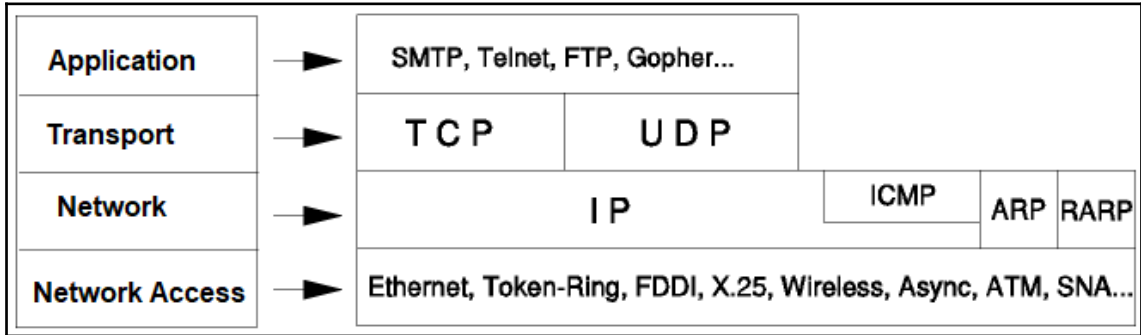


# Chapter 1: Network Programming with Python



```
$ ip
BusyBox v1.28.4 (2018-07-17 15:21:40 UTC) multi-call binary.

Usage: ip [OPTIONS] address|route|link|tunnel|neigh|rule [COMMAND]

OPTIONS := -f[amily] inet|inet6|link | -o[neline]
COMMAND :=
ip addr add|del IFADDR dev IFACE | show|flush [dev IFACE] [to PREFIX
X]
ip route list|flush|add|del|change|append|replace|test ROUTE
ip link set IFACE [up|down] [arp on|off] | show [IFACE]
ip tunnel add|change|del|show [NAME]
    [mode ipip|gre|sit]
    [remote ADDR] [local ADDR] [ttl TTL]
ip neigh show|flush [to PREFIX] [dev DEV] [nud STATE]
ip rule [list] | add|del SELECTOR ACTION
```

---

USAGE:

```
ipconfig [/allcompartments] [/? | /all |
/renew [adapter] | /release [adapter] |
/renew6 [adapter] | /release6 [adapter] |
/flushdns | /displaydns | /registerdns |
/showclassid adapter |
/setclassid adapter [classid] |
/showclassid6 adapter |
/setclassid6 adapter [classid] ]
```

where

```
adapter          Connection name
                  (wildcard characters * and ? allowed, see examples)
```

Options:

```
/?              Display this help message
/all            Display full configuration information.
/release        Release the IPv4 address for the specified adapter.
/release6       Release the IPv6 address for the specified adapter.
/renew          Renew the IPv4 address for the specified adapter.
/renew6         Renew the IPv6 address for the specified adapter.
/flushdns       Purges the DNS Resolver cache.
/registerdns    Refreshes all DHCP leases and re-registers DNS names
/displaydns     Display the contents of the DNS Resolver Cache.
/showclassid    Displays all the dhcp class IDs allowed for adapter.
/setclassid     Modifies the dhcp class id.
/showclassid6   Displays all the IPV6 DHCP class IDs allowed for adapter.
/setclassid6    Modifies the IPV6 DHCP class id.
```

```
$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
2: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN
    link/ether 02:42:1d:95:df:04 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
        valid_lft forever preferred_lft forever
24: eth0@if25: <BROADCAST,MULTICAST,UP,LOWER_UP,M-DOWN> mtu 1500 qdisc noqueue state UP
    link/ether 66:a7:8e:25:c4:46 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.8/23 scope global eth0
        valid_lft forever preferred_lft forever
28: eth1@if29: <BROADCAST,MULTICAST,UP,LOWER_UP,M-DOWN> mtu 1500 qdisc noqueue state UP
    link/ether 02:42:ac:12:00:06 brd ff:ff:ff:ff:ff:ff
    inet 172.18.0.6/16 scope global eth1
        valid_lft forever preferred_lft forever
```

```
$ dhclient --help
Usage: dhclient [-4|-6] [-SNTPRIldvrxi] [-nw] [-p <port>] [-D LL|LLT]
    [--dad-wait-time <seconds>] [--prefix-len-hint <length>]
    [--decline-wait-time <seconds>]
    [--address-prefix-len <length>]
    [-s server-addr] [-cf config-file]
    [-df duid-file] [-lf lease-file]
    [-pf pid-file] [--no-pid] [-e VAR=val]
    [-sf script-file] [interface]*
dhclient {--version|--help|-h}
```

```
$ nslookup
```

```
Usage: nslookup [HOST] [SERVER]
```

Query the nameserver for the IP address of the given HOST optionally using a specified DNS server

```
$ nslookup packtpub.com
```

```
Name: packtpub.com
```

```
Address 1: 83.166.169.231
```

```
Ethernet adapter VirtualBox Host-Only Network:
```

```
Connection-specific DNS Suffix . :  
Link-local IPv6 Address . . . . . : fe80::e53f:e43b:ad07:9cab%5  
IPv4 Address. . . . . : 192.168.56.1  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . :
```

## RFC Editor

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1 result

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|----------|---------------------------------|---|---|-----------|---|----------------|
| RFC 2616 | ASCII, PS, PDE, PDF with Images | Hypertext Transfer Protocol -- HTTP/1.1 | R. Fielding, J. Gettys, J. Mogul, H. Frystyk, L. Masinter, P. Leach, T. Berners-Lee | June 1999 | <a href="#">Errata</a> , Obsoletes RFC 2068, Obsoleted by RFC 7230, RFC 7231, RFC 7232, RFC 7233, RFC 7234, RFC 7235, Updated by RFC 2817, RFC 5785, RFC 6266, RFC 6585 | Draft Standard |

Network Working Group  
Request for Comments: 2324  
Category: Informational

L. Masinter  
1 April 1998

## Hyper Text Coffee Pot Control Protocol (HTCPCP/1.0)

### Status of this Memo

This memo provides information for the Internet community. It does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

### Copyright Notice

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### Abstract

This document describes HTCPCP, a protocol for controlling, monitoring, and diagnosing coffee pots.

Welcome to Wireshark

## Capture

...using this filter:

All interfaces shown ▾

|                              |  |
|------------------------------|--|
| Local Area Connection* 11    |  |
| Wi-Fi                        |  |
| Ethernet                     |  |
| Npcap Loopback Adapter       |  |
| VirtualBox Host-Only Network |  |

Capturing from Ethernet

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help



| No. | Time     | Source          | Destination     | Protocol | Length | Info  |
|-----|----------|-----------------|-----------------|----------|--------|---|
| 1   | 0.000000 | 10.68.8.209     | 173.194.188.103 | UDP      | 606    | 55833 → 443 Len=564                                       |
| 2   | 0.049749 | 10.68.8.173     | 224.0.0.251     | MDNS     | 104    | Standard query response 0x0000 A, cache flush 10.68.8.173 |
| 3   | 0.060091 | 173.194.188.103 | 10.68.8.209     | UDP      | 64     | 443 → 55833 Len=22  |
| 4   | 0.246209 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 5   | 0.246210 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 6   | 0.246326 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 7   | 0.246527 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 8   | 0.246528 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 9   | 0.246528 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 10  | 0.246782 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |
| 11  | 0.246784 | 173.194.188.103 | 10.68.8.209     | UDP      | 1392   | 443 → 55833 Len=1350                                      |

### HyperText Transport Protocol (HTTP)

[http.cap](#) A simple HTTP request and response.

[http\\_gzip.cap](#) A simple HTTP request with a one packet gzip Content-Encoded response.

[http-chunked-gzip.pcap](#) A single HTTP request and response for www.wireshark.org (proxied using socat to remove SSL encryption). Response is gzipped and used chunked encoding. Added in January 2016.

[http\\_with\\_jpegs.cap.gz](#) A simple capture containing a few JPEG pictures one can reassemble and save to a file.

[tcp-ethereal-file1.trace](#) (libpcap) A large POST request, taking many TCP segments.

[tcp-ecn-sample.pcap](#) A sample TCP/HTTP of a file transfer using ECN (Explicit Congestion Notification) feature per RFC3168. Frame 48 experienced Congestion Encountered.

[http\\_redirects.pcapng](#) A sample TCP/HTTP with many 302 redirects per RFC 3986 (<https://tools.ietf.org/html/rfc3986#section-5.4>).

For captures using SSL/TLS, see [#SSL\\_with\\_decryption\\_keys](#).

Wireshark · Coloring Rules Default

| Name  | Filter  |
|---|---|
| <input checked="" type="checkbox"/> Bad TCP                       | tcp.analysis.flags && !tcp.analysis.window_update   |
| <input checked="" type="checkbox"/> HSRP State Change             | hsrp.state != 8 && hsrp.state != 16   |
| <input checked="" type="checkbox"/> Spanning Tree Topology Change | stp.type == 0x80  |
| <input checked="" type="checkbox"/> OSPF State Change             | ospf.msg != 1   |
| <input checked="" type="checkbox"/> ICMP errors                   | icmp.type eq 3    icmp.type eq 4    icmp.type eq 5    icmp.type eq 11    icmpv6.type eq 1    icmpv6.type eq 2    icmpv6.type eq 3             |
| <input checked="" type="checkbox"/> ARP                           | arp   |
| <input checked="" type="checkbox"/> ICMP                          | icmp    icmpv6  |
| <input checked="" type="checkbox"/> TCP RST                       | tcp.flags.reset eq 1  |
| <input checked="" type="checkbox"/> SCTP ABORT                    | sctp.chunk_type eq ABORT  |
| <input checked="" type="checkbox"/> TTL low or unexpected         | ( ! ip.dst == 224.0.0.0/4 && ip.ttl < 5 && !pim && !ospf )    ( ip.dst == 224.0.0.0/24 && ip.dst != 224.0.0.251 && ip.ttl < 255 )             |
| <input checked="" type="checkbox"/> Checksum Errors               | eth.fcs.status=="Bad"    ip.checksum.status=="Bad"    tcp.checksum.status=="Bad"    udp.checksum.status=="Bad"    sctp.checksum.status=="Bad" |
| <input checked="" type="checkbox"/> SMB                           | smb    nbss    nbns    nbpx    ipxsap    netbios  |
| <input checked="" type="checkbox"/> HTTP                          | http    tcp.port == 80    http2   |
| <input checked="" type="checkbox"/> IPX                           | ipx    spx  |
| <input checked="" type="checkbox"/> DCERPC                        | dcerpc  |
| <input checked="" type="checkbox"/> Routing                       | hsrp    eigrp    ospf    bgp    cdp    vrrp    carp    gvrp    igmp    ismp   |
| <input checked="" type="checkbox"/> TCP SYN/FIN                   | tcp.flags & 0x02    tcp.flags.fin == 1  |
| <input checked="" type="checkbox"/> TCP                           | tcp   |
| <input checked="" type="checkbox"/> UDP                           | udp   |
| <input checked="" type="checkbox"/> Broadcast                     | eth[0] & 1  |

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

dns

| No.  | Time         | Source       | Destination  | Protocol | Length | Info   |
|------|--------------|--------------|--------------|----------|--------|--|
| 1042 | -3676.527107 | 10.68.8.209  | 10.68.55.100 | DNS      | 70     | Standard query 0xd265 A g.live.com   |
| 1044 | -3676.505241 | 10.68.55.100 | 10.68.8.209  | DNS      | 119    | Standard query response 0xd265 A g.live.com CNAME g.msn.com.nsatc.net A 52.142.114.176                         |
| 1085 | -3675.987982 | 10.68.8.209  | 10.68.55.100 | DNS      | 76     | Standard query 0x1847 A oneclient.sfx.ms   |
| 1088 | -3675.953616 | 10.68.55.100 | 10.68.8.209  | DNS      | 170    | Standard query response 0x1847 A oneclient.sfx.ms CNAME oneclient.sfx.ms.edgekey.net CNAME oneclient.sfx.ms    |
| 1216 | -3673.776523 | 10.68.8.209  | 10.68.55.100 | DNS      | 93     | Standard query 0x9f90 A v10.vortex-win.data.microsoft.com  |
| 1227 | -3673.757821 | 10.68.55.100 | 10.68.8.209  | DNS      | 203    | Standard query response 0x9f90 A v10.vortex-win.data.microsoft.com CNAME v10-win.vortex.data.microsoft.com     |
| 1292 | -3670.754548 | 10.68.8.209  | 10.68.55.100 | DNS      | 81     | Standard query 0x7df3 A outlook.office365.com  |
| 1293 | -3670.735454 | 10.68.55.100 | 10.68.8.209  | DNS      | 207    | Standard query response 0x7df3 A outlook.office365.com CNAME outlook.office365.com CNAME outlook.office365.com |
| 1614 | -3667.215912 | 10.68.8.209  | 10.68.55.100 | DNS      | 76     | Standard query 0xe486 A go.microsoft.com   |

| Name  | Filter   |
|---|--|
| Ethernet address 00:00:5e:00:53:00                    | eth.addr == 00:00:5e:00:53:00                    |
| Ethernet type 0x0806 (ARP)                            | eth.type == 0x0806                               |
| Ethernet broadcast                                    | eth.addr == ff:ff:ff:ff:ff:ff                    |
| No ARP  | not arp  |
| IPv4 only   | ip   |
| IPv4 address 192.0.2.1                                | ip.addr == 192.0.2.1                             |
| IPv4 address isn't 192.0.2.1 (don't use != for this!) | !(ip.addr == 192.0.2.1)                          |
| IPv6 only   | ipv6   |
| IPv6 address 2001:db8::1                              | ipv6.addr == 2001:db8::1                         |
| IPX only  | ipx  |
| TCP only  | tcp  |
| UDP only  | udp  |
| Non-DNS   | !(udp.port == 53    tcp.port == 53)              |
| TCP or UDP port is 80 (HTTP)                          | tcp.port == 80    udp.port == 80                 |
| HTTP  | http   |
| No ARP and no DNS                                     | not arp and !(udp.port == 53)                    |
| Non-HTTP and non-SMTP to/from 192.0.2.1               | ip.addr == 192.0.2.1 and not tcp.port in {80 25} |

```

> Frame 4: 533 bytes on wire (4264 bits), 533 bytes captured (4264 bits)
> Ethernet II, Src: Xerox_00:00:00 (00:00:01:00:00:00), Dst: fe:ff:20:00:01:00 (fe:ff:20:00:01:00)
> Internet Protocol Version 4, Src: 145.254.160.237, Dst: 65.208.228.223
> Transmission Control Protocol, Src Port: 3372, Dst Port: 80, Seq: 1, Ack: 1, Len: 479
v Hypertext Transfer Protocol
  > GET /download.html HTTP/1.1\r\n
    Host: www.ethereal.com\r\n
    User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.6) Gecko/20040113\r\n
    Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,image/png,image/jpeg,image/gif;q=0.2,*/*;q=0.1\r\n
    Accept-Language: en-us,en;q=0.5\r\n
0060 65 72 65 61 6c 2e 63 6f 6d 0d 0a 55 73 65 72 2c  ethereal.com:User-
0070 41 67 65 6e 74 3a 20 4d 6f 7a 69 6c 6c 61 2f 35  Agent: Mozilla/5
0080 2e 30 20 28 57 69 6e 64 6f 77 73 3b 20 55 3b 26  .0 (Windows; U;
0090 57 69 6e 64 6f 77 73 20 4e 54 20 35 2e 31 3b 26  Windows NT 5.1;
00a0 65 6e 2d 55 53 3b 20 72 76 3a 31 2e 36 29 20 47  en-US; rv:1.6) G
00b0 65 63 6b 6f 2f 32 30 30 34 30 31 31 33 0d 0a 41  ecko/20040113;A
00c0 63 63 65 70 74 3a 20 74 65 78 74 2f 78 6d 6c 2c  ccept: text/xml,
00d0 61 70 70 6c 69 63 61 74 69 6f 6e 2f 78 6d 6c 2c  applicat ion/xml,
00e0 61 70 70 6c 69 63 61 74 69 6f 6e 2f 78 68 74 6d  applicat ion/xhtm
00f0 6c 2b 78 6d 6c 2c 74 65 78 74 2f 68 74 6d 6c 3b  l+xml,te xt/html;

```

| No.  | Time      | Source         | Destination | Protocol | Length | Info                                       |
|------|-----------|----------------|-------------|----------|--------|--|
| 357  | 7.301216  | 193.145.235.30 | 10.68.8.209 | HTTP     | 463    | HTTP/1.1 301 Moved Permanently (text/html) |
| 4899 | 71.835170 | 193.145.235.30 | 10.68.8.209 | HTTP     | 463    | HTTP/1.1 301 Moved Permanently (text/html) |
| 5846 | 86.556586 | 216.58.212.196 | 10.68.8.209 | HTTP     | 488    | HTTP/1.1 200 OK (text/html)                |



| Name  | Filter   |
|---|--|
| Non-HTTP and non-SMTP to/from www.wireshark.org | not port 80 and not port 25 and host www.wireshark.org |
| No ARP and no DNS                               | not arp and port not 53                                |
| HTTP TCP port (80)                              | tcp port http  |
| TCP or UDP port 80 (HTTP)                       | port 80  |
| UDP only  | udp  |
| TCP only  | tcp  |
| IPX only  | ipx  |
| IPv6 address 2001:db8::1                        | host 2001:db8::1                                       |
| IPv6 only                                       | ip6  |
| IPv4 address 192.0.2.1                          | host 192.0.2.1   |
| IPv4 only                                       | ip   |
| No ARP  | not arp  |
| No Broadcast and no Multicast                   | not broadcast and not multicast                        |
| Ethernet type 0x0806 (ARP)                      | ether proto 0x0806                                     |
| Ethernet address 00:00:5e:00:53:00              | ether host 00:00:5e:00:53:00                           |

http.location contains "packtpub.com"

| No.  | Time      | Source         | Destination | Protocol | Length | Info                                   |
|------|-----------|----------------|-------------|----------|--------|--|
| 4983 | 31.997350 | 83.166.169.231 | 10.68.8.209 | HTTP     | 272    | HTTP/1.1 301 https://www.packtpub.com/ |

> Frame 4983: 272 bytes on wire (2176 bits), 272 bytes captured (2176 bits) on interface 0

> Ethernet II, Src: HewlettP\_79:fd:89 (78:48:59:79:fd:89), Dst: LcfcHefe\_2d:79:20 (8c:16:45:2d:79:20)

> Internet Protocol Version 4, Src: 83.166.169.231, Dst: 10.68.8.209

> Transmission Control Protocol, Src Port: 80, Dst Port: 39979, Seq: 1, Ack: 81, Len: 218

▼ Hypertext Transfer Protocol

- ▼ HTTP/1.1 301 https://www.packtpub.com/\r\n
  - > [Expert Info (Chat/Sequence): HTTP/1.1 301 https://www.packtpub.com/\r\n]
    - Response Version: HTTP/1.1
    - Status Code: 301
    - [Status Code Description: Moved Permanently]
    - Response Phrase: https://www.packtpub.com/
    - Location: https://www.packtpub.com/\r\n

```

>>> help(pyshark.capture.file_capture)
Help on module pyshark.capture.file_capture in pyshark.capture:

NAME
pyshark.capture.file_capture

CLASSES
pyshark.capture.capture.Capture(builtins.object)
Filecapture

class FileCapture(pyshark.capture.capture.Capture)
| A class representing a capture read from a file.
|
| Method resolution order:
|   FileCapture
|   pyshark.capture.capture.Capture
|   builtins.object
|
| Methods defined here:
|
| __getitem__(self, packet_index)
|     Gets the packet in the given index.
|
|     :param item: packet index
|     :return: Packet object.
|
| __init__(self, input_file=None, keep_packets=True, display_filter=None, only_summaries=False, decryption_
key=None, encryption_type='wpa-pwk', decode_as=None, disable_protocol=None, tshark_path=None, override_prefs=None
, use_json=False, output_file=None, include_raw=False, eventloop=None)
|     Creates a packet capture object by reading from file.

```

```

>>> import pyshark
>>> cap = pyshark.FileCapture('http.cap')
>>> cap
<FileCapture http.cap>
>>> print(cap[0])
Packet (Length: 62)
Layer ETH:
  Destination: fe:ff:20:00:01:00
  Address: fe:ff:20:00:01:00
  .... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
  .... ..0 .... = IG bit: Individual address (unicast)
  Source: 00:00:01:00:00:00
  Type: IPv4 (0x0800)
  Address: 00:00:01:00:00:00
  .... ..0 .... = LG bit: Globally unique address (factory default)
  .... ..0 .... = IG bit: Individual address (unicast)
Layer IP:
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  0000 00.. = Differentiated Services Codepoint: Default (0)
  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
  Total Length: 48
  Identification: 0x0f41 (3905)
  Flags: 0x4000, Don't fragment
  0... ..0 .... = Reserved bit: Not set
  .1.. ..0 .... = Don't fragment: Set
  ..0 .... ..0 .... = More fragments: Not set
  ...0 0000 0000 0000 = Fragment offset: 0
  Time to live: 128
  Protocol: TCP (6)

```

Layer DNS:

```
Transaction ID: 0x0023
Flags: 0x0100 standard query
0... .. = Response: Message is a query
.000 0... .. = Opcode: standard query (0)
... ..0. .... = Truncated: Message is not truncated
... ..1 .... = Recursion desired: Do query recursively
... ..0... .. = Z: reserved (0)
.....0 .... = Non-authenticated data: Unacceptable
Questions: 1
Answer RRs: 0
Authority RRs: 0
Additional RRs: 0
Queries
Name: pagead2.google syndication.com
Name Length: 29
Label Count: 3
Type: A (Host Address) (1)
Class: IN (0x0001)
pagead2.google syndication.com: type A, class IN
```

```
>>> dir(cap)
['DEFAULT_BATCH_SIZE', 'DEFAULT_LOG_LEVEL', 'SUMMARIES_BATCH_SIZE', 'SUPPORTED_ENCRYPTION_STANDARDS', '_class_',
'_del', '_delattr', '_dict', '_dir', '_doc', '_eq', '_format', '_ge', '_getattr', '_getitem', '_gt', '_hash', '_init', '_init_subclass_', '_iter', '_le', '_len', '_lt', '_module', '_ne', '_new', '_reduce', '_reduce_ex', '_repr', '_setattr', '_sizeof', '_str', '_subclasshook', '_weakref', '_capture_filter', '_cleanup_subprocess', '_close_async', '_closed', '_created_new_process', '_current_packet', '_decode_as', '_disable_protocol', '_display_filter', '_extract_packet_json_from_data', '_extract_tag_from_data', '_get_json_separator', '_get_packet_from_stream', '_get_psm1_struct', '_get_tshark_path', '_get_tshark_process', '_go_through_packets_from_fd', '_log', '_only_summaries', '_output_file', '_override_prefs', '_packet_generator', '_packets', '_packets_from_tshark_sync', '_running_processes', '_setup_eventloop', '_stderr_output', '_apply_on_packets', '_clear', '_close', '_debug', '_encryption', '_event_loop', '_get_parameters', '_include_raw', '_input_filename', '_keep_packets', '_load_packets', '_loaded', '_next', '_next_packet', '_packets_from_tshark', '_reset', '_set_debug', '_tshark_path', '_use_json']
```

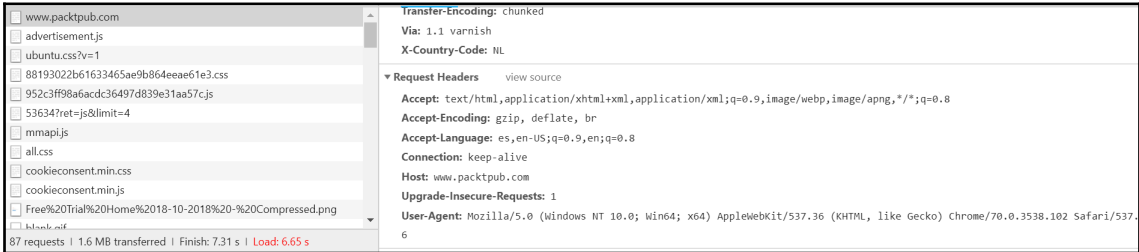
```
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] HTTP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] DNS [Source IP:] 145.254.160.237 [Destination IP:]145.253.2.203
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] TCP [Source IP:] 145.254.160.237 [Destination IP:]65.208.228.223
[Protoco]:] TCP [Source IP:] 65.208.228.223 [Destination IP:]145.254.160.237
[Protoco]:] DNS [Source IP:] 145.253.2.203 [Destination IP:]145.254.160.237
```

```

>>> import pyshark
>>> cap = pyshark.Filecapture('http.cap', only_summaries=True)
>>> dir(cap[0])
['_class_', '_delattr_', '_dict_', '_dir_', '_doc_', '_eq_', '_format_', '_ge_', '_getattr_
'__ibute_', '_gt_', '_hash_', '_init_', '_init_subclass_', '_le_', '_lt_', '_module_', '_ne_'
'_new_', '_reduce_', '_reduce_ex_', '_repr_', '_setattr_', '_sizeof_', '_str_', '_subclass_
'hook_', '_weakref_', '_field_order', '_fields', 'destination', 'info', 'length', 'no', 'protocol', 'sour
ce', 'summary_line', 'time']
>>> print(cap[0].destination)
145.254.160.237
>>> print(cap[0].info)
80 \xe2\x86\x92 3372 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1380 SACK_PERM=1
>>> print(cap[0].length)
62
>>> print(cap[0].no)
2
>>> print(cap[0].protocol)
TCP
>>> print(cap[0].source)
65.208.228.223
>>> print(cap[0].summary_line)
2 0.91131 65.208.228.223 145.254.160.237 TCP 62 80 \xe2\x86\x92 3372 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0
MSS=1380 SACK_PERM=1
>>> print(cap[0].time)
0.91131
>>> print(cap[0].__dict__)
{'_fields': {'No.': '2', 'Time': '0.91131', 'source': '65.208.228.223', 'destination': '145.254.160.237', '
Protocol': 'TCP', 'Length': '62', 'Info': '80 \xe2\x86\x92 3372 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MS
s=1380 SACK_PERM=1'}, 'field_order': ['No.', 'Time', 'source', 'destination', 'Protocol', 'Length', 'Info'
], 'no': '2', 'time': '0.91131', 'source': '65.208.228.223', 'destination': '145.254.160.237', 'protocol':
'TCP', 'length': '62', 'info': '80 \xe2\x86\x92 3372 [SYN, ACK] Seq=0 Ack=1 win=5840 Len=0 MSS=1380 SACK

```

# Chapter 2: Programming for the Web with HTTP



```
Enter the URL:http://www.packtpub.com
Server: nginx/1.4.5
Date: Mon, 26 Nov 2018 11:04:05 GMT
Content-Type: text/html; charset=utf-8
Transfer-Encoding: chunked
Connection: close
Expires: Sun, 19 Nov 1978 05:00:00 GMT
Cache-Control: public, s-maxage=172800
Age: 3661
Via: 1.1 varnish
X-Country-Code: NL
```

```
>>> from urllib.request import Request,urlopen
>>> req.add_header('Accept-Language', 'nl')
>>> from urllib.request import Request,urlopen
>>> req = Request('http://www.debian.org')
>>> req.add_header('Accept-Language', 'nl')
>>> response = urlopen(req)
>>> response.readlines()[:5]
[b'<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">\n', b'<html lang="nl">\n', b'<head>\n', b'<meta http-equiv="Content-Type" content="text/html; charset=utf-8">\n', b'<title>Debian -- Het universele Besturingssysteem </title>\n']
```

---

```
Request headers:  
Accept-language: n|  
User-agent: Mozilla/5.0 (Windows NT 5.1; rv:20.0)  
Gecko/20100101 Firefox/20.0
```

```
>>> from urllib.request import urlopen  
>>> response = urlopen('http://www.debian.org')  
>>> response.getheader('Content-Type')  
'text/html'  
>>> response = urlopen('https://httpbin.org/get')  
>>> response.getheader('Content-Type')  
'application/json'  
>>> response = urlopen('http://www.python.org')  
>>> response.getheader('Content-Type')  
'text/html; charset=utf-8'
```

```
https://www.packtpub.com/account/password  
https://hub.packtpub.com  
https://www.packtpub.com/cart/checkout  
https://mapt.io/free-trial/  
https://www.packtpub.com/skill-up-2018/big-data-bundle  
https://www.packtpub.com/skill-up-2018/blockchain-bundle  
https://www.packtpub.com/skill-up-2018/business-intelligence-bundle  
https://www.packtpub.com/ai-now/building-ai-powered-iot-systems  
https://www.packtpub.com/skill-up-2018/core-c-sharp-programming-bundle  
https://www.packtpub.com/skill-up-2018/c-sharp-web-development-bundle  
https://www.packtpub.com/skill-up-2018/core-c-plus-plus-programming-bundle  
https://www.packtpub.com/skill-up-2018/c-plus-plus-game-development-bundle  
https://www.packtpub.com/skill-up-2018/high-performance-c-plus-plus-apps-bundle  
https://www.packtpub.com/ai-now/creating-ai-systems-with-raspberry-pi  
https://www.packtpub.com/skill-up-2018/devops-bundle  
https://www.packtpub.com/ai-now/getting-started-with-machine-learning-on-the-cloud  
https://www.packtpub.com/skill-up-2018/docker-bundle  
https://www.packtpub.com/ai-now/everything-about-ai-bundle  
https://www.packtpub.com/skill-up-2018/go-programming-bundle  
https://www.packtpub.com/skill-up-2018/go-web-development-bundle  
https://www.packtpub.com/skill-up-2018/hadoop-bundle
```

```
http://www.packtpub.com
https://d255esdrn735hr.cloudfront.net/sites/default/files/BFH_Front_Compressed_V3.png
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/bookretailers/v10662_low.png
http://www.packtpub.com/sites/default/files/blank.gif
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/bookretailers/v09066_low_0.png
http://www.packtpub.com/sites/default/files/blank.gif
https://d255esdrn735hr.cloudfront.net/sites/default/files/imagecache/featured_book_block/B10618.png
http://www.packtpub.com/sites/default/files/blank.gif
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/B09048.png
http://www.packtpub.com/sites/default/files/blank.gif
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/bookretailers/v09197_low_0.png
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/B10120.png
http://www.packtpub.com/sites/default/files/blank.gif
https://d255esdrn735hr.cloudfront.net/sites/default/files/imagecache/featured_book_block/B09332.png
http://www.packtpub.com/sites/default/files/blank.gif
https://d255esdrn735hr.cloudfront.net/sites/default/files/imagecache/featured_book_block/B09991_New_cover.png
http://www.packtpub.com/sites/default/files/blank.gif
https://d255esdrn735hr.cloudfront.net/sites/default/files/imagecache/featured_book_block/cover_13.png
http://www.packtpub.com/sites/default/files/blank.gif
https://dz13w8afd47i1.cloudfront.net/sites/default/files/imagecache/featured_book_block/bookretailers/v10068_Low.png
http://www.packtpub.com/sites/default/files/blank.gif
```

```
>>> from urllib.parse import urlparse
>>> result = urlparse('https://www.packtpub.com/tech/Python')
>>> result
ParseResult(scheme='https', netloc='www.packtpub.com', path='/tech/Python', params='', query='', fragment='')
>>> result.scheme
'https'
>>> result.netloc
'www.packtpub.com'
>>> result.path
'/tech/Python'
```

```
Content-Type: text/html; charset=utf-8
Transfer-Encoding: chunked
Server: GitHub.com
Status: 200 OK
Cache-Control: no-cache
Vary: X-PJAX, Accept-Encoding
Set-Cookie: has_recent_activity=1; path=/; expires=Thu, 22 Nov 2018 20:54:45 -0000; logged_in=no; domain=.github.com; path=/; expires=Mon, 22 Nov 2038 19:54:45 -0000; secure; HttpOnly, _gh_sess=a1ZTQW1HeHZoNEDkRllivzdMYjR5Nk9ZSEFqZnFTMEh1am1oZzd2wXzccvg1M0rabwprTmWmjZSNEERajJtQmRvaVFTak1BYUXJMnrTRwpVVT1jvi8zdg1nRnVjYXkwaTRoK0h6ekV4Yw5LcwpPZDZPN2RMDZUIOG1IRU9mR01TL3c2bGIzaX1NYXNKLzdGRze0dH1tdwEvawVeaK84N2RzSn1pa0hqUnpcam9NbFF30c9zeDv5ZEtoS3V1S2tvdFBaY0pGVud1Z3jRU0diRHBjYutGQT09LS1wZ0tJbjdJ1lpz013K0JIMjKXT0hnpT0%3D--e6abe3a41b639f1bf2c202a24eff49d6bb6a4baa; path=/; secure; HttpOnly
X-Request-Id: bc39744d-bec4-4762-bf19-ef5ba7330838
Strict-Transport-Security: max-age=31536000; includeSubdomains; preload
X-Frame-Options: deny
X-Content-Type-Options: nosniff
X-XSS-Protection: 1; mode=block
Referrer-Policy: origin-when-cross-origin, strict-origin-when-cross-origin
Expect-CT: max-age=2592000, report-uri="https://api.github.com/_private/browser/errors"
```

Firefox Add-ons [Explorar](#) [Extensiones](#) [Temas](#) [Más...](#)

- Modify Header Value (HTTP Headers)
- Cookies and HTTP Headers analyser
- HTTP Headers Customize
- HTTP Header Live
- HTTP Header Mangler
- Headers Middleman
- X-Forwarded-For Injector
- mHeaderControl
- HTTPS Everywhere
- Header Editor

## HTTP Header Live

by **Martin Antrag**

Displays the HTTP header. Edit it and send it.

15.691 Usuarios

5 ★

4 ★

3 ★

2 ★

1 ★

Eliminar

HTTP Header Live - Get this...
Packt Publishing | Technology

Host: packtpub.com

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; r...

Accept: text/html,application/xhtml+xml,application/xml...

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Upgrade-Insecure-Requests: 1

**GET: HTTP/1.1 301 https://www.packtpub.com/**

Location: https://www.packtpub.com/

Accept-Ranges: bytes

Date: Tue, 20 Nov 2018 10:43:18 GMT

Age: 0

Via: 1.1 varnish

Connection: close

X-Country-Code: NL

Server: packt

---

Host: www.packtpub.com

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; r...

Accept: text/html,application/xhtml+xml,application/xml...

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate, br

Connection: keep-alive

Upgrade-Insecure-Requests: 1

**GET: HTTP/1.1 200 OK**

Server: nginx/1.4.5

Date: Tue, 20 Nov 2018 10:43:19 GMT

Content-Type: text/html; charset=utf-8

Transfer-Encoding: chunked

Connection: keep-alive

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---

Customer name:

Telephone:

E-mail address:

**Pizza Size**

Small

Medium

Large

```
▼ Request Headers view source  
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8  
Accept-Encoding: gzip, deflate  
Accept-Language: es,en-US;q=0.9,en;q=0.8  
Cache-Control: max-age=0  
Connection: keep-alive  
Content-Length: 92  
Content-Type: application/x-www-form-urlencoded  
Cookie: _gauges_unique_day=1; _gauges_unique_month=1; _gauges_unique_year=1; _gauges_unique=1  
Host: httpbin.org  
Origin: http://httpbin.org  
Referer: http://httpbin.org/forms/post
```

---

HTTP Status Code: 200

```
{
  "args": {},
  "data": "",
  "files": {},
  "form": {
    "custemail": "email@domain.com",
    "custname": "customer",
    "custtel": "323232",
    "size": "large"
  },
  "headers": {
    "Accept": "*/*",
    "Accept-Encoding": "gzip, deflate",
    "Connection": "close",
    "Content-Length": "72",
    "Content-Type": "application/x-www-form-urlencoded",
    "Host": "httpbin.org",
    "User-Agent": "python-requests/2.19.1"
  },
  "json": null,
  "origin": "192.113.65.10",
  "url": "http://httpbin.org/post"
}
```

```
Cookie: logged_in --> no
Cookie: _gh_sess --> emFXNHFsYVZ1bWntZWJpsZlyZndrRwduMTZNa01RMHjyYxh1b25kn1FYwwk2aGUzM3V1SXV
IRVFDmjd4djUxN3dETOppdw82eutCdzd6as9yMFRSR3FUMGXIRWNHawhZS0ZrOXdqY01ky2ZiV24vTC9ST2ovYVB2MkF
MdTLXZHK2cHJQSTF4Yz1jY0sveG0rUDVwZ1luzTFpazhRWFJrcGhVSDJGenVKew03ekJRUENUMFIzdjdBRUprV1dKn3Z
TaEPHzWhLWXE2WExpyTlXR21jvmJFUT09LS1YTGhJSy9oQ1RHwmxsejE5ckXgc09RPT0%3D--d00e1c111bcd9ebcfaf
3e7880a4b3b7ec4ffa662
Cookie: has_recent_activity --> 1
Headers: Date: wed, 21 Nov 2018 18:39:49 GMT
Content-Type: text/html; charset=utf-8
Transfer-Encoding: chunked
Connection: close
Server: GitHub.com
Status: 200 OK
Cache-Control: no-cache
Vary: X-PJAX
Set-Cookie: has_recent_activity=1; path=/; expires=wed, 21 Nov 2018 19:39:49 -0000
Set-Cookie: logged_in=no; domain=.github.com; path=/; expires=sun, 21 Nov 2038 18:39:49 -0000; secure; HttpOnly
Set-Cookie: _gh_sess=emFXNHFsYVZ1bWntZWJpsZlyZndrRwduMTZNa01RMHjyYxh1b25kn1FYwwk2aGUzM3V1SXV
IRVFDmjd4djUxN3dETOppdw82eutCdzd6as9yMFRSR3FUMGXIRWNHawhZS0ZrOXdqY01ky2ZiV24vTC9ST2ovYVB2MkF
MdTLXZHK2cHJQSTF4Yz1jY0sveG0rUDVwZ1luzTFpazhRWFJrcGhVSDJGenVKew03ekJRUENUMFIzdjdBRUprV1dKn3Z
TaEPHzWhLWXE2WExpyTlXR21jvmJFUT09LS1YTGhJSy9oQ1RHwmxsejE5ckXgc09RPT0%3D--d00e1c111bcd9ebcfaf
3e7880a4b3b7ec4ffa662; path=/; secure; HttpOnly
X-Request-Id: 91aa5c7a-0518-49d5-ae26-a9de15536082
Strict-Transport-Security: max-age=31536000; includesubdomains; preload
X-Frame-Options: deny
X-Content-Type-Options: nosniff
X-XSS-Protection: 1; mode=block
Referrer-Policy: origin-when-cross-origin, strict-origin-when-cross-origin
Expect-CT: max-age=2592000, report-uri="https://api.github.com/_private/browser/errors"
Content-Security-Policy: default-src 'none'; base-uri 'self'; block-all-mixed-content; conne
```

```
Name: logged_in
Value: no
HTTPOnly: False
```

```
Name: _gh_sess
Value: c3RHUnB4MU01evpqVVVsR0Vzc0JwQkh3d3FGMGVBRCs5SUJvK2lFNlRzcC9ETVN1NnVVOWN
DUCsxQm9IbF14NnJlAw94wnkybEMydTR1bnRxVEFpYzFuvmlpVlFBTHJ1Sm1iMGXXYmNHMXB6Z3VNO
Ep3WGVZKzIweUd5L3R3UXZMz1d3TVNUaG5DaFV1dUhvazk0dw1odDZvSnNGNEJncEdTc0ZwVFNxYm1
WvmtiwjZibzzoyjvjQzd1s1hwdmRYMG1DSudBUE95TVVNaWhqTDDK2huUT09LS1UOVNSMktuTHRmS
ZRSVlpZwk1UTvpBPT0%3D--bde2a4b2048d7e45cee392ec9c3ca45576a4a1a5
HTTPOnly: False
```

```
Name: has_recent_activity
Value: 1
HTTPOnly: False
```

```
{'c3RHUnB4MU01evpqVVVsR0Vzc0JwQkh3d3FGMGVBRCs5SUJvK2lFNlRzcC9ETVN1NnVVOWN
DUCsxQm9IbF14NnJlAw94wnkybEMydTR1bnRxVEFpYzFuvmlpVlFBTHJ1Sm1iMGXXYmNHMXB6Z3VNO
Ep3WGVZKzIweUd5L3R3UXZMz1d3TVNUaG5DaFV1dUhvazk0dw1odDZvSnNGNEJncEdTc0ZwVFNxYm1
WvmtiwjZibzzoyjvjQzd1s1hwdmRYMG1DSudBUE95TVVNaWhqTDDK2huUT09LS1UOVNSMktuTHRmS
ZRSVlpZwk1UTvpBPT0%3D--bde2a4b2048d7e45cee392ec9c3ca45576a4a1a5', 'no', '1'}
```

---

| Name | x | Headers  | Preview     | Response | Cookies | Timing |
|------|---|--|-------------|----------|---------|--------|
| pass |   | Request Headers  | view source |          |         |        |
|      |   | <b>Accept:</b> text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8<br><b>Accept-Encoding:</b> gzip, deflate<br><b>Accept-Language:</b> es,en-US;q=0.9,en;q=0.8<br><b>Authorization:</b> Digest username="user", realm="me@kennethreitz.com", nonce="8cd8658bc2a14fd01cba1f979cf2e035", uri="/digest-auth/auth/user/pass", algorithm=MD5, response="58a886d288260f3d56ffffcc6ce888c3c", opaque="8b7c2ef0d2bdc96ee2eb071bade7fc3b", qop=auth, nc=00000002, cnonce="d6fe433d17802"<br><b>Cache-Control:</b> max-age=0<br><b>Connection:</b> keep-alive<br><b>Cookie:</b> stale_after=never; fake=fake_value<br><b>Host:</b> httpbin.org |             |          |         |        |

---

## Chapter 3: Application Programming Interface in Action

```
>>> help(twitter)
Help on package twitter:

NAME
    twitter - The minimalist yet fully featured Twitter API and Python toolset.

DESCRIPTION
    The Twitter and TwitterStream classes are the key to building your own
    Twitter-enabled applications.

    The Twitter class
    -----

    The minimalist yet fully featured Twitter API class.

    Get RESTful data by accessing members of this class. The result
    is decoded python objects (lists and dicts).

    The Twitter API is documented at:

        https://dev.twitter.com/overview/documentation

    The list of most accessible functions is listed at:

        https://dev.twitter.com/rest/public
```

---

Examples::

```
from twitter import *
t = Twitter(
    auth=OAuth(token, token_secret, consumer_key, consumer_secret))

# Get your "home" timeline
t.statuses.home_timeline()

# Get a particular friend's timeline
t.statuses.user_timeline(screen_name="billybob")

# to pass in GET/POST parameters, such as `count`
t.statuses.home_timeline(count=5)

# to pass in the GET/POST parameter `id` you need to use `_id`
t.statuses.oembed(_id=1234567890)

# Update your status
t.statuses.update(
    status="Using @sixohsix's sweet Python Twitter Tools.")

# Send a direct message
t.direct_messages.new(
    user="billybob",
    text="I think yer swell!")
```

## Search Tweets

---

Use the Search API to find historical Tweets. Free to enterprise versions available.

[Learn more](#)

## Filter realtime Tweets

---

Get only the Tweets you need by using advanced filtering tools with the realtime streaming API.

[Learn more](#)

## Account Activity API

---

Have 15+ account activities delivered to you in realtime via a webhook connection.

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## Direct Message API

---

Build personalized customer experiences with our Direct Message platform.

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```
validated credentials OK
{
  "statuses": [
    {
      "created_at": "Tue Dec 04 18:02:08 +0000 2018",
      "id": 1070015412702732289,
      "id_str": "1070015412702732289",
      "text": "My workflow for developing Python packages is *completely* different from how I approach data analysis.\n\nI'd never\u0026\n26 https://t.co/UMFa6JVo8p",
      "truncated": true,
      "entities": {
        "hashtags": [],
        "symbols": [],
        "user_mentions": [],
        "urls": [
          {
            "url": "https://t.co/UMFa6JVo8p",
            "expanded_url": "https://twitter.com/i/web/status/1070015412702732289",
            "display_url": "twitter.com/i/web/status/1\u0026\n26",
            "indices": [
              116,
              139
            ]
          }
        ]
      }
    }
  ],
  "metadata": {
    "iso_language_code": "en",
    "result_type": "recent"
  }
},
```

```
RT @SecurityTube: @ppolstra #windowsForensics Book https://t.co/2r1RwBiAWD Learn to create, mount & analyze filesystem images wi  
#python...  
RT @Real_Shit_News: weather sent by #RaspberryPi, #Python and #Yahoo weather API. Yahoo API is pretty good.  
RT @Real_Shit_News: #RaspberryPI and #Python weather App. #Twython  
#RaspberryPI and #Python weather App. #Twython  
weather sent by #RaspberryPi, #Python and #Yahoo weather API. Yahoo API is pretty good.  
RT @Ronald_vanLoon: #MachineLearning Is Not Magic: It's All About Math, Stats, Data, and Programming  
by @janakiram @thenewstack |  
Read f...  
@ppolstra #windowsForensics Book https://t.co/2r1RwBiAWD Learn to create, mount & analyze filesystem images with... https://t.co/N  
Sqhv1D  
Python Game Development™ : Build 11 Total Games  
□ https://t.co/u5OPMHBRj3  
#python #GameDevelopment https://t.co/bl01FOBUeY
```

```

[*] Starting streamer:
RT @mallorymrice: Started Python for Everybody this morning, @drchuck your so
rting hat made me even more excited to learn #python in your @...
RT @tensorflow_fan: Machine Learning - The Hitchhiker's Guide to Python

https://t.co/NChPIjAiE2

#DeepLearning #ai https://t.co/iEhr9LZ6...
RT @SabahAlzahrani9: 
Data Science
Python
R Python
MachineLearning
P.S. when we were kids, my brother @jdhutch64 and I once memorized and perfor
med the entire Monty Python Argument C... https://t.co/QqFHJ9F4He

Python 
https://t.co/BvqG6XMT09

https://t.co/BM80znUYoj
python

#peing # 
https://t.co/swQBKS6wW2
@jimbo Bennett @tanurai I've always liked computing in Y6 I won an animation
competition. In Y7 I enjoyed program... https://t.co/4JsoApKqdc
RT @Franktti19471: @Accountant_R_Us @Brexiknight @Stevethsoundman But German
y's debt was written off in her last government before Major c...
pythonCGI
SE5
@NickEh30 @elgatogaming Use code Python in item shop please

```

History

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

|   |   |  |   |  |
|---|---|--|---|--|
| <p>IAM</p> <p>S3</p> <p>Console Home</p> <p>Billing</p> <p>Lambda</p> | <p><b>Compute</b></p> <p>EC2</p> <p>Lightsail</p> <p>ECS</p> <p>EKS</p> <p>Lambda</p> <p>Batch</p> <p>Elastic Beanstalk</p> <p>ECR</p><br><p><b>Storage</b></p> <p>S3</p> <p>EFS</p> <p>FSx</p> <p>S3 Glacier</p> | <p><b>Blockchain</b></p> <p>Amazon Managed Blockchain</p><br><p><b>Satellite</b></p> <p>Ground Station</p><br><p><b>Management &amp; Governance</b></p> <p>CloudWatch</p> <p>AWS Auto Scaling</p> <p>CloudFormation</p> <p>CloudTrail</p> <p>Config</p> <p>OpsWorks</p> <p>Service Catalog</p> | <p><b>Analytics</b></p> <p>Athena</p> <p>EMR</p> <p>CloudSearch</p> <p>Elasticsearch Service</p> <p>Kinesis</p> <p>QuickSight</p> <p>Data Pipeline</p> <p>AWS Glue</p> <p>MSK</p><br><p><b>Security, Identity, &amp; Compliance</b></p> <p>IAM</p> <p>Resource Access Manager</p> | <p><b>Customer Engagement</b></p> <p>Amazon Connect</p> <p>Pinpoint</p> <p>Simple Email Service</p><br><p><b>Business Applications</b></p> <p>Alexa for Business</p> <p>Amazon Chime</p> <p>WorkDocs</p> <p>WorkMail</p><br><p><b>Desktop &amp; App Streaming</b></p> <p>WorkSpaces</p> <p>AppStream 2.0</p> |
|---|---|--|---|--|



Search IAM

Create policy Policy actions

Filter policies Search Showing 470 results

| Policy name                | Type        | Used as | Description  |
|----------------------------|-------------|---------|--|
| AmazonRoute53ReadOnlyAc... | AWS managed | None    | Provides read only access to all Amazon Route 53 via the AWS Mana... |
| AmazonS3FullAccess         | AWS managed | None    | Provides full access to all buckets via the AWS Management Console.  |

AmazonS3FullAccess  
Provides full access to all buckets via the AWS Management Console.

Policy summary {} JSON

Q Filter

| Service                                      | Access level | Resource      | Request condition |
|--|--------------|---------------|-------------------|
| Allow (1 of 165 services) Show remaining 164 |              |               |                   |
| S3   | Full access  | All resources | None              |

Create policy Policy actions

Filter policies Search Showing 4 results

- Attach
- Detach
- Delete

| Policy                        | Type        | Used as | Description   |
|-------------------------------|-------------|---------|---|
| AmazonDMSRedshiftS3Role       | AWS managed | None    | Provides access to manage S3 settings for Redshift endpoints for DMS.   |
| AmazonS3FullAccess            | AWS managed | None    | Provides full access to all buckets via the AWS Management Console.     |
| AmazonS3ReadOnlyAccess        | AWS managed | None    | Provides read only access to all buckets via the AWS Management Con...  |
| QuickSightAccessForS3Stora... | AWS managed | None    | Policy used by QuickSight team to access customer data produced by S... |



## `create_bucket(**kwargs)`

Creates a new bucket.

See also: [AWS API Documentation](#)

### Request Syntax

```
response = client.create_bucket(  
    ACL='private'|'public-read'|'public-read-write'|'authenticated-read',  
    Bucket='string',  
    CreateBucketConfiguration={  
        'LocationConstraint': 'EU'|'eu-west-1'|'us-west-1'|'us-west-2'|'ap-south-1'|'ap-  
    },  
    GrantFullControl='string',  
    GrantRead='string',  
    GrantReadACP='string',  
    GrantWrite='string',  
    GrantWriteACP='string',  
    ObjectLockEnabledForBucket=True|False  
)
```

## Buckets of S3

[Discover the new](#)

All types of access



[+ Create bucket](#)

[Edit public access settings](#)

[Empty](#)

[Remove](#)

2 Buckets

| <input type="checkbox"/> | Name of the bucket <small>↑</small> <small>☰</small>  | Access <small>i</small> <small>↑</small> <small>☰</small> | Region <small>↑</small> <small>☰</small> |
|--------------------------|---|---|--|
| <input type="checkbox"/> |  mybucket        | The objects can be public                                 | EU (London)                              |
| <input type="checkbox"/> |  zappa-0esu8ehc9 | The objects can be public                                 | EU (London)                              |

```
s3.eu-west-2.amazonaws.com
<?xml version="1.0" encoding="UTF-8"?>
<ListAllMyBucketsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/"><Owner><ID>e6c7c8b59da10
0190e74cf53f402506382c4c2889d64c426f8cfa8026e2f29</ID></Owner><Buckets><Bucket><Name>bucket-au
x</Name><CreationDate>2018-12-11T18:33:03.000Z</CreationDate></Bucket><Bucket><Name>zappa-0esu8e
hc9</Name><CreationDate>2018-07-23T11:19:50.000Z</CreationDate></Bucket></Buckets></ListAllMyBuc
ketsResult>
<?xml version="1.0" ?>
<ListAllMyBucketsResult xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
  <Owner>
    <ID>e6c7c8b59da100190e74cf53f402506382c4c2889d64c426f8cfa8026e2f29</ID>
  </Owner>
  <Buckets>
    <Bucket>
      <Name>bucket-aux</Name>
      <CreationDate>2018-12-11T18:33:03.000Z</CreationDate>
    </Bucket>
    <Bucket>
      <Name>zappa-0esu8ehc9</Name>
      <CreationDate>2018-07-23T11:19:50.000Z</CreationDate>
    </Bucket>
  </Buckets>
</ListAllMyBucketsResult>
Tag: {http://s3.amazonaws.com/doc/2006-03-01/}Owner
Tag: {http://s3.amazonaws.com/doc/2006-03-01/}Buckets
```

```
<?xml version="1.0" encoding="UTF-8"?>
<Error><Code>AuthorizationHeaderMalformed</Code><Message>The authorization header is malformed
; a non-empty Access Key (AKID) must be provided in the credential.</Message><RequestId>B41C17
BDF7235401</RequestId><HostId>Mn1tkDj8gOsBunsRitjTa6SKG+/rYXsr3sAwaq5Wh3QwxzUeNK1CeAJ3MhZXDSSs
Ja7C9rD4gbA=</HostId></Error>
<?xml version="1.0" ?>
<Error>
  <Code>AuthorizationHeaderMalformed</Code>
  <Message>The authorization header is malformed; a non-empty Access Key (AKID) must be
provided in the credential.</Message>
  <RequestId>B41C17BDF7235401</RequestId>
  <HostId>Mn1tkDj8gOsBunsRitjTa6SKG+/rYXsr3sAwaq5Wh3QwxzUeNK1CeAJ3MhZXDSSsJa7C9rD4gbA=</
HostId>
</Error>
Status code: 400
Error code: AuthorizationHeaderMalformed
Message: The authorization header is malformed; a non-empty Access Key (AKID) must be provided
in the credential.
```

---

## `create_bucket(**kwargs)`

Creates a new bucket.

See also: [AWS API Documentation](#)

### Request Syntax

```
response = client.create_bucket(  
    ACL='private'|'public-read'|'public-read-write'|'authenticated-read',  
    Bucket='string',  
    CreateBucketConfiguration={  
        'LocationConstraint': 'EU'|'eu-west-1'|'us-west-1'|'us-west-2'|'ap-south-1'|'ap-  
    },  
    GrantFullControl='string',  
    GrantRead='string',  
    GrantReadACP='string',  
    GrantWrite='string',  
    GrantWriteACP='string',  
    ObjectLockEnabledForBucket=True|False  
)
```

---

# Chapter 4: Web Scraping with BeautifulSoup and Scrapy

```
<div id="content">
<h1>Debian &ldquo;stretch&rdquo; Release Information</h1>
<p>Debian 9.6 was
released November 10th, 2018.
Debian 9.0 was initially released on June 17th, 2017.
The release included many major
changes, described in
our <a href=" ../.. /News/2017/20170617">press release</a> and
the <a href="releasenotes">Release Notes</a>.</p>
```

```
Enter a website to extract the URL's from: www.packtpub.com
/account
#
/register
https://account.packtpub.com/
/logout
https://www.packtpub.com/account/password
/register
#
/all
/tech
/books/content/support
https://subscribe.packtpub.com
https://www.packtpub.com/cart/checkout
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Data
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Business%20%26%20other
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Cloud%20%26%20Networking
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Game%20Development
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=IoT%20%26%20Hardware
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Mobile
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Programming
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Security
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[category][0]=Web Development
https://search.packtpub.com/?refinementList%5Bproduct_type%5D%5B0%5D=Book&refinementList%5Breleased%5D%5B0%5D=Available
https://search.packtpub.com/?refinementList%5Bproduct_type%5D%5B0%5D=Video&refinementList%5Breleased%5D%5B0%5D=Availablehttps://www.
ktpub.com/bestsellers
https://search.packtpub.com/?refinementList%5Breleased%5D%5B0%5D=Available&refinementList%5Btool%5D%5B0%5D=Android
https://search.packtpub.com/?refinementList%5Breleased%5D%5B0%5D=Available&refinementList%5Btool%5D%5B0%5D=Angular
https://search.packtpub.com/?refinementList[released][0]=Available&refinementList[concept][0]=Artificial%20Intelligence
```

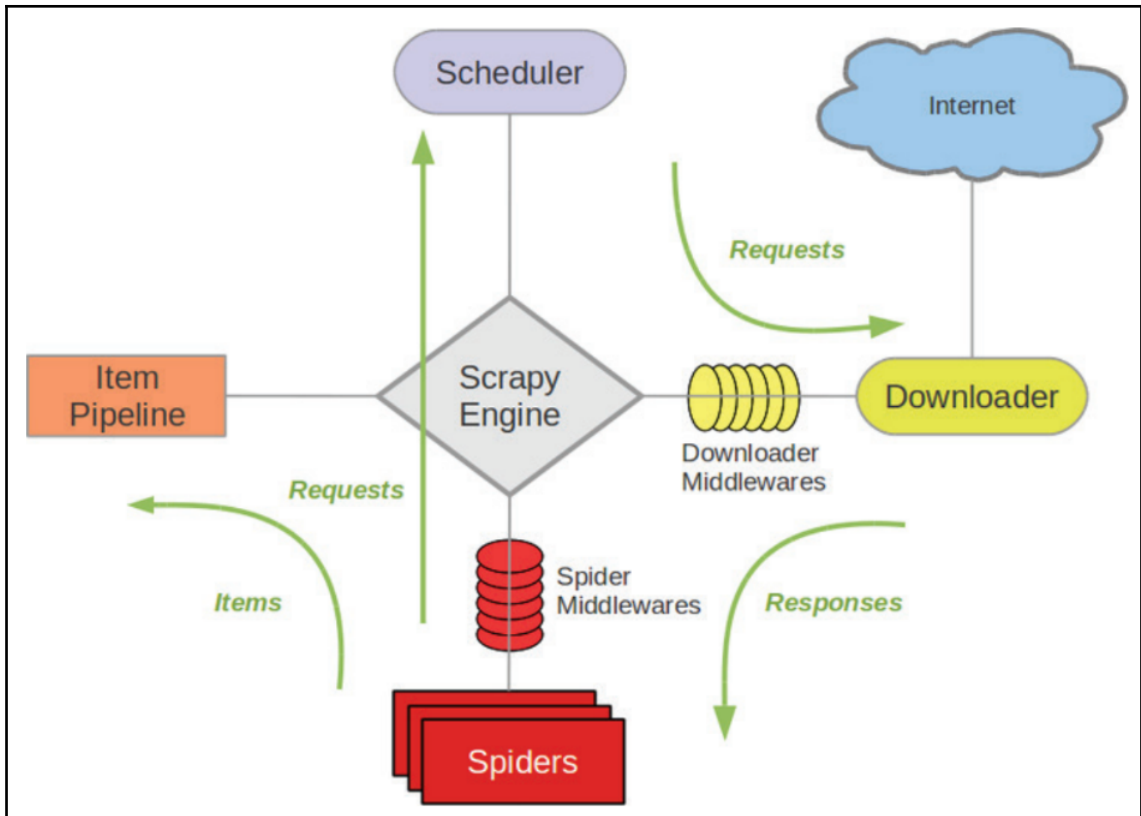
---

Found 79 images

Creation of the directory download\_images OK

Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/beige\\_keyboard.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/beige_keyboard.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/blue\\_screen.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/blue_screen.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/chiclet\\_keyboard.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/chiclet_keyboard.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_blank\\_screen.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_blank_screen.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_dollar\\_key.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_dollar_key.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_help\\_key.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_help_key.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_memory.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_memory.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_memory\\_dimm.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_memory_dimm.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer\\_typing.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/computer_typing.jpg)  
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Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/designer\\_keyboard.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/designer_keyboard.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/end\\_button.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/end_button.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/enter\\_key.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/enter_key.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/ethernet\\_router.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/ethernet_router.jpg)  
Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/floppy\\_disks.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/floppy_disks.jpg)  
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Downloaded [http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/handy\\_scanner.jpg](http://www.freeimages.co.uk/galleries/transtech/informationtechnology/thumbs/handy_scanner.jpg)

<https://plt.eecs.northwestern.edu/snapshots/current/pdf-doc/racklog.pdf> Racklog: Pr  
log Style Logic Programming [pdf] (northwestern.edu)  
<https://graydon2.dreamwidth.org/263429.html> Rust 2019 and beyond: limits to some gr  
owth (graydon2.dreamwidth.org)  
[http://www.daemonology.net/blog/2018-12-26-the-many-ways-to-launch-FreeBSD-in-EC2.h  
tml](http://www.daemonology.net/blog/2018-12-26-the-many-ways-to-launch-FreeBSD-in-EC2.html) The many ways to launch FreeBSD in EC2 (daemonology.net)  
<http://antitrust.slated.org/www.iowaconsumercase.org/011607/8000/PX08875.pdf> Micros  
oft word for windows 1.0 Postmortem (1989) [pdf] (slated.org)  
<https://oaklandmofo.com/blog/block-stringray-devices> How to Block Stringray Devices  
(oaklandmofo.com)  
<https://www.nytimes.com/2018/12/26/sports/antarctica-race-colin-obrady.html> Colin O  
'Brady Completes Crossing of Antarctica with Final 32-Hour Push (nytimes.com)  
<https://www.nytimes.com/2018/12/26/sports/antarctica-race-colin-obrady.html?item?id=18767767> Ask HN: what do you use for authentication and authorization?  
<http://tech.paulcz.net/blog/future-of-kubernetes-is-virtual-machines/> The future of  
kubernetes is virtual machines (paulcz.net)  
<https://fastmail.blog/2018/12/27/jmap-is-on-the-home-straight/> JMAP is on the home  
straight (fastmail.blog)  
<https://www.nytimes.com/2018/05/08/science/alan-turing-desalination.html> Alan Turin  
g and the mathematics of pattern formation in nature (nytimes.com)  
[https://www.facebook.com/notes/daniel-colascione/buttery-smooth-emacs/1015531344006  
6102/](https://www.facebook.com/notes/daniel-colascione/buttery-smooth-emacs/10155313440066102/) Buttery smooth Emacs (2016) (facebook.com)  
[https://www.cnet.com/news/this-man-spent-5000-of-his-own-money-to-put-zimbabwe-on-s  
treet-view](https://www.cnet.com/news/this-man-spent-5000-of-his-own-money-to-put-zimbabwe-on-s-treet-view/) Spending \$5k to put Zimbabwe on street view (cnet.com)  
<https://github.com/linux-noah/noah> Noah: Bash on Ubuntu on macOS (github.com)  
<https://www.lockhaven.edu/~dsimanek/puzzles/puzzles.htm> Physics puzzles (lockhaven.  
edu)  
<https://www.braze.com/perspectives/article/building-braze-job-queues-resiliency> Res  
iliency with Queues: Building a System That Never Skips a Beat in a Billion (braze.  
com)  
<https://github.com/arun1729/road-network> show HN: QuadTree model for generating ran  
dom road networks (github.com)



```
[s] Available Scrapy objects:
[s] crawler    <scrapy.crawler.Crawler object at 0x042138D0>
[s] item       {}
[s] request    <GET http://scrapy.org>
[s] response   <200 http://scrapy.org>
[s] settings   <scrapy.settings.Settings object at 0x029A8750>
[s] spider     <Spider 'default' at 0x4498c30>
[s] Useful shortcuts:
[s] shelp()    Shell help (print this help)
[s] fetch(req_or_url) Fetch request (or URL) and update local objects
[s] view(response) View response in a browser

>>> response.xpath('//title/text()').extract()
[u'Scrapy | A Fast and Powerful Scraping and Web Crawling Framework']
```



## Scrapy 1.5.1 - no active project

### Usage:

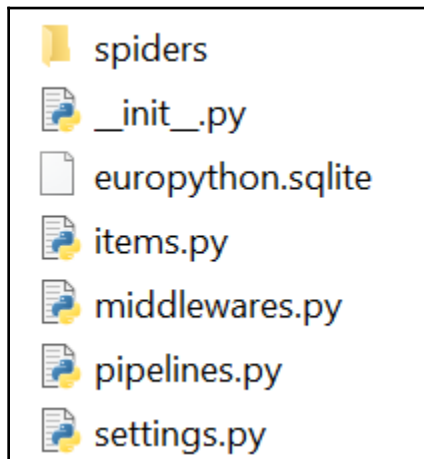
scrapy <command> [options] [args]

### Available commands:

bench Run quick benchmark test  
fetch Fetch a URL using the Scrapy downloader  
genspider Generate new spider using pre-defined templates  
runspider Run a self-contained spider (without creating a project)  
settings Get settings values  
shell Interactive scraping console  
startproject Create new project  
version Print Scrapy version  
view Open URL in browser, as seen by Scrapy

[ more ] More commands available when run from project directory

Use "scrapy <command> -h" to see more info about a command



```
[{"title": ["Citizen Science with Python"], "author": ["Ian Ozsvald"], "description": ["You could make a difference in the world with a lit"], "title": ["Creating a Culture of Software Craftsmanship\u0026f"], "author": ["Keith Harrison"], "description": ["This time it\u0026f"], "title": ["CatBoost - the new generation of Gradient Boosting"], "author": ["Anna Veronika Dorogush"], "description": ["Gradient boosting"], "title": ["Code Review Skills for Pythonistas"], "author": ["Nina Zakharenko"], "description": ["As teams and projects grow, code review"], "title": ["Creating Solid APIs"], "author": ["Rivo Laks"], "description": ["Increasingly, our apps are used not by humans but by other ap"], "title": ["Building a Question Answering System using Deep Learning Techniques "], "author": ["Richa Jalota"], "description": ["Question"], "title": ["Change music in two epochs"], "author": ["Marcel Raas"], "description": ["This talk is about applying deep learning to music."], "title": ["Building new NLP solutions with spaCy and Prodigy"], "author": ["Matthew Honnibal"], "description": ["Commercial machine learn"], "title": ["Bytecodes and stacks: A look at CPython\u0026f"], "author": ["Petr Viktorin"], "description": ["title": ["Automating testing and deployment with Github and Travis"], "author": ["Alex Gr\u0026f"], "description": ["Maintaining an"], "title": ["Asyncio in Python 3.7 and 3.8."], "author": ["Yury Selivanov"], "description": ["The talk is aimed to give attendees a clear p"], "title": ["Bad hotel again? Find your perfect match!"], "author": ["Elisabetta Bergamini"], "description": ["For most travellers, online"], "title": ["Asyncio in production"], "author": ["Hrafn Eiriksson"], "description": ["Much has been written about asynchronous programming"], "title": ["Bridging the Gap: from Data Science to Production"], "author": ["Florian Wilhelm"], "description": ["A recent but quite common"], "title": ["Building a Naive Bayes Text Classifier with scikit-learn"], "author": ["Obiamaka Agbanaje"], "description": ["Machine learning"], "title": ["Autism in development"], "author": ["Ed Singleton"], "description": ["Autism is a condition that correlates with engineering."], "title": ["The pytest/tox/devpi help desk"], "author": ["Oliver Bestwalter"], "description": ["We\u0026f"], "title": ["OpenStack Help Desk"], "author": ["Daniel Abad"], "description": ["Come and chat with us about OpenStack! The free and open-so"], "title": ["Help desk: choosing (or not) the right NoSQL database"], "author": ["Alexys Jacob"], "description": ["During this ", "help des"]
```

| Name                | Type    | Schema  |
|---------------------|---------|---|
| ▼ Tables (2)        |         |   |
| ▼ EuropythonSession |         | CREATE TABLE "EuropythonSession" ( "id" INTEGER PRIMARY KEY AUTOINCREMENT, "author" TEXT NOT NULL |
| id                  | INTEGER | `id` INTEGER PRIMARY KEY AUTOINCREMENT  |
| author              | TEXT    | `author` TEXT NOT NULL  |
| title               | TEXT    | `title` TEXT NOT NULL   |
| description         | TEXT    | `description` TEXT NOT NULL   |
| date                | TEXT    | `date` TEXT NOT NULL  |
| tags                | TEXT    | `tags` TEXT NOT NULL  |
| > sqlite_sequence   |         | CREATE TABLE sqlite_sequence(name,seq)  |
| Indices (0)         |         |   |
| Views (0)           |         |   |
| Triggers (0)        |         |   |


## Create A New Project ✕

**Name**


europython

**Deploy Your Spiders**

Choose the technology that you are using for your project



**PORTIA**



**SCRAPY**

Not sure which one to pick? [Read this to help you decide](#)

CANCEL
CREATE

---

## Deploy Management

< Deploy options

DEPLOY YOUR CODE

 **Command line**

Deploy code from your own computer.

SCRAPY

CUSTOM IMAGE

```
$ pip install shub
$ shub login
API key: ec6334d7375845fdb876c1d10b2b1622
$ shub deploy 366126
```

Don't have a project yet? [Clone a public repository](#)

 **Github**

Deploy your code directly to Scrapinghub from Github.

Your account is not connected yet

[CONNECT TO GITHUB](#)

[Learn more](#)

OR

Run ✕

Current version: 1.0

**Spiders**

europython\_spyder

**Job Units**

1 ▾

**Priority**

Normal ▾

**Tags** +

**Arguments** +

year

2018

✕

CANCEL
RUN

▼ Completed Jobs 2

 Show only jobs with comments (0) ⚙

|                          | Job Spider                                  | Items | Requests | Errors | Log | Runtime | Started                 | Finished                | Outcome  |
|--------------------------|---|-------|----------|--------|-----|---------|-------------------------|-------------------------|----------|
| <input type="checkbox"/> | 1/2 europython_spyder<br><small>1.0</small> | 158   | 159      | 0      | 178 | 0:02:04 | 2018-12-27 14:32:22 UTC | 2018-12-27 14:34:26 UTC | finished |
| <input type="checkbox"/> | 1/1 europython_spyder<br><small>1.0</small> | 0     | 0        | 4      | 14  | 0:00:10 | 2018-12-27 14:23:27 UTC | 2018-12-27 14:23:38 UTC | finished |

DELETE
CLONE

Job Items 158 Requests 159 Log 178 Stats 20 Console

Job Items EXPORT PUBLISH SAMPLES

Filter by Field: Choose field... Choose action... All Items CLEAR UPDATE SHOW SCRAPED FIELDS

Item 0 2018-12-27 14:33:47 UTC DOWNLOAD COMMENT

author Ian Ozsvald

date Friday 27 July


description You could make a difference in the world with a little science and Python. We'll look at several data-driven humanitarian and healthcare projects developed using Python and, all going well, run some audience experiments. By the end of the talk I hope you'll be looking to run your own experiments with the scientific Python stack.

tags Science Data

Code & Deploys WATCH

Manage project code deployments

Deploy Management

 **Visual Scraping**

Portia is a visual scraping tool that lets you scrape websites without any programming knowledge required. [Learn more.](#)

Start working on your project in Portia

OPEN PORTIA

Portia **beta** Scrapinghub Dashboard Portia 2.0 Documentation

Changes are saved automatically

PROJECT Not published ?


- demo

SPIDERS ?

- scrapy.org

DATA FORMATS ?

- default
- Scrapy A Fast and Powerfu...



What would you like to scrape?

You can also select one of your existing spiders from the sidebar.

Portia **beta** Scrapinghub Dashboard Portia 2.0 Documentation

Last saved a few seconds ago

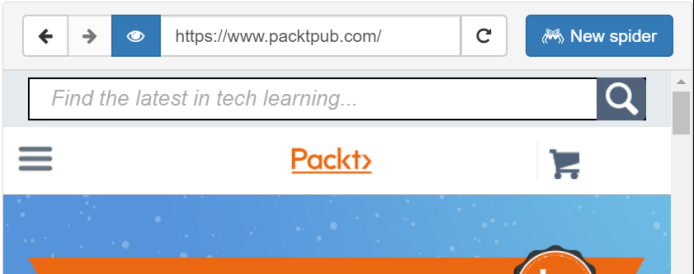
PROJECT Not published ?

- demo

SPIDERS ?

This project has no spiders

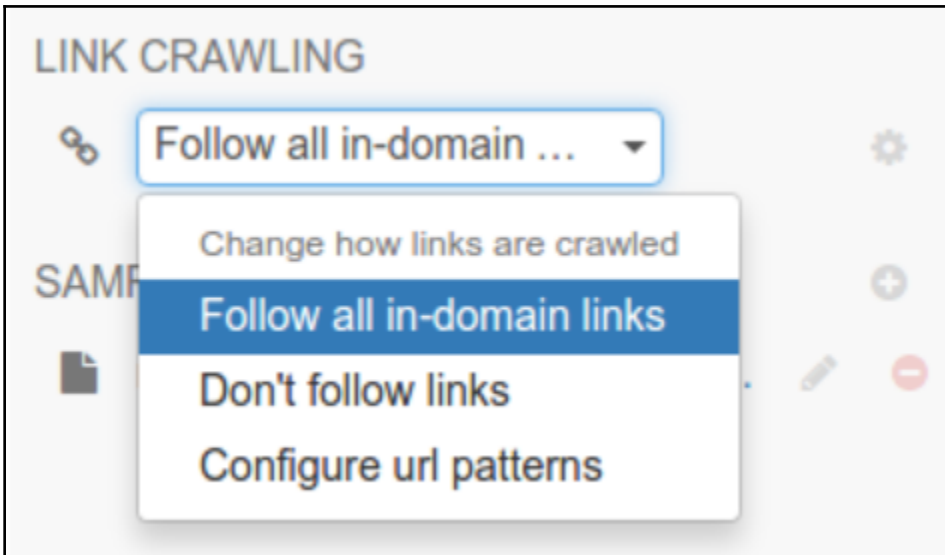
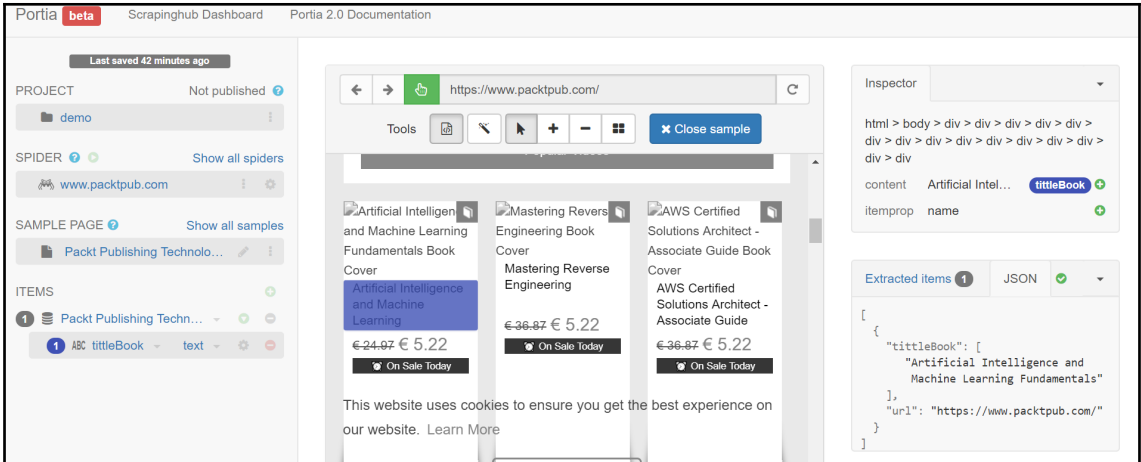
To create a spider first visit a web page that you would like to start crawling from.



← → 👁 https://www.packtpub.com/ ↻ 🕷️ New spider

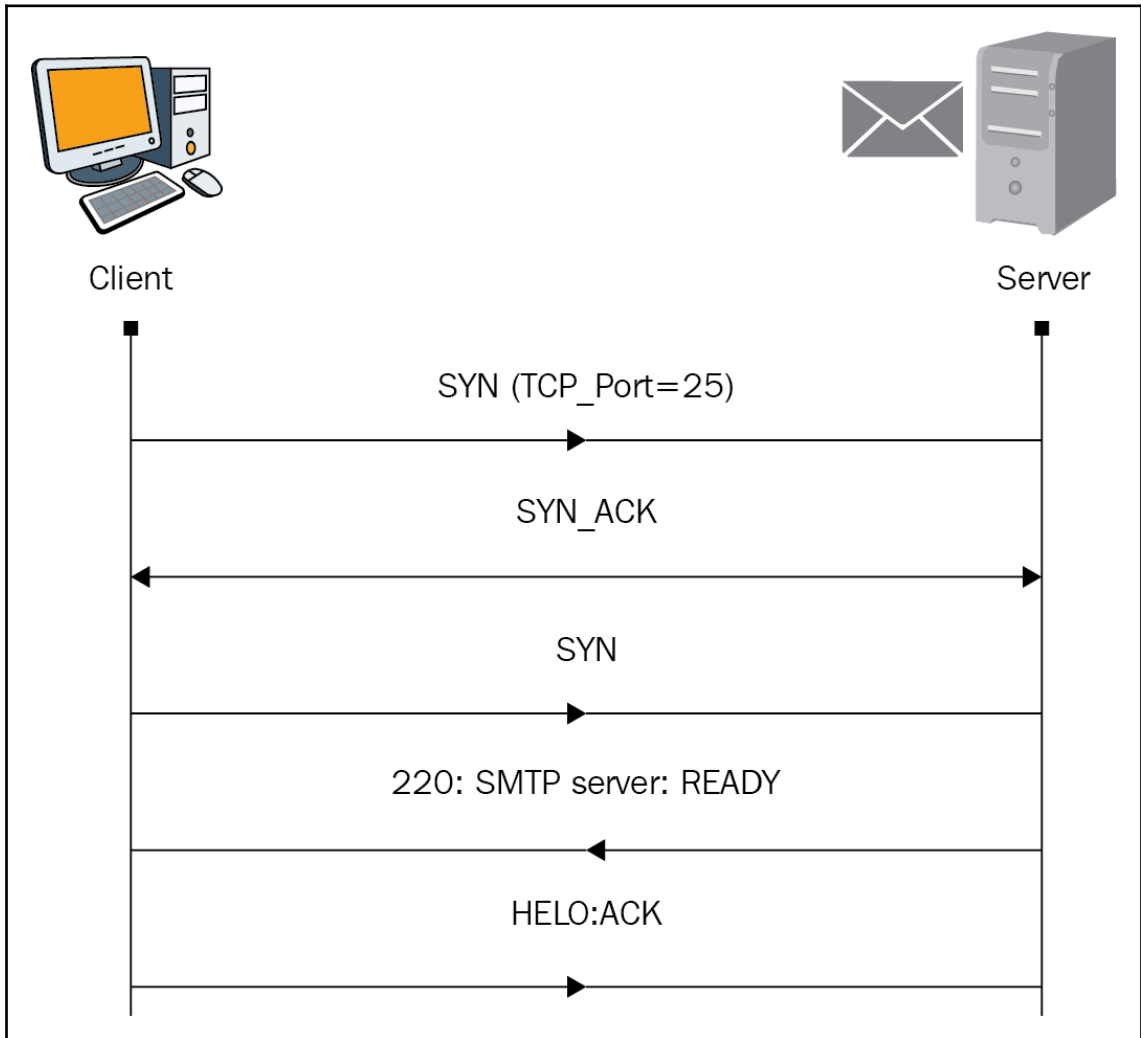
Find the latest in tech learning... 🔍

☰ Packt 🛒



---

## Chapter 5: Engaging with Email





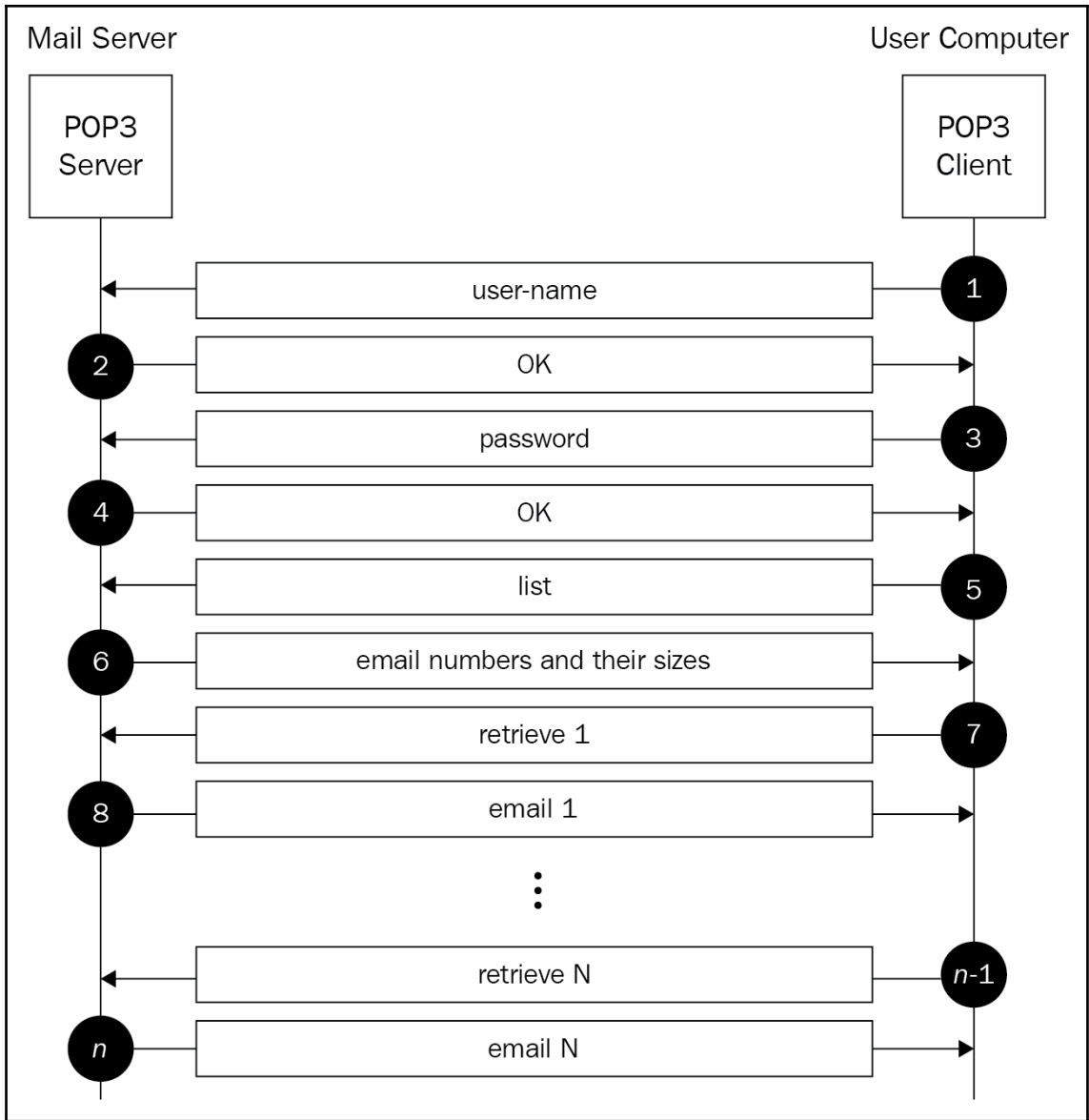
---

## ← Less secure apps

Some apps and devices use less secure sign-in technology, which makes your account more vulnerable. You can **turn off** access for these apps, which we recommend, or **turn on** access if you want to use them despite the risks. [Learn more](#)

Allow less secure apps: ON





---

## Settings

General Labels Inbox Accounts and Import Filters and blocked addresses Forwarding and POP/IMAP Add-ons

Offline Themes

**Forwarding:**

[Learn more](#)

Tip: You can also forward only some of your mail by [creating a filter!](#)

---

**POP download:** [Learn more](#)

- Status: POP is enabled** for all emails
  - Enable POP for **all mail** (even mail that's already been downloaded)
  - Enable POP for **mail that arrives from now on**
  - Disable POP**
- When messages are accessed with POP**
- Configure your email client** (e.g. Outlook, Eudora, Netscape Mail)  
[Configuration instructions](#)

## Settings

General Labels Inbox Accounts and Import Filters and blocked addresses Forwarding and POP/IMAP Add-ons

Offline Themes

---

**IMAP access:** [Learn more](#)  
(access Gmail from other clients using IMAP)

**Status: IMAP is enabled**

- Enable IMAP
- Disable IMAP

**When I mark a message in IMAP as deleted:**

- Auto-Expunge on - Immediately update the server. (default)
- Auto-Expunge off - Wait for the client to update the server.

**When a message is marked as deleted and expunged from the last visible IMAP folder:**

- Archive the message (default)
- Move the message to the Bin
- Immediately delete the message forever

**Folder size limits**

- Do not limit the number of messages in an IMAP folder (default)
- Limit IMAP folders to contain no more than this many messages

---

## Chapter 6: Interacting with Remote Systems

```
welcome: 220 welcome to ProXad FTP server
Current working directory: /.mirrors17/ftp.kernel.org/linux/kernel/Historic
File list at ftp.free.fr:
-r--r--r-- 1 ftp ftp 73091 Oct 30 1993 linux-0.01.tar.gz
-r--r--r-- 1 ftp ftp 665 Aug 08 2013 linux-0.01.tar.sign
drwxr-sr-x 5 ftp ftp 4096 Mar 20 2003 old-versions
-rw-r--r-- 1 ftp ftp 969 May 11 2017 sha256sums.asc
drwxr-sr-x 2 ftp ftp 4096 Dec 10 2007 v0.99
```

```
28 entries:
drwxr-sr-x 4 ftp ftp 4096 Mar 20 2003 Historic
drwxr-sr-x 2 ftp ftp 4096 Jun 26 2017 SillySounds
drwxr-sr-x 5 ftp ftp 4096 Nov 24 2001 crypto
drwxr-sr-x 2 ftp ftp 299008 Jan 10 04:13 next
drwxr-sr-x 547 ftp ftp 16384 Dec 13 00:17 people
drwxr-sr-x 6 ftp ftp 4096 Mar 13 2003 ports
drwxr-sr-x 7 ftp ftp 4096 Sep 18 2012 projects
drwxr-sr-x 3 ftp ftp 4096 Feb 14 2002 testing
drwxr-sr-x 3 ftp ftp 4096 Oct 03 20:58 tools
drwxr-sr-x 2 ftp ftp 4096 Mar 20 2003 uemacs
drwxr-sr-x 2 ftp ftp 4096 Mar 20 2003 v1.0
drwxr-sr-x 2 ftp ftp 20480 Mar 20 2003 v1.1
drwxr-sr-x 2 ftp ftp 4096 Mar 20 2003 v1.2
drwxr-sr-x 2 ftp ftp 40960 Mar 20 2003 v1.3
drwxr-sr-x 3 ftp ftp 20480 Feb 08 2004 v2.0
drwxr-sr-x 2 ftp ftp 49152 Mar 20 2003 v2.1
drwxr-sr-x 3 ftp ftp 12288 Mar 24 2004 v2.2
drwxr-sr-x 2 ftp ftp 24576 Mar 20 2003 v2.3
drwxr-sr-x 5 ftp ftp 20480 May 01 2013 v2.4
drwxr-sr-x 4 ftp ftp 32768 Jul 14 2003 v2.5
drwxr-sr-x 10 ftp ftp 57344 Aug 08 2013 v2.6
drwxr-sr-x 2 ftp ftp 4096 Apr 16 2018 v2018.x
lrwxrwxrwx 1 ftp ftp 4 Nov 23 2012 v3.0 -> v3.x
drwxr-sr-x 4 ftp ftp 299008 Dec 21 13:11 v3.x
drwxr-sr-x 2 ftp ftp 4096 Apr 16 2018 v3000.x
drwxr-sr-x 4 ftp ftp 221184 Jan 09 17:02 v4.x
drwxr-sr-x 2 ftp ftp 4096 Apr 16 2018 v5.x
drwxr-sr-x 2 ftp ftp 4096 Apr 16 2018 v6.x
```

```

220 ProFTPD 1.3.5b Server (mirror.as35701.net) [::ffff:195.234.45.114]
lrwxrwxrwx 1 ftp ftp 16 May 14 2011 backports.org -> debian-backports
drwxr-xr-x 9 ftp ftp 4096 Jan 14 09:01 debian
drwxr-sr-x 5 ftp ftp 4096 Mar 13 2016 debian-backports
drwxr-xr-x 5 ftp ftp 4096 Nov 11 03:00 debian-cd
drwxr-xr-x 7 ftp ftp 4096 Jan 13 22:32 debian-security
drwxr-sr-x 5 ftp ftp 4096 Jan 5 2012 debian-volatile
drwxr-xr-x 5 ftp ftp 4096 Oct 13 2006 ftp.irc.org
-rw-r--r-- 1 ftp ftp 419 Nov 17 2017 HEADER.html
drwxr-xr-x 10 ftp ftp 4096 Jan 14 12:05 pub
drwxr-xr-x 18 ftp ftp 4096 Jan 14 12:14 video.fosdem.org
-rw-r--r-- 1 ftp ftp 377 Nov 17 2017 welcome.msg
None

[*] ftp.be.debian.org FTP Anonymous Logon Succeeded.
["debian-backports", "backports.org", "debian-security", "pub", "HEADER.html", "debian", "welcome.msg", "ftp.irc.org", "debian-volatile", "video.fosdem.org", "debian-cd"]
[+] Found default page: HEADER.html

```

| No.  | Time      | Source         | Destination    | Protocol | Length | Info  |
|------|-----------|----------------|----------------|----------|--------|---|
| 989  | 42.807829 | 195.234.45.114 | 10.68.15.20    | FTP      | 126    | Response: 220 ProFTPD 1.3.5b Server (mirror.as35701.net) [::ffff:195.234.45.114]    |
| 990  | 42.807766 | 10.68.15.20    | 195.234.45.114 | FTP      | 70     | Request: USER anonymous   |
| 993  | 42.877437 | 195.234.45.114 | 10.68.15.20    | FTP      | 129    | Response: 331 Anonymous login ok, send your complete email address as your password |
| 994  | 42.877689 | 10.68.15.20    | 195.234.45.114 | FTP      | 71     | Request: PASS anonymous@  |
| 998  | 42.946282 | 195.234.45.114 | 10.68.15.20    | FTP      | 90     | Response: 230-Welcome to mirror.as35701.net.  |
| 999  | 42.946283 | 195.234.45.114 | 10.68.15.20    | FTP      | 60     | Response: 230-  |
| 1000 | 42.946283 | 195.234.45.114 | 10.68.15.20    | FTP      | 103    | Request: 230-The server is located in Brussels, Belgium.                            |
| 1002 | 42.947451 | 195.234.45.114 | 10.68.15.20    | FTP      | 455    | Response: 230-  |
| 1004 | 42.948133 | 10.68.15.20    | 195.234.45.114 | FTP      | 62     | Request: TYPE A   |
| 1006 | 43.015504 | 195.234.45.114 | 10.68.15.20    | FTP      | 73     | Response: 200 Type set to A   |

> Frame 998: 90 bytes on wire (720 bits), 90 bytes captured (720 bits) on interface 0  
> Ethernet II, Src: HewlettP\_79:fd:89 (78:48:59:79:fd:89), Dst: IntelCor\_f4:54:ca (00:24:d6:f4:54:ca)  
> Internet Protocol Version 4, Src: 195.234.45.114, Dst: 10.68.15.20  
> Transmission Control Protocol, Src Port: 21, Dst Port: 47737, Seq: 148, Ack: 34, Len: 36  
> File Transfer Protocol (FTP)  
 v 230-Welcome to mirror.as35701.net.\r\n  
 Response code: User logged in, proceed (230)  
 Response arg: Welcome to mirror.as35701.net.  
[Current working directory: ]

```

0000 00 24 d6 f4 54 ca 78 48 59 79 fd 89 08 00 45 00  $..T.xH Yy....E
0010 00 4c e6 ce 40 00 2f 06 5a 29 c3 ea 2d 72 0a 44  .L@./..Z)...r.D
0020 0f 14 00 15 ba 79 1b ff 5c e5 42 4a 43 c8 50 18  ....y:..BJC.P
0030 00 73 20 b3 00 00 82 33 30 2d 57 65 6c 63 6f 6d  s...23 0-Welcom
0040 65 20 74 6f 20 6d 69 72 72 6f 72 2e 61 73 33 35  e to mir ror.as35
0050 37 30 31 2e 6a 65 74 2e 0d 0a  ..701.net..

```

|      |           |                |                |     |     |  |
|------|-----------|----------------|----------------|-----|-----|--|
| 1007 | 43.016109 | 10.68.15.20    | 195.234.45.114 | FTP | 60  | Request: PASV  |
| 1009 | 43.086169 | 195.234.45.114 | 10.68.15.20    | FTP | 106 | Response: 227 Entering Passive Mode (195,234,45,114,156,99).   |
| 1022 | 43.154958 | 10.68.15.20    | 195.234.45.114 | FTP | 60  | Request: LIST  |
| 1024 | 43.225734 | 195.234.45.114 | 10.68.15.20    | FTP | 108 | Response: 150 Opening ASCII mode data connection for file list |
| 1031 | 43.295548 | 195.234.45.114 | 10.68.15.20    | FTP | 77  | Response: 226 Transfer complete                                |
| 1032 | 43.297600 | 10.68.15.20    | 195.234.45.114 | FTP | 62  | Request: TYPE A  |
| 1037 | 43.364299 | 195.234.45.114 | 10.68.15.20    | FTP | 73  | Response: 200 Type set to A                                    |
| 1038 | 43.364623 | 10.68.15.20    | 195.234.45.114 | FTP | 60  | Request: PASV  |
| 1050 | 43.431473 | 195.234.45.114 | 10.68.15.20    | FTP | 107 | Response: 227 Entering Passive Mode (195,234,45,114,173,207).  |
| 1058 | 43.500031 | 10.68.15.20    | 195.234.45.114 | FTP | 60  | Request: LIST  |

> Frame 1022: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface 0  
> Ethernet II, Src: IntelCor\_f4:54:ca (00:24:d6:f4:54:ca), Dst: HewlettP\_79:fd:89 (78:48:59:79:fd:89)  
> Internet Protocol Version 4, Src: 10.68.15.20, Dst: 195.234.45.114  
> Transmission Control Protocol, Src Port: 47737, Dst Port: 21, Seq: 48, Ack: 711, Len: 6  
> File Transfer Protocol (FTP)  
 v LIST\r\n  
 Request command: LIST  
[Current working directory: ]  
[Command response frames: 1]

```

0000 78 48 59 79 fd 89 00 24 d6 f4 54 ca 08 00 45 00  xHY...$..T...E
0010 00 2e 5a 2e 40 00 08 06 95 67 0a 44 0f 14 c3 ea  .Z.@...D....
0020 2d 72 ba 79 00 15 42 4a 43 d6 1b ff 5f 18 50 18  .r.y..BJC...P
0030 00 fd 3b a7 00 00 4c 49 53 5d 0d 0a  ..LI ST...

```

### Description:

Lists existing SNMP variables on any network device that supports SNMP. SNMP is widely used for administration and monitoring purposes.

### Usage:

```
Snmpwalk.exe [-q] -r:host [-p:port] [-t:timeout] [-v:version] [-c:community]
              [-ei:engine_id] [-sn:sec_name] [-ap:auth_proto] [-aw:auth_passwd]
              [-pp:priv_proto] [-pw:priv_passwd] [-ce:cont_engine] [-cn:cont_name]
              [-os:start_oid] [-op:stop_oid] [-csv]
```

```
-q          Quiet mode (suppress header; print variable values only).
-r:host    Name or network address (IPv4/IPv6) of remote host.
-p:port    SNMP port number on remote host. Default: 161
-t:timeout SNMP timeout in seconds (1-600). Default: 5
-v:version SNMP version. Supported version: 1, 2c or 3. Default: 1
-c:community SNMP community string for SNMP v1/v2c. Default: public
-ei:engine_id Engine ID. Format: hexadecimal string. (SNMPv3).
-sn:sec_name SNMP security name for SNMPv3.
-ap:auth_proto Authentication protocol. Supported: MD5, SHA (SNMPv3).
-aw:auth_passwd Authentication password (SNMPv3).
-pp:priv_proto Privacy protocol. Supported: DES, IDEA, AES128, AES192,
AES256, 3DES (SNMPv3).
-pw:priv_passwd Privacy password (SNMPv3).
-cn:cont_name Context name. (SNMPv3)
-ce:cont_engine Context engine. Format: hexadecimal string. (SNMPv3)
-os:start_oid Object ID (OID) of first SNMP variable to walk. Default:.1
-op:stop_oid Object ID (OID) of last SNMP variable to walk.
Default: walk to the very last variable.
-csv       output in CSV (Comma separated values) format.
```

The screenshot shows a user management interface with a navigation menu on the left and a main content area. The navigation menu includes 'Users', 'Hosts', 'Services', 'Groups', 'ID Views', and 'Automember'. The 'Users' section is expanded to show 'Active users', 'Stage users', and 'Preserved users'. The main content area is titled 'Active users' and contains a search bar, a table of users, and a 'Showing 1 to 7 of 7 entries.' message.

| <input type="checkbox"/> | User login | First name | Last name     | Status    | UID        | Email address              | Telephone Number | Job Title                |
|--------------------------|------------|------------|---------------|-----------|------------|----------------------------|------------------|--------------------------|
| <input type="checkbox"/> | admin      |            | Administrator | ✓ Enabled | 1162400000 |                            |                  |                          |
| <input type="checkbox"/> | asd        | asd        | asd           | ✓ Enabled | 1162400011 | asd@demo1.freeipa.org      |                  |                          |
| <input type="checkbox"/> | employee   | Jake       | Smith         | ✓ Enabled | 1162400003 | employee@demo1.freeipa.org |                  | Senior Software Engineer |
| <input type="checkbox"/> | figital    | S          | Frankenstein  | ✓ Enabled | 1162400012 | figital@demo1.freeipa.org  |                  |                          |
| <input type="checkbox"/> | helpdesk   | Test       | Helpdesk      | ✓ Enabled | 1162400004 | helpdesk@demo1.freeipa.org |                  |                          |
| <input type="checkbox"/> | jdoey      | Johnny     | Doey          | ✓ Enabled | 1162400010 | jdoey@demo1.freeipa.org    |                  |                          |
| <input type="checkbox"/> | manager    | Test       | Manager       | ✓ Enabled | 1162400001 | manager@demo1.freeipa.org  |                  |                          |

freelPA Administrator

Identity Policy Authentication Network Services **IPA Server**

Role-Based Access Control ID Ranges Realm Domains Trusts Topology API Browser Configuration

### Configuration

#### Search Options

Search size limit \*

Search time limit \*

#### User Options

User search fields \*

Default e-mail domain

Domain resolution order

Default users group \*

Home directory \*

|                                 |                       |        |
|---------------------------------|-----------------------|--------|
| Default user *<br>objectclasses | top                   | Delete |
|                                 | person                | Delete |
|                                 | organizationalperson  | Delete |
|                                 | inetorgperson         | Delete |
|                                 | inetuser              | Delete |
|                                 | posixaccount          | Delete |
|                                 | krbprincipalaux       | Delete |
|                                 | krbticketpolicyaux    | Delete |
|                                 | ipaobject             | Delete |
|                                 | ipasshuser            | Delete |
|                                 | Add                   |        |
| IPA CA renewal<br>master        | ipa.demo1.freeipa.org | ▼      |



---

## Chapter 7: Working with IP and DNS

```
Network interface: {40EE5A9D-737D-40AA-BBFC-4F5833D17C0E}
  IP address: 10.80.92.139
  Netmask: 255.255.255.0
Network interface: {361548CA-A87A-40B1-9E88-EAAC3B1B91B1}
  IP address: 192.168.56.1
  Netmask: 255.255.255.0
Network interface: {7641A251-28A7-46E8-A6E1-781D95CE9477}
  IP address: 169.254.204.194
  Netmask: 255.255.0.0
Network interface: {E1722BC0-6333-11E7-BB0C-806E6F6E6963}
  IP address: 127.0.0.1
  Netmask: 255.0.0.0
Default gateway:10.68.14.1
```

```
>>> import ipaddress
>>> help(ipaddress)
Help on module ipaddress:

NAME
  ipaddress - A fast, lightweight IPv4/IPv6 manipulation library in Python.

DESCRIPTION
  This library is used to create/poke/manipulate IPv4 and IPv6 addresses
  and networks.

CLASSES
  builtins.ValueError(builtins.Exception)
    AddressValueError
    NetmaskValueError
  _BaseAddress(_IPAddressBase)
    IPv4Address(_BaseV4, _BaseAddress)
    IPv4Interface
    IPv6Address(_BaseV6, _BaseAddress)
    IPv6Interface
  _BaseNetwork(_IPAddressBase)
    IPv4Network(_BaseV4, _BaseNetwork)
    IPv6Network(_BaseV6, _BaseNetwork)
  _BaseV4(builtins.object)
    IPv4Address(_BaseV4, _BaseAddress)
    IPv4Interface
    IPv4Network(_BaseV4, _BaseNetwork)
```

---

```
class IPv4Address(_BaseV4, _BaseAddress)
    Represent and manipulate single IPv4 Addresses.

    Method resolution order:
        IPv4Address
        _BaseV4
        _BaseAddress
        _IPAddressBase
        builtins.object

    Methods defined here:

    __init__(self, address)
        Args:
            address: A string or integer representing the IP

            Additionally, an integer can be passed, so
            IPv4Address('192.0.2.1') == IPv4Address(3221225985).
            or, more generally
            IPv4Address(int(IPv4Address('192.0.2.1'))) ==
            IPv4Address('192.0.2.1')

        Raises:
            AddressValueError: If ipaddress isn't a valid IPv4 address.
```

---

```
is_link_local
    Test if the address is reserved for link-local.

    Returns:
        A boolean, True if the address is link-local per RFC 3927.

is_loopback
    Test if the address is a loopback address.

    Returns:
        A boolean, True if the address is a loopback per RFC 3330.

is_multicast
    Test if the address is reserved for multicast use.

    Returns:
        A boolean, True if the address is multicast.
        See RFC 3171 for details.

is_private
    Test if this address is allocated for private networks.

    Returns:
        A boolean, True if the address is reserved per
        iana-ipv4-special-registry.

is_reserved
    Test if the address is otherwise IETF reserved.

    Returns:
        A boolean, True if the address is within the
        reserved IPv4 Network range.
```

dns

| No. | Time      | Source       | Destination  | Protocol | Length | Info  |
|-----|-----------|--------------|--------------|----------|--------|---|
| 346 | 11.420548 | 10.80.92.139 | 10.68.98.35  | DNS      | 81     | Standard query 0x9595 A outlook.office365.com   |
| 347 | 11.484322 | 10.68.98.35  | 10.80.92.139 | DNS      | 213    | Standard query response 0x9595 A outlook.office365.com CNAME outlook.office365.com      |
| 401 | 12.349293 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0xcbb2 AAAA python.org   |
| 404 | 12.413304 | 10.68.98.35  | 10.80.92.139 | DNS      | 98     | Standard query response 0xcbb2 AAAA python.org AAAA 2001:4802:7901:0:e60a:1375:0:6      |
| 405 | 12.416453 | 10.80.92.139 | 10.68.55.100 | DNS      | 70     | Standard query 0xb173 MX python.org   |
| 417 | 14.415211 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0xb173 MX python.org   |
| 418 | 14.479499 | 10.68.98.35  | 10.80.92.139 | DNS      | 135    | Standard query response 0xb173 MX python.org MX 50 mail.python.org A 188.166.95.178 A   |
| 419 | 14.496510 | 10.80.92.139 | 10.68.55.100 | DNS      | 70     | Standard query 0x83bf NS python.org   |
| 428 | 16.496837 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0x83bf NS python.org   |
| 429 | 16.561085 | 10.68.98.35  | 10.80.92.139 | DNS      | 220    | Standard query response 0x83bf NS python.org NS ns3.p11.dynect.net NS ns4.p11.dynect... |

User Datagram Protocol, Src Port: 62078, Dst Port: 53

Domain Name System (query)

Transaction ID: 0xcbb2

Flags: 0x0100 Standard query

Questions: 1

Answer RRs: 0

Authority RRs: 0

Additional RRs: 0

Queries

```

python.org. type AAAA, class IN
0000 78 48 59 79 fd 89 8c 16 45 2d 79 20 08 00 45 00 xHy....E-y..E
0010 00 38 6b d6 00 00 80 11 fb 9c 0a 50 5c 0b 0a 44 8k.....P..D
0020 62 23 f2 7e 00 35 00 24 40 15 cb b2 01 00 00 01 b#...$@.....
0030 00 00 00 00 00 00 06 70 79 74 68 6f 6e 03 6f 72 .....p.ython-or

```

| No. | Time      | Source       | Destination  | Protocol | Length | Info  |
|-----|-----------|--------------|--------------|----------|--------|---|
| 401 | 12.349293 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0xcbb2 AAAA python.org   |
| 404 | 12.413304 | 10.68.98.35  | 10.80.92.139 | DNS      | 98     | Standard query response 0xcbb2 AAAA python.org AAAA 2001:4802:7901:0:e60a:1375:0:6      |
| 405 | 12.416453 | 10.80.92.139 | 10.68.55.100 | DNS      | 70     | Standard query 0xb173 MX python.org   |
| 417 | 14.415211 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0xb173 MX python.org   |
| 418 | 14.479499 | 10.68.98.35  | 10.80.92.139 | DNS      | 135    | Standard query response 0xb173 MX python.org MX 50 mail.python.org A 188.166.95.178 A   |
| 419 | 14.496510 | 10.80.92.139 | 10.68.55.100 | DNS      | 70     | Standard query 0x83bf NS python.org   |
| 428 | 16.496837 | 10.80.92.139 | 10.68.98.35  | DNS      | 70     | Standard query 0x83bf NS python.org   |
| 429 | 16.561085 | 10.68.98.35  | 10.80.92.139 | DNS      | 220    | Standard query response 0x83bf NS python.org NS ns3.p11.dynect.net NS ns4.p11.dynect... |

Name Server: ns1.p11.dynect.net

python.org: type NS, class IN, ns ns2.p11.dynect.net

Name: python.org

Type: NS (authoritative Name Server) (2)

Class: IN (0x0001)

Time to live: 2119

Data length: 6

Name Server: ns2.p11.dynect.net

Additional records

ns3.p11.dynect.net: type A, class IN, addr 208.78.71.11

Name: ns3.p11.dynect.net

Type: A (Host Address) (1)

Class: IN (0x0001)

Time to live: 19712

Data length: 4

Address: 208.78.71.11

ns4.p11.dynect.net: type A, class IN, addr 204.13.251.11

Name: ns4.p11.dynect.net

Type: A (Host Address) (1)

## GeoIP – IP Location Lookup

Find the location of an IP address with this **GeoIP lookup** tool.

GET THE IP LOCATION

```
// http://api.hostip.info/get_json.php?ip=8.8.8.8&position=true  
  
{  
  "country_name": "UNITED STATES",  
  "country_code": "US",  
  "city": "Mountain View, CA",  
  "ip": "8.8.8.8",  
  "lat": "37.402",  
  "lng": "-122.078"  
}
```

```
}
"location": {
  "accuracy_radius": 1000,
  "latitude": 39.0481,
  "longitude": -77.4728,
  "metro_code": 511,
  "time_zone": "America/New_York"
},
"postal": {
  "code": "20149"
},
"registered_country": {
  "geoname_id": 6252001,
  "iso_code": "US",
  "names": {
    "de": "USA",
    "en": "United States",
    "es": "Estados Unidos",
    "fr": "\u00c9tats-Unis",
    "ja": "\u30a2\u30e1\u30ea\u30ab\u5408\u8846\u56fd",
    "pt-BR": "Estados Unidos",
    "ru": "\u0421\u0428\u0410",
    "zh-CN": "\u7f8e\u56fd"
  }
},
}
```

---

## Chapter 8: Implementing IPv6 and Address Manipulation

```
waiting connections in ::1:7575
Connected to ('::1', 3367, 0, 0)
Received data from the client: [Hello from ipv6 client]
Sent data echoed back to the client: [Hello from ipv6 client]
Received data from the client: [This is a new message]
Sent data echoed back to the client: [This is a new message]
Received data from the client: [I am testing sockets with IPV6]
Sent data echoed back to the client: [I am testing sockets with IPV6]
Received data from the client: [exit]
----- CLOSE CONNECTION -----
```

```
Connected to the server --->::1:7575
Send data to server: Hello from ipv6 client
write your message > This is a new message
Received from server: Hello from ipv6 client
write your message > I am testing sockets with IPV6
Received from server: This is a new message
write your message > exit
Received from server: I am testing sockets with IPV6
write your message >
Received from server: exit
----- CLOSE CONNECTION -----
```

---

```
IPV6 support built into Python: True
Interface {06C67899-9BE2-49F1-AAB5-C576A234DD9A}:
  Address family: AF_LINK
  Address      : 00:ff:c0:63:12:57
  Address family: AF_INET6
  Address      : fe80::f4ca:6a17:37a3:db89%3
  Netmask      : ffff:ffff:ffff:ffff::/64
  Broadcast    : fe80::ffff:ffff:ffff:ffff%3
Interface {40EE5A9D-737D-40AA-BBFC-4F5833D17C0E}:
  Address family: AF_LINK
  Address      : 8c:16:45:2d:79:20
  Address family: AF_INET6
  Address      : fe80::a568:f01f:d4ae:170%6
  Netmask      : ffff:ffff:ffff:ffff::/64
  Broadcast    : fe80::ffff:ffff:ffff:ffff%6
  Address family: AF_INET
  Address      : 10.80.92.211
  Netmask      : 255.255.255.0
  Broadcast    : 10.80.92.255
Interface {361548CA-A87A-40B1-9E88-EAAC3B1B91B1}:
  Address family: AF_LINK
  Address      : 0a:00:27:00:00:05
  Address family: AF_INET6
  Address      : fe80::e53f:e43b:ad07:9cab%5
  Netmask      : ffff:ffff:ffff:ffff::/64
  Broadcast    : fe80::ffff:ffff:ffff:ffff%5
  Address family: AF_INET
  Address      : 192.168.56.1
  Netmask      : 255.255.255.0
  Broadcast    : 192.168.56.255
```



---

```
net_connections(kind='inet')
Return system-wide socket connections as a list of
(fd, family, type, laddr, raddr, status, pid) namedtuples.
In case of limited privileges 'fd' and 'pid' may be set to -1
and None respectively.
The *kind* parameter filters for connections that fit the
following criteria:
```

| Kind value | Connections using                                  |
|------------|--|
| inet       | IPv4 and IPv6                                      |
| inet4      | IPv4   |
| inet6      | IPv6   |
| tcp        | TCP  |
| tcp4       | TCP over IPv4                                      |
| tcp6       | TCP over IPv6                                      |
| udp        | UDP  |
| udp4       | UDP over IPv4                                      |
| udp6       | UDP over IPv6                                      |
| unix       | UNIX socket (both UDP and TCP protocols)           |
| all        | the sum of all the possible families and protocols |

---

```
class IPv6Address(_BaseV6, _BaseAddress)
    Represent and manipulate single IPv6 Addresses.

    Method resolution order:
        IPv6Address
        _BaseV6
        _BaseAddress
        _IPAddressBase
        builtins.object

    Methods defined here:

    __init__(self, address)
        Instantiate a new IPv6 address object.

    Args:
        address: A string or integer representing the IP

        Additionally, an integer can be passed, so
        IPv6Address('2001:db8::') ==
            IPv6Address(42540766411282592856903984951653826560)
        or, more generally
        IPv6Address(int(IPv6Address('2001:db8::'))) ==
            IPv6Address('2001:db8::')

    Raises:
        AddressValueError: If address isn't a valid IPv6 address.
```

---

```
ipv4_mapped
    Return the IPv4 mapped address.

    Returns:
        If the IPv6 address is a v4 mapped address, return the
        IPv4 mapped address. Return None otherwise.

is_global
    Test if this address is allocated for public networks.

    Returns:
        A boolean, true if the address is not reserved per
        iana-ipv6-special-registry.

is_link_local
    Test if the address is reserved for link-local.

    Returns:
        A boolean, True if the address is reserved per RFC 4291.

is_loopback
    Test if the address is a loopback address.

    Returns:
        A boolean, True if the address is a loopback address as defined in
        RFC 2373 2.5.3.

is_multicast
    Test if the address is reserved for multicast use.
```

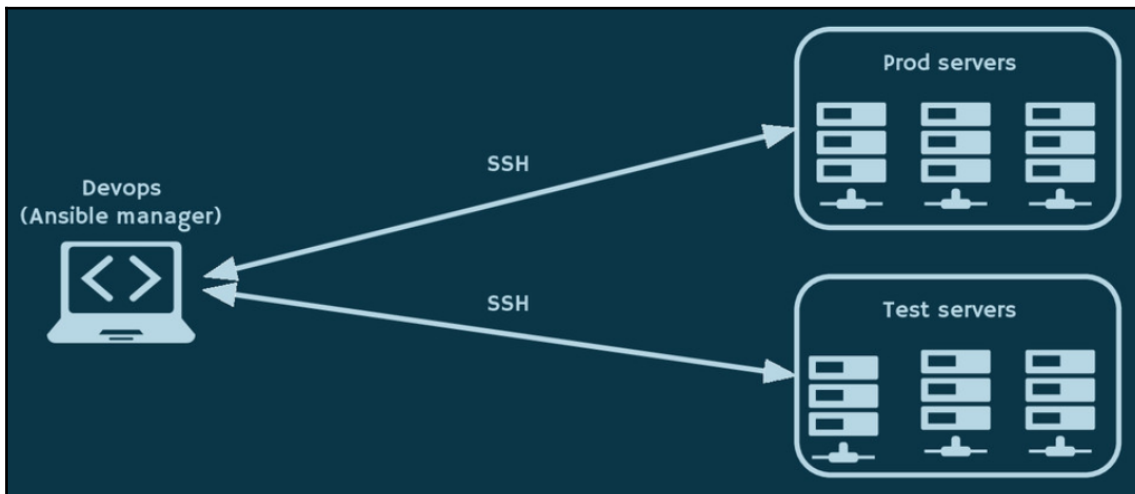
## Chapter 9: Performing Network Automation with Python and Ansible

```
You are about to add the following PPA to your system:
Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts or custom code to deploy and update your applications— automate in a language that approaches plain English, using SSH, with no agents to install on remote systems.

http://ansible.com/
More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
Executing: gpg --ignore-time-conflict --no-options --no-default-keyring --homedir /tmp/tmp.PGRv4HRmUI --no-auto-check-trustdb --trust-model always --keyring /etc/apt/trusted.gpg --primary-keyring /etc/apt/trusted.gpg --keyserver hkps://keyserver.ubuntu.com:80 --recv-keys 7BB9C367
gpg: requesting key 7BB9C367 from hkps server keyserver.ubuntu.com
gpg: key 7BB9C367: "Launchpad PPA for Ansible, Inc." not changed
gpg: Total number processed: 1
gpg:         unchanged: 1
```

```
$ ansible --help
Usage: ansible <host-pattern> [options]

Options:
  -a MODULE_ARGS, --args=MODULE_ARGS
                                module arguments
  --ask-become-pass             ask for privilege escalation password
  -k, --ask-pass                ask for SSH password
  --ask-su-pass                 ask for su password (deprecated, use become)
  -K, --ask-sudo-pass           ask for sudo password (deprecated, use become)
  --ask-vault-pass              ask for vault password
  -B SECONDS, --background=SECONDS
                                run asynchronously, failing after X seconds
                                (default=N/A)
  -b, --become                  run operations with become (nopasswd implied)
  --become-method=BECOME_METHOD
                                privilege escalation method to use (default=sudo),
```



# Chapter 10: Programming with Sockets






```
HTTP/1.0 200 OK
Date: Mon, 18 Feb 2019 16:20:04 GMT
P3P: policyref="https://policies.yahoo.com/w3c/p3p.xml", CP="CAO DSP COR CUR ADM DEV TAI PSA PSD IVAi IVDi CONi TELo OTP
i OUR DELi SAMi OTRI UNRI PUBi IND PHY ONL UNI PUR FIN COM NAV INT DEM CNT STA POL HEA PRE LOC GOV"
Referrer-Policy: strict-origin-when-cross-origin
Cache-Control: max-age=3600, public
Vary: Accept-Encoding
Content-Length: 3388
Content-Type: text/html; charset=UTF-8
Age: 711
Connection: keep-alive
Server: ATS
X-Frame-Options: DENY
X-Content-Type-Options: nosniff
X-XSS-Protection: 1; mode=block

<!doctype html public "-//w3c//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html><head><title>Yahoo!</title><meta name="ROBOTS" content="NOINDEX" /><style>
/* nn4 hide */
/* */
```

Welcome to Wireshark

## Capture

...using this filter:

- Local Area Connection\* 11 
- Wi-Fi 
- Ethernet 
- Npcap Loopback Adapter 
- VirtualBox Host-Only Network 

Apply a display filter ... <Ctrl-/>

| No. | Time     | Source       | Destination  | Protocol | Length | Info  |
|-----|----------|--------------|--------------|----------|--------|---|
| 90  | 4.533757 | 10.80.92.216 | 10.68.98.35  | DNS      | 73     | Standard query 0xcc14 A www.yahoo.com                             |
| 92  | 4.613556 | 10.80.92.216 | 217.12.15.38 | TCP      | 66     | 8144 → 80 [SYN] Seq=0 Win=64260 Len=0 MSS=1428 WS=256 SACK_PERM=1 |
| 97  | 4.688971 | 10.80.92.216 | 217.12.15.38 | TCP      | 54     | 8144 → 80 [ACK] Seq=1 Ack=1 Win=65536 Len=0                       |
| 98  | 4.689092 | 10.80.92.216 | 217.12.15.38 | HTTP     | 72     | GET / HTTP/1.0  |
| 105 | 4.779971 | 10.80.92.216 | 217.12.15.38 | TCP      | 54     | 8144 → 80 [ACK] Seq=19 Ack=5665 Win=65536 Len=0                   |
| 108 | 4.788417 | 10.80.92.216 | 217.12.15.38 | TCP      | 54     | 8144 → 80 [ACK] Seq=19 Ack=6881 Win=64256 Len=0                   |
| 109 | 4.806975 | 10.80.92.216 | 217.12.15.38 | HTTP     | 72     | GET / HTTP/1.0  |
| 110 | 4.809953 | 10.80.92.216 | 217.12.15.38 | HTTP     | 72     | GET / HTTP/1.0  |

TCP payload (18 bytes)

Hypertext Transfer Protocol

- GET / HTTP/1.0\r\n
  - [Expert Info (Chat/Sequence): GET / HTTP/1.0\r\n]
  - [GET / HTTP/1.0\r\n]
  - [Severity level: Chat]
  - [Group: Sequence]
  - Request Method: GET
  - Request URI: /
  - Request Version: HTTP/1.0
- \r\n
- [HTTP request 1/3]
- [Response in frame: 106]
- [Next request in frame: 109]

|     |          |              |              |      |  |
|-----|----------|--------------|--------------|------|--|
| 99  | 4.711872 | 217.12.15.38 | 10.80.92.216 | TCP  | 60 80 → 8144 [ACK] Seq=1 Ack=19 Win=3737600 Len=0  |
| 101 | 4.779144 | 217.12.15.38 | 10.80.92.216 | TCP  | 1470 80 → 8144 [ACK] Seq=1 Ack=19 Win=3737600 Len=1416 [TCP segment of a reassembled PDU]    |
| 102 | 4.779145 | 217.12.15.38 | 10.80.92.216 | TCP  | 1470 80 → 8144 [ACK] Seq=1417 Ack=19 Win=3737600 Len=1416 [TCP segment of a reassembled PDU] |
| 103 | 4.779146 | 217.12.15.38 | 10.80.92.216 | TCP  | 1470 80 → 8144 [ACK] Seq=2833 Ack=19 Win=3737600 Len=1416 [TCP segment of a reassembled PDU] |
| 104 | 4.779148 | 217.12.15.38 | 10.80.92.216 | TCP  | 1470 80 → 8144 [ACK] Seq=4249 Ack=19 Win=3737600 Len=1416 [TCP segment of a reassembled PDU] |
| 106 | 4.780165 | 217.12.15.38 | 10.80.92.216 | HTTP | 1269 HTTP/1.0 404 Not Found on Accelerator (text/html)                                       |

```

[HTTP response 1/3]
[Time since request: 0.091073000 seconds]
[Request in frame: 98]
[Next request in frame: 109]
File Data: 6551 bytes
Line-based text data: text/html (206 lines)
<!DOCTYPE html>\n
<html lang="en-us">\n
<head>\n
  <meta http-equiv="content-type" content="text/html; charset=UTF-8">\n
  <meta charset="utf-8">\n
  <title>Yahoo</title>\n
0140 36 35 35 31 0d 0a 0d 0a 3c 21 44 4f 43 54 59 56 6551 <!DOCTYPE
0150 85 20 68 74 0c 2c 30 38 3c 60 74 6d 6c 20 6c 61 8f <html> <html lang
0160 6e 67 3d 22 65 6e 2d 75 72 22 3e 0a 20 20 3c 68 8a <meta http-equiv="c
0170 65 61 64 3e 0a 20 20 20 20 3c 6d 65 74 61 20 68 ead> <meta h
0180 74 74 70 24 65 71 75 69 76 3d 22 63 6f 6e 74 65 ttp-equiv="conte
0190 6e 74 2d 74 79 70 65 22 20 63 6f 6e 74 65 6e 74 nt-type" content
01a0 3d 22 74 65 78 74 2f 68 74 6d 6c 3b 20 63 68 61 ="text/html; cha
01b0 72 73 65 74 3d 55 54 46 2d 38 22 3e 0a 20 20 20 nset=UTF-8">

```

```

Interfaces:
 0. 169.254.219.137 Local Area Connection* 11 Ethernet
 1. 10.80.92.216 Ethernet Ethernet
 2. 192.168.56.1 VirtualBox Host-Only Network Ethernet
 3. 169.254.204.194 Npcap Loopback Adapter Ethernet
 4. 169.254.52.200 Wi-Fi Wireless80211
 5. 169.254.234.2 Local Area Connection* 2 Wireless80211
 6. 127.0.0.1 Loopback Pseudo-Interface 1 Loopback

Select interface to sniff [default '0']: 6
Output path or filename [default 'dumpfile.pcap']:

```

| No. | Time      | Source    | Destination | Protocol | Length | Info   |
|-----|-----------|-----------|-------------|----------|--------|--|
| 34  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 12345 → 15833 [ACK] Seq=1 Ack=37 Win=525568 Len=0                                  |
| 38  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 12345 → 15833 [ACK] Seq=37 Ack=38 Win=525568 Len=0                                 |
| 39  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 12345 → 15833 [FIN, ACK] Seq=37 Ack=38 Win=525568 Len=0                            |
| 35  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 76     | 12345 → 15833 [PSH, ACK] Seq=0 Ack=37 Win=525568 Len=36                            |
| 31  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 52     | 12345 → 15833 [SYN, ACK] Seq=0 Ack=37 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1 |
| 24  | 9.456911  | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 14766 → 8995 [ACK] Seq=1 Ack=44 Win=2050 Len=0                                     |
| 32  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 15833 → 12345 [ACK] Seq=1 Ack=1 Win=525568 Len=0                                   |
| 36  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 15833 → 12345 [ACK] Seq=37 Ack=37 Win=525312 Len=0                                 |
| 40  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 15833 → 12345 [ACK] Seq=38 Ack=38 Win=525312 Len=0                                 |
| 37  | 14.297992 | 127.0.0.1 | 127.0.0.1   | TCP      | 40     | 15833 → 12345 [FIN, ACK] Seq=37 Ack=37 Win=525312 Len=0                            |

```

> Frame 35: 76 bytes on wire (608 bits), 76 bytes captured (608 bits) on interface
Raw packet data
> Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
> Transmission Control Protocol, Src Port: 12345, Dst Port: 15833, Seq: 1, Ack: 37, Len: 36
Data (36 bytes)
Data: 48656c6cf20776f726c642c74686973206973206d792066...
[Length: 36]
0000 45 00 00 4c 42 72 40 00 80 06 00 00 7f 00 00 01 E..LBr@.....
0010 7f 00 00 01 30 39 3d 0f d7 71 44 0b 86 9e 9d 3d ...09=>..qD....
0020 50 18 08 05 4d 68 00 00 48 65 6c 6c 6f 20 77 6f P...Mh...Hello wo
0030 72 6c 64 2c 74 68 69 73 20 69 73 20 6d 79 20 66 rId,this is my f
0040 69 72 73 74 20 6d 65 73 73 61 67 65

```

udp

| No. | Time     | Source       | Destination     | Protocol | Length | Info                                    |
|-----|----------|--------------|-----------------|----------|--------|---|
| 1   | 0.000000 | 127.0.0.1    | 127.0.0.1       | UDP      | 44     | 51678 → 12345 Len=16                    |
| 2   | 0.000000 | 127.0.0.1    | 127.0.0.1       | UDP      | 36     | 12345 → 51678 Len=8                     |
| 3   | 0.347019 | 10.80.92.118 | 255.255.255.255 | DHCP     | 328    | DHCP Inform - Transaction ID 0xc43e5d1c |

> Frame 1: 44 bytes on wire (352 bits), 44 bytes captured (352 bits)  
 Raw packet data  
 > Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1  
 > User Datagram Protocol, Src Port: 51678, Dst Port: 12345  
 ▾ Data (16 bytes)  
 Data: 48656c6c6f2055445020736572766572  
 [Length: 16]

```

0000 45 00 00 2c 44 42 00 00 80 11 00 00 7f 00 00 01  E...DB...
0010 7f 00 00 01 c9 de 30 39 00 18 f2 fe 48 65 6c 6c  ....09...Hell
0020 6f 20 55 44 50 20 73 65 72 76 65 72          o UDP se rver
  
```

udp

| No. | Time     | Source       | Destination     | Protocol | Length | Info                                    |
|-----|----------|--------------|-----------------|----------|--------|---|
| 1   | 0.000000 | 127.0.0.1    | 127.0.0.1       | UDP      | 44     | 51678 → 12345 Len=16                    |
| 2   | 0.000000 | 127.0.0.1    | 127.0.0.1       | UDP      | 36     | 12345 → 51678 Len=8                     |
| 3   | 0.347019 | 10.80.92.118 | 255.255.255.255 | DHCP     | 328    | DHCP Inform - Transaction ID 0xc43e5d1c |

> Frame 2: 36 bytes on wire (288 bits), 36 bytes captured (288 bits)  
 Raw packet data  
 > Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1  
 > User Datagram Protocol, Src Port: 12345, Dst Port: 51678  
 ▾ Data (8 bytes)  
 Data: 48692077696e3332  
 [Length: 8]

```

0000 45 00 00 24 44 43 00 00 80 11 00 00 7f 00 00 01  E...$DC...
0010 7f 00 00 01 30 39 c9 de 00 10 02 33 48 69 20 77  ....09...3Hi w
0020 69 6e 33 32          in32
  
```

---

```
waiting connections in :::1:7575
Connected to ('::1', 5223, 0, 0)
Received data from the client: [Hello from ipv6 client]
Sent data echoed back to the client: [Hello from ipv6 client]
Received data from the client: [hi can i get list files]
Sent data echoed back to the client: [hi can i get list files]
Received data from the client: [command/ls]
Command:ls
b'echo_client_ipv6.py\necho_server_ipv6.py\n'
Sent data command back to the client: [echo_client_ipv6.py
echo_server_ipv6.py
]
Received data from the client: [thank you]
Sent data echoed back to the client: [thank you]
Received data from the client: [command/dir]
Command:dir
b'echo_client_ipv6.py echo_server_ipv6.py\n'
Sent data command back to the client: [echo_client_ipv6.py echo_server_ipv6.py
]
Received data from the client: [exit]
----- CLOSE CONNECTION -----
```

```
Connected to the server -->:::1:7575
Send data to server: Hello from ipv6 client
Received initial message from server: Hello from ipv6 client
Write your message > hi can i get list files
Received from server: hi can i get list files
Write your command > ls
Received command server: echo_client_ipv6.py
echo_server_ipv6.py

Write your message > thank you
Received from server: thank you
Write your command > dir
Received command server: echo_client_ipv6.py echo_server_ipv6.py

Write your message > exit
Received from server: exit
----- CLOSE CONNECTION -----
```



```

Enter target host:www.google.com
('ECDHE-ECDHE-AES128-SHA', 'TLSv1/SSLv3', 128)
Extracting remote host certificate details:
{'OCSP': ('http://ocsp.pki.goog/GTSGIAG3',),
'caIssuers': ('http://pki.goog/gsr2/GTSGIAG3.crt',),
'crlDistributionPoints': ('http://crl.pki.goog/GTSGIAG3.crl',),
'issuer': (((('countryName', 'US'),),
              (('organizationName', 'Google Trust Services'),),
              (('commonName', 'Google Internet Authority G3'),)),),
'notAfter': 'Apr 23 14:58:00 2019 GMT',
'notBefore': 'Jan 29 14:58:00 2019 GMT',
'serialNumber': '726B68C873C67FB2',
'subject': (((('countryName', 'US'),),
              (('stateOrProvinceName', 'california'),),
              (('localityName', 'Mountain View'),),
              (('organizationName', 'Google LLC'),),
              (('commonName', 'www.google.com'),)),),
'subjectAltName': (('DNS', 'www.google.com'),),
'version': 3}

```

| No.   | Time                    | Source                  | Destination     | Protocol | Length | Info   |
|---|-------------------------|-------------------------|-----------------|----------|--------|--|
| 346   | 14.000573               | 10.80.92.1              | 255.255.255.255 | DHCP     | 342    | DHCP ACK - Transaction ID 0x77b0de07   |
| 347   | 14.174945               | 10.80.92.216            | 172.217.168.196 | TLSv1    | 234    | Client Hello   |
| 348   | 14.196753               | 172.217.168.196         | 10.80.92.216    | TCP      | 60     | 443 → 20365 [ACK] Seq=1 Ack=181 Win=15744 Len=0                                |
| 349   | 14.256451               | 172.217.168.196         | 10.80.92.216    | TLSv1    | 1482   | Server Hello   |
| 350   | 14.256744               | 172.217.168.196         | 10.80.92.216    | TLSv1    | 958    | Certificate, Server Key Exchange, Server Hello Done                            |
| 351   | 14.256855               | 10.80.92.216            | 172.217.168.196 | TCP      | 54     | 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                             |
| 352   | 14.261750               | 10.80.92.216            | 172.217.168.196 | TLSv1    | 188    | Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message           |
| 353   | 14.283431               | 172.217.168.196         | 10.80.92.216    | TCP      | 60     | 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                             |
| 354   | 14.338848               | 172.217.168.196         | 10.80.92.216    | TLSv1    | 341    | New Session Ticket, Change Cipher Spec, Encrypted Handshake Message            |
| 355   | 14.341408               | 10.80.92.216            | 172.217.168.196 | TLSv1    | 128    | Application Data, Application Data   |
| 356   | 14.364007               | 172.217.168.196         | 10.80.92.216    | TCP      | 60     | 443 → 20365 [ACK] Seq=2620 Ack=389 Win=16768 Len=0                             |
| 357   | 14.409954               | 10.80.92.216            | 216.58.211.106  | TCP      | 55     | 20088 → 443 [ACK] Seq=1 Ack=1 Win=256 Len=1 [TCP segment of a reassembled PDU] |
| 358   | 14.431593               | 216.58.211.106          | 10.80.92.216    | TCP      | 66     | 443 → 20088 [ACK] Seq=1 Ack=2 Win=153 Len=0 SLE=1 SRE=2                        |
| 359   | 14.454253               | 172.217.168.196         | 10.80.92.216    | TLSv1    | 1467   | Application Data   |
| 360   | 14.456540               | 172.217.168.196         | 10.80.92.216    | TLSv1    | 1467   | Application Data   |
| > Frame 351: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface 0<br>> Ethernet II, Src: LcfHefe_2d:79:20 (8c:16:45:2d:79:20), Dst: HewlettP_79:fd:89 (78:48:59:79:fd:89)<br>> Internet Protocol Version 4, Src: 10.80.92.216, Dst: 172.217.168.196<br>> Transmission Control Protocol, Src Port: 20365, Dst Port: 443, Seq: 181, Ack: 2333, Len: 0 |                         |                         |                 |          |        |  |
| 0000  | 78 48 59 79 fd 89 8c 16 | 45 2d 79 20 08 00 45 00 | xHy.....E-y...E |          |        |  |
| 0010  | 00 28 78 0e 40 00 00 06 | c5 fb 0a 50 5c d8 ac d9 | (x@...P\...     |          |        |  |
| 0020  | a8 c4 4f 8d 01 bb 95 68 | eb f1 62 da 3f b8 50 10 | ..O...h..b?P..  |          |        |  |
| 0030  | 01 00 7c d9 00 00       |                         | .. ... ..       |          |        |  |

|  |           |                 |                 |       |  |
|--|-----------|-----------------|-----------------|-------|--|
| 347  | 14.174945 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 234 Client Hello   |
| 348  | 14.196753 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=1 Ack=181 Win=15744 Len=0                       |
| 349  | 14.256451 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 1482 Server Hello  |
| 350  | 14.256744 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 958 Certificate, Server Key Exchange, Server Hello Done                  |
| 351  | 14.256855 | 10.80.92.216    | 172.217.168.196 | TCP   | 54 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                    |
| 352  | 14.261750 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 188 Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message |
| 353  | 14.283431 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                    |
| <ul style="list-style-type: none"> <li>▼ Handshake Protocol: Client Hello</li> <li>Handshake Type: Client Hello (1)</li> <li>Length: 171</li> <li>Version: TLS 1.0 (0x0301)</li> <li>Random: c7b278216e2018f293a9c8d1b0725d50c5c4606db7e5b9a1...</li> <li>Session ID Length: 0</li> <li>Cipher Suites Length: 58</li> <li>▼ Cipher Suites (29 suites)</li> <li>Cipher Suite: TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA (0xc014)</li> <li>Cipher Suite: TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA (0xc00a)</li> <li>Cipher Suite: TLS_ECDH_RSA_WITH_AES_256_CBC_SHA (0xc00f)</li> <li>Cipher Suite: TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA (0xc005)</li> </ul> |           |                 |                 |       |  |

|   |           |                 |                 |       |  |
|---|-----------|-----------------|-----------------|-------|--|
| 347   | 14.174945 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 234 Client Hello   |
| 348   | 14.196753 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=1 Ack=181 Win=15744 Len=0                       |
| 349   | 14.256451 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 1482 Server Hello  |
| 350   | 14.256744 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 958 Certificate, Server Key Exchange, Server Hello Done                  |
| 351   | 14.256855 | 10.80.92.216    | 172.217.168.196 | TCP   | 54 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                    |
| 352   | 14.261750 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 188 Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message |
| 353   | 14.283431 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                    |
| <ul style="list-style-type: none"> <li>Version: TLS 1.0 (0x0301)</li> <li>Length: 59</li> <li>▼ Handshake Protocol: Server Hello</li> <li>Handshake Type: Server Hello (2)</li> <li>Length: 55</li> <li>Version: TLS 1.0 (0x0301)</li> <li>Random: 5c6d326d6e24ddf286d34d4ba9a98dcb0d5582a615a5077...</li> <li>Session ID Length: 0</li> <li>Cipher Suite: TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA (0xc009)</li> <li>Compression Method: null (0)</li> <li>Extensions Length: 15</li> <li>▼ Extension: renegotiation_info (len=1)</li> </ul> |           |                 |                 |       |  |

|   |           |                 |                 |       |  |
|---|-----------|-----------------|-----------------|-------|--|
| 347   | 14.174945 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 234 Client Hello   |
| 348   | 14.196753 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=1 Ack=181 Win=15744 Len=0                       |
| 349   | 14.256451 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 1482 Server Hello  |
| 350   | 14.256744 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 958 Certificate, Server Key Exchange, Server Hello Done                  |
| 351   | 14.256855 | 10.80.92.216    | 172.217.168.196 | TCP   | 54 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                    |
| 352   | 14.261750 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 188 Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message |
| 353   | 14.283431 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                    |
| <ul style="list-style-type: none"> <li>Length: 145</li> <li>▼ Handshake Protocol: Server Key Exchange</li> <li>Handshake Type: Server Key Exchange (12)</li> <li>Length: 141</li> <li>▼ EC Diffie-Hellman Server Params</li> <li>Curve Type: named_curve (0x03)</li> <li>Named Curve: secp256r1 (0x0017)</li> <li>Pubkey Length: 65</li> <li>Pubkey: 04ef0da73a37825475309a957d8dc24dd04ca6a0ca27b28f...</li> <li>Signature Length: 70</li> <li>Signature: 304402205b301f3586210bc6da21e1093e614775beaaa59...</li> <li>▼ TLSv1 Record Layer: Handshake Protocol: Server Hello Done</li> </ul> |           |                 |                 |       |  |

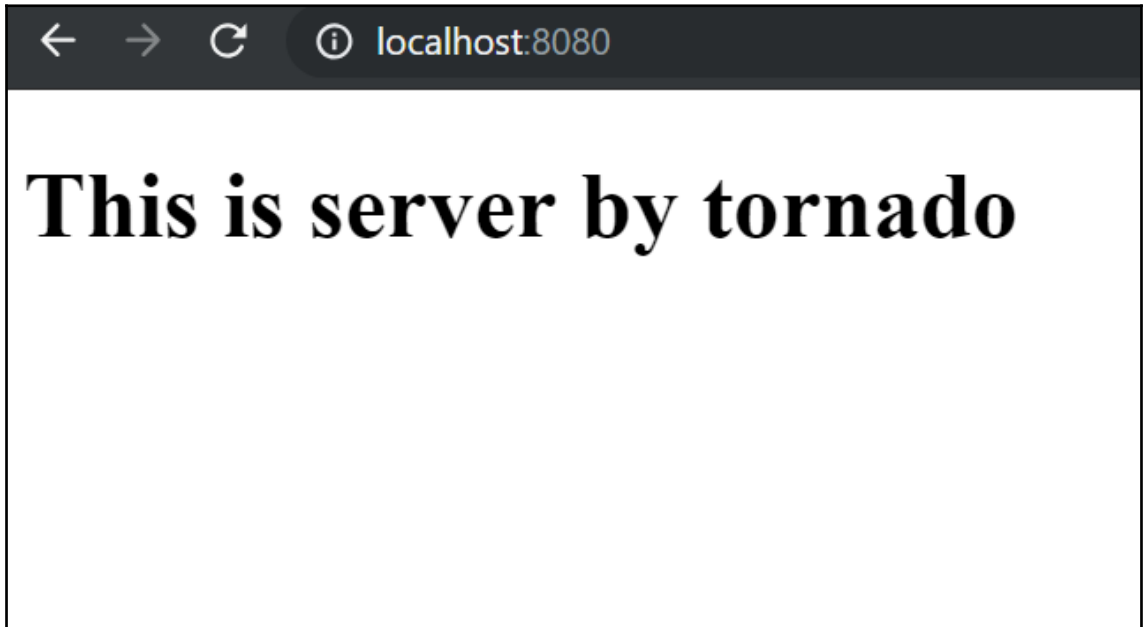
|  |           |                 |                 |       |  |
|--|-----------|-----------------|-----------------|-------|--|
| 347  | 14.174945 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 234 Client Hello   |
| 348  | 14.196753 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=1 Ack=181 Win=15744 Len=0                       |
| 349  | 14.256451 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 1482 Server Hello  |
| 350  | 14.256744 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 958 Certificate, Server Key Exchange, Server Hello Done                  |
| 351  | 14.256855 | 10.80.92.216    | 172.217.168.196 | TCP   | 54 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                    |
| 352  | 14.261750 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 188 Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message |
| 353  | 14.283431 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                    |
| Transmission Control Protocol, Src Port: 20365, Dst Port: 443, Seq: 181, Ack: 2333, Len: 134 |           |                 |                 |       |  |
| Secure Sockets Layer   |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Handshake Protocol: Client Key Exchange                                |           |                 |                 |       |  |
| Content Type: Handshake (22)   |           |                 |                 |       |  |
| Version: TLS 1.0 (0x0301)  |           |                 |                 |       |  |
| Length: 70   |           |                 |                 |       |  |
| ▼ Handshake Protocol: Client Key Exchange  |           |                 |                 |       |  |
| Handshake Type: Client Key Exchange (16)   |           |                 |                 |       |  |
| Length: 66   |           |                 |                 |       |  |
| ▼ EC Diffie-Hellman Client Params  |           |                 |                 |       |  |
| Pubkey Length: 65  |           |                 |                 |       |  |
| Pubkey: 04b485085bc07d2cb4fd164ce2c9422d8ca416cab978d4d9...                                  |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Change Cipher Spec Protocol: Change Cipher Spec                        |           |                 |                 |       |  |
| Content Type: Change Cipher Spec (20)  |           |                 |                 |       |  |
| Version: TLS 1.0 (0x0301)  |           |                 |                 |       |  |
| Length: 1  |           |                 |                 |       |  |
| Change Cipher Spec Message   |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Handshake Protocol: Encrypted Handshake Message                        |           |                 |                 |       |  |
| Content Type: Handshake (22)   |           |                 |                 |       |  |
| Version: TLS 1.0 (0x0301)  |           |                 |                 |       |  |

|  |           |                 |                 |       |  |
|--|-----------|-----------------|-----------------|-------|--|
| 350  | 14.256744 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 958 Certificate, Server Key Exchange, Server Hello Done                  |
| 351  | 14.256855 | 10.80.92.216    | 172.217.168.196 | TCP   | 54 20365 → 443 [ACK] Seq=181 Ack=2333 Win=65536 Len=0                    |
| 352  | 14.261750 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 188 Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message |
| 353  | 14.283431 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2333 Ack=315 Win=16768 Len=0                    |
| 354  | 14.338848 | 172.217.168.196 | 10.80.92.216    | TLSv1 | 341 New Session Ticket, Change Cipher Spec, Encrypted Handshake Message  |
| 355  | 14.341408 | 10.80.92.216    | 172.217.168.196 | TLSv1 | 128 Application Data, Application Data                                   |
| 356  | 14.364007 | 172.217.168.196 | 10.80.92.216    | TCP   | 60 443 → 20365 [ACK] Seq=2620 Ack=309 Win=16768 Len=0                    |
| Transmission Control Protocol, Src Port: 443, Dst Port: 20365, Seq: 2333, Ack: 315, Len: 287 |           |                 |                 |       |  |
| Secure Sockets Layer   |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Handshake Protocol: New Session Ticket                                 |           |                 |                 |       |  |
| Content Type: Handshake (22)   |           |                 |                 |       |  |
| Version: TLS 1.0 (0x0301)  |           |                 |                 |       |  |
| Length: 223  |           |                 |                 |       |  |
| ▼ Handshake Protocol: New Session Ticket   |           |                 |                 |       |  |
| Handshake Type: New Session Ticket (4)   |           |                 |                 |       |  |
| Length: 219  |           |                 |                 |       |  |
| ▼ TLS Session Ticket   |           |                 |                 |       |  |
| Session Ticket Lifetime Hint: 100799 seconds (1 day, 3 hours, 59 minutes, 59 seconds)        |           |                 |                 |       |  |
| Session Ticket Length: 213   |           |                 |                 |       |  |
| Session Ticket: 00c7df9abc456b89e6e2c8e7a453e5f1e2c63d47766a5799...                          |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Change Cipher Spec Protocol: Change Cipher Spec                        |           |                 |                 |       |  |
| Content Type: Change Cipher Spec (20)  |           |                 |                 |       |  |
| Version: TLS 1.0 (0x0301)  |           |                 |                 |       |  |
| Length: 1  |           |                 |                 |       |  |
| Change Cipher Spec Message   |           |                 |                 |       |  |
| ▼ TLSv1 Record Layer: Handshake Protocol: Encrypted Handshake Message                        |           |                 |                 |       |  |
| Content Type: Handshake (22)   |           |                 |                 |       |  |

---

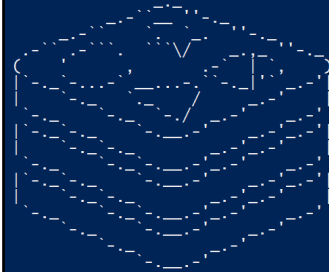
# Chapter 11: Designing Servers and Asynchronous Programming

```
Collecting aiohttp
  Downloading https://files.pythonhosted.org/packages/bc/bd/08f090d62b4ea1ca10bb2e2a1596ac3b04024c7daf7350debee0bd022fb/aiohttp-3.5.4-cp37-cp37m-win_amd64.whl (611kB)
    100% |██████████████████████████████| 614kB 1.0MB/s
Collecting async-timeout<4.0,>=3.0 (from aiohttp)
  Using cached https://files.pythonhosted.org/packages/e1/1e/5a4441be21b0726c4464f3f23c8b19628372f606755a9d2e46c187e65ec4/async_timeout-3.0.1-py3-none-any.whl
Collecting multidict<5.0,>=4.0 (from aiohttp)
  Downloading https://files.pythonhosted.org/packages/38/c7/07d8d88c3c16fe65d8596da429d104229dd7433b07432694a3ab45a72eaa/multidict-4.5.2-cp37-cp37m-win_amd64.whl (138kB)
    100% |██████████████████████████████| 143kB 999kB/s
Collecting yarl<2.0,>=1.0 (from aiohttp)
  Downloading https://files.pythonhosted.org/packages/7d/dc/fb3617b3de980566b54b1ae59eb72fc72810350d7ed9164b26f155fa682d/yarl-1.3.0-cp37-cp37m-win_amd64.whl (121kB)
    100% |██████████████████████████████| 122kB 885kB/s
Collecting chardet<4.0,>=2.0 (from aiohttp)
  Using cached https://files.pythonhosted.org/packages/bc/a9/01ffe7fb562e4274b6487b4bb1ddec7ca55ec7510b22e4c51f14098443b8/chardet-3.0.4-py2.py3-none-any.whl
Collecting attrs>=17.3.0 (from aiohttp)
  Downloading https://files.pythonhosted.org/packages/3a/e1/5f9023cc983f1a628a8c2fd051ad19e76ff7b142a0faf329336f9a62a514/attrs-18.2.0-py2.py3-none-any.whl
Collecting idna>=2.0 (from yarl<2.0,>=1.0->aiohttp)
  Downloading https://files.pythonhosted.org/packages/14/2c/cd551d81dbe15200be1cf41cd03869a46fe7226e7450af7a6545bfc474c9/idna-2.8-py2.py3-none-any.whl (58kB)
    100% |██████████████████████████████| 61kB 613kB/s
Installing collected packages: async-timeout, multidict, idna, yarl, chardet, attrs, aiohttp
Successfully installed aiohttp-3.5.4 async-timeout-3.0.1 attrs-18.2.0 chardet-3.0.4 idna-2.8 multidict-4.5.2 yarl-1.3.0
```



## Twisted server is running on port 8080

```
[18312] 25 Feb 13:40:02.879 # Warning: no config file specified, using the default config. In order to specify a config file use c:\Users\jortegac\Desktop\redis\redis-server.exe /path/to/redis.conf
```



```
Redis 2.8.2104 (00000000/0) 64 bit
Running in stand alone mode
Port: 6379
PID: 18312
```

<http://redis.io>

```
[18312] 25 Feb 13:40:02.910 # Server started, Redis version 2.8.2104
[18312] 25 Feb 13:40:02.926 * DB loaded from disk: 0.001 seconds
[18312] 25 Feb 13:40:02.926 * The server is now ready to accept connections on port 6379
```

```
[2019-02-25 14:40:19,150: DEBUG/MainProcess] | worker: Preparing bootsteps.
[2019-02-25 14:40:19,150: DEBUG/MainProcess] | worker: Building graph...
[2019-02-25 14:40:19,150: DEBUG/MainProcess] | worker: New boot order: {Beat, StateDB, Timer, Hub, Pool, Autoscaler, Consumer}
[2019-02-25 14:40:19,181: DEBUG/MainProcess] | consumer: Preparing bootsteps.
[2019-02-25 14:40:19,181: DEBUG/MainProcess] | consumer: Building graph...
[2019-02-25 14:40:19,219: DEBUG/MainProcess] | consumer: New boot order: {connection, Events, Heart, Agent, Mingle, Tasks, Control, sip, event loop}
```

```
----- celery@LES005256 v4.2.1 (windowlicker)
-----
***
-- * * * * -- windows-10-10.0.15063-sp0 2019-02-25 14:40:19
-- * - **** --
** ----- [config]
** ----- .> app:          celery_tasks:0x4954b10
** ----- .> transport:    redis://localhost:6379/0
** ----- .> results:     redis://localhost:6379/0
*** --- * --- .> concurrency: 4 (prefork)
***** ----- .> task events: OFF (enable -E to monitor tasks in this worker)
***** -----
```

```
----- [queues]
----- .> celery          exchange=celery(direct) key=celery
```

```
[tasks]
. celery.accumulate
. celery.backend_cleanup
. celery.chain
. celery.chord
. celery.chord_unlock
. celery.chunks
. celery.group
. celery.map
. celery.starmap
. producer.task_execution
```

```
[2019-03-14 17:05:48,496: INFO/MainProcess] Received task: producer.task_execution[69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2]
[2019-03-14 17:05:48,497: DEBUG/MainProcess] TaskPool: Apply <function _fast_trace_task at 0x0481E270> (args:('producer.task_execution', '69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2', {'lang': 'py', 'task': 'producer.task_execution', 'id': '69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2', 'shadow': None, 'eta': None, 'expires': None, 'group': None, 'retries': 0, 'timelimit': [None, None], 'root_id': '69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2', 'parent_id': None, 'argsrepr': "('This is the message',)", 'kwargsrepr': '{}', 'origin': 'gen36412@LES005256', 'reply_to': 'f40843f4-6ad3-3c34-9e04-cadcf13977a2', 'correlation_id': '69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2', 'delivery_info': {'exchange': '', 'routing_key': 'celery', 'priority': 0, 'redelivered': None}}, b'[["This is the message"], {}, {"callbacks": null, "errbacks": null, "chain": null, "chord": null}]', 'application/json', 'utf-8') kwargs:{})
[2019-03-14 17:05:48,499: DEBUG/MainProcess] Task accepted: producer.task_execution[69b6d8b6-5389-4fa1-931d-ea7f53a1b5b2] pid:41300
```

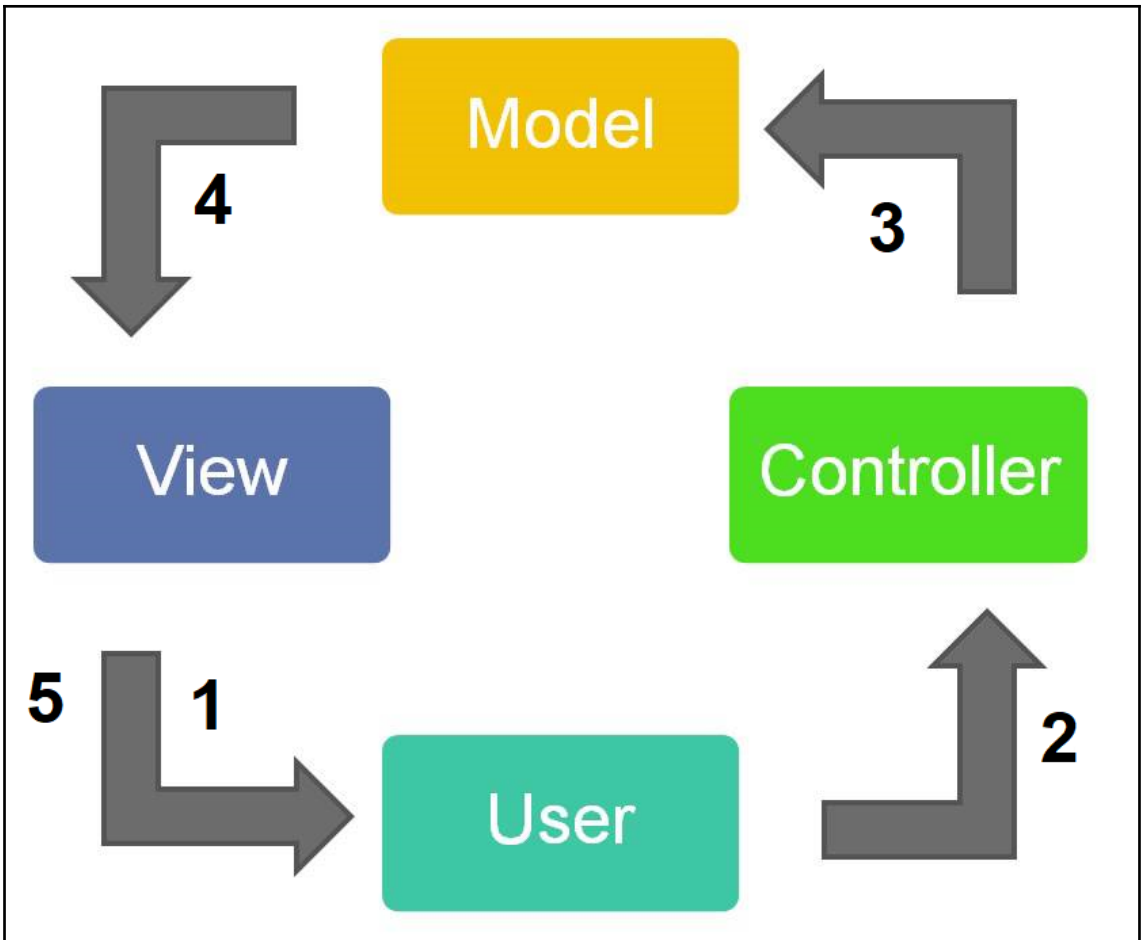
```
[2019-03-14 17:31:10,666: INFO/MainProcess] Connected to redis://localhost:6379/0
[2019-03-14 17:31:10,678: INFO/MainProcess] mingle: searching for neighbors
[2019-03-14 17:31:11,704: INFO/MainProcess] mingle: all alone
[2019-03-14 17:31:11,724: INFO/MainProcess] celery@LES005256 ready.
[2019-03-14 17:31:19,928: INFO/MainProcess] Received task: producer.task_execution[901aef18-f2ba-471b-a0dd-e7f596102e42]
[2019-03-14 17:31:24,929: WARNING/MainProcess] Message received: This is the message
[2019-03-14 17:31:24,934: INFO/MainProcess] Task producer.task_execution[901aef18-f2ba-471b-a0dd-e7f596102e42] succeeded in 5.0s: None
```

```
[2019-03-14 17:38:46,676: INFO/MainProcess] Received task: demo_celery.task_execution[93533208-285b-4b6f-97ab-0b147139f092]
[2019-03-14 17:38:46,678: DEBUG/MainProcess] TaskPool: Apply <function _fast_trace_task at 0x03569BB8> (args:('demo_celery.task_execution', '93533208-285b-4b6f-97ab-0b147139f092', {'lang': 'py', 'task': 'demo_celery.task_execution', 'id': '93533208-285b-4b6f-97ab-0b147139f092', 'shadow': None, 'eta': None, 'expires': None, 'group': None, 'retries': 0, 'timelimit': [None, None], 'root_id': '93533208-285b-4b6f-97ab-0b147139f092', 'parent_id': None, 'argsrepr': "('This is the message', '4')", 'kwargsrepr': '{}', 'origin': 'gen45476@LES005256', 'reply_to': '3585f47a-bfed-3708-82fb-0ef67d37c111', 'correlation_id': '93533208-285b-4b6f-97ab-0b147139f092', 'delivery_info': {'exchange': '', 'routing_key': 'celery', 'priority': 0, 'redelivered': None}}, b'[["This is the message", "4"], {}, {"callbacks": null, "errbacks": null, "chain": null, "chord": null}]', 'application/json', 'utf-8') kwargs:{})
[2019-03-14 17:38:46,683: DEBUG/MainProcess] Task accepted: demo_celery.task_execution[93533208-285b-4b6f-97ab-0b147139f092] pid:47872
[2019-03-14 17:38:46,684: WARNING/MainProcess] Message received: This is the message
[2019-03-14 17:38:46,694: INFO/MainProcess] Task demo_celery.task_execution[93533208-285b-4b6f-97ab-0b147139f092] succeeded in 0.0159999999945051968s: ['This is the message', 'This is the message', 'This is the message']
```

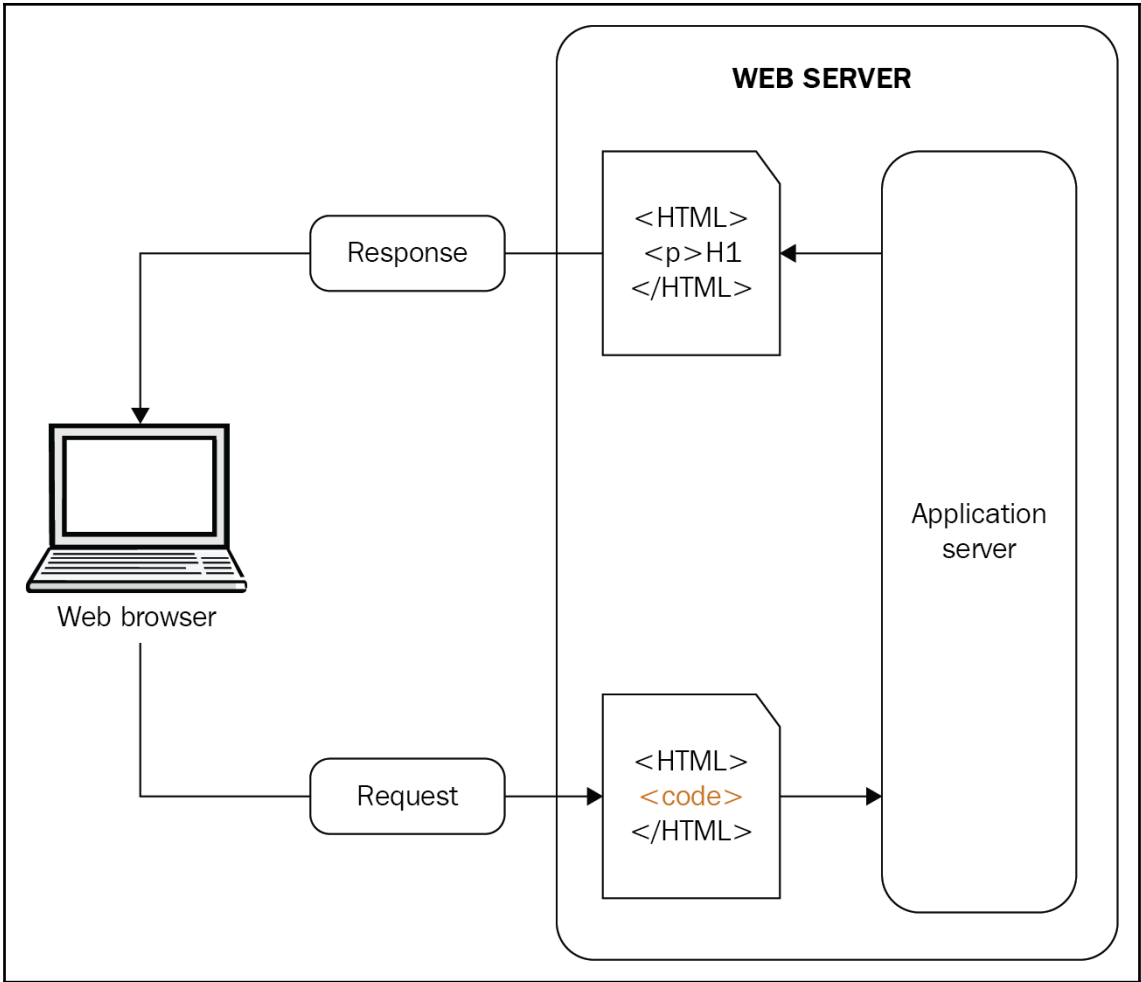
---

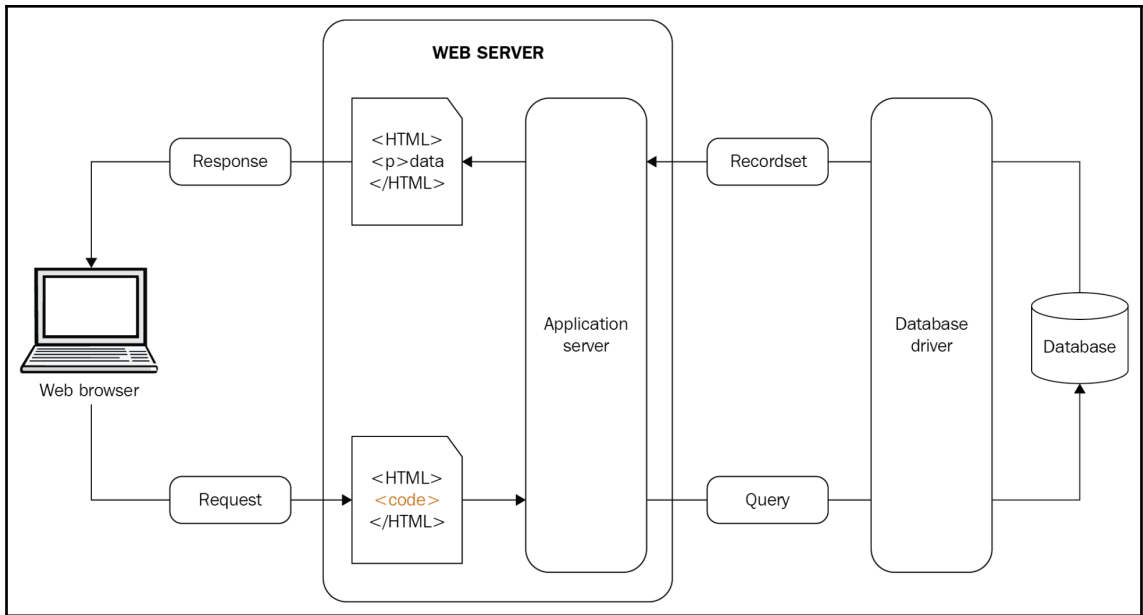
# Chapter 12: Designing Applications on the Web

```
Listening on localhost:8080
environ["QUERY_STRING"]: operator1=200&operator2=5&operation=/
Parameters ['operator1=200', 'operator2=5', 'operation=/']
Operator 1: 200
Operator 2: 5
Operation: /
Result: 40.0
127.0.0.1 - - [12/Mar/2019 13:33:10] "GET /operation?operator1=200&operator2=5&operation=/ HTTP/1.1" 200 104
environ["QUERY_STRING"]: operator1=10&operator2=5&operation=*
Parameters ['operator1=10', 'operator2=5', 'operation=*']
Operator 1: 10
Operator 2: 5
Operation: *
Result: 50
127.0.0.1 - - [12/Mar/2019 13:33:23] "GET /operation?operator1=10&operator2=5&operation=* HTTP/1.1" 200 102
environ["QUERY_STRING"]: operator1=10&operator2=5&operation=+
Parameters ['operator1=10', 'operator2=5', 'operation=+']
Operator 1: 10
Operator 2: 5
Operation: +
Result: 15
127.0.0.1 - - [12/Mar/2019 13:33:30] "GET /operation?operator1=10&operator2=5&operation=+ HTTP/1.1" 200 102
```









- migrations
- `_init_.py`
- `admin.py`
- `apps.py`
- `models.py`
- `tests.py`
- `views.py`

# Django administration

Username:

Password:

Log in

## Django administration

WELCOME, **ADMIN** [VIEW SITE](#)

Site administration

### AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [Change](#)

Users [+ Add](#) [Change](#)

### DJANGOAPP

Posts [+ Add](#) [Change](#)

### Recent actions

#### My actions

[+ post object \(1\)](#)  
Post

---

# Django administration

Home › Djangoapp › Posts › Add post

## Add post

**Author:**

---

**Title:**

---

**Content:**

Django administration WELCOME, ADMIN. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home › Djangoapp › Posts

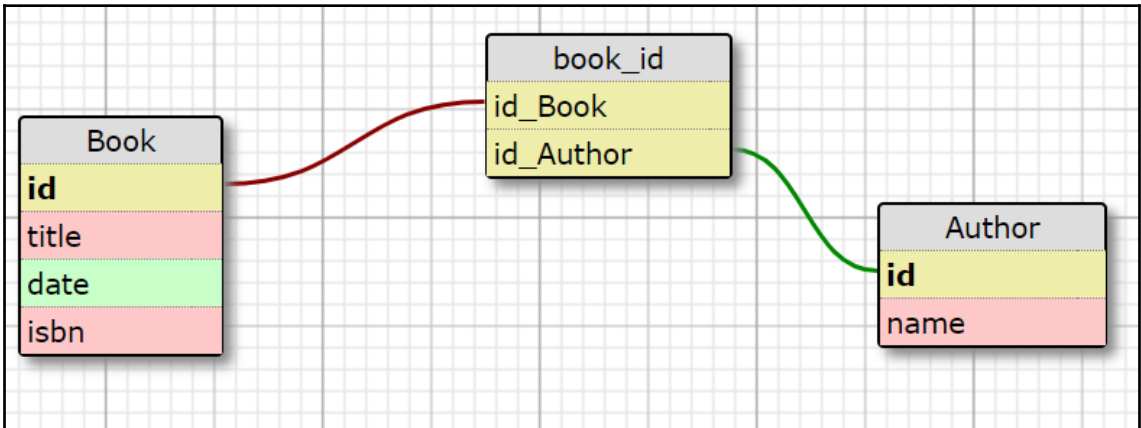
✔ The post "post object (1)" was added successfully.

Select post to change ADD POST +

Action:   0 of 1 selected

- POST
- post object (1)**

1 post



Database Structure | Browse Data | Edit Pragmas | Execute SQL

Create Table | Create Index | Print

| Name          | Type | Schema   |
|---------------|------|--|
| Tables (3)    |      |  |
| author        |      | CREATE TABLE author ( id INTEGER NOT NULL, name VARCHAR(120) NOT NULL, PRIMARY KEY (id) )  |
| author_book   |      | CREATE TABLE author_book ( book_id INTEGER, author_id INTEGER, FOREIGN KEY(book_id) REFERE |
| book          |      | CREATE TABLE book ( id INTEGER NOT NULL, title VARCHAR(120) NOT NULL, date DATE, isbn VARC |
| Indices (1)   |      |  |
| ix_book_title |      | CREATE INDEX ix_book_title ON book (title)   |
| Views (0)     |      |  |
| Triggers (0)  |      |  |

---

← → ↻ ⓘ 127.0.0.1:5000 ☆ ☰ ⬆

title  
Learning Python Networking

author  
Author

description  
Python is a popular programming language used for performing network automation in an easy-to-implement way. This book is an update to Learning Python Networking, and delves into the concepts of Python network programming and its importance in today's world.

submit

← → ↻ ⓘ 127.0.0.1:5000/new\_book ☆ ☰ ⬆

```
{"html": "New book saved in database"}
```