

INSTALLING "FEDORA" LINUX INTO A VIRTUAL MACHINE WITH "UEFI" WITH "SECURE BOOT"

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SUMMARY

Using the "Hyper-V" applet inside "Windows Technical Preview 64-bit, build 9879", and "Windows Technical Preview for Enterprise 64-bit, build 9879", you can create virtual machines have a "UEFI" with "Secure Boot" and run "Fedora Server 21 64-bit" as a "guest" operating system.

TOPICS

- No plans to get "Fedora Workstation" to work with "Hyper-V" virtual machines with a virtual "UEFI"

TOPICS (continued)

- "Fedora Server 21 64-bit" Runs Well in a Hyper-V "virtual machine" inside "Windows Technical Preview 64-bit, build 9879" and "Windows Technical Preview for Enterprise 64-bit, build 9879"

TOPICS (continued)

- Steps for Installing "Fedora Server 21 64-bit" Into A Virtual Machine Running In "Hyper-V"

TOPICS (continued)

- Testing whether a "Linux" computer is running in legacy BIOS mode or UEFI mode

TOPICS (continued)

- Testing whether a "Linux" computer is running with "Secure Boot" enabled

**Real, host computer runs
"Windows Technical Preview" or
"Windows Technical Preview for
Enterprise" (64 bit, builds 9879)**

**"Hyper-V" Virtual Machine
Program**

**"Generation 2" Virtual Machine
Has a Virtual "UEFI" with A
"Secure Boot" Feature That
Supports Some Linux Distros**

NO PLANS TO GET
"FEDORA
WORKSTATION" TO
WORK WITH "HYPER-V"
VIRTUAL MACHINES
WITH A VIRTUAL "UEFI"

NO PLANS TO GET "FEDORA WORKSTATION" TO WORK WITH "HYPER-V" VIRTUAL MACHINES WITH A VIRTUAL "UEFI"

- The developers of "Fedora" at "Red Hat" have given the problem a "wontfix" status.

See

https://bugzilla.redhat.com/show_bug.cgi?id=1097772

"FEDORA SERVER 21"
WORKS WITH "HYPER-V"
VIRTUAL MACHINES WITH A
VIRTUAL "UEFI"

"FEDORA SERVER 21" WORKS WITH "HYPER-V" VIRTUAL MACHINES WITH A VIRTUAL "UEFI"

- See <http://www.skrakes.com/2014/12/22/fedora-core-21-server-running-in-hyper-v-windows-8-1>

"FEDORA SERVER 21" WORKS WITH "HYPER-V" VIRTUAL MACHINES WITH A VIRTUAL "UEFI"(continued)

- See <http://www.skrakes.com/2014/12/22/fedora-core-21-server-running-in-hyper-v-windows-8-1>

**Real, host computer runs
"Windows Technical Preview" or
"Windows Technical Preview for
Enterprise" (64 bit, builds 9879)**

**"Hyper-V" Virtual Machine
Program**

**"Generation 2" Virtual Machine Has
a Virtual "UEFI" with A "Secure
Boot" Feature That Supports
"Fedora Server 21 64-bit"**

(References:

<http://technet.microsoft.com/en-us/library/dn765471.aspx>

and

<http://windowsitpro.com/hyper-v/secure-boot-linux-virtual-machine-hyper-v>

Note: in the first reference, "Windows Technical Preview (of "Windows 10") is called "Windows 10 Technical Preview".)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V"

STEP 1:

Download either "Windows Technical Preview 64-bit, build 9879" or "Windows Technical Preview for Enterprise 64-bit, build 9879".

(See

[http://aztcs.org/meeting_notes/winhard
sig/win10/win10TP-download.pdf](http://aztcs.org/meeting_notes/winhard
sig/win10/win10TP-download.pdf)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 1 (continued):

or

[http://aztcs.org/meeting_notes/winhard
sig/win10/win10TPforEnt-
download.pdf](http://aztcs.org/meeting_notes/winhard
sig/win10/win10TPforEnt-
download.pdf)

for details.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 2:

Install "Windows Technical Preview 64-bit" or "Windows Technical Preview for Enterprise 64-bit" into a real, physical computer.

(See

http://aztcs.org/meeting_notes/winhardsig/win10/win10techprev-using.pdf

for details.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 3:

Get into the "Control Panel" of "Windows..".

STEP 4:

Start "Programs and Features".

STEP 5:

Click on "Turn Windows Features On or Off".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 6:

Expand the "Hyper-V" item.

STEP 7:

Activate the entire bundled "Hyper-V" program by placing checkmarks in the check boxes for the main menu listing and the submenu listings of "Hyper-V".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 8:

Click on the "Start" button of "Windows Technical Preview.." or "Windows Technical Preview for Enterprise".

STEP 9:

Click on "All Programs".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 10:

Click on the "Hyper-V" menu folder.

STEP 11:

Start the "Hyper-V" Management Console.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 12:

Create a "Network Switch".

A good name for this external "Network Switch" is

"External Virtual Network Switch 1".

(See

http://aztcs.org/meeting_notes/winhardsig/virtualmachines/Hyper-V/Hyper-V.pdf

for details.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 13:

From inside the "Hyper-V" console window, right click on the name of the host and select "New".

STEP 14:

Select "Virtual Machine".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 15:

Select "I will install an operating system later".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 16:

Select "Generation 2".

(See

<http://www.serverwatch.com/server-tutorials/how-to-create-generation-2-virtual-machines.html>

for some screenshots.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 17:

Set the amount of RAM for the new virtual machine.

STEP 18:

Create a new virtual hard drive for the new virtual machine.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 19:

If you have not already done so, use a Web browser to download the installation .ISO file for the version of "Windows.." or the distro of "Linux that you will be installing inside the new virtual machine.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 20:

From inside the "Hyper-V Management Console", right click on the virtual machine

STEP 21:

Select "Settings" from the pop-up context menu.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 22:

Click once on "SCSI Controller".

STEP 23:

Click on the "Add" button.

STEP 24:

Click on "DVD Drive".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 25:

Attach the installation ISO file to the new virtual "DVD Drive" for the operating system that you wish to install inside the virtual machine. The installation ISO file for "Fedora Server 21" is available at <https://getfedora.org/en/server/>

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 26:

From inside the "Hyper-V Management Console", right click on the virtual machine.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 27:

Select "Settings" from the pop-up context menu.

STEP 28:

Click on "Firmware,

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 29:

Make sure that "Secure Boot" has a checkmark.

STEP 30:

(Not applicable!:

If you are installing "Windows.." into the virtual machine, go immediately to Step 43.)

If you are installing a distro of "Linux", go to Step 31.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 31:

If you are installing a distro of Linux into the new virtual machine, prior to running the virtual machine for the first time to install Linux, you have to install Microsoft's security certificates for Linux into the "Secure Boot" portion of the UEFI as follows:

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 32:

Right click on the Start button of "Windows Technical Preview".

STEP 33:

Click on "Command Prompt (Admin)".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 34:

A command prompt window will be displayed.

STEP 35:

Click once inside the command prompt window.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 36:

Make sure that the mouse is hovering inside the command prompt window.

STEP 37:

At the MS-DOS-like command prompt inside the command prompt window, type in powershell

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 38:

Press the Enter key once.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 39:

At the MS-DOS-like command prompt inside the command prompt window, type in

```
Set-VMFirmware "vmname" -  
SecureBootTemplate  
MicrosoftUEFICertificateAuthority
```

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 40:

Use cut and paste to replace vmname with the name of the virtual machine that is shown in the "Settings" screen of the virtual machine.

(The "Windows Technical Preview" and the "Windows Technical Preview for Enterprise" are the first versions of "Windows.." that allow cutting and pasting into a command prompt window.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 40 (continued):

The name of the virtual machine must be placed inside quotation marks if there are any spaces in the name of the virtual machine.

The quotation marks are optional and can be omitted if there are no spaces in the name of the virtual machine.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 41:

Press the Enter key once.

No news is good news.

If you get a red error message, go back to "Step 40".

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 42:

Close the "Command Prompt (Admin)" windows by clicking on the "X" button in its upper-right corner.

(See

http://technet.microsoft.com/en-us/library/dn765471.aspx#BKMK_linux

for some screenshots.)

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 43:

Start the Hyper-V virtual machine and install the operating system into the virtual machine.

CREATING A "FEDORA" VIRTUAL MACHINE IN "HYPER-V" (continued)

STEP 44:

To create a GUI for "Fedora Server 21", follow the instructions at

[https://fedoraserver-](https://fedoraserver-wgblog.rhcloud.com/graphical-desktop-environments-on-fedora-21-server/)

[wgblog.rhcloud.com/graphical-desktop-environments-on-fedora-21-server/](https://fedoraserver-wgblog.rhcloud.com/graphical-desktop-environments-on-fedora-21-server/)

and

<http://xy11.blogspot.com/2015/01/install-fedora-21-server-as-hyper-v-vm.html>

TESTING WHETHER A "LINUX"
COMPUTER
OR A "LINUX" VIRTUAL MACHINE IS
RUNNING IN "UEFI MODE" WITH
"SECURE BOOT" ENABLED:

See

<https://help.ubuntu.com/community/UEFI>

and

<http://www.howtogeek.com/175641/how-to-boot-and-install-linux-on-a-uefi-pc-with-secure-boot/>

and

<http://www.linuxjournal.com/content/growing-role-uefi-secure-boot-linux-distributions>

and

<https://en.opensuse.org/openSUSE:UEFI>

and

http://docs.fedoraproject.org/en-US/Fedora/18/html-single/UEFI_Secure_Boot_Guide/

REFERENCES

- <http://www.serverwatch.com/server-tutorials/enabling-uefi-on-virtual-machines.html>
- <https://codechief.wordpress.com/2013/02/14/how-to-setup-windows-8-in-uefi-bios-in-uefi-mode/>

REFERENCES (continued)

- <http://www.pcworld.com/article/2028388/two-ubuntu-linux-versions-can-now-work-with-secure-boot.html>
- <http://windowsitpro.com/hyper-v/secure-boot-linux-virtual-machine-hyper-v>