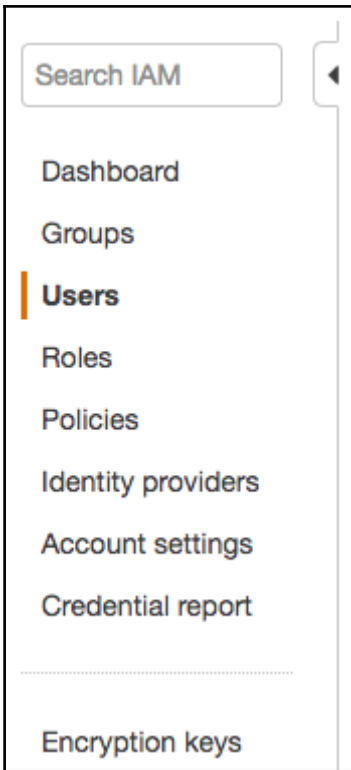
- Machine Learning with Amazon SageMaker
The fastest way to build, train, and deploy machine learning models. [Learn more.](#)
- Amazon Relational Database Service (RDS)
RDS manages and scales your database for you. RDS supports Aurora, MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server. [Learn more.](#)
- AWS Fargate Runs Containers for You
AWS Fargate works with Amazon ECS to run and scale your containers for you. Pay only for the compute resources you need, scale quickly, and run any size application. [Learn more.](#)
- AWS Marketplace
Find, buy, and deploy popular software products that run on AWS. [Learn more.](#)

AWS services

IAM

IAM
Manage User Access and Encryption Keys

- EC2
- Route 53
- Certificate Manager
- Cognito
- Billing



Add user

1 2 3 4

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

[+ Add another user](#)

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type* **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

AWS Management Console access
Enables a **password** that allows users to sign-in to the AWS Management Console.

Services ▾ Resource Groups ▾ ☆

Eric Chou ▾ Global ▾ Support ▾

Add user

1 2 3 4

✔ **Success**

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: [https://\[redacted\].signin.aws.amazon.com/console](https://[redacted].signin.aws.amazon.com/console)

[Download .csv](#)

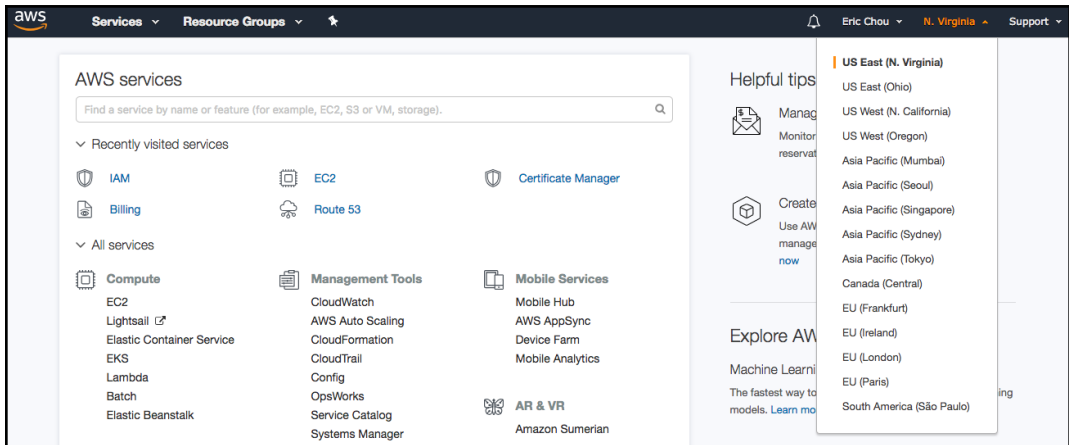
User	Access key ID	Secret access key
▶ ✔ echou-packt	[redacted]	[redacted]

Region & Number of Availability Zones

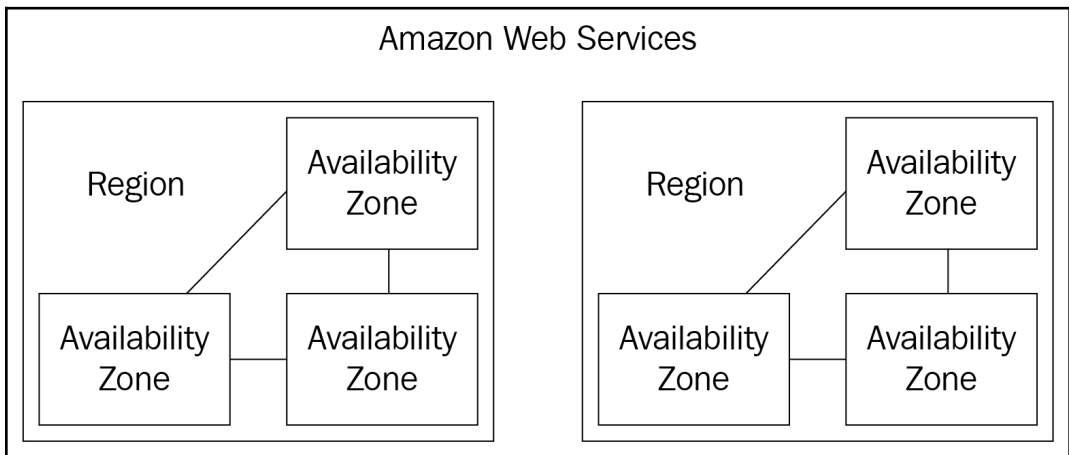
- US East**
N. Virginia (6),
Ohio (3)
- US West**
N. California (3),
Oregon (3)
- Asia Pacific**
Mumbai (2),
Seoul (2),
Singapore (3),
Sydney (3),
Tokyo (4),
Osaka-Local (1)¹
- Canada**
Central (2)
- China**
Beijing (2),
Ningxia (3)
- Europe**
Frankfurt (3),
Ireland (3),
London (3),
Paris (3)
- South America**
São Paulo (3)
- AWS GovCloud (US-West)** (3)

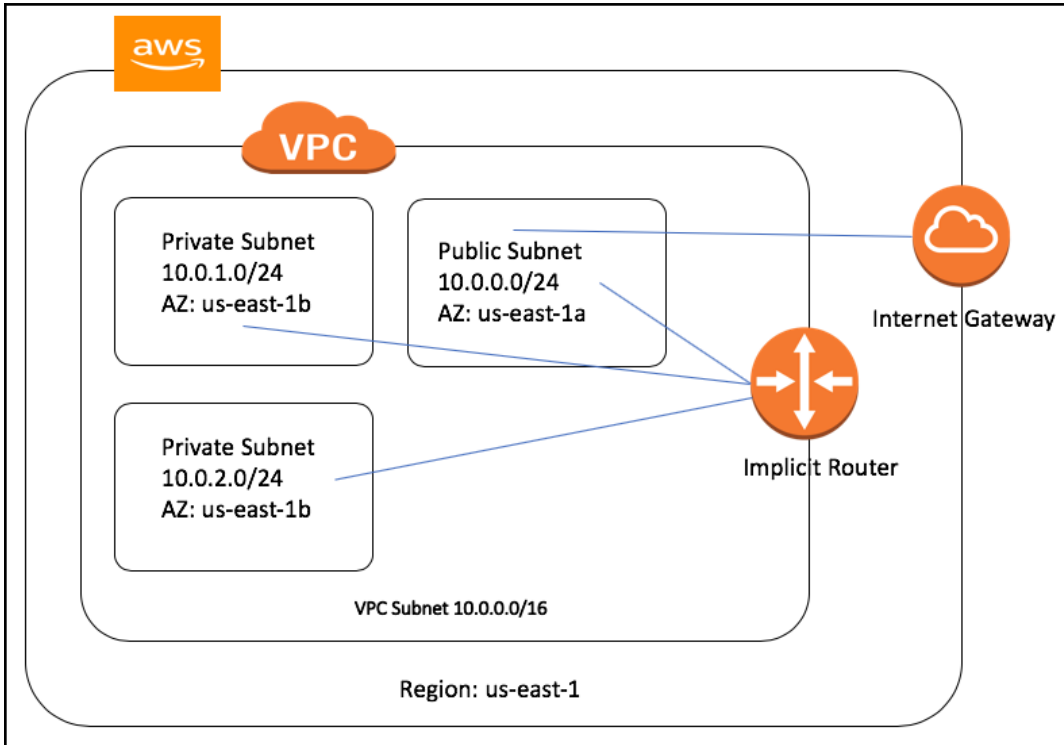
○ New Region (coming soon)

- Bahrain**
- Hong Kong SAR, China**
- Sweden**
- AWS GovCloud (US-East)**



Amazon Web Services





The screenshot shows the AWS VPC Dashboard for the N. Virginia region. The dashboard includes a search bar, a table of VPCs, and a sidebar with navigation options. Red arrows point from the instructions to the corresponding elements in the dashboard.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set	Route table	Network
mastering_python_netw	vpc-82c9d72m	available	10.0.0.0/16		dopt-82c9d72m	rtb-82c9d72m	acl-82c9d72m

1. Pick Your Region
2. Create VPC
3. Create Subnet
4. Create Internet Gateway & Attach to VPC
5. Create custom route table & associate with Subnet

VPC Dashboard

Filter by VPC:

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Create Internet gateway **Actions** ^

Filter by tags and attributes

Name ID

mpn_intern... igw-[redacted] detached

Delete internet gateway
Attach to VPC
 Detach from VPC
 Add/Edit Tags

VPC Dashboard

Filter by VPC:

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

Create Route Table Delete Route Table Set As Main Table

Search Route Tables and their X

<input type="checkbox"/>	Name	Route Table ID	Explicitly Associat	Main	VPC
<input checked="" type="checkbox"/>	public_internet_gateway	rtb-[redacted]	1 Subnet	No	vpc-[redacted]_g_python_ne...
<input type="checkbox"/>	Main Table	rtb-[redacted]	0 Subnets	Yes	vpc-[redacted]_g_python_ne...

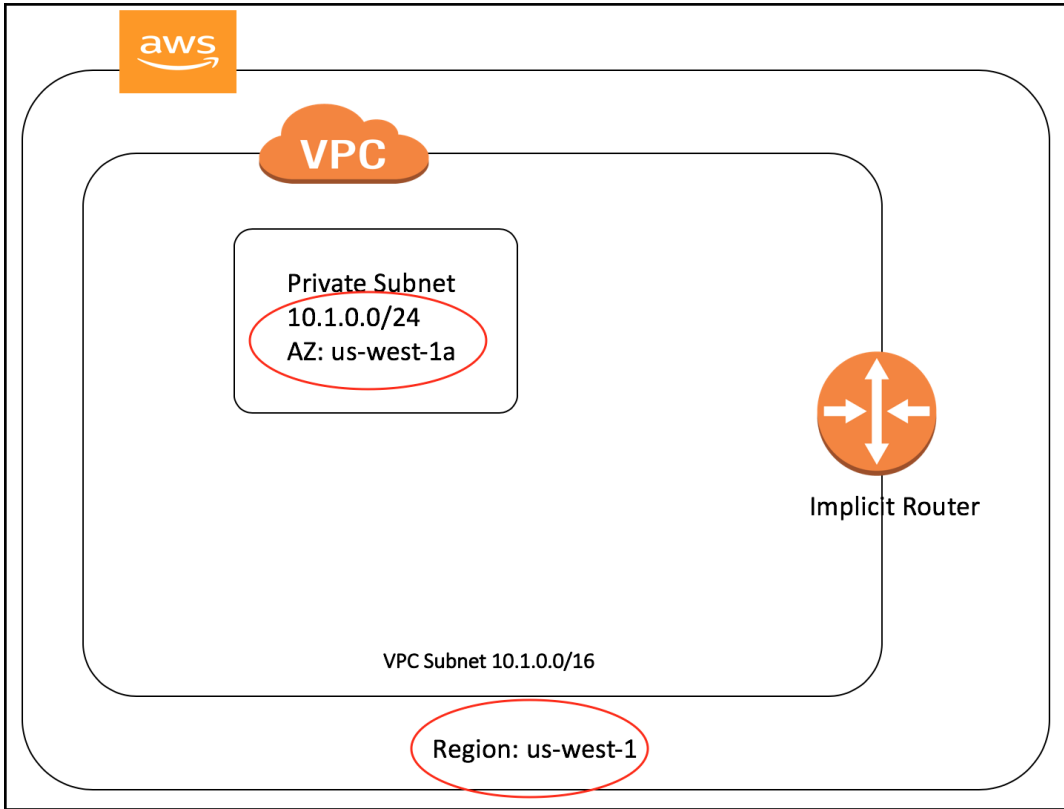
rtb-6bee5514 | public_internet_gateway

Summary **Routes** Subnet Associations Route Propagation Tags

Edit

View: All rules

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	igw-[redacted]	Active	No



aws Services Resource Groups Eric Chou N. California Support

VPC Dashboard

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

Create VPC Actions

Search VPCs and their proper X << 1 to 1 of 1 VPC >>

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set	Route Table
mastering_python_networking_demo_2	vpc-44fac23	available	10.1.0.0/16		dopt-16a0c02a	rtb-4

vpc-44fac23 | mastering_python_networking_demo_2

Summary CIDR Blocks Flow Logs Tags

VPC ID: vpc-44fac23 Network ACL: acl-e89261e0
 mastering_python_networking_demo_2

State: available Tenancy: Default

IPv4 CIDR: 10.1.0.0/16 DNS resolution: no

IPv6 CIDR: DNS hostnames: no

DHCP options set: dopt-16a0c02a ClassicLink DNS Support: no

Route table: rtb-4

aws Services Resource Groups

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VPC Dashboard

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

Create subnet Actions

Filter by tags and attributes or search by keyword

Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR
mpn_demo...	subnet- [REDACTED]	available	vpc- [REDACTED]	10.1.0.0/24	251	-

Subnet: subnet-a61b41fd

Description Flow Logs Route Table Network ACL Tags

Subnet ID	subnet- [REDACTED]	State	available
VPC	vpc- [REDACTED]	IPv4 CIDR	10.1.0.0/24
	mastering_python_networking_demo_2	IPv6 CIDR	-
Available IPv4 Addresses	251	Route Table	rtb- [REDACTED]
Availability Zone	us-west-1a	Default subnet	No
Network ACL	acl- [REDACTED]	Auto-assign IPv6 address	No
Auto-assign public IPv4 address	No		

aws Services Resource Groups

Eric Chou N. California Support

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

Security

Network ACLs

Security Groups

Create Security Group Security Group Actions

Filter All security groups Search Security Groups and t X

Name tag	Group ID	Group Name	VPC
<input type="checkbox"/>	sg- [REDACTED]		
<input checked="" type="checkbox"/>	sg- [REDACTED]	default	vpc- [REDACTED] mastering_

sg-b7588efd

Summary Inbound Rules Outbound Rules Tags

Edit

Type	Protocol	Port Range	Source	Description
ALL Traffic	ALL	ALL	sg-b7588efd	

aws Services Resource Groups

Eric Chou N. Virginia Support

VPC Dashboard

Allocate new address Actions

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

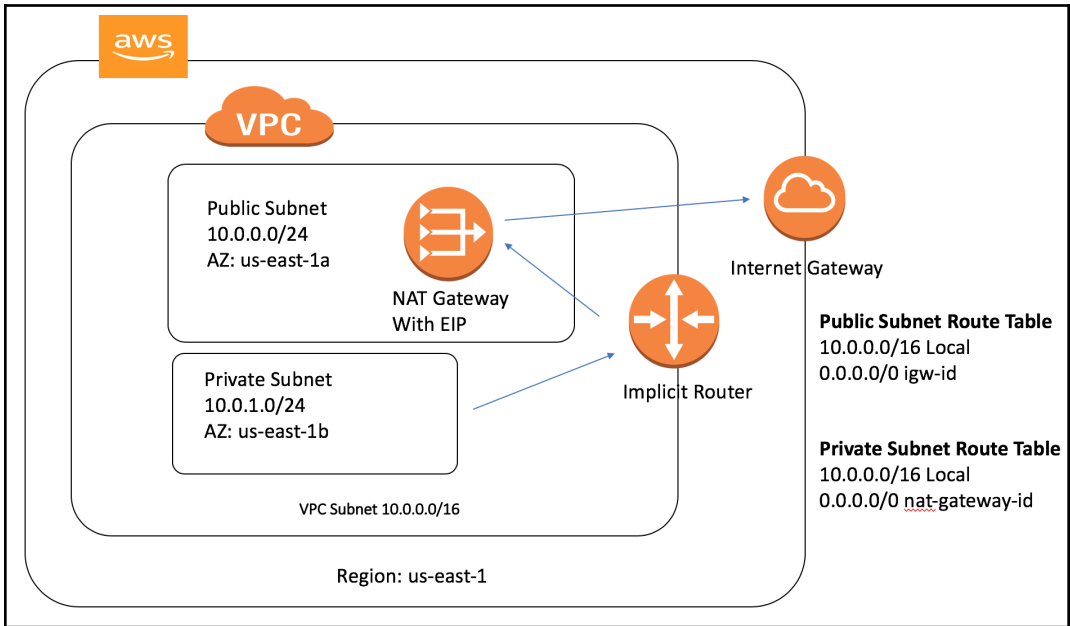
Peering Connections

Name	Elastic IP	Allocation ID	Instance	Private IP address	Scope	Association ID
	18.200.000.000	eipalloc-00000000	-	-	vpc	-
	52.200.000.000	eipalloc-00000000	-	-	vpc	-

Address: 52.200.000.000

Description Tags

Elastic IP	52.200.000.000	Allocation ID	eipalloc-00000000
Instance	-	Private IP address	-
Scope	vpc	Association ID	-
Public DNS	-	Network interface ID	-
Network interface owner	-		



NAT Gateways > Create NAT Gateway

Create NAT Gateway

Create a NAT gateway and assign it an Elastic IP address. [Learn more.](#)

Subnet* subnet- Public Subnet

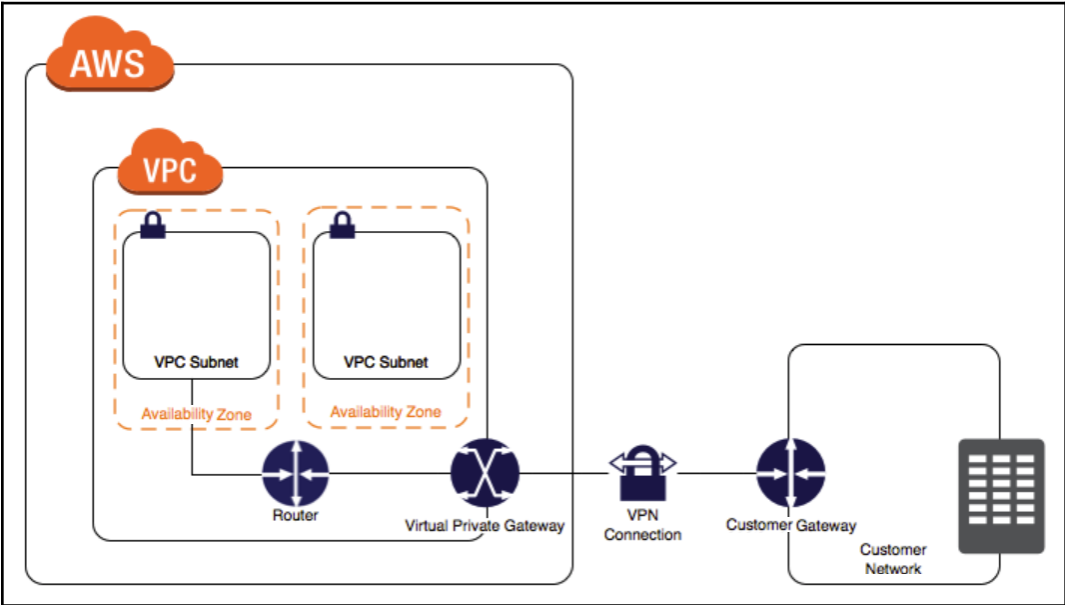
Elastic IP Allocation ID* eipalloc- Free Unassigned Elastic IP


Filter by attributes

Allocation ID	Elastic IP
eipalloc-	18-
eipalloc-	52-

* Required

Cancel Create a NAT Gateway





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Q

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Solutions
Industries
Locations
Resources
Company
Contact

Products & Services
Interconnection & Connectivity
Equinix Cloud Exchange™ Fabric

EQUINIX CLOUD EXCHANGE™ FABRIC


Software-defined interconnection

Flexible, On-Demand, Global Interconnection

Equinix Cloud Exchange™ Fabric directly, securely and dynamically connects distributed infrastructure and digital ecosystems on Platform Equinix™ via global, software-defined interconnection.

Available across 25+ locations, ECX Fabric is designed for scalability, agility and connectivity over a self-service portal or API. Through a single port, discover and reach anyone on demand, locally or across metros.

SEARCH AVAILABLE CLOUD PROVIDERS



Comparison of Elastic Load Balancing Products

You can select the appropriate load balancer based on your application needs. If you need flexible application management, we recommend that you use an **Application Load Balancer**. If extreme performance and static IP is needed for your application, we recommend that you use a **Network Load Balancer**. If you have an existing application that was built within the EC2-Classic network, then you should use a **Classic Load Balancer**.

Feature	Application Load Balancer	Network Load Balancer	Classic Load Balancer
Protocols	HTTP, HTTPS	TCP	TCP, SSL, HTTP, HTTPS
Platforms	VPC	VPC	EC2-Classic, VPC
Health checks	✓	✓	✓
CloudWatch metrics	✓	✓	✓
Logging	✓	✓	✓
Zonal fail-over	✓	✓	✓

Chapter 10: Working with Git

Search or jump to... Pull requests Issues Marketplace Explore

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner: ericchou1 / Repository name: TestRepo

Great repository names are short and memorable. Need inspiration? How about **refactored-telegram**.

Description (optional): Chapter 11 TestRepo for Mastering Python Networking Second Edition

Public
Anyone can see this repository. You choose who can commit.

Private
You choose who can see and commit to this repository.

Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: Python | Add a license: MIT License

Create repository

ericchou1 / TestRepo Private

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Chapter 11 TestRepo for Mastering Python Networking Second Edition

Add topics

1 commit 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

ericchou1 Initial commit

.gitignore	Initial commit
LICENSE	Initial commit
README.md	Initial commit

README.md

TestRepo

Chapter 11 TestRepo for Mastering Python Networking Second Edition

Clone with HTTPS Use SSH

Use Git or checkout with SVN using the web URL.

<https://github.com/ericchou1/TestRepo.git>

Open in Desktop Download ZIP

ericchou1 / TestRepo Private

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Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Chapter 11 TestRepo for Mastering Python Networking Second Edition

Add topics

7 commits 1 branch 0 releases 1 contributor MIT

Branch: master New pull request Create new file Upload files Find file Clone or download

ericchou1 Merge branch 'master' of https://github.com/ericchou1/TestRepo Latest commit 6aa362a 37 seconds ago

.gitignore	Initial commit	3 minutes ago
LICENSE	Initial commit	3 minutes ago
README.md	Initial commit	3 minutes ago
myFile.txt	made modifacaitons to myFile.txt	4 hours ago
mySecondFile.txt	added mySecondFile.txt to dev branch	29 minutes ago

README.md

TestRepo

Chapter 11 TestRepo for Mastering Python Networking Second Edition

ericchou1 / TestRepo Private

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Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Options Collaborators Branches Webhooks Integrations & services Deploy keys

Collaborators

Push access to the repository

This repository doesn't have any collaborators yet. Use the form below to add a collaborator.

Search by username, full name or email address

You'll only be able to find a GitHub user by their email address if they've chosen to list it publicly. Otherwise, use their username instead.

ericchou-python Add collaborator

Search or jump to... Pull requests Issues Marketplace Explore

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It should only take a few seconds.

Refresh

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Add topics

4 commits 1 branch 0 releases 2 contributors MIT

Branch: master New pull request Create new file Upload files Find file Clone or download

This branch is even with PacktPublishing:master.

ericchou1 Chapter 1 - 9 code fiels	
Chapter01	Chapter 1 - 9 code fiels
Chapter02	Chapter 1 - 9 code fiels
Chapter03	Chapter 1 - 9 code fiels

Clone with HTTPS Use SSH Compare
Use Git or checkout with SVN using the web URL.
https://github.com/ericchou1/Mastering-P...
Open in Desktop Download ZIP

Mastering Python Networking, Second Edition published by Packt Publishing

Add topics

5 commits 1 branch 0 releases

Branch: master New pull request

This branch is 1 commit ahead of PacktPublishing:master.

ericchou1 Update README.md

Chapter01 Chapter 1 - 9 code fiels


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[Code](#) [Issues 0](#) [Pull requests 1](#) [Projects 0](#) [Wiki](#) [Insights](#)



Update README.md #1

Open ericchou1 wants to merge 1 commit into `PacktPublishing:master` from `ericchou1:master`


[Conversation 0](#) [Commits 1](#) [Checks 0](#) [Files changed 1](#)

 ericchou1 commented just now Collaborator

No description provided.

  Update README.md Verified 2ded3da

Add more commits by pushing to the `master` branch on `ericchou1/Mastering-Python-Networking-Second-Edition`.

 ✔ **This branch has no conflicts with the base branch**
 Merging can be performed automatically.

Merge pull request
 You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

[PacktPublishing](#) / [Mastering-Python-Networking-Second-Edition](#) Unwatch 7 Star 0 Fork 3

[Code](#) [Issues 0](#) [Pull requests 0](#) [Projects 0](#) [Wiki](#) [Insights](#)

Label issues and pull requests for new contributors Dismiss

Now, GitHub will help potential first-time contributors discover issues labeled with help wanted or good first issue

Filters Labels Milestones New pull request

✕ Clear current search query, filters, and sorts

<input type="checkbox"/> 0 Open ✔ 1 Closed	Author	Labels	Projects	Milestones	Reviews	Assignee	Sort
<input type="checkbox"/> 🔗 Update README.md	#1 by ericchou1						was merged 3 minutes ago

GitHub interface showing the "New personal access token" page. The page is titled "New personal access token" and includes a sidebar with "Settings / Developer settings", "OAuth Apps", "GitHub Apps", and "Personal access tokens". The main content area contains a "Token description" field, a "What's this token for?" field, and a "Select scopes" section. The "Select scopes" section is circled in red and lists various scopes with checkboxes:

- repo: Full control of private repositories
- repo:status: Access commit status
- repo_deployment: Access deployment status
- public_repo: Access public repositories
- repo:invite: Access repository invitations
- admin:org: Full control of orgs and teams
- write:org: Read and write org and team membership
- read:org: Read org and team membership

GitHub interface showing the repository page for "ericchou1 / TestRepo". The page title is "Chapter 11 TestRepo for Mastering Python Networking Second Edition". The repository statistics show 10 commits, 1 branch, 0 releases, and 1 contributor. The file list is circled in red and includes:

File	Commit	Time
configs	add configs	18 minutes ago
.gitignore	Initial commit	6 hours ago
LICENSE	Initial commit	6 hours ago
README.md	Initial commit	6 hours ago
myFile.txt	made modificaitons to myFile.txt	11 hours ago
mySecondFile.txt	added mySecondFile.txt to dev branch	7 hours ago

ericchou1 / TestRepo Private

Unwatch 2 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Branch: master

Commits on Jul 20, 2018

- add configs**
ericchou1 committed 38 seconds ago [06e49af](#) [↔](#)
- ~~add configs~~
ericchou1 committed 17 minutes ago [d8feb78](#) [↔](#)
- add configs**
ericchou1 committed 18 minutes ago [d5837b6](#) [↔](#)
- Merge branch 'master' of https://github.com/ericchou1/TestRepo**
ericchou1 committed 6 hours ago [0aa362a](#) [↔](#)

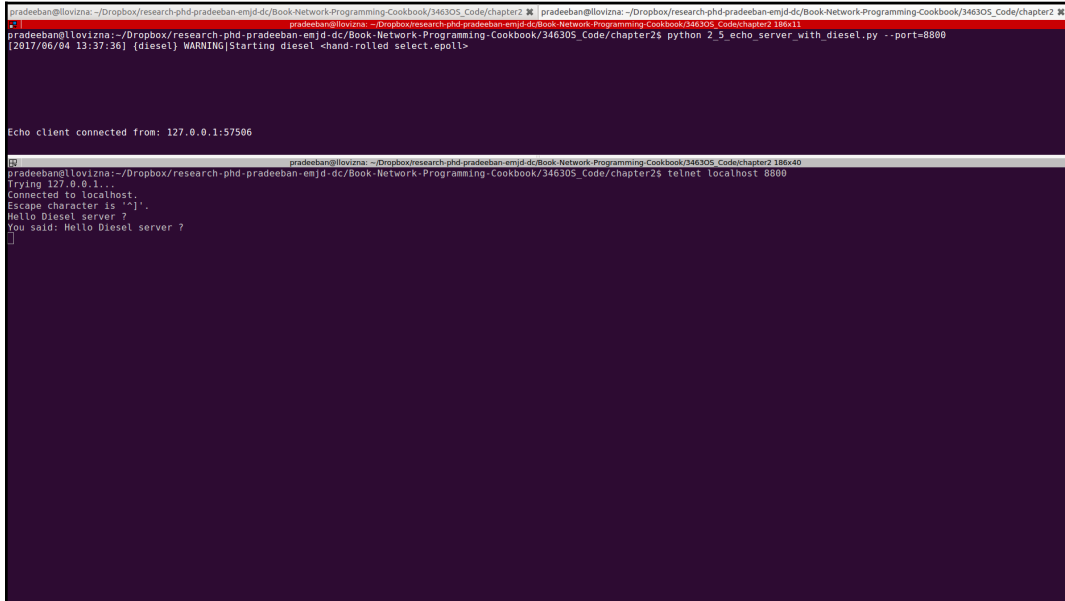
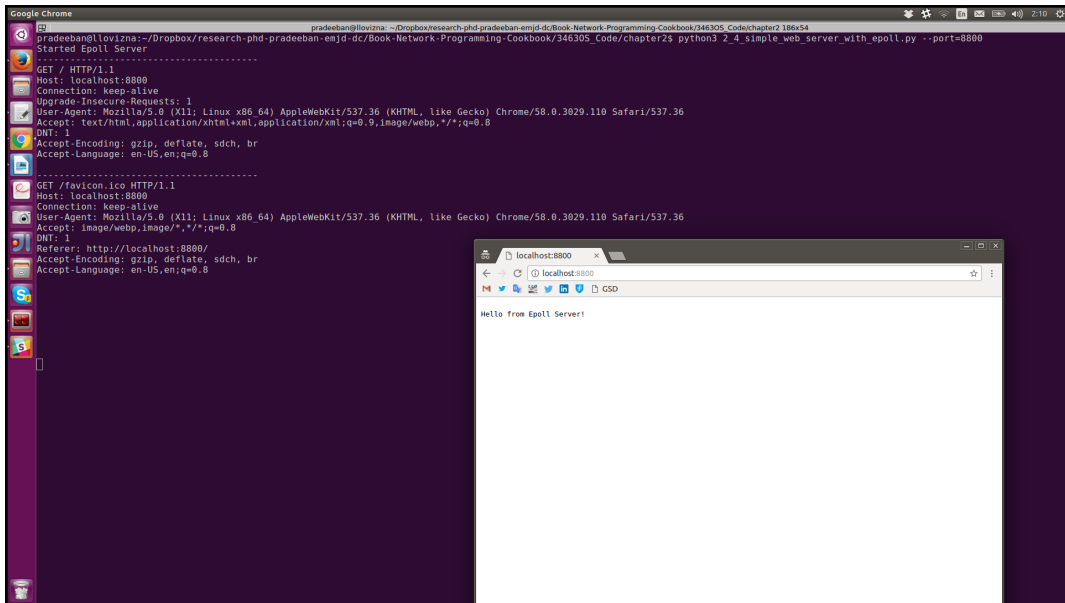
Chapter 12: Multiplexing Socket I/O for Better Performance

```
pradeeban@llovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter2$ python3 2_3_chat_server_with_select.py --name=server --port=8800
Server listening on port: 8800 ...

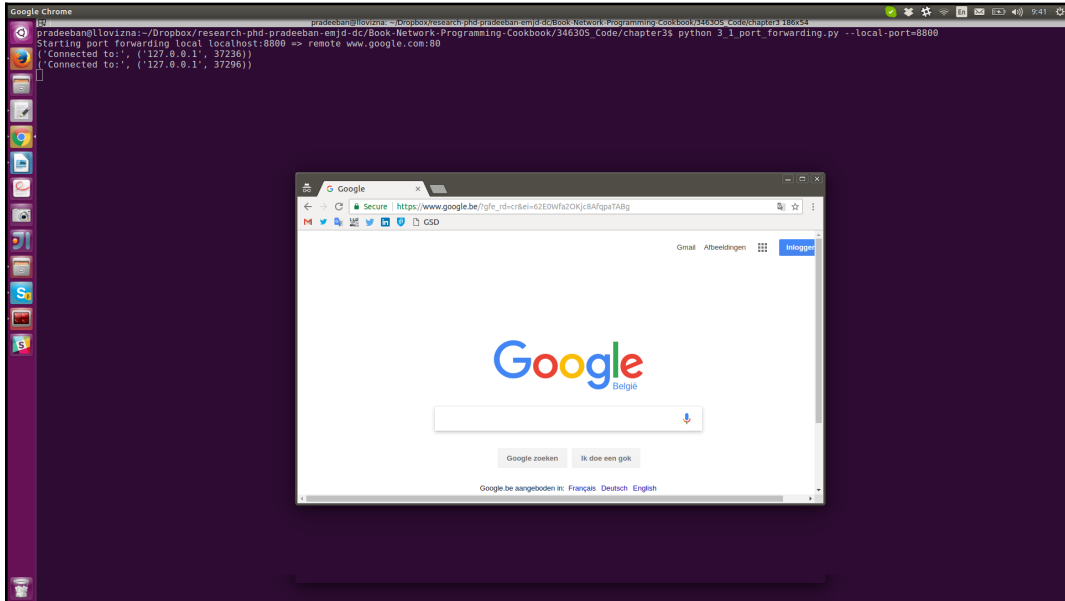
Chat server: got connection 4 from ('127.0.0.1', 59254)
Chat server: got connection 5 from ('127.0.0.1', 59256)

pradeeban@llovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter2$ python3 2_3_chat_server_with_select.py --name=client1 --port=8800
Now connected to chat server@ port 8800
[client1@127.0.0.1]>
[connected: New client (2) from client2@127.0.0.1]
[client1@127.0.0.1]> Hello from client1
[client1@127.0.0.1]>
#[client2@127.0.0.1]>hello from client2
[client1@127.0.0.1]> []

pradeeban@llovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter2$ python3 2_3_chat_server_with_select.py --name=client2 --port=8800
Now connected to chat server@ port 8800
[client2@127.0.0.1]>
#[client1@127.0.0.1]>Hello from client1
[client2@127.0.0.1]> hello from client2
[client2@127.0.0.1]> []
```

Chapter 13: IPv6, Unix Domain Sockets, and Network Interfaces

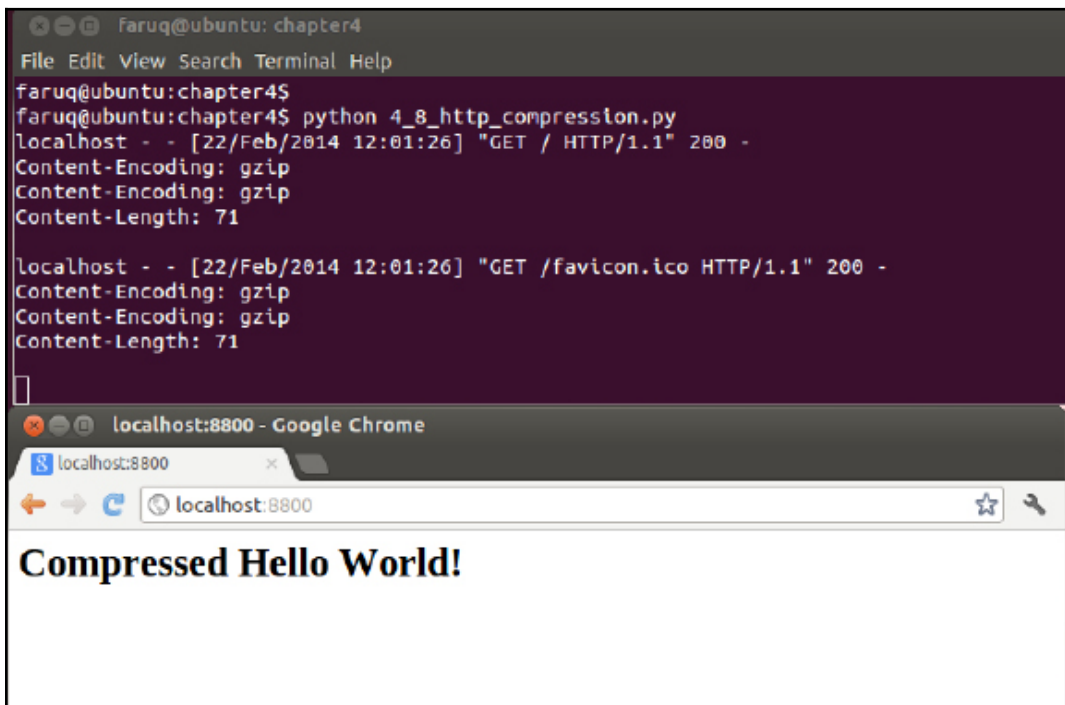
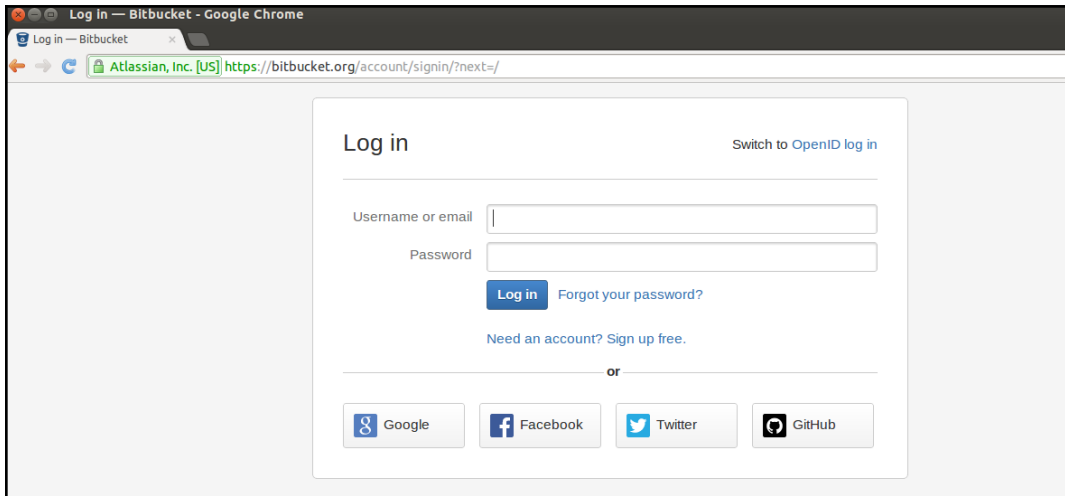


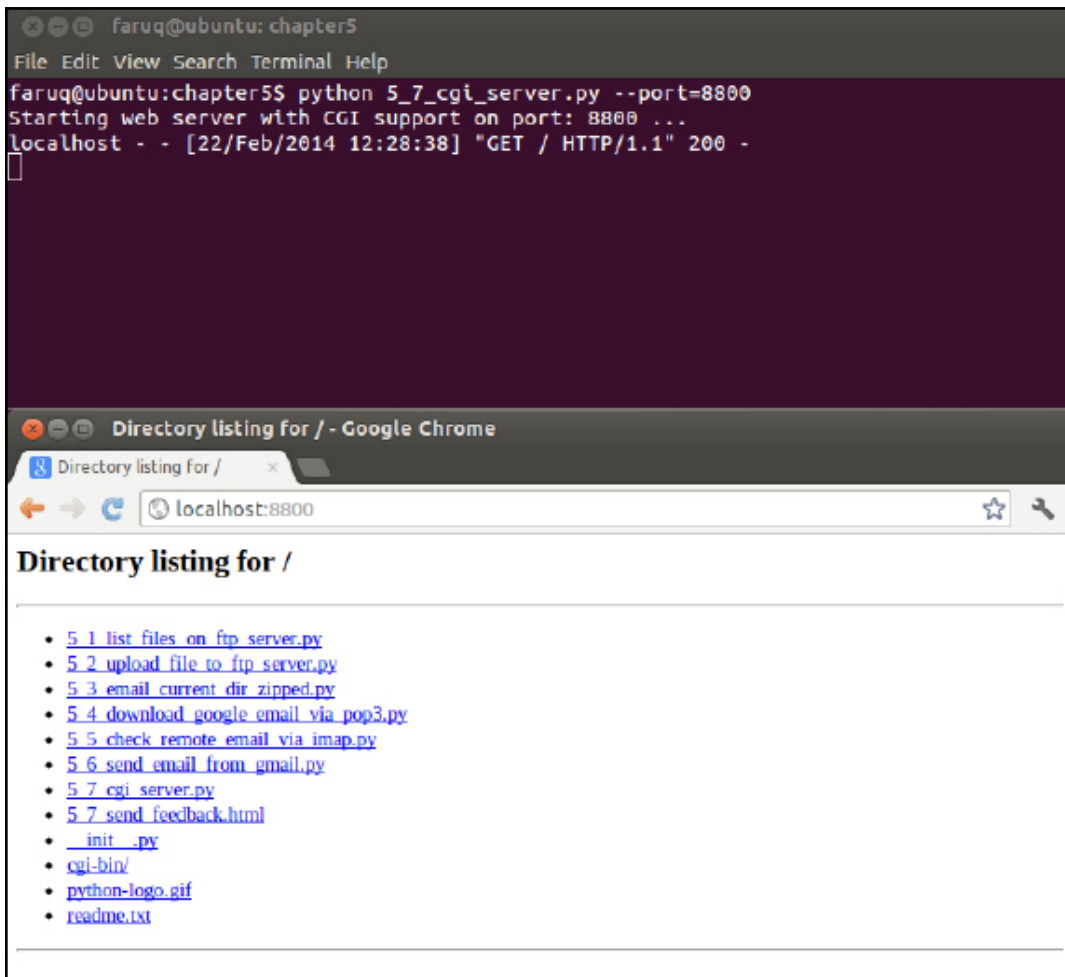
```
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$ sudo /etc/init.d/apache2 stop
[ * ] Stopping apache2 (via systemctl): apache2.service.
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$ sudo /etc/init.d/apache2 start
[ * ] Starting apache2 (via systemctl): apache2.service.
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$

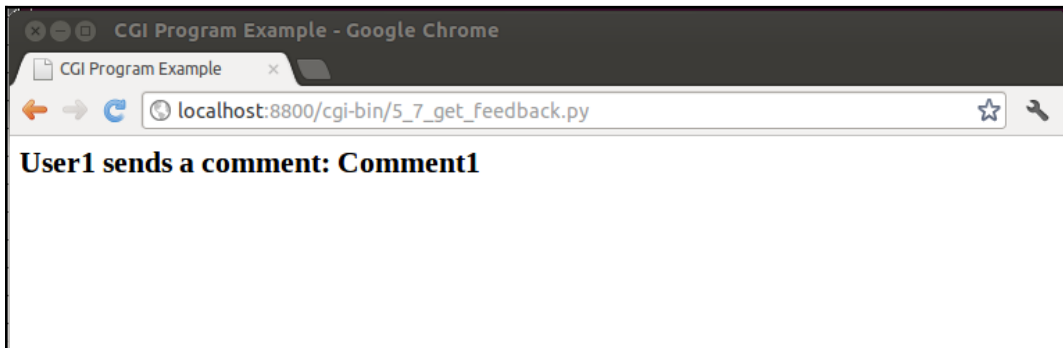
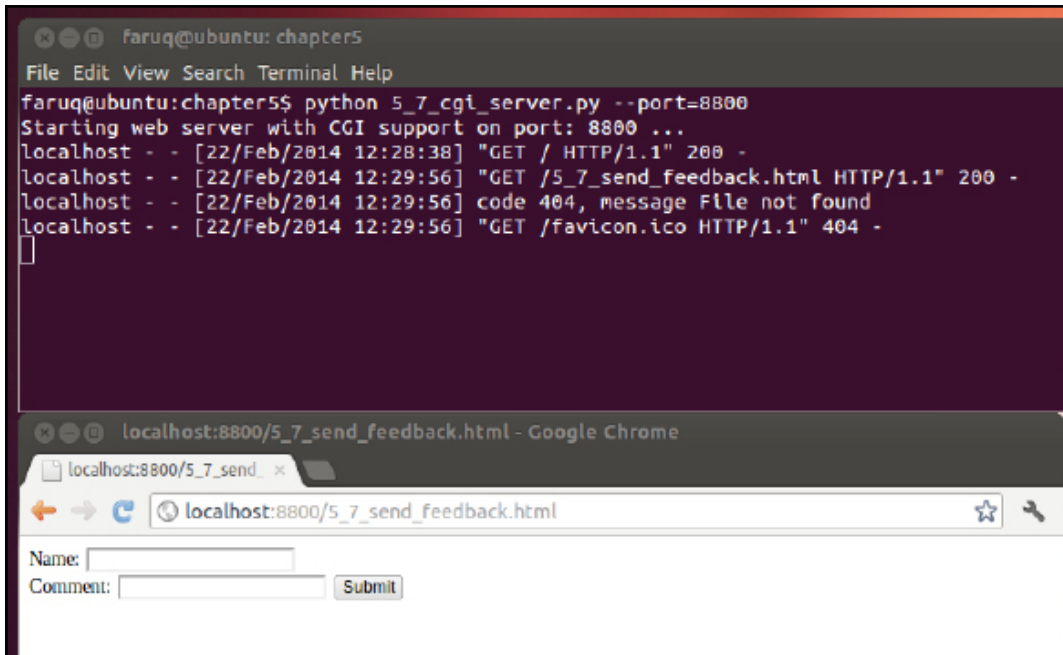
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3 18x26
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 111] Connection refused
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Exception: [Errno 103] Software caused connection abort
setting socket next timeout 119.05
Service is available again!
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$
```

```
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Prog pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Prog pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Prog
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$ python 3_12a_ipv6_echo_server.py --port=8890
Server listening on localhost:8890
[*] Connected to (122.0.0.1: 8890)
Received data from the client: Hello from ipv6 client)
Sent data echoed back to the client: Hello from ipv6 client)

pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3 233x33
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapter3$ python 3_12b_ipv6_echo_client.py --port=8890
Sent data to server: Hello from ipv6 client
Received from server: Hello from ipv6 client")
```

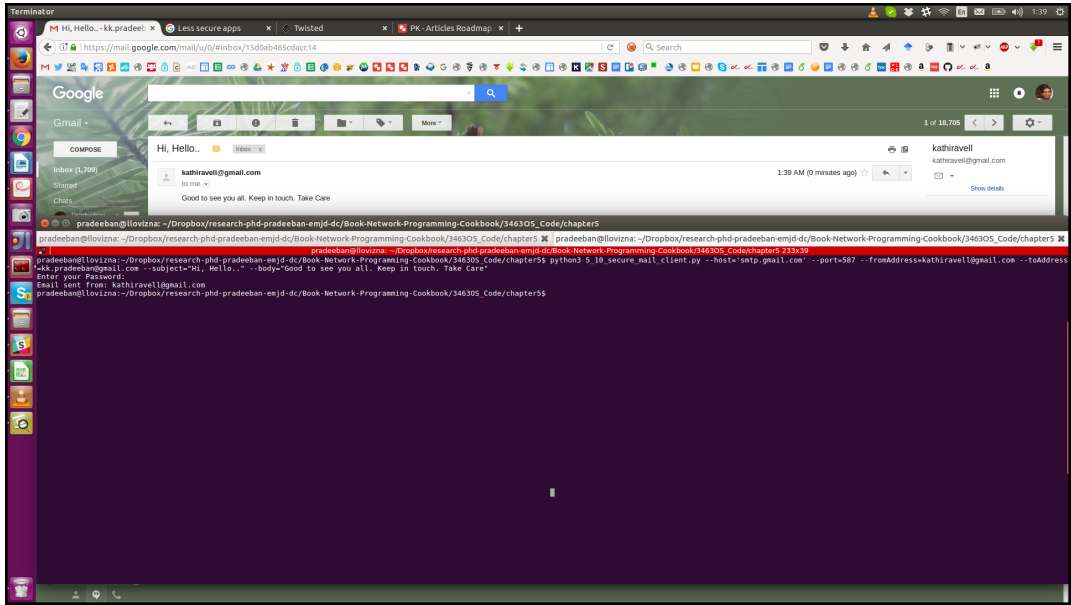




```
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapters$ python3 5_9a_mail_server.py --host=127.0.0.1 --port=1025
Message Received From: (127.0.0.1, 50870)
From: tester@webname.com
To: ['test@gmail.com']
Message-Content-Type: text/plain; charset="us-ascii"
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
To: Recipient<test@gmail.com>
From: Author <tester@webname.com>
Subject: Hi, Hello

Good to see you all. Keep in touch. Take Care
]

pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapters$ python3 5_9b_mail_client.py --host=127.0.0.1 --port=1025 --fromAddress=tester@webname.com --toAddress=test@gmail.com
send: 'hello 127.0.1.1\r\n'
reply: b'250 SIZE 33554432\r\n'
reply: b'250 HELO\r\n'
reply: retcode (250): Msg: b'1lovizna\r\nSIZE 33554432\r\nHELO'
send: 'mail FROM:tester@webname.com SIZE=221\r\n'
reply: b'250 OK\r\n'
reply: retcode (250): Msg: b'OK'
send: 'rcpt TO:test@gmail.com\r\n'
reply: b'250 OK\r\n'
reply: retcode (250): Msg: b'OK'
send: 'data\r\n'
reply: b'354 End data with <CR>\r\n'
reply: retcode (354): Msg: b'End data with <CR>\r\n'
data: (354, b'End data with <CR>\r\n')
send: 'Content-Type: text/plain; charset="us-ascii"\r\nMIME-Version: 1.0\r\nContent-Transfer-Encoding: 7bit\r\nTo: Recipient <test@gmail.com>\r\nFrom: Author <tester@webname.com>\r\nSubject: Hi, Hello\r\n\r\nGood to see you all. Kee
p in touch. Take Care\r\n\r\n'
reply: b'250 OK\r\n'
reply: retcode (250): Msg: b'OK'
data: (250, b'OK')
send: 'quit\r\n'
reply: b'221 Bye\r\n'
reply: retcode (221): Msg: b'Bye'
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-emjd-dc/Book-Network-Programming-Cookbook/346305_Code/chapters$
```



Chapter 16: Programming Across Machine Boundaries

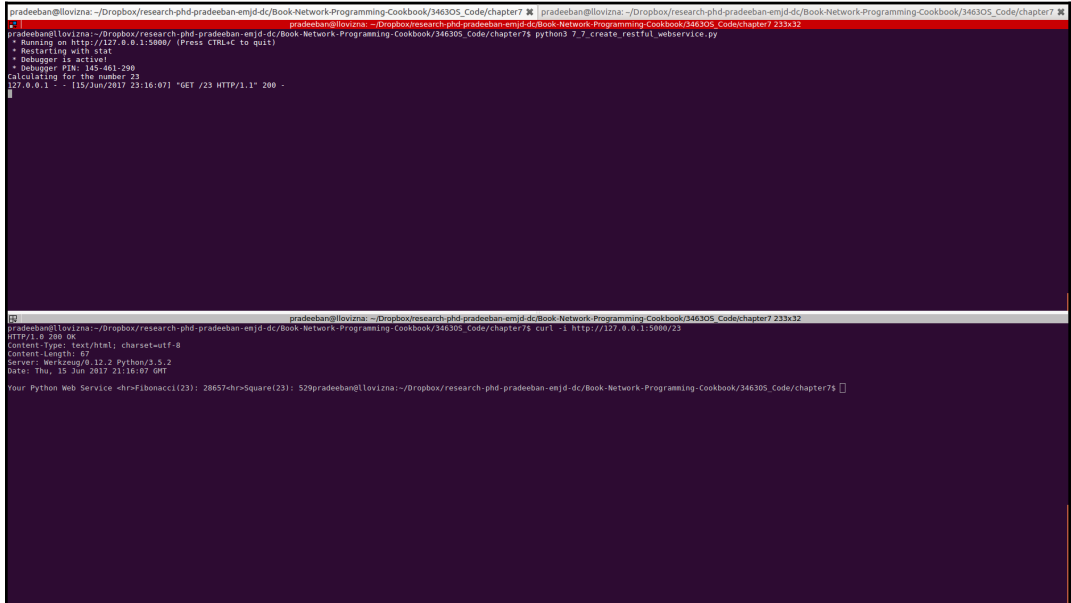
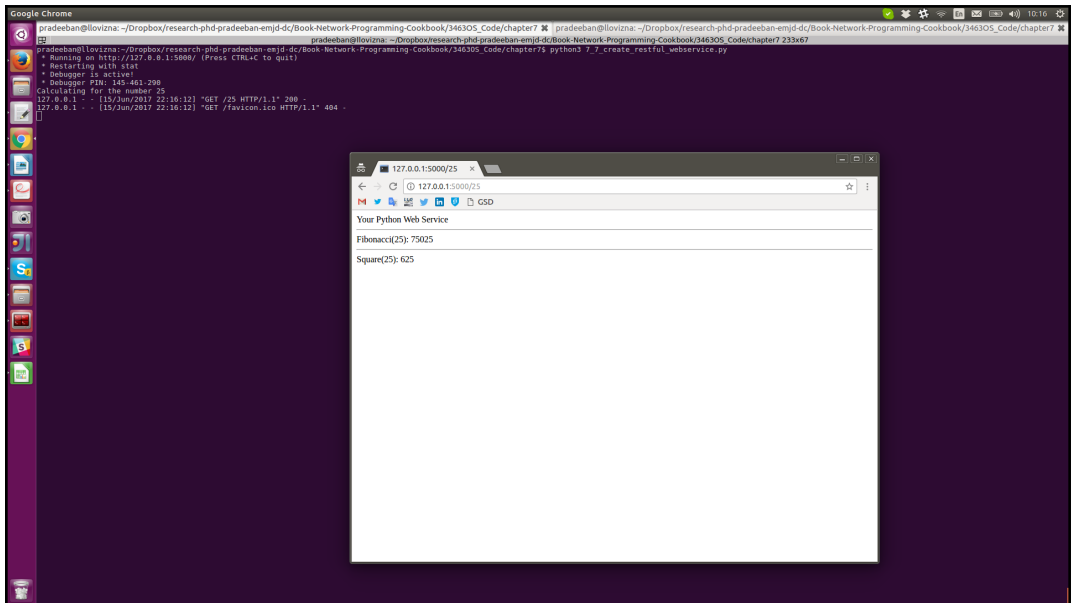
It works!

This is the default web page for this server.

The web server software is running but no content has been added, yet.

Chapter 17: Working with Web Services - SOAP, and REST

```
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-enj-dc/Book-Network-Programming-Cookbook/346305_Code/chapter7_235x5
Running a HTTP auth enabled XMLRPC server on localhost:8804...
Client said: hello server... so we echo that in uppercase HELLO SERVER...
127.0.0.1 - - [13/Jun/2017 23:32:34] "POST /RPC2 HTTP/1.1" 200 -
^
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-enj-dc/Book-Network-Programming-Cookbook/346305_Code/chapter7_233x2
Sending message to server: Hello server...
got reply: HELLO SERVER...
pradeeban@lovizna:~/Dropbox/research-phd-pradeeban-enj-dc/Book-Network-Programming-Cookbook/346305_Code/chapter7s
```



Chapter 18: Network Monitoring and Security

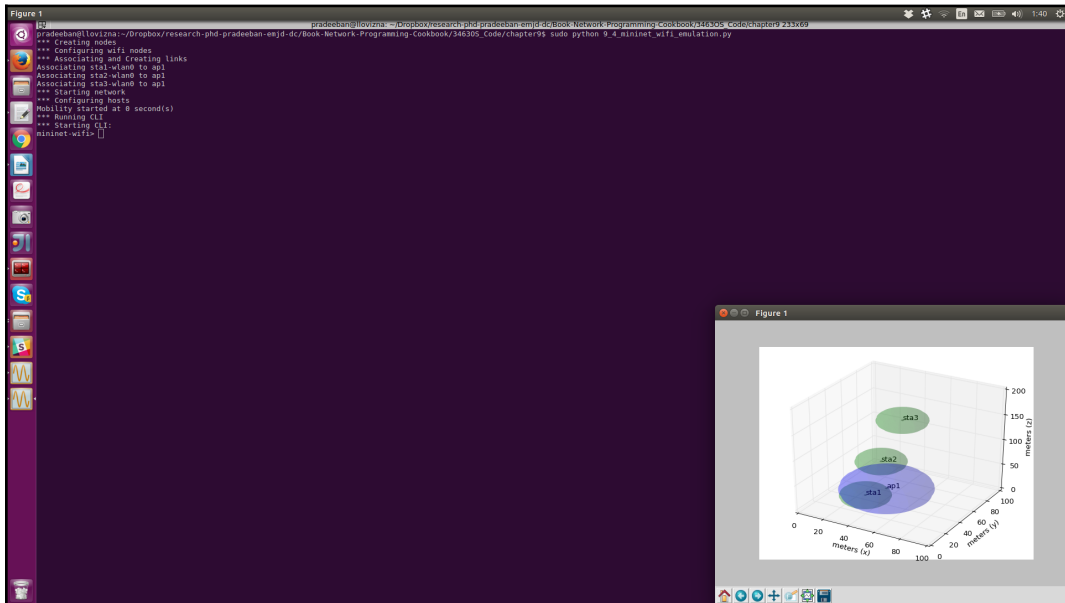
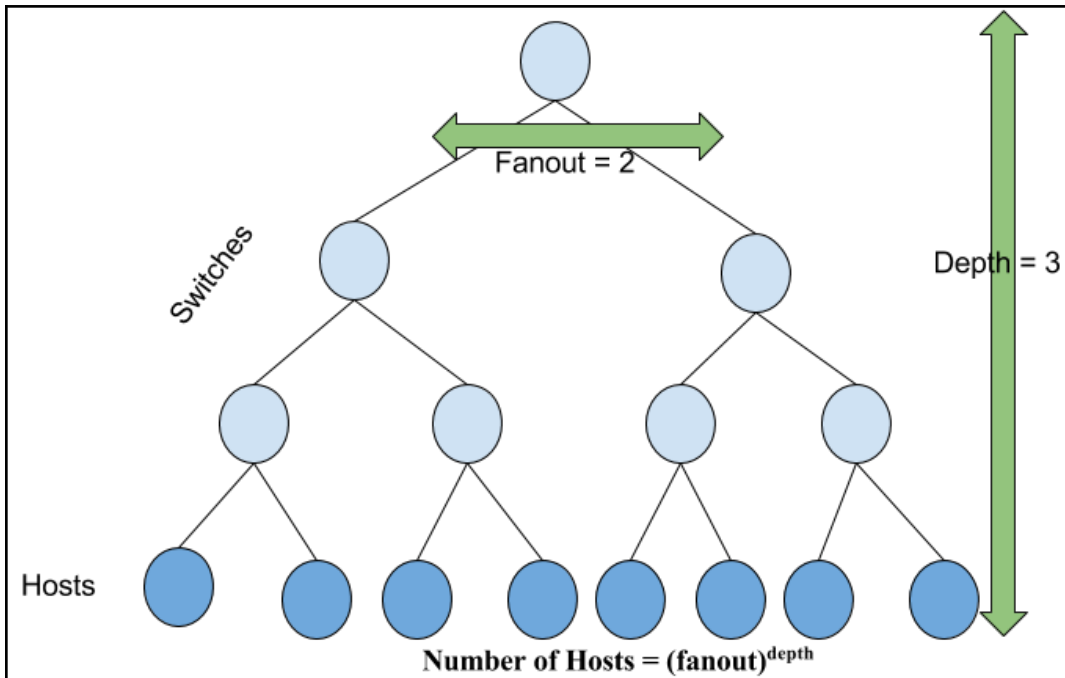
```
pradeeban@ilovizna: ~/Dropbox/research.php/pradeeban-enjyd-du/Book/Network-Programming-Cookbook/346305_Code/Chapter8/233x69
#
127.0.0.1
127.0.1.1
15.81.352.207 (443)
162.125.16.5 (443)
162.125.17.5 (443)
162.125.18.133 (443)
162.125.69.3 (443)
172.217.17.69 (443)
172.217.20.182 (443)
173.194.69.180 (443)
192.168.137.8
192.168.137.95
216.58.213.110 (443)
216.58.212.174 (443)
240.243.167.3 (443)
49.115.1.44 (443)
49.77.220.194 (443)
52.208.1.370 (443)
52.215.58.173 (443)
54.86.79.27 (443)
68.232.34.200 (443)
```

Chapter 19: Network Modeling

```
pradeeban@llovizna:~/programs/ns-allinone-3.26/ns-3.26$ ./waf --run bench-simulator
Waf: Entering directory `~/programs/ns-allinone-3.26/ns-3.26/build'
Waf: Leaving directory `~/programs/ns-allinone-3.26/ns-3.26/build'
Build commands will be stored in build/compile_commands.json
Build finished successfully (1.567s)
ns3.26-bench-simulator-debug:
ns3.26-bench-simulator-debug: scheduler: ns3::MapScheduler
ns3.26-bench-simulator-debug: population: 100000
ns3.26-bench-simulator-debug: total events: 1000000
ns3.26-bench-simulator-debug: runs: 1
ns3.26-bench-simulator-debug: using default exponential distribution

Run #      Initialization:          Simulation:
         Time (s)  Rate (ev/s)  Per (s/ev)  Time (s)  Rate (ev/s)  Per (s/ev)
-----
(prime)  1.54      64935.1     1.54e-05    4.27      234192     4.27e-06
0        0.32      312500     3.2e-06     4.08      245098     4.08e-06


pradeeban@llovizna:~/programs/ns-allinone-3.26/ns-3.26$
```

Inbox (1,792) - x PK-Articles Ro: x requests-kerbe x Using the Pyth x kerberos 1.2.5 x Kerberos - Com x kerberos 1.2.5 x PyKerberos Library x Authentication x pyeve/ev: RE: x IPA: Identity Po: x

https://ipa.demo1.freeipa.org/ipa/ui/

For more information about the public demo look at [demo wiki page](#). [Dismiss](#)



freeIPA

Open Source Identity Management Solution

Username

Password

[Login Using Certificate](#) [View OTP Token](#)

- To login with **username and password**, enter them in the corresponding fields, then click Login.
- To login with **Kerberos**, please make sure you have valid tickets (obtainable via [kinit](#) and [conjure](#)) in the browser correctly, then click Login.
- To login with **certificate**, please make sure you have valid personal certificate.

```
pradeeban@lovizna: ~$ cat /etc/passwd
root:x:0:0:root:/bin:/usr/sbin/passwd
bin:x:1:1:bin:/bin:/usr/sbin/passwd
daemon:x:2:2:daemon:/usr/sbin:/usr/sbin/passwd
sys:x:3:3:sys:/bin:/usr/sbin/passwd
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60003:games:/usr/games:/usr/sbin/passwd
man:x:6:12:man:/var/cache/man:/usr/sbin/passwd
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/passwd
mail:x:8:8:mail:/var/mail:/usr/sbin/passwd
news:x:9:9:news:/var/spool/news:/usr/sbin/passwd
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/passwd
proxy:x:13:13:proxy:/bin:/usr/sbin/passwd
www-data:x:33:33:www-data:/var/www:/usr/sbin/passwd
www:x:34:34:www:/var/www:/usr/sbin/passwd
list:x:36:36:www:/var/www:/usr/sbin/passwd
irc:x:37:37:irc:/var/spool/irc:/usr/sbin/passwd
gnome:x:42:42:GNOME:/usr/share/gnome:/usr/sbin/passwd
nfsnobody:x:65534:65534:nfsnobody:/var/lib/nfs:/usr/sbin/passwd

pradeeban@lovizna: ~$ cat /etc/group
root:x:0:0:root:
bin:x:1:1:bin:
daemon:x:2:2:daemon:
sys:x:3:3:sys:
sync:x:4:65534:sync:
games:x:5:60003:games:
man:x:6:12:man:
lp:x:7:7:lp:
mail:x:8:8:mail:
news:x:9:9:news:
uucp:x:10:10:uucp:
proxy:x:13:13:proxy:
www-data:x:33:33:www-data:
www:x:34:33:www:
list:x:36:36:www:
irc:x:37:37:irc:
gnome:x:42:42:GNOME:
nfsnobody:x:65534:65534:nfsnobody:

pradeeban@lovizna: ~$ cat /etc/shadow
root:$y$j9k$Zwx1rjOjOFj09U6wL9FQ9M:19000:0:99999:7:::
bin:!:1:0:0:
daemon:!:1:0:0:
sys:!:1:0:0:
sync:!:1:0:0:
games:!:1:0:0:
man:!:1:0:0:
lp:!:1:0:0:
mail:!:1:0:0:
news:!:1:0:0:
uucp:!:1:0:0:
proxy:!:1:0:0:
www-data:!:1:0:0:
www:!:1:0:0:
list:!:1:0:0:
irc:!:1:0:0:
gnome:!:1:0:0:
nfsnobody:!:1:0:0:

pradeeban@lovizna: ~$ cat /etc/passwd | grep pradeeban
pradeeban:x:1000:1000:pradeeban:/home/pradeeban:/usr/sbin/passwd
pradeeban@lovizna: ~$ cat /etc/group | grep pradeeban
pradeeban:x:1000:1000:pradeeban:/home/pradeeban:

pradeeban@lovizna: ~$ cat /etc/shadow | grep pradeeban
pradeeban:$y$j9k$Zwx1rjOjOFj09U6wL9FQ9M:19000:0:99999:7:::

pradeeban@lovizna: ~$ cat /etc/passwd | grep pradeeban | xargs -I {} cat /etc/group | grep {}
pradeeban:x:1000:1000:pradeeban:/home/pradeeban:

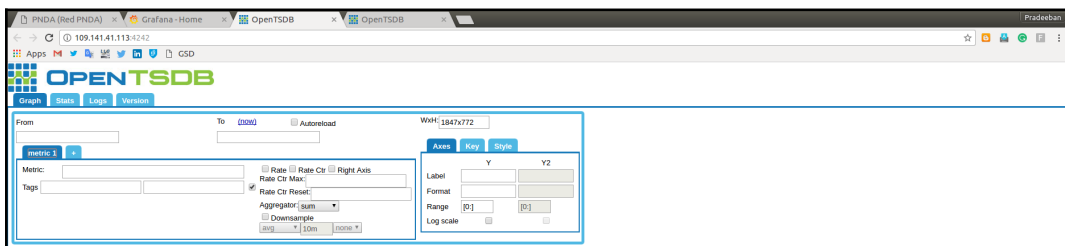
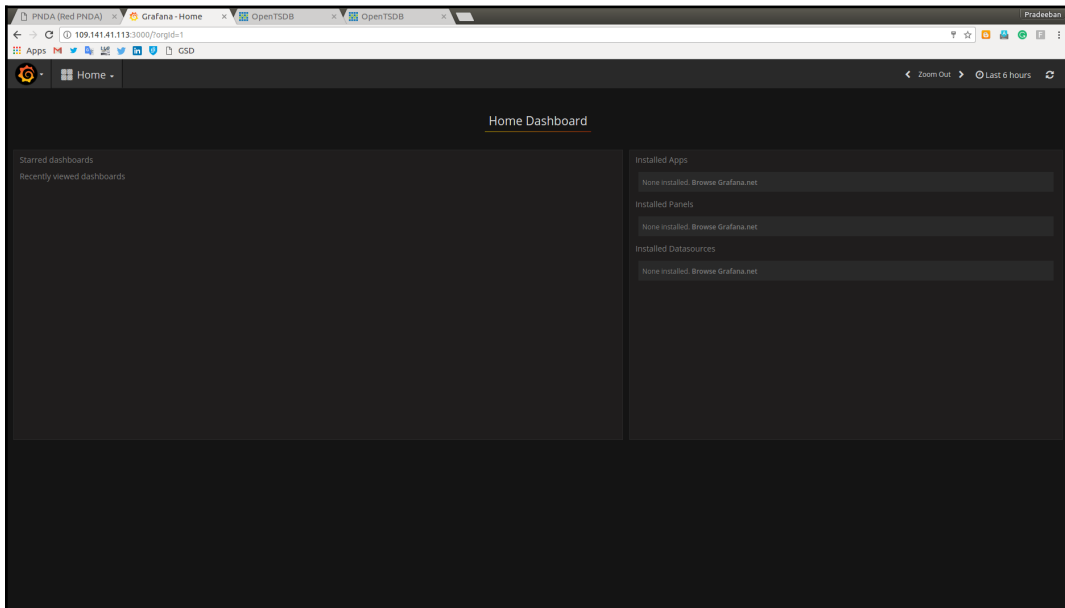
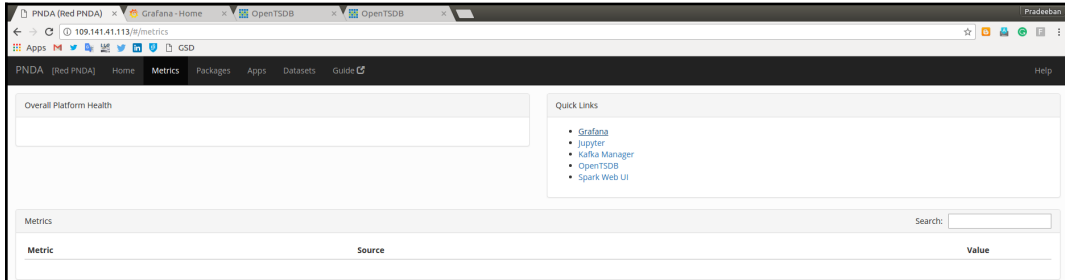
pradeeban@lovizna: ~$ cat /etc/shadow | grep pradeeban | xargs -I {} cat /etc/group | grep {}
pradeeban:x:1000:1000:pradeeban:/home/pradeeban:

pradeeban@lovizna: ~$ cat /etc/passwd | grep pradeeban | xargs -I {} cat /etc/shadow | grep {}
pradeeban:$y$j9k$Zwx1rjOjOFj09U6wL9FQ9M:19000:0:99999:7:::

pradeeban@lovizna: ~$ cat /etc/passwd | grep pradeeban | xargs -I {} cat /etc/passwd | grep {}
pradeeban:x:1000:1000:pradeeban:/home/pradeeban:/usr/sbin/passwd
```

```
pradeeban@lovizna: ~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter11
pradeeban@lovizna: ~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter11/RequestsThrottler-0.1.0/requests_throttlers
[[[Thread-MainThread - 2017-07-29 19:34:08.897] - INFO] Starting base throttler 'base throttler'...
[Thread-MainThread - 2017-07-29 19:34:08.907] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:08.897] - INFO] Starting main loop...
[Thread-MainThread - 2017-07-29 19:34:08.908] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:08.908] - INFO] Sending request (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.908] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.901] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.901] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-MainThread - 2017-07-29 19:34:08.902] - INFO] Submitting request to base throttler (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:09.184] - INFO] Request sent! (url: http://cm.com)...
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:09.343] - INFO] Request sent! (url: http://cm.com)/
[Thread-Thread-1 - 2017-07-29 19:34:10.401] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:10.545] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:11.902] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:14.005] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:11.403] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:13.594] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:14.904] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:15.095] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:16.406] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:16.598] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:17.907] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:18.085] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:19.408] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:19.593] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
[Thread-Thread-1 - 2017-07-29 19:34:20.910] - INFO] Sending request (url: http://cm.com)...
[Thread-Thread-1 - 2017-07-29 19:34:21.090] - INFO] Request sent! (url: http://www.cnn.com/)
<Response [200]>
Success: 10, Failures: 0
[Thread-Thread-1 - 2017-07-29 19:34:22.412] - INFO] Exited from main loop.
pradeeban@lovizna: ~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter11/RequestsThrottler-0.1.0/requests_throttlers
```

Chapter 21: Open and Proprietary Networking Solutions



www.juniper.net/us/en/cloud-software/trial/

Products & Services Support Training How to Buy

Try Contrail and AppFormix

Evaluate Juniper cloud software in a safe, cloud-hosted environment.

RESERVE YOUR SANDBOX

Now you have the opportunity to test Juniper Contrail, a cloud automation platform, and AppFormix, a cloud operations optimization tool, in a cloud-hosted sandbox environment. Evaluate the functionality of these products on our infrastructure free of charge.

← Previous Step Next Step →

Step 2: Select Your Slot

Click to select

August 2017							Next >
Mo	Tu	We	Th	Fr	Sa	Su	
	1	2	3	4	5	6	
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29	30	31				

Europe/Brussels

Now

02:00 AM

02:30 AM

03:00 AM

03:30 AM

04:00 AM

Selected Time slot: 09/03/2017 02:00 AM

spark

Secure | https://web-ciscospark.com/rooms/7c403931-51e6-339b-8b89-0830364b4668/chat

Download the Desktop App to get the full meeting and message experience. Download

Unread

All

Unread

TEAMS

The Teams functionality in Cisco Spark organizes people and spaces around a project or functional group. Team members can discover and join any of the spaces within that team.

GOT IT

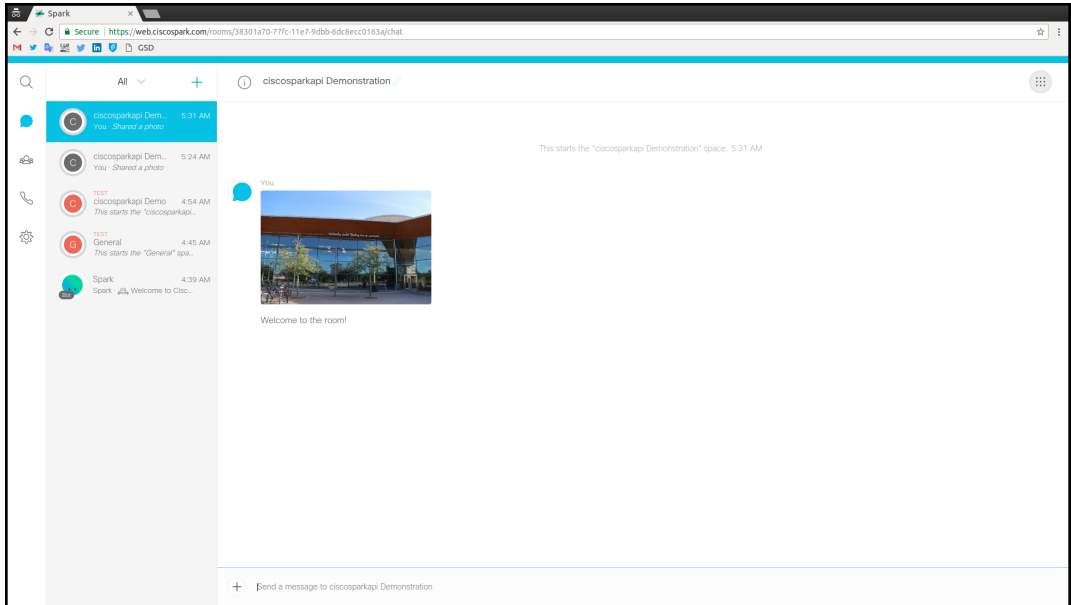
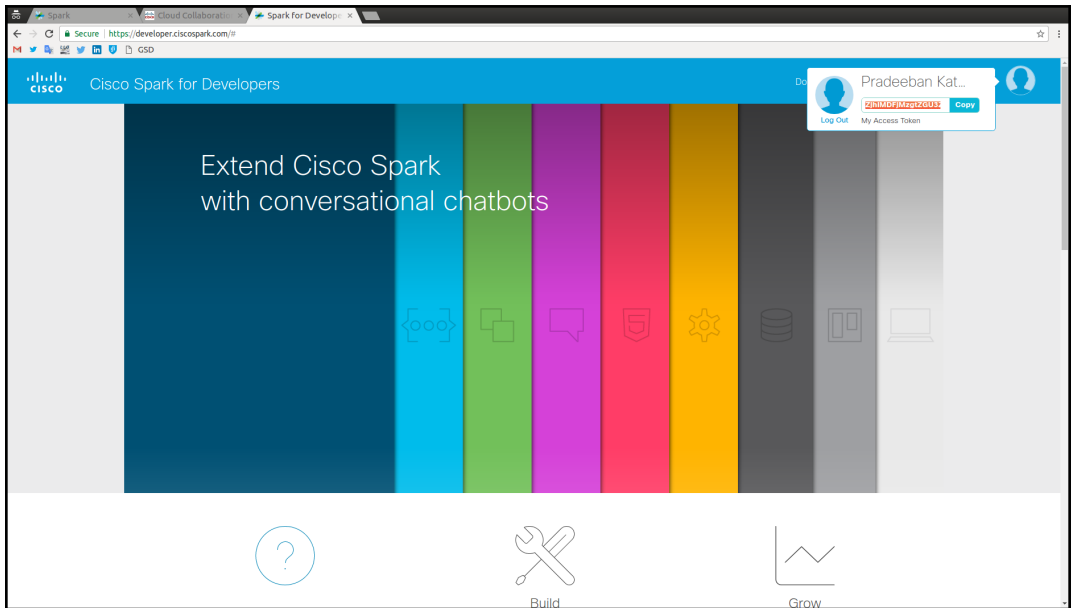
Spark

Spark 9:39 AM

Welcome to Cisco Spark! You can easily meet with your team and collaborate on projects from anywhere, anytime.

I'm here to help you unlock the magic. Say **help** or ask me questions about Cisco Spark like **What is a space?** or **How do I make a video call?**

Send a message to Spark



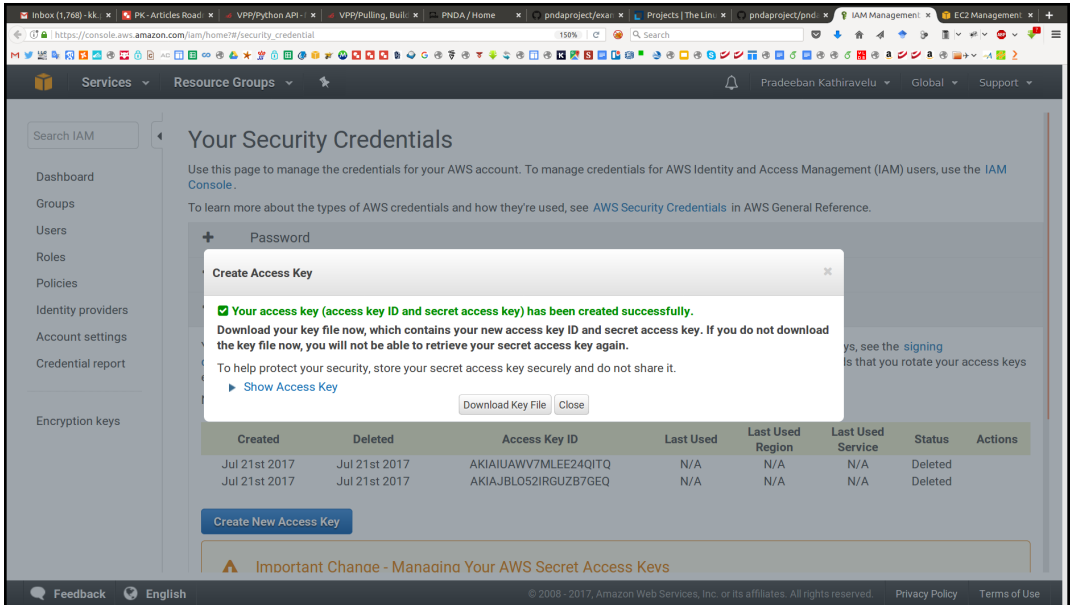
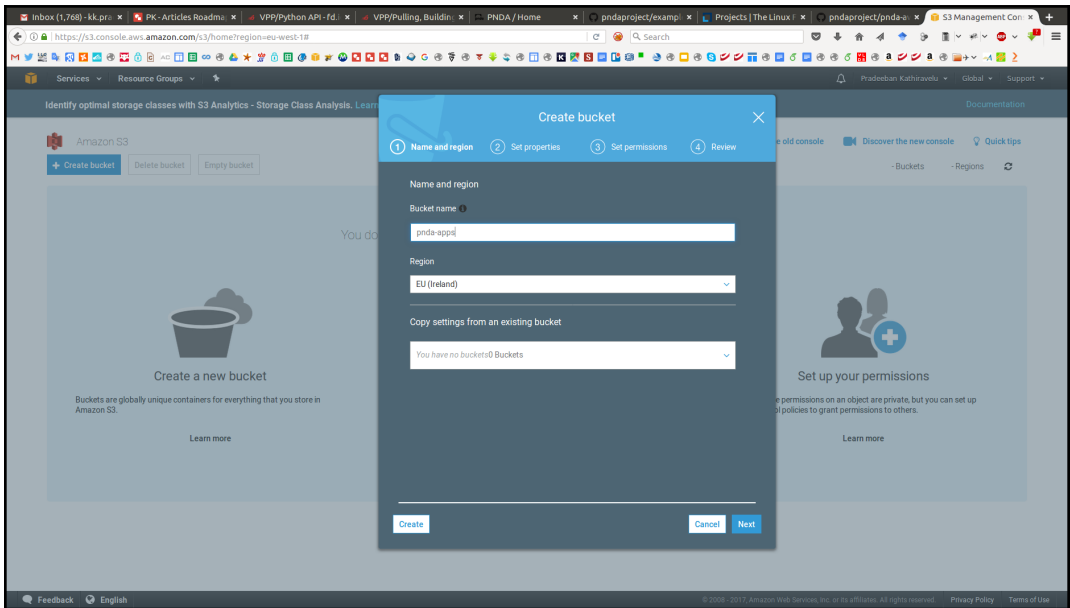
Chapter 22: NFV and Orchestration - A Larger Ecosystem

```
pradeeban@illovizna: ~/compass 165x48
generating PXE menu structure
copying files for distro: CentOS-7-Minimal-1611-x86_64
trying hardlink /var/www/cobbler/ks_mirror/CentOS-7-Minimal-1611-x86_64/images/pxeboot/vmlinuz -> /var/www/cobbler/images/CentOS-7-Minimal-1611-x86_64/vmlinuz
trying hardlink /var/www/cobbler/ks_mirror/CentOS-7-Minimal-1611-x86_64/images/pxeboot/initrd.img -> /var/www/cobbler/images/CentOS-7-Minimal-1611-x86_64/initrd.img
Writing template files for CentOS-7-Minimal-1611-x86_64
copying files for distro: ubuntu-16.04-server-x86_64
trying hardlink /var/www/cobbler/ks_mirror/ubuntu-16.04-server-x86_64/install/netboot/ubuntu-installer/amd64/linux -> /var/www/cobbler/images/ubuntu-16.04-server-x86_64/linux
trying hardlink /var/www/cobbler/ks_mirror/ubuntu-16.04-server-x86_64/install/netboot/ubuntu-installer/amd64/initrd.gz -> /var/www/cobbler/images/ubuntu-16.04-server-x86_64/initrd.gz
Writing template files for ubuntu-16.04-server-x86_64
rendering DHCP files
generating /etc/dhcp/dhcpd.conf
rendering DNS files
generating /etc/named.conf
generating /etc/secondary.conf
generating (forward) /var/named/ods.com
rendering TFTP files
generating /etc/xinetd.d/tftp
processing boot files for distro: CentOS-7-Minimal-1611-x86_64
processing boot files for distro: ubuntu-16.04-server-x86_64
cleaning link caches
running: find /var/lib/tftpboot/images/.link_cache -maxdepth 1 -type f -links 1 -exec rm -f '{}' ';'
received on stdout:
received on stderr:
running post-sync triggers
running python triggers from /var/lib/cobbler/triggers/sync/post/*
running python trigger cobbler.modules.sync_post_restart_services
running: dhcpd -f -q
received on stdout:
received on stderr:
running: service dhcpd restart
received on stderr: Redirecting to /bin/systemctl restart dhcpd.service
running: service named restart
received on stdout:
received on stderr: Redirecting to /bin/systemctl restart named.service
running shell triggers from /var/lib/cobbler/triggers/sync/post/*
running shell trigger /var/lib/cobbler/triggers/sync/post/migrate_ks.py
running: ['/var/lib/cobbler/triggers/sync/post/migrate_ks.py']
received on stdout:
received on stderr:
running python triggers from /var/lib/cobbler/triggers/change/*
running python trigger cobbler.modules.scm_track
running shell triggers from /var/lib/cobbler/triggers/change/*
*** TASK COMPLETE ***
```

```
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ kafka_2.11-0.11.0/bin/kafka-console-producer.sh --broker-list localhost:9092 --topic openbmp.parsed.router
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ kafka_2.11-0.11.0/bin/kafka-topics.sh --list --zookeeper localhost:2181
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ kafka_2.11-0.11.0/bin/kafka-topics.sh --list --zookeeper localhost:2181
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ python 13.3_snas_log_consumer.py --conf=config.yaml
Connecting to kafka... takes a minute to load offsets and topics, please wait
Now consuming/waiting for messages...
Received Message (2017-07-21 13:22:57.858234) : ROUTER(V: 0.0)
{}
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$
```

```
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ python 13.4_dronekit_sitl_simulation.py
Starting copter simulator (SITL)
SITL already Downloaded and Extracted.
Ready to boot.
Connected: tcp:127.0.0.1:5760
>>> APM:copter_V2.3 (46693245)
>>> Frame: QIAD
>>> Calibrating barometer
>>> Initializing APM...
>>> Barometer calibration complete
>>> GROUND_START
GPS: GPSInfo: fix=3, num_sats=10
Battery: BatteryVoltage=12.587,current=0.0,level=100
Last Heartbeat: 0.862983219997
Is Arming?: False
System status: STANDBY
Mode: STABILIZE
Completed
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$
```

```
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$ python 13.4_dronekit_sitl_simulation.py
Starting copter simulator (SITL)
SITL already Downloaded and Extracted.
Ready to boot.
Connected: tcp:127.0.0.1:5760
>>> APM:copter_V2.3 (46693245)
>>> Frame: QIAD
>>> Calibrating barometer
>>> Initializing APM...
>>> Barometer calibration complete
>>> GROUND_START
GPS: GPSInfo: fix=3, num_sats=10
Battery: BatteryVoltage=12.587,current=0.0,level=100
Last Heartbeat: 0.862983219997
Is Arming?: False
System status: STANDBY
Mode: STABILIZE
Completed
pradeeban@lovizna:~/Dropbox/Book-Network-Programming-Cookbook/346305_Code/chapter13$
```



Browser tabs: Inbox (1,76), PK-Article, VPP/Pytho, VPP/Pullin, PNDA/Ho, pndaproje, pndaproje, panda-serv, S3 Manage, EC2 Man: X, package se, pnda-guidi, pnda/mirr, pnda-guidi.

Address bar: https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#KeyPairs:sort=keyName

Navigation: Services, Resource Groups

Page Header: Pradeeban Kathiravelu, Ireland, Support

EC2 Dashboard

- Events
- Tags
- Reports
- Limits
- INSTANCES
 - Instances
 - Spot Requests
 - Reserved Instances
 - Scheduled Instances
 - Dedicated Hosts
- IMAGES
 - AMIs
 - Bundle Tasks
- ELASTIC BLOCK STORE
 - Volumes
 - Snapshots
- NETWORK & SECURITY
 - Security Groups
 - Elastic IPs
 - Placement Groups
 - Key Pairs**
 - Network Interfaces
- LOAD BALANCING
 - Load Balancers
 - Target Groups
- AUTO SCALING
 - Launch Configurations
 - Auto Scaling Groups
- SYSTEMS MANAGER
 - SERVICES
 - Run Command

Actions: Create Key Pair, Import Key Pair, Refresh

Search: Filter by attributes or search by keyword

Message: You do not have any Key Pairs in this region. Click the "Create Key Pair" button to create your first Key Pair.

Button: Create Key Pair

Create Key Pair ✕

Key pair name:

Cancel Create

Select a key pair

Feedback English

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