SYS-350 Milestone 11: Hyper-V

💡This week we will wipe our original ESXi Host (superX) and install Windows Server 2019 (GUI) in its place. You can run HyperV on Server Core but you still need another Windows Host to manage it. We will therefore use the Desktop Experience. One of the major challenges will be to get the enormous ISO image deployed to our superX server. A USB thumb drive makes the most sense.

Booting the ISO

Making a Windows Bootable USB Stick with Rufus using the Windows 2019 Server ISO from the X: or from 192.168.7.240/isos or 192.168.7.241/isos
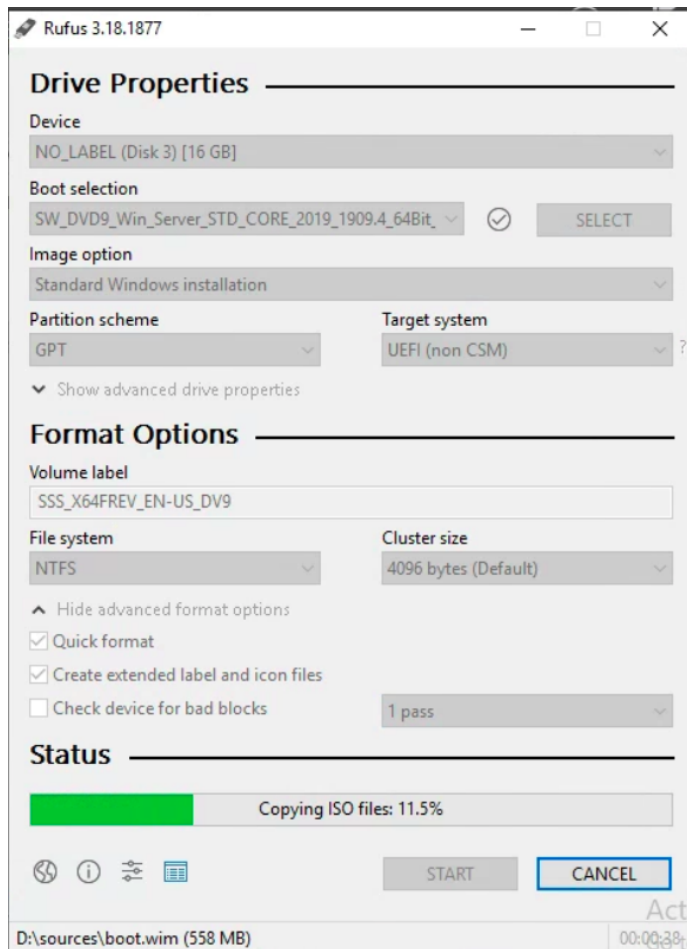
Installing Server 2019

SYS-350 Hypervisor Assignments

Using IPMI and iKVM, Install Server 2019 - DataCenter (Desktop Experience) using the bootable USB drive.
- **Make sure to delete the numerous ESXi partitions from your server before installation.**
- Your IP address will be the one previously assigned to superx.cyber.local.
- Note, on the supers the physical ETH0 port on the server may show up as a different Ethernet number in Windows. This will be relabeled through Hyper-V
- If you have a second drive, configure it to use a storage drive by Windows as that is a good place for ISO file, templates, and VM storage.

After 2019 is up, **install Hyper-V on the server** (Hint: Roles and Features).

In the Hyper-V Manager- use the Virtual Switch Manager so that you have:
- The existing Ethernet connection (Joyce Network) renamed to Hyper-V-WAN as the "external" networks
- A new Virtual Switch called LAN-INTERNAL defined as an "internal switch
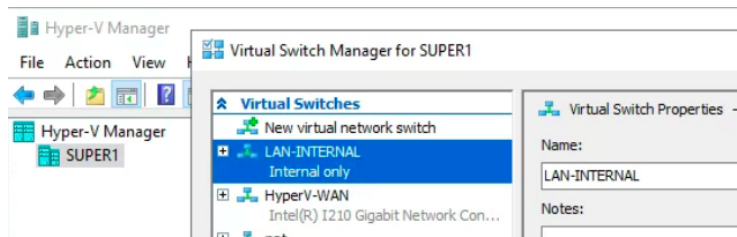
Make other changes to the server so it is consistent with the screenshot below.

`Deliverable 1.  Provide a screenshot similar to the one below.`
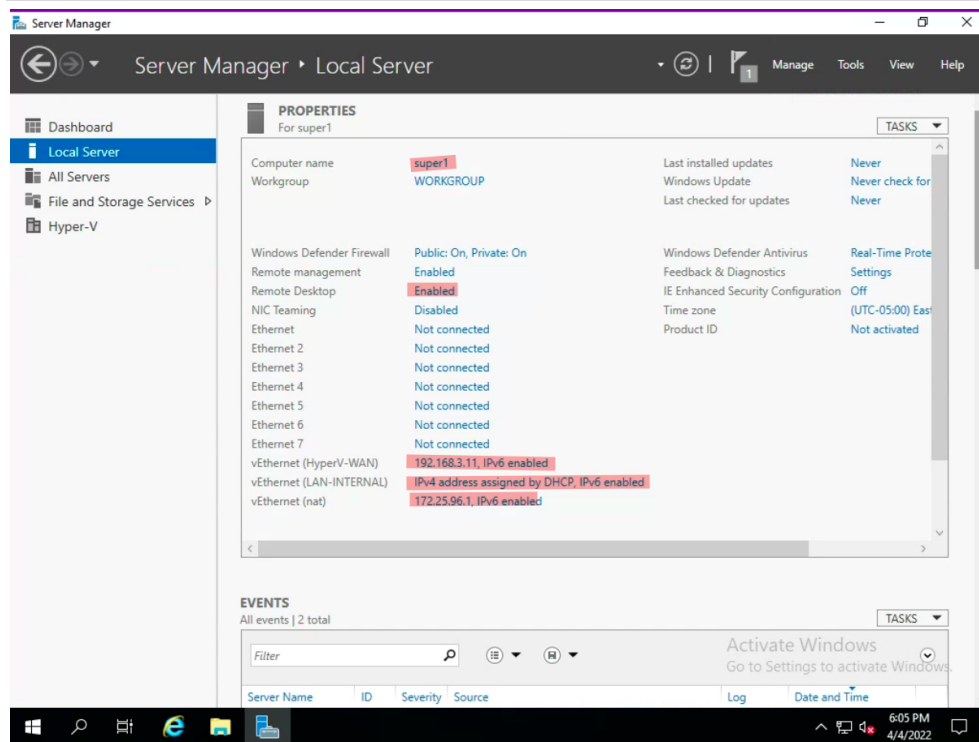
Installing WAC

Note: Windows Admin Center does not play well with Firefox, use Google Chrome

Install Windows Admin Center (WAC) on your HyperV server.
- Can use browser on server to download installer from: https://aka.ms/WACDownload OR
- Use Powershell to do it from terminal
- WAC should be accessible via browser on your workstation

Figure out how to install the **Virtual Machines and Switches Extension** in WAC

Deliverable 2. Provide a screenshot similar to the one below that
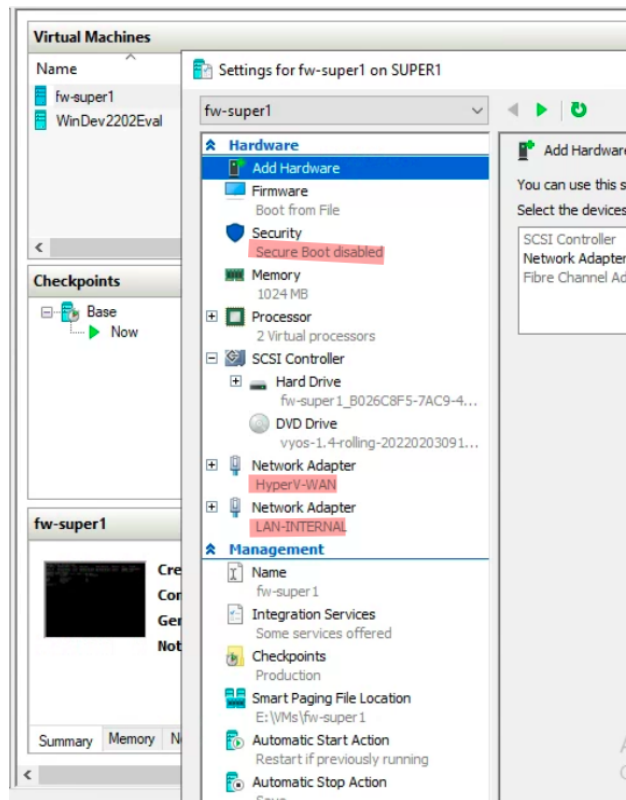illustrates that you have installed WAC and the extensions.
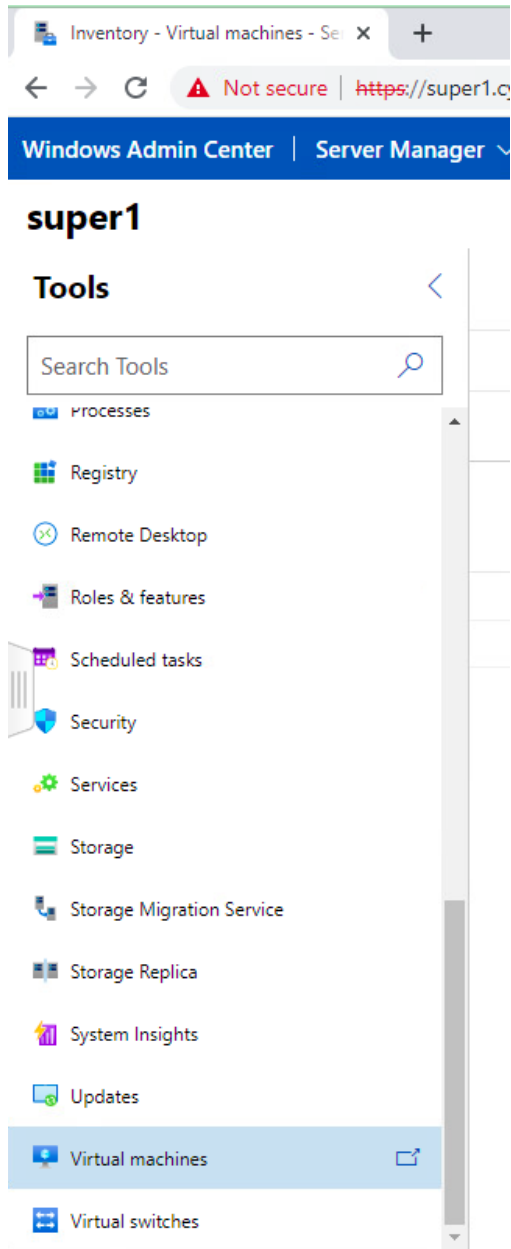
HyperV VMs

VM1- pFSense

Create a HyperV pfsense VM:
- ISO from 192.168.7.240/isos or 192.168.7.241/isos

- with 2 interfaces
    - One on your WAN
    - and another on the Internal network.
    - Disable secure boot on non windows systems like pfsense

VM2- Windows 11

Download a Windows 11 Hyper-V Virtual Machine from this site:
https://developer.microsoft.com/en-us/windows/downloads/virtual-machines/

Get a Windows 11 development environment

Start building Windows applications quickly by using a virtual machine with the late the developer tools, SDKs, and samples ready to go

Download a virtual machine

We currently package our virtual machines for four different virtualization software options: VMWare, Hyper-V, VirtualBox, and Parallels.

Windows 11 Enterprise - 20 GB download

This VM will expire on May 2, 2022.

⬇ VMWare   ⬇ Hyper-V   ⬇ VirtualBox   ⬇ Parallels

This evaluation virtual machine includes:

• Window 11 Enterprise (Evaluation)
• Visual Studio 2022 with the UWP, .NET Desktop, Azure, and Windows App SDK for C# workloads enabled
• Windows Subsystem for Linux enabled with Ubuntu installed

Configure this Windows 11 Virtual Machine on your Internal Network.

 Deliverable 3. Provide a screenshot that shows your Windows 11 Host pinging google.com via the gateway (The Internal network interface for your firewall). Note the 10.0.5.x address of the Windows 11 host. In the example, the pfSense system is providing dhcp to the internal network but you can also configure static settings on Windows 11 box.

`Deliverable 3.  Provide a screenshot similar to the one below that shows connectivity from INTERNAL->WAN->GOOGLE Similar to the one below.`

Deliverable 4. Tech Journal. Discuss how you
- How you imported and configured your Windows 11 host.
- Installed HyperV and Management Tools (Powershell is great for this)
- Installed WAC
- Configured Your HyperV Networks (this is not straight forward)
- How you created and configured your firewall of choice