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Lab Manual
Of
Network
Management and
Administration.

DEPARTMENT OF COMPUTER ENGINEERING

SEMESTER – 6

LJ Polytechnic, Ahmedabad

COMPUTER ENGINEERING - SEMESTER 6

NETWORK MANAGEMENT AND ADMINISTRATION [3360703]

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PRACTICAL 1

Practical Definition :

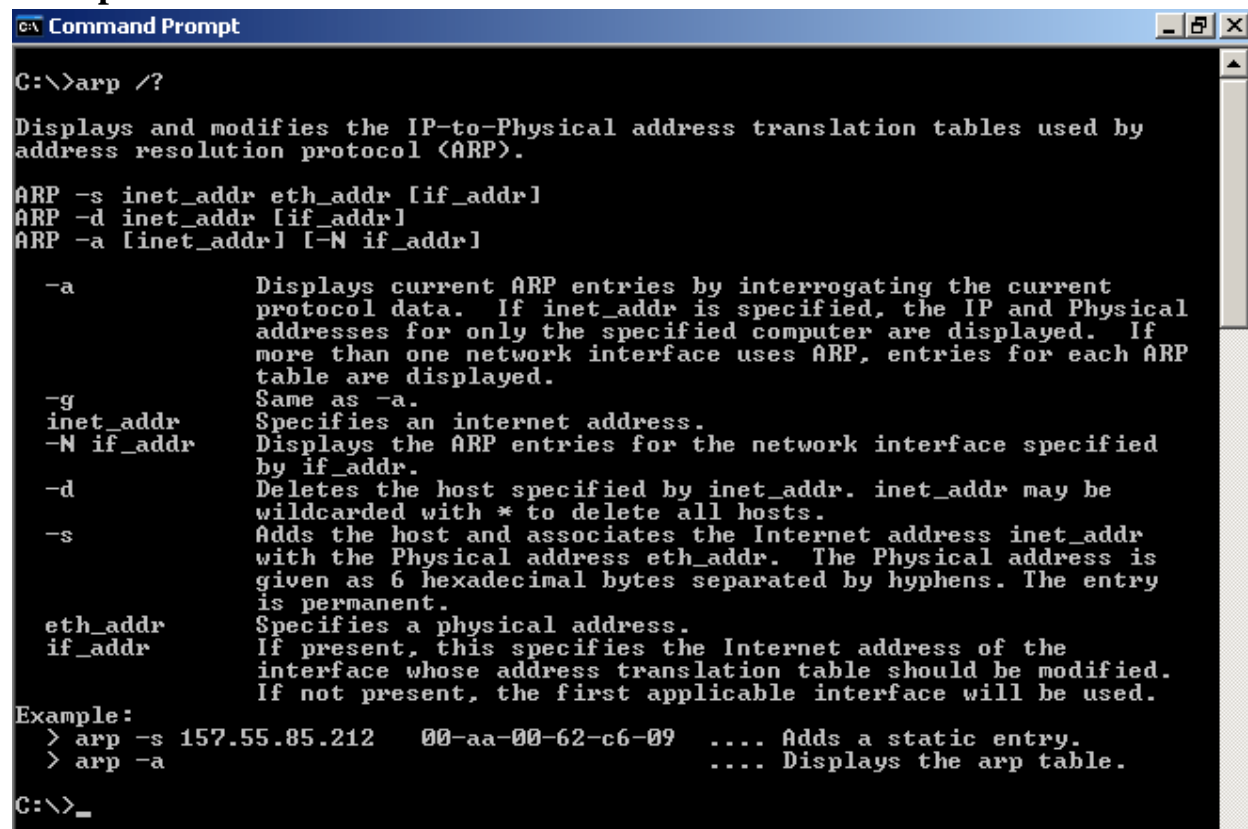
- Execution of Basic TCP/IP utilities and commands.

1) ARP:-

Short for **Address Resolution Protocol**, **ARP** is a used with the IP for mapping a 32-bit Internet Protocol address to a MAC Address.

Syntax:- ARP -s inet_addr eth_addr [if_addr]

Example:-



```

C:\>arp /?

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr]

-a          Displays current ARP entries by interrogating the current
            protocol data. If inet_addr is specified, the IP and Physical
            addresses for only the specified computer are displayed. If
            more than one network interface uses ARP, entries for each ARP
            table are displayed.

-g          Same as -a.
inet_addr   Specifies an internet address.
-N if_addr  Displays the ARP entries for the network interface specified
            by if_addr.

-d          Deletes the host specified by inet_addr. inet_addr may be
            wildcarded with * to delete all hosts.

-s          Adds the host and associates the Internet address inet_addr
            with the Physical address eth_addr. The Physical address is
            given as 6 hexadecimal bytes separated by hyphens. The entry
            is permanent.

eth_addr    Specifies a physical address.
if_addr     If present, this specifies the Internet address of the
            interface whose address translation table should be modified.
            If not present, the first applicable interface will be used.

Example:
> arp -s 157.55.85.212 00-aa-00-62-c6-09 .... Adds a static entry.
> arp -a          .... Displays the arp table.

C:\>_
    
```

2) IPCONFIG:-

Ippconfig is a DOS utility can be used from MS-DOS and an MS-DOS shell to display the network settings currently assigned and given by a network.

Syntax:-

ipconfig [/? | /all | /release [adapter] | /renew [adapter] | /flushdns | /registerdns | /showclassid adapter | /setclassid adapter [classidtoreset]]

Example:-

```
C:\Windows\system32>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 3:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::11e9:1816:4dc7:db89%19
    IPv4 Address. . . . . : 192.168.1.100
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter isatap.{F261D5B7-8990-44A5-91CA-224F6DE8A632}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter isatap.{8197F1CB-6317-415F-8523-162520BD5118}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter isatap.{C3C3B36C-EEFF-4D79-A0E0-43A12FEA39D2}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
```

3) NBTSTAT:-

The nbtstat MS-DOS utility that displays protocol statistics and current TCP/IP connections using NBT.

Syntax:-

NBTSTAT [[-a RemoteName] [-A IP address] [-c] [-n] [-r] [-R] [-RR] [-s] [-S] [interval]]

Example:-



```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

Z:\>nbtstat -c

Broadcom 440x 10-100 Integrated Controller:
Node IpAddress: [10.0.11.32] Scope Id: []

        NetBIOS Remote Cache Name Table

        Name                Type        Host Address    Life [sec]
        -----
        HOME-SERVER.SMI<54>  UNIQUE      10.0.11.20      42

Intel PRO Wireless 3945ABG Network Connection:
Node IpAddress: [0.0.0.0] Scope Id: []

        No names in cache

Z:\>
    
```

4) NSLOOKUP:-

MS-DOS utility that enables a user to look up an IP address of a domain or host on a network.

Syntax:-

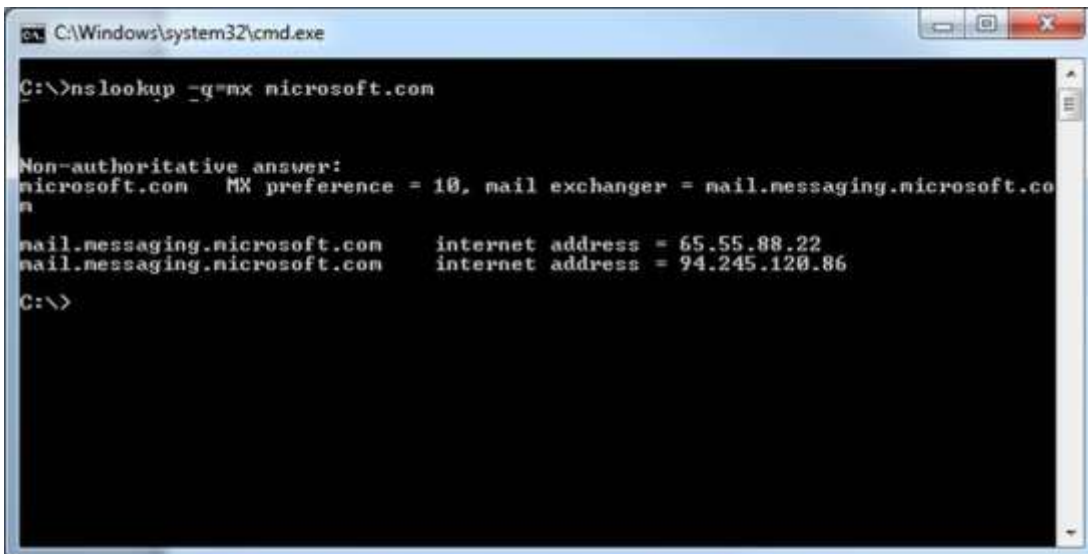
nslookup [-opt ...] # interactive mode using default server

nslookup [-opt ...] - server # interactive mode using 'server'

nslookup [-opt ...] host # just look up 'host' using default server nslookup [-opt ...] host server #

just look up 'host' using 'server'

Example:-



```

C:\Windows\system32\cmd.exe

C:\>nslookup -q=mx microsoft.com

Non-authoritative answer:
microsoft.com  MX preference = 10, mail exchanger = mail.messaging.microsoft.co
a
mail.messaging.microsoft.com  internet address = 65.55.88.22
mail.messaging.microsoft.com  internet address = 94.245.120.86

C:\>
    
```

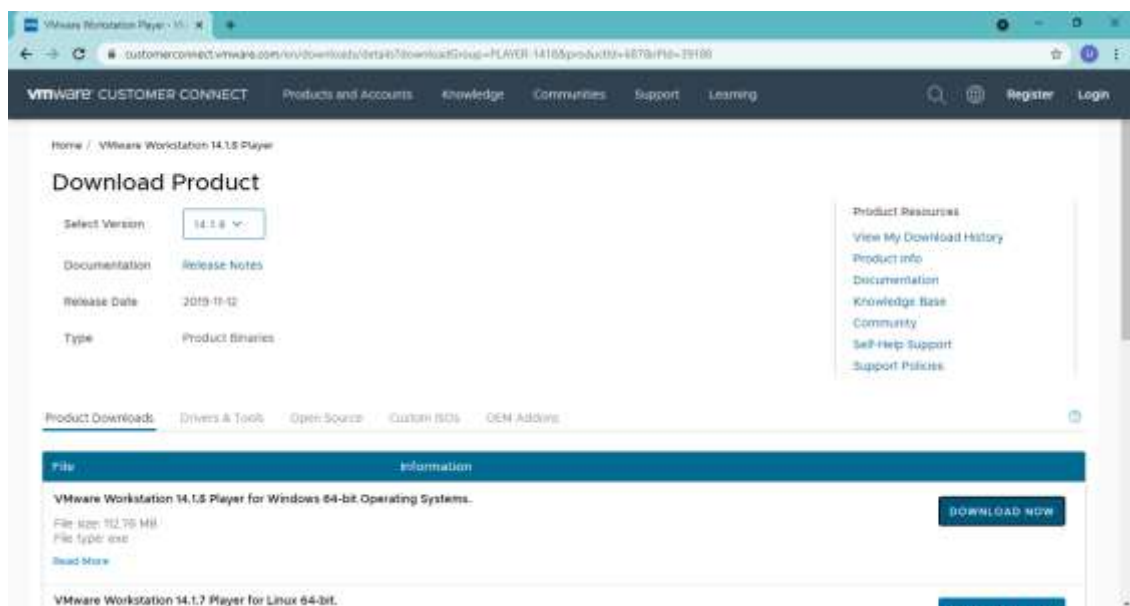

PRACTICAL 2

Practical Definition :

- Installing and Configuring Virtual Machine VMware.

⇒ Download VMware player 14.1.8 from the below link: Press Ctrl + Click
<https://customerconnect.vmware.com/en/downloads/details?downloadGroup=PLAYER-1418&productId=687&rPid=39188>

Step 1: Click on the “Download Now” button and run the exe file as administrator.

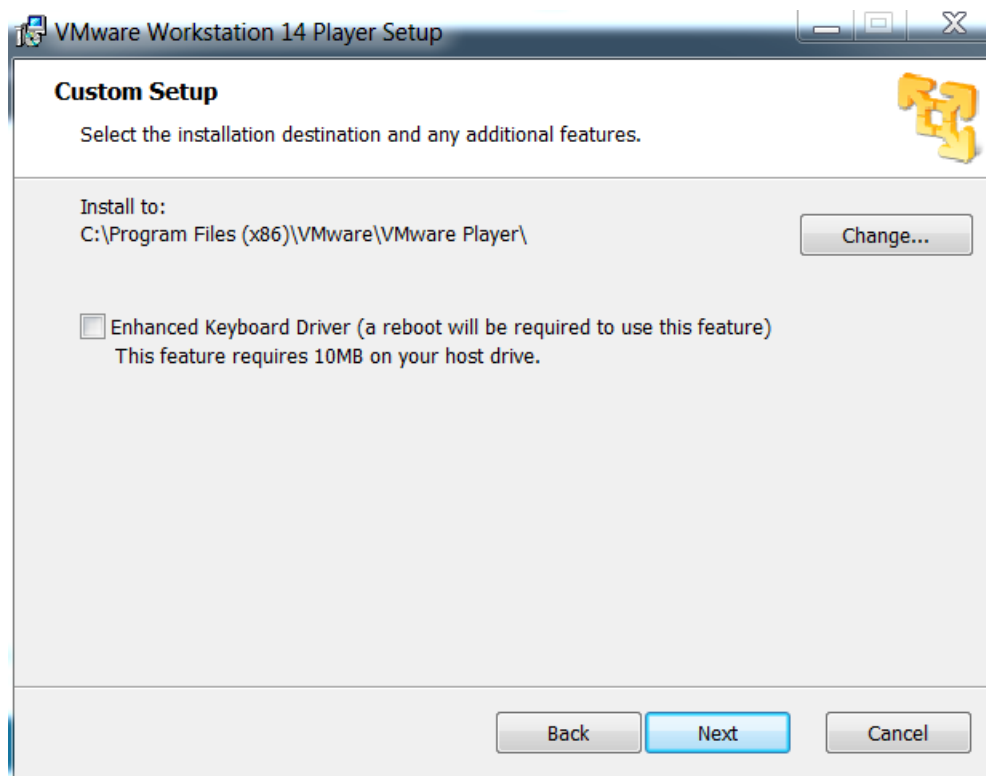


Step 2 : Click on “Next”

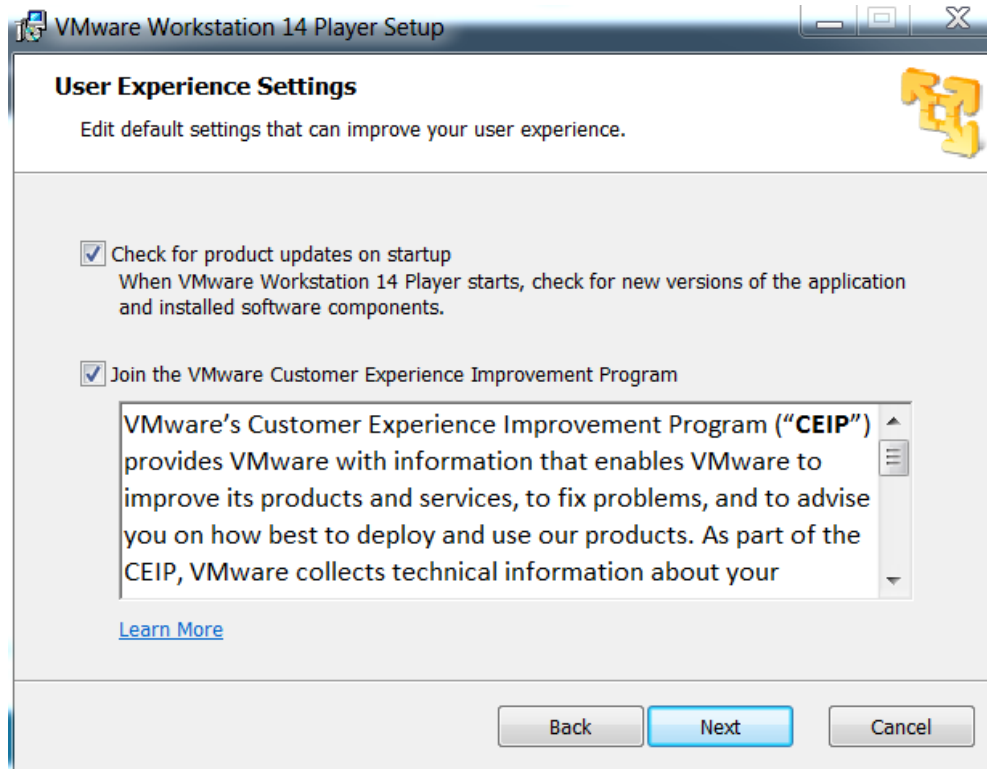


Step 3: Click “Next”

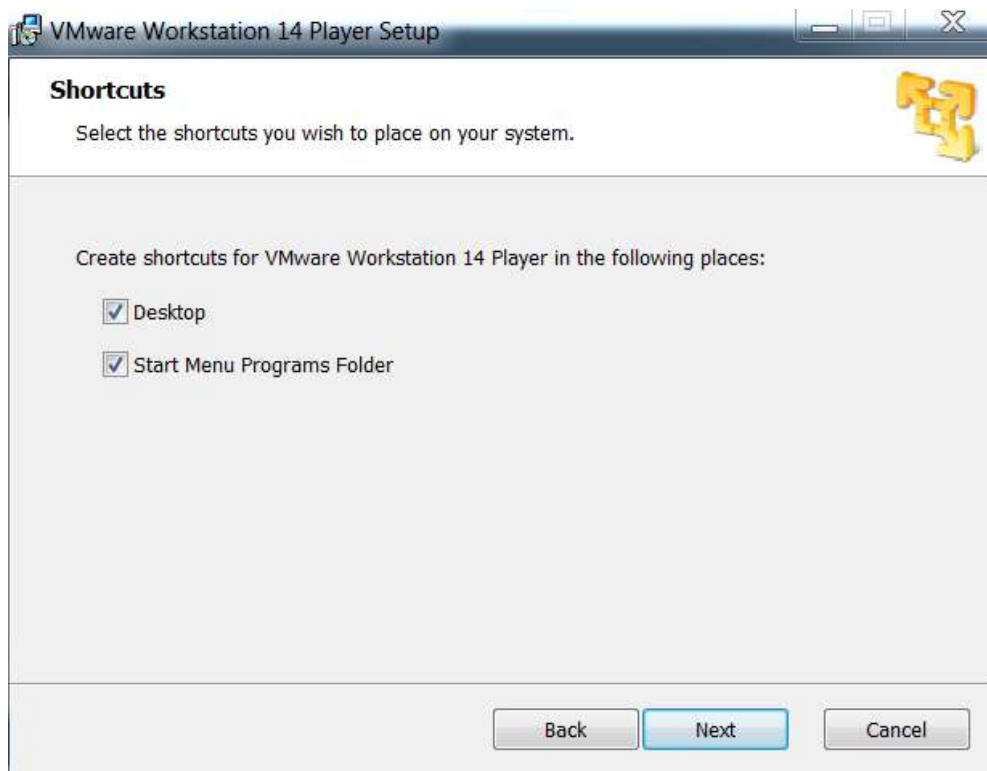
Note: Do not check Enhanced Keyboard Driver check box



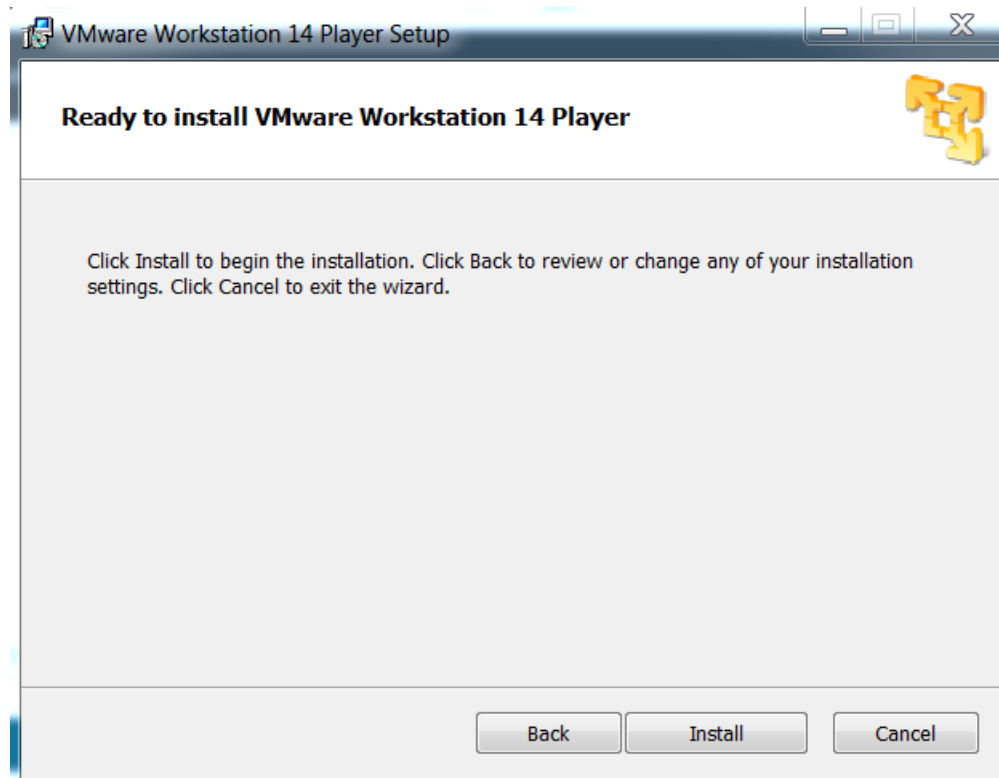
Step 4: Check the Product Updates and VMware Customer Experience and Click “Next”.



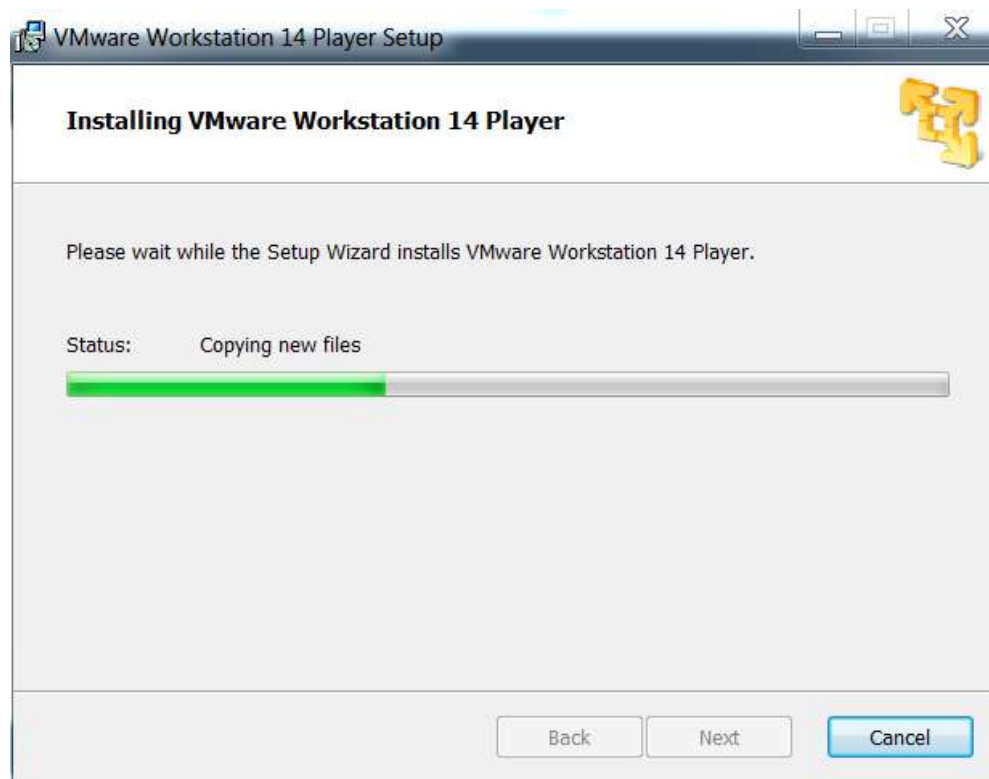
Step 5: Check Desktop and Start Menu Program Folder and Click “Next”.



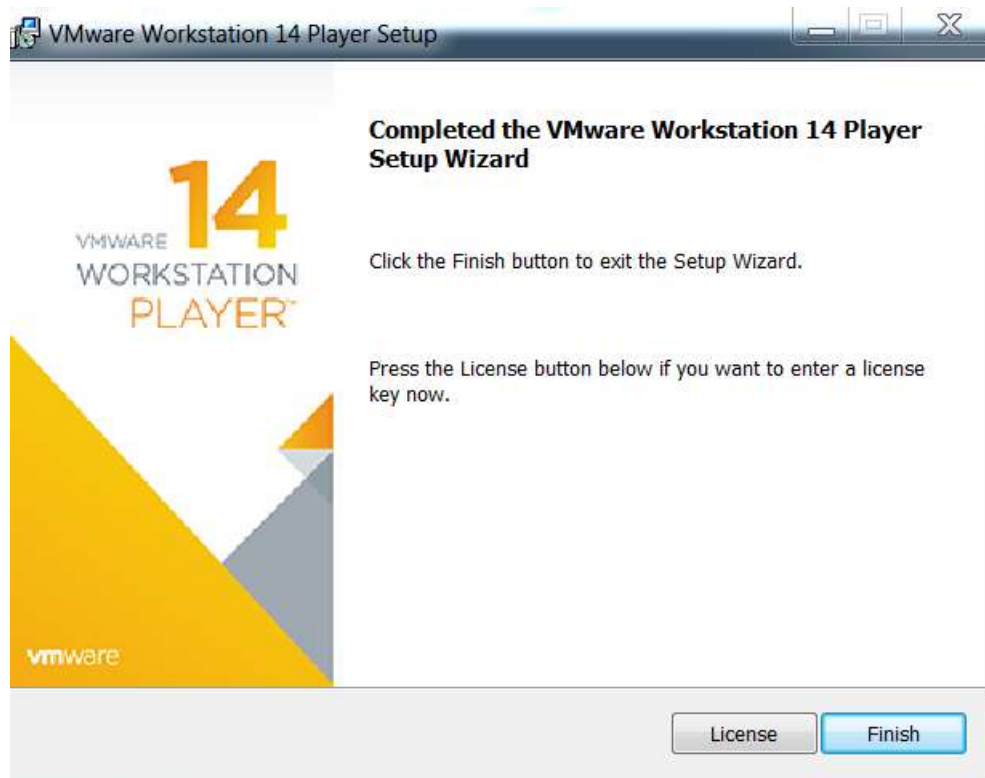
Step 6: Click “Install”.



Step 7: Installing window will be completed and do not press “Cancel” button



Step 8: Click “Finish”



Step 9: Open VMware Workstation and select VMware Workstation Player for free and click “Continue”



Step 10: VMware Workstation Home screen page will appear.



PRACTICAL 3

Practical Definition :

- Creating Windows Server Boot Disk.

⇒ Windows Server boot disk can be created using following 3 ways

1. Using Microsoft's official tool (Windows 7 USB DVD Download)
2. Using command prompt
3. Using third party software's

1. Using Microsoft's official tool (Windows 7 USB DVD Download)

⇒ Microsoft provided Windows 7 USB/DVD download tool also known by Windows USB/DVD download tool with window 7 release. This tool can be used to make bootable device in four steps for following windows OS either client or server.

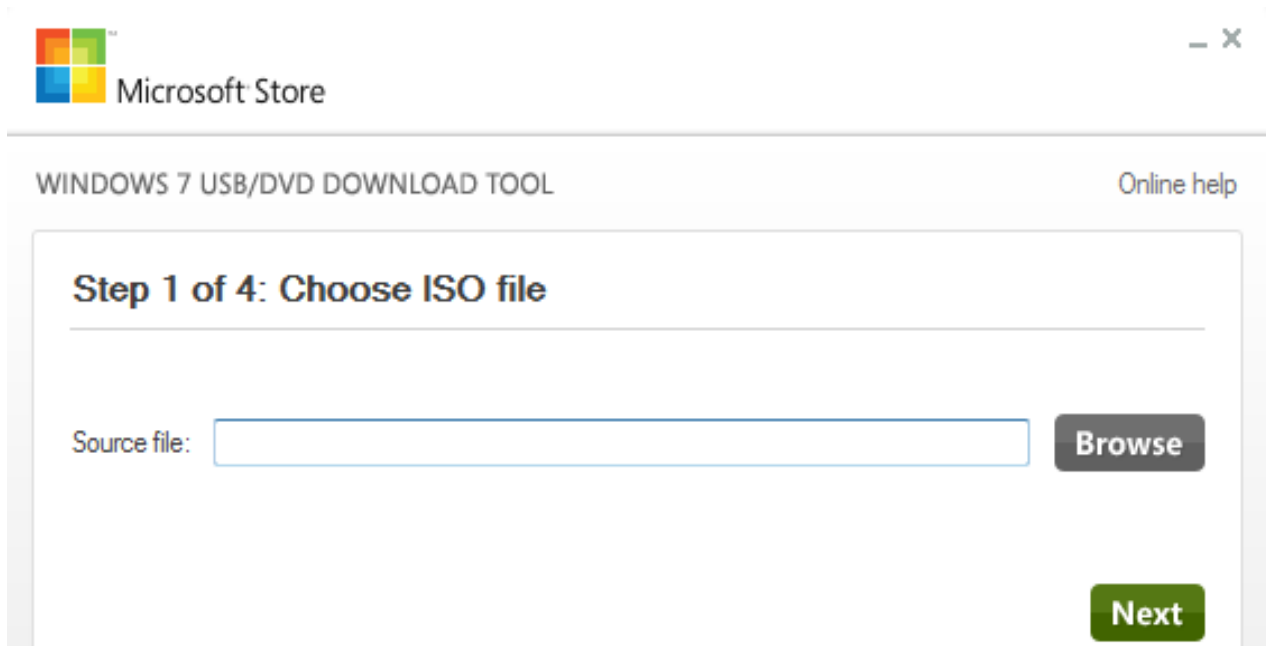
1. Windows Server 2012 R2
2. Windows Server 2012
3. Windows Server 2008 R2
4. Windows 10
5. Windows 8.1
6. Windows 8
7. Windows 7

Steps to create bootable disk are

1. Download Windows 7 USB/DVD Download tool from link

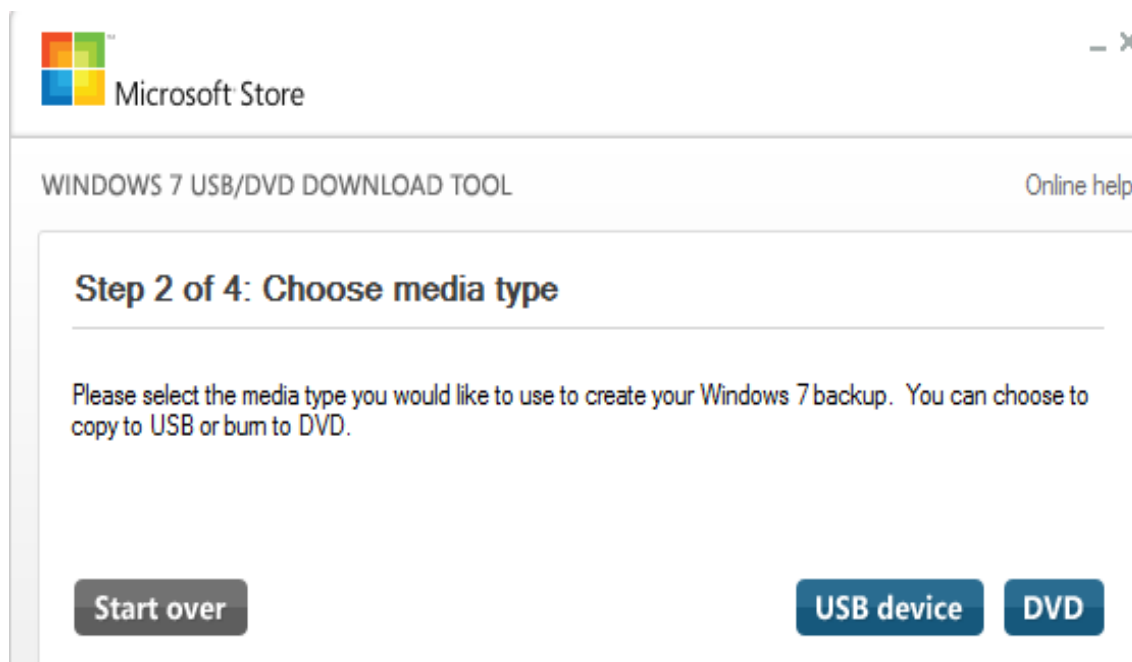
<https://www.microsoft.com/en-us/download/windows-usb-dvd-download-tool>

2. Choose ISO file: Run the tool and Click on the Browse button to select the ISO file. Click Next



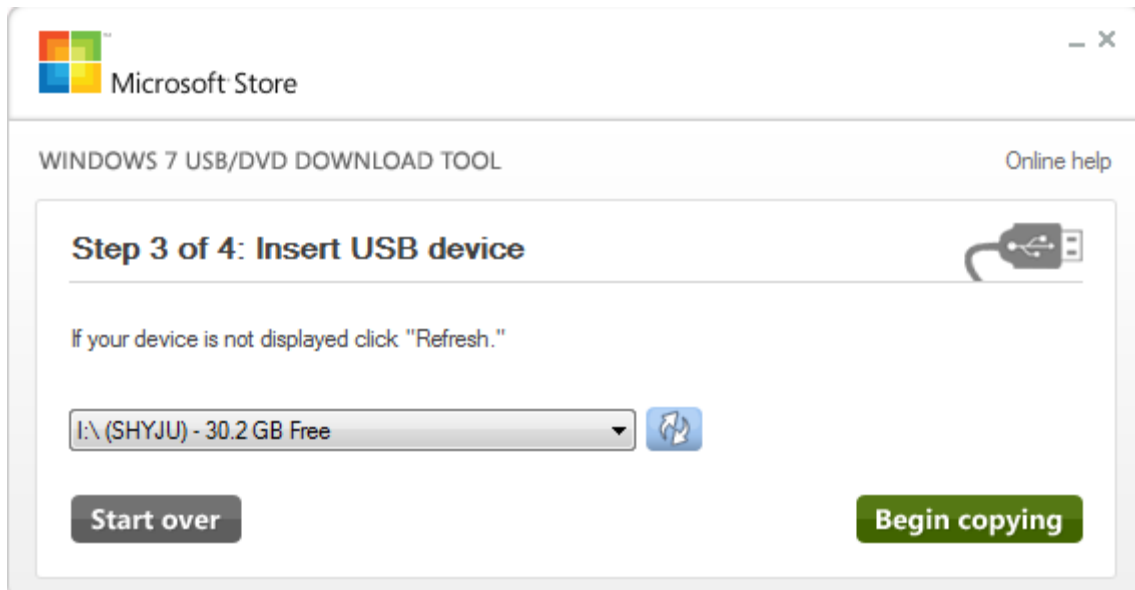
The screenshot shows the 'Windows 7 USB/DVD Download Tool' window. At the top, there is a Microsoft Store logo and a title bar with a close button. Below the title bar, the text 'WINDOWS 7 USB/DVD DOWNLOAD TOOL' is displayed on the left, and 'Online help' is on the right. The main content area is titled 'Step 1 of 4: Choose ISO file'. It contains a 'Source file:' label followed by a text input field. To the right of the input field is a 'Browse' button. At the bottom right of the main content area is a green 'Next' button.

3. Choose Media Type: USB device or DVD. In Step two, we need to decide whether we need to copy the windows server 2012 R2 installation files to a DVD disc or a USB stick.

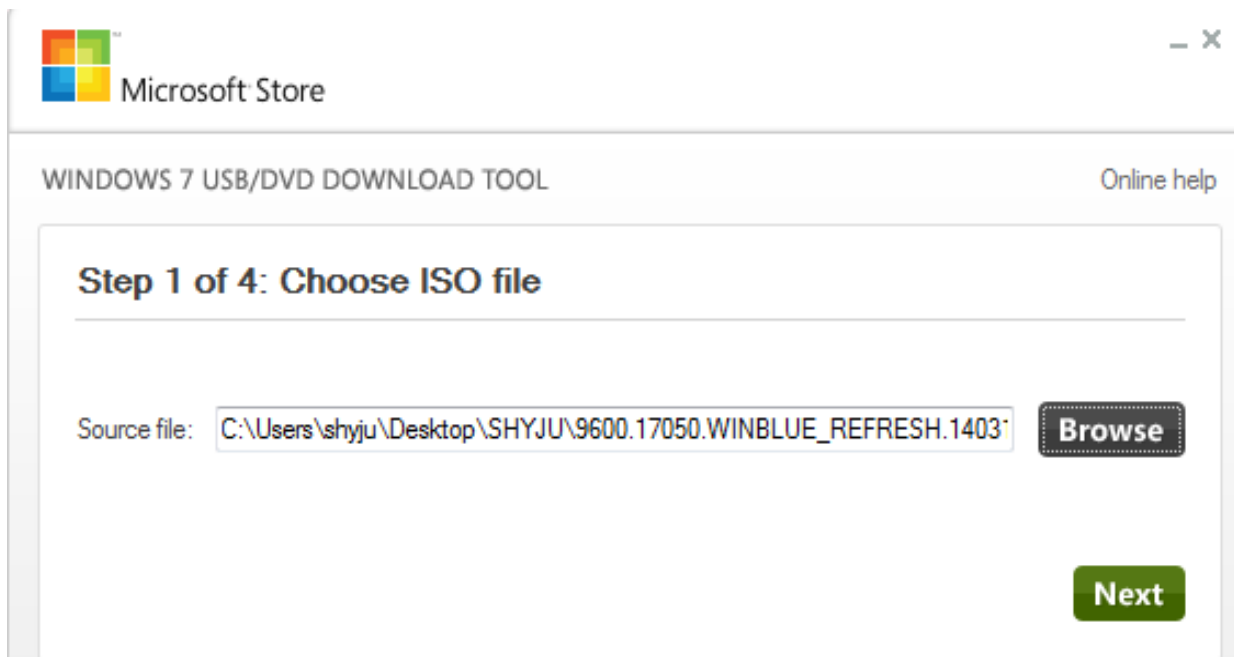


The screenshot shows the 'Windows 7 USB/DVD Download Tool' window at 'Step 2 of 4: Choose media type'. The title bar and header are the same as in the previous screenshot. The main content area is titled 'Step 2 of 4: Choose media type'. Below the title, there is a paragraph of text: 'Please select the media type you would like to use to create your Windows 7 backup. You can choose to copy to USB or burn to DVD.' At the bottom of the main content area, there are three buttons: 'Start over' on the left, and 'USB device' and 'DVD' on the right.

4. Select drive and Begin Copying: Select USB/DVD drive and click on Begin Copying.



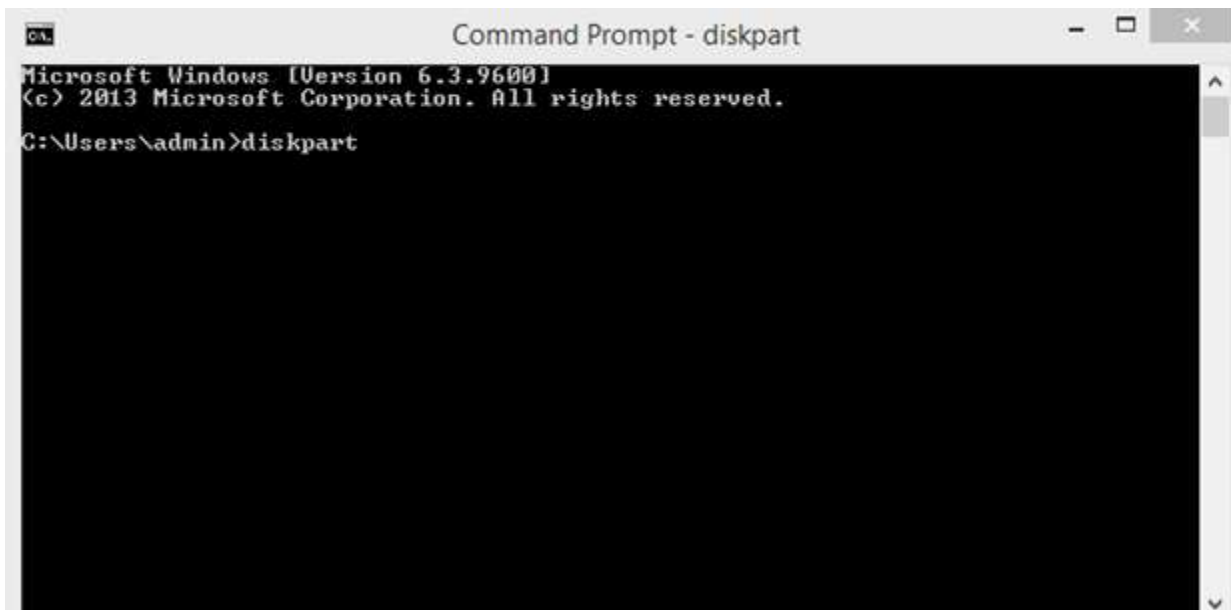
5. Format and Create bootable Drive: After the last step it will ask to format the drive to make enough space. Click Yes to start formatting. After formatting it will start creating bootable DVD/USB device.



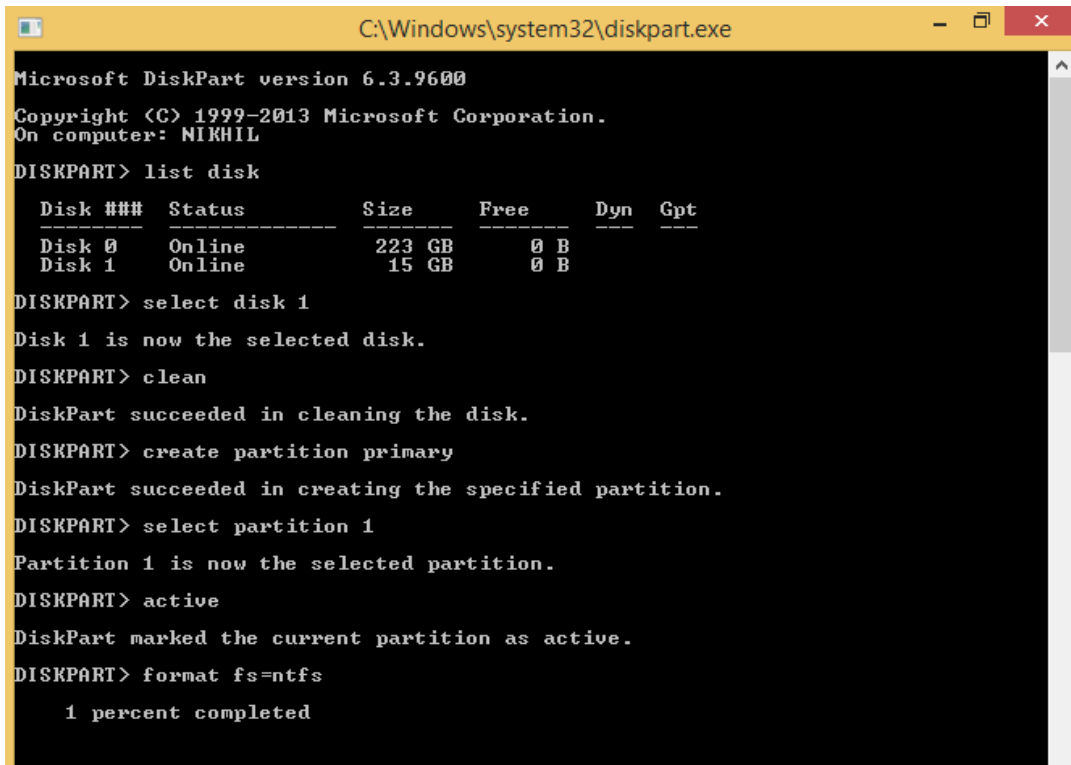
2. Using Command Prompt

Follow the Steps

1. Open command prompt (cmd) in administrator mode
2. Type diskpart [to open disk management utility using command prompt]



3. DISKPART> list disk [It will show the no of disks attached with your system.
Here we have 2 drives: SSD and pen drive]
4. DISKPART> select disk X [your disk no X that is to make bootable]
5. DISKPART> clean
6. DISKPART> create partition primary [Create the bootable partition]
7. DISKPART> select partition 1 [Select the partition you just created]
8. DISKPART> active
9. DISKPART> format fs = ntfs [It Start formatting the selected disk]



```

C:\Windows\system32\diskpart.exe

Microsoft DiskPart version 6.3.9600
Copyright (C) 1999-2013 Microsoft Corporation.
On computer: NIKHIL

DISKPART> list disk

   Disk ###  Status       Size      Free      Dyn  Gpt
   -----  -
   Disk 0    Online        223 GB     0 B
   Disk 1    Online        15 GB     0 B

DISKPART> select disk 1
Disk 1 is now the selected disk.

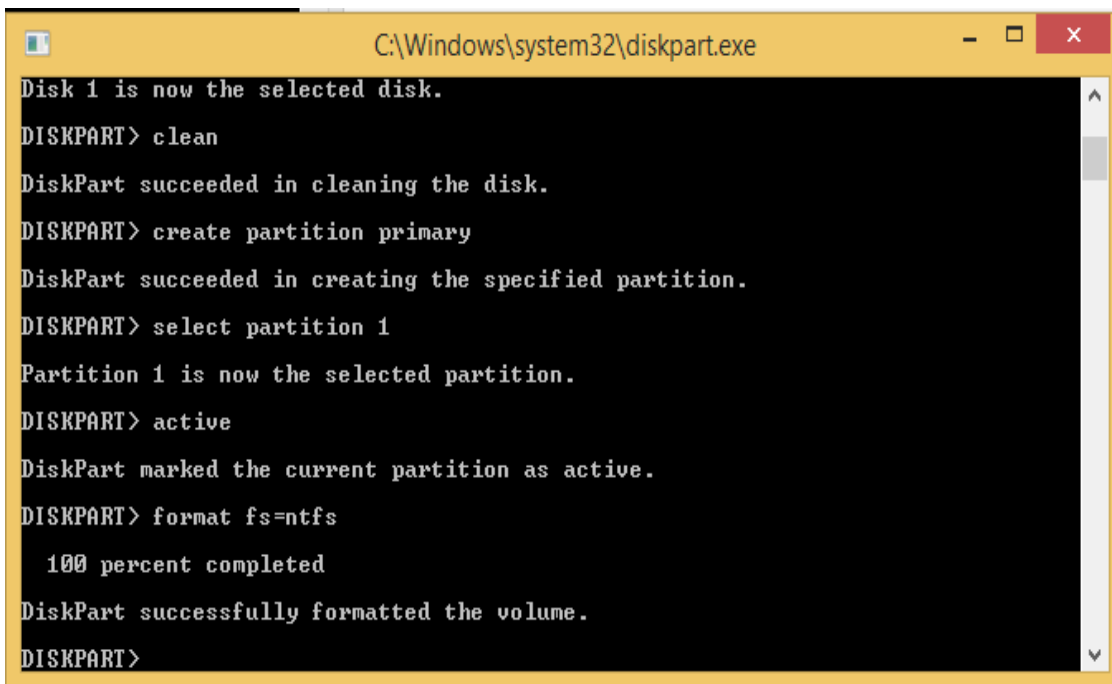
DISKPART> clean
DiskPart succeeded in cleaning the disk.

DISKPART> create partition primary
DiskPart succeeded in creating the specified partition.

DISKPART> select partition 1
Partition 1 is now the selected partition.

DISKPART> active
DiskPart marked the current partition as active.

DISKPART> format fs=ntfs
    1 percent completed
  
```



```

C:\Windows\system32\diskpart.exe

Disk 1 is now the selected disk.

DISKPART> clean
DiskPart succeeded in cleaning the disk.

DISKPART> create partition primary
DiskPart succeeded in creating the specified partition.

DISKPART> select partition 1
Partition 1 is now the selected partition.

DISKPART> active
DiskPart marked the current partition as active.

DISKPART> format fs=ntfs
    100 percent completed
DiskPart successfully formatted the volume.

DISKPART>
  
```

10. DISKPART> assign

11. Go to the location where windows server 2012 R2 ISO file is stored in your system → Right click on it → select 7-zip → Select your DVD/USB drive and extract the ISO File.

3. Using Third Party Software

⇒ There are number of software's available to make a bootable drive like: Rufus, PowerISO, Nero, UltraISO etc.

Steps using Rufus software are

1. Download RUFUS from following link
<https://rufus.akeo.ie/>
2. Insert your DVD/USB Drive and run Rufus
3. Tick on Create a bootable USB Drive and Select ISO Image option.
4. Select the ISO file and Click on start.

