

SMART PAGING

HYPER-V MACHINE

Dynamic memory is a feature that is designed to compensate for a host server's physical memory limitations. Rather than assigning a static amount of memory to a virtual machine, the virtual machine uses the memory that it needs within the limits set by the administrator.

If for instance a VM is assigned 4GB of RAM, but only needs 3.5GB, then half a gigabyte of memory is being wasted. That half a gigabyte could be better used on another virtual machine.

Memory

You can configure options for assigning and managing memory for this virtual machine.

Specify the amount of memory that this virtual machine will be started with.

Startup RAM: MB

Dynamic Memory

You can manage the amount of memory assigned to this virtual machine dynamically within the specified range.

Enable Dynamic Memory

Minimum RAM: MB

Maximum RAM: MB

Specify the percentage of memory that Hyper-V should try to reserve as a buffer. Hyper-V uses the percentage and the current demand for memory to determine an amount of memory for the buffer.

Memory buffer: %

Memory weight

Specify how to prioritize the availability of memory for this virtual machine compared to other virtual machines on this computer.

Low High

OK

Cancel

Apply

There are three settings that you need to pay attention to.

Startup RAM - represents the amount of memory that is being statically assigned to the virtual machine.

If dynamic memory were enabled however, then the startup RAM value would reflect the amount of memory that is initially assigned to the virtual machine before the dynamic memory feature increases or decreases the memory consumption.

The other two settings to make note of are the minimum RAM and the maximum RAM settings. As the names imply, these settings reflect the least and most physical memory that will ever be allocated to the virtual machine.

So what does all of this have to do with the **Smart Paging File**? Well, here is the really important part. Notice in the figure above that the startup RAM and the minimum RAM are two separate values. This means that if a virtual machine is not using all of the memory that it was initially allocated then some of that memory can be released

Imagine that a host has been over committed and each VM is using the bare minimum amount of memory. Now imagine that one of the VMs is rebooted. Upon reboot, the VM will try to claim the startup RAM, which is not available because the memory is overcommitted. This is where the Smart Paging File comes into play. Rather than allowing the VM boot to fail, the Smart Paging File is used to make up for shortages in RAM. Unlike the Windows Pagefile however, the Smart Paging File is only used by the boot process. It is not used for routine memory paging operations.

Hyper-V allows you to configure the Smart Paging File's location. The Smart Paging file is stored with the VM by default, but can be redirected to another location if necessary.

Settings for Server 2012 Virtual 2015 on WIN-R44O8GIKKQK

Server 2012 Virtual 2015

- Processor
 - 1 Virtual processor
- IDE Controller 0
 - Hard Drive
 - Server 2012 Virtual 2015....
- IDE Controller 1
 - DVD Drive
 - SW_DVD5_Win_Svr_Std_...
- SCSI Controller
- Network Adapter
 - New Virtual SwitchMW
- COM 1
 - None
- COM 2
 - None
- Diskette Drive
 - None
- Management**
- Name
 - Server 2012 Virtual 2015
- Integration Services
 - All services offered
- Snapshot File Location
 - E:\ProgramData\Microsoft\Wi...
- Smart Paging File Location**
 - E:\ProgramData\Microsoft\Wi...
- Automatic Start Action

Smart Paging File Location

Specify the folder to store the Smart paging files for this virtual machine.

E:\ProgramData\Microsoft\Windows\Hyper-V\2015 Virtual\Server 2012 Virtual 2

Browse...

OK Cancel Apply