

Windows Tips & Tricks | UPDATE

John Savill's FAQ for Windows

Q. Where can I get the SP1 version of the Remote Server Administration Tools (RSAT) for Windows 7 SP1?



John Savill

A. RSAT is the management tools you get with Windows Server 2008 R2. Some of the tools are updated for Server 2008 R2 to support new features, such as dynamic memory and RemoteFX. To update the tools, install the RSAT tools then apply SP1 to the Windows 7 box. RSAT will be updated with the SP1 tools. As you can see here, I'm running the SP1 version of Hyper-V Manager (you can see dynamic memory).

Continued below...

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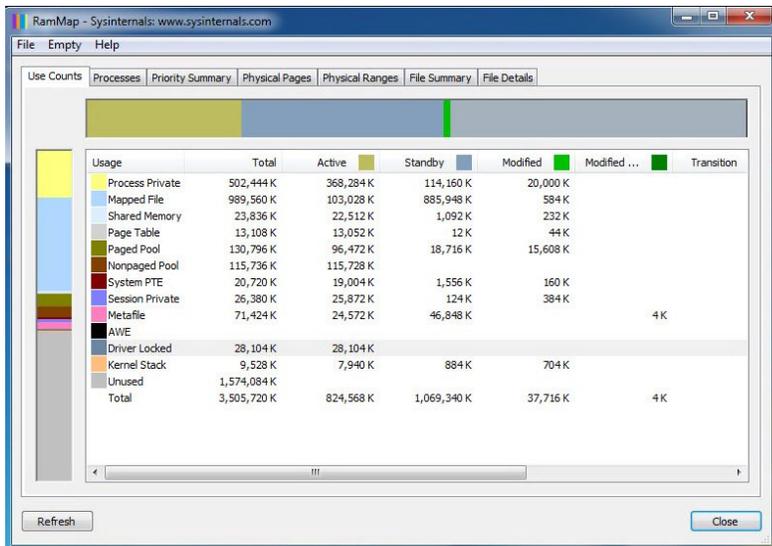
When the SP releases I'm sure we'll see an updated RSAT that includes the SP1 versions of the tools.

Q. Is there a way to see how the memory in my box is being used?

A. RamMap is a great tool from the Sysinternals site that gives detailed information of how memory is being used on a Windows OS. The tool can be [downloaded from Microsoft](#) and presents memory information in many different ways including:

- Use Counts: usage summary by type and paging list
- Processes: process working set sizes
- Priority Summary: prioritized standby list sizes
- Physical Pages: per-page use for all physical memory
- Physical Ranges: physical memory addresses
- File Summary: file data in RAM by file
- File Details: individual physical pages by file

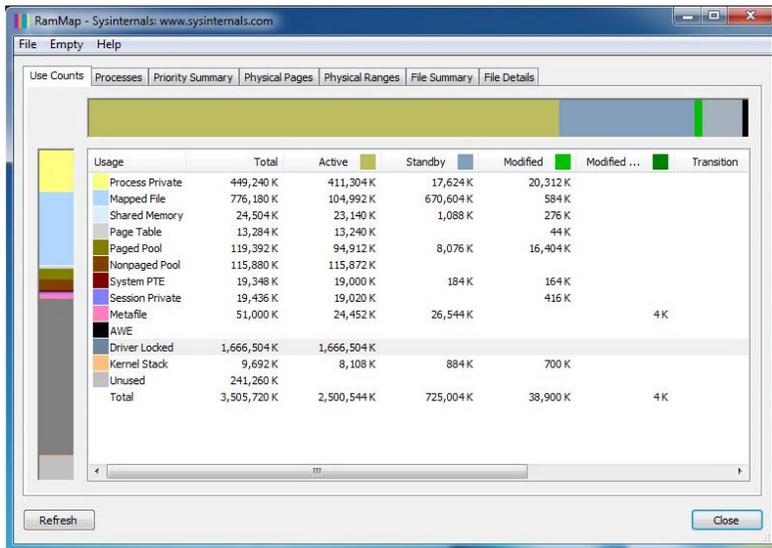
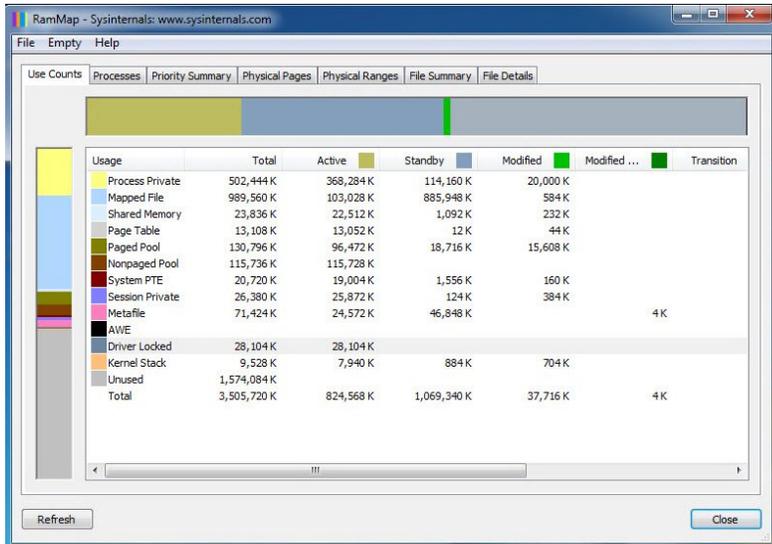
The main tab of the application gives summary information, as shown here.



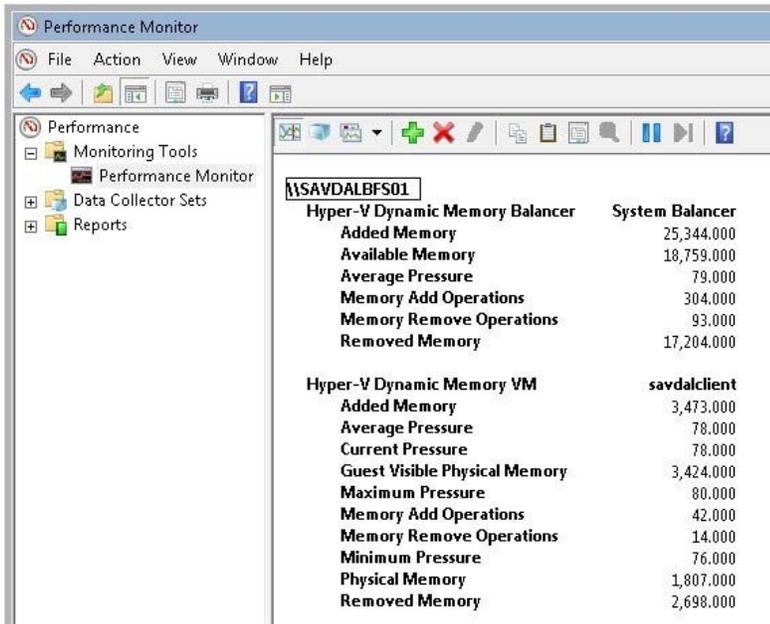
Q. How can I tell how much memory the dynamic memory balloon driver is using?

A. The balloon driver used inside the VM to reclaim memory is implemented as a kernel level device driver (DMVSC), which means seeing the amount of memory used by the driver isn't explicitly possible within the guest OS—insight into kernel device driver memory is blocked. You can still get an idea of the amount of memory used by a balloon driver, because the DMVSC locks memory. So you can [look at Driver Locked memory using RAMMap](#). Certain other drivers will lock some memory, but it's usually a very small amount, so most of the Driver Locked memory value will reflect the balloon driver size.

The two pictures below show the memory state before ballooning and after. Note the large difference in the Driver Locked value, which reflects the balloon size.



From the parent partition, you can use performance counters to get exact numbers by looking at the Hyper-V Dynamic Memory VM performance counters for the virtual machine (VM). The Removed Memory value reflects the memory claimed by the balloon driver, as shown here (the bottom value for the savdalclient VM).



Also in the picture, you can see Hyper-V Dynamic Memory Balancer, which reflects the dynamic memory operations for all VMs on the Hyper-V host.

Q. How can I tell if a virtual machine (VM) is using large or small memory pages?

A. Hyper-V maintains performance counters of the number of 4KB (small) and 2MB (large) memory pages allocated to a VM under the Hyper-V Hypervisor Partition countset. You need to look at 2M GPA pages and 4K GPA pages counters and add them to see you total memory for each VM, as shown below. Note these values show the number of pages of each type, NOT the amount of memory.

Hyper-V Hypervisor Partition	_Total	savdalappv01:HvPt	savdalclient:HvPt	savdalclient2:HvPt
2M GPA pages	13,716.000	1,021.000	671.000	270.000
4K GPA pages	176,472.000	2,593.000	135,483.000	4,534.000

All VMs use both large and small memory pages. If a VM is using any large memory pages at all, it's configured to use large memory pages.

Q. How can I send the Ctrl-Alt-Del secure attention sequence to a Remote Desktop session?

A. Even if you configure your Remote Desktop session to send all key sequences to the remote desktop, Ctrl-Alt-Del will act on the user's local machine (by design). To send Ctrl-Alt-Del to a remote desktop, use Ctrl-

Alt-End instead.

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