

# AMF Plus Cloud on Microsoft Hyper-V Installation Guide

## Installation Guide

### Introduction

AMF Plus Cloud is a scalable cloud-based network management platform. It supports Allied Telesis switching, firewall, and wireless products, as well as a wide range of third-party devices.

This installation guide enables you to install and configure AMF Plus Cloud in a Microsoft Hyper-V environment.

### Microsoft Hyper V recommended system requirements

The recommended system requirements for the Hyper-V environment are as follows:

Physical Machine - the recommended requirements for physical servers that provide a Hyper-V environment:

- CPU: Intel Core i7-8700K Processor (6 cores 3.70 GHz) or higher
- Memory: 32GB or more
- Storage: 32GB or more
- Network interfaces: 1-12
- Host OS
  - Windows 10
  - Windows Server 2019
  - Windows Server 2016



Virtual Machine - the recommended requirements for allocating resources to the Hyper-V Virtual Machine:

- CPU: 2 or more (maximum of 64)
- Memory: 1024MB
- Storage: One virtual disk, sized between 8GB and 2TB
- Network interfaces: 1 or more (maximum of 8)

## Related documents

For details about the AMF Plus Cloud system requirements, please refer to the [AMF Plus Cloud Datasheet](#).

For more information about AMF Plus Cloud, refer to the [AMF Plus Cloud](#) documentation.

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## Procedure overview

The general procedure for setting up this product on Hyper-V is as follows:

1. [Prepare the image file](#)

Download the ISO image file of this product to your Hyper-V host.

2. [Create the virtual machine](#)

Create a virtual machine on the Hyper-V host to run this product.

3. [Configure the virtual switch](#)

Create a virtual switch on the Hyper-V host and set up a virtual network.

4. [Configure virtual machine settings](#)

Change the settings of the created virtual machine for this product.

5. [Install the software](#)

Boot the virtual machine from the installation ISO image file and install this product.

### Prepare the image file

Download or copy the ISO image file to your Hyper-V host.

Image files are distributed with names in the following format. The “X.Y.Z-A.B” section contains the version.

ISO image file:

```
vaa-X.Y.Z-A.B.iso
```

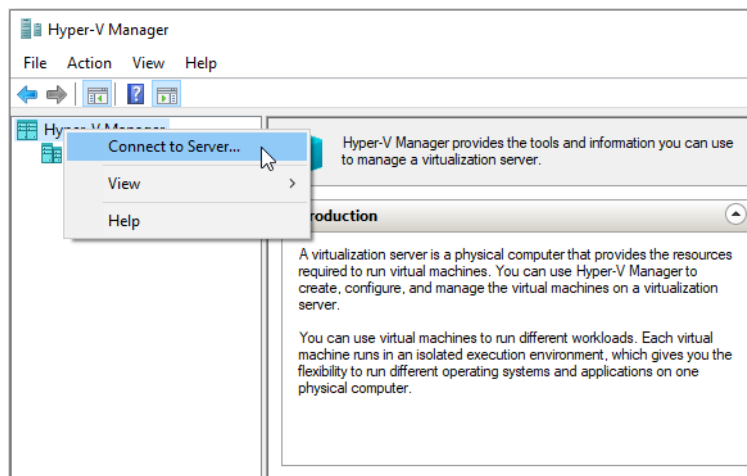
## Create the virtual machine

Create the virtual machine required to run this product on the Hyper-V host.

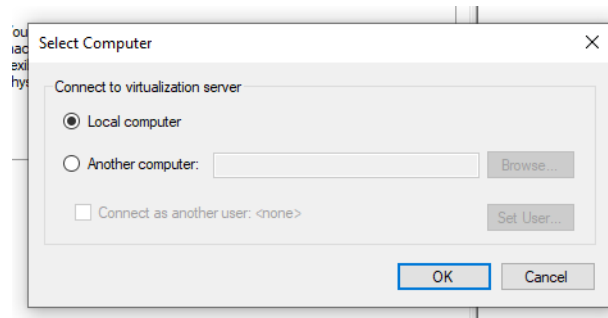
1. Start **Hyper-V Manager** from the Start menu.
2. If the Hyper-V host name (local server name) you are working on is not displayed in the left pane of the Hyper-V Manager window, add it using the following procedure.

If the local server name is displayed, proceed to step 3.

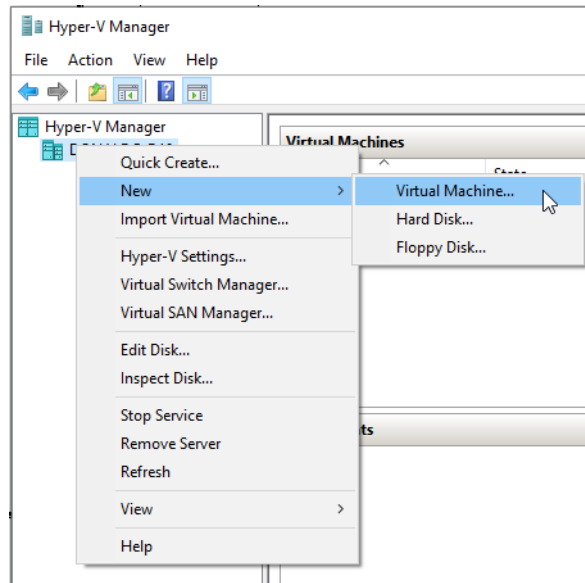
- Right-click **Hyper-V Manager** in the left pane and select **Connect to Server** from the context menu.



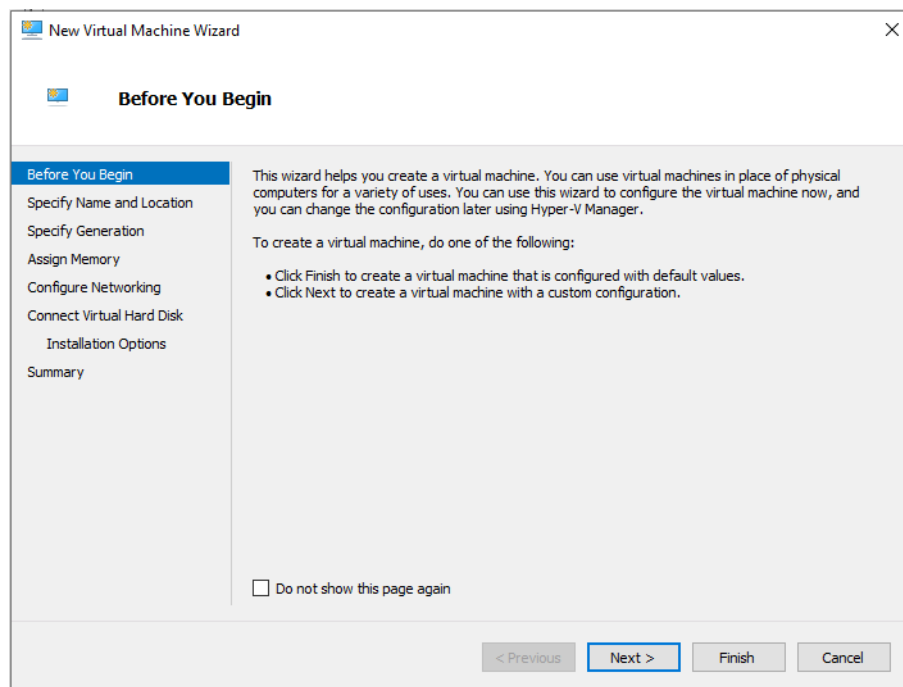
- In the **Select Computer** dialog, select **Local Computer** and click **OK**.



3. Right-click the local server name displayed in the left pane and select **New > Virtual Machine** from the context menu.

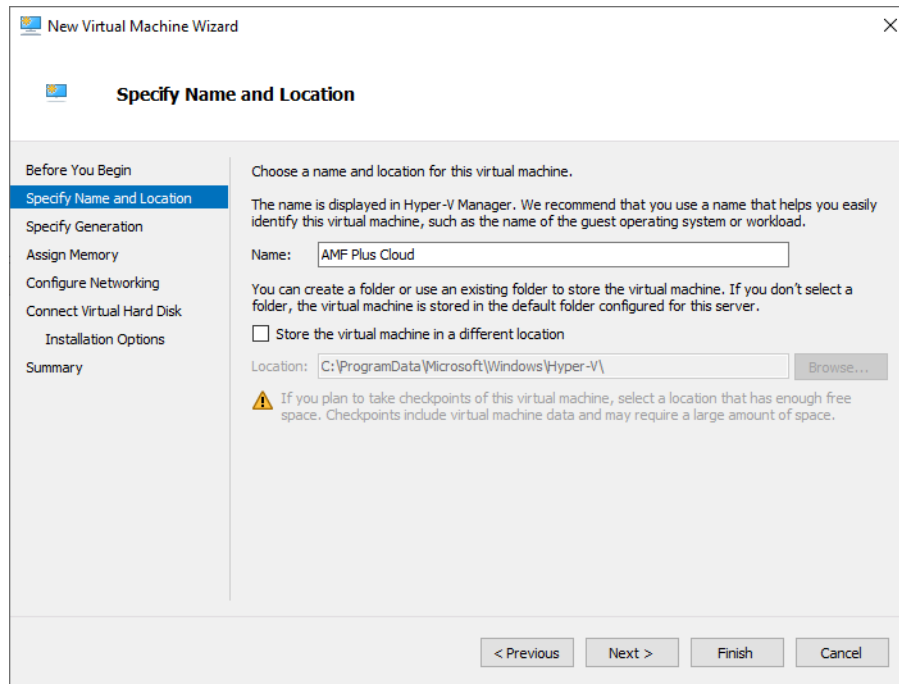


4. When the **Before You Begin** screen of the **New Virtual Machine Wizard** appears, click **Next**.



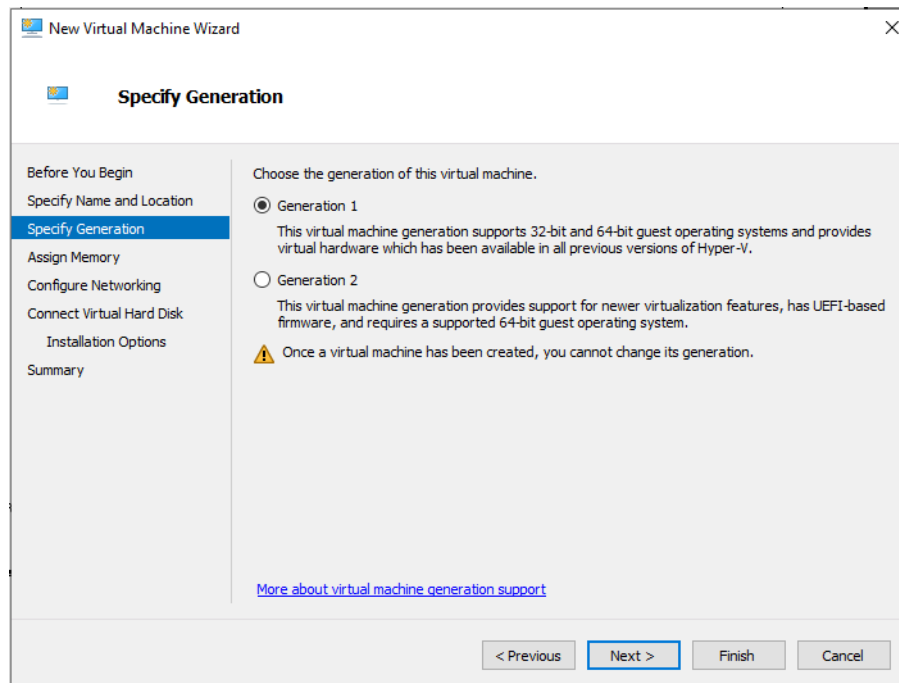
5. On the **Specify Name and Location** screen, enter the name of the virtual machine in the **Name** field and click **Next**.

You can leave the default storage location for the virtual machine.



The screenshot shows the 'Specify Name and Location' step of the 'New Virtual Machine Wizard'. The left sidebar lists the steps: 'Before You Begin', 'Specify Name and Location' (selected), 'Specify Generation', 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The main area contains the following text: 'Choose a name and location for this virtual machine. The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.' Below this, the 'Name' field contains 'AMF Plus Cloud'. A checkbox labeled 'Store the virtual machine in a different location' is unchecked. The 'Location' field shows 'C:\ProgramData\Microsoft\Windows\Hyper-V\' with a 'Browse...' button. A warning icon and text state: 'If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.' At the bottom, there are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

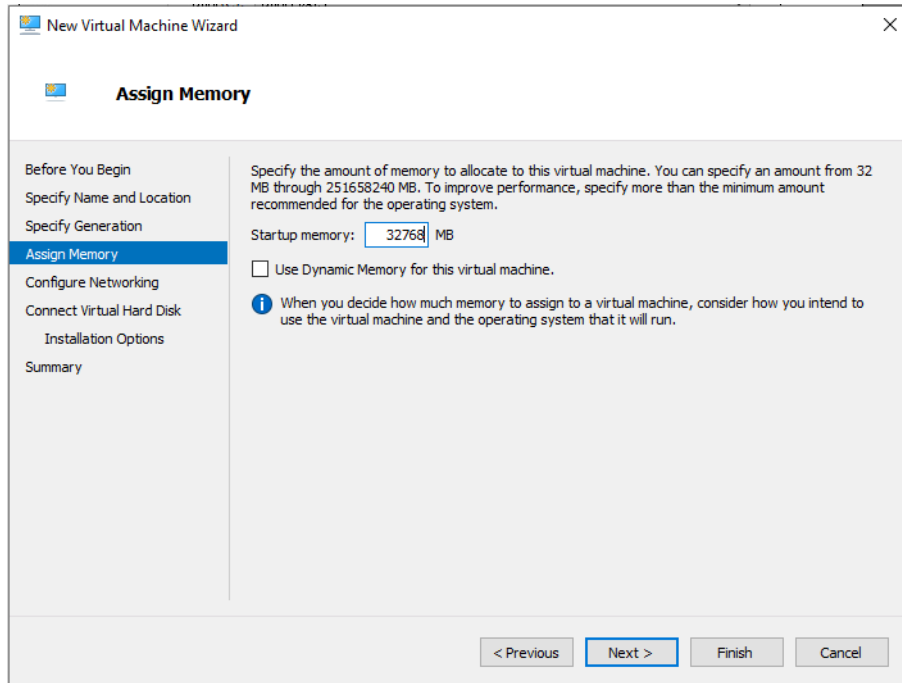
6. On the **Specify Generation** screen, select **Generation 1** and click **Next**.



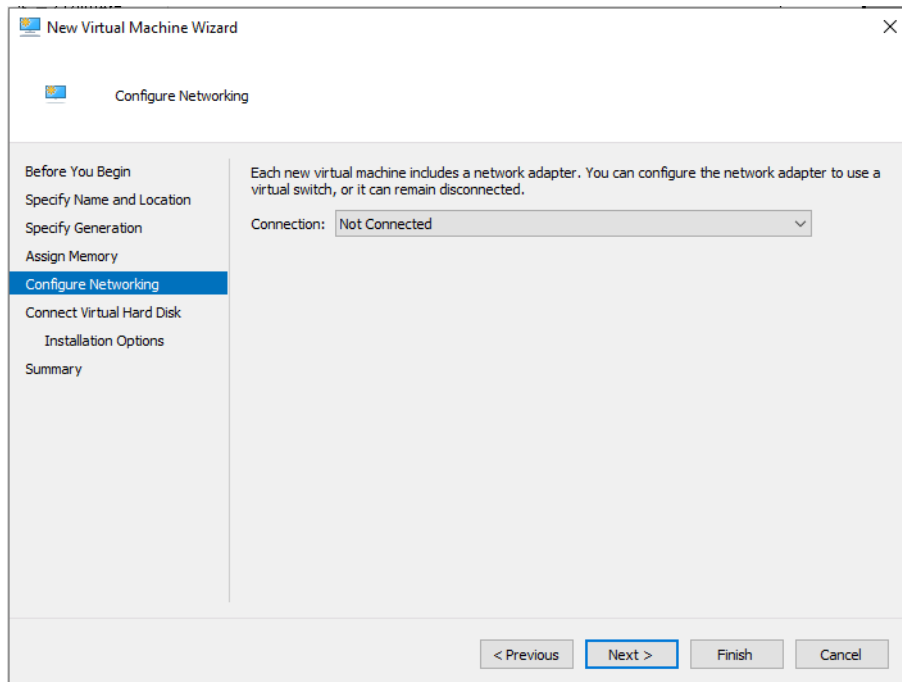
The screenshot shows the 'Specify Generation' step of the 'New Virtual Machine Wizard'. The left sidebar lists the steps: 'Before You Begin', 'Specify Name and Location', 'Specify Generation' (selected), 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The main area contains the following text: 'Choose the generation of this virtual machine.' There are two radio button options: 'Generation 1' (selected) and 'Generation 2'. The description for 'Generation 1' is: 'This virtual machine generation supports 32-bit and 64-bit guest operating systems and provides virtual hardware which has been available in all previous versions of Hyper-V.' The description for 'Generation 2' is: 'This virtual machine generation provides support for newer virtualization features, has UEFI-based firmware, and requires a supported 64-bit guest operating system.' A warning icon and text state: 'Once a virtual machine has been created, you cannot change its generation.' A link at the bottom reads 'More about virtual machine generation support'. At the bottom, there are buttons for '< Previous', 'Next >' (highlighted with a blue border), 'Finish', and 'Cancel'.

7. On the **Assign Memory** screen, enter the amount of memory to be allocated in the **Startup memory** field and click **Next**. See the [Microsoft Hyper V recommended system requirements](#) section for recommended system requirements.

Do not check “Use Dynamic Memory for this virtual machine”.



8. On the **Configure Networking** screen, leave the **Connection** field set to **Not Connected** and click **Next**. You will configure the network later.

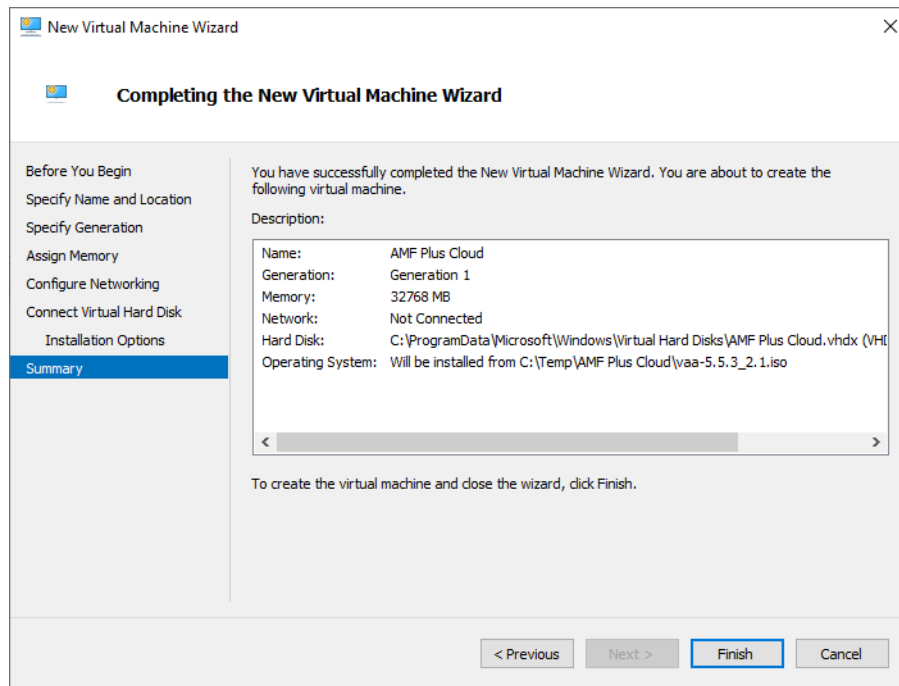


9. On the **Connect Virtual Hard Disk** screen, select **Create a virtual hard disk**. Specify the **Name**, enter the space to be allocated in the **Size** field, and click **Next**. See the [Microsoft Hyper V recommended system requirements](#) section for recommended system requirements. Leave the **Location** as default.

10. The **Installation Options** screen will be displayed. Select **Install an operating system from a bootable CD/DVD-ROM** and select the ISO of this product in the **Image file (.iso)** field. Specify the image file and click **Next**.

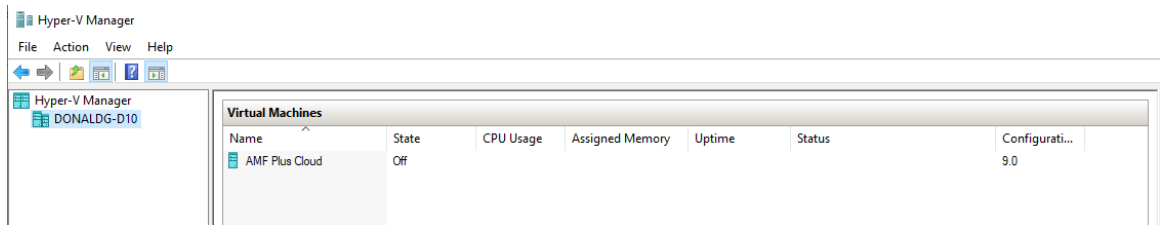


11. Review the summary on the **Completing the New Virtual Machine Wizard** screen. If there are no problems, click **Finish** to close the wizard screen.



12. The creation of the virtual machine is now complete.

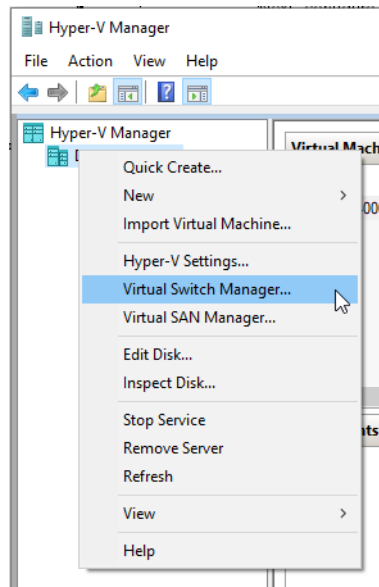
The created virtual machine will now be displayed in the **Virtual Machines** pane of Hyper-V Manager.



## Configure the virtual switch

Next, configure the virtual switch.

1. Right-click the Hyper-V host name (local server name) displayed in the left pane of Hyper-V Manager and select **Virtual Switch Manager** from the context menu.



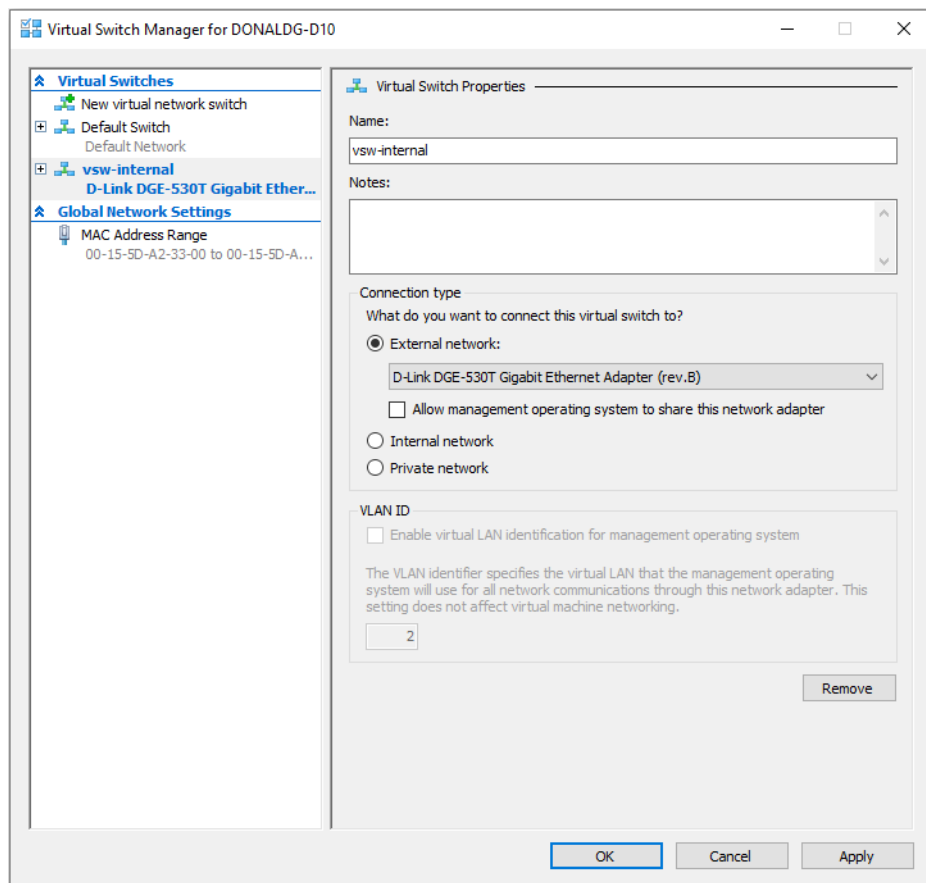
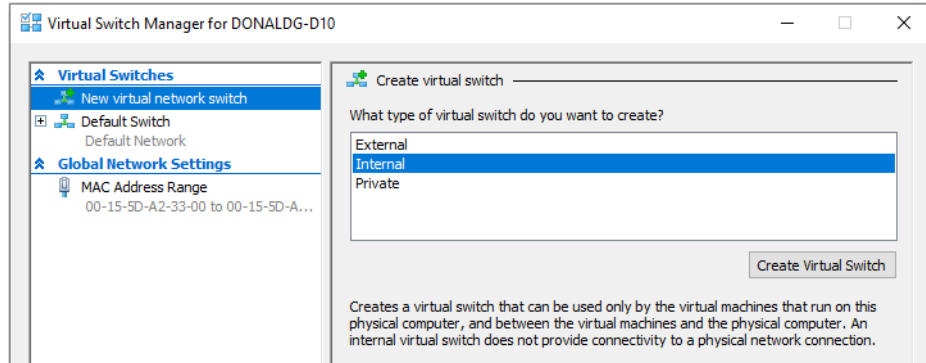
When configuring your virtual switch, you can select from one of the following switch types:

- **External virtual switch** - Connects to a wired, physical network by binding to a physical network adapter.
- **Internal virtual switch** - Connects to a network that can be used only by the virtual machines running on the host that has the virtual switch, and between the host and the virtual machines.
- **Private virtual switch** - Connects to a network that can be used only by the virtual machines running on the host that has the virtual switch, but doesn't provide networking between the host and the virtual machines.

In the following configuration example, we are using an internal switch.

2. If the virtual switch containing the name of the network adapter used in this product is displayed in **Virtual Switch** on the left pane, select it and change the settings below.

If not, select **New virtual network switch** to create a new virtual switch and configure the settings as shown below.



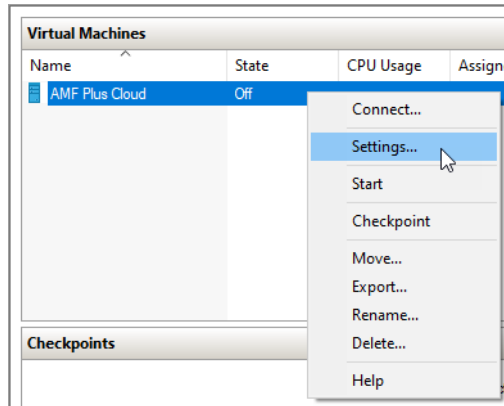
- Enter an appropriate virtual switch name in the **Name** field.
- Under **Connection type**, select the appropriate option for the connection destination of the virtual switch.
  - If you select **External network**, select the network adapter from the drop-down list.

After configuring the virtual switch, click **OK** to close the **Virtual Switch Manager** screen.

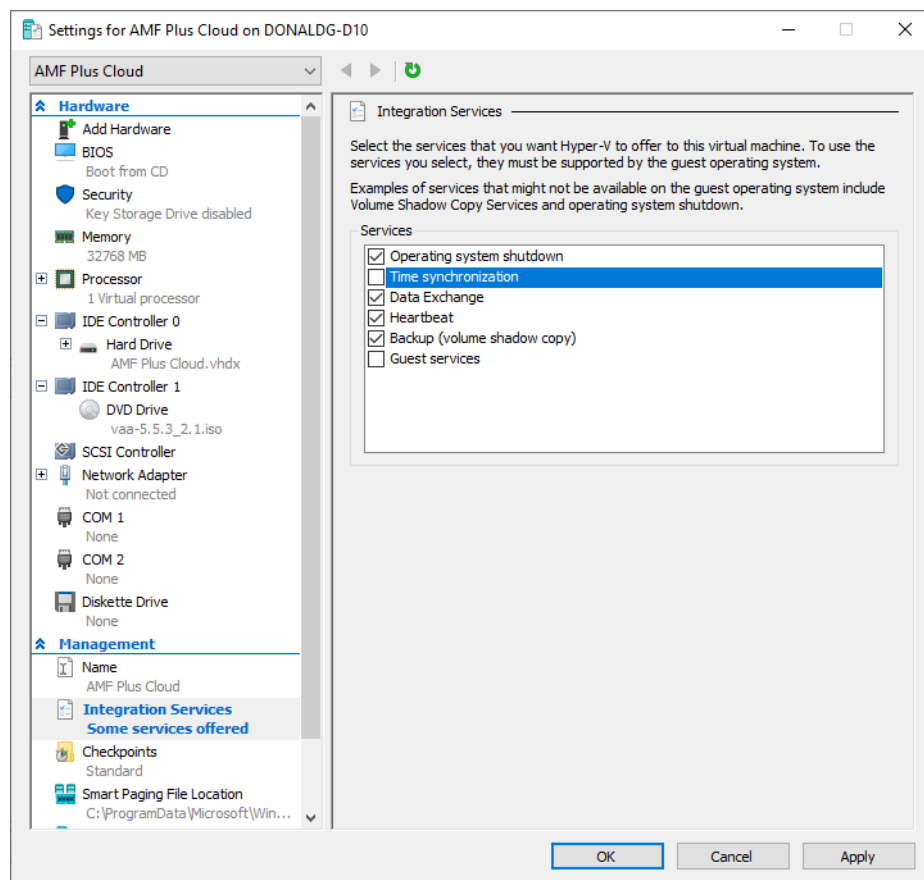
## Configure virtual machine settings

Next, configure the settings for the new virtual machine.

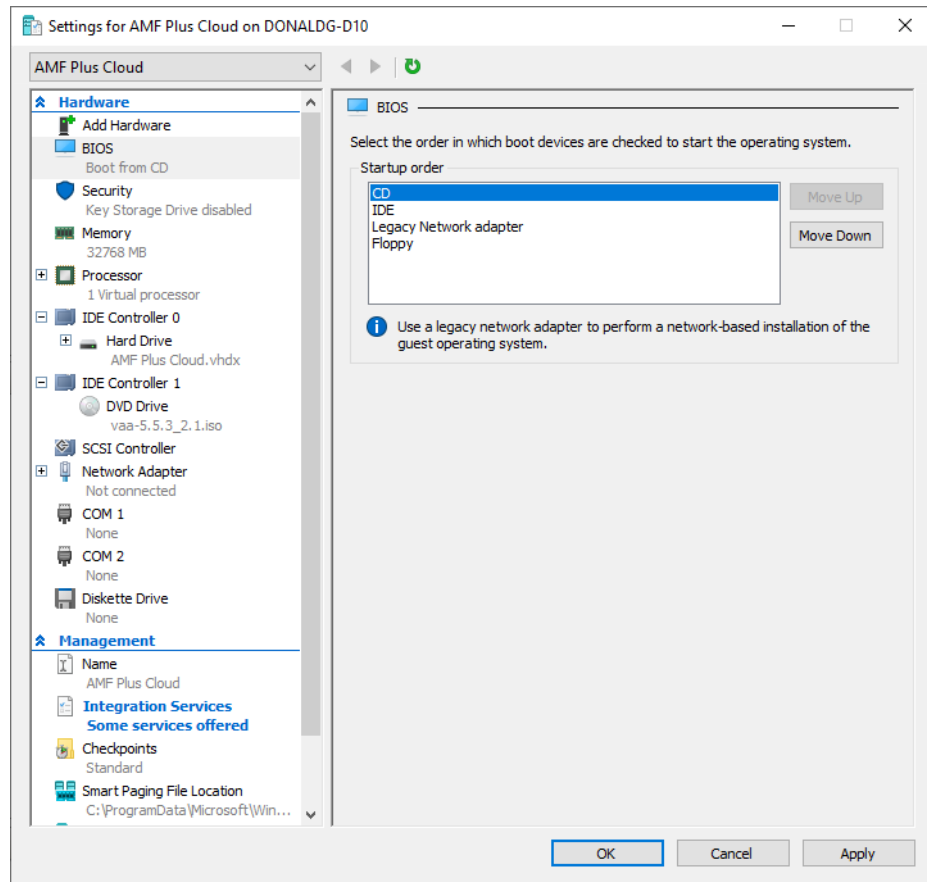
1. Right-click the virtual machine in the **Virtual Machines** pane and select **Settings** from the context menu.



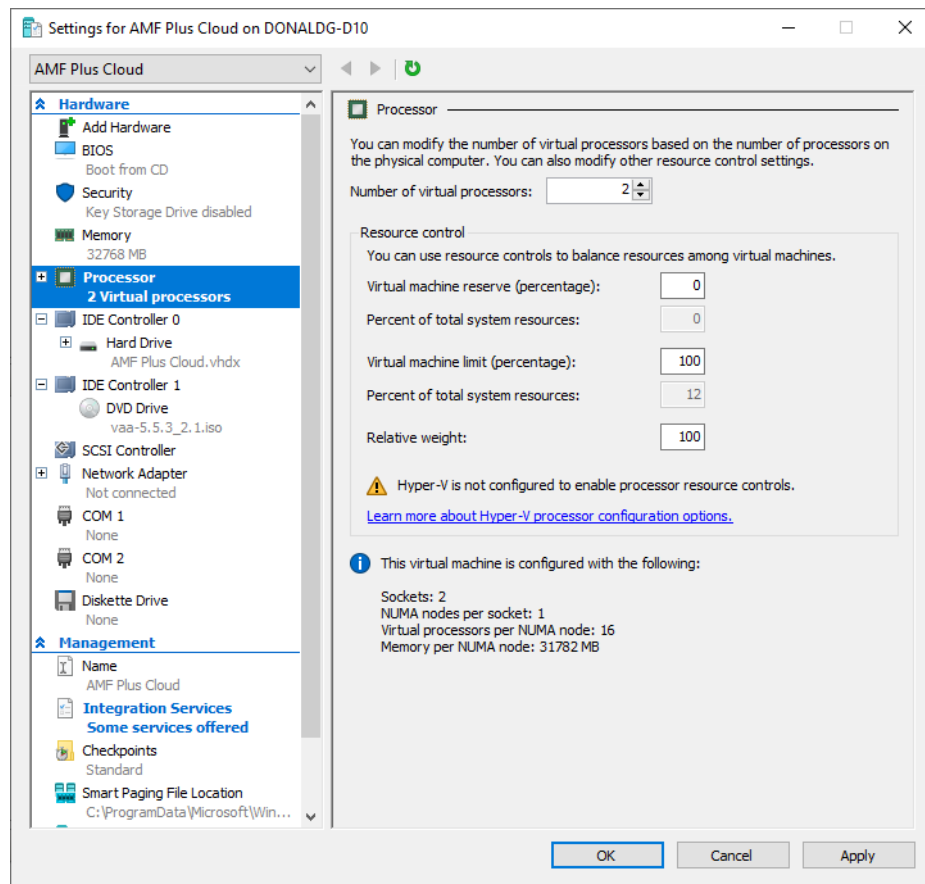
2. By default, Hyper-V virtual machines automatically synchronize with the time of the Hyper-V host. You can disable automatic synchronization so that the virtual machine can synchronize its own time. To do this, go to **Management > Integration Services** in the left pane, uncheck **Time synchronization** under Services, and click **Apply**.



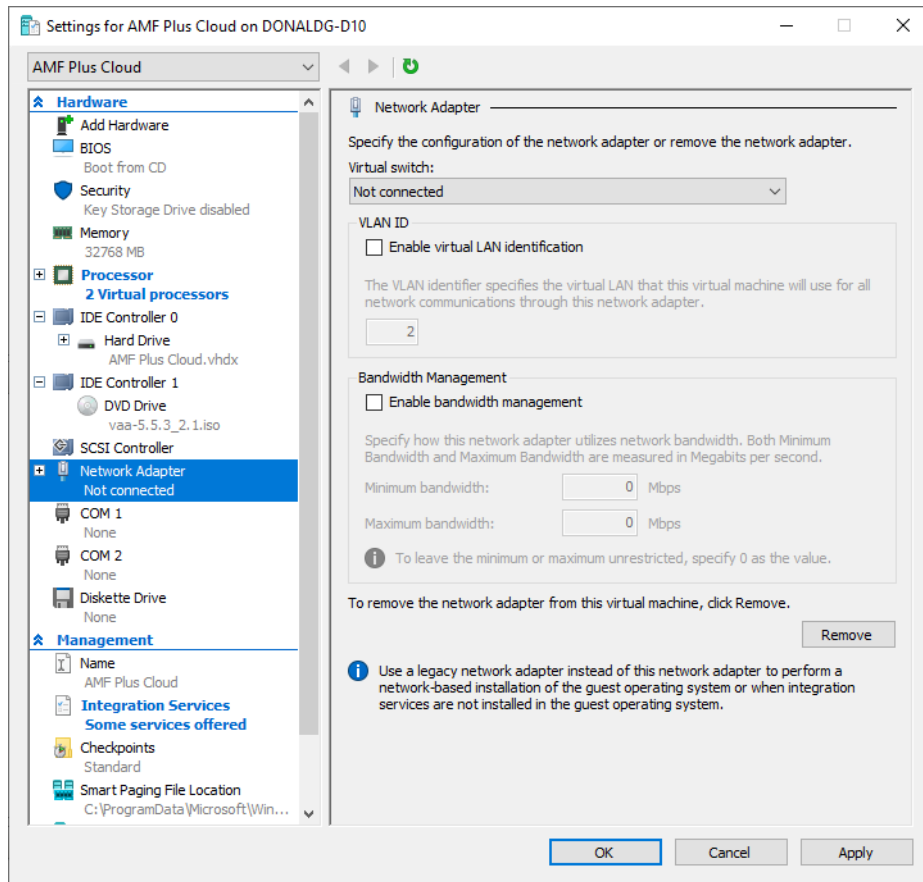
3. Select **Hardware > BIOS** in the left pane and confirm that **CD** is at the top of the **Startup order** displayed.  
If **CD** is not at the top, change the order with the buttons on the right and click **Apply**.



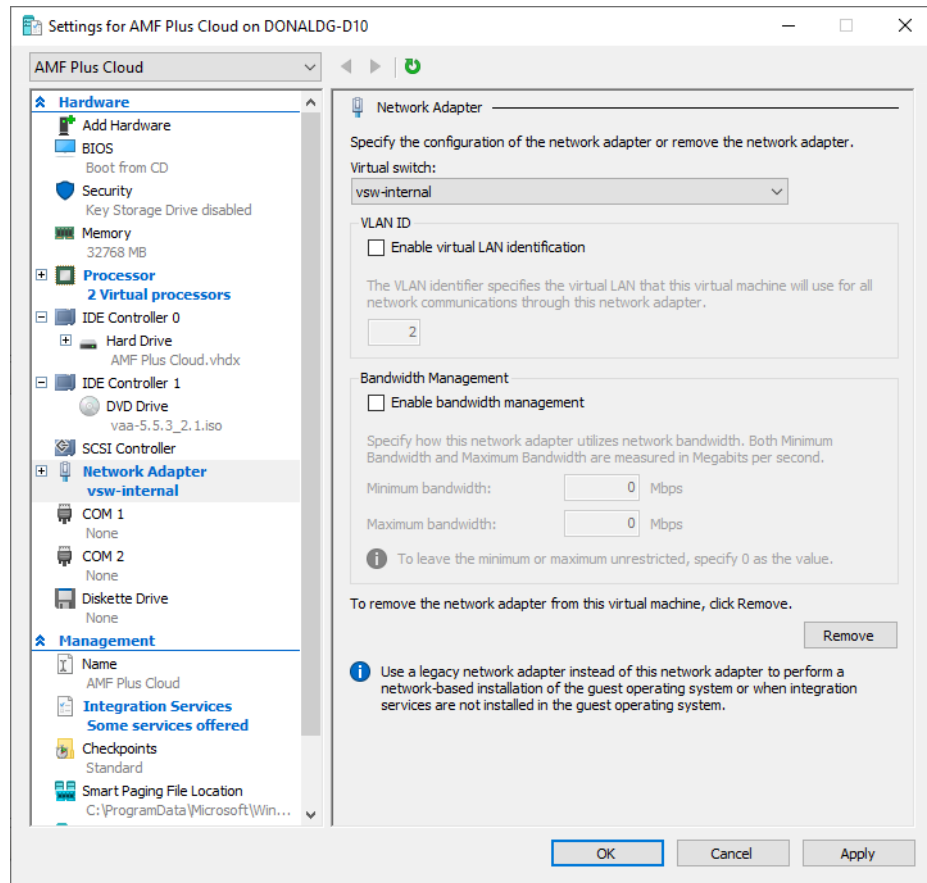
4. Select **Hardware > Processors** in the left pane. Enter the number of virtual CPUs to be allocated in **Number of virtual processors**, and click Apply. See the [Microsoft Hyper V recommended system requirements](#) section for recommended system requirements.



5. Select **Network Adapters** in the left pane to display the **Network Adapters** screen.



At first, **Virtual switch** is set to **Not connected**. Select the virtual switch name created in the virtual switch settings from the drop-down list and click **Apply**.





### Using multiple VLANs on a virtual network adapter

If you want to use multiple tagged VLANs on a virtual network adapter, you can configure the settings in PowerShell, a command line interface for Windows management.

**Note:** If you use multiple VLANs, do not configure VLAN settings from Hyper-V Manager. The Hyper-V Manager GUI does not support configuring multiple VLANs, and configurations made in PowerShell will be overwritten without warning.

1. Start **Windows PowerShell** from the **Start** menu.
2. Execute the following command on PowerShell.

```
Set-VMNetworkAdapterVlan -VMName <name> -Trunk -AllowedVlanIdList
<vlan-id-range> -NativeVlanId <vlan-id>
```

**<name>:** The virtual machine name.

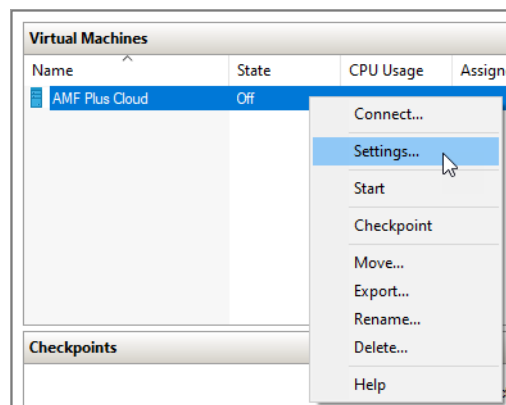
**<vlanid-range>:** The VLAN ID range of tagged VLANs, separated by hyphens (e.g.; “1001-1100”).

**<vlan-id>:** The VLAN ID of the untagged VLAN (native VLAN).

An example command is shown below:

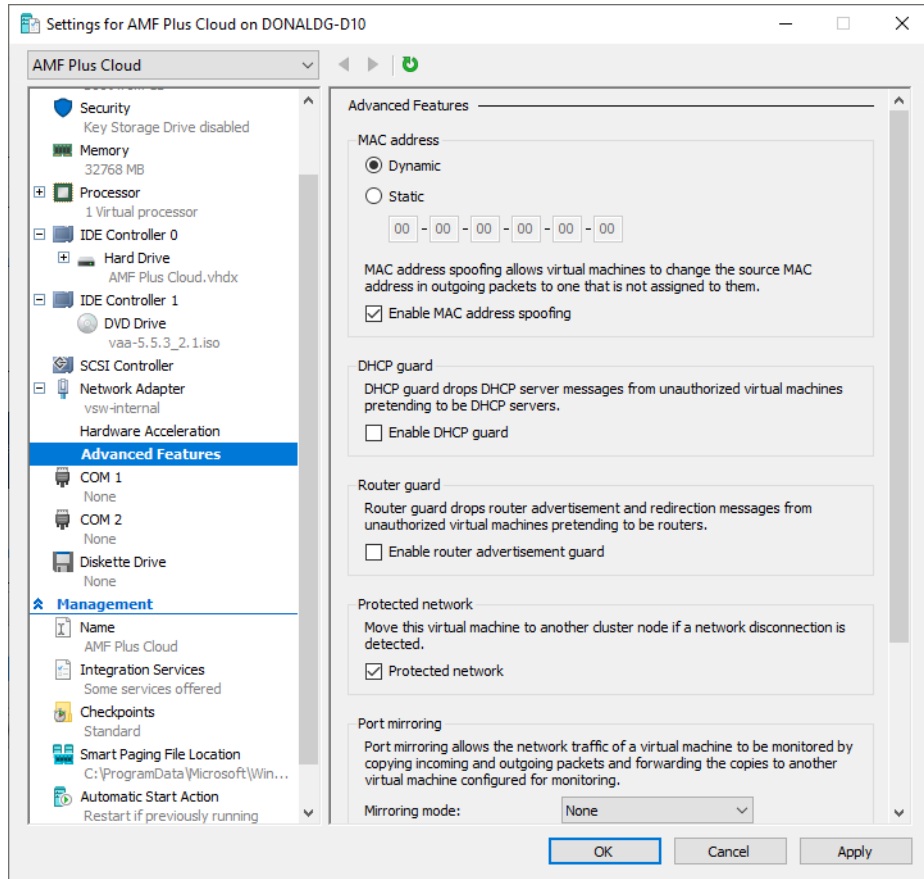
```
PS C:\Windows\System32> Set-VMNetworkAdapterVlan -VMName "AMF Plus Cloud" -Trunk -AllowedVlanIdList 1001-1100 -NativeVlanId 1001
```

3. In Hyper-V Manager, right-click the virtual machine in the **Virtual Machines** pane and select **Settings** from the context menu.



4. Select **Network Adapter > Advanced Features** in the left pane. Under **MAC address**, check the **Enable MAC address spoofing** check-box, and click the **OK** button.

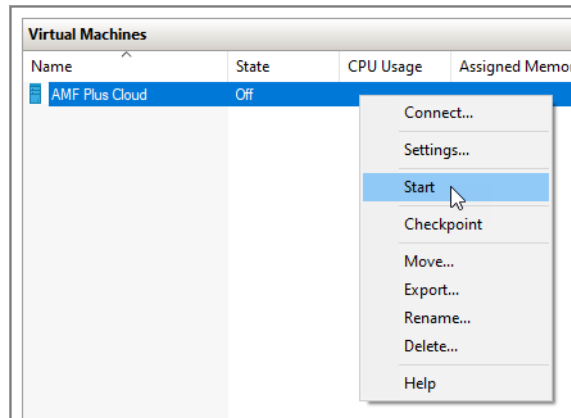
This setting prevents Hyper-V from discarding packets from AMF containers with MAC addresses that are different from the virtual machine's MAC address when using multi-tenant mode.



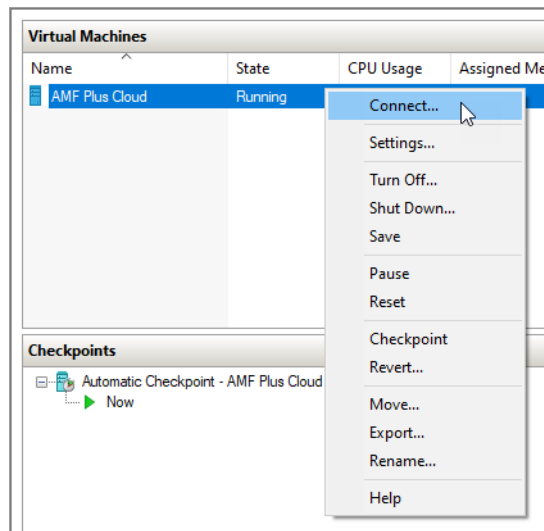
## Install the software

After creating the virtual machine, start the virtual machine from the installation ISO image that has already been configured, and install this product on the virtual machine.

1. To start the device, right-click the virtual machine in the **Virtual Machines** pane of Hyper-V Manager, and select **Start** from the context menu. This will start the virtual machine from the installation ISO image of this product.



2. Right-click the virtual machine you created in the **Virtual Machines** pane of Hyper-V Manager, and select **Connect** from the context menu.



3. The console screen of this product is displayed, and after the startup message, the login prompt is displayed.

```
[ OK ] Started eventwatch.
[ OK ] Started imi.
[ OK ] Started hsl.
[ OK ] Started Licensing Daemon.
[ OK ] Started nsm.
[ OK ] Started AMF Apps.
[ OK ] Started atmf agent.
Starting atmfd...
[ OK ] Started ATMF file server daemon.
Starting lldpd...
Starting Platform Event Handler...
Starting Trigger...
[ OK ] Started Tunnel Manager.
[ OK ] Started Platform Event Handler.
[ OK ] Started Trigger.
[ OK ] Started lldpd.
[ OK ] Started atmfd.
[ OK ] Reached target Multi-User System.
Starting AWPlus...

Initializing HA processes:
atmf_agentd, execd, hostd, hsl, lldpd, atmfd, imi
nsm

Assigning Active Workload to HA processes:
hsl, imi, lldpd, nsm

Loading default configuration
Warning: flash:/default.cfg does not exist, loading factory defaults.
..
done!

awplus login:
```

4. Log in with username **manager** and password **friend**.

```
awplus login: manager
Password: friend
```

**Note:** The password text is not actually displayed.

5. The following prompt will be displayed, press the **Y** key to start the installation, and when completed, the command prompt will be displayed.

```
The system has been booted from removable media.
Bootup has successfully completed.

Install this release to disk? (y/n): y
Installing release... OK

AlliedWare Plus (TM) 5.5.3 xx/xx/xx xx:xx:xx

awplus>
```

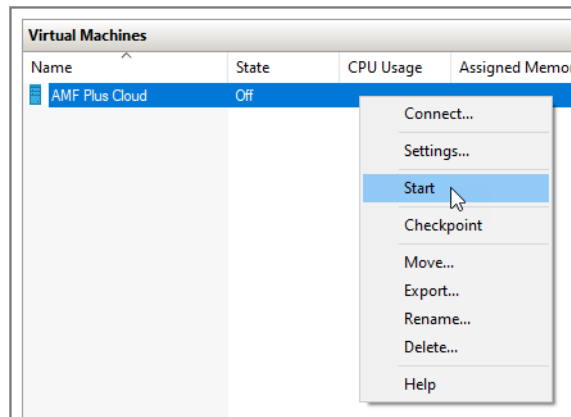
6. This completes the installation.

## Basic operation of this product

This section covers basic operation methods, such as starting and stopping this product, accessing the console, and upgrading or downgrading the firmware.

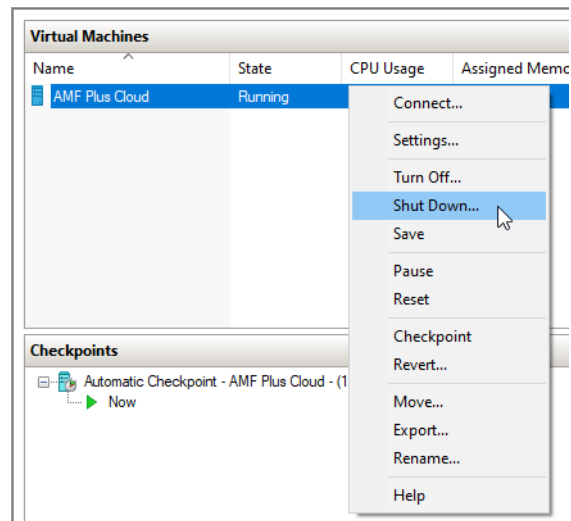
### Starting the product

To start the device, right-click the virtual machine in the **Virtual Machines** pane of Hyper-V Manager, and select **Start** from the context menu.



### Stop the product

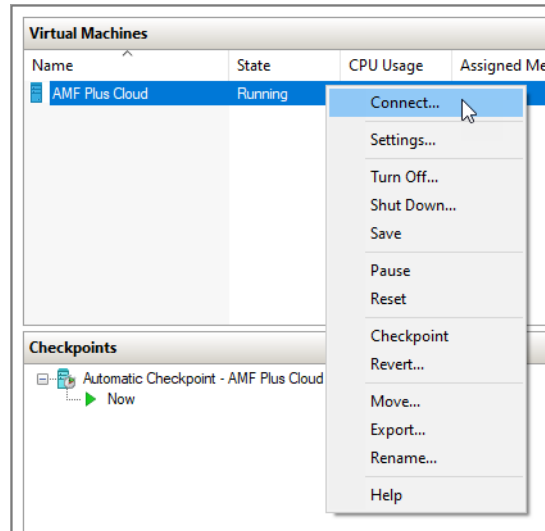
To stop the device, right-click the virtual machine in the **Virtual Machines** pane of Hyper-V Manager, and select **Shut Down** from the context menu.



## Accessing the console

To access the console:

1. Right-click the virtual machine of this product in the **Virtual Machines** pane of Hyper-V Manager, and select **Connect** from the context menu.



2. A virtual machine window opens and the console screen is displayed.

```
[ OK ] Started eventwatch.
[ OK ] Started imi.
[ OK ] Started hsl.
[ OK ] Started Licensing Daemon.
[ OK ] Started nsm.
[ OK ] Started AMF Apps.
[ OK ] Started atmf agent.
Starting atmf...
[ OK ] Started ATMF file server daemon.
Starting lldpd...
Starting Platform Event Handler...
Starting Trigger...
[ OK ] Started Tunnel Manager.
[ OK ] Started Platform Event Handler.
[ OK ] Started Trigger.
[ OK ] Started lldpd.
[ OK ] Started atmf.
[ OK ] Reached target Multi-User System.
Starting AWPlus...

Initializing HA processes:
atmf_agentd, execd, hostd, hsl, lldpd, atmf, imi
nsm

Assigning Active Workload to HA processes:
hsl, imi, lldpd, nsm

Loading default configuration
Warning: flash:/default.cfg does not exist, loading factory defaults.
..
done!

awplus login:
```

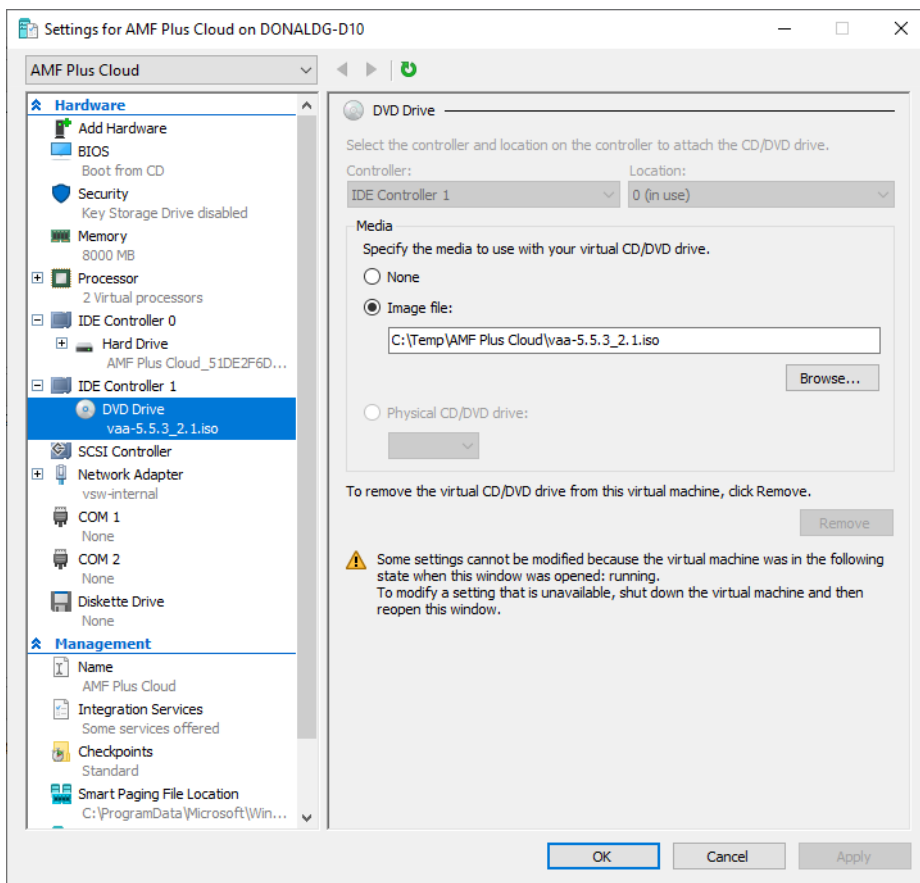
The device can also be started and stopped by selecting **Start** or **Shutdown** from the **Operation** menu of the virtual machine window.

## Firmware update

To update the firmware of this product, after you have prepared a new ISO image file, follow the steps below.

1. If the virtual machine of this product is running, stop the machine as described in the “[Stop the product](#)” section.
2. Right-click the virtual machine of this product in the **Virtual Machines** pane of Hyper-V Manager, and select **Settings** from the context menu.
3. Select **Hardware > IDE Controller 1 > DVD Drive** on the left pane, then specify the new ISO image file in the **Image file** displayed and click **OK** to open the virtual machine settings screen. Close.

**Note:** Firmware downgrades are not supported. For **Image File**, specify an ISO image file that is newer than the version currently in use.



4. Start this product according to the procedure in “[Starting the product](#)”.
5. The product will start with the new version. This completes updating the firmware of this product.

C613-04170-00 REV A



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