Project 1 - Install Virtualization Solution (for Windows)

Objective:

The student will install and configure the virtualization environment required to complete course related projects and activities. At the end of this activity, the correct virtualization solution will be installed, and appropriate networking options will be enabled to allow 'guest isolation ' when necessary.

Before you begin:

- Ensure that your student laptop or personal computer meets the minimum requirements for your program, as described in the University Program Handbook.
- Ensure that your student laptop or personal computer has sufficient available disk space to support the storage of the software itself AND the storage requirements for each OS guest. See the table in Appendix A for typical requirements based on the course.
- Ensure that your system BIOS options have Hyper-V/Virtualization _enabled._ The exact option, title, and configuration method varies among systems. Changing the option usually involves entering the system setup during the boot process, and, usually involves restarting the computer.
- Ensure that you have been approved to access GCU Virtualization Solutions**, identified on the Canyon Connect website.** Follow links in the Student Success Center > CSET > Course Material Support > Setting up GCU VMWare.
- Download the appropriate virtualization solution for your workstation type.
    - If your system is Windows-based, download 'VMWare Workstation'.
    - If your system is Apple-based, download 'VMWare Fusion'.
    - Be sure to record the Serial number for your product. You will need this to activate your product during the installation.
- Ensure that you have been approved for access to the Azure teaching solutions software required for your course**, identified on the Canyon Connect website.**
- Download the appropriate Operating System and/or application image file(s) as directed by your instructor. There may be more than one image required.
- Record the Product Key for each OS/Application. You will need these to activate your product following installation.

Overview

Use this instructional guide to assist with installing and configuring your Virtualization Solution. This document includes instructions for:
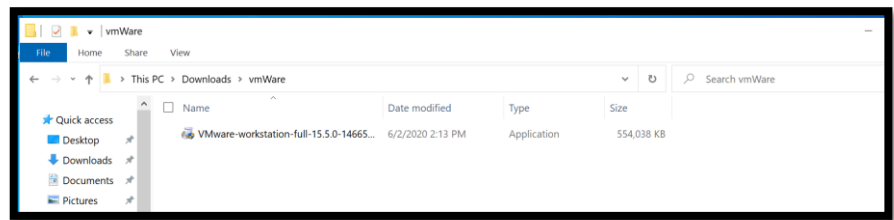
- Installing VMWare Workstation Pro
- Configuring the Virtual Network Switch

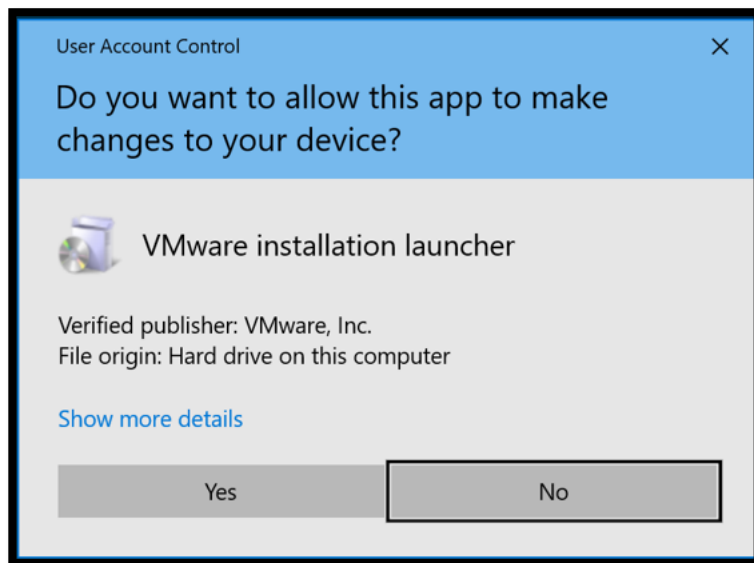## Install VMWare Workstation Pro - 20 points

Locate the installation package.

Click on the executable.

User Account Control

Click 'Yes'.
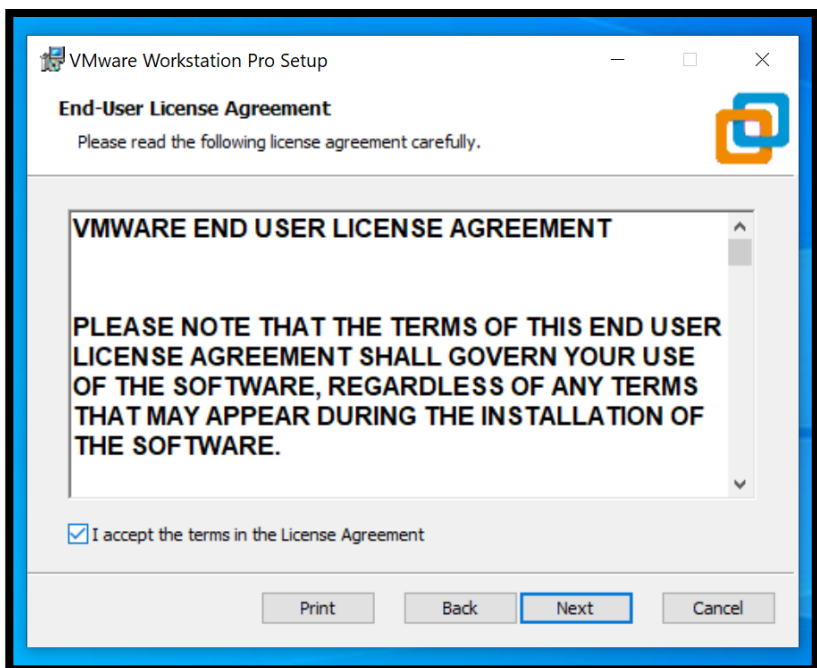

VMware Workstation Pro Setup Wizard

Click 'Next'.

GRAND CANYON
U N I V E R S I T Y ™
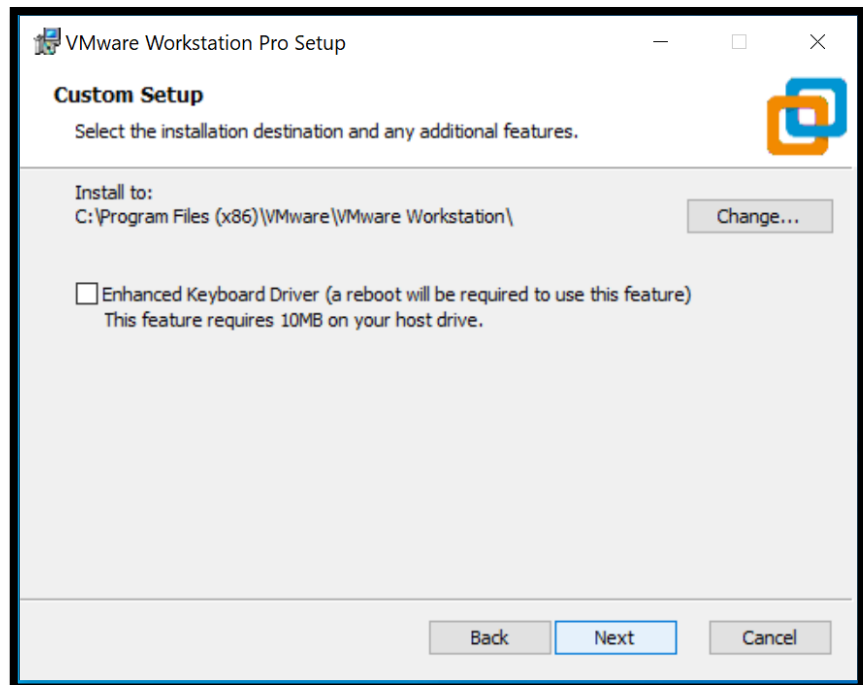
End-User License Agreement

Check 'Accept'.

Click 'Next'.

Custom Setup

Click 'Next'.

VMware Workstation Pro Setup

Custom Setup

Select the installation destination and any additional features.

Install to:
C:\Program Files (x86)\VMware\VMware Workstation\   Change...

☐ Enhanced Keyboard Driver (a reboot will be required to use this feature)
This feature requires 10MB on your host drive.

Back   Next   Cancel

User Experience

Uncheck 'Join VMware CEIP'.

Click 'Next'.

VMware Workstation Pro Setup

User Experience Settings

Edit default settings that can improve your user experience.

☑ Check for product updates on startup
When VMware Workstation Pro starts, check for new versions of the application and installed software components.

☐ Join the VMware Customer Experience Improvement Program

VMware's Customer Experience Improvement Program ("**CEIP**") provides VMware with information that enables VMware to improve its products and services, to fix problems, and to advise you on how best to deploy and use our products. As part of the CEIP, VMware collects technical
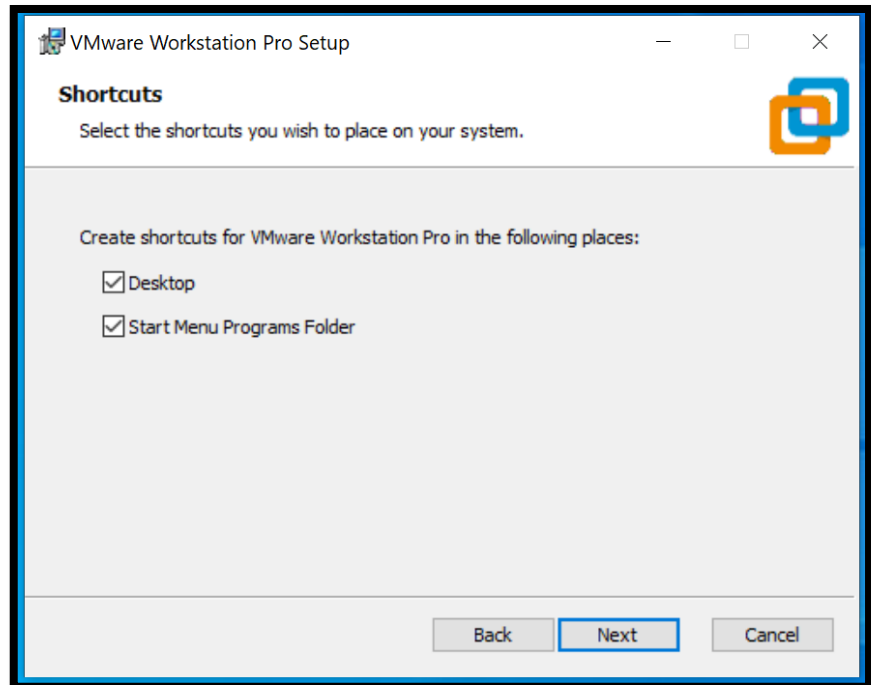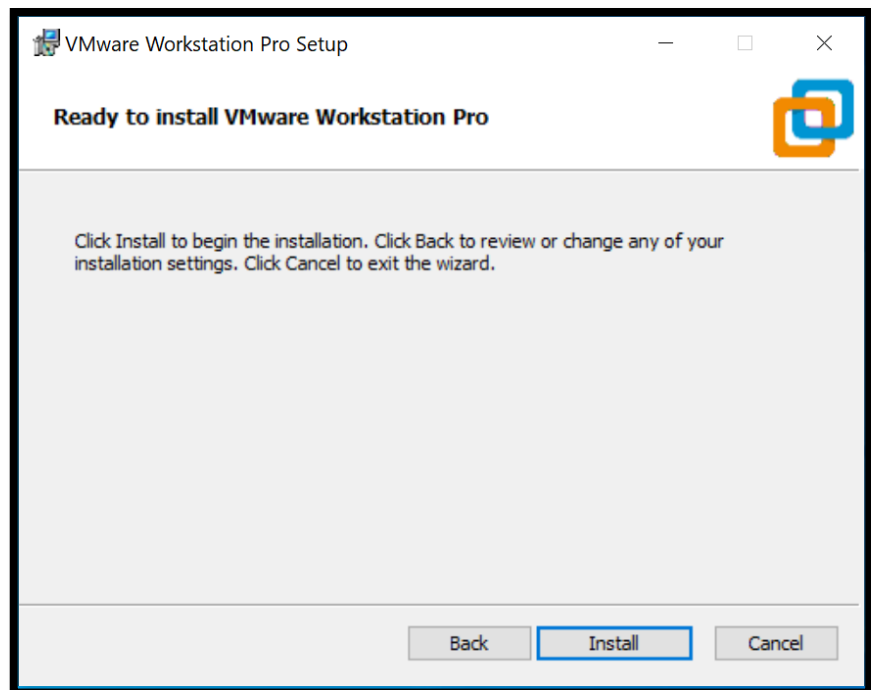
Learn More

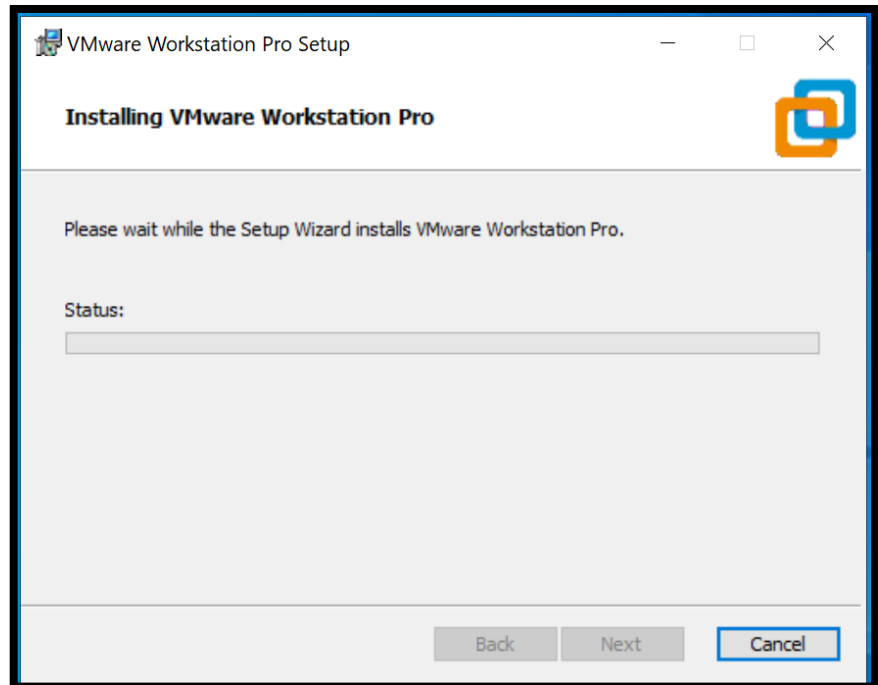Back   Next   Cancel

Shortcuts

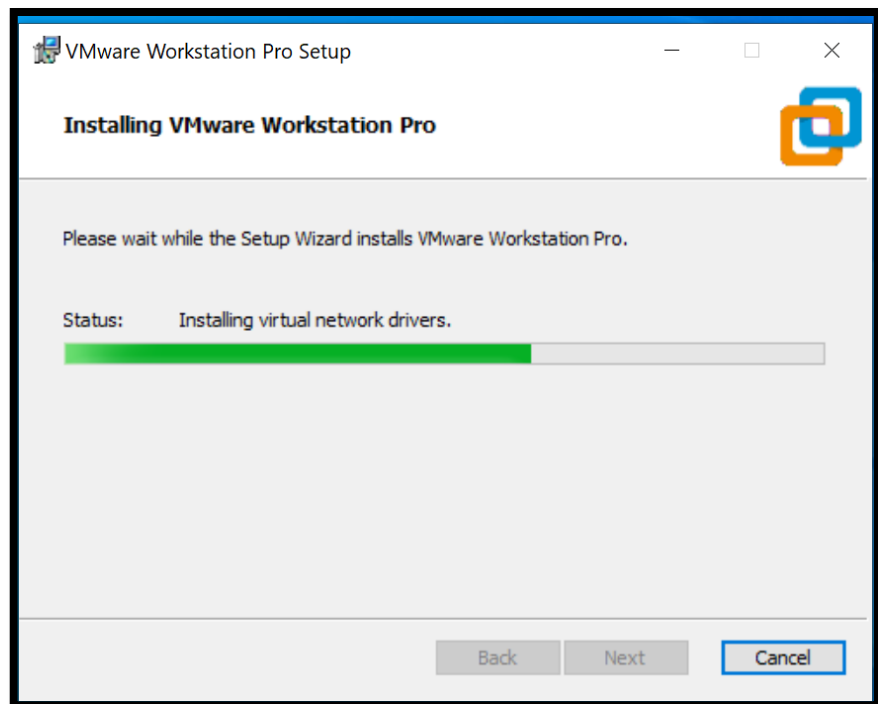Click 'Next'.

Ready to Install

Click 'Install'.

Installation

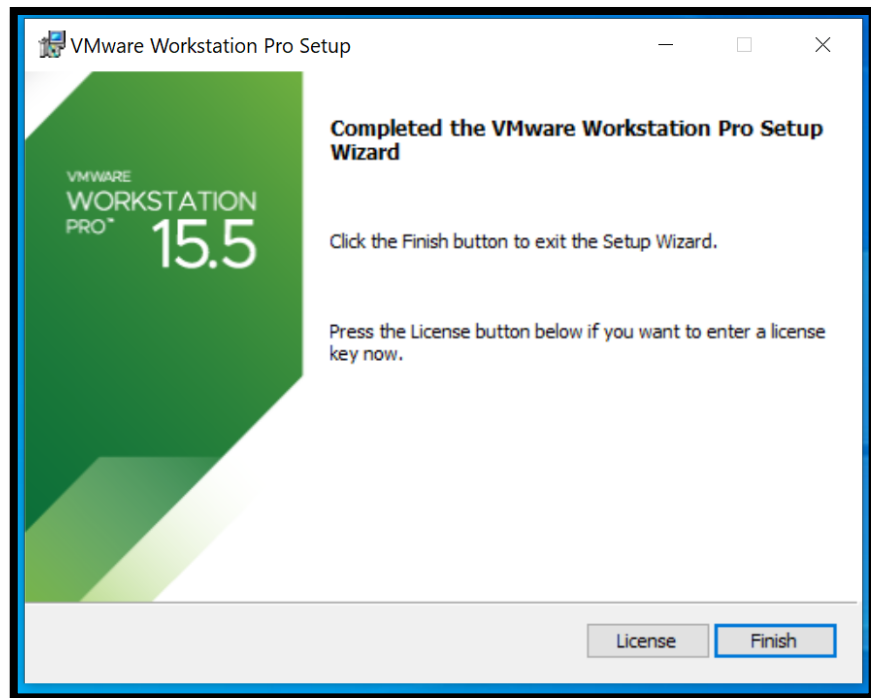Install Progress

Installation

Install Progress

Installation complete.

IF You have a license key recorded,

Click 'License'.

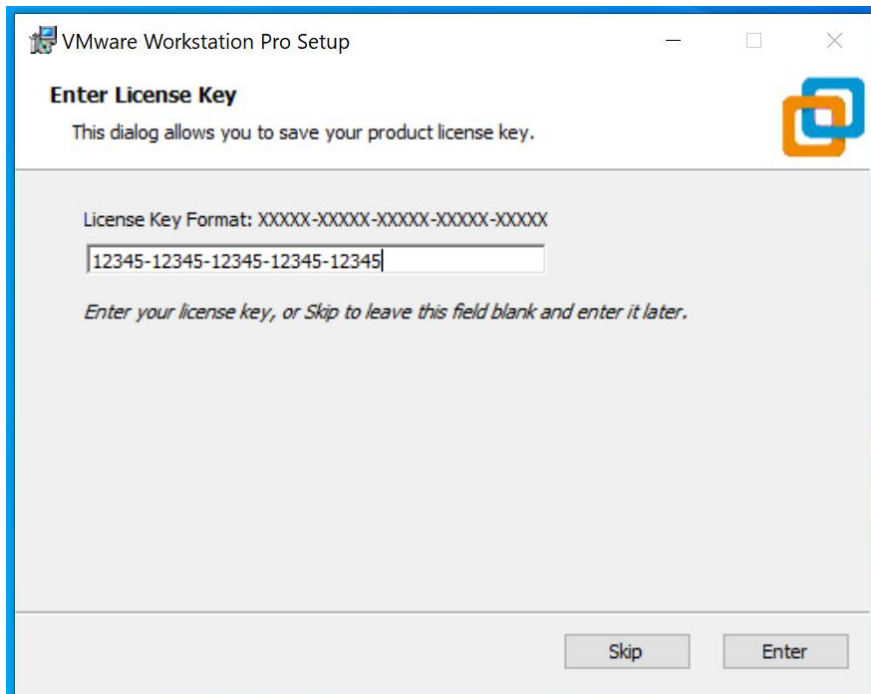IF you do not have a license, click 'Finish'.

Note: You will need to obtain a valid license key within 180 days of installation. See your instructor for details.

Enter License Key.
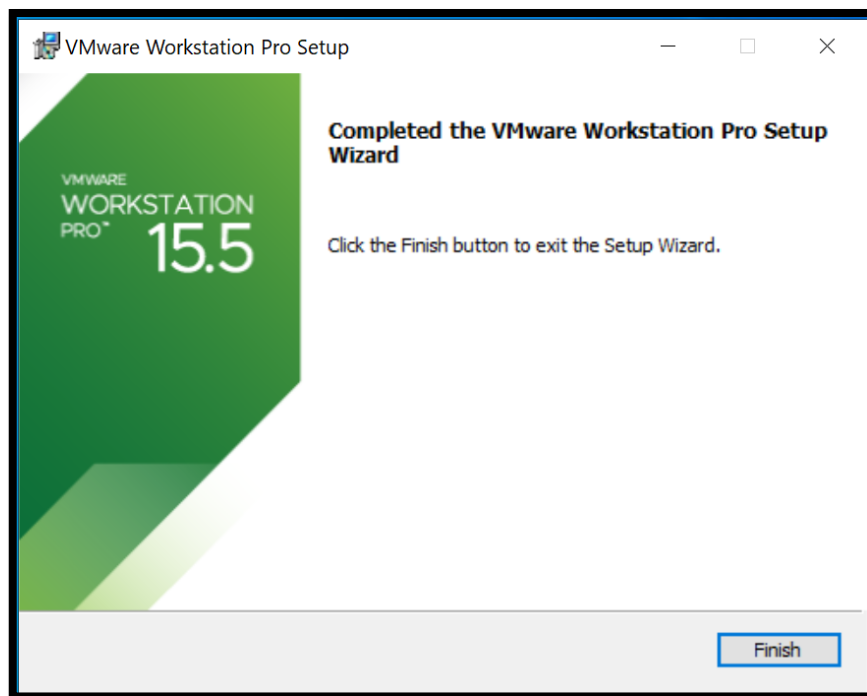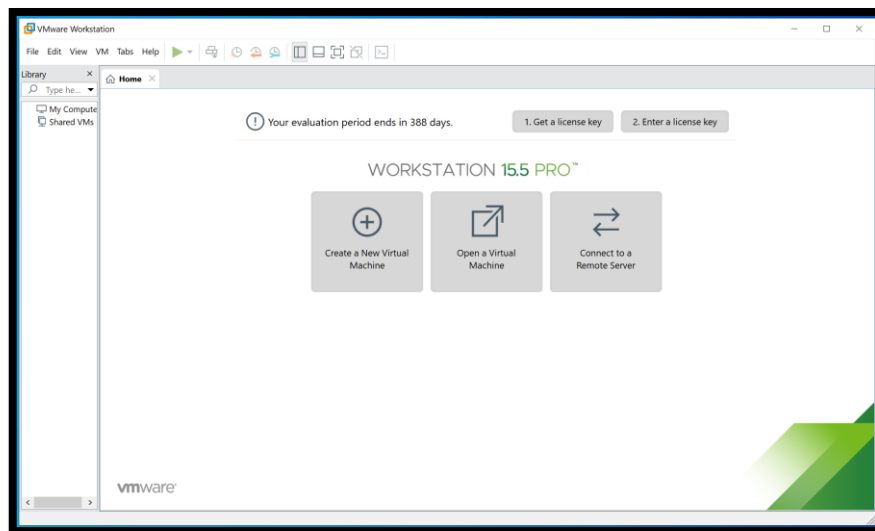
Enter your key.

Click 'Enter'.

Wizard Complete

Click 'Finish'.

Submit a screenshot of your Workstation Pro library as evidence of completion.

Installation Complete.   Reboot your computer if prompted.

Configure the Workstation Environment

Explanation

Virtual Machines are a series of files in a folder on your local hard disk. The default location may be in a path that copies to a cloud drive, or, may be on a local disk that does not have sufficient space to store the virtual machine files. This section details how to make preference changes to ensure the default folder location for a new virtual machine is placed on a drive with sufficient space. It's up to the user to ensure this path is not also included in a cloud enabled folder path (i.e., 'OneDrive').
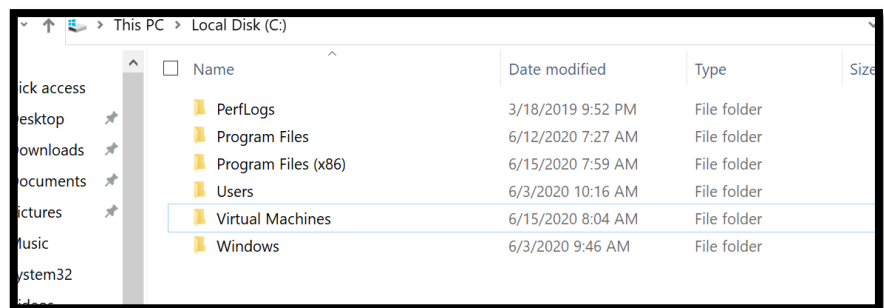
File Explorer

Open File Explorer.

Navigate the 'Drive C' or other suitable local drive.
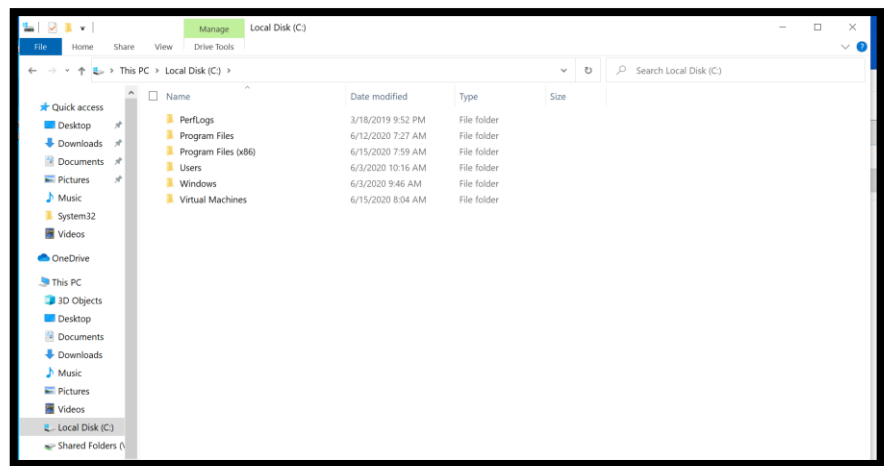
Virtual Machine Folder

Create a new folder,
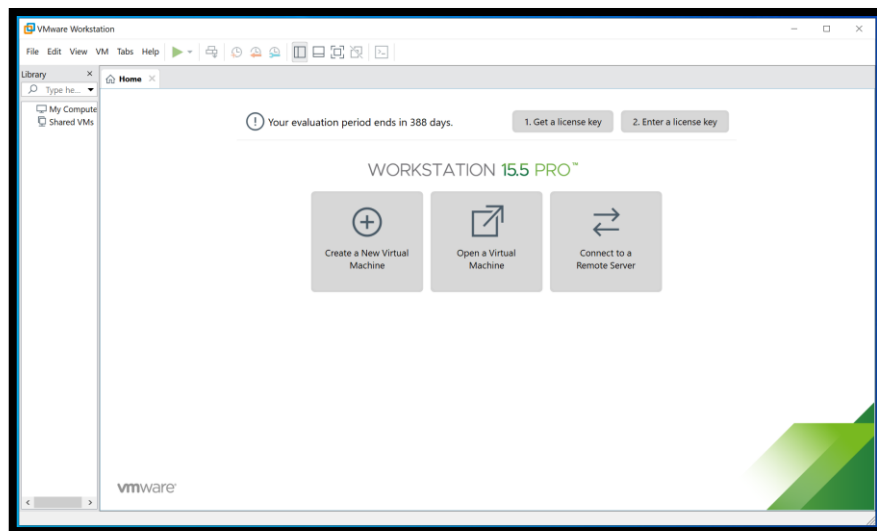
 'Virtual Machines'.

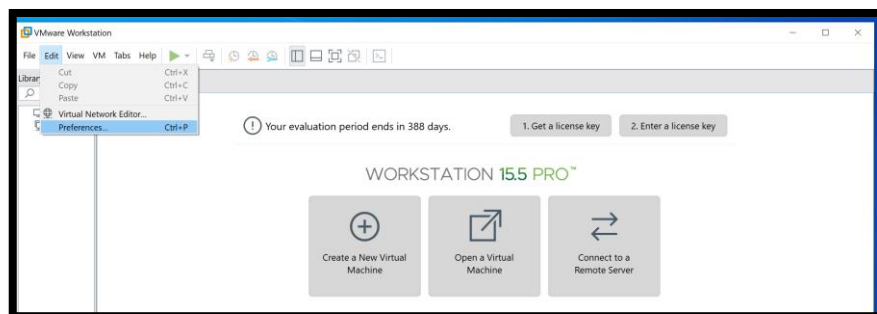Desktop Shortcut

Click the shortcut.

Start VMware Workstation
Pro

VMware Workstation Menu

Navigate to 'Edit'.

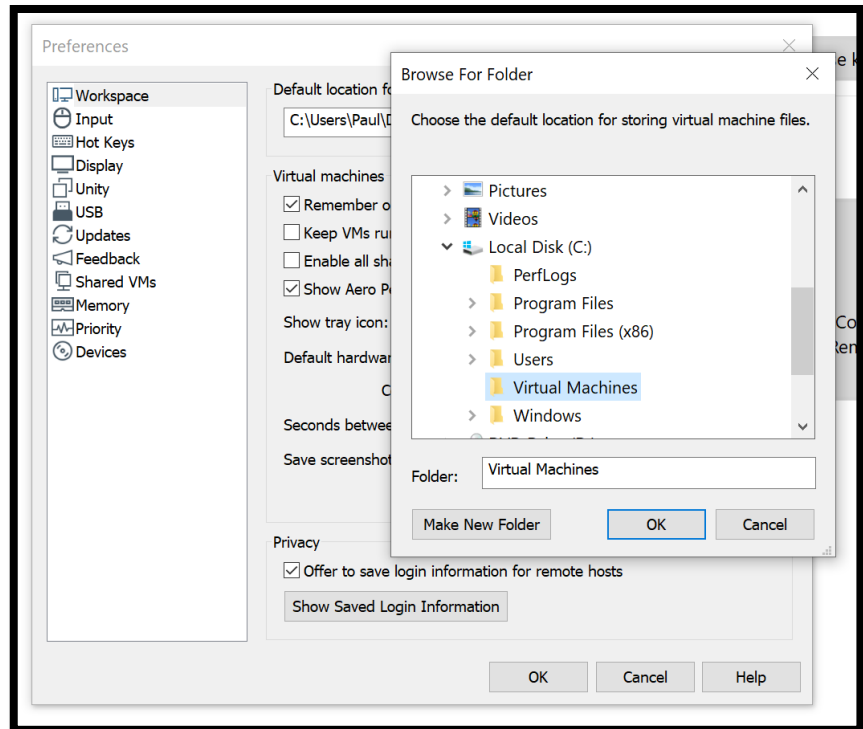Select 'Preferences'.

Preferences

Workspace

Default Location

Click 'Browse'.

Then navigate to the drive
and folder created earlier.
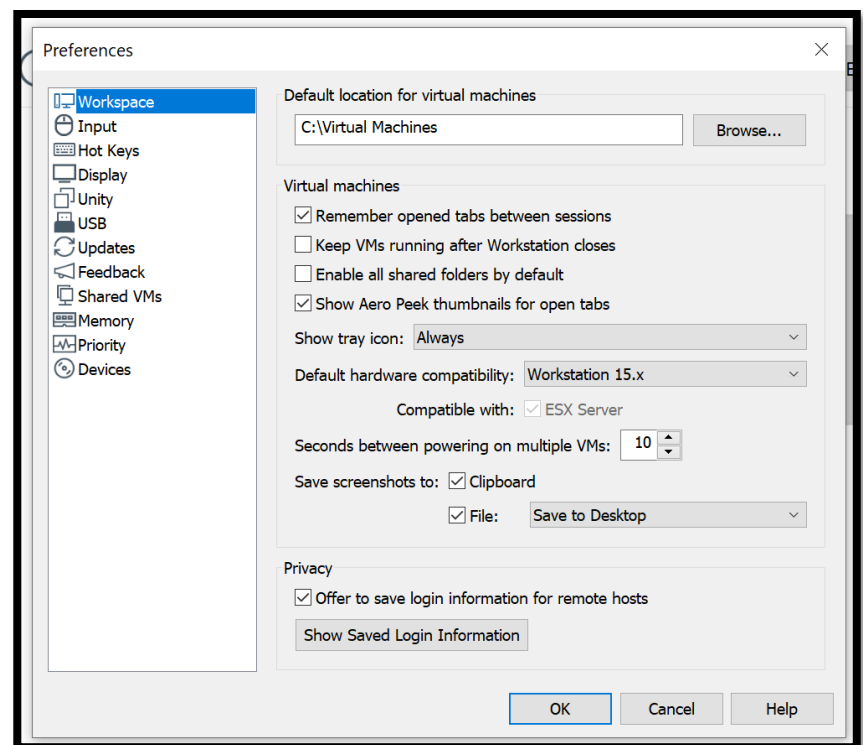
Select the folder.

Click 'Okay'.

Preferences

Workspace

Default Location

Click 'Ok'.

Preference change complete

Configure the Virtual Network Switch – 10 points

Explanation

The virtualization solution allows the user to configure virtual network switching interfaces to provide various options for connecting and interconnecting the virtual guests created in the environment on your computer.

You will configure at least two virtual interfaces for use in various courses.

One interface allows the Guest OS to share the network interface of the host system. This feature provides internet access (assuming your host system has it as well), and is useful for downloading updates to the Guest OS, connecting for activation purposes (windows), and installation of additional packages (Linux/Unix).

The second interface allows VMWare Fusion to interconnect one guest OS with other guest OSs when they are also configured to use the virtual interface.

For the purposes of GCU courses, and to provide an additional layer of isolation from the campus network, this 'AirGap' interface is kept disconnected from the host network interface.
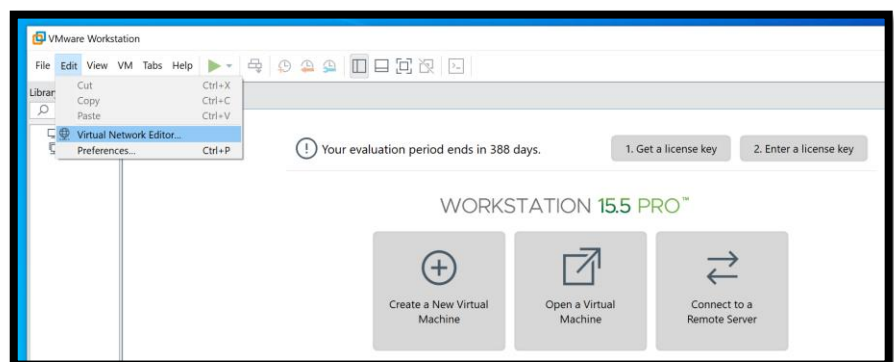
Your instructor will provide specific direction for when to use each interface in your virtual machine guests.

Note: All Virtual Machine guests should be powered off during this configuration step.
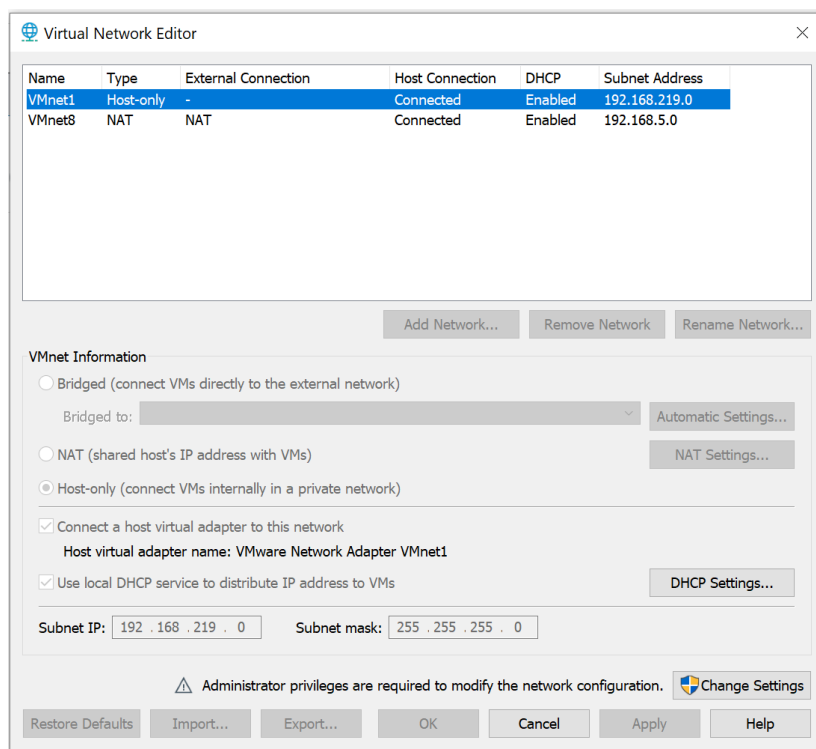
VMware Workstation Main Menu

Navigate to 'Edit'.
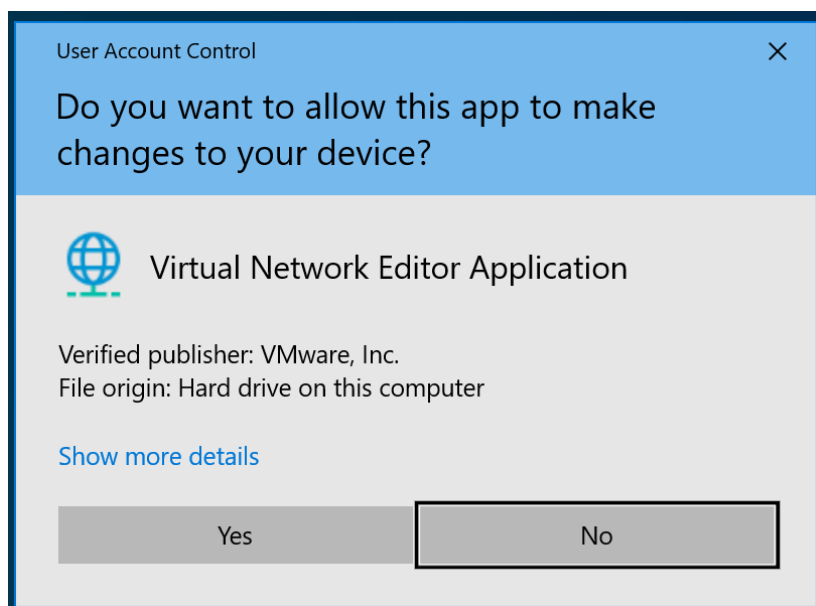
The select 'Virtual Network Editor'.

Virtual Network Editor

Click 'Change Settings'.

Virtual Network Editor

Name	Type	External Connection	Host Connection	DHCP	Subnet Address
VMnet1	Host-only	-	Connected	Enabled	192.168.219.0
VMnet8	NAT	NAT	Connected	Enabled	192.168.5.0

Add Network... Remove Network Rename Network...

VMnet Information

○ Bridged (connect VMs directly to the external network)

Bridged to: [   ] Automatic Settings...

○ NAT (shared host's IP address with VMs) NAT Settings...

● Host-only (connect VMs internally in a private network)

☑ Connect a host virtual adapter to this network

Host virtual adapter name: VMware Network Adapter VMnet1

☑ Use local DHCP service to distribute IP address to VMs DHCP Settings...

Subnet IP: 192 . 168 . 219 . 0   Subnet mask: 255 . 255 . 255 . 0

⚠ Administrator privileges are required to modify the network configuration. 🛡Change Settings

Restore Defaults Import... Export... OK Cancel Apply Help

User Account Control

Click 'Yes'.

User Account Control

Do you want to allow this app to make changes to your device?

Virtual Network Editor Application

Verified publisher: VMware, Inc.
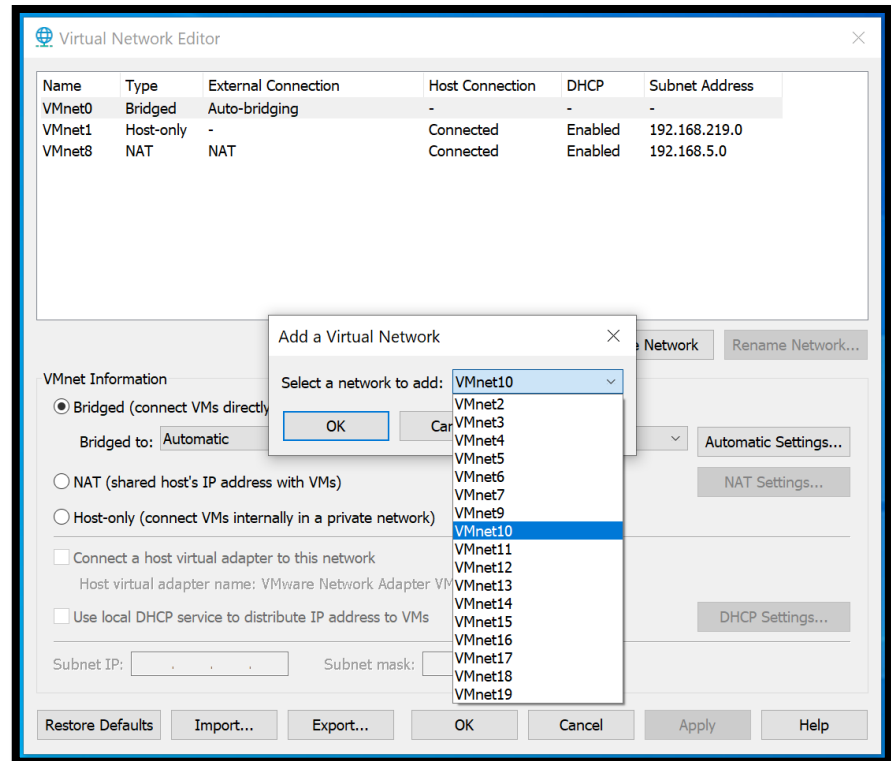File origin: Hard drive on this computer

Show more details

Yes   No

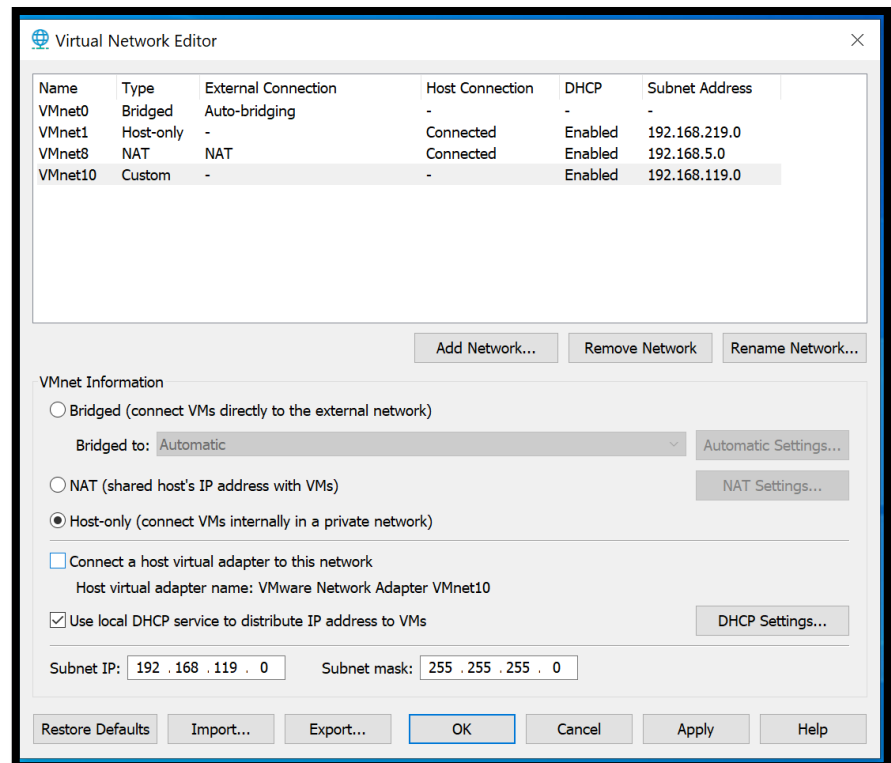Virtual Network Editor

Click 'Add Network'.

Select 'VMnet10' from the list.
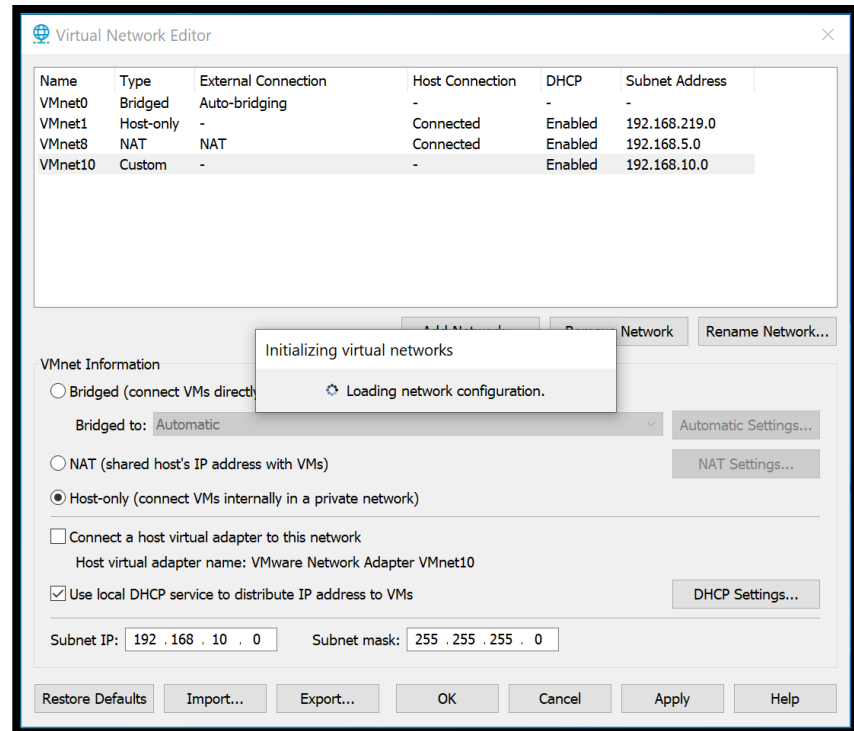

Virtual Network Editor

Un-Check 'Connect a host virtual adapter to this network'.

Change the Subnet IP to '192.168.10.0', or to a range assigned by your instructor.
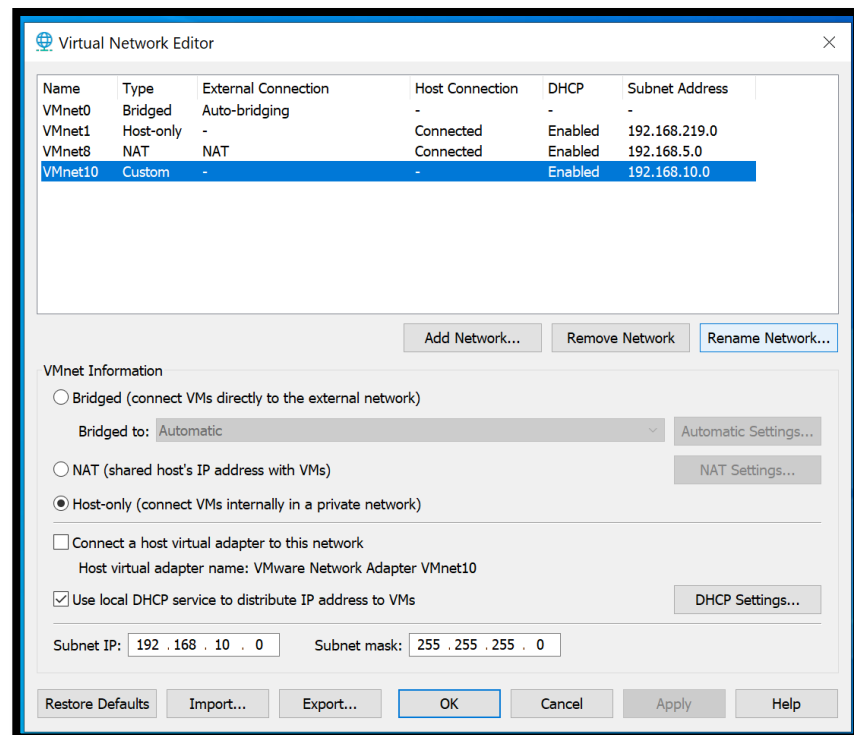
Virtual Network Editor

The network configuration is applied, and the network service is restarted.
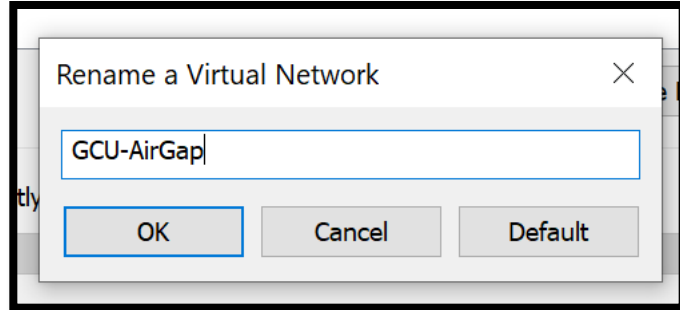

Virtual Network Editor

Click 'Rename Network'.

Rename a virtual network
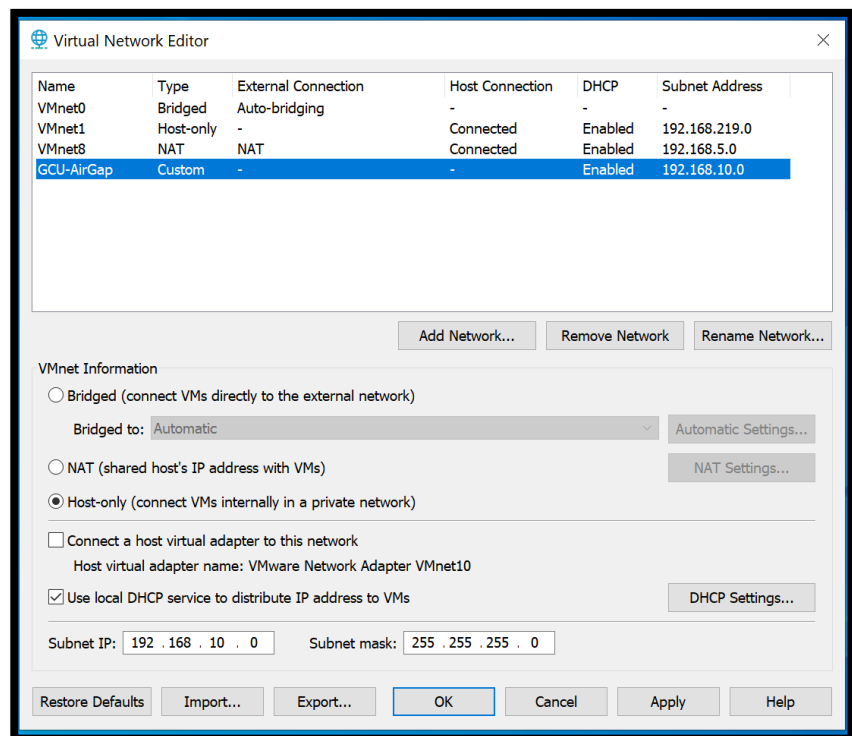
Rename the network
'GCU-AirGap'.

Click 'Ok'.

Rename a Virtual Network   ✕

GCU-AirGap

| OK | Cancel | Default |

Virtual Network Editor

Custom changes complete.

Click 'Ok'.

🌐 Virtual Network Editor   ✕

Name	Type	External Connection	Host Connection	DHCP	Subnet Address
VMnet0	Bridged	Auto-bridging	-	-	-
VMnet1	Host-only	-	Connected	Enabled	192.168.219.0
VMnet8	NAT	NAT	Connected	Enabled	192.168.5.0
GCU-AirGap	Custom	-	-	Enabled	192.168.10.0

| Add Network... | Remove Network | Rename Network... |

VMnet Information

◯ Bridged (connect VMs directly to the external network)

Bridged to: Automatic   [Automatic Settings...]

◯ NAT (shared host's IP address with VMs)   [NAT Settings...]

◉ Host-only (connect VMs internally in a private network)

☐ Connect a host virtual adapter to this network

Host virtual adapter name: VMware Network Adapter VMnet10

☑ Use local DHCP service to distribute IP address to VMs   [DHCP Settings...]

Subnet IP: 192 . 168 . 10 . 0   Subnet mask: 255 . 255 . 255 . 0

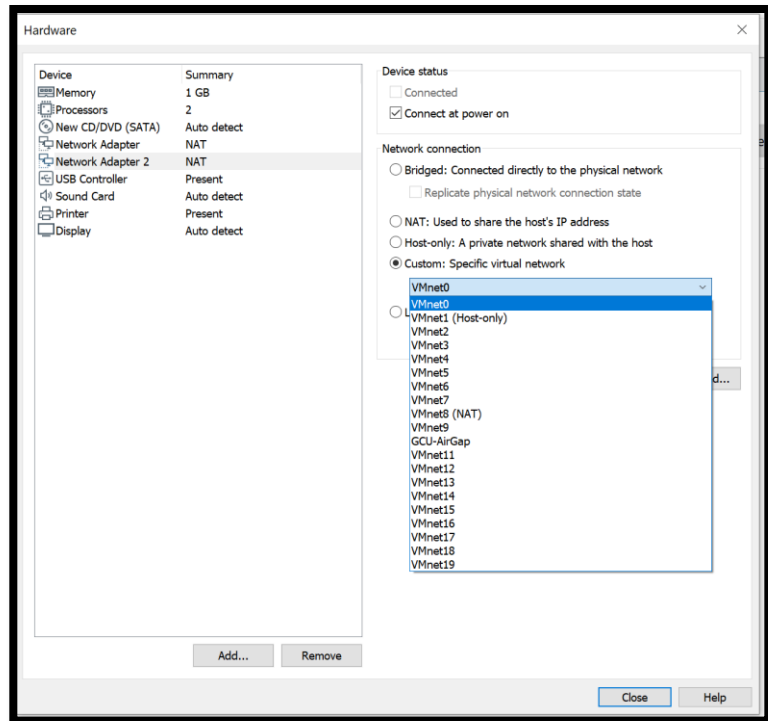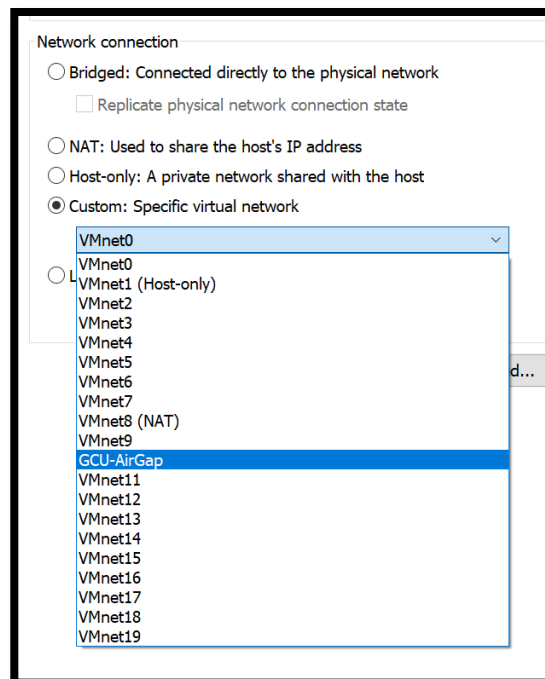| Restore Defaults | Import... | Export... | OK | Cancel | Apply | Help |

Example:

You will use the GCU-AirGap in later projects to configure a second network interface in your Guest OS machines.

This is an example of how the network appears in the Add Network Adapter settings in a Virtual Machine Hardware list.

Add Adapter.

Include a screenshot of your completed Virtual Network Editor with the AirGap configuration as proof of completion.

Virtual Network configuration complete.

Scoring (30 points total):

- Install virtualization solution: 20 points
- Configure Virtual Network Switch: 10 Points