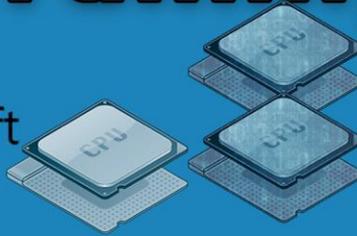


ITFreeTraining



Microsoft
Hyper-V



Hyper-V Hardware Requirements

For the free video please see
<http://itfreetraining.com/hyperv#/requirements>

This video will look at the hardware requirements for HyperV. If your computer does not meet these requirements you will not be able to run HyperV.

Hyper-V Minimum Hardware Requirements

- 64-bit CPU with hardware-assisted virtualization
 - Intel VT or AMD-V
- Hardware-enforced Data Execution Prevention (DEP)
 - Intel eXecute Disabled (XD) AMD No eXecute (NX)
- BIOS that supports virtualization and enabled
- Test Tool SecurAble
 - <https://www.grc.com/securable.htm>
- Intel product data <http://ark.intel.com/>
- AMD product data <http://products.amd.com>

00:15 Hyper-V Minimum Hardware Requirements

Hyper-V requires a 64bit CPU. 32bit CPU's are not supported. For both Intel and AMD CPU's Data Execution Prevention (DEP) must be supported. This has been supported for a long time so it is likely that modern CPU's support this. For Intel CPU's eXecute Disabled (XD) and AMD No eXecute (NX) is required. Lastly the BIOS is required to support virtualization. It may need to be updated in order to support this requirement. All featured CPU's released after 2006 should support these features. Some CPU's, for example low powered CPU's, may not support these features since they are not full featured CPU's. If you want to check the CPU, there are free tools from Microsoft, AMD and Intel, however these are required to be installed and in some of the tools you may need to know what to look for. A free tool called SecureAble is available which can quickly tell if your computer supports virtualization. Also, if you attempt to install the Hyper-V role, a check is performed and if the computer does not meet the requirements, the install of the role will fail. Intel and AMD both have product web sites where you can check your CPU to make sure that it meets the requirements.

Demonstration SecurAble

02:19 Open Internet Explorer and go to the web site <http://www.grc.com/securable>

02:28 From the website, select the option at the bottom "download now" and then select "run".

02:35 SecurAble will run without any installation. The 3 options on the screen will tell

you if your computer meets the 3 requirements. If 64 is displayed, the CPU is 64bit. If Yes is displayed for Hardware DEP then this is displayed. If Yes is disabled for hardware virtualization, then your CPU meets the requirements and also virtualization is enabled in the BIOS.

Demonstration Intel ARK

The Intel ark web site allows information about Intel products to be obtained and also different Intel products to be compared with each other.

03:25 Open the web site <http://ark.intel.com/>

03:42 The option advanced search is not available from the home page. To access it, select any CPU. In this case the option “Intel High End Desktop Processors” was selected.

03:55 Once the page has opened, select the option on the top right “Feature Filter”.

04:00 To perform a search of all CPU’s, press the X next to “High End CPU’s” at the top of the screen. This will remove the High End CPU’s filter and allow all CPU’s to be searched.

04:10 From the left hand side select “Intel 64” to Yes and “Intel Virtualization” to No. Once the options have been selected, press search. This will show all the Intel 64bit CPU’s that do not support virtualization. This will show that all the low powered CPU’s like Atom do not support virtualization.

04:48 Change the virtualization setting to Yes and press search again. This will show all 64bit CPU’s that support virtualization. The results will show quite a lot of matches. It is most likely that if you have a full featured CPU made after 2007 it will support virtualization.

Demonstration AMD Product Central

05:09 Select your required language from the home page. In this case United States – English was selected.

05:18 The main screen is divided into different section, notebook, desktop and Server. You will need to make sure that you select the right one for the type of CPU that you have. In this case the option for Desktop Processors was selected.

05:29 There is no option for 64bit CPU, however AMD released its first 64bit CPU back in 2003 so if you have an AMD CPU, there is a good chance that it is a 64bit CPU. In this case virtualization is set to no. There is only a small number of CPU’s that are listed.

05:46 Select option “clear filter” to clear the existing filter and then set the option “AMD Virtualization Technology” to Yes. You can see there are a lot of results. If your CPU was purchased after 2008 it most likely meets all these requirements. If the CPU was released after this, check on this web site to make sure that it meets the requirements.

Optional Requirements

- Second Level Address Translation (SLAT)
 - Intel (Nested Page Table) AMD (Extended Page Table)
 - Required by RemoteFX
 - Windows 8 requires SLAT
- RemoteFX
 - DirectX 11
 - WDDM 1.2 compatible driver
 - Multiple graphics cards need to be identical

Optional Requirements

06:34 Hyper-V also works better with Second Level Address Translation (SLAT). On Intel CPU's this is referred to as (Nested Page Table) and AMD (Extended Page Table). This is not required on Windows Server unless RemoteFX is being used. On Windows 8 and above this is required. SLAT was introduced in AMD CPU's in 2007 and Intel followed up shortly afterwards with support. It is likely that, if your CPU supports the other requirements of virtualization and was released after 2007, it will support SLAT.

Demonstration Check for SLAT support

07:32 Open a command prompt and run the command systeminfo.

07:40 Once the command is run, look in the output under the section Hyper-V and look for "Second Level Address Translation" and make sure it says Yes.

Optional Requirements

RemoteFX is a technology that allows 3D graphics to be created on the server using its 3D graphics card and then transferred to the client as a bitmap. This means that the client does not require a 3D graphics card in order to display 3D graphics.

07:54 RemoteFX requires DirectX11 and a WDDM 1.2 compatible Driver. Check with the vendor to make sure a WDDM 1.2 graphics driver is available. As long as the graphics card is modern enough and from one of the main vendors, it should meet these requirements. If you installed multiple graphics cards, they need to be identical in order to work correctly.

Demonstration DXDiag Check RemoteFX Requirements

08:24 Run DxDiag from the start menu. On the System tab at the bottom is “DirectX Version: DirectX 11” or higher. If this is present the graphics card supports DirectX 11.
08:53 Select the display tab. You may have more than one display tab. Make sure that where it says Driver Model it is followed by WDDM 1.2 or higher.

See <http://YouTube.com/ITFreeTraining> or <http://itfreetraining.com> for our always free training videos. This is only one video from the many free courses available on YouTube.

References

“Installing and Configuring Windows Server 2012 Exam Ref 70-410” pg 136

“Hardware-assisted virtualization” http://en.wikipedia.org/wiki/Hardware-assisted_virtualization

“Window Server 2012 Products and Editions Comparison”

<http://www.microsoft.com/en-au/download/details.aspx?id=38809>

“Volume Licensing reference guide”

http://download.microsoft.com/download/E/6/4/E64F72BF-55E9-4D85-9EFE-39605D7CE272/WindowsServer2012R2_Licensing_Guide.pdf

“Second Level Address Translation”

http://en.wikipedia.org/wiki/Second_Level_Address_Translation

“SecurAble” <https://www.grc.com/securable.htm>

“Processors” <http://www.intel.com/support/processors/sb/cs-030729.htm>

“RemoteFX vGPU Setup and Configuration Guide for Windows Server 2012”

http://social.technet.microsoft.com/wiki/contents/articles/16652.remotefx-vgpu-setup-and-configuration-guide-for-windows-server-2012.aspx#SLAT_CPU_Support