

What is 'Enhanced Session Mode' in Windows Server 2012 R2 Hyper-V and When Should I Use It?

One of the improvements coming in Windows Server 2012 R2 is a feature called [Enhanced Session Mode](#). Hyper-V and the Virtual Machine Connection tool now support redirection of local resources to a virtual machine session, just like the device redirection you get today through a Remote Desktop (RDP) session.

In previous versions of Hyper-V the Virtual Machine Connection utility only provided redirection of the virtual machine screen, keyboard, and mouse, refresh and control were not great, and copy / paste functionality is limited. You could use an RDP connection to gain these capabilities, BUT this would require a network path to the virtual machine. In Hyper-V in Windows Server 2012 R2, Hyper-V can now redirect local resources to a virtual machine session through Virtual Machine Connection tool. The enhanced session mode connection uses a Remote Desktop Connection session via the virtual machine bus (VMBus), so no network connection to the VM is required.

Any of the following local resources can be redirected to the remote VM using the Virtual Machine Connection tool:

- Audio
- Clipboard
- Display configuration
- Drives
- Printers
- Smart cards
- Supported Plug and Play devices
- USB devices

Enabling and Configuring Enhanced Session Mode

Enhanced session mode is enabled by default in Client Hyper-V and is disabled by default on Hyper-V running on Windows Server.

Enabling Server Setting

You configure enhanced session mode in Hyper-V Manager by selecting the Hyper-V server you wish to configure and then click **Hyper-V Settings**

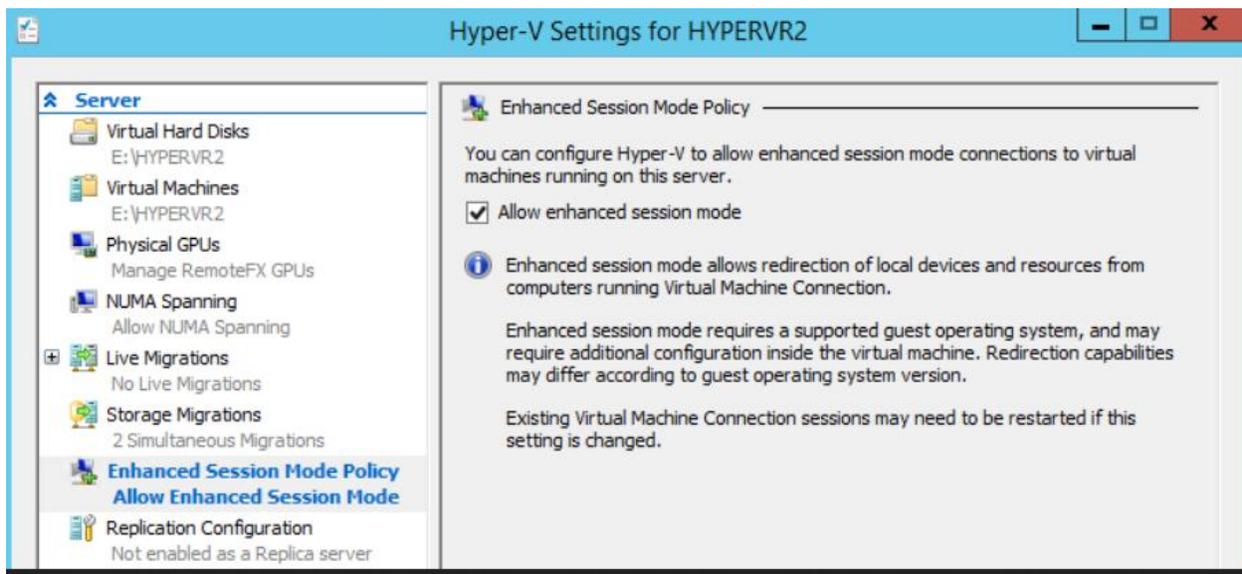
Server settings are enabled under **Enhanced Session Mode Policy** as shown here.

This setting affects all virtual machines running on the server running Hyper-V.

The **Allow enhanced session mode** setting will determine to allow or not allow enhanced session mode connections to virtual machines running on the server running Hyper-V. If this

setting is enabled Hyper-V will allow enhanced session mode connections to a virtual machine when the following conditions are met:

- An enhanced session mode connection has been requested by the Virtual Machine Connection tool.
- The VM is running an operating system which supports enhanced session mode.
- The **Remote Desktop Service** is running in the virtual machine.



When the **Allow enhanced session mode** setting is disabled, connections from the Virtual Machine Connection tool will use the same basic session you are accustomed to in pre-R2 Hyper-V releases.

Enabling User Settings

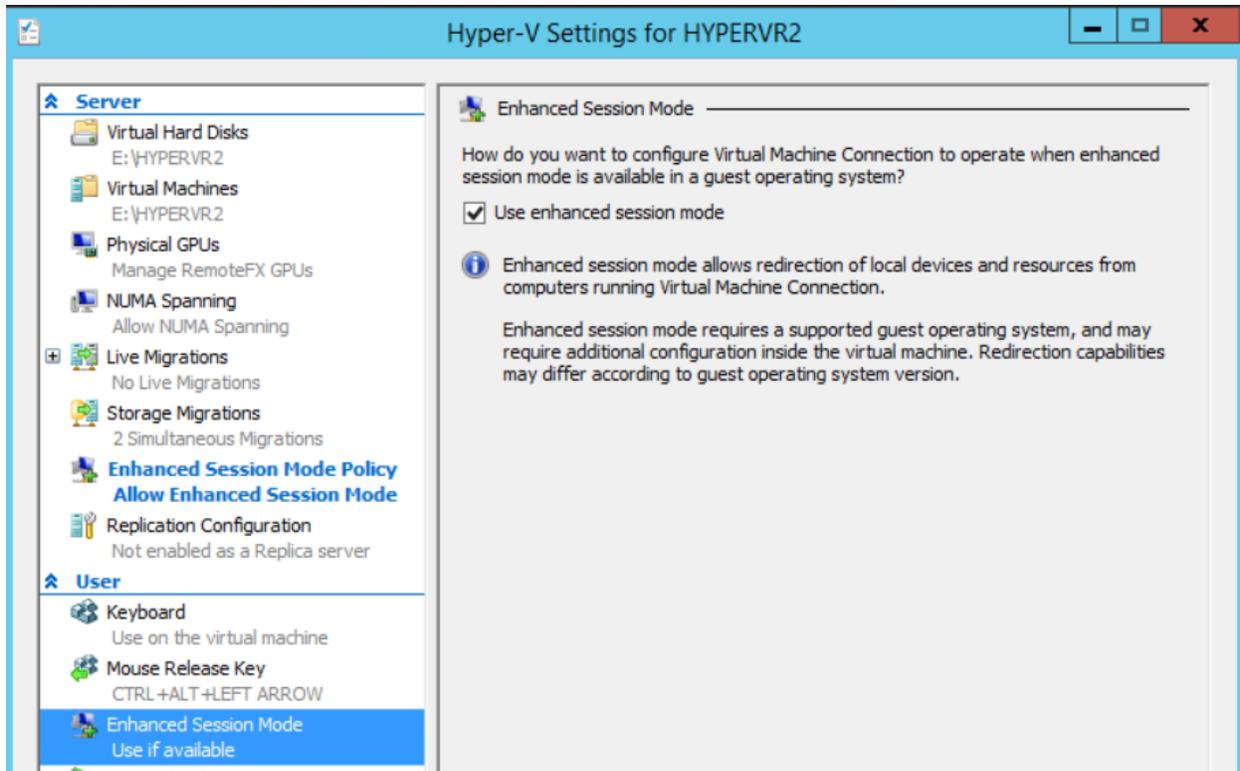
User settings are enabled under **Enhanced Session Mode** as shown here.

This setting will determine if the Virtual Machine Connection tool will attempt to use enhanced session mode when available in a guest operating system. When **Use enhanced session mode** is enabled device redirection will take place when the following conditions are met:

- **Allow enhanced session mode** is enabled on the server running Hyper-V.
- The virtual machine is running an operating system which supports enhanced session mode.
- The **Remote Desktop Service** is running in the virtual machine.

Additionally the **Remote Desktop Service** needs to be running and the user account you be using to log on to the virtual machine needs to be a member of the **Remote Desktop Users** local group or the local **Administrators** group.

WARNING: It's important to note that Remote Desktop Services group policy and local group policy settings are enforced for enhanced session mode connections. So if your org has a policy in place to block redirection of printers, USB drives (common practice in the enterprise), or other devices, you won't get around those policies with enhanced session mode.



Supported Operating Systems

Enhanced session mode is not supported on all operating systems supported by WS 2012 R2 Hyper-V. The only guest operating systems that support enhanced session mode connections are:

- Windows Server 2012 R2
- Windows 8.1

So if your VM is not running an OS from the R2 wave, enhanced session mode won't be available.

When is Enhanced Session Mode Useful?

In previous versions of Hyper-V the way to copy files to and from a virtual machine was via a Remote Desktop Connection session or a network file copy, but these require a working network connection. When connecting to a virtual machine using the Virtual Machine Connection tool you could only copy and paste a limited amount of ASCII text to the virtual machine.

Enhanced session mode allows you to redirect local resources to the a virtual machine in the same way as you can with Remote Desktop Connection, but you do not need network connection to the virtual machine. You only need to be able to connect to the server running Hyper-V where the virtual machine is running.

Enhanced session mode can useful in the in a number of situations where a responsive session with local devices is needed and network connectivity may not be available, including:

- Troubleshooting a virtual machine without the need for a network connection to the virtual machine.
- Login to the VM via smart card (which requires one of those fancy USB-attached readers)
- Printing from a VM to your local printer
- Developers can now fully test and troubleshoot applications running in a virtual machine that require USB and sound redirection without the need to use Remote Desktop Connection.