CNT 4603: System Administration
Spring 2022

Project Three - Installing And Configuring A Virtual Network

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Office Hours Zoom Details: Meeting ID: 924 3809 7405
Passcode: 983064
Q&A Sessions via Zoom: Meeting ID: 981 8349 4221
Passcode: 509807

Department of Computer Science
University of Central Florida

Project Three: Overview

- **Title:** "Project Three: Installing And Configuring A Virtual Network "
- **Points:** 100 points
- **Due Date: Sunday March 27, 2022 by 11:59 pm (WebCourses time)**

- **Objectives:** To create and configure a small network of virtual computers to be used for practicing system administration activities in subsequent projects.
- **Deliverables:** Nine screen shots as indicated on pages 35-36 and 38-39. A full list of deliverables appears on page 40.

Project Three: Overview

Do not start this project until you have completed both the installation/configuration of virtualization software and installed a practice VM as described in Module 4.

Project Three: Overview

- In this project you will install and configure several different virtual computers into a network that will be used in subsequent assignments for practicing various system administration activities.
- In this project you will create two server systems and one client system. The servers will be running Windows Server 2022 and the client will run a Windows 10 Education (or Professional) OS. I'm using Windows 10 Education for my client. I'll be running my VMs on Oracle's VirtualBox, but any virtualization software will be fine.

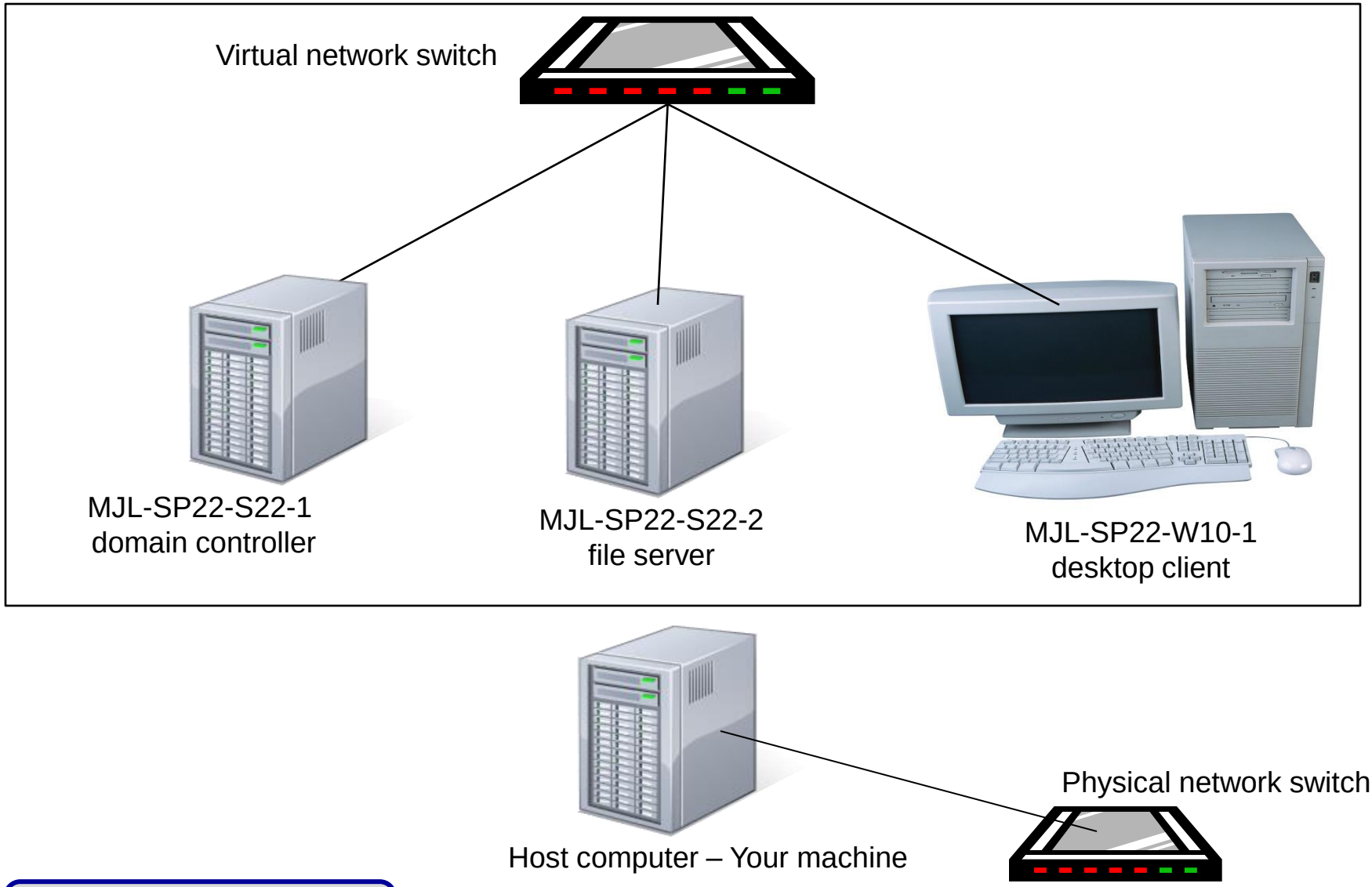
The pages that follow explain the details of the project, stepping you through the actions of a system administration installing and uninstalling server roles. In the various callouts, the items that appear in **bold green** text require you to do screen captures and/or answer questions. These screen captures and answers will constitute your submission for this project.

Project Three: The Scenario

- In this project you will build a virtual demonstration network named `SAVN.local` for a fictitious company, System Administration Virtual Network Company (SAVN).
- SAVN is a virtual (fictitious) company headquartered in Orlando. In the past, the company has relied on several independent desktop computers to manage their assets. SAVN has grown, and management has come to realize that the company could benefit by implementing a network.
- As the IT manager for SAVN, implementing the network will be your responsibility.
- As a user of Microsoft software, SAVN will build its network around Microsoft Windows Server 2022. SAVN utilizes Microsoft Windows 10 as its desktop operating system of choice.

Project Three: The Scenario

- Although there are a number of different ways to implement a virtual network design, we'll make this project focus on the three roles found in all networks (1) designing the network configuration, (2) verifying IP configurations and (3), implementing centralized, secure management of the network.
- In this project, I've designed the network configuration that we'll use and you will implement it using virtualization.
- The initial network diagram is shown on the next page.
- `MJL-SP22-S22-1` and `MJL-SP22-S22-2` are virtual servers running Windows Server 2022. `MJL-SP22-W10-1` is a virtual desktop computer running Microsoft Windows 10.
- These machines will communicate with one another over a local virtual network.



The SAVN network

MJL-SP22-S22-1 Role – Domain Controller

- `MJL-SP22-S22-1` is the virtual machine that manages the `savn.local` domain.
- Recall from our discussion of Active Directory that a domain is a logical group of computers that share access to network resources with centralized administration and security policies.
- `MJL-SP22-S22-1` is the domain controller – the server that responds to security authentication requests within the Windows Server 2022 domain. The domain controller is the server that essentially makes networking (at least in a secure fashion) possible.
- In a subsequent project, you will ultimately implement the domain controller role by promoting `MJL-SP22-S22-1` to function as the domain controller for the SAVN network. **DO NOT ATTEMPT TO DO THIS NOW.**

MJL-SP22-S22-1 Role – Domain Controller

- Recall that AD DS uses the Domain Name System (DNS) to maintain domain naming structures and to locate network resources.
- DNS maintains a database of IP addresses and host names and AD DS is designed to take full advantage of DNS's powerful capabilities, so AD DS names must follow standard DNS naming conventions.
- You will implement the DNS role on `MJL-SP22-S22-1` for the `savn.local` domain as part of establishing `MJL-SP22-S22-1` as a domain controller.

MJL-SP22-S22-2 Role – File Server

- `MJL-SP22-S22-2` will serve as a file server, meaning it is the computer system responsible for the central storage and management of data files so that other computers on the `savon.local` network can access these files.
- To take advantage of AD DS security features, you will need to join `MJL-SP22-S22-2` to the `savn.local` domain.
- As a domain member, `MJL-SP22-S22-2` can coordinate the security access of its files with the domain controller (`MJL-SP22-S22-1`).

MJL-SP22-W10-1 – Desktop Client

- MJL-SP22-W10-1 is a desktop client that will use software applications to access various system resources, including folders, and files on the network file server (MJL-SP22-S22-2).

- MJL-SP22-S22-1, with AD DS and DNS, helps locate network resources and controls security access to these network resources. MJL-SP22-S22-2 holds the data that MJL-SP22-W10-1's applications require.

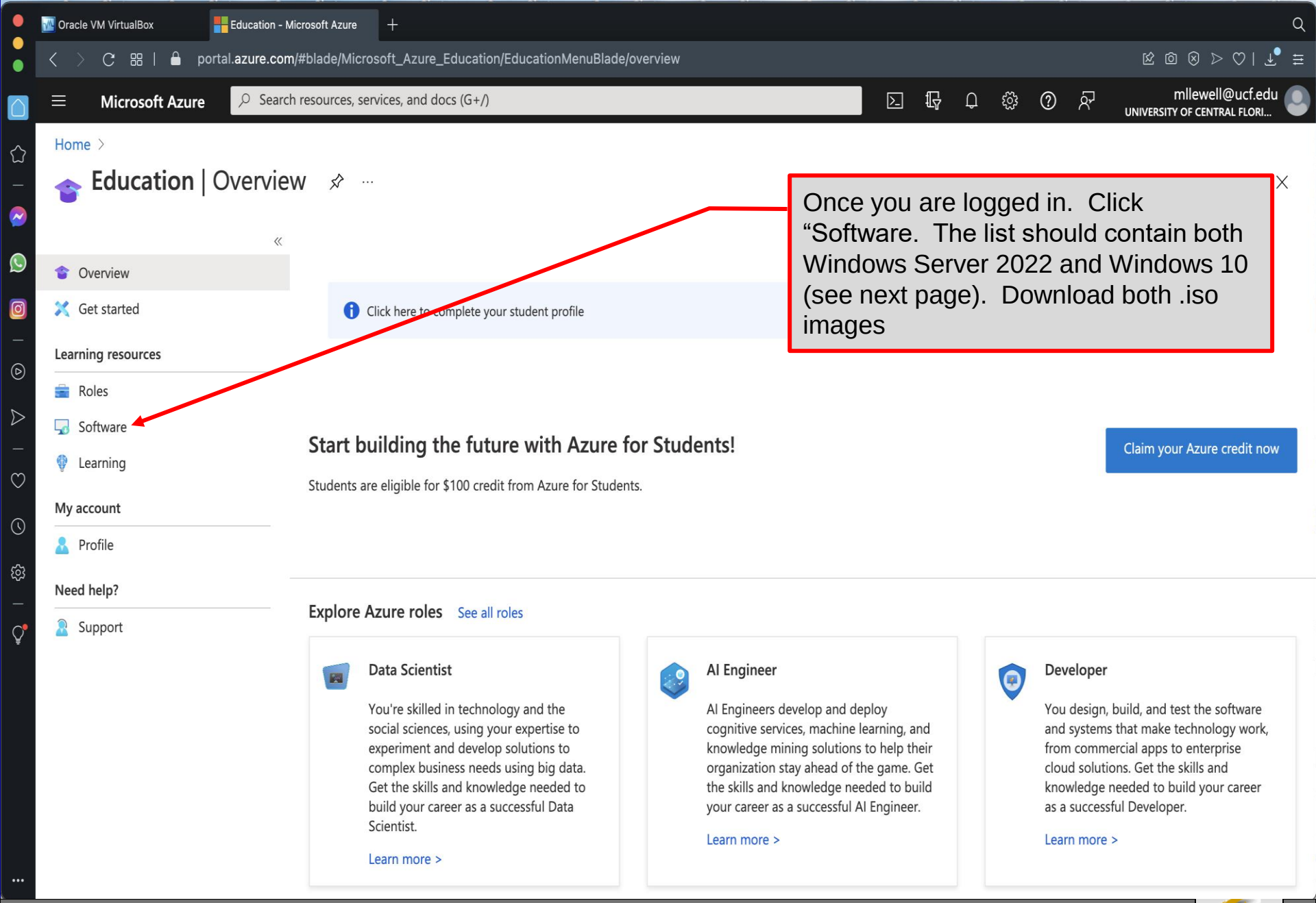
Getting The OS `.iso` Images

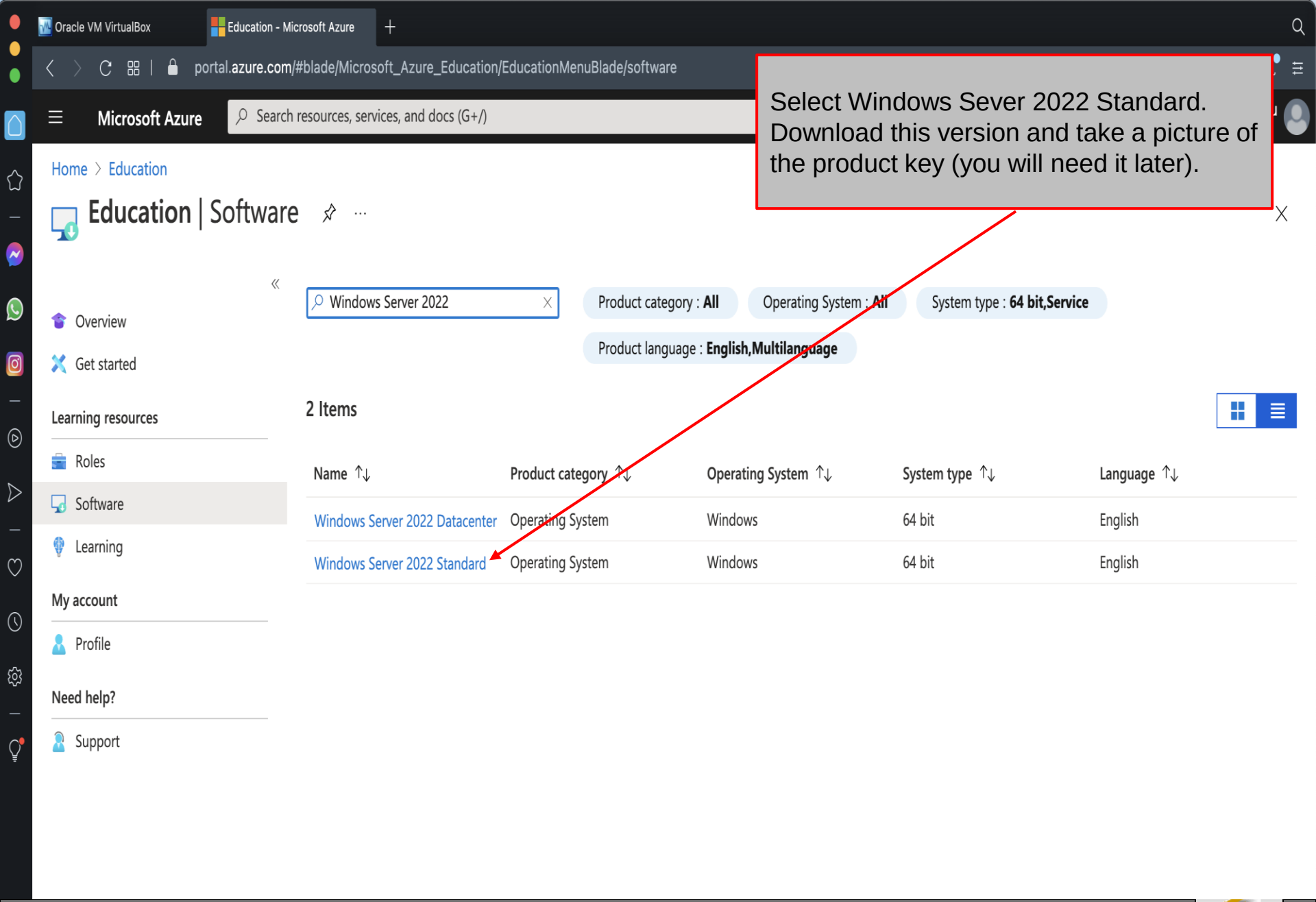
IMPORTANT ! ! !

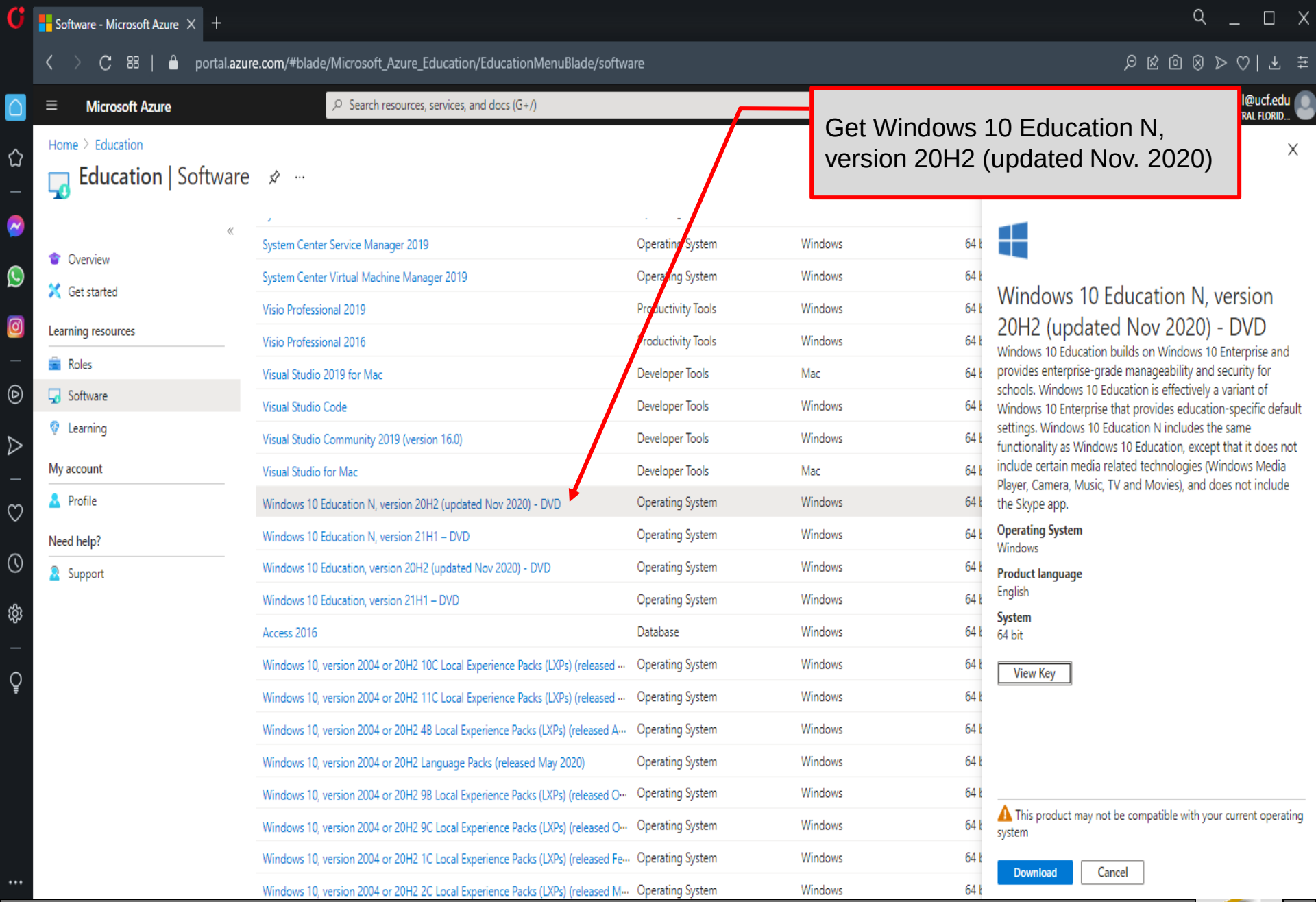
To get the `.iso` image, go to Microsoft's Azure for Education website at: t.cs.ucf.edu/azure using your knights@ucf.edu email address. Once in the site, search for Windows Server 2022 (you should already have this one by now) and subsequently Windows 10 Education.

Save the `.iso` images on your machine or an external hard drive so that you will have the `.iso` images in case you need to reinstall or create new VMs.

Do not use the "home" version of a client OS as they typically will not allow joining a domain.


Oracle VM VirtualBox
Education - Microsoft Azure
portal.azure.com/#blade/Microsoft_Azure_Education/EducationMenuBlade/overview
Microsoft Azure
Search resources, services, and docs (G+/)
mllewell@ucf.edu
UNIVERSITY OF CENTRAL FLORI...
Home
Education | Overview
Overview
Get started
Learning resources
Roles
Software
Learning
My account
Profile
Need help?
Support
Click here to complete your student profile
Start building the future with Azure for Students!
Students are eligible for $100 credit from Azure for Students.
Claim your Azure credit now
Explore Azure roles
See all roles
Data Scientist
You're skilled in technology and the social sciences, using your expertise to experiment and develop solutions to complex business needs using big data. Get the skills and knowledge needed to build your career as a successful Data Scientist.
Learn more >
AI Engineer
AI Engineers develop and deploy cognitive services, machine learning, and knowledge mining solutions to help their organization stay ahead of the game. Get the skills and knowledge needed to build your career as a successful AI Engineer.
Learn more >
Developer
You design, build, and test the software and systems that make technology work, from commercial apps to enterprise cloud solutions. Get the skills and knowledge needed to build your career as a successful Developer.
Learn more >
Once you are logged in. Click "Software. The list should contain both Windows Server 2022 and Windows 10 (see next page). Download both .iso images


Oracle VM VirtualBox
Education - Microsoft Azure
portal.azure.com/#blade/Microsoft_Azure_Education/EducationMenuBlade/software
Microsoft Azure
Search resources, services, and docs (G+/)
Select Windows Sever 2022 Standard. Download this version and take a picture of the product key (you will need it later).
Home > Education
Education | Software
Windows Server 2022
Product category : All
Operating System : All
System type : 64 bit,Service
Product language : English,Multilanguage
2 Items
Overview
Get started
Learning resources
Roles
Software
Learning
My account
Profile
Need help?
Support
Name
Product category
Operating System
System type
Language
Windows Server 2022 Datacenter
Operating System
Windows
64 bit
English
Windows Server 2022 Standard
Operating System
Windows
64 bit
English


Software - Microsoft Azure
portal.azure.com/#blade/Microsoft_Azure_Education/EducationMenuBlade/software
Microsoft Azure
Search resources, services, and docs (G+/)
Get Windows 10 Education N, version 20H2 (updated Nov. 2020)
Home > Education
Education | Software
Overview
Get started
Learning resources
Roles
Software
Learning
My account
Profile
Need help?
Support
System Center Service Manager 2019 Operating System Windows 64 b
System Center Virtual Machine Manager 2019 Operating System Windows 64 b
Visio Professional 2019 Productivity Tools Windows 64 b
Visio Professional 2016 Productivity Tools Windows 64 b
Visual Studio 2019 for Mac Developer Tools Mac 64 b
Visual Studio Code Developer Tools Windows 64 b
Visual Studio Community 2019 (version 16.0) Developer Tools Windows 64 b
Visual Studio for Mac Developer Tools Mac 64 b
Windows 10 Education N, version 20H2 (updated Nov 2020) - DVD Operating System Windows 64 b
Windows 10 Education N, version 21H1 – DVD Operating System Windows 64 b
Windows 10 Education, version 20H2 (updated Nov 2020) - DVD Operating System Windows 64 b
Windows 10 Education, version 21H1 – DVD Operating System Windows 64 b
Access 2016 Database Windows 64 b
Windows 10, version 2004 or 20H2 10C Local Experience Packs (LXPs) (released ... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 11C Local Experience Packs (LXPs) (released ... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 4B Local Experience Packs (LXPs) (released A... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 Language Packs (released May 2020) Operating System Windows 64 b
Windows 10, version 2004 or 20H2 9B Local Experience Packs (LXPs) (released O... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 9C Local Experience Packs (LXPs) (released O... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 1C Local Experience Packs (LXPs) (released Fe... Operating System Windows 64 b
Windows 10, version 2004 or 20H2 2C Local Experience Packs (LXPs) (released M... Operating System Windows 64 b
Windows 10 Education N, version 20H2 (updated Nov 2020) - DVD
Windows 10 Education builds on Windows 10 Enterprise and provides enterprise-grade manageability and security for schools. Windows 10 Education is effectively a variant of Windows 10 Enterprise that provides education-specific default settings. Windows 10 Education N includes the same functionality as Windows 10 Education, except that it does not include certain media related technologies (Windows Media Player, Camera, Music, TV and Movies), and does not include the Skype app.
Operating System
Windows
Product language
English
System
64 bit
View Key
This product may not be compatible with your current operating system
Download
Cancel

Getting The OS `.iso` images

When configuring your MJL-SP22-W10-1 client VM (the one with the Windows 10 OS), go for a basic/minimal install of features. If it asks to connect you to a network, click the "I don't have internet" option in the lower left hand part of the screen.

Operating System Requirements

- When planning for RAM and hard disk space requirements, you need to take into consideration the role that the particular virtual machines will be playing in your network.

- The table below presents typical (recommended) values for these two variables for the virtual machines in the `savn.local` network.

Virtual Machine	Role	OS	Approximate RAM requirement	Approximate Virtual Hard Disk Requirement
MJL-SP22-S22-1	Domain controller	Windows Server 2022	2048 MB (default)	50 GB (default)
MJL-SP22-S22-2	File server	Windows Server 2022	2048 MB (default)	50 GB (default)
MJL-SP22-W10-1	Desktop	Windows 10	2048 MB (default)	50 GB (default)

Operating System Requirements

- Two configuration settings stand out when compared to the Microsoft recommendations that will appear when you set up the virtual machines.
- Because `MJL-SP22-S22-1` serves as a domain controller, it will require about 60 GB of RAM to run Windows Server 2022.
- Because `MJL-SP22-S22-2` is a file server, special partition allocations are recommended. Although you will create a virtual hard disk of about 50 GB for `MJL-SP22-S22-2`, you will eventually split this allocation and reduce the amount allocated to the OS. This is done to split the OS files from the data files. We'll worry about this partitioning later.

Project Three: Details – Step 1

Do not proceed past this point in the project until you have completed Module 4. Be sure to read and heed all warnings and caveats in Module 4 regarding the installation of virtual machines. This is your last warning.

Project Three: Details – Step 1

- The first step is to create two virtual servers each running Windows Server 2022 and a client machine running Windows 10 OS (not a server OS). For the virtual systems used in this project use the naming conventions shown below:

IMPORTANT !

Create the virtual machines with the following naming conventions:

Your initials–SP22-S22-1 (e.g. – MJL-SP22-S22-1)
Your initials-SP22-S22-2 (e.g. – MJL-SP22-S22-2)
Your intials-SP22-W10-1 (e.g. – MJL-SP22-W10-1)

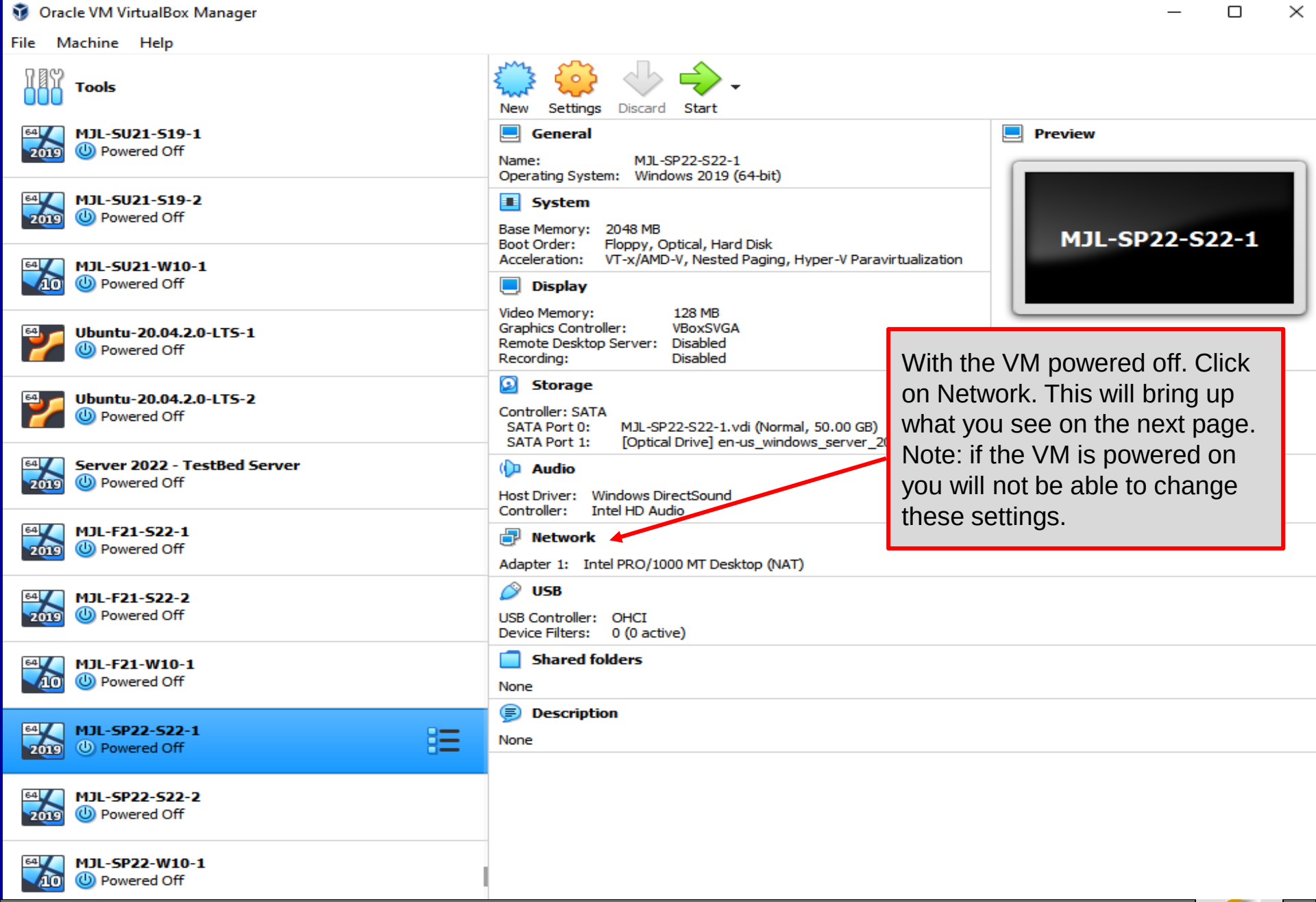
Note: You are limited in the NetBIOS naming convention to 15 characters or less. These names should be 14 characters, so you can use these internal names as well as the external names for the virtualization software.

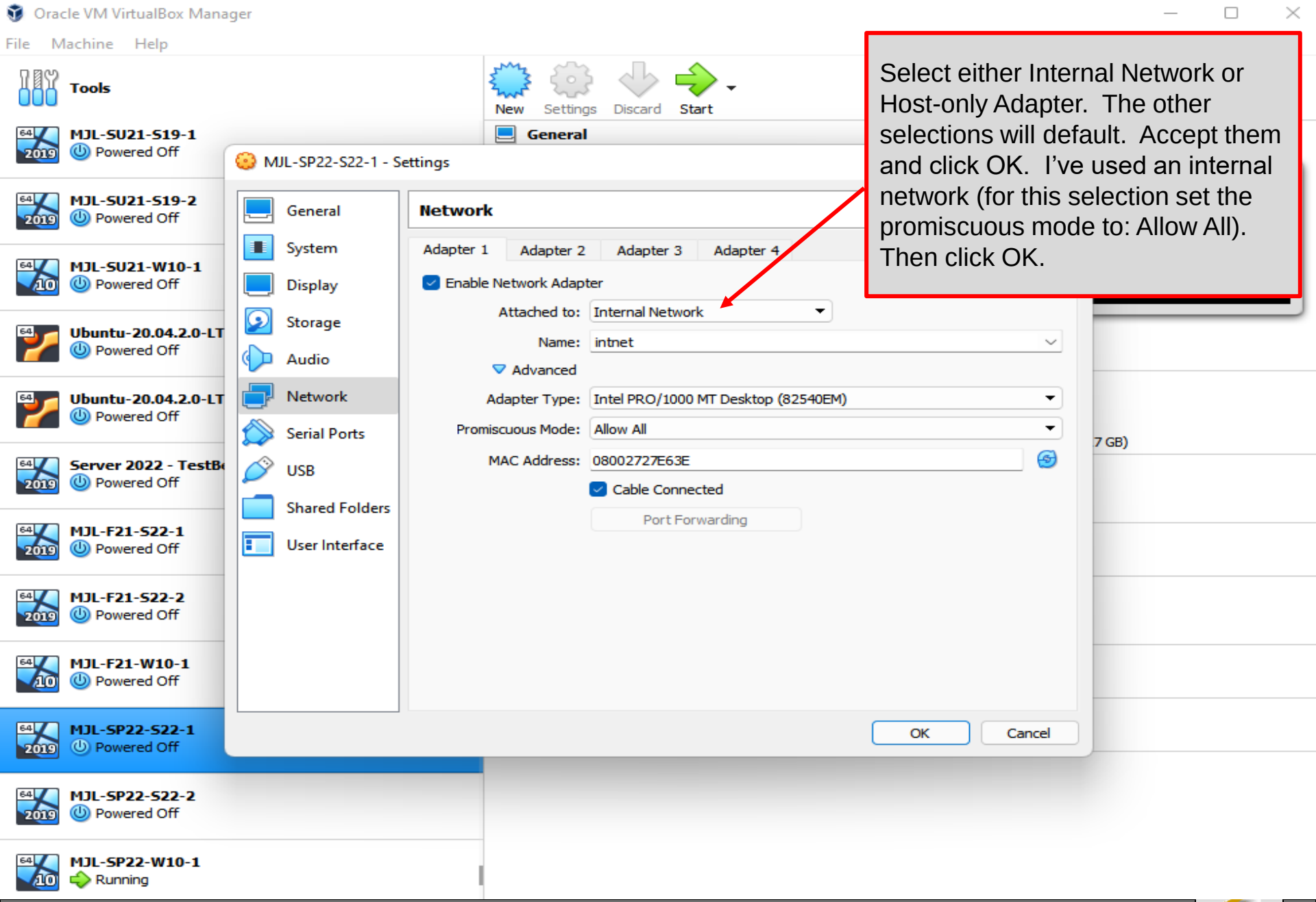
Project Three: Details – Step 2

- Once your three virtual machines have been created, you need to configure them into a network where each of the virtual machines will be able to communicate with each other.
- While `MJL-SP22-S22-1` can act as a gateway to your host computer in order to gain Internet access, this won't really be required for anything that will be doing.
- Thus, for all three virtual machines, we will configure them to use in internal network (or host-only networking). This limits a virtual machine to communicate with only the physical host on which it resides and to other virtual machines running on the same host. This type of networking is most useful when you need multiple virtual machines to be able to communicate with each other, but prevent the virtual machines from directly communicating with any other systems.

Project Three: Details – Step 2

- I'll be illustrating the steps you need to perform using Oracle VM VirtualBox. If you are using another virtualization product the exact procedure to follow may be different, but you want ultimately to achieve the same effect as illustrated.
- To configure the virtual machines to use either an internal network or host-only networking in VirtualBox, see images on the next couple of pages. Do this for all three of your VMs (i.e., repeat pages 21 and 22 for all three VMs).


Oracle VM VirtualBox Manager
File
Machine
Help
Tools
MJL-SU21-S19-1
Powered Off
MJL-SU21-S19-2
Powered Off
MJL-SU21-W10-1
Powered Off
Ubuntu-20.04.2.0-LTS-1
Powered Off
Ubuntu-20.04.2.0-LTS-2
Powered Off
Server 2022 - TestBed Server
Powered Off
MJL-F21-S22-1
Powered Off
MJL-F21-S22-2
Powered Off
MJL-F21-W10-1
Powered Off
MJL-SP22-S22-1
Powered Off
MJL-SP22-S22-2
Powered Off
MJL-SP22-W10-1
Powered Off
New
Settings
Discard
Start
General
Name: MJL-SP22-S22-1
Operating System: Windows 2019 (64-bit)
System
Base Memory: 2048 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, Hyper-V Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: MJL-SP22-S22-1.vdi (Normal, 50.00 GB)
SATA Port 1: [Optical Drive] en-us_windows_server_20
Audio
Host Driver: Windows DirectSound
Controller: Intel HD Audio
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT)
USB
USB Controller: OHCI
Device Filters: 0 (0 active)
Shared folders
None
Description
None
Preview
MJL-SP22-S22-1
With the VM powered off. Click on Network. This will bring up what you see on the next page. Note: if the VM is powered on you will not be able to change these settings.


Oracle VM VirtualBox Manager
File Machine Help
Tools
MJL-SU21-S19-1
Powered Off
MJL-SU21-S19-2
Powered Off
MJL-SU21-W10-1
Powered Off
Ubuntu-20.04.2.0-LT
Powered Off
Ubuntu-20.04.2.0-LT
Powered Off
Server 2022 - TestB
Powered Off
MJL-F21-S22-1
Powered Off
MJL-F21-S22-2
Powered Off
MJL-F21-W10-1
Powered Off
MJL-SP22-S22-1
Powered Off
MJL-SP22-S22-2
Powered Off
MJL-SP22-W10-1
Running
New
Settings
Discard
Start
General
MJL-SP22-S22-1 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to: Internal Network
Name: intnet
Advanced
Adapter Type: Intel PRO/1000 MT Desktop (82540EM)
Promiscuous Mode: Allow All
MAC Address: 08002727E63E
Cable Connected
Port Forwarding
OK
Cancel
Select either Internal Network or Host-only Adapter. The other selections will default. Accept them and click OK. I've used an internal network (for this selection set the promiscuous mode to: Allow All). Then click OK.

Project Three: Details – Step 3

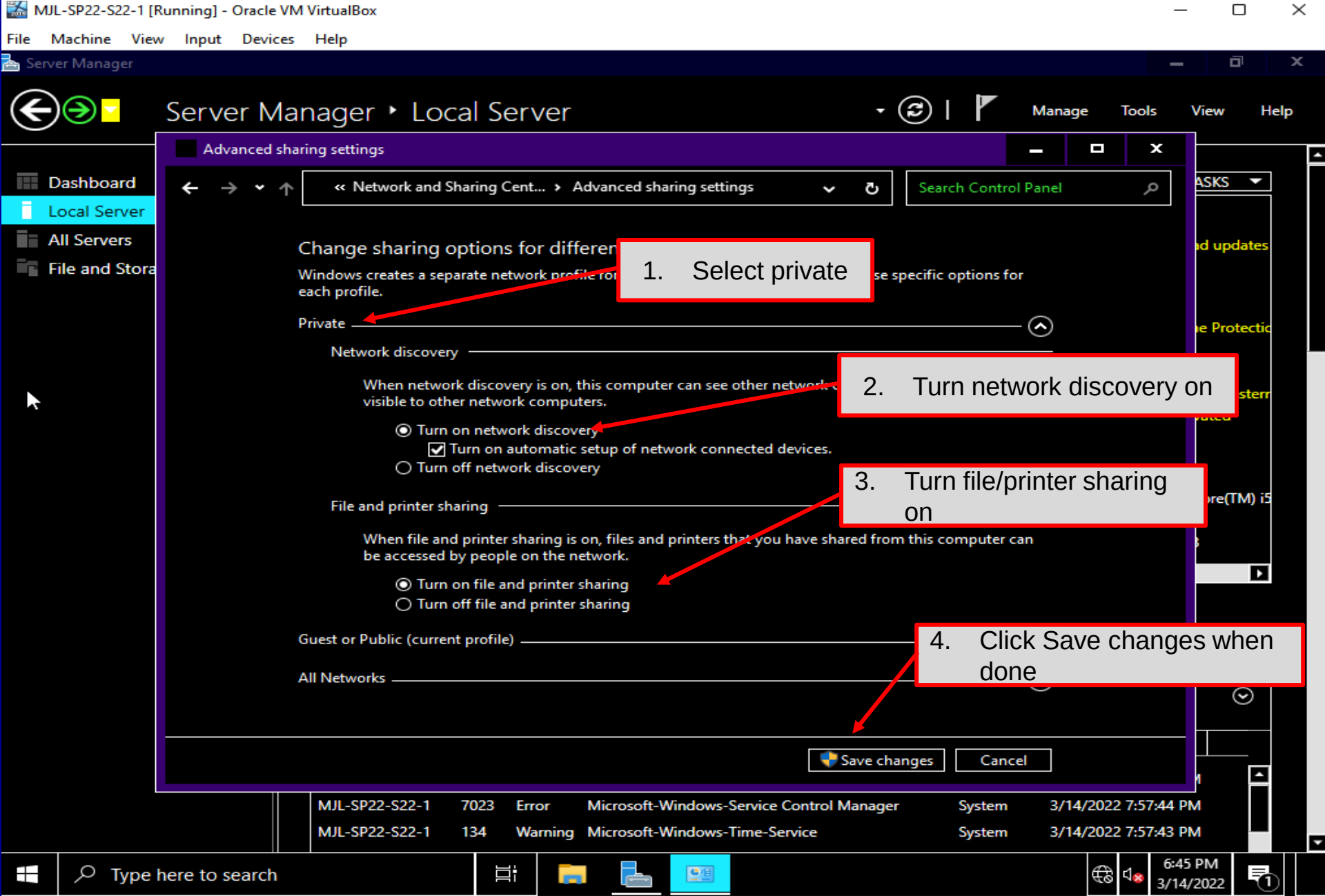
- The next step in this project is assigning the IP addresses for the machines that will make up the virtual network.
- To ensure reliable communication between the virtual machines, we will employ static IP addressing.
- The table on the next page illustrates the IP addresses that will be used for each virtual machine in our network.
- To configure these static IP addresses, follow the steps beginning on page 25.

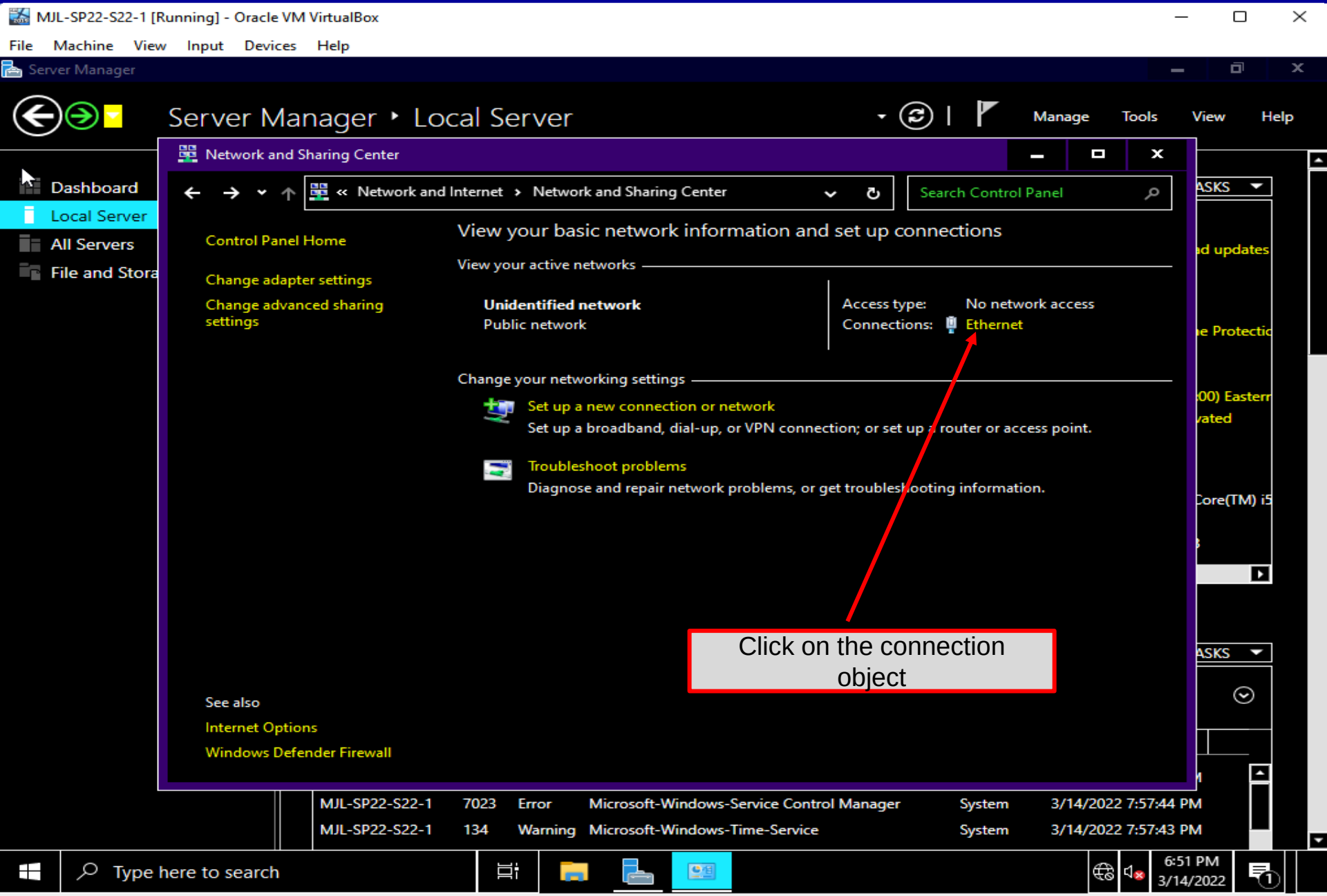
Project Three: Details – Step 3

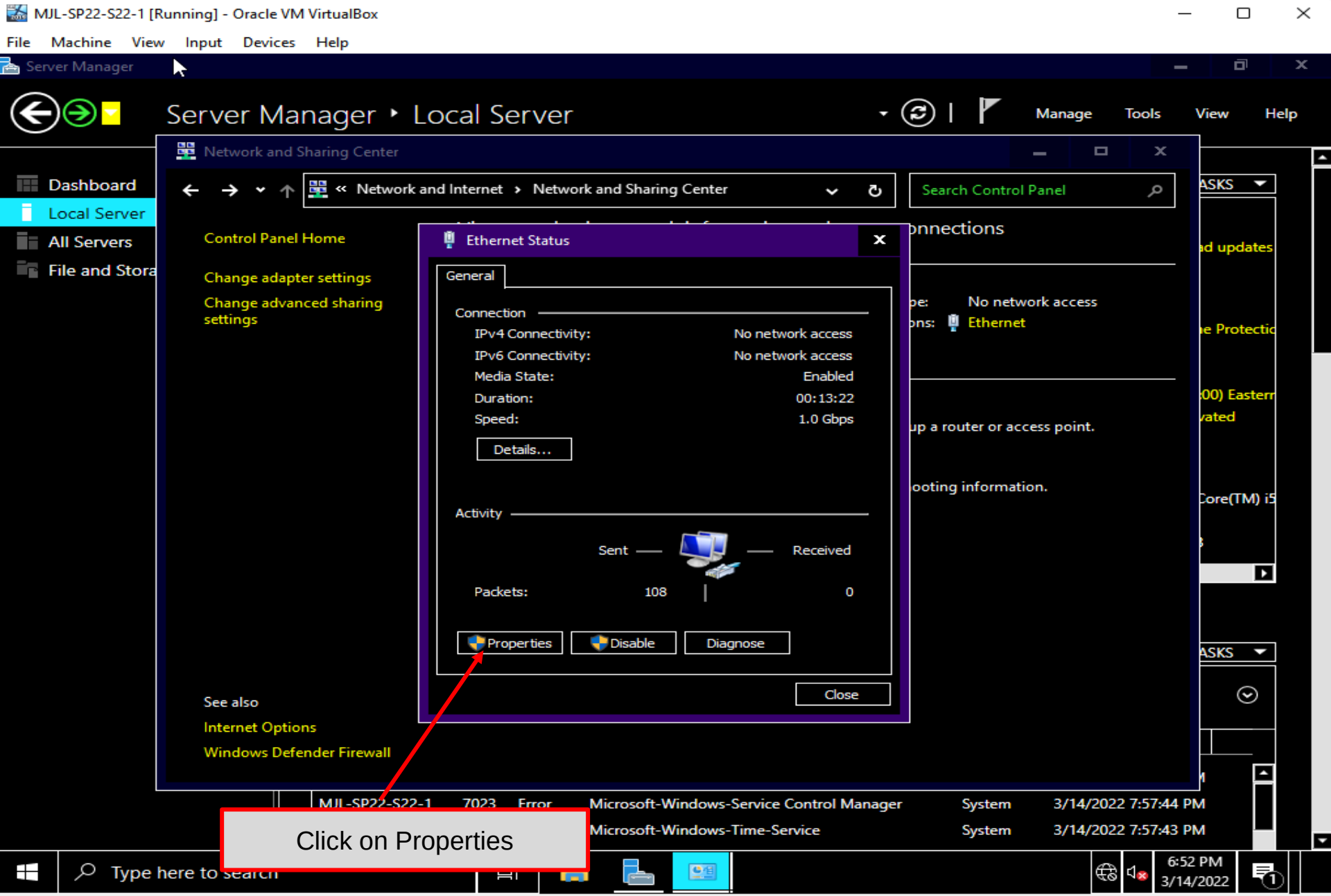
Virtual machine/ Computer	Assigned IP address	Subnet mask	Default gateway address	Preferred DNS address
MJL-SP22-S22-1	192.168.0.101	255.255.255.0	192.168.0.101 (optionally 0.0.0.0 or leave blank)	192.168.0.101 (or initially 127.0.0.1 will work but not once the domain is created)
MJL-SP22-S22-2	192.168.0.102	255.255.255.0	192.168.0.101 (optionally 0.0.0.0 or leave blank)	192.168.0.101
MJL-SP22-W10-1	192.168.0.103	255.255.255.0	192.168.0.101 (optionally 0.0.0.0 or leave blank)	192.168.0.101

Project Three: Details – Step 3

- The steps are essentially the same in all of the machines whether they are servers or clients, so I only provide an example for `MJL-SP22-S22-1`.
- Start the VM running and log in.
- From the Control Panel, select the Network and Internet.
- Click View Network Status and Tasks.
- Click Change Advanced Sharing Settings.
- Then follow the next few screen shots.

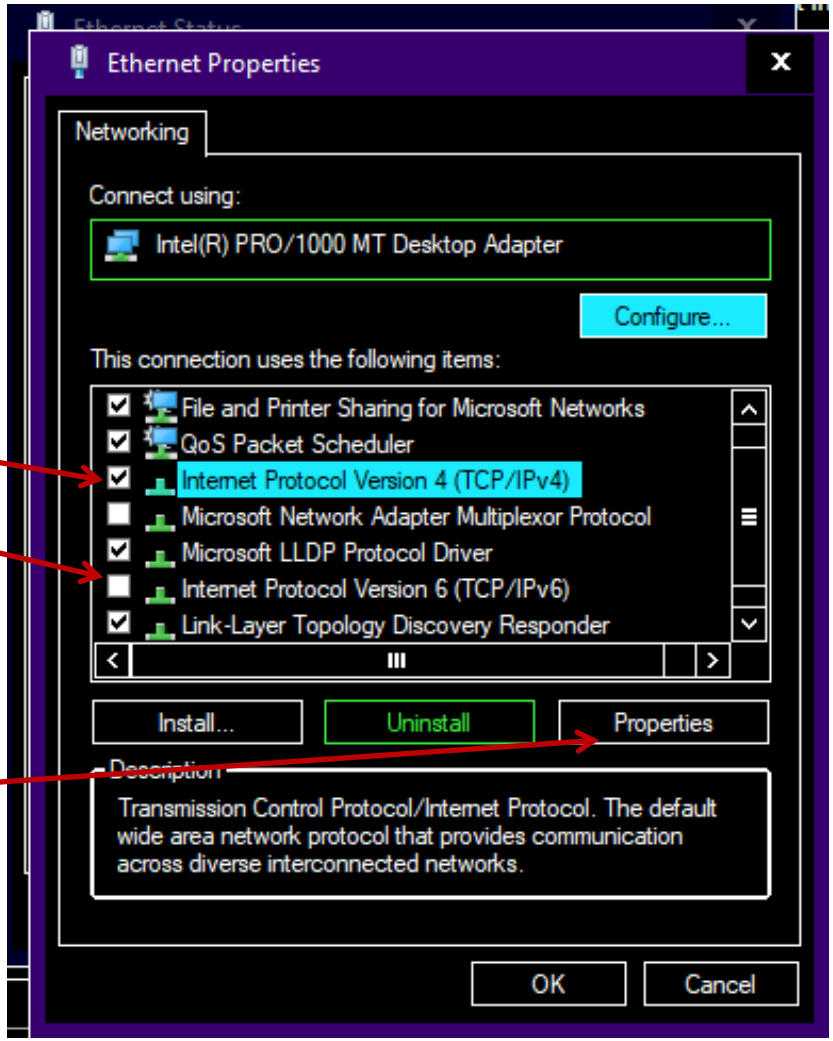

MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Server Manager
Server Manager • Local Server
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Stora
Advanced sharing settings
« Network and Sharing Cent... › Advanced sharing settings
Search Control Panel
Change sharing options for differen
Windows creates a separate network profile for
each profile.
se specific options for
1. Select private
Private
Network discovery
When network discovery is on, this computer can see other network
visible to other network computers.
2. Turn network discovery on
Turn on network discovery
Turn on automatic setup of network connected devices.
Turn off network discovery
3. Turn file/printer sharing on
File and printer sharing
When file and printer sharing is on, files and printers that you have shared from this computer can
be accessed by people on the network.
Turn on file and printer sharing
Turn off file and printer sharing
Guest or Public (current profile)
All Networks
4. Click Save changes when done
Save changes
Cancel
MJL-SP22-S22-1 7023 Error Microsoft-Windows-Service Control Manager System 3/14/2022 7:57:44 PM
MJL-SP22-S22-1 134 Warning Microsoft-Windows-Time-Service System 3/14/2022 7:57:43 PM
Type here to search
6:45 PM
3/14/2022


MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Server Manager
Server Manager • Local Server
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Stora
Network and Sharing Center
« Network and Internet › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Unidentified network
Public network
Access type: No network access
Connections: Ethernet
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
Internet Options
Windows Defender Firewall
Click on the connection object
MJL-SP22-S22-1 7023 Error Microsoft-Windows-Service Control Manager System 3/14/2022 7:57:44 PM
MJL-SP22-S22-1 134 Warning Microsoft-Windows-Time-Service System 3/14/2022 7:57:43 PM
Type here to search
6:51 PM
3/14/2022


MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Server Manager
Server Manager • Local Server
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Stora
Network and Sharing Center
Network and Internet › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
Ethernet Status
General
Connection
IPv4 Connectivity: No network access
IPv6 Connectivity: No network access
Media State: Enabled
Duration: 00:13:22
Speed: 1.0 Gbps
Details...
Activity
Sent
Received
Packets: 108 0
Properties
Disable
Diagnose
Close
See also
Internet Options
Windows Defender Firewall
MJL-SP22-S22-1 7023 Error Microsoft-Windows-Service Control Manager System 3/14/2022 7:57:44 PM
Microsoft-Windows-Time-Service System 3/14/2022 7:57:43 PM
Click on Properties
Type here to search
6:52 PM
3/14/2022

Project Three: Details – Step 3

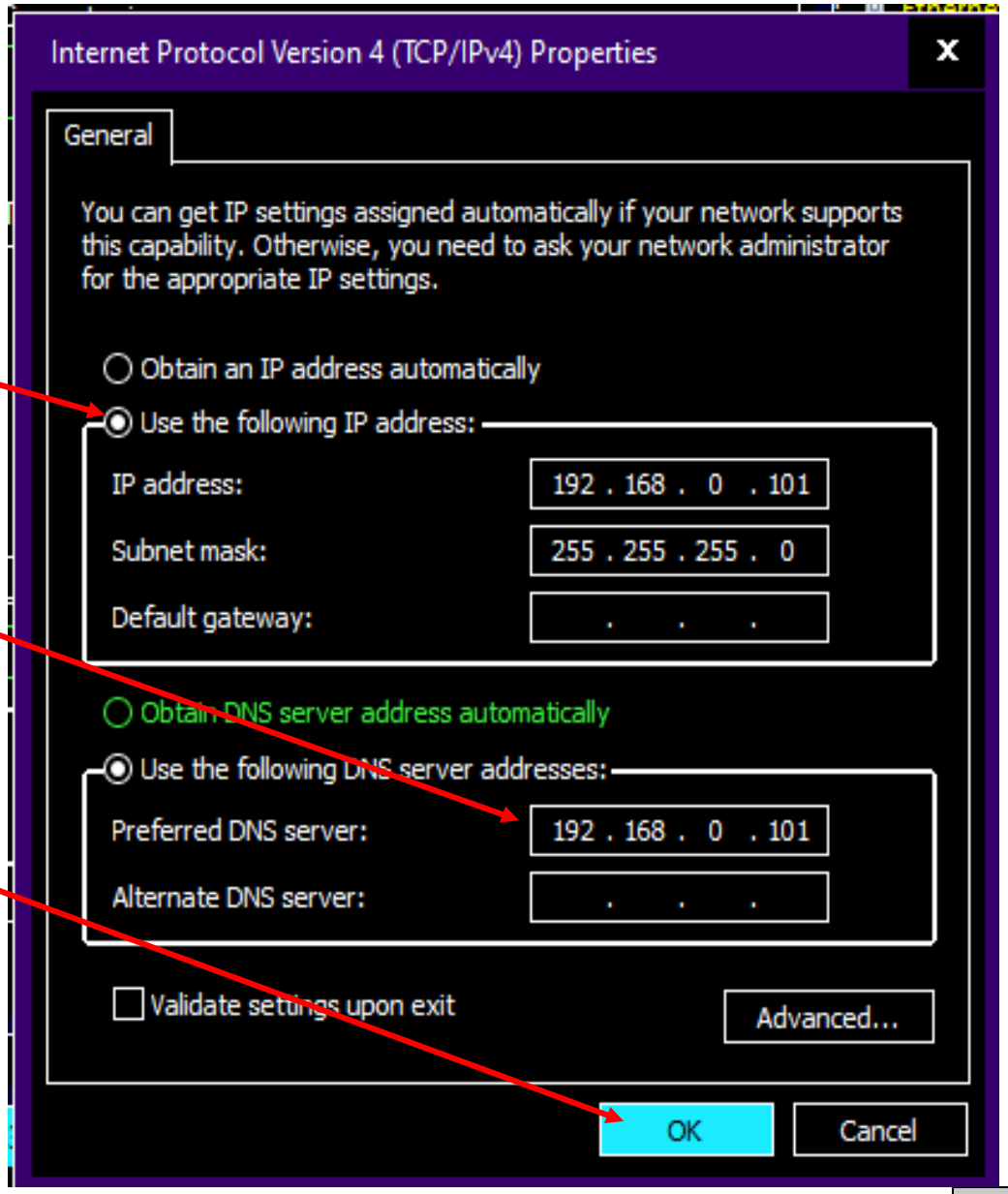
- A new dialog box listing the Local Area Connection Properties will appear. Deselect (uncheck) both Internet Protocol Version 6 (TCP/IPv6) and Internet Protocol Version 4 (TCP/IPv4).
- Then select (check) Internet Protocol Version 4 (TCP/IPv4).
- After reselecting Internet Protocol Version 4 (TCP/IPv4), click the Properties button.



Enter IPv4 addresses from the table on page 24. The subnet mask will default to 255.255.255.0 as soon as you enter the field. See next page as well.

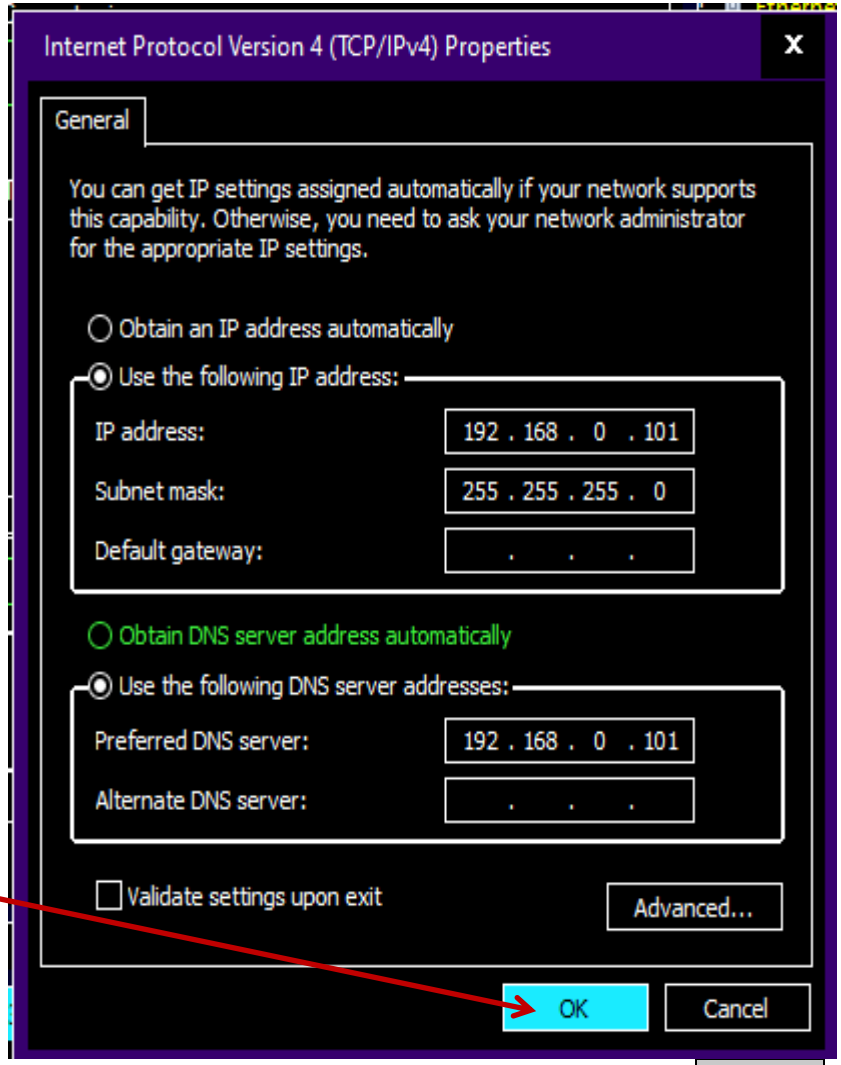
Enter the IPv4 address for the preferred DNS server

Click OK when done. Then close out all the open dialog boxes in this chain.



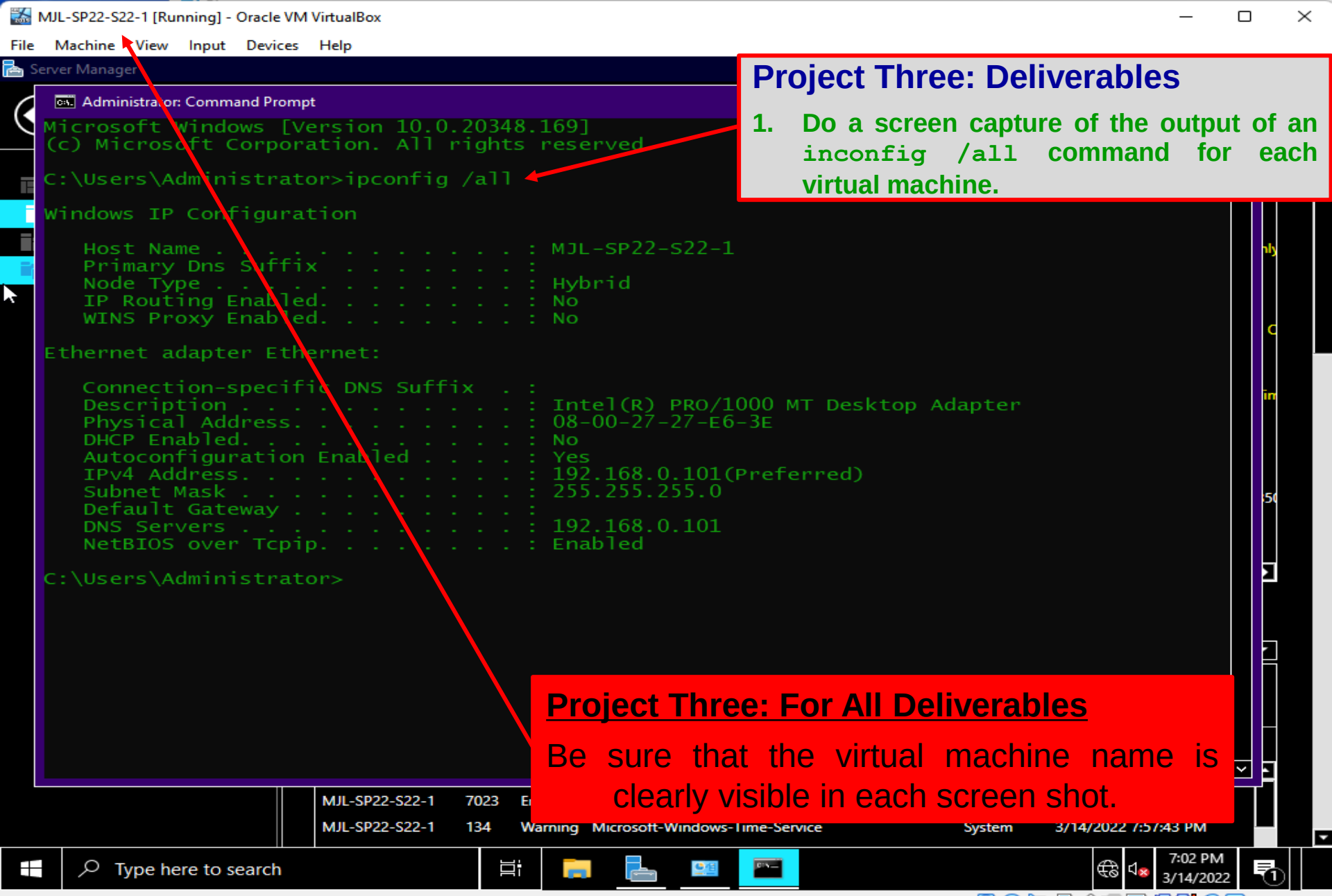
Project Three: Details – Step 3

- For each virtual machine complete the entries in this new dialog box according to the table shown on page 18.
- Use the tab button to move from field to field and entry to entry. If an IP address field does not include 3 digits, you can use the arrow key or the tab key to move to the next entry.
- When the dialog is filled in correctly, click the OK button.
- Repeat this step for each virtual machine.



Project Three: Deliverables – Step 4

- Once you have the three virtual machines installed and their IP addresses correctly figured, the next step of this project is the verification that the virtual machines can all communicate with each other, as well as the verification that the machines are properly configured.
- You will need to take several different screen shots that verify the correctness of your network configuration and the communication between the various machines.
- To verify the network/virtual machine configurations, you will need to open a Command Prompt window in each of the virtual machines and issue a `ipconfig /all` command. There may be a fair amount of output from this command. We are most concerned with the top part of the listing so be sure that is what is included in your screen shots. This is illustrated on the next 3 pages.

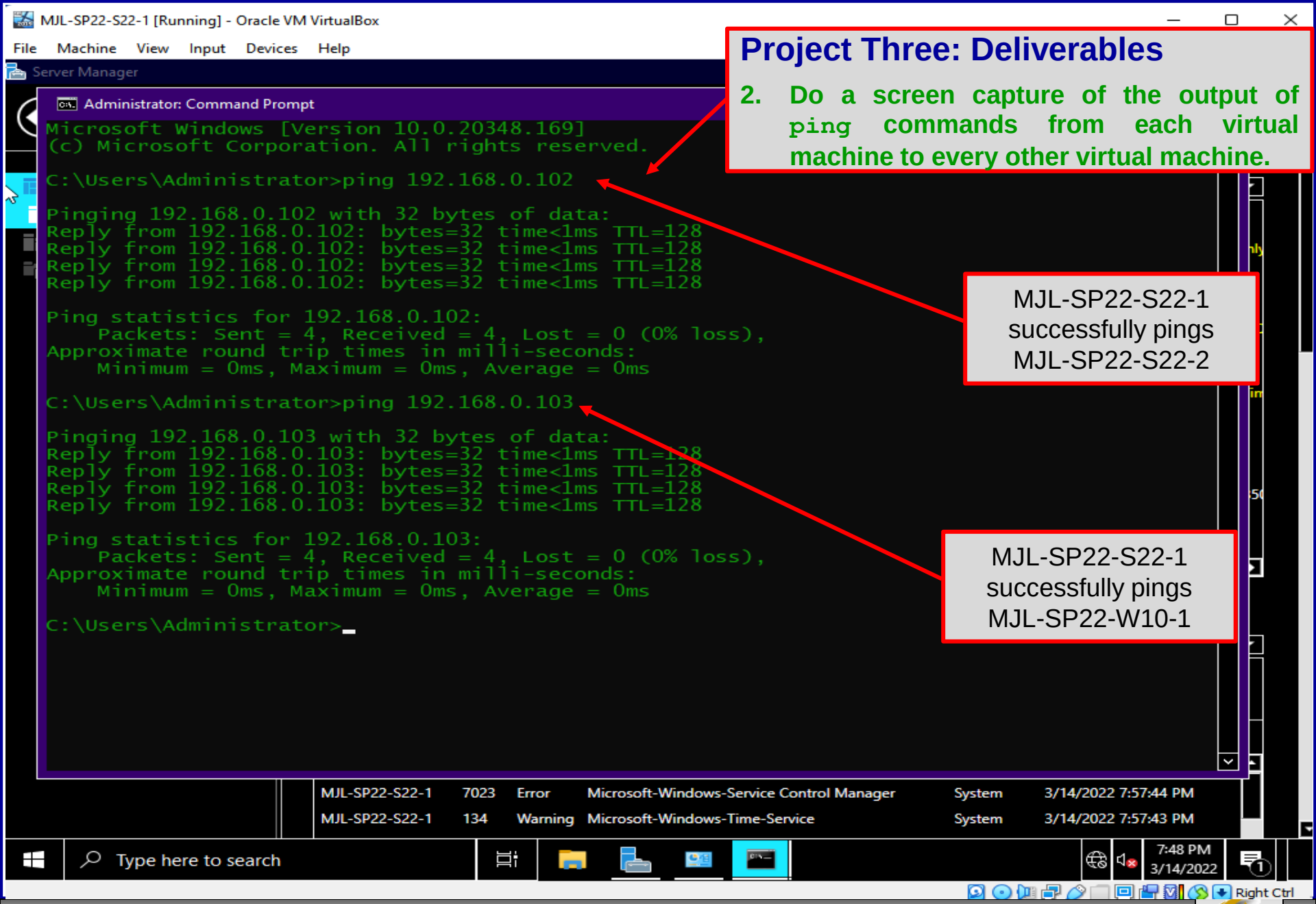


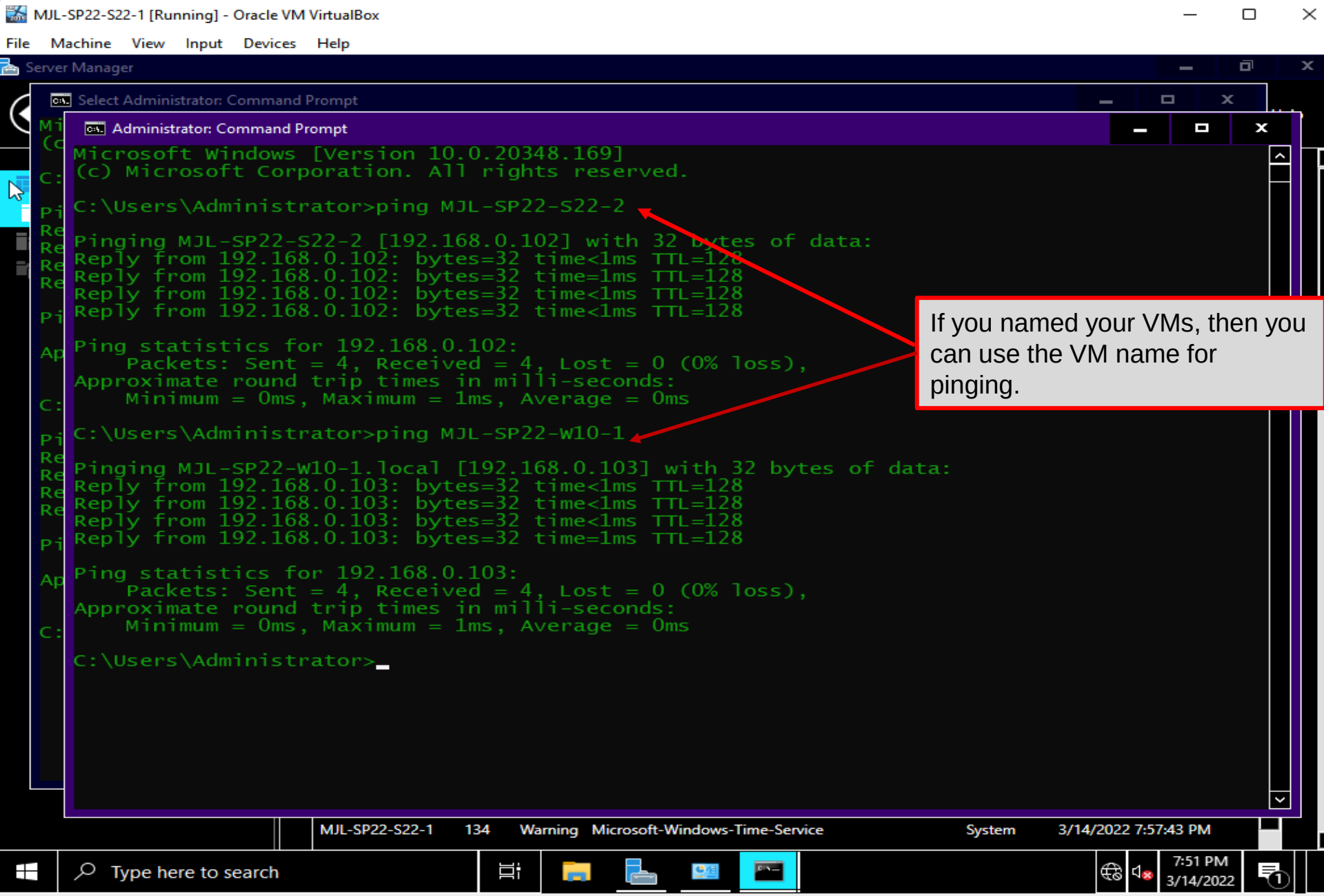
Project Three: Deliverables

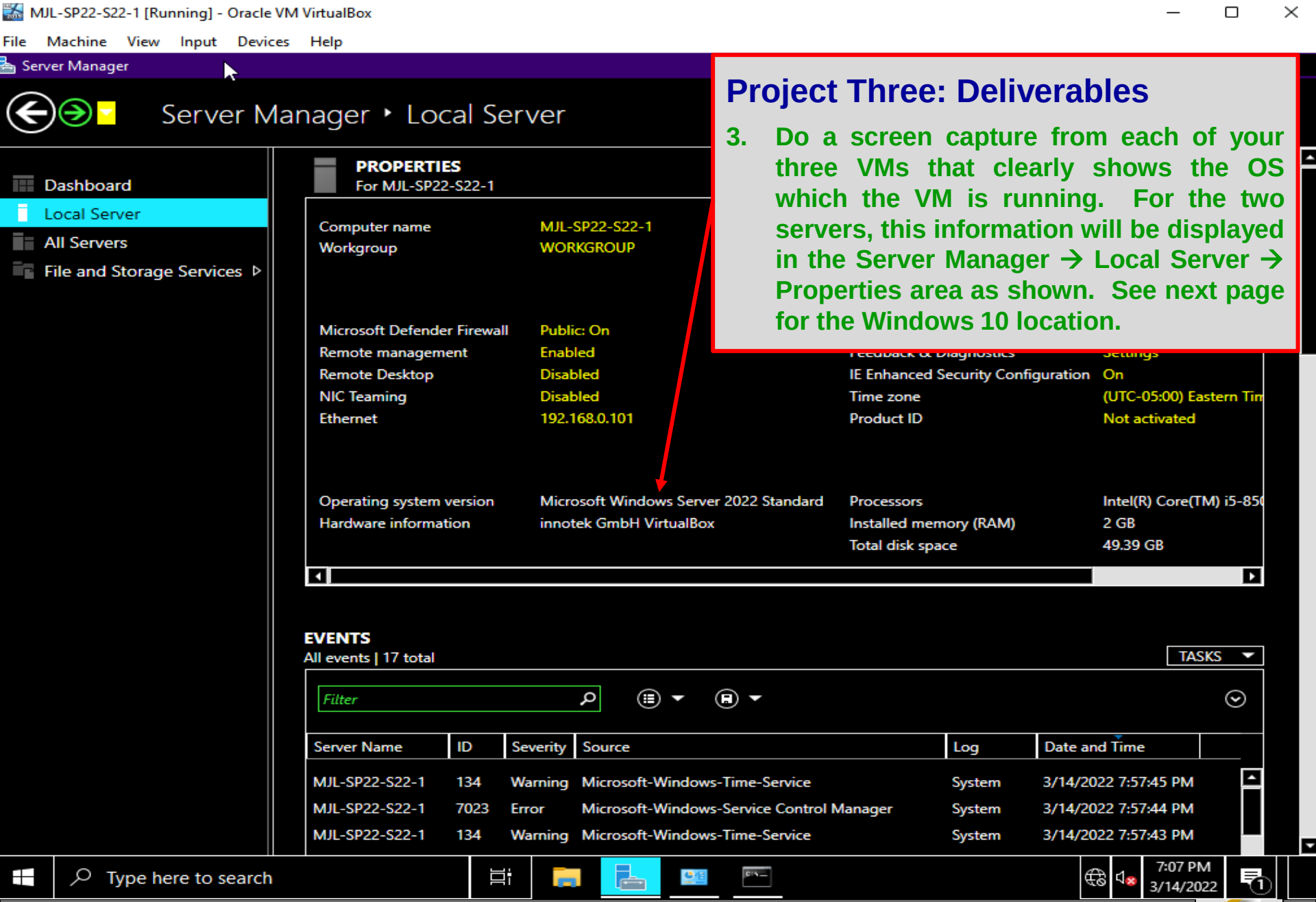
1. Do a screen capture of the output of an `inconfig /all` command for each virtual machine.

Project Three: For All Deliverables

Be sure that the virtual machine name is clearly visible in each screen shot.

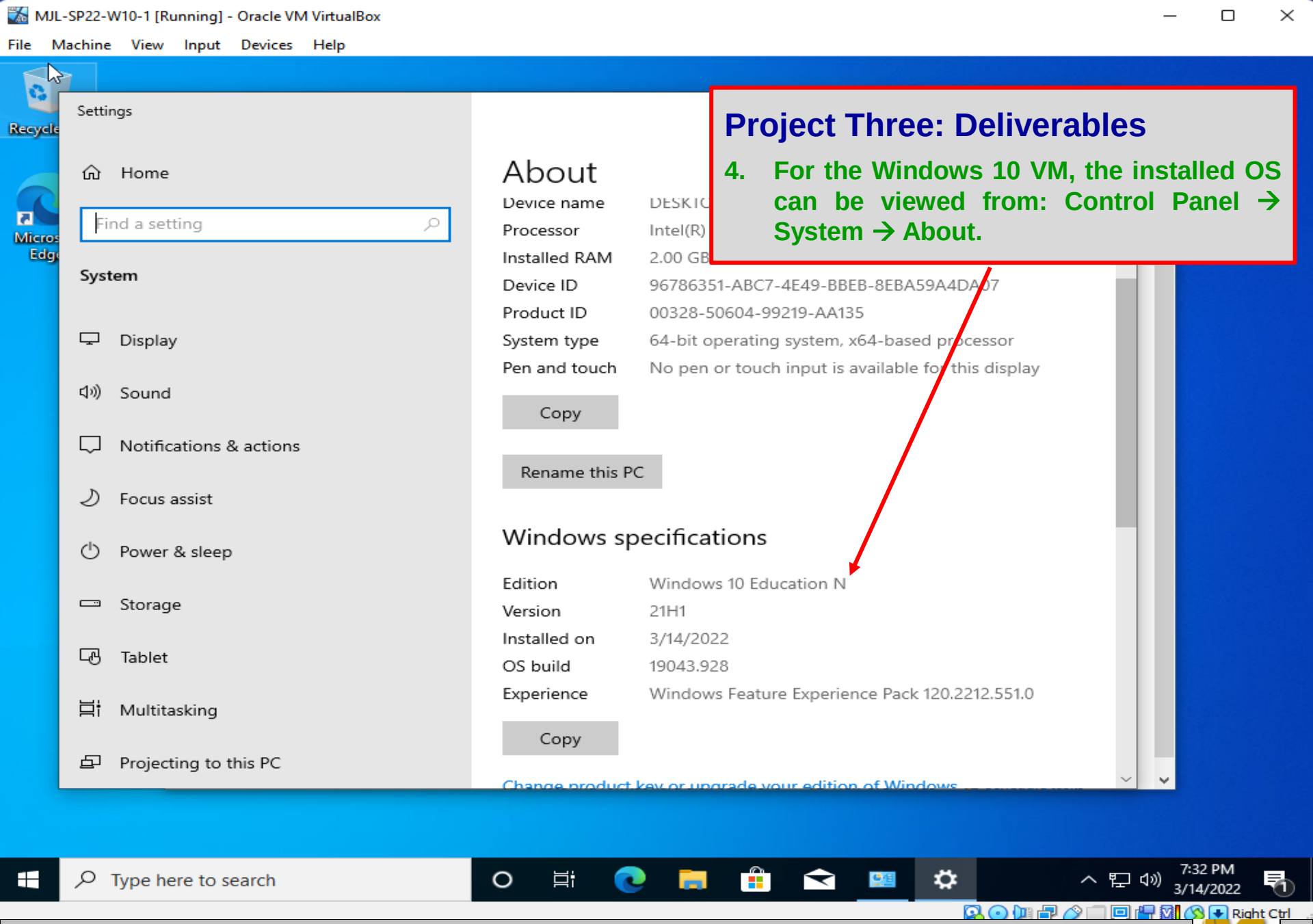

MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Server Manager
Administrator: Command Prompt
Microsoft Windows [Version 10.0.20348.169]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Administrator>ping 192.168.0.102
Pinging 192.168.0.102 with 32 bytes of data:
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.0.102:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Users\Administrator>ping 192.168.0.103
Pinging 192.168.0.103 with 32 bytes of data:
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.0.103:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Users\Administrator>
Project Three: Deliverables
2. Do a screen capture of the output of ping commands from each virtual machine to every other virtual machine.
MJL-SP22-S22-1 successfully pings MJL-SP22-S22-2
MJL-SP22-S22-1 successfully pings MJL-SP22-W10-1
MJL-SP22-S22-1 7023 Error Microsoft-Windows-Service Control Manager System 3/14/2022 7:57:44 PM
MJL-SP22-S22-1 134 Warning Microsoft-Windows-Time-Service System 3/14/2022 7:57:43 PM
Type here to search
7:48 PM 3/14/2022
Right Ctrl


MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Server Manager
Select Administrator: Command Prompt
Administrator: Command Prompt
Microsoft Windows [Version 10.0.20348.169]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Administrator>ping MJL-SP22-S22-2
Pinging MJL-SP22-S22-2 [192.168.0.102] with 32 bytes of data:
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Reply from 192.168.0.102: bytes=32 time=1ms TTL=128
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Reply from 192.168.0.102: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.0.102:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users\Administrator>ping MJL-SP22-W10-1
Pinging MJL-SP22-W10-1.local [192.168.0.103] with 32 bytes of data:
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time<1ms TTL=128
Reply from 192.168.0.103: bytes=32 time=1ms TTL=128
Ping statistics for 192.168.0.103:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users\Administrator>
If you named your VMs, then you can use the VM name for pinging.
MJL-SP22-S22-1 134 Warning Microsoft-Windows-Time-Service System 3/14/2022 7:57:43 PM
Type here to search
7:51 PM
3/14/2022



Project Three: Deliverables

3. Do a screen capture from each of your three VMs that clearly shows the OS which the VM is running. For the two servers, this information will be displayed in the Server Manager → Local Server → Properties area as shown. See next page for the Windows 10 location.



Project Three: Deliverables

4. **For the Windows 10 VM, the installed OS can be viewed from: Control Panel → System → About.**

Project Three: Deliverables – Step 5

- You should ultimately produce a set of (at minimum) nine (9) screen shots as the set of deliverables for this project. Be sure to CLEARLY label each screenshot.
- Specifically, the screen shots are:

❖ Screenshot 1 – `MJL-SP22-S22-1`, `ipconfig /all` output
❖ Screenshot 2 – `MJL-SP22-S22-2`, `ipconfig /all` output
❖ Screenshot 3 – `MJL-SP22-W10-1`, `ipconfig /all` output
❖ Screenshot 4 – `MJL-SP22-S22-1`, successful `ping` to the other two VMs
❖ Screenshot 5 – `MJL-SP22-S22-2`, successful `ping` to the other two VMs
❖ Screenshot 6 – `MJL-SP22-W10-1`, successful `ping` to the other two VMs
❖ Screenshot 7 – `MJL-SP22-S22-1`, installed OS
❖ Screenshot 8 – `MJL-SP22-S22-2`, installed OS
❖ Screenshot 9 – `MJL-SP22-W10-1`, installed OS