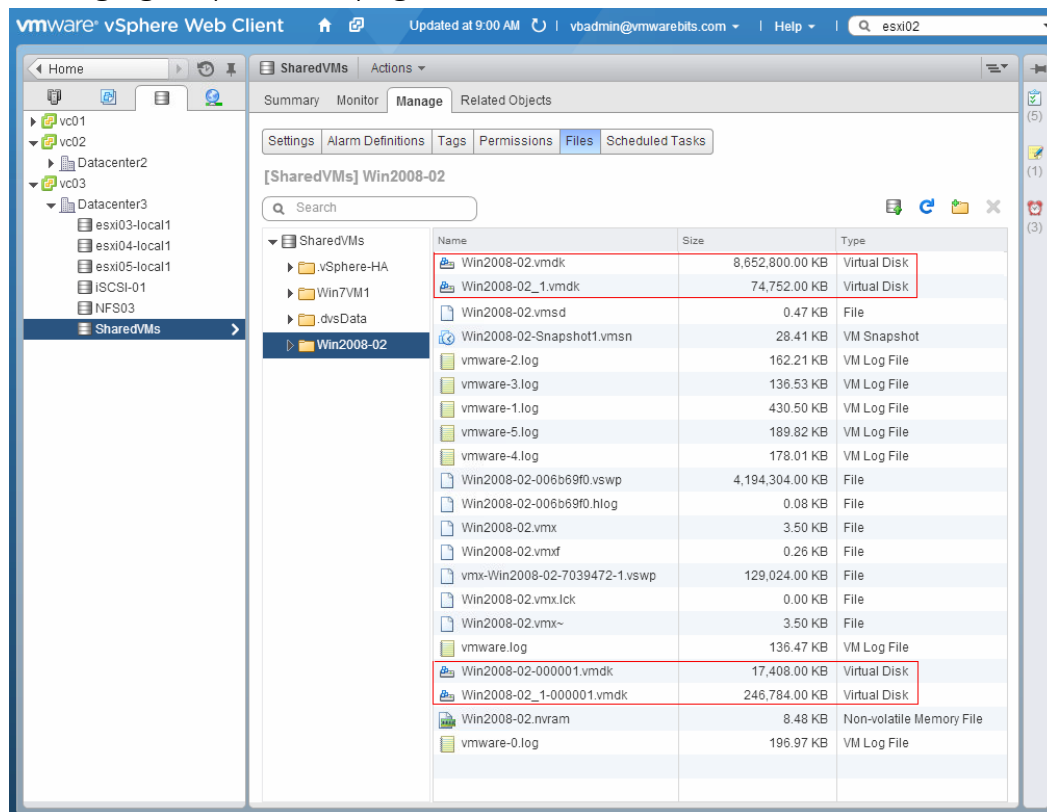


Managing snapshots in vSphere
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In this article we will provide you with information about the tools that are available for vSphere-administrators to find virtual machines in their environment that contain snapshots. First we will look at the tools that VMware provides and then third party tools and PowerShell.

Let's first have a look at a Virtual Machines's snapshot files to identify what happens when creating a snapshot.

ManagingSnapshots01.png



The files we will focus on in this article are the disk files because those are the one that will cause us problems, for example if they grow too large. This virtual machine has to disks. File Win2008-02.vmdk is the OS-disk, a thin provisioned disk which is about 8GB in size on the file system. And a data-disk, Win200802_1.vmdk, which is also thin-provisioned and about 74 GB in size. At the bottom of the list of files you see the two

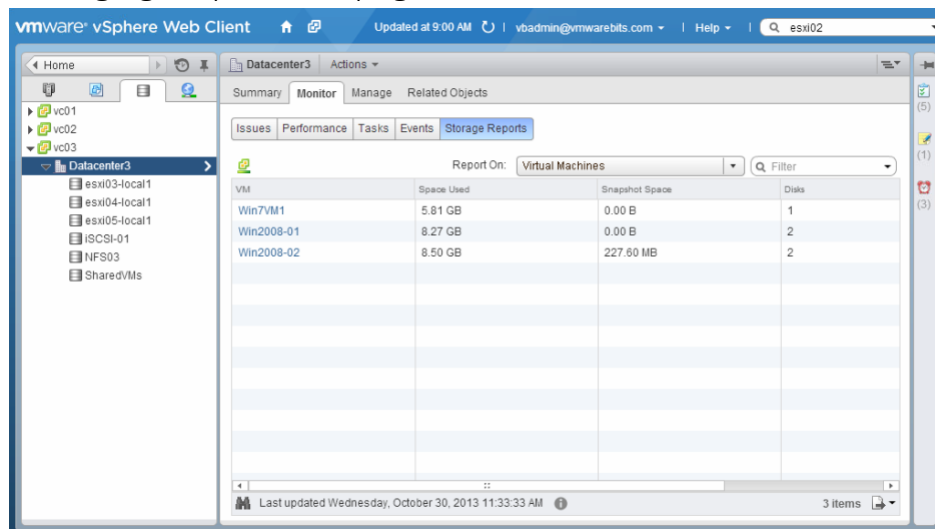
delta files for these disks. For the OS-disk the delta file has grown to 17 MB and for the data disk to 246 MB.

At this point there is no problem with this VM. As long as the snapshot would be removed and is not kept on the system for too long. Because in that case the disk space will increase and also the performance will deteriorate. For the purpose of this article we will grow the snapshot and show you how to find virtual machines with snapshots in your environment.

First we start with how to list them in the vSphere Web Client for your entire vCenter environment.

One place where you can verify how much disk space is being used by virtual machines for an entire datacenter is to access the Storage Reports. You can configure the columns to show the disk space and the snapshot space. To enable or disable columns right-click the column headers in the report. (see image below) At the bottom of the report you can see when it was generated. This information is updated hourly so you might want to refresh it with the refresh-icon for a more accurate view.

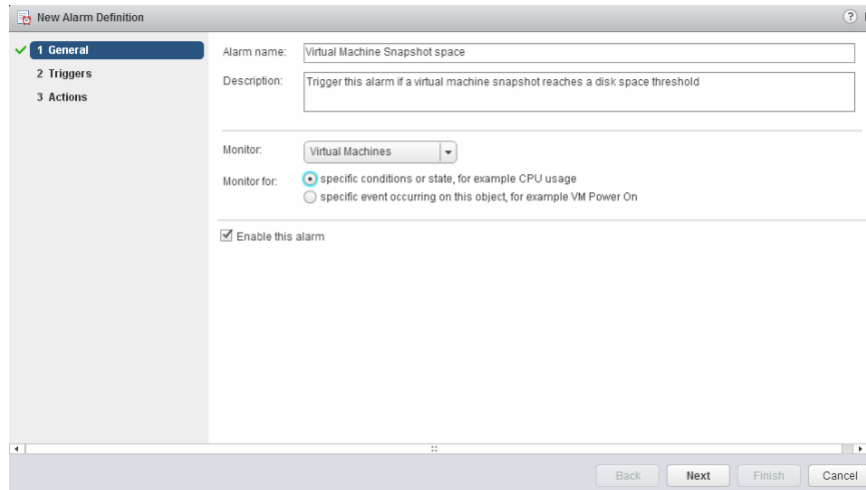
ManagingSnapshots02.png



Trigger Alarms when Snapshots grow

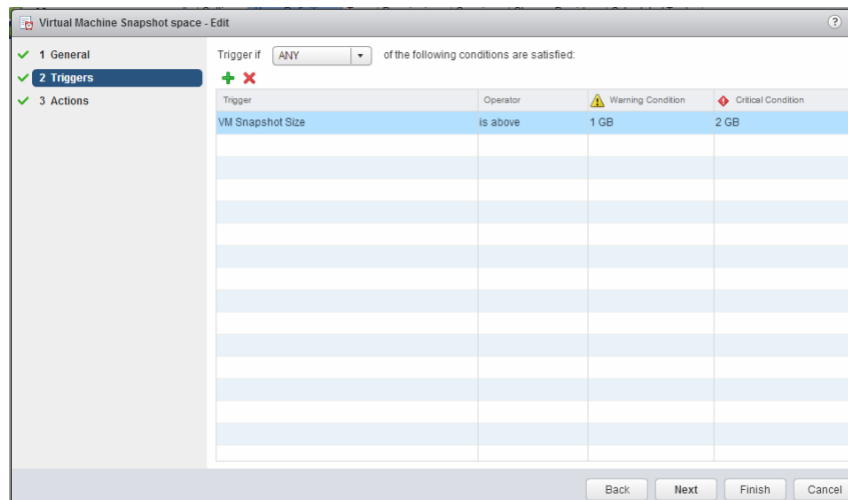
To configure an alarm for when snapshots grow and cross a threshold go to your vCenter or other object in the inventory in the vSphere Web Client, click the Manage-tab and select Alarm Definitions. Click the plus-icon to add a new alarm. Make sure to choose the default selection for virtual machines which is to monitor for specific conditions or state.

ManagingSnapshots03.png



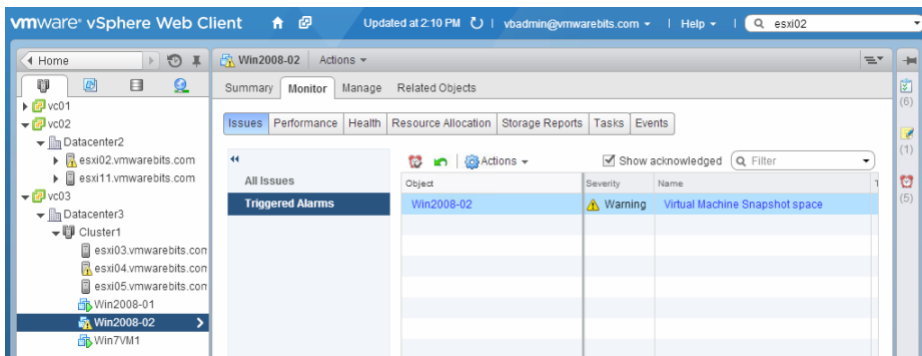
Next add a trigger for VM Snapshot Size and specify a value for a warning or critical condition or both. You can specify specific actions for warning or conditions so this allows you to for example only send out an email when the critical threshold is reached. If you do not specify any actions the alarm will only be displayed in your client.

ManagingSnapshots04.png

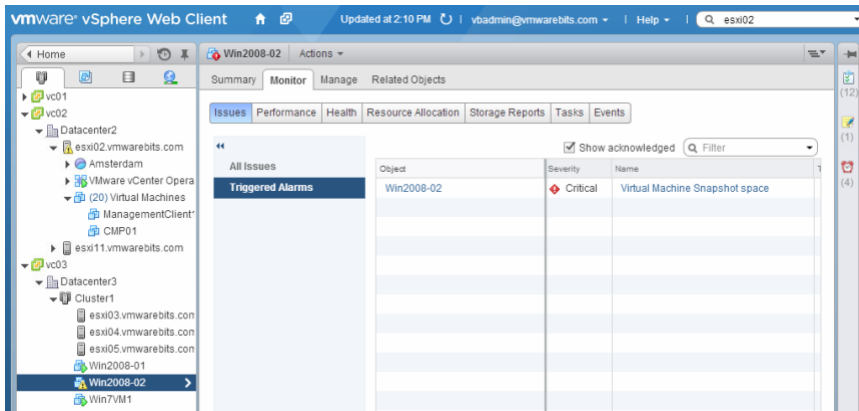


In the example created here a warning will be generated when the snapshot space passes the 1 GB threshold and an alert is generated when crossing the 2 GB boundary.

ManagingSnapshots05.png



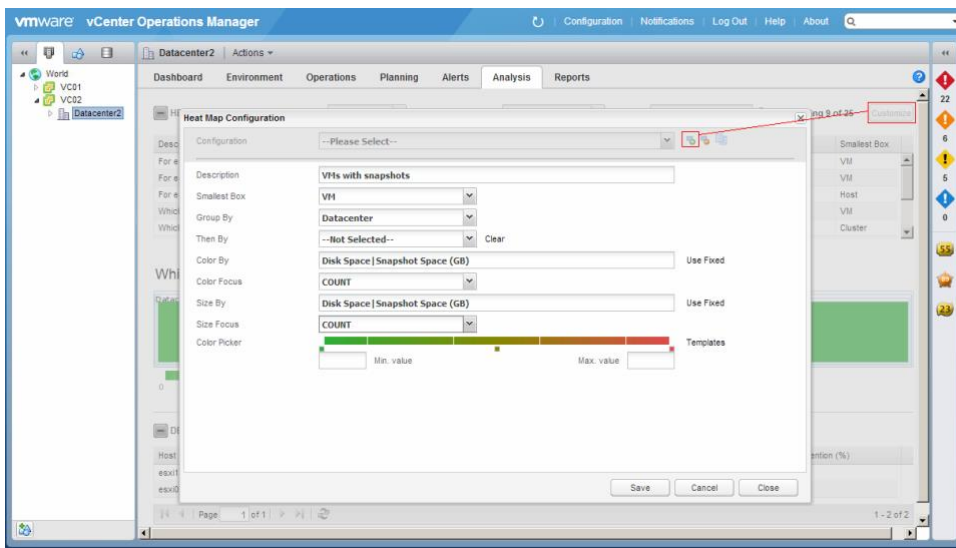
ManagingSnapshots06.png



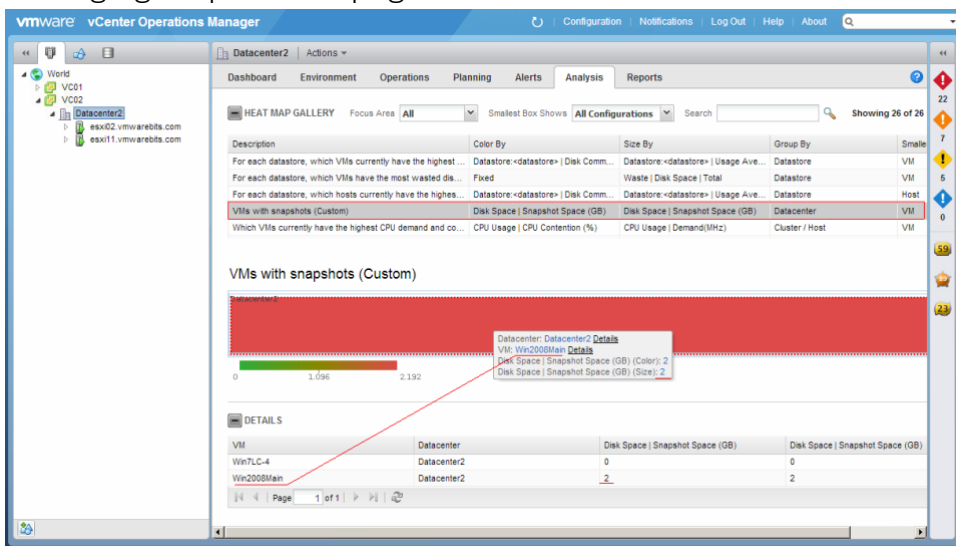
Finding virtual machines with snapshots in vCenter Operations Manager

Earlier in this article we have looked at the storage reports to find virtual machines with snapshots. The disadvantage of that method is that you have to investigate that per datacenter. With vCops you can create a view for this for your entire environment. That can be done by creating a heat map (not available in the Foundation-edition). To create a custom heat map login to the vCenter Operations Manager administration portal and browse to the *Analysis*-tab. Click the *Customize*-button in the upper right corner and create a Heat Map such as in the image below.

ManagingSnapshots07.png



ManagingSnapshots08.png



Other tools to find and manage snapshots

So far we have looked at the standard VMware management-features to find and manage snapshot. There are however also third party utilities that can do this. One of the easiest to use and free utilities is RVTtools (<http://www.robware.net>). Connect the tool to your vCenter server, click the vSnapshot-tab and it will list all the virtual machines with information about when the snapshot was created, the size and everything else you want to know about VMs with snapshots.

ManagingSnapshots09.png

The screenshot shows the vSphere Client interface with the 'vSnapshot' tab selected. A table displays the following snapshot information:

VM	Name	Filename	Date / time	Size MB (total)	Size MB (vmsn)	Quiesced	Des	State
Win2008-02	Before installing new application	[SharedVMs] Win2008-02/Win2008-02-Snapshot1.vmsn	30/10/2013 11:10:12	4,562.0273	0.0273	False		power

One last method to discuss is using PowerShell. With VMwre's PowerCLI you can collect information about virtual machines and all of their properties. Including information about snapshots. To perform the commands discussed here you first need to install PowerCLI (<http://www.vmware.com/go/powercli>). Next connect to a vCenter server with the Connec-VIServer command. Once that is done list all your virtual machine snapshots with this command:

```
get-vm | get-snapshot | format-list
```

The output (see image below) is not formatted in any way, it just dumps all the information in your shell. In this example it is only one snapshot, but if you have many it might not be useful to list this without formatting. Therefore here is another command to create a nicely formatted listing that tells us when the snapshots were created and what the size is.

```
get-vm | get-snapshot | format-table created,VM,@{label="Size in GB";Expression="{0:N2}" -f ($_.SizeGB)}
```

ManagingSnapshots10.png

```

VMware vSphere PowerCLI 5.5 Release 1
PowerCLI C:\Program Files\VMware\Infrastructure\vSphere PowerCLI> get-vm | get-snapshot | format-list

Description      :
Created          : 30/10/2013 11:10:12
Quiesced         : False
PowerState       : PoweredOff
UM               : Win2008-02
UMid             : VirtualMachine-vm-36
Parent           :
ParentSnapshotId :
ParentSnapshot   :
Children         :
SizeMB           : 4562.02774143218994140625
SizeGB           : 4.4551052162423729896545410156
IsCurrent        : True
IsReplaySupported : False
ExtensionData    : VMware.Vim.VirtualMachineSnapshotTree
Id               : VirtualMachineSnapshot-snapshot-37
Name             : Before installing new application
Uid              : /UI Server=vmwarebits\vbadmin@vc03.vmwarebits.com:443/Snapshot=VirtualMachineSnapshot-snapshot-37/

PowerCLI C:\Program Files\VMware\Infrastructure\vSphere PowerCLI> get-vm | get-snapshot | format-table created,UM,@(label="Size in GB";Expression="{<0:N2}&" -f <$_SizeGB>>)

Created          UM          Size in GB
-----
30/10/2013 11:10:12  Win2008-02  4.46

PowerCLI C:\Program Files\VMware\Infrastructure\vSphere PowerCLI> _

```

Final tip on deleting snapshots

The task of deleting snapshots is pretty straightforward. In either the vSphere Client or the vSphere Web Client right-click the virtual machine and select Manage Snapshots to access the SnapShot Manager and delete the snapshot. The tip here is to warn you for when you need to delete a large number of snapshots. Normally you would create one or a few snapshots but occasionally something might go wrong or an unknowing administrator creates daily snapshots because he thinks they are backups. With a large number of snapshots (more than ten, but also depending on the amount of data in the delta-files) it's faster to power off the virtual machine and clone it to a new virtual machine and then delete the old VM with the snapshots.