

The background features a dark blue space-themed design with glowing blue circuit board patterns on the left and right sides, and several large, semi-transparent purple spheres of varying sizes scattered across the surface.

# COMPUTER HARDWARE AND NETWORKING

<CSSLAYER>

# WHAT IS A NETWORK?

A network is a collection of computers, servers, mainframes, network devices, or other devices connected to one another to share resources, exchange data, or facilitate communication.

Networking involves connecting computers and other devices to share resources (like files, printers, or internet access) and to communicate with each other.

## TYPES OF NETWORKS

### PEER-TO-PEER NETWORK

A decentralized network where each device, or "peer," can act as both a client and a server.

- Easy to set up and cost effective.
- Small networks (home networks)

### LOCAL AREA NETWORK

A network that spans a relatively small area, such as a single building or a campus.

- High data transfer rates.
- Offices, schools, and homes.

### WIDE AREA NETWORK

A network that covers a broad area, such as a city, country, or even globally.

- Connects multiple LANs.
- Lower data transfer rates.



IP

# ADDRESSING

INTERNET PROTOCOL VERSION 4 / VERSION 6



## IPv4

- DOTTED DECIMAL FORMAT
- 32-BIT ADDRESS
- 4 294 967 296 ADDRESSES AVAILABLE
- 17 891 328 USABLE ADDRESSES FOR COMMUNICATION OVER THE INTERNET

192.168.3.5

## IP ADDRESSES

- AN IP ADDRESS SERVES TWO MAIN PURPOSES: IDENTIFYING THE HOST OR NETWORK INTERFACE, AND PROVIDING THE LOCATION OF THE HOST IN THE NETWORK.

## IPv6

- COLON SEPERATED HEXADECIMAL FORMAT
- 128-BIT ADDRESS
- DESIGNED TO COUNTER TO IPv4 DEPLETION
- $3.4 \times 10^{38}$  ADDRESSES AVAILABLE
- TRANSITION FROM IPV4 TO IPV6

2001:0DB8:85A3::0370:7334

# GATEWAY TO OTHER NETWORKS

## NETWORK ADDRESS TRANSLATION

- FACILITATES INTERNAL AND EXTERNAL NETWORK COMMUNICATION WHILE CONSERVING PUBLIC IP ADDRESSES.

STATIC NAT

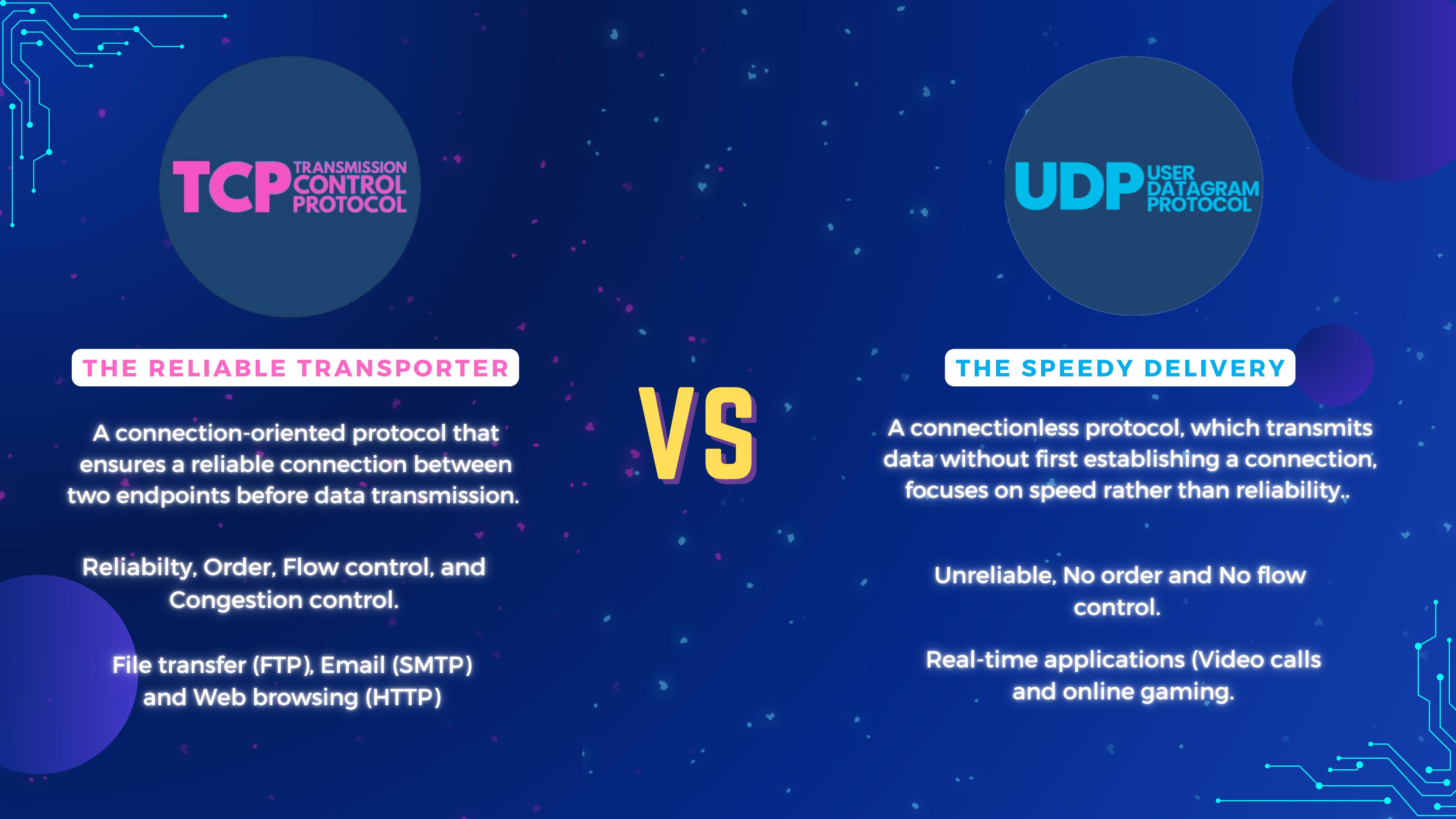
192.168.3.5

PAT  
PORT ADDRESS TRANSLATION



DYNAMIC NAT

203.0.113.1



# TCP TRANSMISSION CONTROL PROTOCOL

## THE RELIABLE TRANSPORTER

A connection-oriented protocol that ensures a reliable connection between two endpoints before data transmission.

Reliability, Order, Flow control, and Congestion control.

File transfer (FTP), Email (SMTP) and Web browsing (HTTP)

# VS

# UDP USER DATAGRAM PROTOCOL

## THE SPEEDY DELIVERY

A connectionless protocol, which transmits data without first establishing a connection, focuses on speed rather than reliability.

Unreliable, No order and No flow control.

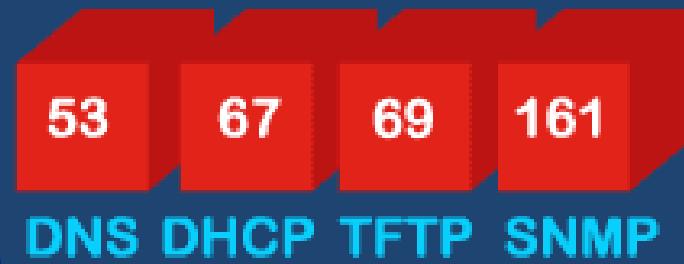
Real-time applications (Video calls and online gaming).

# PORT NUMBERS

YOUR HOME ADDRESS ONLINE

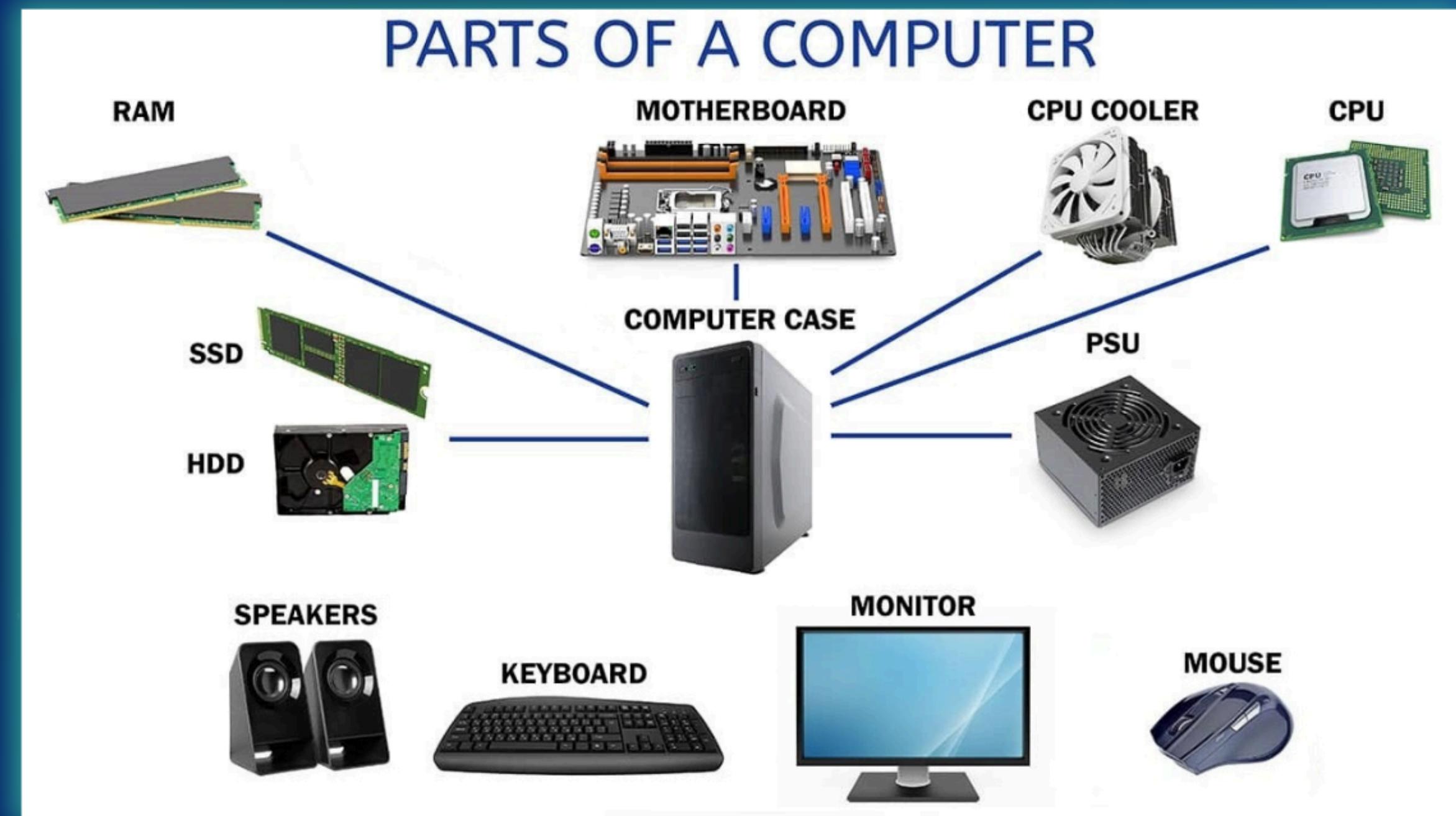
A unique identifier used by computers to send data to specific applications or services on a network. It helps route information to the right place, like a room number in a building.

For example, when you browse the web, your computer uses a specific port number to talk to websites.



# PC COMPONENTS

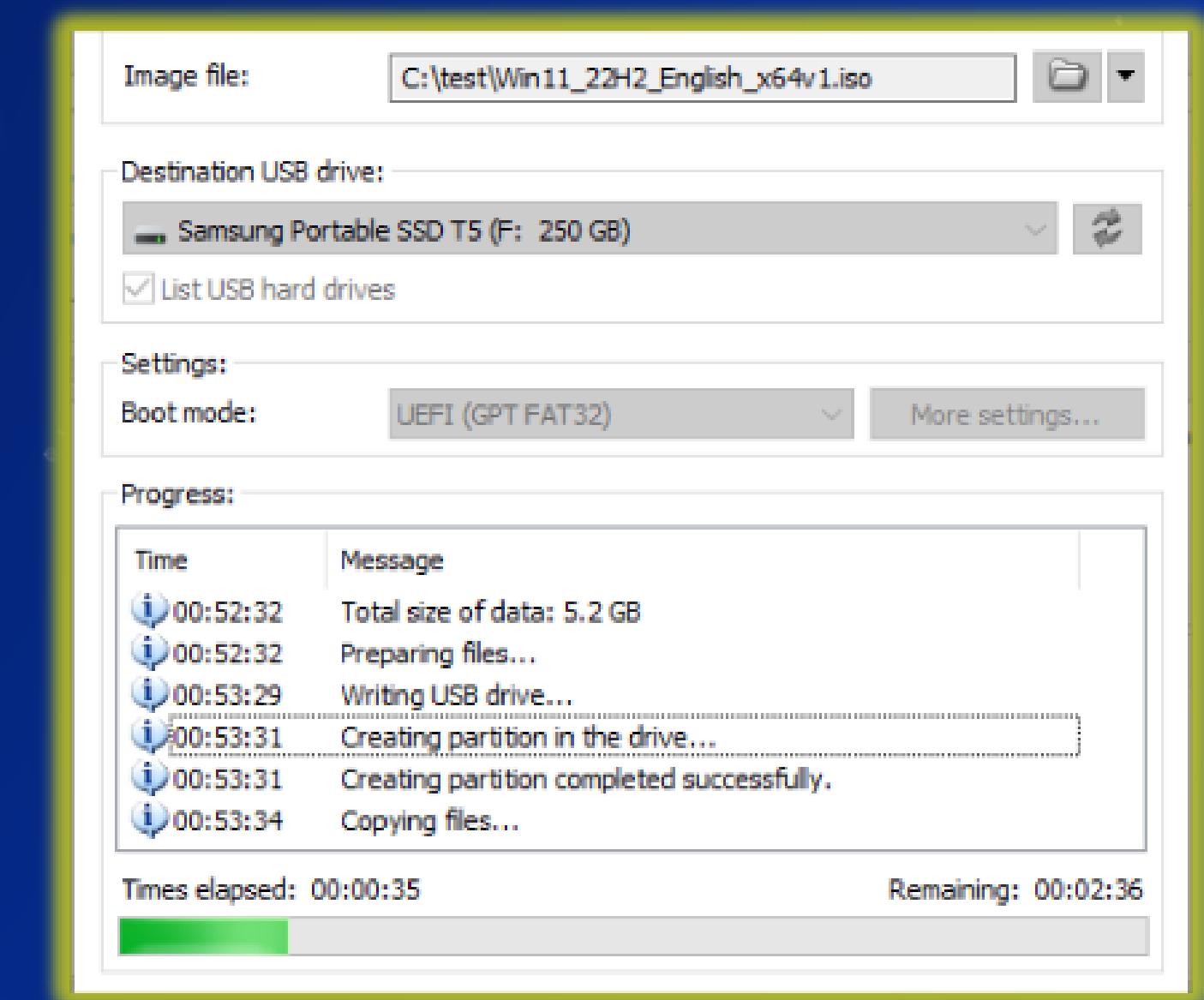
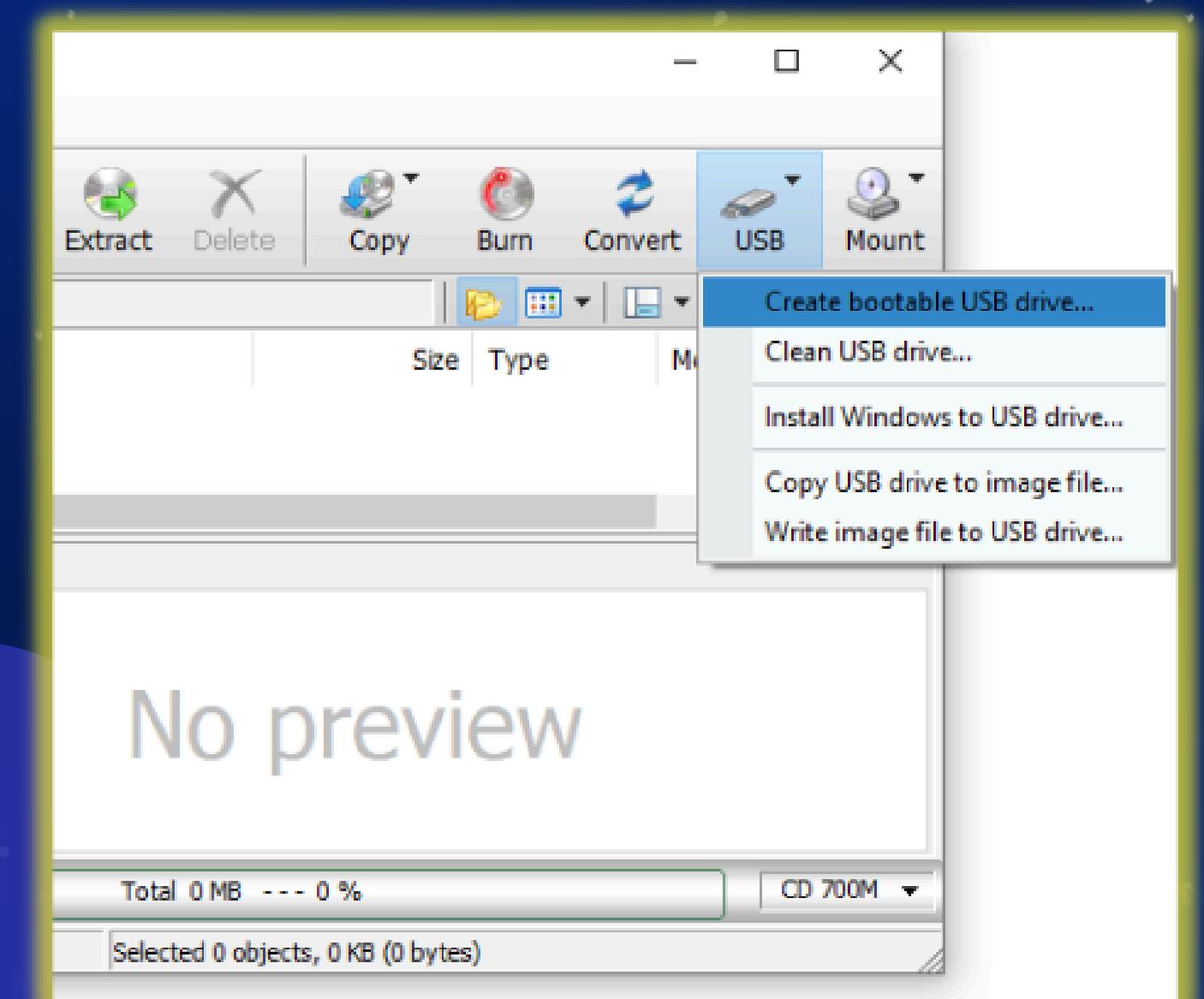
BASIC HARDWARE



# INSTALLING WINDOWS

OPERATING SYSTEM

## POWERISO

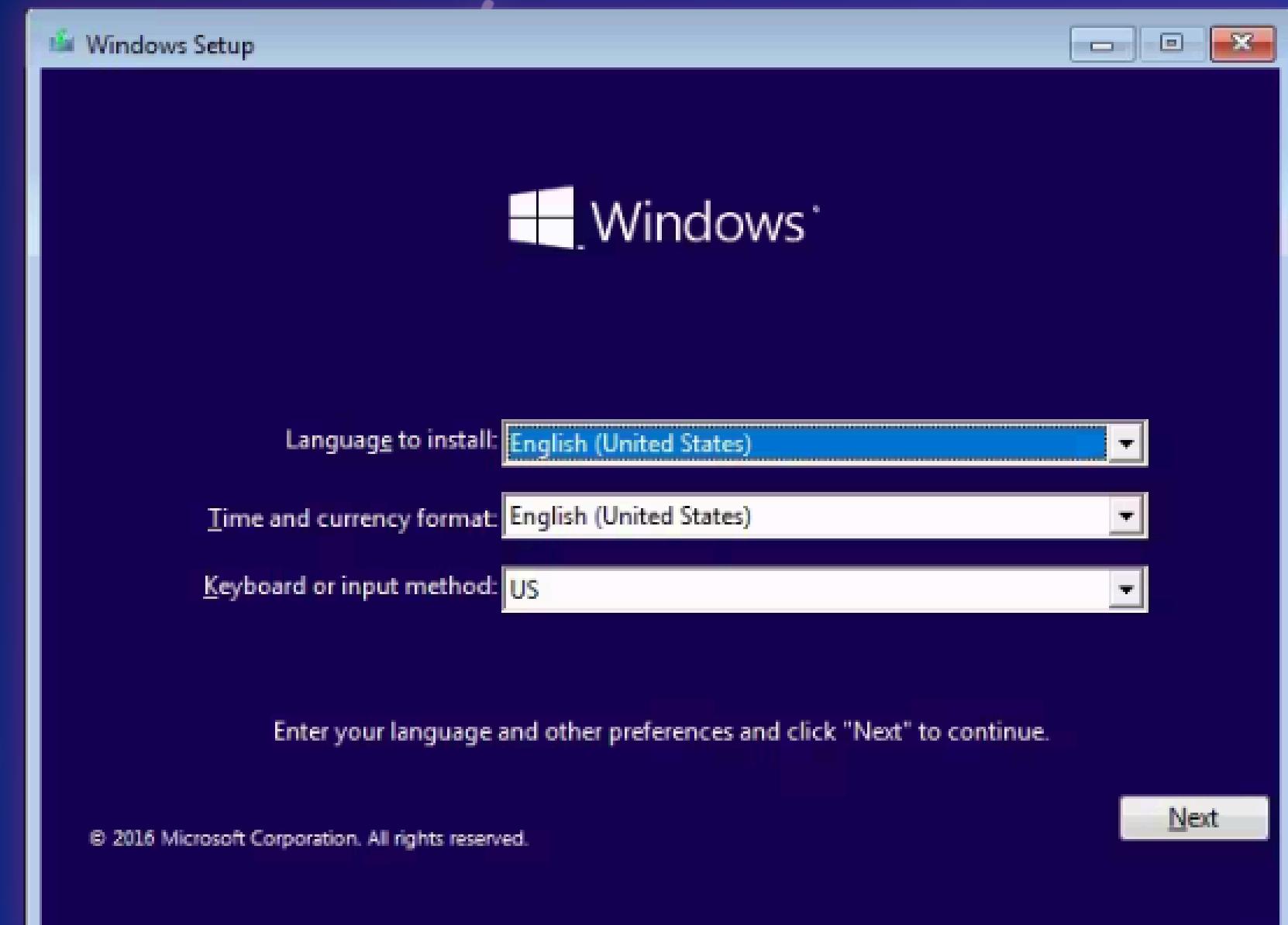
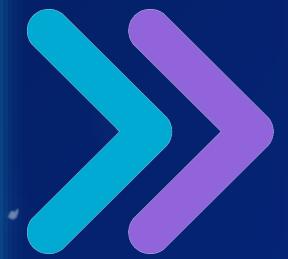
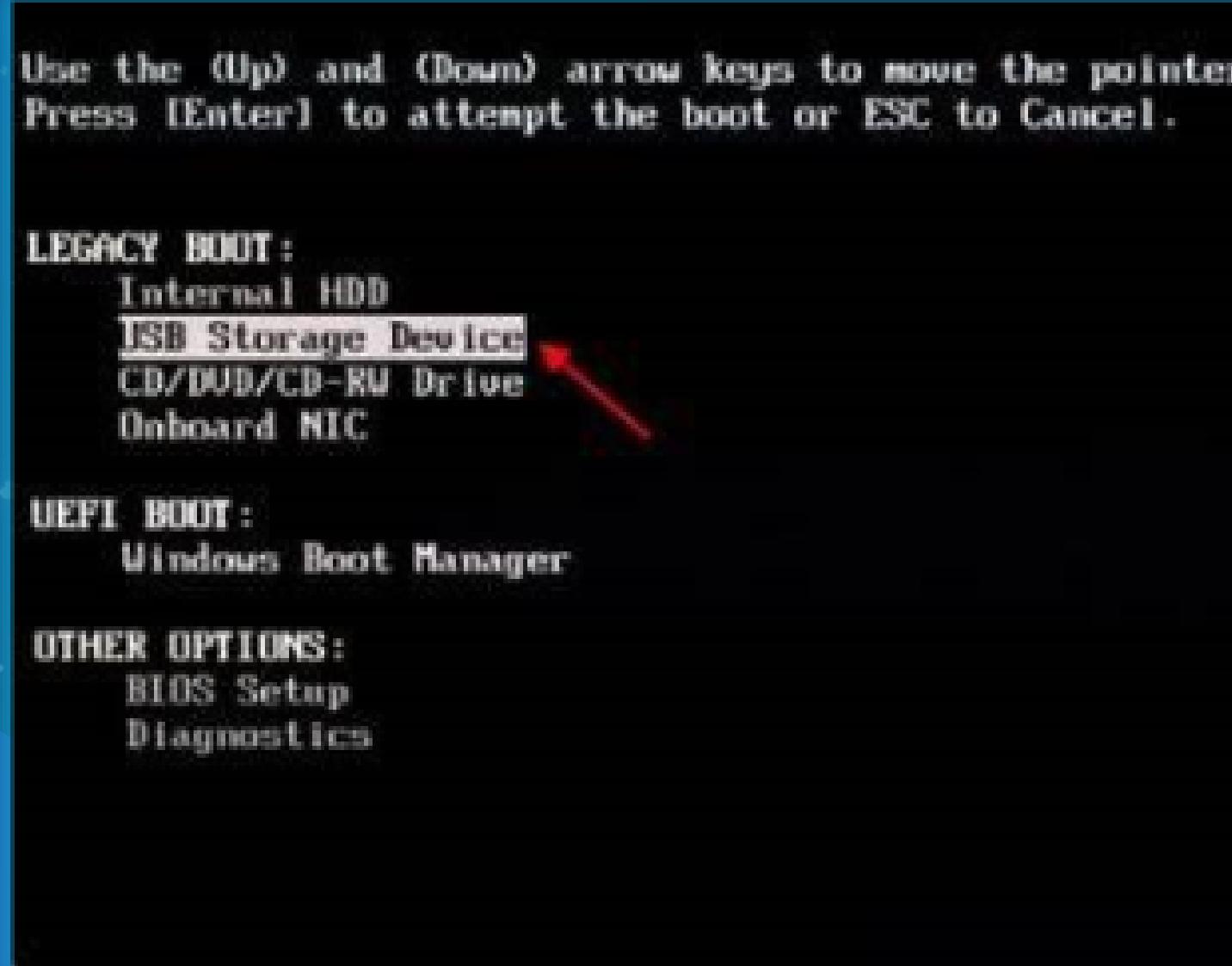


# ONE-TIME BOOT MENU

F12 , F11 , F8 , ESC

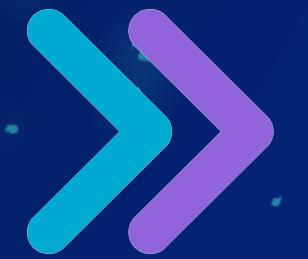
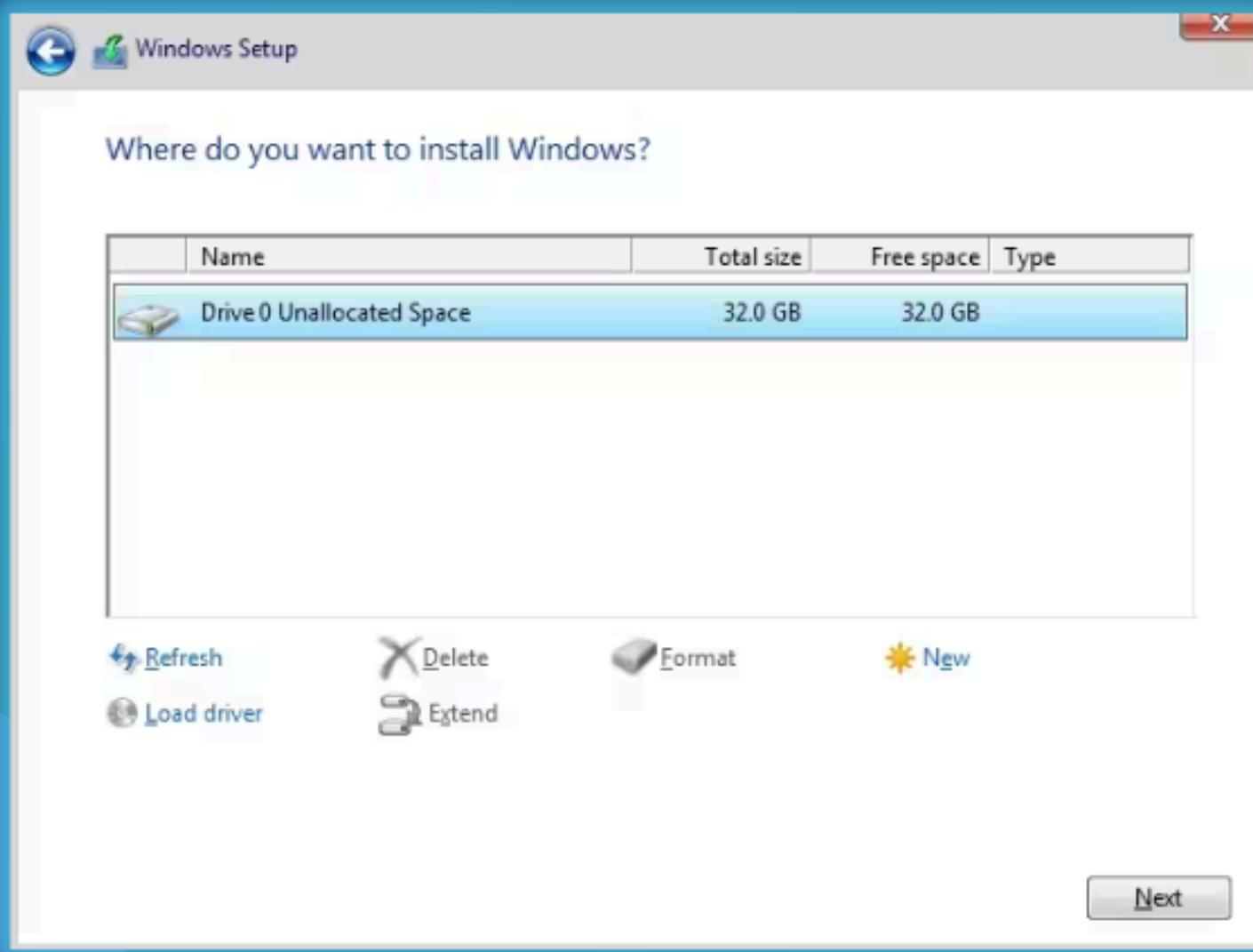
# INSTALLATION HOME WINDOW

INSTALLATION HOME WINDOW



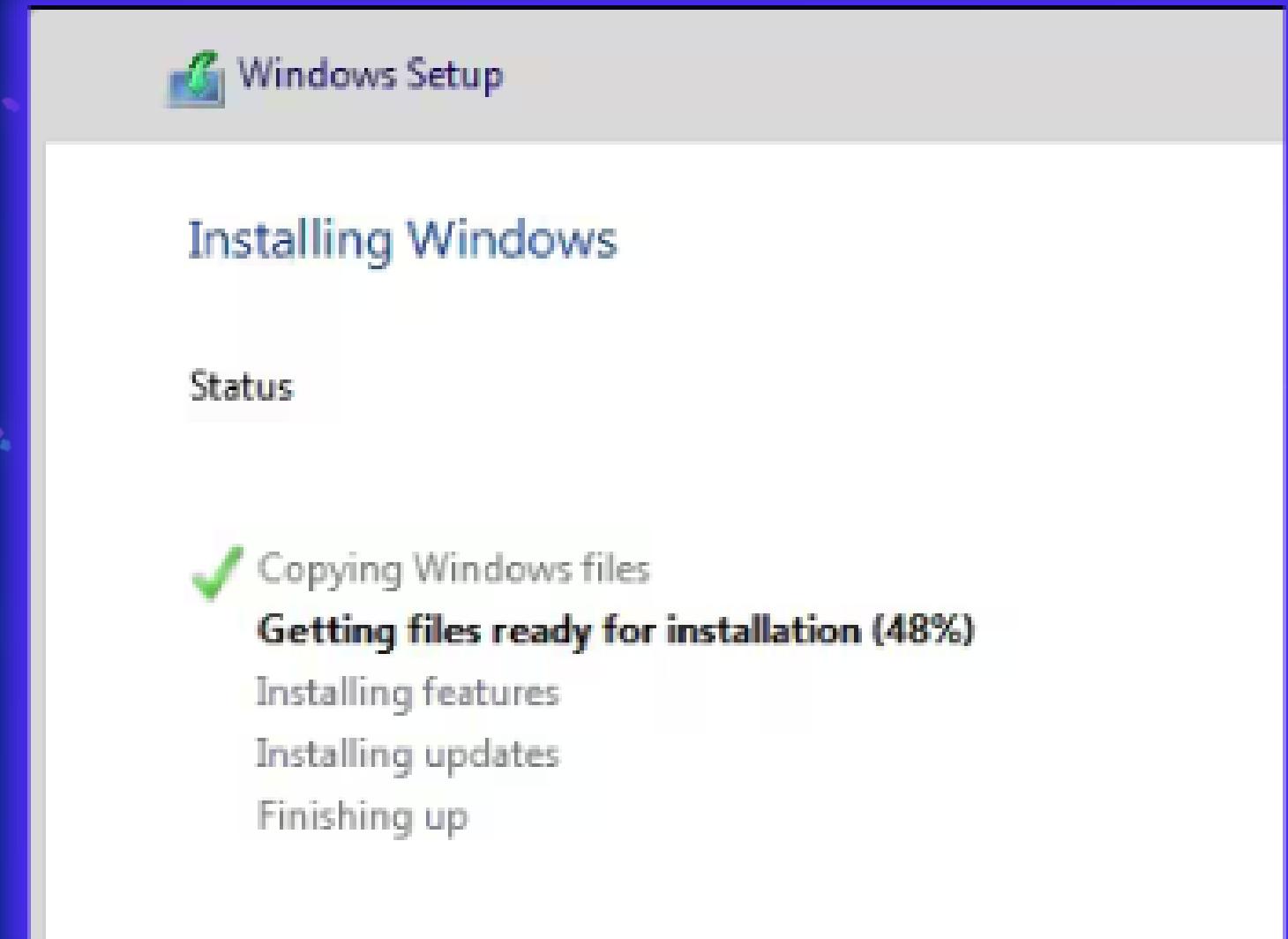
# SELECT PARTITION

CREATE , DELETE OR SELECT PARTITION



# INSTALLING...

WAIT 10 -20 MINUTES



# THANK YOU

PRESENTED BY:

`<CSSSLAY/>`

ASEMAHLE MANDLAKHE  
ABU-BAKR · ADAMSON  
AKHONA RILITYANA  
DAMIQUE · LEWIS  
ANDREA · GOODALL

SLAY THE CS WAY

