



Critical
manufacturing
an ASM PT company

How to use Critical Manufacturing MES VM based on Hyper-V

May 2022

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1 Introduction

1.1 Purpose and Scope

This document contains instructions to help users use the Critical Manufacturing MES VM based on Hyper-V.

Its primary target audience is users that never imported or created a Virtual Machine (VM) based on Hyper-V or have never installed a Critical Manufacturing MES license.

Critical Manufacturing VM installation is available for:

- PC: in this case, Hyper-V is a mandatory requirement. Please check Microsoft online documentation for more details regarding the minimum preconditions to run Hyper-V on your machine: <https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/reference/hyper-v-requirements>. This guide concerns this VM's type.
or
- Azure account: in this case, the user must have an Azure account with the conditions to install a VM according to what is required. (request Critical Manufacturing the guide for this VM's type).



2 How-To

2.1 Pre-Requirements

Hyper-V is a mandatory requirement; please check Microsoft online documentation for more details regarding the minimum pre-requirements to run Hyper-V on your machine:

<https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/reference/hyper-v-requirements>.

We advise the user to run the VM in hardware with at least 8 GB of RAM (dedicated to the VM) and a 4-core processor.

At least 50 GB of disk space should be reserved for this VM.

7zip software is required to unzip the files.

Note: If you want to run several VM simultaneously, the hardware requirements are different and depend on each VM's characteristics.

2.2 Critical manufacturing MES VM usage

The Critical Manufacturing MES VM is available as 7zip files protected with a password. The password was sent by email.

You can unzip the files to their destination folder (where the VM will run).

The available VM was built with a version 9 configuration; for the Hyper-V manager to detect this VM as a valid VM, you need to have Windows Server 2019 or the latest Windows 10 Enterprise version (please check the table below).

Hyper-V host Windows version	9.1	9.0	8.3	8.2	8.1	8.0	7.1	7.0	6.2	5.0
Windows Server 2019	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 10 Enterprise LTSC 2019	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows Server 2016	×	×	×	×	×	✓	✓	✓	✓	✓
Windows 10 Enterprise 2016 LTSC	×	×	×	×	×	✓	✓	✓	✓	✓
Windows 10 Enterprise 2015 LTSC	×	×	×	×	×	×	×	×	✓	✓
Windows Server 2012 R2	×	×	×	×	×	×	×	×	×	✓
Windows 8.1	×	×	×	×	×	×	×	×	×	✓

Table 1: Hyper-V host Windows Version

Alternatively, you can create a virtual machine with the available version and use the virtual machine's hard disk (tested successfully with Hyper-V host version 8.0).



3 Download the Critical Manufacturing VM

The Critical Manufacturing VM can be in a SharePoint folder or Azure.

- **If it is in a SharePoint folder, follow the below steps**
 1. Download all files in the shared folder to the same folder on your PC.
 - We don't recommend downloading the shared folder into a zip file
 2. Extracting the first file should make you get them all (since they are split parts of a unique 7z file). The extract files are the VM.
 3. Use Hyper-V Manager to import the VM.
- 1. **If it is in Azure, follow the below steps**
 1. If you don't have it already, please download and install Azure Storage Explorer (<https://azure.microsoft.com/en-us/features/storage-explorer/>)
 2. Open Azure Storage Explorer
 3. On the left-side pane, open Connect Dialog

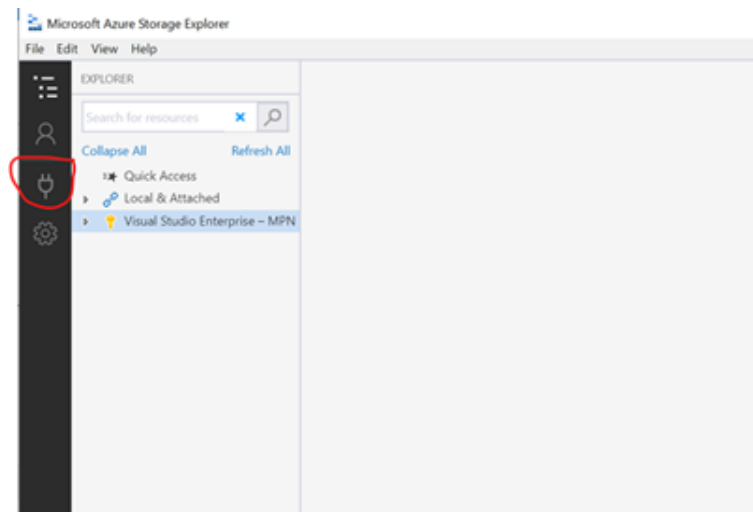


Figure 1: Connect Dialog – Azure Storage Explorer

4. Then select File share

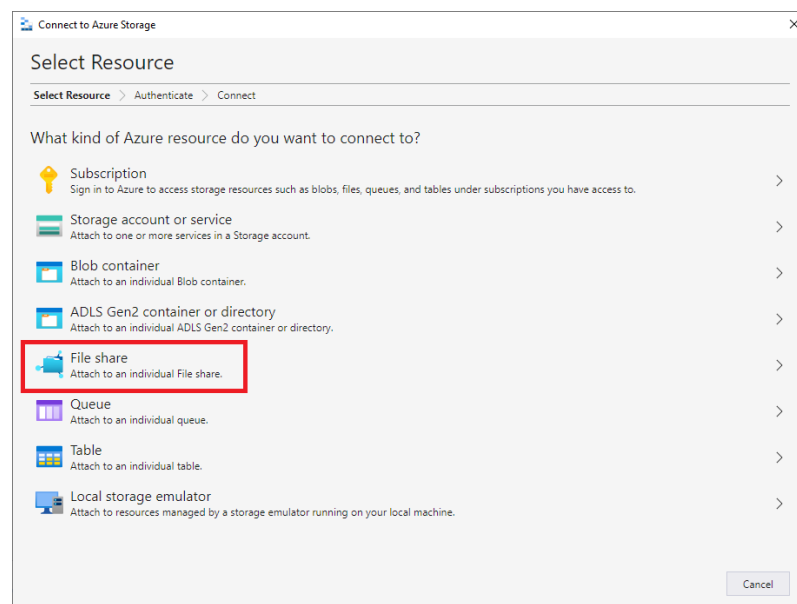


Figure 2: Select Resource – Azure Storage Explorer



5. Paste in the File share SAS URL provided to you:
 - o SAS URL: provided by Critical Manufacturing – **is in the email sent to you**
 - o Display name: it should be automatically displayed after SAS URL insertion –**do not change the display name**

Connect to Azure Storage

Enter Connection Info

Select Resource > Enter Connection Info > Summary

Display name:

File share SAS URL:

```
https://<storageaccountname>.blob.core.windows.net/<containername>/<filename>?st=2017-07-27T15:00:00Z&se=2021-12-31T23:59:59Z&sig=<saskey>&sp=r
```

BackNextCancel

Figure 3: Enter Connection Info – Azure Storage Explorer

6. Press Next and then Connect.

Connect to Azure Storage

Summary

Select Resource > Enter Connection Info > Summary

The following settings will be used to connect to your resource:

Display name:

Resource name:

File endpoint:

SAS:

Permissions:

Read, List

⚠ Make sure you only connect to resources you trust.

Back

Connect

Cancel

Figure 4: Connect– Azure Storage Explorer



7. If all goes well, you will see on the left-side tree view a structure similar to this:

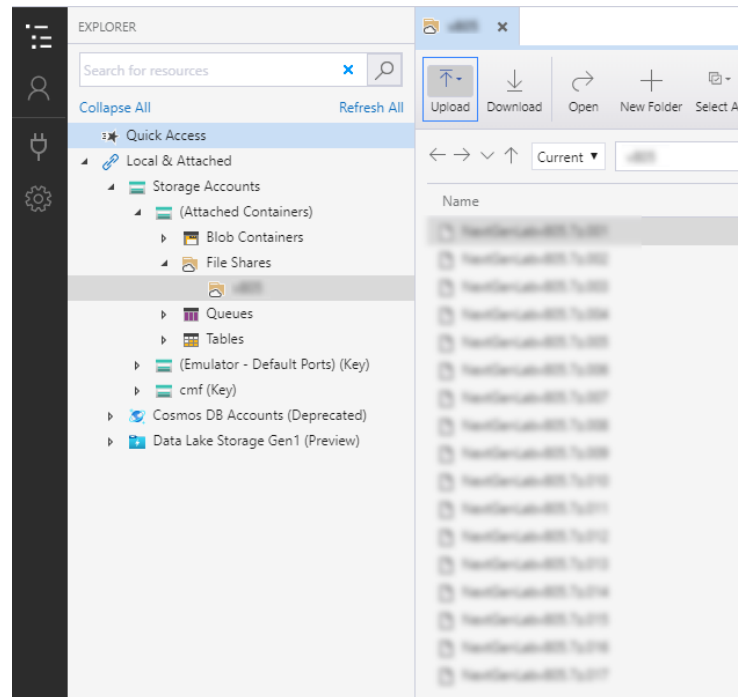


Figure 5: Tree view

8. Download all files in this folder to the same folder on your PC
 - o We don't recommend downloading the shared folder into a zip file
9. Extracting the first should get them all (since they are split parts of a unique 7z file)
10. The extract files are the VM. Use Hyper-V Manager to import the VM.



4 Import Critical Manufacturing VM

The following steps are required to import a virtual machine.

From the Actions menu in Hyper-V Manager, click Import Virtual Machine.

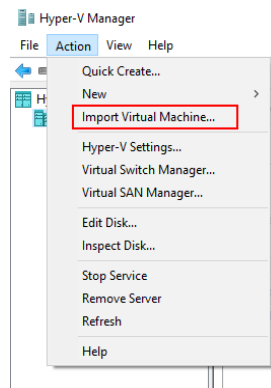


Figure 6: Import Virtual Machine

Click Next.

Select the folder that contains the unzipped files and click Next.

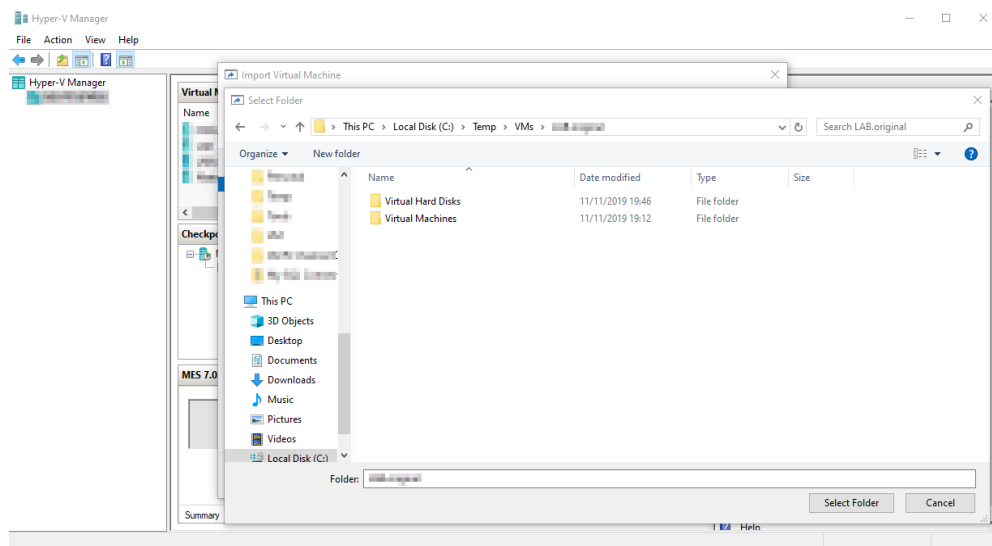


Figure 7: Select the VM folder

Select the virtual machine to import. If no virtual machine is found, your Windows is not the latest version. You either update Windows or use the Use VM hard drive method explained in the next chapter.

Choose the import type and click Next (for more details regarding the import type, please check its description in the text below Figure 8: Import Type Selection).

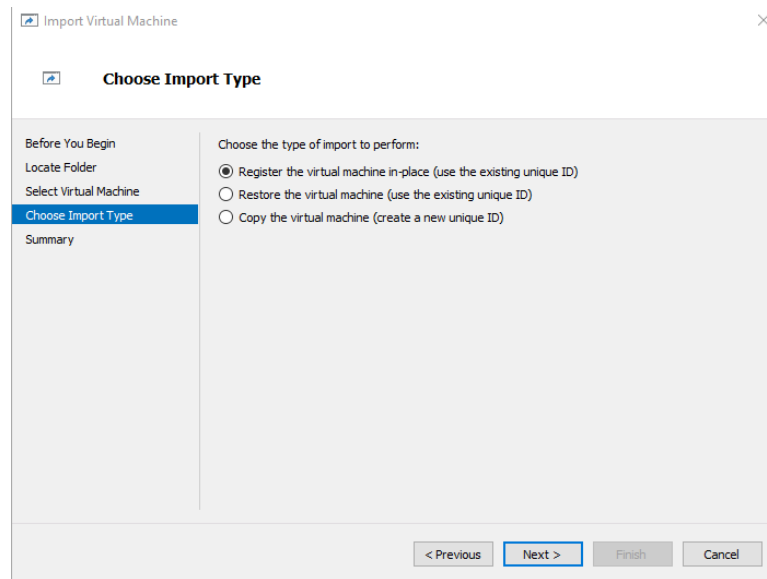


Figure 8: Import Type Selection

- Register in-place – This type assumes export files are where you'll store and run the virtual machine. The imported virtual machine has the same ID as it did at the time of export. Therefore, if the virtual machine is already registered with Hyper-V, it must be deleted before the import works. When the import has been completed, the export files become the running state files and can't be removed.
- Restore the virtual machine – Restore the virtual machine to a location you choose or use the default to Hyper-V. This import type creates a copy of the exported files and moves them to the selected location. When imported, the virtual machine has the same ID as it did at the time of export. Thus, if the virtual machine is already running in Hyper-V, it must be deleted before the import can be completed. When the import has been completed, the exported files remain intact and can be removed or imported again.
- Copy the virtual machine – This is similar to the Restore type in that you select a location for the files. The difference is that the imported virtual machine has a new unique ID, which means you can import the virtual machine to the same host multiple times.
- Click Finish.

4.1 Use only the Critical Manufacturing MES VM Hard Disk

The following procedure is an alternative to using the Critical Manufacturing MES VM on your computer.

Sometimes, you cannot update to the latest Windows version or don't want to.

In this case, you can create a simple Hyper-V Virtual Machine and use the Hard-Disk from the Critical Manufacturing MES VM as your disk.

Open Hyper-V Manager from the Start menu.

Go to Action > New > Virtual Machine.

Specify the name (and the location if you don't like the default location):

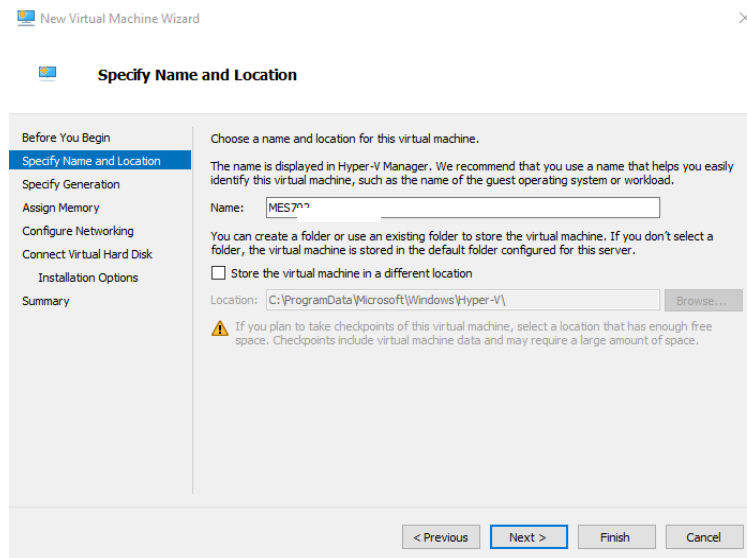


Figure 9: Specify the Name and location of the VM

Select the generation (the available VM is generation 1)

Assign the memory; at least 8 GB is advisable, but since SQL Server is running inside the VM, please set this value as high as possible if you have more memory. From our experience, to get the best performance, disable the option Use Dynamic Memory for this virtual machine.

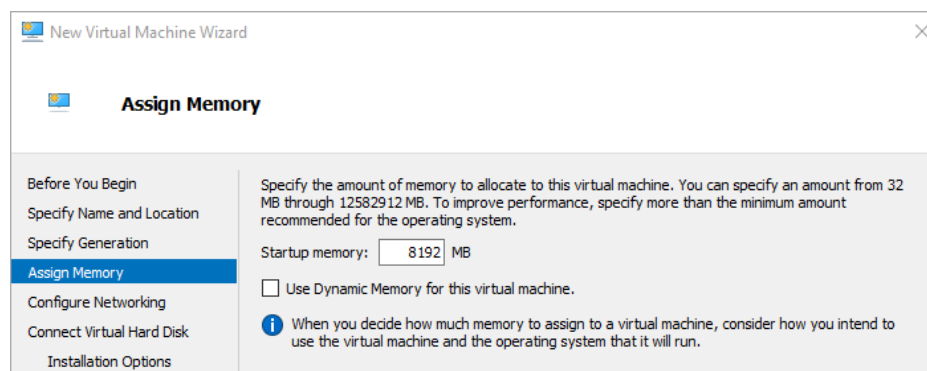


Figure 10: Assign Memory

Next, you must select the network (Default Switch is an excellent overall option).

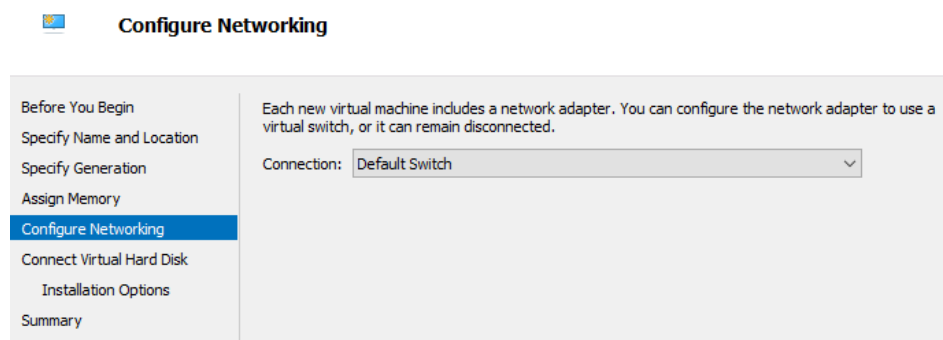


Figure 11: Define Network Interface

Next, you can select a Virtual Hard Disk. Instead of creating a new disk, select the existing virtual hard disk deployed with the Critical Manufacturing MES VM.

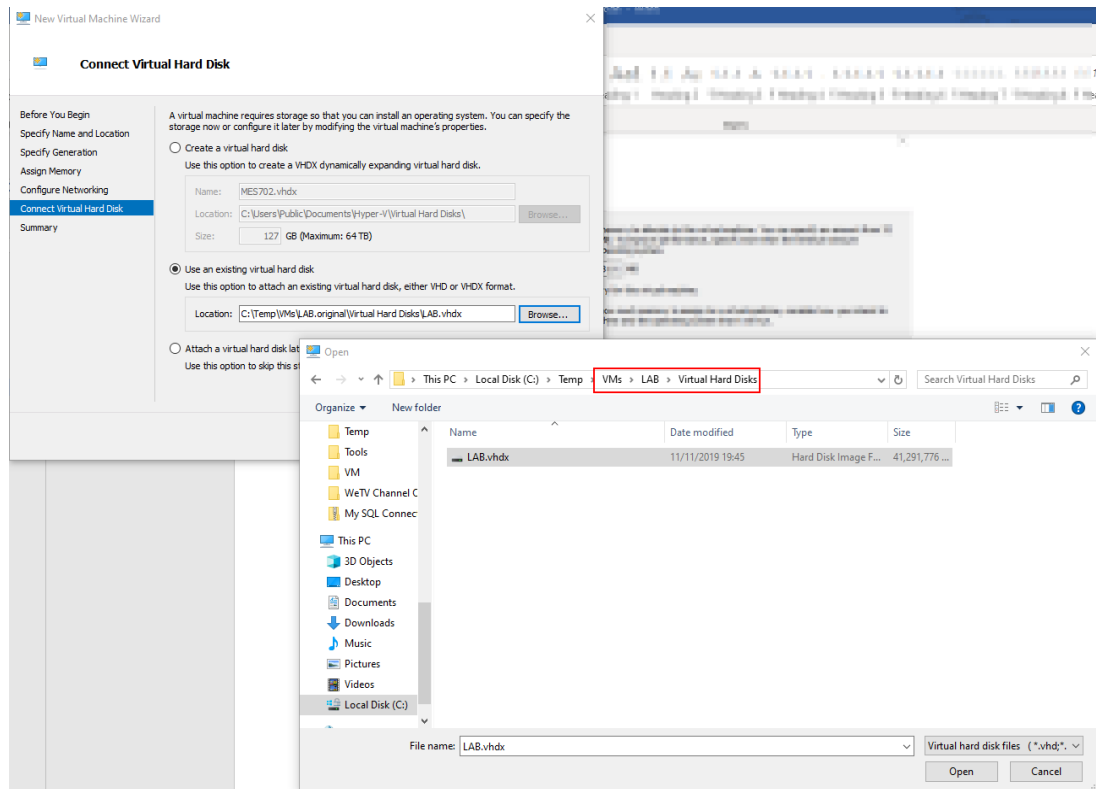


Figure 12: Select Virtual HD

Before the Virtual Machine is ready to run, you should set the number of virtual processors to 4 (or more). The default value (1) is not enough to run MES, SQL Server, IIS, and other software.

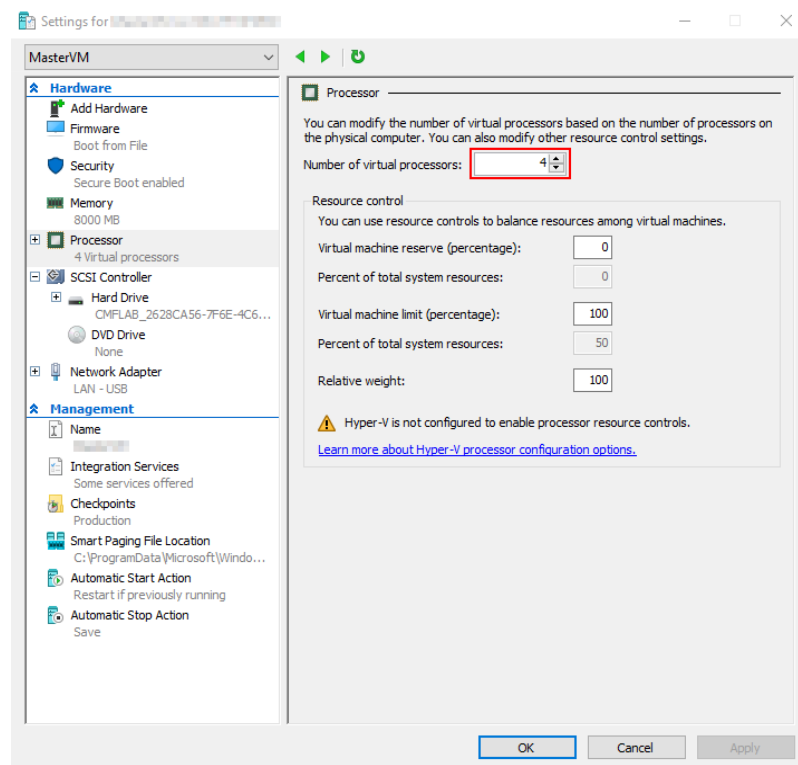


Figure 13: Set Number of Virtual Processors



Now the Virtual Machine is ready to run. To start it, on the Virtual Machines of the Hyper-V section, right-click on your virtual machine, and then select Start.

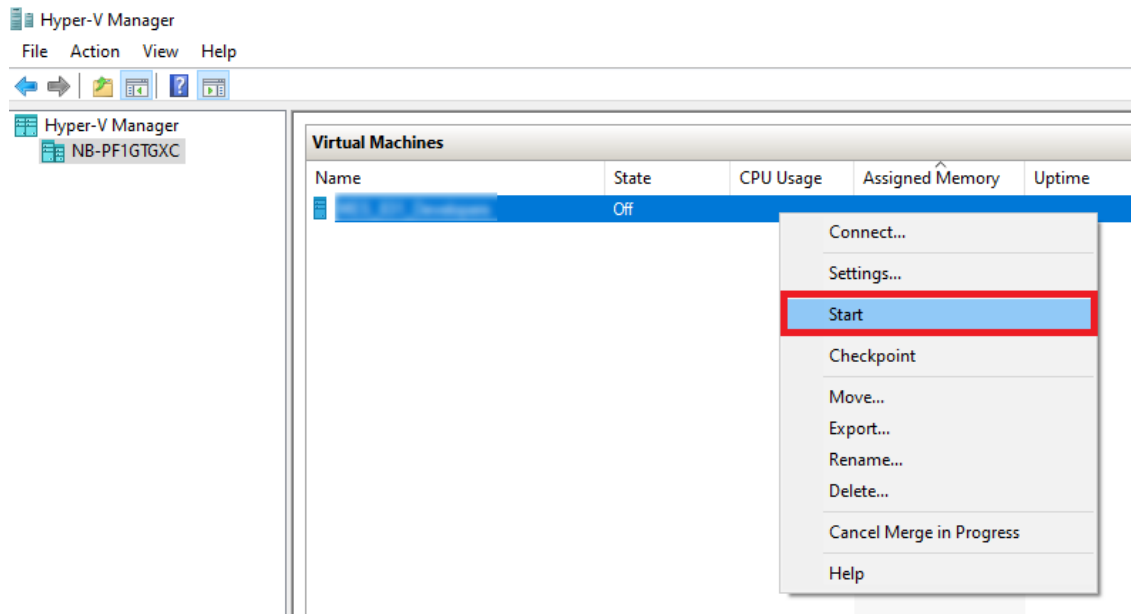


Figure 14: Start VM



5 Login into the Critical Manufacturing MES VM

After a successful start of the VM, login into the VM using the credentials:

- User: Administrator
- Password: qaz123WSX



6 Activate MES license

When you start the VM, you will notice that one service is not running.

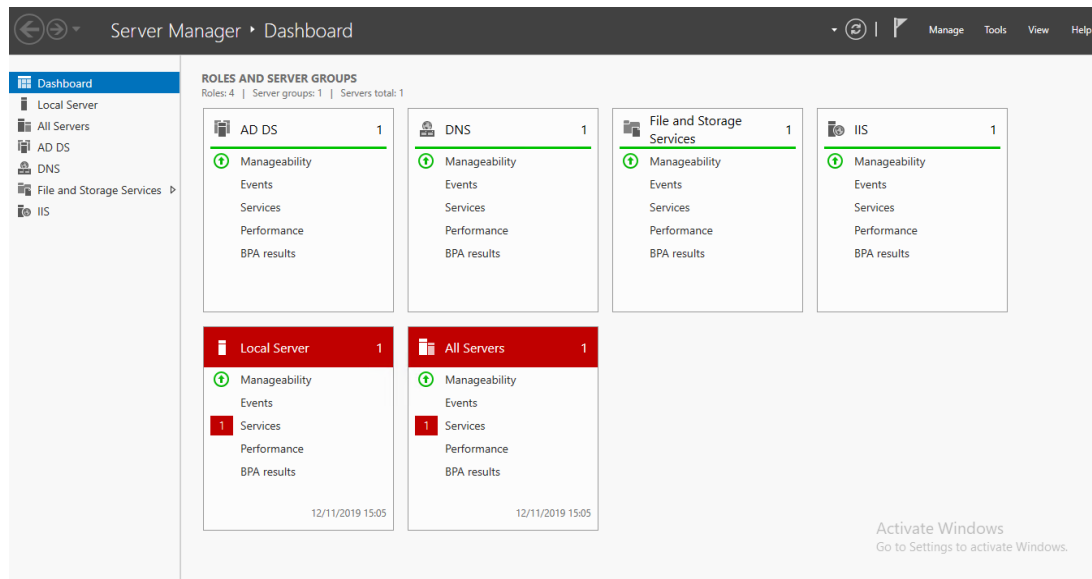


Figure 15: Server Manager Dashboard

The service is the Critical Manufacturing MES host.

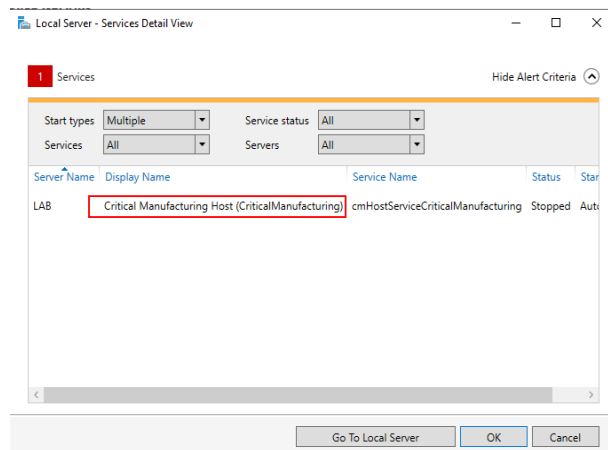


Figure 16: MES service stopped

The VM deploys Critical Manufacturing MES without any license. Instead, each user must have a license created on their behalf.

To activate a Critical Manufacturing MES license, you need to access the Critical Manufacturing Customer Portal ([link](#)). If you don't have access to the Customer Portal, you will be unable to use the MES pre-installed inside this VM.

If you already have access to the Customer Portal, please follow these steps:

- Login into the Critical Manufacturing MES VM
- Find an ISO file that contains the Critical Manufacturing MES setup
 - o The ISO file is in the VM in the following folder: C:\Users\Administrator\Downloads
 - o If the ISO file isn't inside the VM, you can download it following the below steps:
 1. Go to the Customer Portal and select the Information Center

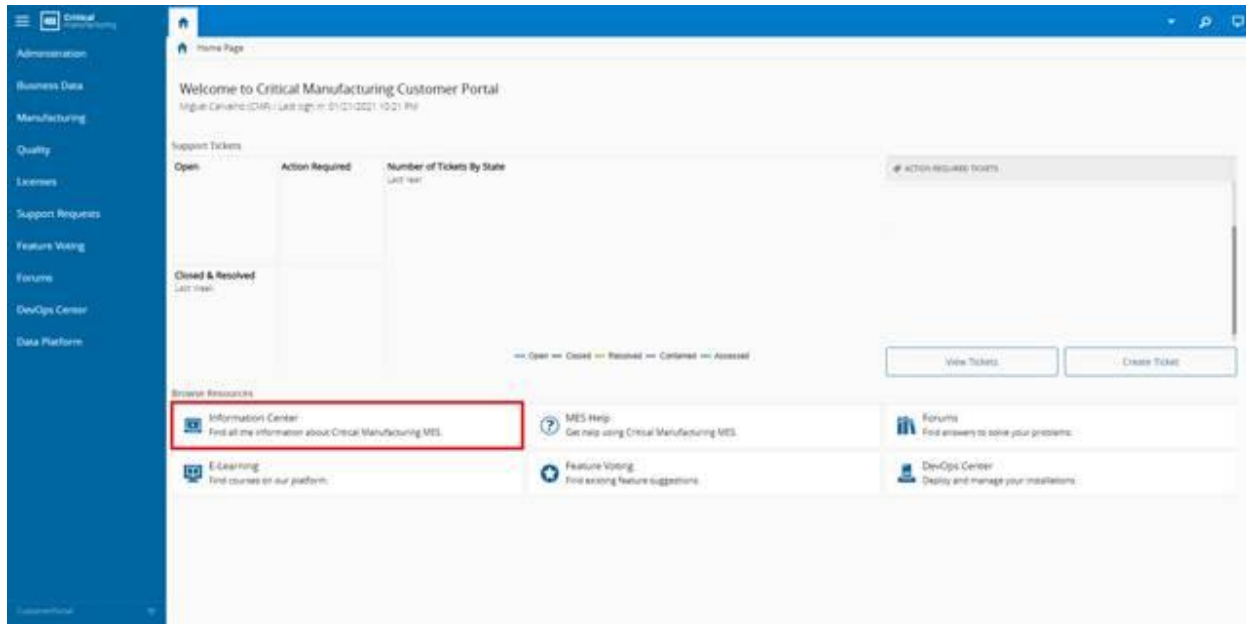


Figure 17: Information Center

2. In the Information Center, select the Releases



Figure 18: Releases

3. Select the desired version

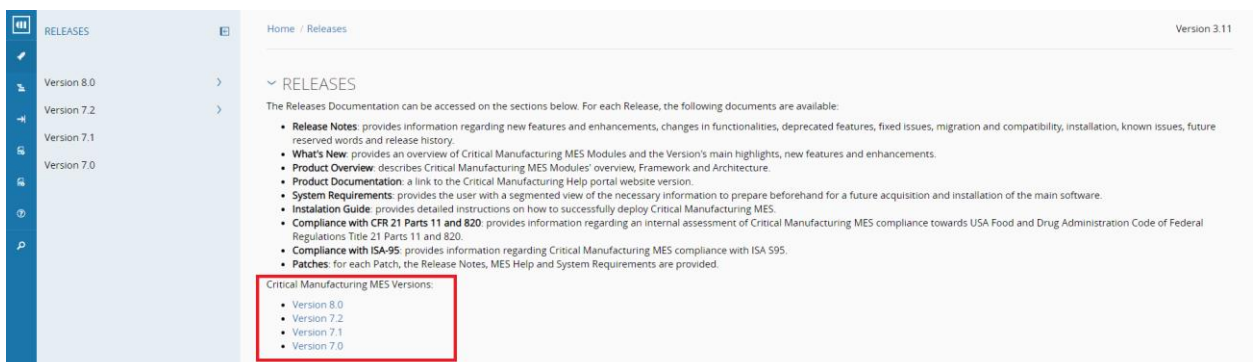




Figure 19: Releases versions

4. In the Patches section, choose the ISO link for download. Then, save the ISO file inside the VM.

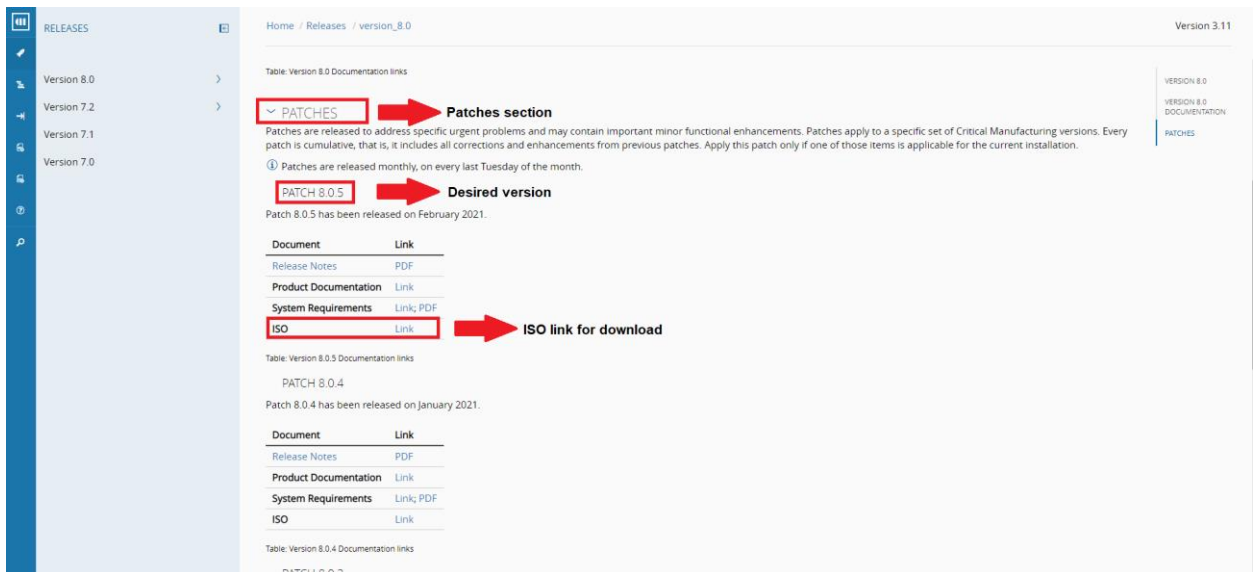


Figure 20: ISO download

- Click twice on the ISO file to mount it.
- Run the setup.exe file

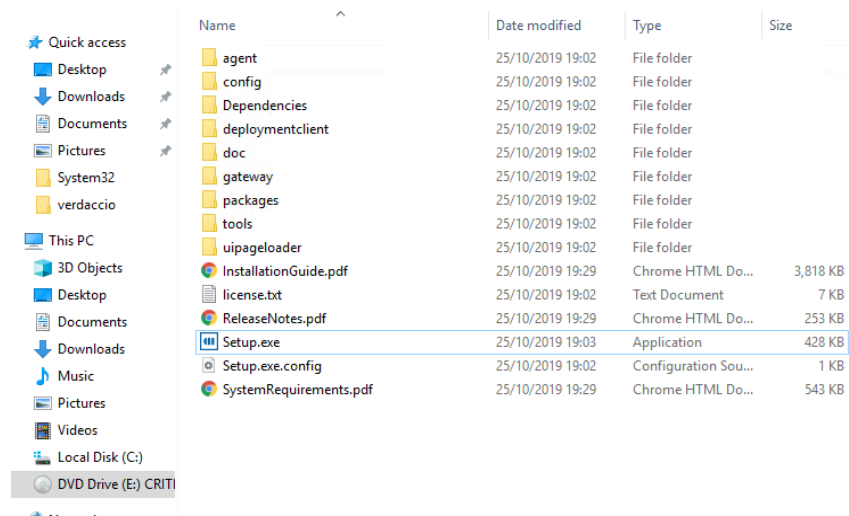


Figure 21: Start Critical Manufacturing MES Setup

- You have two installation modes, offline and online. Let's start with the **online** installation.



6.1.1 Online Installation

- Select the Update License option.



Figure 22: Update License

- You will need to login into the Customer Portal so that a login page will appear.

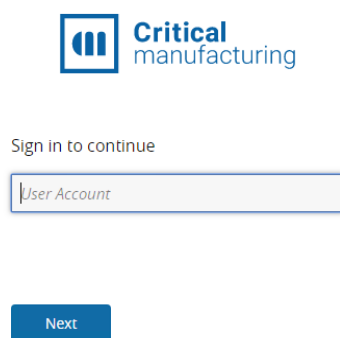


Figure 23: Customer Portal Sign In

- After a successful login, you need to get back to the setup; to proceed, import a pre-built parameter file for this VM.

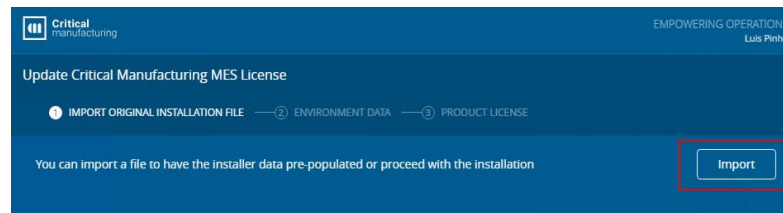


Figure 24: Import Parameters File

- Press Import and select the file, e.g., C:\Users\Administrator\Downloads\installation xxx.json (the file's name differs according to the VM). This file will load all the required parameters to install a license successfully.
- Press Next until you reach the Product License step. In this step, you must select the license you want to use:

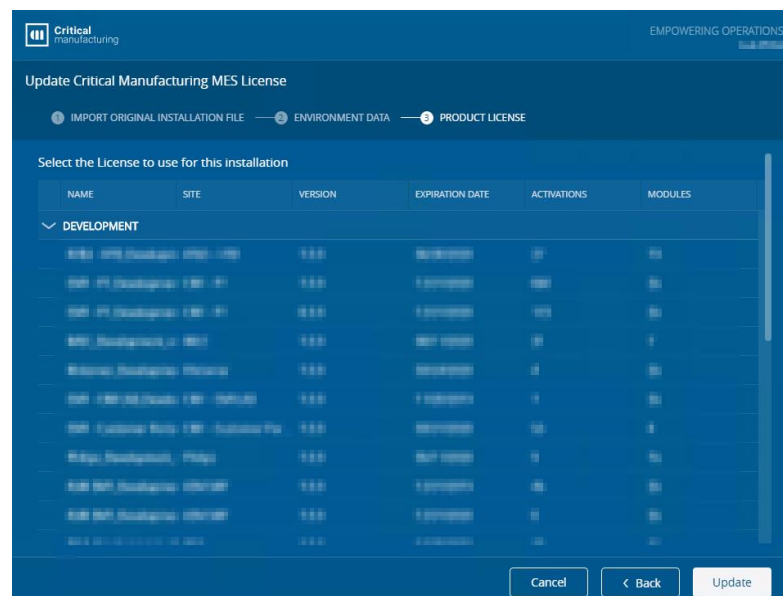


Figure 25: Select License in Setup

Note: If no license is listed, the user either doesn't have the required permissions to access the license, or a license has not yet been created.

- Select the license and press Update
- If you don't have access to the customer portal inside the VM, you will have to run an **offline** installation.



6.1.2 Offline Installation

Important: If you already installed the license, do not follow this procedure!

This procedure is necessary if you do not access the Internet inside your VM.

- On the first screen of the setup, switch to offline

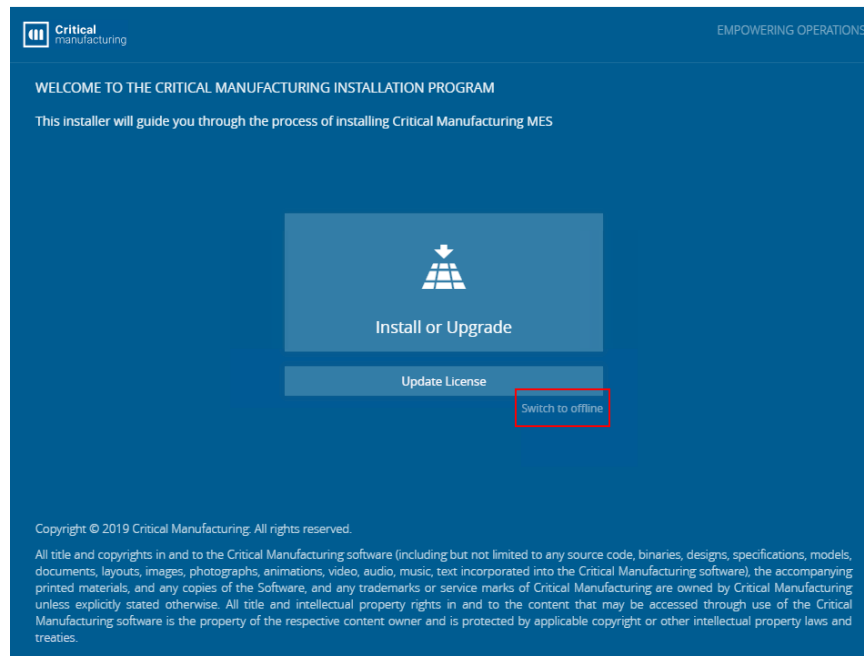


Figure 26: Switch to offline setup

- Select the Update License option to start.
- On the next screen, press Import and select the file `C:\Users\Administrator\Downloads\installation x.x.json`. This will load all the required parameters to install a license successfully.
- Press Next until you reach the Product License step.

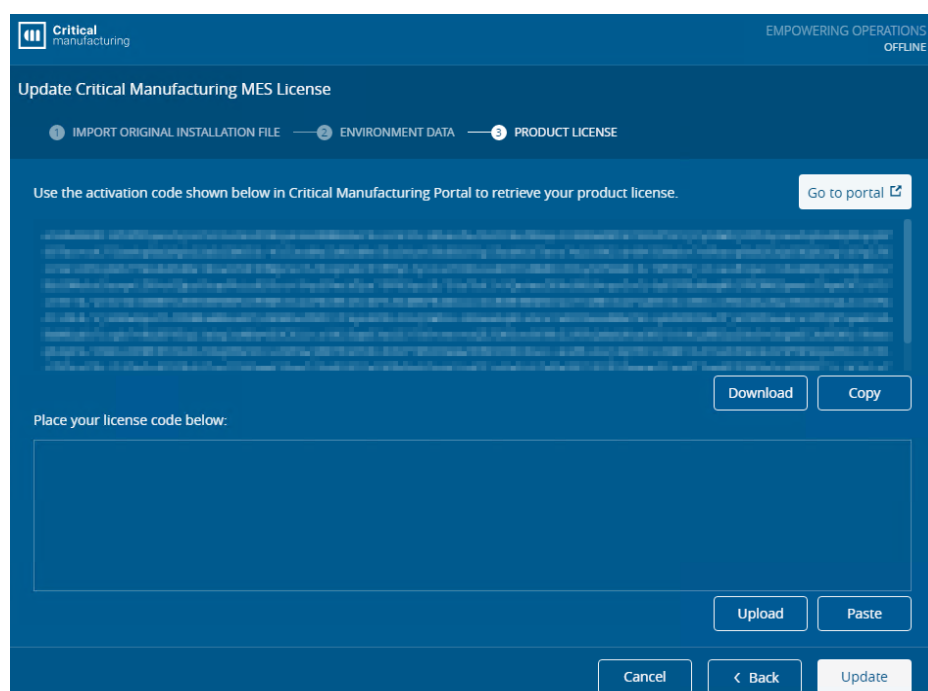


Figure 27: Activation Code



- An activation code will be shown for copy or download on this screen.
- In a browser with access to the Internet, go to the Critical Manufacturing Customer Portal ([link](#)).
- Authenticate using the Customer Portal user account.
- Open the "Licenses" menu and click on My Licenses.

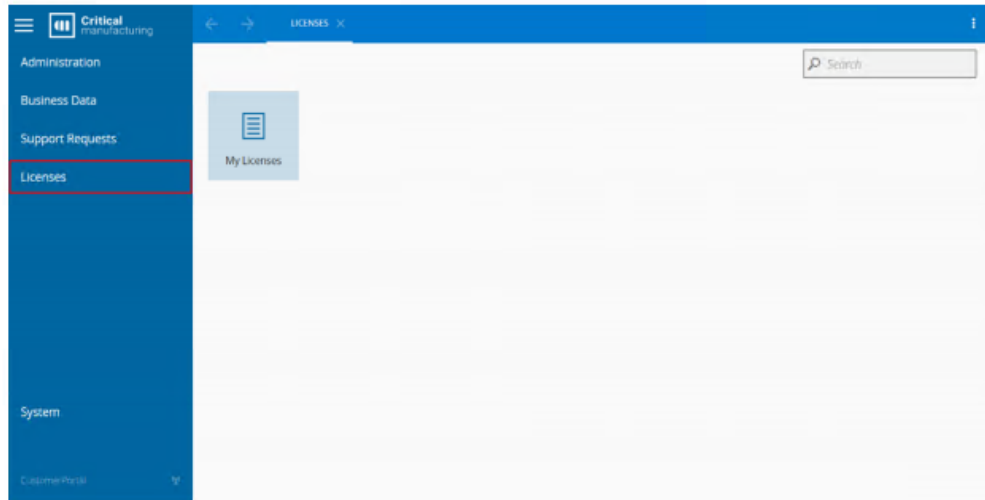


Figure 28: Customer Portal - My Licenses

- After entering the My Licenses list, click on Activate License.

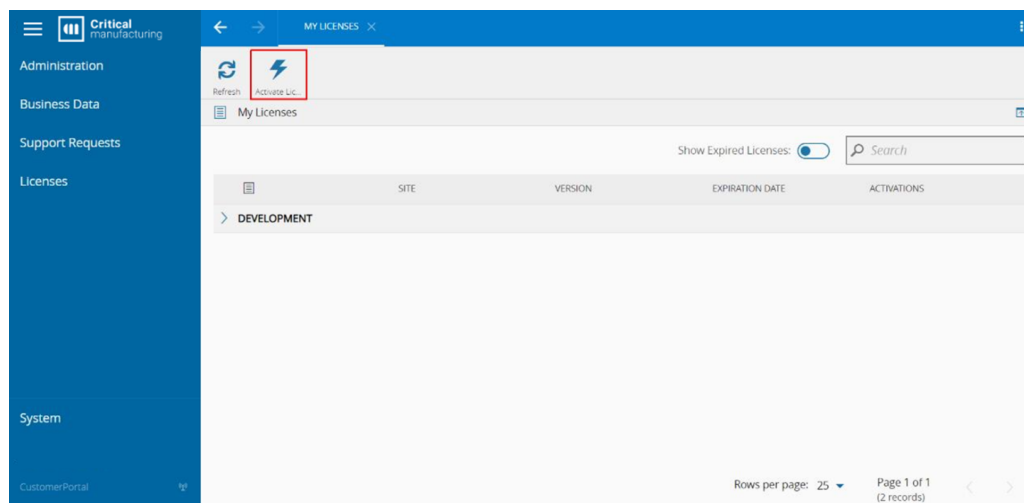


Figure 29: Customer Portal - Activate License

- Upload or paste the Activation Code and press Next



MY LICENSES

Activate License

1 ACTIVATION CODE 2 SELECT LICENSE

Paste Activation Code:

This code is supplied during the 'PRODUCT LICENSE' step of Critical Manufacturing MES installation process.

Upload Paste

Comments:

Cancel Next >

(2 records)

Figure 30: Customer Portal - Paste or Upload Activation Code

- Select one of your available licenses and press Activate.

MY LICENSES

Activate License

1 ACTIVATION CODE 2 SELECT LICENSE

Select the License to use for this installation

	SITE	VERSION	MODULES	EXPIRATION DATE	ACTIVATIONS
DEVELOPMENT					
CMF - PT_Development_v7.0.0...	CMF - PT	7.0.0	26	12/31/2020	
CMF - CMFLAB_Development...	CMF - CMFLAB	7.0.0	26	11/20/2019	0

Rows per page: 25 Page 1 of 1 (2 records)

Comments:

Cancel < Back Activate

(2 records)

Figure 31: Customer Portal - Select License

- Copy or download the License Code

MY LICENSES

Activate License

1 DOWNLOAD LICENSE

CMF - PT_Development_v7.0.0_20201231 / CMF - PT / Development

Please copy or download the license below and paste it into the Setup to continue your installation. This license will be valid for this installation only.

Expiration Date: 12/31/2020

Download Copy Close

(2 records)

Figure 32: Customer Portal - Final Activate License

- Paste or upload the License Code into Critical Manufacturing Setup and press Update



Critical manufacturing

EMPOWERING OPERATIONS
OFFLINE

Update Critical Manufacturing MES License

1 IMPORT ORIGINAL INSTALLATION FILE — 2 ENVIRONMENT DATA — 3 PRODUCT LICENSE

Use the activation code shown below in Critical Manufacturing Portal to retrieve your product license.

Go to portal

e5vbdLBPI1V8PVCgmvJq1rfc81sZkeYDKrpk6nGQm6HxC8cc2k3P+IM5axfaJL8CCAeFEAqettRRHmOMY4Y2G5UYJ9jCyCdWSjGYTdg1nnQq8zdHgPbyqSV8FFao+u4J7ZwhnyAbQ9pkS2bLOMDYD0/45J3ndMuIbW2uHvJEu56uv5PbBE0Y8pIPykM1fTaet7wQ1YMC1d4H4TSMsh+7eVksayRHEK3QdTKQRSyflPqLFK1rkk1cKtq6kh7YQu6xSuMa7Alw48dCZUWpcc3JZvgPaXrf3FHy13yllucSIXLoxAH3U1MQN6/BSqJ2FmGK19+7VRU7hj11ZauHlGw==vZxkM4yZ2ndpPbtJHb29Wcht2aoqvLDH+RQPrGtgoVoinAD0rt+9+pFwRkTpe79V4SycjA/Y4z7b4I+0Qm+hzDX4eXmjbtgsZoJj4qU3VHsNngW51VKDWKfpmutJ9qwfV2/EOJ1CT574/z1U6k3dKHfPaJKYGSEVNF1EFDWTJ1moPKZHE46cXPeJDUEPRdXK1zcZKRGNOWhN2Ozx7+AME/bnPlwBYs5crrM01ocVbnkLnHg/Nom5S8qLIorSPmJt1DL8/rjLGW9pcc1JUSNbuWxexHf/xV6N5nYMYZ/T6ynhUU+0CeQ1WDC+1BkamLqH1aDcu7sNIUxaxXWuYkiryAZKD5VaJjnyY8V0ea6rv3FTgVlywG0zAKm5Kykk7ioph7vKxXF9TgJ3xhg3zM0w4SSCKjitt9A5fgmY3wjD3795+seo+oQEJON5aoH0VbZ2PfbQdwQ9hxOK3Y/h41pNBly2HoB+5hgmUIAaVONjiVawuqb4gPz/cUAtocFNEPYJ4dtJtbgfNxs9Cc+ZRTQwJMX7Ek95b1ZCbY7N91Hxma3UBE1HPrdns/+xuSE+4xjdqOTIv/NKf/L27xJR3hbdeOcVYX5pnuTN1z5cP1+5XDrF9+/L9Dn3z6P2Shf47ocTFhFnd39aqtFfWR89QTeDdHbRa6Tcxh03oEY3cXvR3f3dVwDRS1F0E5Dnem2L2zeTfmgM7SMHv5thRRMR711h3n1nc

DownloadCopy

Place your license code below:

k10t/EtaXq5vktOuy/HZZLB2rtu975b0P7jSdlh1qhJKVrP2a14oPfmLrOkNz52VYTIgg2nLjuz2DKMu2XpSall9aFOnauVYIm0smzSwOSMAcP1MMW+2V4v1hQONMKfBzJASMA1J/i+2ud95YFWMeKnqRMk6OZaYIkNjKPhqfi0q03TCW/rzmipb180o1XeMwNHPKGI7NFxwt7cQ5zA7BdW9/TxwUNfHNz8z9wB185EW2PSA4ga7AcTzQ4nXkewcaZz4914CeXP23P6SM6yXcUehDeoRSZVwUGKjHowRI1blpn68Kfb5f7gWCUTfSeVXJnWlWfObBke+E58geg—uMymBLPC4dvgrvCh4NNIGPiZAMmFE7+vy8o1mkEYQ9BWS2e1Ckn9FwUBqeYkmgT6Q/ox2ex11b9f+0uw3xiaLM5YwV5n0StFUzgbDKeixK04XkKStMk5T8xsBN/u190/U19F1XyBARN/5PqwD9261QixsEY0shdmC811LcTDve1CwfGfB/hwNHg2C79Ay6cFmbs/qi0apMuc5Sg4nld1jhJZXJxj2KlyjG0Jm/Hu9991JvZhg4F8gr+FYrfPalwtBt1oxEcK26hhhpKPAIDTVumK1zn7ckBQFZ1CwEDrx06qiNKnfeYTKD3RAZANdxANCFGzmKgcxdNDaMcUmLQoRYEz979f1nKw01seNXk2jUGGqTdCJTU/HAseBtPEXTV9dMqZaTzK1b5BwOg5SMG01UN1r40c9EABMS1CmARN7kyoxYV1kteB8Y198BbW1lgOqg3HXUN1YhK0TzX4fzmzg3DnqrWz000F1nVvEaMBXK6mqyt1OueN0m2ZRLVdQg6dk7EVHxvjewber7X1fUynCUh0mqSEungY3CTxgeppXIVuHwruvRyonooa64uf4pS2/s21Vc6gT12EsqmcZG9r6eKeTV1Q1mh+L1baQVn1Ua4hsBS5hufQOMR1sammZAk1QR4hM66VUaYnDmEXKx4d4LZolrZfJdD0AATZ6m8achcMBS1TDncKTA1aYJMedH054kxgUTV4Ahr5DnR1Du1e11U9QmV1R

UploadPaste

CancelBackUpdate

Figure 33: Setup - Place License Code

After updating the license, there are windows services for Critical Manufacturing that will not start automatically by design. So please do the following procedure:

- open the Services.msc
- check the Critical Manufacturing services that are not running:
 - o Set them to start automatically
 - o Start them:

Name	Description	Status	Startup Type	Log On As
Connected Devices Platform Service	This service ...	Running	Automatic (D...	Local Service
Connected Devices Platform User Service_70389	This user se...	Running	Automatic	Local Syste...
Connected User Experiences and Telemetry	The Connec...	Running	Automatic	Local Syste...
ConsentUX_70389	Allows Con...		Manual	Local Syste...
Contact Data_70389	Indexes con...		Manual	Local Syste...
CoreMessaging	Manages co...	Running	Automatic	Local Service
Credential Manager	Provides se...		Manual	Local Syste...
Critical Manufacturing Discovery Service (CriticalManufacturing)	This service ...	Running	Automatic	CMF\admi...
Critical Manufacturing Host (CriticalManufacturing)	This service ...		Automatic	CMF\admi...
Critical Manufacturing Message Bus Gateway (CriticalManufacuri...	This service ...	Running	Automatic	CMF\admi...
Critical Manufacturing Remote Import/Export Gateway (CriticalMa...	This service ...	Running	Automatic	CMF\admi...
Cryptographic Services	Provides thr...	Running	Automatic	Network S...
Data Sharing Service	Provides da...	Running	Manual (Trig...	Local Syste...
DCOM Server Process Launcher	The DCOM...	Running	Automatic	Local Syste...
Delivery Optimization	Performs co...	Running	Manual (Trig...	Network S...
Device Association Service	Enables pair...		Manual (Trig...	Local Syste...

Figure 34: Start Critical Manufacturing Host Windows Service



7 Login into MES

The MES service will start automatically after the correct license update, and the GUI will enable you to access the MES.

In the browser, you will find the bookmarks for MES (MES HTML GUI), Documentation Portal and Customer Portal.

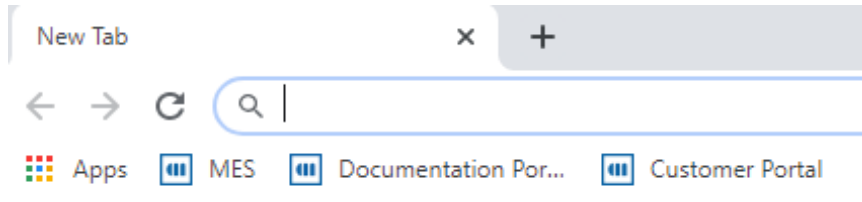


Figure 35: Start Critical Manufacturing Host Windows Service

To login into MES, you can use the following credentials:

- User: Administrator
- Password: qaz123WSX



8 Recommendation

Critical Manufacturing Training Team highly recommends that before making changes in the VM, whether it involves software configuration changes or a new software update, it's a good idea and a good practice to create a Hyper-V checkpoint.

This way, you can always go back to where everything is as expected!

Example:

- Create a Checkpoint after installing the Critical Manufacturing MES license.
- Create a Checkpoint after a set of exercises is done.
- Create a Checkpoint before creating a customization project.

Documentation:

<https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/user-guide/checkpoints>



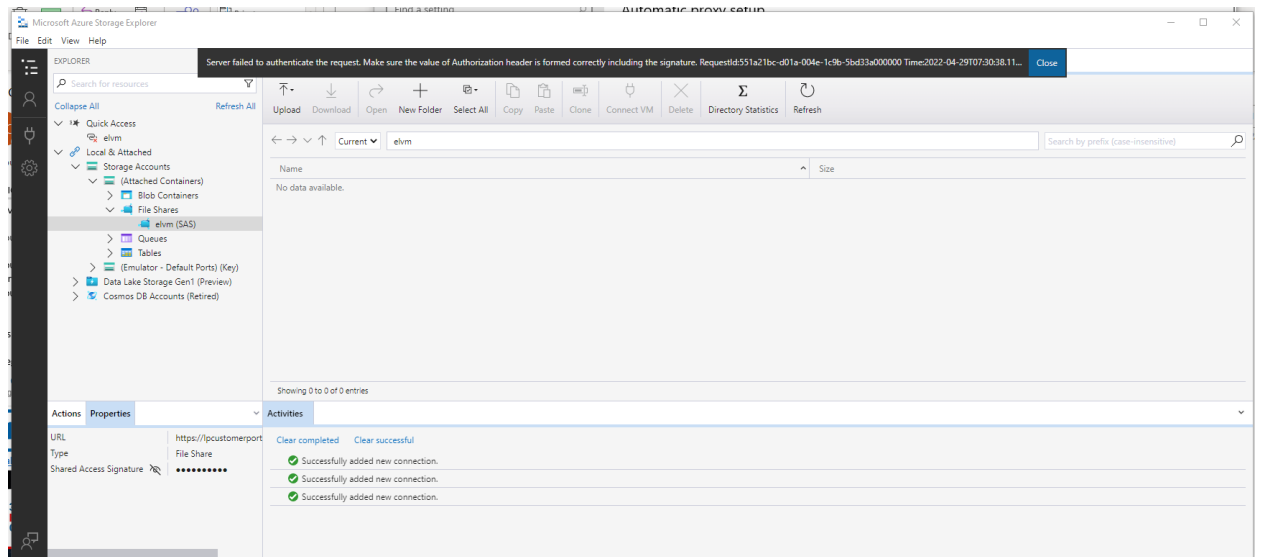
9 Troubleshooting

In this section, you can find information to help you solve some problems you might face.



9.1.1 No files shown in the Azure Storage Explorer

If after accessing the Azure Storage Explorer shows an empty folder throwing an error like the below image:



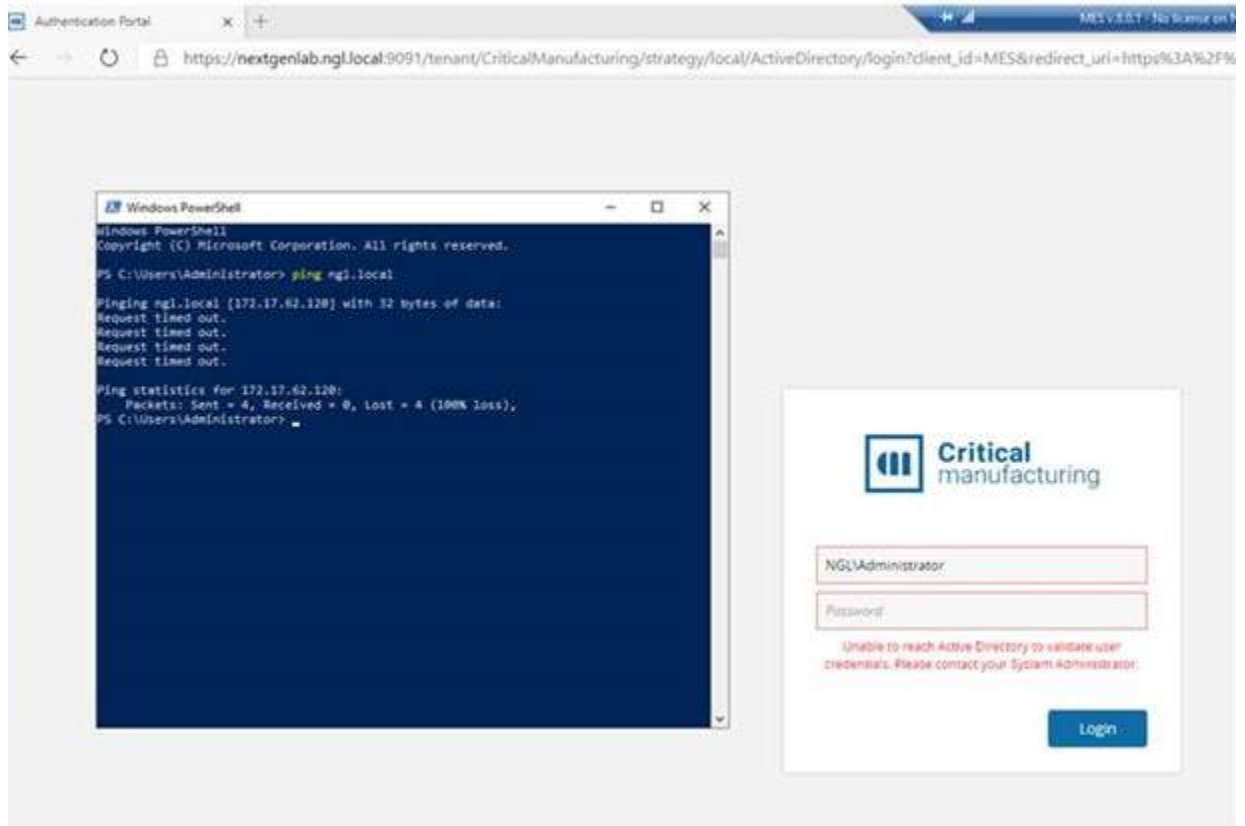
Please try these two solutions:

- If you are using a VPN, please try downloading the VM after disconnecting the VPN.
- Sometimes copying the URL from an Outlook virus software or other security modifies the link, so click on the link, open it in a browser, and copy it from there.

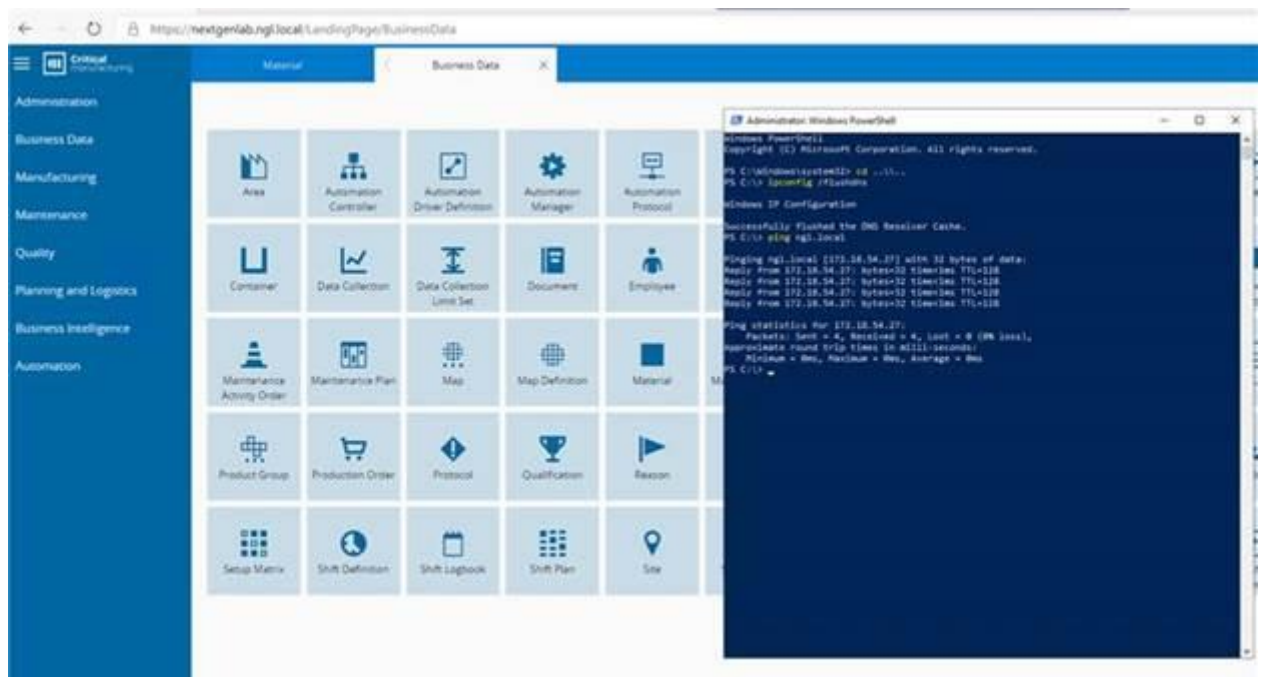


9.1.2 Unable to login: Unable to reach the Active directory

If the following error occurs:



Please run the command `ipconfig /flushdns`, as shown in the following image:



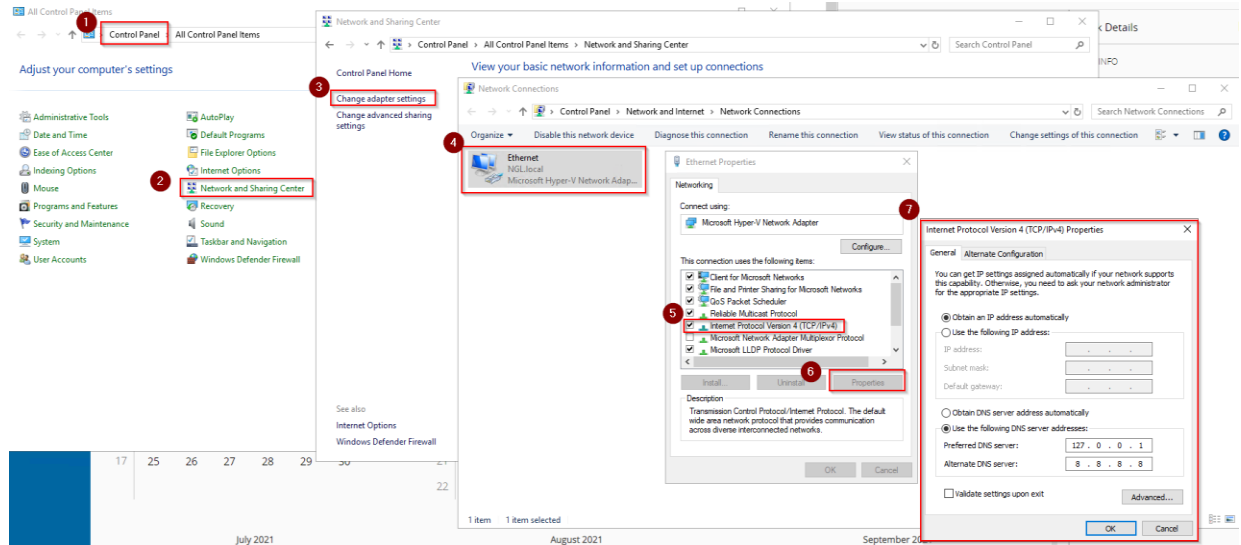


Please confirm if you are following the requirements:

- open the PowerShell command window inside the VM
- open the PowerShell command window as an administrator ("elevated")
- run the command in the root

If the procedure doesn't solve the issue, please try the following:

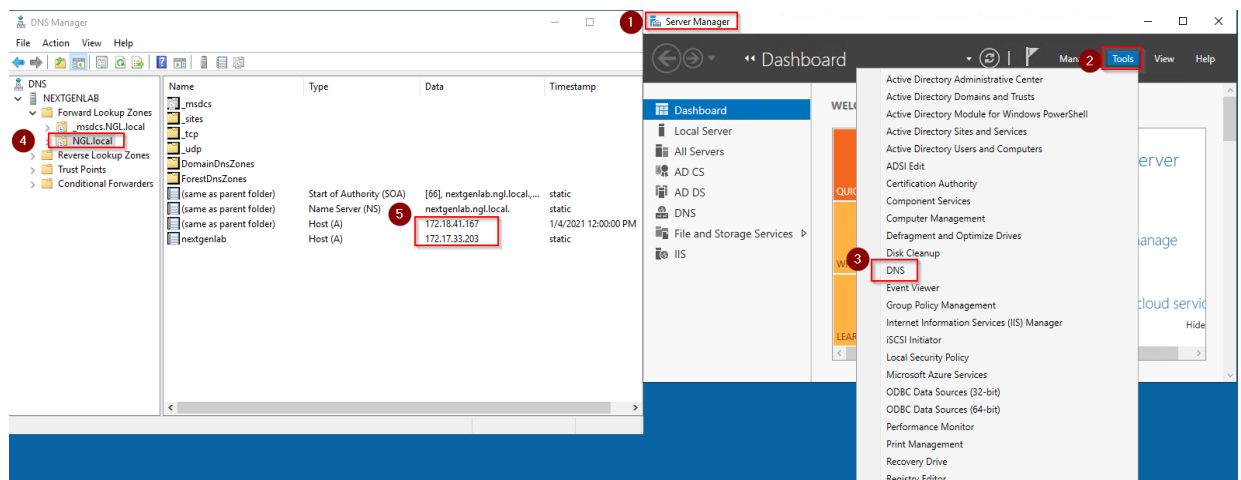
Please go to the IPv4 properties of the domain. This is possible by going on the Control Panel [1], go to Network and Sharing Center[2], then to Change adapter settings[3], right click on the network connection and select properties [4], select Internet Protocol Version 4 [5], hit Properties[6].



Set them with the above settings and verify if now, after you ping ngl.local, you still do not receive replies from the domain.

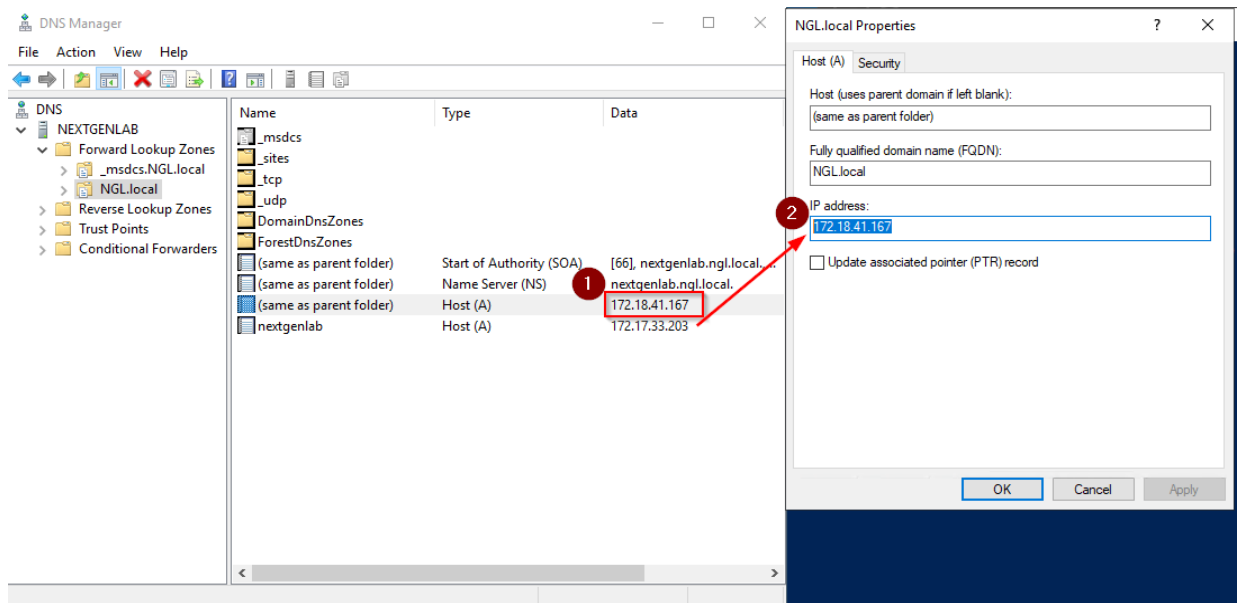
If now you receive **Request timed out** messages instead of **Ping request could not find host ngl.local**, please open the DNS Manager console by going on to the Server Manager[1] -> Tools[2] -> DNS[3]. This will open the DNS Manager console.

Then select NEXTGENLAB -> Forward Lookup Zones -> NGL.local[4] and verify if the IPs from the nextgenlab and the (same name as parent folder) of type Host [5] match.





If they do not match the above image, right-click on the record named (same name as parent folder), select Properties, and set the IP address with the same from the one set on the nextgenlab domain. On the image below, we are changing the IP from 172.18.41.167 to 172.17.33.203



After this, perform run "ipconfig /flushdns", verify that you now get replies accordingly when you run "ping ngl.local", and as such, you may access the MES environment.

Administrator: Windows PowerShell

```
PS C:\> ipconfig /flushdns

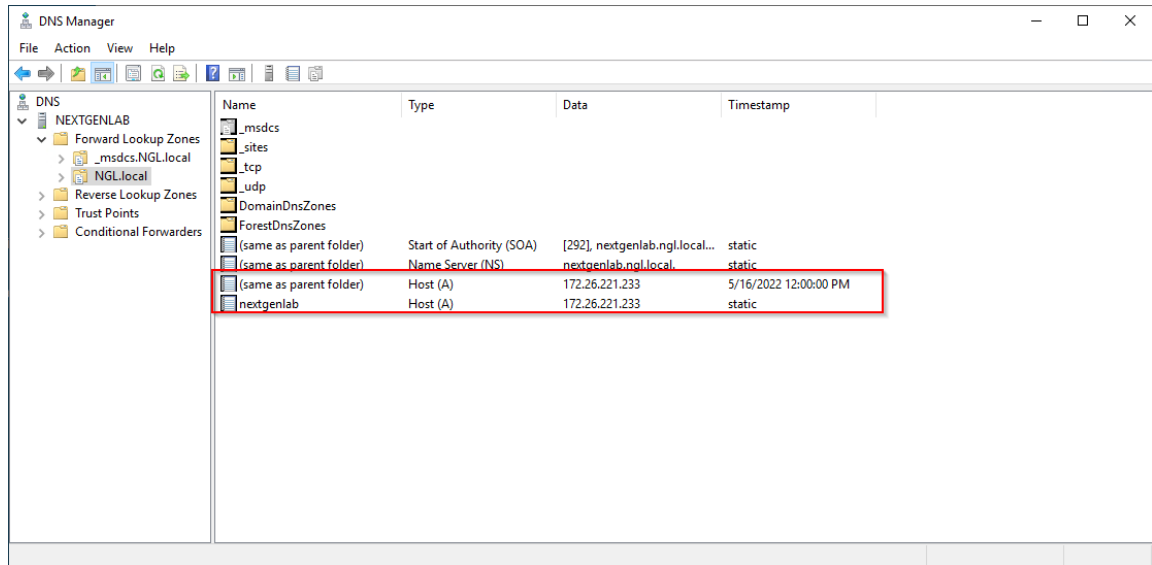
Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
PS C:\>
```



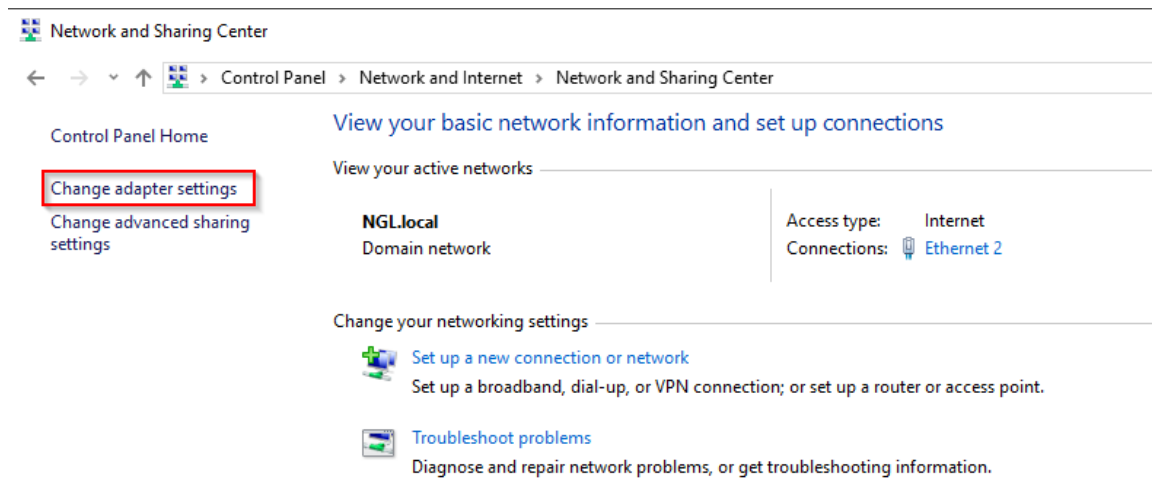
9.1.3 Not showing host records on the DNS manager from NGL.local

If for some reason the Host records on the DNS manager from NGL.local were deleted, for reference:



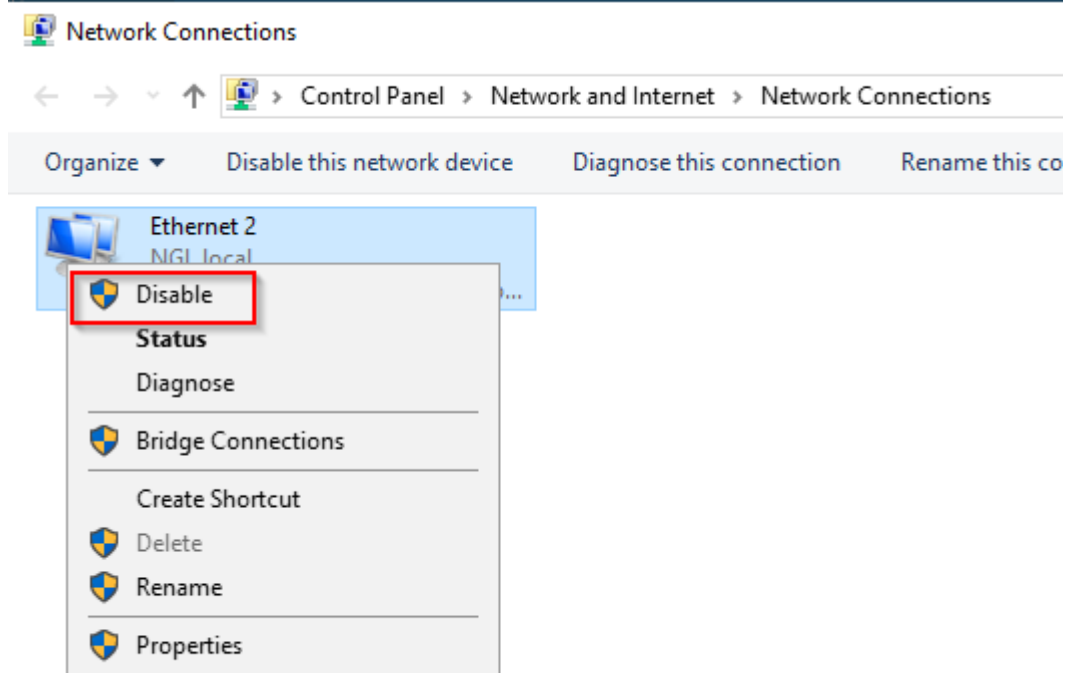
Do not create these records manually. These records are created by the domain controller itself.

Restart the network adapter, under Control Panel -> Network and Internet -> Network And Sharing Center, access the Change adapter settings:

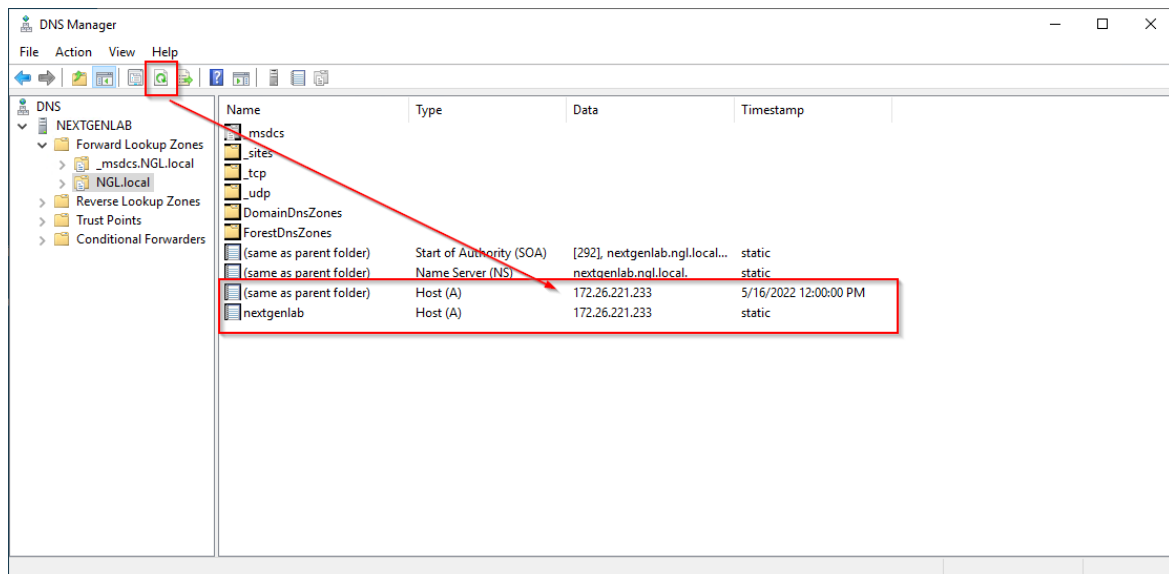




Then disable and re-enable it accordingly

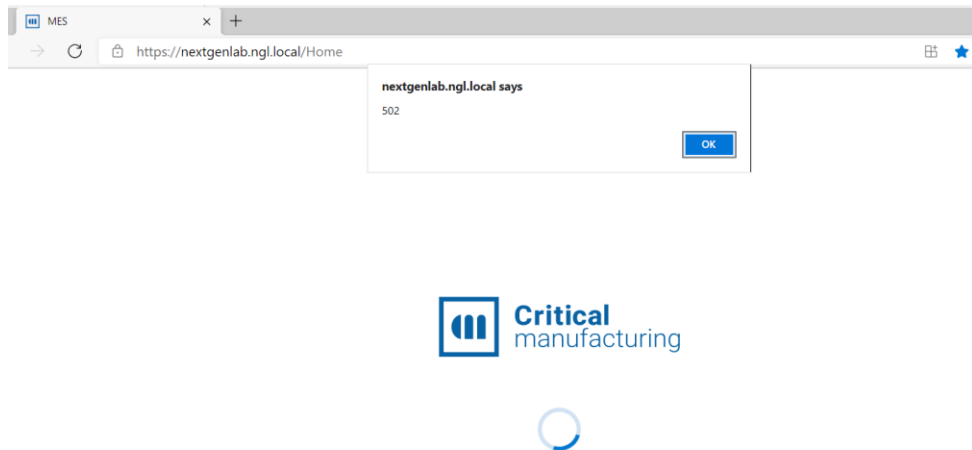


Then verify if the Host records were created on the DNS Manager (mind that you might need to restart if the DNS Manager is already opened):





9.1.4 Error entering CM MES after installing license (error 502)

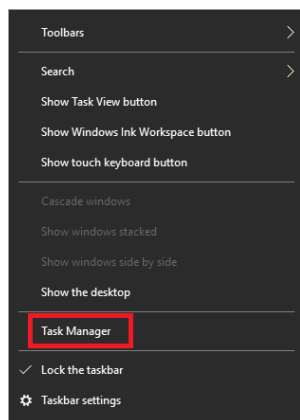


If, after installing the license, you get error 502 entering in CM MES, please execute the following procedure:

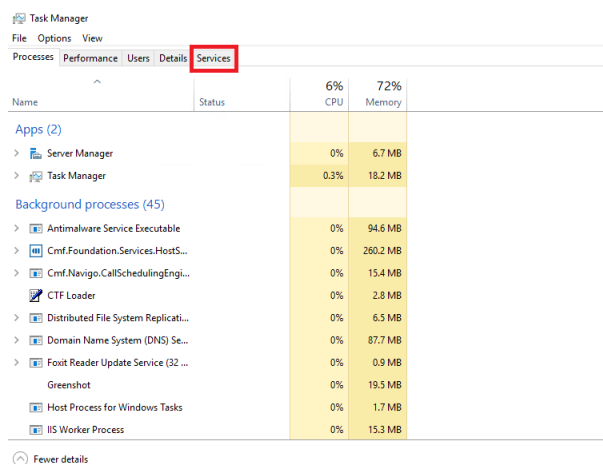
1. close the browser
2. please check if all Critical Manufacturing's services are running, namely the **Discovery Service**. If not, start them.

2.1. Right-click on the taskbar

2.2. Select **Task Manager**



2.3. In the Task Manager window, select **Services**





2.4. Order the items by the **Description** column to get all the Critical Manufacturing services together

The screenshot shows the Windows Task Manager 'Services' tab. The 'Description' column header is highlighted with a red box. A group of services, all starting with 'Critical Manufacturing', is highlighted with a red rectangle. These services are: Critical Manufacturing Scheduling, Critical Manufacturing Printable Documents Renderer, Critical Manufacturing Message Bus Gateway, Critical Manufacturing Host, and Critical Manufacturing Discovery Service. All these services are currently in a 'Running' state.

Name	PID	Description	Status	Group
DevicePickerUserSvc		DevicePicker	Stopped	DevicesFlow
DsmSvc		Device Setup Manager	Stopped	netsvcs
dmwappushservice		Device Management Wireless Application Protocol (WAP) Push message Routing Service	Stopped	netsvcs
DmEnrollmentSvc		Device Management Enrollment Service	Stopped	netsvcs
DeviceInstall		Device Install Service	Stopped	DcomLaunch
DeviceAssociationService		Device Association Service	Stopped	LocalSystemN...
DoSvc		Delivery Optimization	Stopped	NetworkService
DcomLaunch	972	DCOM Server Process Launcher	Running	DcomLaunch
DsSvc		Data Sharing Service	Stopped	LocalSystemN...
CryptSvc	2728	Cryptographic Services	Running	NetworkService
cmfSchedulingCriticalMan...	2520	Critical Manufacturing Scheduling (CriticalManufacturing)	Running	
cmfPrintableDocumentsRe...	4556	Critical Manufacturing Printable Documents Renderer (CriticalManufacturing)	Running	
cmfMessageBusGatewayCr...	6276	Critical Manufacturing Message Bus Gateway (CriticalManufacturing)	Running	
cmfHostServiceCriticalMan...	1976	Critical Manufacturing Host (CriticalManufacturing)	Running	
cmfDiscoveryServiceCritica...	6280	Critical Manufacturing Discovery Service (CriticalManufacturing)	Running	
VaultSvc		Credential Manager	Stopped	
CoreMessagingRegistrar	4036	CoreMessaging	Running	LocalServiceN...
PimIndexMaintenanceSvc...		Contact Data_73fe2	Stopped	UnistackSvcGr...
PimIndexMaintenanceSvc		Contact Data	Stopped	UnistackSvcGr...
ConsentUxUserSvc_73fe2		ConsentUX_73fe2	Stopped	DevicesFlow
ConsentUxUserSvc		ConsentUX	Stopped	DevicesFlow
DiagTrack	4068	Connected User Experiences and Telemetry	Running	utcsvc
CDPLUserSur_73fe2	1084	Connected Devices Platform User Service_73fe2	Running	UnistackSvcGr...

3. Please define the startup type of Critical Manufacturing's services as automatic.
4. Open the browser and perform login into CM MES.



9.1.5 Checking the Critical Manufacturing service host is not running

Please run the service host console as Administrator to see if it throws an error:

1. Please open the following file: C:\Program Files \ CriticalManufacturing \ BusinessTier \ Cmf.Foundation.Services.HostService.exe.

If you don't want to read the information from the console, you can check the service host log in the following folder: C:\Program Files\CriticalManufacturing\Log

Note: Please send the log report attached to your message if you request help from Critical Manufacturing support.



9.1.6 isnode error accessing the MES

```
securitycriticalmanufacturing.co... https://nextgenlab.ngl.local:9001/... MES_011_Developers' ad 'PCHD90013426'
https://nextgenlab.ngl.local:9001/tenant/CriticalManufacturing/strategy/local/ActiveDirectory/login?username=Administrator&clientId=MES&redirect_uri=https%3A%2F%2Fnextgenlab.ngl.local%2Fis%2Fauthentication%2Fsuccess%3Fredirec...

isnode encountered an error when processing the request.
HResult: 0x6d
HTTP status: 500
HTTP subStatus: 1013
HTTP reason: Internal Server Error

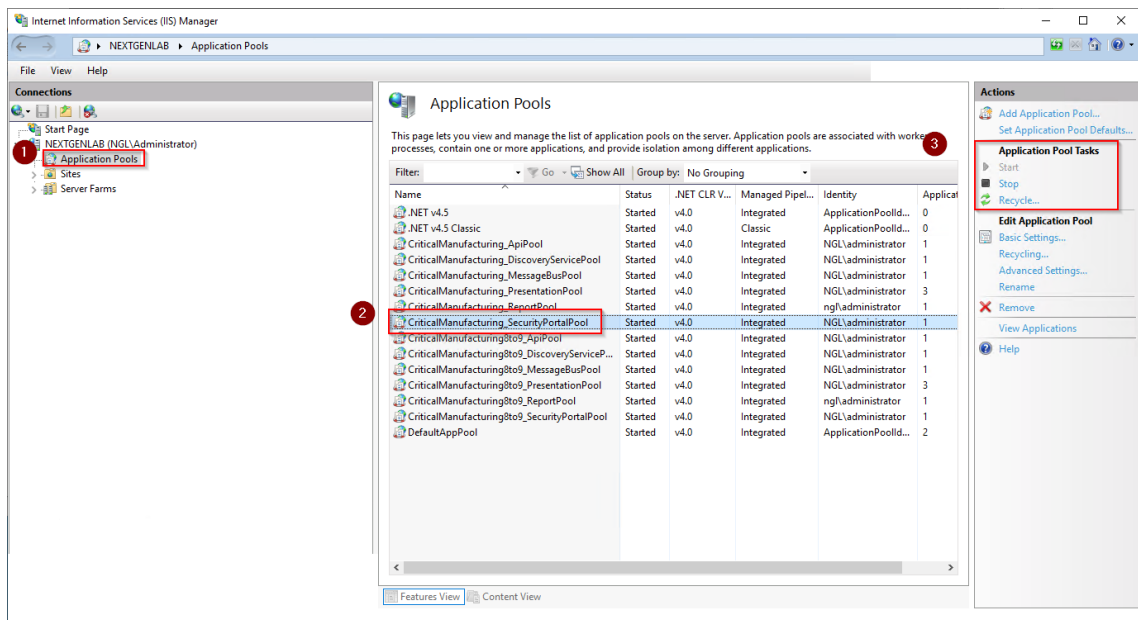
You are receiving this HTTP 200 response because system.webServer.isnode-@devErrorsEnabled configuration setting is 'true'.
In addition to the log of stdout and stderr of the node.exe process, consider using debugging and ETW traces to further diagnose the problem.

The last 64k of the output generated by the node.exe process to stderr is shown below:
(node:11480) [DEP0005] DeprecationWarning: Buffer() is deprecated due to security and usability issues. Please use the Buffer.alloc(), Buffer.allocUnsafe(), or Buffer.from() methods instead.
(node:11480) Warning: Setting the NODE_TLS_REJECT_UNAUTHORIZED environment variable to '0' makes TLS connections and HTTPS requests insecure by disabling certificate verification.
2022-05-16T07:59:30.222Z - [x18][34ndebug[x18]]39m: ID_Token Signing key pairs loaded: 1
Mon, 16 May 2022 08:09:12 GMT tedious deprecated The 'Int8' data type is internal and will be removed. at ..\node_modules\tedious\lib\tedious.js:63:20
```

If a simple browser refresh does not solve it

- Close the Browser
- Restart the Virtual Machine
- Restart the Security Portal Application Pool under the IIS (Internet Information Services) Manager (press stop and then start).

For reference:



- Open the browser and clear the cache



9.1.7 Certificate expiration \Update certificate

All the certificates we use are valid, so each certificate has an expiration date.

If you get a certificate expiration error, you need to renew the certificate.

To renew the certificate, you need a new certificate, so please request it to Critical Manufacturing.

Afterward, place the certificate file inside the VM in any directory.

Then, open IIS and follow these instructions:

- Select the machine, click on the Server Certificates

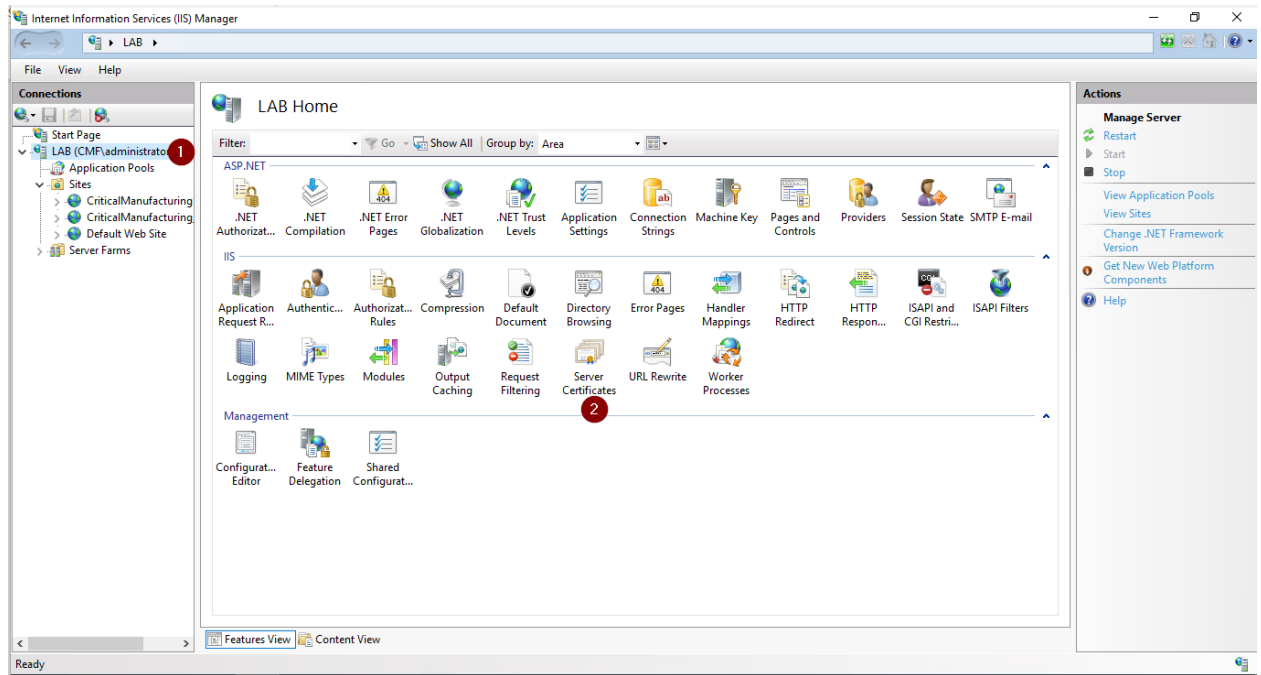


Figure 36 - Server Certificates

- Select the option to Complete Certificate Request

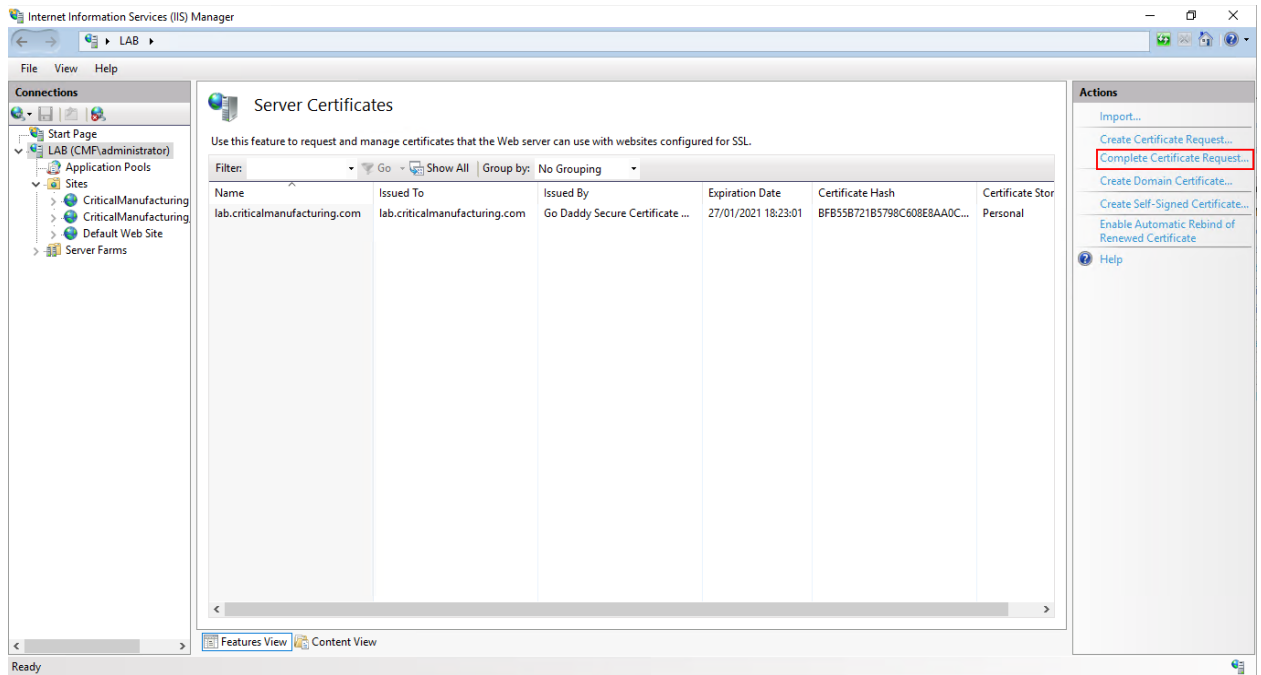


Figure 37 - Complete Certificate Request

- Select the file and the Friendly name:

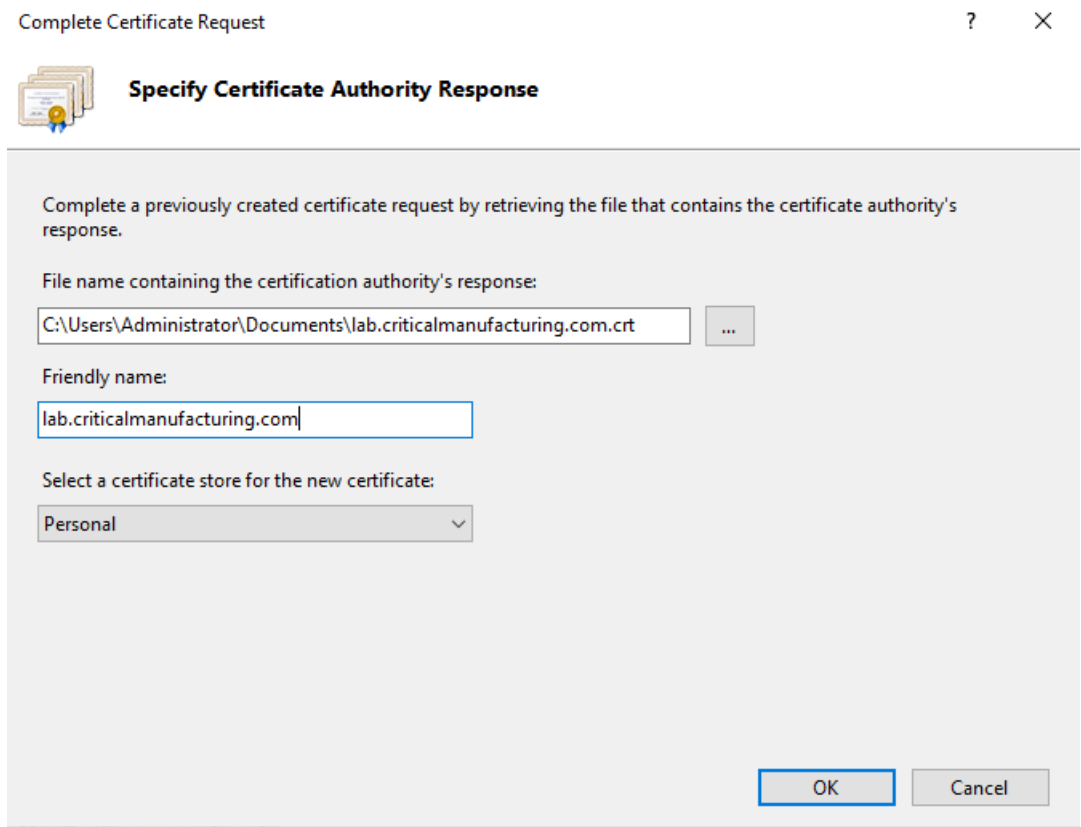


Figure 38 - Select Certificate

- Two certificates will appear (the new one will have a new expiration date – 27/01/2021)

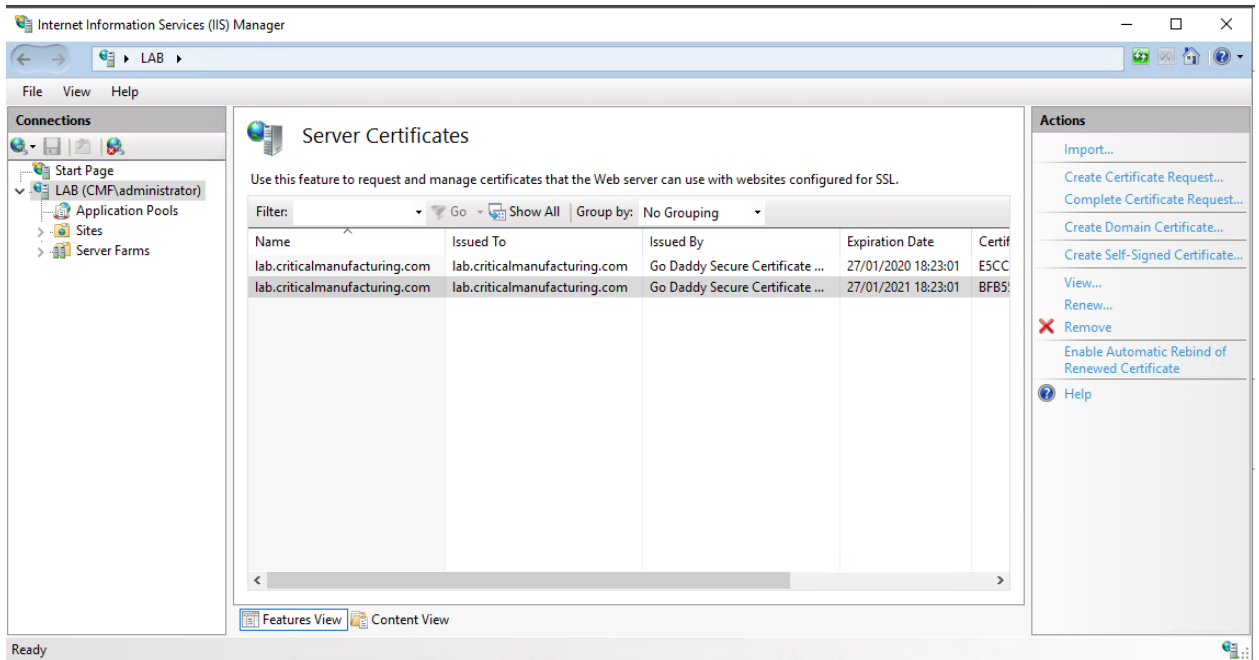


Figure 39 - Certificates List

- Then we need to apply this new certificate to the site bindings, select the site, and go to the Bindings option

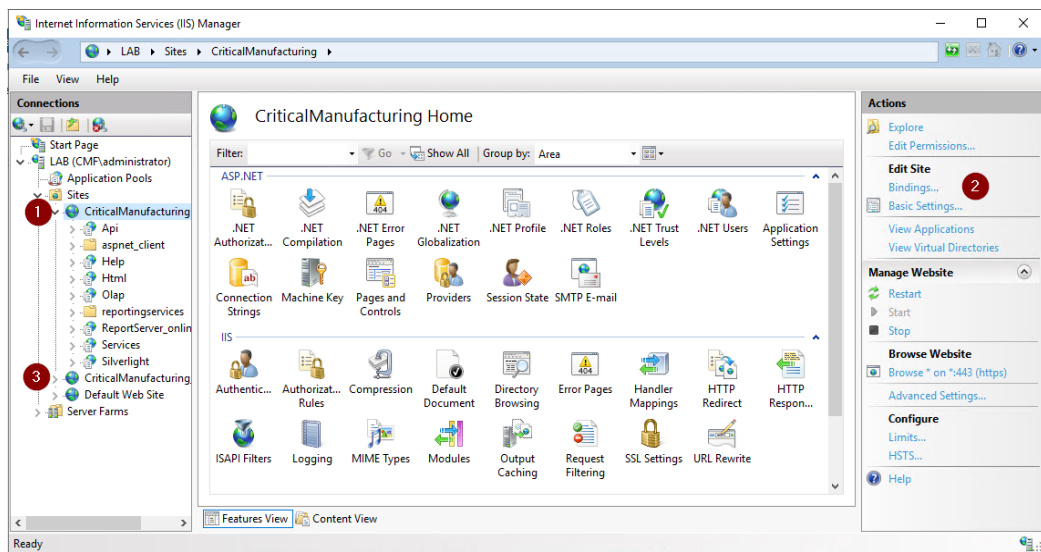


Figure 40 - Edit Binding

- Edit existing Binding

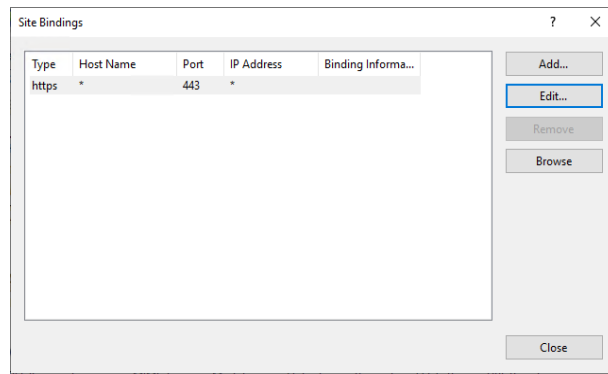


Figure 41 - Existing Binding

- Select the last certificate (the new one)

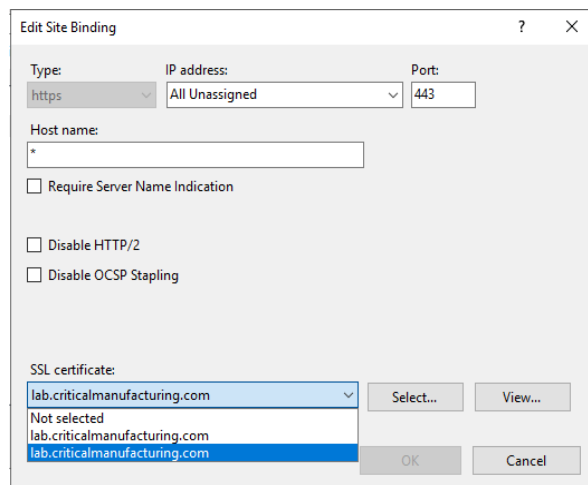


Figure 42 - Select Certificate

- Do the same for the site CriticalManufacturing_SLSupport

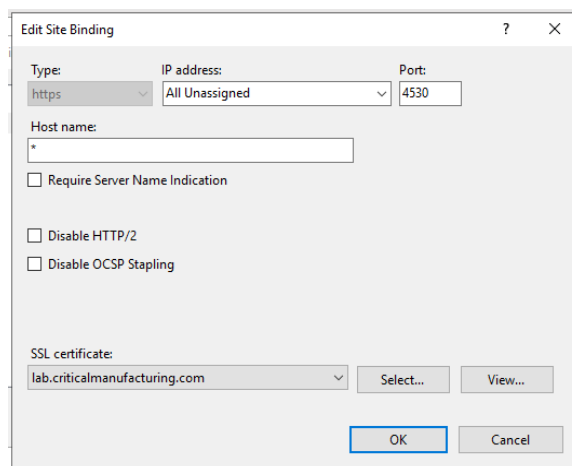
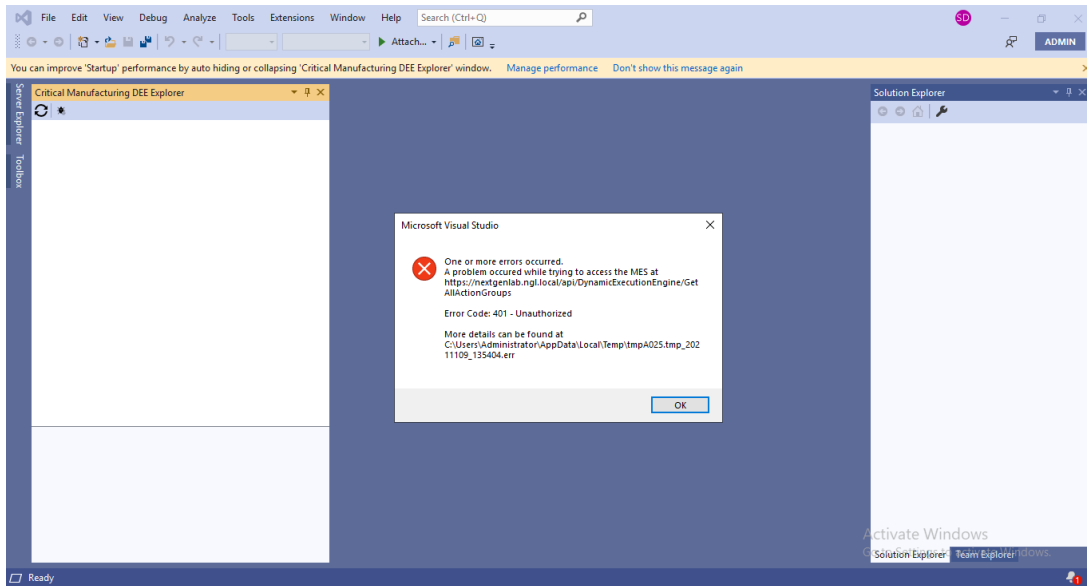


Figure 43 - Site Binding SLSupport

You are now running with the latest certificate.

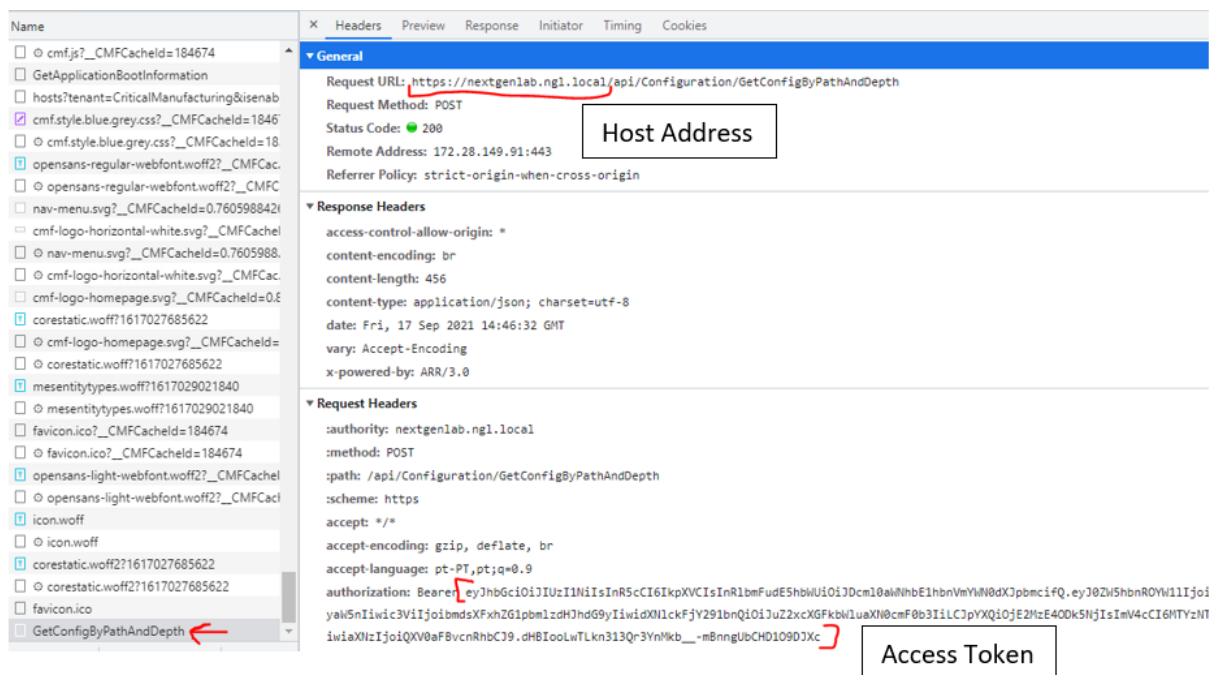


9.1.8 Visual Studio 2019: error trying to load the DEE Explorer



To overcome the issue, please follow the below steps:

- In the browser (login page), press F12 to open the developer tools.
- Select the Network tab
- Minimize the DevTools window
- Login in Critical Manufacturing and maximize the DevTools window. In there, you will see several requests made. We can use GetConfigByPathAndDepth.





- In VS 2019, go to Tools -> Options -> Critical Manufacturing DEE Extension -> Options. Insert the Host Address and the Access Token values from DevTools, press the Refresh option from Critical Manufacturing DEE Explorer, and it should work.

Options

Search Options (Ctrl+E)

- Environment
- Projects and Solutions
- Source Control
- Work Items
- Text Editor
- Debugging
- Critical Manufacturing DEE Extension
 - Options
- Cross Platform
- Database Tools
- F# Tools
- IntelliCode
- NuGet Package Manager
- Test
- Text Templating
- Web Performance Test Tools
- Windows Forms Designer

Network	
Host Address	https://nextgenlab.ngl.local
Security	
Access Token	eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCIsInR
Personal Access Token	

Host Address
The host machine address (e.g. 'http://localhost:8084')

OK Cancel



9.1.9 Not enough RAM to run the system properly

To work with the Critical Manufacturing MES VM, we recommend 8 GB RAM and four virtual processors reserved for the VM (minimum).

Nevertheless, if your PC doesn't have the requirements, you can run the VM by reserving only 4 GB of RAM and doing the following procedure:

- Create a VM with 2048MB (2GB) (in the initial VM setup).
- Afterward, enable the Dynamic Memory from 2048MB (2GB) to 6144Mb (6GB) in the settings.
- Open the VM and extend the virtual memory to: Initial Size = 1024Mb (1GB) and Maximum Size = 4096Mb (4GB) (<https://www.youtube.com/watch?v=gx6fflMSy28>).
- Shut down the VM and decrease the Dynamic Memory from 6144Mb (6Gb) to 4096Mb (4GB) – also, deactivate visual effects and other similar things.

Please note that this will allow the system to run, but it will be too slow. So it won't be a functional working system.



10 Glossary and References

10.1 Definitions and Acronyms

The following table presents the list of definitions used throughout this document.

Definition/Acronym	Description
CMF	Critical Manufacturing, S.A.
TBC	To be confirmed
TBD	To be defined
VM	Virtual Machine
HD	Hard Disk

Table 2: Definitions and acronyms



11 Document Version History

Date	Version	Changes	Author(s)
2019-11-10	0.1	First document draft.	Luís Pinho
2019-11-12	1	First document release	Luís Pinho
2019-12-09	1.1	Added chapter 3. Login into MES	Luís Pinho
2020-01-21	1.2	Changed a few details regarding the update to 7.1.0	Luís Pinho
2020-01-28	1.3	Added information related to the update of the certificate	Luís Pinho
2020-03-27	1.4	Added information regarding the number of CPU cores in the VM	Luís Pinho
2020-05-15	1.5	Update configuration file name from 7.1.0 to 7.2.0 version	Luís Pinho
2021-03-04	1.6	ISO download from the Information Center and VM download from Azure	Miguel Carvalho
2021-07-02	1.7	Update troubleshooting section	Miguel Carvalho
2021-09-01	1.8	Update troubleshooting section	Miguel Carvalho
2021-11-10	1.9	Update troubleshooting section	Miguel Carvalho
2022-05-03	2.0	Update CMF naming. Start VM procedures. Troubleshooting. Requirements (8 GB RAM minimum)	Miguel Carvalho

Table 3: Document version history