

OPERATION SYSTEM LAB

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<https://ataghinezhad.github.io/downloads.html>

REFERENCE BOOK

- 1) Modern Operating Systems 4th Edition, Andrew S Tanenbaum
- 2) Operating System Concepts Authors Abraham Silberschatz,
- 3) OPERATING SYSTEMS, Three Easy Pieces

SYLLABUS

1. DOS commands

2. Register

3. Virtual machine

1. Hyper-V

2. Virtual box

4. Linux

1. Wine

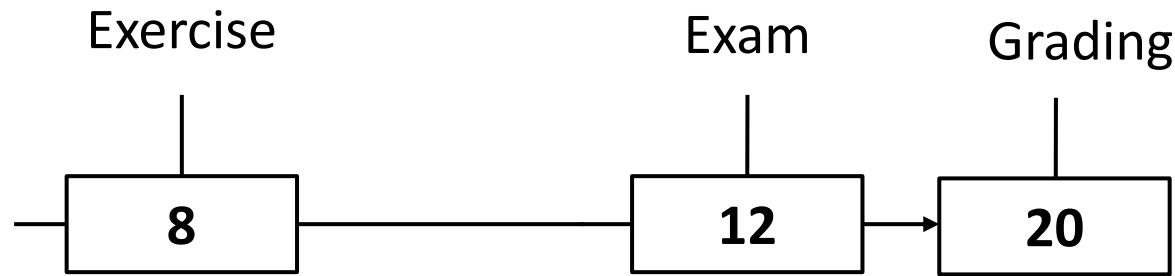
2. GRUB

3. KDE

4. Ubuntu

5. Scripts

ABOUT THIS GRADING



CMD

List of Commands

1. Color
2. Help
3. CD, CD.., CD /
4. Copy
5. Echo "text" >"filename" #create atext by filename
6. Echo "text" >>"filename" #append to filename
7. (echo text & echo newline text) > filename
8. Ren firstname updatedname
9. Del *.docs #delete files
10. RD folder name #deletes folders
 1. Rd folder /s #deletes all files in a folder
11. xcopy /s /i d:\Digital_Citizen c:\Backup_Digital_Citizen
12. MD folder name #creates a folder

CMD

(echo “content” & echo “new line ”) > f.txt

#ساختن و نوشتن در فایل نام فایل copy con

هر متنی

برای خروج Ctrl+c

XCOPY

- Xcopy d:\test1 d:\test3 /s #copy all files and folders inside test1
- Xcopy d:\test*.py d:\test2 /s #copy all subfolders
- Xcopy d:\test d:\test2 /e #copy even empty folders and subfolders

XCOPY

- Xcopy: To copy a directory and multiple file into a directory
- Use the command with **/d** option and a specific date, in MM-DD-YYYY format, to copy files changed on or after

- /e** When used alone or with **/s**, this option is the same as **/s** but will also create empty folders in *destination* that were also empty in *source*. The **/e** option can also be used together with the **/t** option to include empty directories and subdirectories found in *source* in the directory structure created in *destination*.
- /f** This option will display the full path and file name of both the *source* and *destination* files being copied.
- /i** Use the **/i** option to force xcopy to assume that *destination* is a directory. If you don't use this option, and you're copying from *source* that is a directory or group of files and copying to *destination* that doesn't exist, the xcopy command will prompt you enter whether *destination* is a file or directory
- /s** Use this option to copy directories, subdirectories, and the files contained within them, in addition to the files in the root of *source*. Empty folders will not be recreated.

COPY CON- TYPE FILENAME

- Windows command line command that allows the creation of a file through the command line.
 - Copy con filename
- To show the content of a file use type
 - type filename.txt | find "search string"
- To show content of folder
 - Tree /f

CMD- SCHEDULE A TASK

- Notepad textfilename
- CLS
- **schtasks /query #SHOWS list of scheduled tasks**
- **schtasks /delete**
- schtasks /query /tn "Task Name" **#FINDS A TASK**
- schtasks /delete /tn "Task Name" **#delete a task**

CMD- SCHEDULE A TASK

- In Windows, a **.bat** file is a special text file that contains one or multiple commands that run in sequence to perform various actions with Command Prompt. It is a DOS batch file used to execute commands with the Windows Command Prompt (cmd.exe). Batch files let you automate tasks, and they are typically used to execute a particular task or change system settings on Windows 10

CMD- SCHEDULE A TASK

- In this task we are going to create a bat file that puts windows on sleep.
- Create a sleep.bat file and write the following on it:
 - rundll32.exe powrprof.dll,SetSuspendState 0,1,0
- In cmd
 - schtasks /create /tn "sleeptask" /tr "cmd /c \"D:\sleep.bat\\"" /sc once /st 16:07
 - schtasks /create /tn "Sleep Task" /tr "C:\sleep.bat" /sc daily /st 13:26 /sd 10/10/2023
 - schtasks /create /tn "Sleep Task" /tr "C:\sleep.bat" /sc daily /st 13:26

CMD

- Type The type command is used to display the information contained in a text file. The type command is available in all versions of Windows, as well as in MS-DOS

CHECK DISK- BAD SECTOR

- chkdsk will fix problems on the *C:* drive while you're using it, and will use as much system resources as allowed so that it will run as quickly as possible.
 - chkdsk c: /r /scan /perf
 - /r:repairs, /scan: online check, perf: use more system resource to complete as fast as it can
- The chkdsk command is used to perform an extensive check of the *C:* drive to correct any errors and to locate any recovery information from bad sectors. This is best used when you're running chkdsk from outside of Windows, like from a recovery disc where you need to specify which drive to scan. **Don't Use on Windows running**
 - chkdsk c: /r

TASK LIST

1. **tasklist**: This command is used to display all running processes on your computer².

1. tasklist /v /fi "PID gt 1000" /fo csv
2. /v: more information, /fi: use filtering /fo: output template
3. /fi parameters -> gt-eq-ne-lt-ge-le

2. **taskkill**: This command is used to terminate a running process

1. taskkill /PID PID_NUMBER

MEM BIGGER THAN 10

- 10000 for memusage is 10,000 kb

```
C:\Users\Administrator>tasklist /v /fi "memusage ge 10000" /fo list
```

```
Image Name: Secure System
PID: 104
Session Name: Services
Session#: 0
Mem Usage: 40,220 K
Status: Unknown
User Name: N/A
CPU Time: 0:00:00
Window Title: N/A
```

```
Image Name: Registry
PID: 168
Session Name: Services
Session#: 0
Mem Usage: 55,488 K
Status: Unknown
User Name: N/A
CPU Time: 0:00:04
Window Title: N/A
```

```
Image Name: services.exe
PID: 908
Session Name: Services
Session#: 0
Mem Usage: 10,024 K
Status: Unknown
User Name: N/A
```

DEL

- del folder." For instance, from the directory, Digital_Citizen found on the "D:" drive if we want to delete all the files from the Digital_Citizen_Tests folder, type the command "del Digital_Citizen_Tests
- To also delete hidden files from the folder, you must add the "/h"
- DEL *.DOCX - delete all files with the DOC extension (you can use any file extension necessary, DOCX is just an example); □ DEL Test*.* - delete all files beginning with Test; □ DEL *.* - delete ALL files from the current folder
- RD foldername -> deletes folder
- RD foldername /s -> to delete a folder with all files and folders

NETSTAT

- Displays active TCP connections,
- ports on which the computer is listening,
- Ethernet statistics, the IP routing table, IPv4 and IPv6 statistics
- netstat [-a] [-b] [-e] [-n] [-o] [-p <Protocol>] [-r] [-s] [<interval>]

NETSTAT

The netstat command shows active network connections and displays information about them. It includes the status of the connection, the networking protocol, local and remote computer IP address, and more.

```
C:\Windows\system32\cmd.exe - netstat
Microsoft Windows [Version 10.0.22000.739]
(c) Microsoft Corporation. All rights reserved.

C:\Users\admin>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    192.168.2.45:49205    13.88.184.192:https  ESTABLISHED
  TCP    192.168.2.45:49249    172.67.70.233:https  TIME_WAIT
  TCP    192.168.2.45:49253    172.64.156.26:https  TIME_WAIT
  TCP    192.168.2.45:49255    104.26.9.145:https  TIME_WAIT
  TCP    192.168.2.45:49257    172.67.191.149:https  TIME_WAIT
  TCP    192.168.2.45:49259    hkg12s32-in-f2:https  TIME_WAIT
  TCP    192.168.2.45:49260    server-13-225-90-170:https  ESTABLISHED
  TCP    192.168.2.45:49261    server-13-225-90-170:https  TIME_WAIT
  TCP    192.168.2.45:49272    218:https           ESTABLISHED
  TCP    192.168.2.45:49276    ec2-54-255-199-87:https  ESTABLISHED
  TCP    192.168.2.45:49291    52.46.154.242:https  ESTABLISHED
```

C:\Users\W7A netstat /?

Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-f] [-i] [-n] [-o] [-p proto] [-r] [-s] [-t] [-x] [-y] [interval]

- a Displays all connections and listening ports.
- b Displays the executable involved in creating each connection or listening port. In some cases well-known executables host multiple independent components, and in these cases the sequence of components involved in creating the connection or listening port is displayed. In this case the executable name is in [] at the bottom, on top is the component it called, and so forth until TCP/IP was reached. Note that this option can be time-consuming and will fail unless you have sufficient permissions.
- e Displays Ethernet statistics. This may be combined with the -s option.
- f Displays Fully Qualified Domain Names (FQDN) for foreign addresses.
- i Displays the time spent by a TCP connection in its current state.
- n Displays addresses and port numbers in numerical form.
- o Displays the owning process ID associated with each connection.
- p proto Shows connections for the protocol specified by proto; proto may be any of: TCP, UDP, TCPv6, or UDPv6. If used with the -s option to display per-protocol statistics, proto may be any of: IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, or UDPv6.
- q Displays all connections, listening ports, and bound nonlistening TCP ports. Bound nonlistening ports may or may not be associated with an active connection.
- r Displays the routing table.
- s Displays per-protocol statistics. By default, statistics are shown for IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, and UDPv6;

Parameters

Parameter	Description
-a	Displays all active TCP connections and the TCP and UDP ports on which the computer is listening.
-b	Displays the executable involved in creating each connection or listening port. In some cases well-known executables host multiple independent components, and in these cases the sequence of components involved in creating the connection or listening port is displayed. In this case the executable name is in [] at the bottom, on top is the component it called, and so forth until TCP/IP was reached. Note that this option can be time-consuming and will fail unless you have sufficient permissions.
-e	Displays Ethernet statistics, such as the number of bytes and packets sent and received. This parameter can be combined with -s.
-n	Displays active TCP connections, however, addresses and port numbers are expressed numerically and no attempt is made to determine names.
-o	Displays active TCP connections and includes the process ID (PID) for each connection. You can find the application based on the PID on the Processes tab in Windows Task Manager. This parameter can be combined with -a, -n, and -p.
-p <Protocol>	Shows connections for the protocol specified by <i>Protocol</i> . In this case, the <i>Protocol</i> can be tcp, udp, tcpv6, or udpv6. If this parameter is used with -s to display statistics by protocol, <i>Protocol</i> can be tcp, udp, icmp, ip, tcpv6, udpv6, icmpv6, or ipv6.
-s	Displays statistics by protocol. By default, statistics are shown for the TCP, UDP, ICMP, and IP protocols. If the IPv6 protocol is installed, statistics are shown for the TCP over IPv6, UDP over IPv6, ICMPv6, and IPv6 protocols. The -p parameter can be used to specify a set of protocols.
-r	Displays the contents of the IP routing table. This is equivalent to the route print command.
<interval>	Redisplays the selected information every <i>interval</i> seconds. Press CTRL+C to stop the redisplay. If this parameter is omitted, this command prints the selected information only once.
/?	Displays help at the command prompt.

```
C:\Windows\system32>netstat -b
```

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:27431 [msedge.exe]	DESKTOP-0IC2P7N:53725	ESTABLISHED
TCP	127.0.0.1:53725 [Explorer.EXE]	DESKTOP-0IC2P7N:27431	ESTABLISHED
TCP	192.168.216.65:27438 WpnService [svchost.exe]	20.198.119.143:https	ESTABLISHED
TCP	192.168.216.65:27465 [msedge.exe]	20.250.77.142:https	ESTABLISHED
TCP	192.168.216.65:27511 [msedge.exe]	stackoverflow:https	ESTABLISHED
TCP	192.168.216.65:27591 [msedge.exe]	20.42.73.26:https	ESTABLISHED
TCP	192.168.216.65:27647 [msedge.exe]	8:https	ESTABLISHED
TCP	192.168.216.65:27687 [msedge.exe]	162.247.243.29:https	ESTABLISHED
TCP	192.168.216.65:27695 [msedge.exe]	156:https	ESTABLISHED
TCP	192.168.216.65:27742 [SearchHost.exe]	131.253.33.220:https	ESTABLISHED
TCP	192.168.216.65:27752 [SearchHost.exe]	204.79.197.222:https	ESTABLISHED
TCP	192.168.216.65:27753 [SearchHost.exe]	20.189.173.23:https	ESTABLISHED

C:\Users\Ahmad>netstat /s

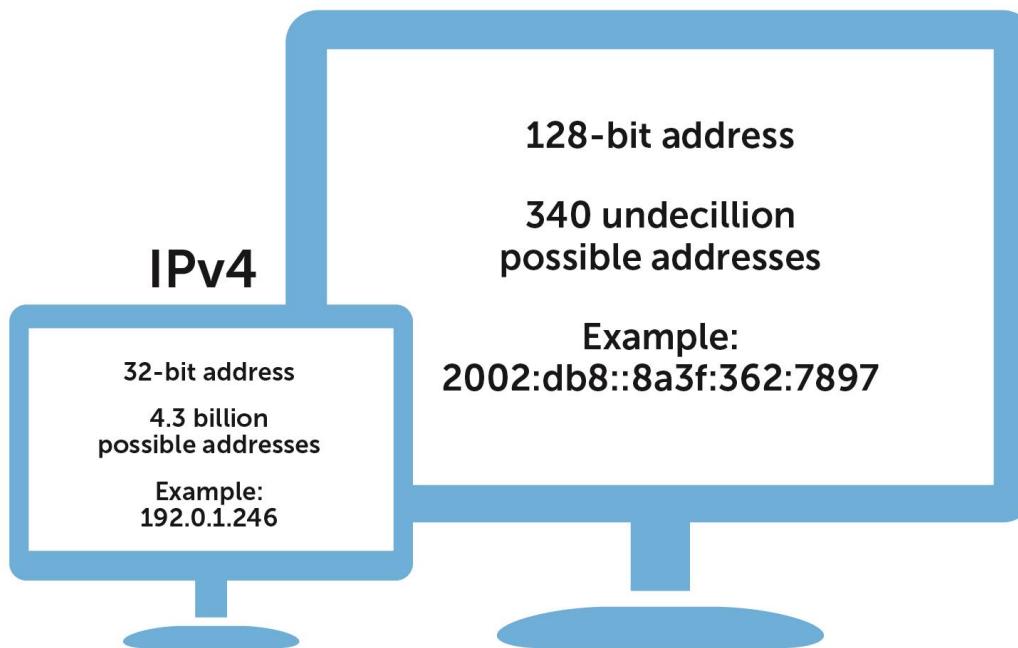
IPv4 Statistics

Packets Received	= 0
Received Header Errors	= 0
Received Address Errors	= 0
Datagrams Forwarded	= 0
Unknown Protocols Received	= 0
Received Packets Discarded	= 0
Received Packets Delivered	= 1036
Output Requests	= 1047
Routing Discards	= 0
Discarded Output Packets	= 0
Output Packet No Route	= 0
Reassembly Required	= 0
Reassembly Successful	= 0
Reassembly Failures	= 0
Datagrams Successfully Fragmented	= 0
Datagrams Failing Fragmentation	= 0
Fragments Created	= 0

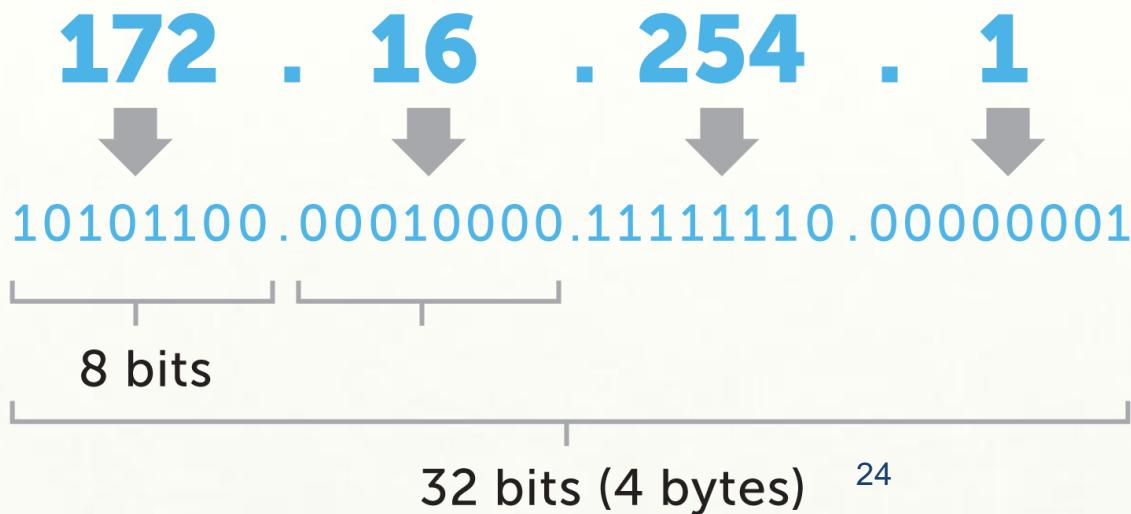
IPv6 Statistics

Packets Received	= 0
Received Header Errors	= 0
Received Address Errors	= 0
Datagrams Forwarded	= 0
Unknown Protocols Received	= 0
Received Packets Discarded	= 0
Received Packets Delivered	= 16
Output Requests	= 48
Routing Discards	= 0

IPv6



IPv4 address in dotted-decimal notation

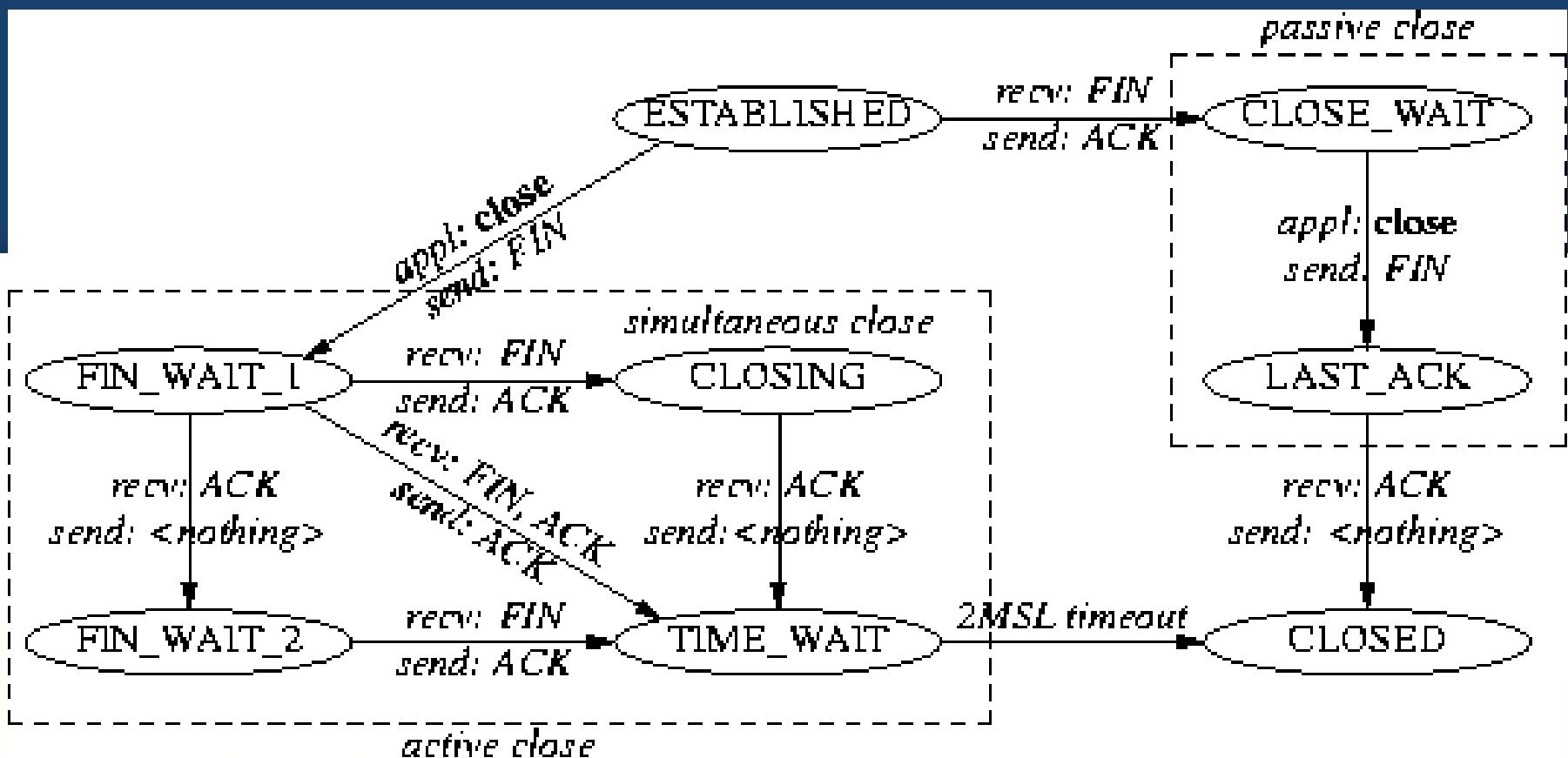


NETSTAT

- "ESTABLISHED" means that there is a connection currently made there,
- "LISTEN" means that the socket is waiting for a connection.
- Both are opened ports, but one is waiting for a connection to be made while the other has a connection already made.
- To find all listening ports that contain the numeric characters 700, you can use the command "netstat -na | findstr 700

NETSTAT

- If NetStat says a connection is in the TIME_WAIT state, it means the client has already disconnected. So if you see several connections in TIME_WAIT it is not a 'simultaneous' connection.



TCP TIME_WAIT is a normal TCP protocol operation, it means after delivering the last FIN-ACK, client side will wait for double maximum segment life (MSL) Time to pass to be sure the remote TCP received the acknowledgement of its connection termination request. By default, MSL is 2 minutes. For the maximum, it can stay in TIME_WAIT for 4 minutes known as two MSL.

TCP TIME_WAIT:TCP stack will hold the high port for little more time to ensure the other side receive the last FIN-ACK packet and no more data will be received in this conversation.

Command Prompt

C:\Users\Ahmad>netstat -r

=====

Interface List

22...00 15 5d 76 44 33	Hyper-V Virtual Ethernet Adapter
15...00 ff 8f a3 62 4b	Private Internet Access Network Adapter
5...e8 2a ea 43 ff 04	Microsoft Wi-Fi Direct Virtual Adapter
20...ea 2a ea 43 ff 03	Microsoft Wi-Fi Direct Virtual Adapter #2
19...e8 2a ea 43 ff 03	Intel(R) Dual Band Wireless-AC 7260
11...e8 2a ea 43 ff 07	Bluetooth Device (Personal Area Network)
1.....	Software Loopback Interface 1

=====

IPv4 Route Table

=====

Active Routes:

Network Destination	Netmask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.112	50
127.0.0.0	255.0.0.0	On-link	127.0.0.1	331
127.0.0.1	255.255.255.255	On-link	127.0.0.1	331
127.255.255.255	255.255.255.255	On-link	127.0.0.1	331
172.28.112.0	255.255.240.0	On-link	172.28.112.1	271
172.28.112.1	255.255.255.255	On-link	172.28.112.1	271
172.28.127.255	255.255.255.255	On-link	172.28.112.1	271
192.168.1.0	255.255.255.0	On-link	192.168.1.112	306
192.168.1.112	255.255.255.255	On-link	192.168.1.112	306
192.168.1.255	255.255.255.255	On-link	192.168.1.112	306
224.0.0.0	240.0.0.0	On-link	127.0.0.1	331
224.0.0.0	240.0.0.0	On-link	172.28.112.1	271
224.0.0.0	240.0.0.0	On-link	192.168.1.112	306
255.255.255.255	255.255.255.255	On-link	127.0.0.1	331
255.255.255.255	255.255.255.255	On-link	172.28.112.1	271
255.255.255.255	255.255.255.255	On-link	192.168.1.112	306

=====

Persistent Routes:

None

IPCONFIG

- Displays all current TCP/IP network configuration values and refreshes Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings.
- Used without parameters, ipconfig displays Internet Protocol version 4 (IPv4) and IPv6 addresses, subnet mask, and default gateway for all adapters.
- `ipconfig [/allcompartments] [/all] [/renew [<adapter>]] [/release [<adapter>]] [/renew6[<adapter>]] [/release6 [<adapter>]] [/flushdns] [/displaydns] [/registerdns] [/showclassid <adapter>] [/setclassid <adapter> [<classID>]]`

دستور ipconfig /all موارد زیر را نمایش می‌دهد:

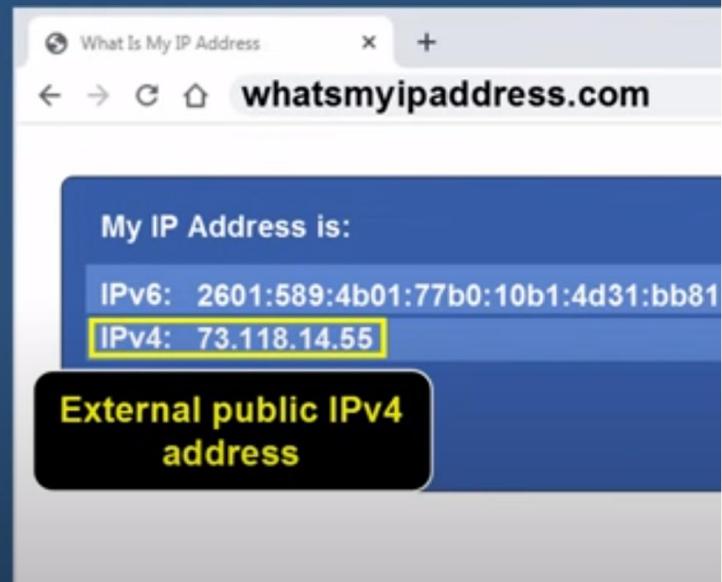
- نام و مدل کارت شبکه
- آدرس MAC
- آی پی آدرس IPv4
- آی پی آدرس IPv6
- آی پی آدرس DHCP سرور
- آی پی آدرس DNS سرور
- Subnet Mask
- Default Gateway
- فعال است یا خیر.
- زمان اجاره Lease Time: – زمان اجاره در مقاله

IPCONFIG COMMAND



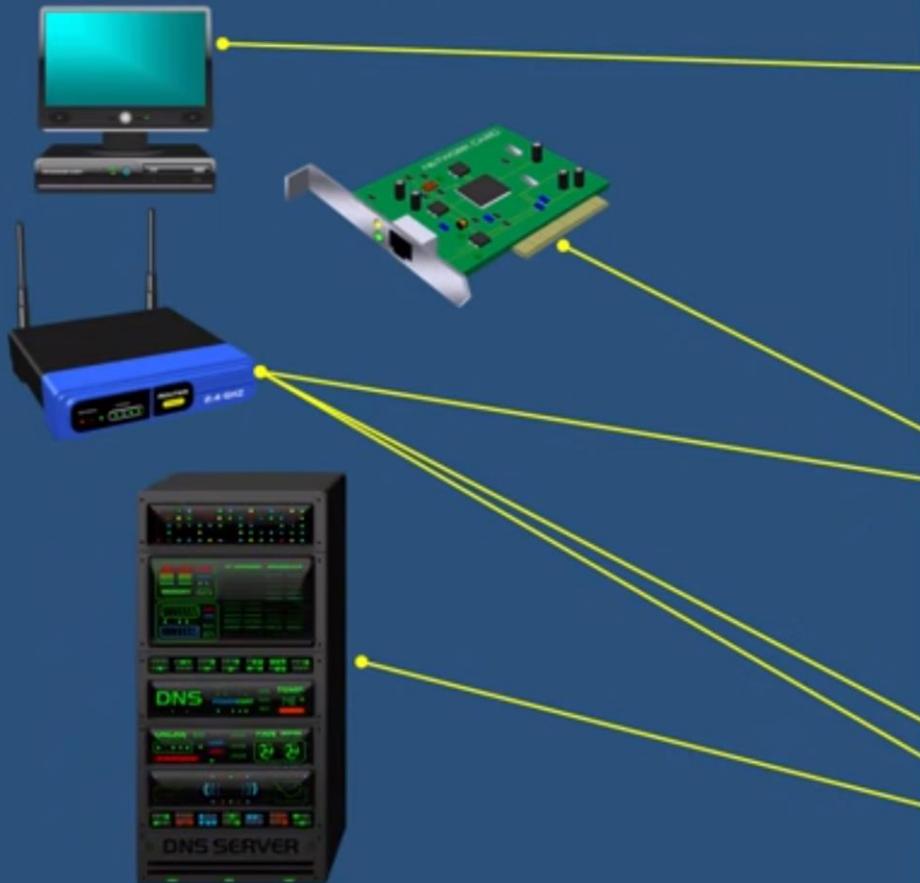


```
Command Prompt  
Microsoft Windows  
C:\Users\Admin>ipconfig  
Windows IP Configuration  
  
Ethernet adapter Local Area Connection:  
  
Connection-specific DNS Suffix . . . . .: hdsi.fl.comcast.net.  
IPv6 Address . . . . .: 2601:589:4b01:77b0:10b1:4d31:bb81:d712  
IPv4 Address . . . . .: 10.0.0.2  
Subnet Mask . . . . .: 255.255.255.0  
Default Gateway . . . . .: 10.0.0.1
```



This IPv4 is not a public IP address which is running low.

IPCONFIG COMMAND



```
Command Prompt  
Microsoft Windows  
C:\Users\Admin> Ipconfig /all  
  
Windows IP Configuration  
  
Host Name ..... : My-PC  
Primary Dns Suffix ..... :  
Node Type ..... : Hybrid  
IP Routing Enabled ..... : No  
WINS Proxy Enabled ..... : No  
DNS Suffix Search List ..... : hdsl.fl.comcast.net.  
  
Ethernat adapter Local Area Connection:  
  
Connection-specific DNS Suffix ..... : hdsl.fl.comcast.net.  
Description ..... : Intel(R) Ethernet Connection  
Physical Address ..... : 98 - 48 - 26 - 52 - 4C - E6  
DHCP Enabled ..... : Yes  
Autoconfiguration Enabled ..... : Yes  
IPv6 Address ..... : 2601:589:4b01:77b0:10b1:4d31:bb81:  
IPv4 Address ..... : 10.0.0.2  
Subnet Mask ..... : 255.255.255.0  
Lease Obtained ..... : Monday, April 12, 2021 9:10:45 PM  
Lease Expires ..... : Tuesday, April 13, 2021 9:10:43 PM  
Default Gateway ..... : 10.0.0.1  
DHCP Server ..... : 10.0.0.1  
DNS Server ..... : 75.75.75.75  
NetBIOS over Tcpip..... : Enabled
```

- DHCP enabled means that our IP is given to us by a DHCP server.

IPCONFIG COMMAND



DNS resolves domain names to IP addresses.



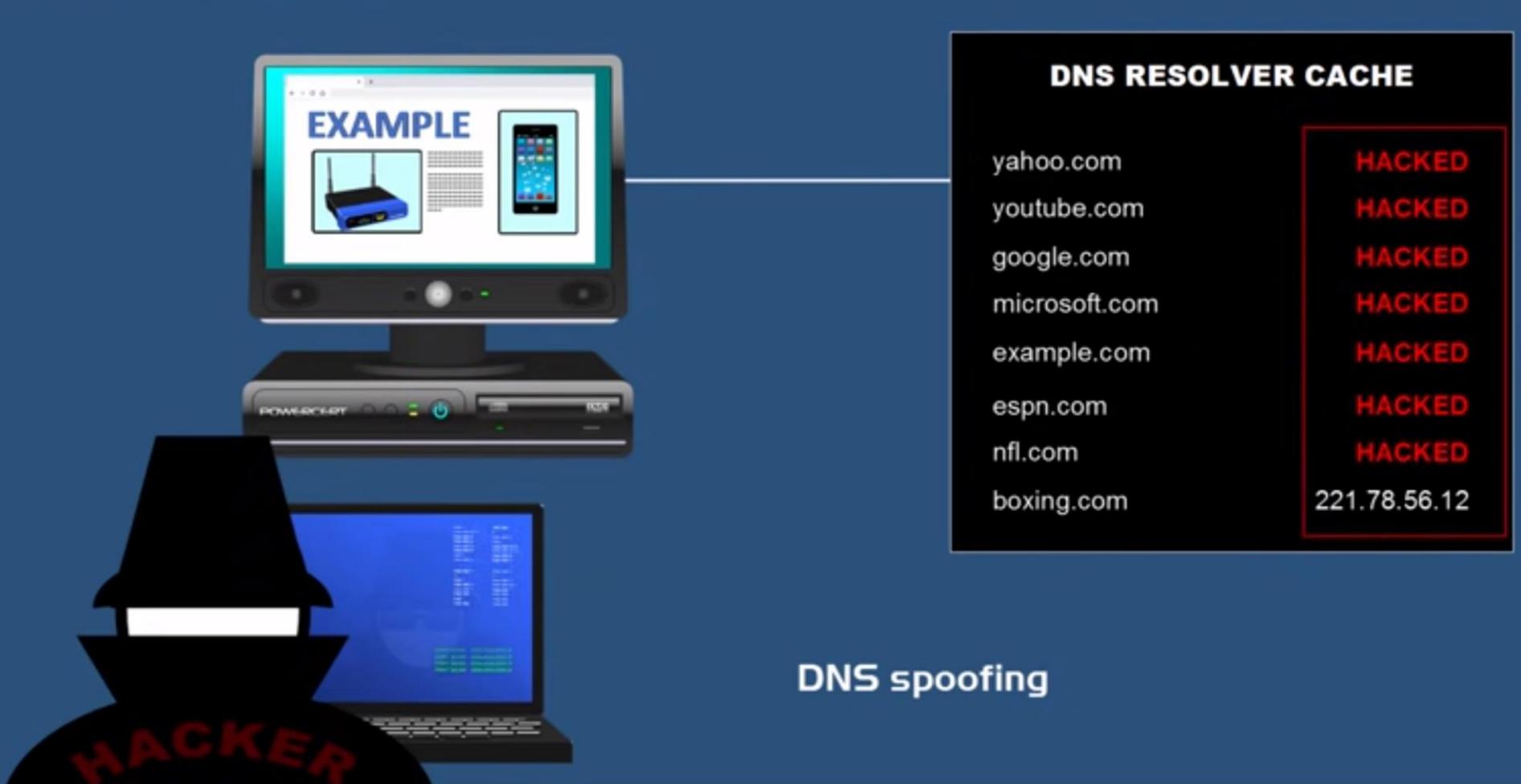
12.34.56.78

Computers don't understand names...they only understand numbers.

- Your computer goes to DNS server to get a server IP address and then save it in DNS cache. So your computer doesn't have to go out constantly to an external DNS server to resolve a name to an IP address.
- Caches also prevent the DNS servers from getting Busy.



- In situations that a certain website changed its IP but your cached IP address is not updated. You may can't access to that website therefore you need to flush your DNS.



- If your DNS is hacked you can be redirected to malicious websites, and get stolen. Another reason for DNS flush if you suspect your DNS is altered.

دستور ipconfig /all موارد زیر را نمایش می‌دهد:

- دستور ipconfig /displaydns
- محتوای کش DNS که حاوی وب سایت‌های بازدید شده و آی پی آدرس آن است را نمایش می‌دهد. این کش برای افزایش سرعت دسترسی به سایت‌هایی است که مرتبًا بازدید می‌شوند. یعنی DNS Cache سرعت فرآیند DNS Resolution را افزایش می‌دهد.
- ۳ دستور ipconfig /flushdns
- محتوای کش DNS را پاک می‌کند. هنگام عیب یابی DNS می‌توانید با این دستور ورودی‌های اشتباه کش را پاک کنید. وقتی مرورگر نمی‌تواند هاست را به درستی در اینترنت پیدا کند و یا کانفیگ DNS با مشکل مواجه است می‌توان از این دستور استفاده کرد.
- با دستور ipconfig /registerdns
- می‌توانید IP آدرس‌ها و نام‌های DNS که در کامپیوتر پیکربندی شده‌اند را دوباره ثبت کنید. این دستور در عیب یابی کاربرد دارد: وقتی نام DNS به اشتباه ثبت شده باشد و یا آپدیت بین کلاینت و سرور انجام نشده است. تنظیمات DNS در پروتکل TCP IP در قسمت advanced properties مشخص می‌کند چه نام‌هایی در DNS ثبت شده است.

دستور ipconfig /all موارد زیر را نمایش می‌دهد:

۵. دستور ipconfig /release [<adapter>]

- این دستور پیغام DHCP Release را به سرور می‌فرستد تا پیکربندی کنونی آدرس IP را آزاد کند و پیکربندی آدرس IP های یک یا تمام کارت شبکه ها را پاک می‌کند. پس دستور ipconfig /release آدرس IP هایی که قبلاً از سرور DHCP گرفته شده را پاک می‌کند.
- دستور [ipconfig /release [<adapter>]] باعث غیرفعال شدن TCP IP در پیکربندی کارت شبکه که آی پی آدرس را به صورت خودکار دریافت می‌کند، می‌شود. در این حالت سیستم APIPA به شما IP می‌دهد.
- اگر Release به تنها یک کارت شبکه استفاده شود، این دستور روی تمام کارت شبکه ها اعمال می‌شود و اگر پارامتر کارت شبکه لحاظ شود، روی همان کارت شبکه تغییرات اعمال می‌شود. برای اینکه نام کارت شبکه را بفهمید، دستور ipconfig را بدون پارامتر استفاده کنید.

دستور ipconfig /release6 [<adapter>]

- این دستور همانند دستور ipconfig /release [<adapter>] است ولی روی IPv6 اعمال می‌شود.

دستور ipconfig /renew [<adapter>]

- با دستور [ipconfig /renew [<adapter>]] آدرس IP آی پی جدید، اجاره یا Lease می‌شود.
- اگر Renew به تنها یک کارت شبکه استفاده شود، این دستور روی تمام کارت شبکه ها اعمال می‌شود و اگر پارامتر کارت شبکه لحاظ شود، روی همان کارت شبکه تغییرات اعمال می‌شود. برای اینکه نام کارت شبکه را بفهمید، دستور ipconfig را بدون پارامتر استفاده کنید.
- اگر مشکلاتی از قبیل وجود IP آدرس های تکراری، کانفیگ اشتباہ در DHCP سرور اتفاق بیفت و بخواهیم تنظیمات TCP IP را تغییر دهیم، از دو دستور ipconfig /renew و ipconfig /release استفاده می‌کنیم.

Pros and Cons of DHCP

- **Pros of DHCP**
 - **Ease at assigning IP addresses**
 - Without DHCP, you need to assign IP addresses manually. In this scenario, you need to stay extra careful as a slight mistake can lead to temporary server errors. While using the DHCP, the server automatically assigns IP Addresses to the client's network.
- **Cons of DHCP**
 - **Dynamic IP Addresses**
 - You must manually allocate IP addresses if you don't use DHCP. In this case, you must be especially cautious because even a minor error might result in temporary server failures. The server assigns IP addresses to the client's network automatically while using DHCP.

- دستور ipconfig در لینوکس
- در سیستم عامل های لینوکسی به جای دستور ویندوزی ifconfig از دستور لینوکسی ipconfig استفاده می شود.
- دستور ipconfig همانند Default Gateway و Subnet Mask آدرس آی پی و را نشان می دهد اما برخلاف آن تنظیمات DHCP را نمایش نمی دهد.

نصب ماشین مجازی

- ماشین مجازی به شما امکان می‌دهد تا یک یا چند سیستم‌عامل را همزمان روی کامپیوتر خود داشته باشید. این یکی از مزیت‌های اصلی ماشین مجازی است **Virtual Machine**.
- ماشین مجازی نمی‌تواند مستقیماً با کامپیوتر فیزیکی تعامل برقرار کند و برای هماهنگی با سخت‌افزار، به یک لایه نرم‌افزار سبک به عنوان **Hypervisor** دارد.
- هاپروایزر می‌تواند منابع فیزیکی محاسباتی مانند پردازنده‌ها و حافظه و ذخیره‌سازی را به هر **VM** اختصاص دهد. همچنین، هریک از ماشین‌های **VM** را از سایر آن‌ها جدا و از تداخلشان جلوگیری می‌کند. این روند نه تنها با عنوان مدیریت ماشین مجازی، بلکه با عنوان دیگری ازجمله سرور مجازی و نمونه سرور مجازی **VSI** و سرور خصوصی مجازی **VPS** نیز شناخته می‌شود.

نصب ماشین مجازی

- ماشین‌های مجازی در حین فعالیت خود به منابع سخت‌افزاری و نرم‌افزاری دستگاه میزبان خود وابسته است؛ اما این منابع ابتدا مجازی می‌شوند و سپس بین ماشین‌های مجازی متناسب با نیاز آن‌ها توزیع می‌شوند. کاربران در حین استفاده از ماشین‌های مجازی مختلف و سیستم‌عامل‌های در حال اجرا در آن‌ها اصلاً احساس نمی‌کنند در حال کار کردن با سیستم‌عامل‌ها و دستگاه‌های مجازی هستند.



انواع HYPERVISOR

- هایپروایزر برنه: bare-metal hypervisor: این نوع هایپروایزر مستقیماً روی دستگاه فیزیکی میزبان اجرا می‌شود و به سختافزار آن دسترسی مستقیم دارد. این نوع هایپروایزر معمولاً روی کامپیوترهای سرور اجرا می‌شود و نسبت به نوع دوم آن کارآمدتر است.
- Hyper-V مایکروسافت و VMware ESXi نمونه‌ای از هایپروایزر برنه هستند.
- هایپروایزر میزبانی شده: hosted hypervisor: این نوع هایپروایزر روی سیستم عامل دستگاه میزبان نصب و برای مدیریت فرآخوانی‌های مختلف برای دسترسی به منابع سختافزاری مختلف استفاده می‌شود. هایپروایزر میزبانی شده معمولاً برای کاربردهای خاص روی دستگاه‌های کاربران استفاده می‌شود؛ به عنوان مثال ممکن است یک توسعه‌دهنده برای ایجاد یک محیط خاص برای ساخت یک اپلیکیشن، از هایپروایزر میزبانی شده استفاده کند یا یک فرد تحلیلگر داده برای آزمایش کردن اپلیکیشنی در محیط ایزوله نیز آن را به کار گیرد.
- Oracle VirtualBox و VMware Workstation



Tools



ubuntu18

Powered Off

**General**Name: ubuntu18
Operating System: Ubuntu (64-bit)

Create Virtual Machine

Virtual machine Name and Operating System

Please choose a descriptive name and destination folder for the new virtual machine. The name you choose will be used throughout VirtualBox to identify this machine. Additionally, you can select an ISO image which may be used to install the guest operating system.

Name: ✓

Folder:

ISO Image: ↖ ↗

Edition:

Type: Linux

Version: Ubuntu (64-bit)

Skip Unattended Installation ↖

i You have selected to skip unattended guest OS install, the guest OS will need to be installed manually. ↖ ↗ ↘

Help Expert Mode Back **Next** Cancel

Network

Adapter 1: Intel PRO/1000 MT Desktop (NAT)

USBUSB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Hardware

You can modify virtual machine's hardware by changing amount of RAM and virtual CPU count. Enabling EFI is also possible.



Enable EFI (special OSes only)

Help

Back

Next

Cancel



?



Virtual Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select an existing one. Alternatively you can create a virtual machine without a virtual hard disk.

- ## Create a Virtual Hard Disk Now

Disk Size:

A horizontal ruler scale with major tick marks every 10 units, labeled from 0 to 100. A blue arrow points to the 50 mark.

25.00 GB

4.00 MB

2.00 TB

Pre-allocate Full Size

- Use an Existing Virtual Hard Disk File

ubuntu18.vdi (Normal, 25.00 GB)



- Do Not Add a Virtual Hard Disk

Help

Back

[Next](#)

Cancel

Welcome

Bahasa Indonesia

Bosanski

Català

Čeština

Cymraeg

Dansk

Deutsch

Eesti

English

Español

Esperanto

Euskara

Français

Gaeilge

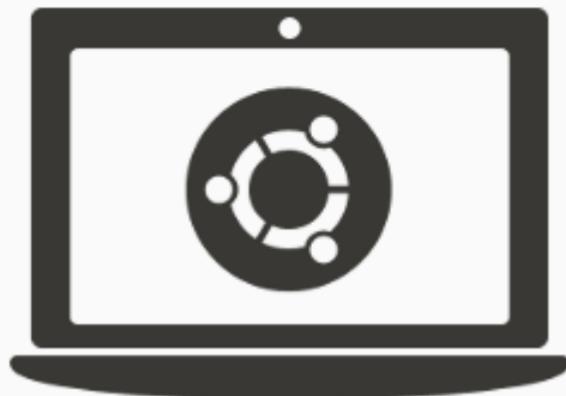
Galego

Hrvatski

Íslenska



[Try Ubuntu](#)



[Install Ubuntu](#)

You can try Ubuntu without making any changes to your computer, directly from this CD.

Or if you're ready, you can install Ubuntu alongside (or instead of) your current operating system. This shouldn't take too long.

You may wish to read the [release notes](#).

Install

Keyboard layout

Choose your keyboard layout:

English (US)

English (Australian)

English (Cameroon)

English (Ghana)

English (Nigeria)

English (South Africa)

English (UK)

English (US)

Esperanto

Estonian

Faroese

Filipino

Finnish

French

English (US)

English (US) - Cherokee

English (US) - English (Colemak)

English (US) - English (Colemak-DH ISO)

English (US) - English (Colemak-DH)

English (US) - English (Dvorak)

English (US) - English (Dvorak, alt. intl.)

English (US) - English (Dvorak, intl., with dead keys)

English (US) - English (Dvorak, left-handed)

English (US) - English (Dvorak, right-handed)

English (US) - English (Macintosh)

English (US) - English (Norman)

English (US) - English (US, Symbolic)

English (US) - English (US, alt. intl.)

Type here to test your keyboard

Detect Keyboard Layout

Back

Continue

Install

Updates and other software

What apps would you like to install to start with? Normal installation

Web browser, utilities, office software, games, and media players.

 Minimal installation

Web browser and basic utilities.

Other options Download updates while installing Ubuntu

This saves time after installation.

 Install third-party software for graphics and Wi-Fi hardware and additional media formats

This software is subject to license terms included with its documentation. Some is proprietary.

Nov 26 12:43



Install

Where are you?



Tehran

Back

Continue

Install

Who are you?

Your name: Your computer's name:

The name it uses when it talks to other computers.

Pick a username: Choose a password: Confirm your password: Log in automatically Require my password to log in Use Active Directory

You'll enter domain and other details in the next step.

Install

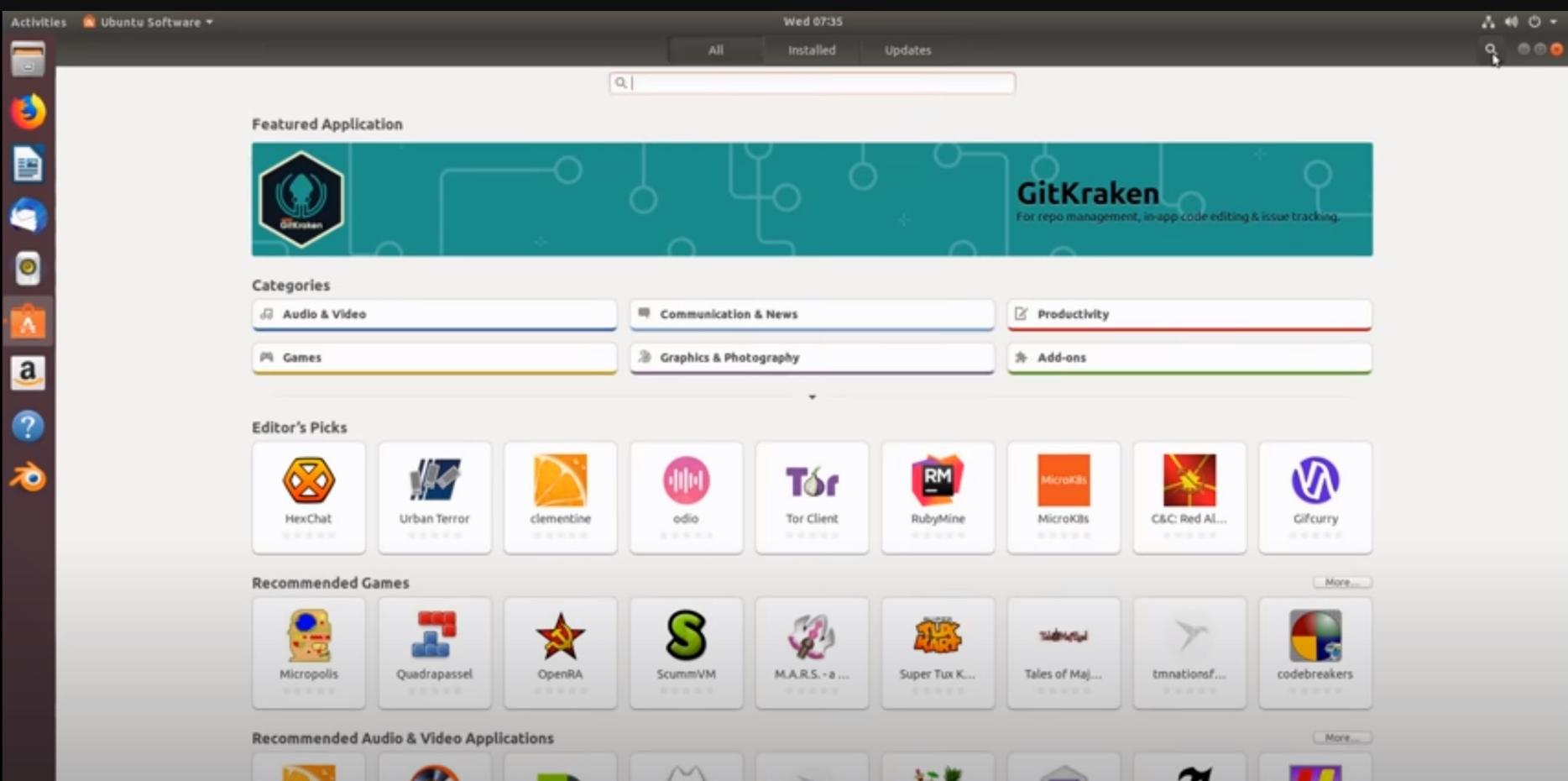
Welcome to Ubuntu

Fast and full of new features, the latest version of Ubuntu makes computing easier than ever. Here are just a few cool new things to look out for...



> Copying files...

Skip



Activities Ubuntu Software Wed 07:37 darktable

 **darktable**
Organize and develop images from digital cameras ★★★★★ (103)

[Install](#)





darktable manages your digital negatives in a database and lets you view them through a lighttable. It also enables you to develop raw images and enhance them in a darkroom.

Other modes besides lighttable and darkroom are a map for geotagging, tethering, print and a slideshow.

darktable supports most modern camera's raw formats, and does all of its processing at very high precision.

[Website](#)

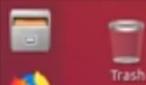
Details

Version	2.4.2-1
Updated	Never
Category	Graphics & Photography → Photography

Activities Settings ▾

Wed 09:49

46



Trash

