Extending a Cloned (Deployed) Windows VM's root partition without using any third party tools.

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ESX Version:
2.x & 3.0.0

Virtual Center Version:
Theoretical: 1.2, 1.3, & 1.3.1
Confirmed: 1.4, 2.0, & 2.01

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Audience:
VMware Enthusiasts

Objective:
I will show you how to leverage the additional power of Microsoft's Sysprep utility to extend a newly cloned, or deployed, Windows Virtual Machine's root partition from the original clone size to a size greater than the originally deployed root partition.

Disclaimer:
I do not claim any responsibility for any problems, issues, or incompatibilities that occur as a result of following the instructions in this document.

By using the methods depicted in this document, you absolve me of any responsibility or liability.

Make any modifications to your Virtual Center installation only if you are comfortable with making these changes. I strenuously recommend that you make backups of the files you modify, before making any modifications.

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What is my objective:

To be able to take a standard Clone, or Template, and deploy it with a root partition size greater than the original Clone, or Template, without using any third party tools.

Why is this useful:

By giving the ability to deploy Windows VM's with variable sizes, less templates will be necessary, while being more flexible with regards to virtual disk space.

Explanation of the Process:

Microsoft's Sysprep, which is utilized by VMware VirtualCenter, has a minimal Sysprep configuration that is used to customize Windows Virtual Machines.

When VMware VirtualCenter Clones/Deploys a Windows VM, an opportunity is given to Customize the Guest OS. This process "drops off" a generic Sysprep.inf (and other necessary files) to have Windows perform this task.

The additional setting we need to add to the generated Sysprep.inf is the ExtendOEMPartition setting in the Unattended section.

The "ExtendOEMPartition" setting has the following options:

Setting	Value	Result
ExtendOEMPartition	0	Do not extend
	1	Extend to the end of the disk
	X	Extend the volume X megabytes

Source: http://support.microsoft.com/kb/240126/

If we modify the process of creating the generic Sysprep.inf, then we can grow our partition to the full size of an expanded virtual disk file, before it is powered on the first time.

Initial Setup:

You will need to modify 2 files that VMware has provided that generate the Sysprep.inf file.

These files are:
1. Gensysprepinf.vbs – The actual script that generates the Sysprep.inf file
2. Autoprep.wsf – The script handling some duties in the deployment of a VM.

They are typically located in (as of this writing)
C:\Program Files\VMware\VMware VirtualCenter\scripts for VC 1.x and
C:\Program Files\VMware\VMware VirtualCenter 2.0\scripts for VC 2.x

These files are encoded using the Microsoft Script Encoder, which you can find
here: http://www.microsoft.com/downloads/details.aspx?FamilyId=E7877F67-C447-4873-B1B0-21F0626A6329&displaylang=en (as of this writing)

You will need to decode these files to be able to work with them. I will not cover
the process of decoding these files.

When the files have been decoded, you will need to edit gensysprepinf.vbs to
include the ExtendOEMPartition setting.

Look for the [Unattended] section:
```
  outStr = "[Unattended]" & vbCrLf _
      & "   OemSkipEula=Yes" & vbCrLf _
      & "   InstallFilesPath=\sysprep\i386" & vbCrLf _
      & vbCrLf _
      & "[GuiUnattended]" & vbCrLf _
      & "   AdminPassword=" & mAdminPassword & vbCrLf _
      & "   OEMSkipRegional=1" & vbCrLf _
      & "   TimeZone=" & mTimeZone & vbCrLf _
      & "   OemSkipWelcome=1" & vbCrLf
```

And change it to read:
```
  outStr = "[Unattended]" & vbCrLf _
      & "   OemSkipEula=Yes" & vbCrLf _
      & "   ExtendOemPartition=1" & vbCrLf _
      & "   InstallFilesPath=\sysprep\i386" & vbCrLf _
      & vbCrLf _
      & "[GuiUnattended]" & vbCrLf _
      & "   AdminPassword=" & mAdminPassword & vbCrLf _
      & "   OEMSkipRegional=1" & vbCrLf _
      & "   TimeZone=" & mTimeZone & vbCrLf _
      & "   OemSkipWelcome=1" & vbCrLf
```

Then save gensysprepinf.vbs

Because Gensysprepinf.vbs is no longer encoded, autoprep.wsf will need to be
modified also.
Decode autoprep.wsf, and look for the following line:
```
  <script language="VBScript.Encode" src="gensysprepinf.vbs"/>
```
And change it to
```
  <script language="VBScript" src="gensysprepinf.vbs"/>
```

Then save autoprep.wsf.

The configuration changes are complete.

Deploying a Windows VM with an expanded root partition:

1. Clone/Deploy a Windows VM and leave the "Automatically Power On" option in the Clone Virtual Machine Wizard unchecked, as in Figure 1 for VirtualCenter 1.4 or leave the "Power on the new virtual machine after creation" unchecked in VirtualCenter 2.0 as in Figure 2.

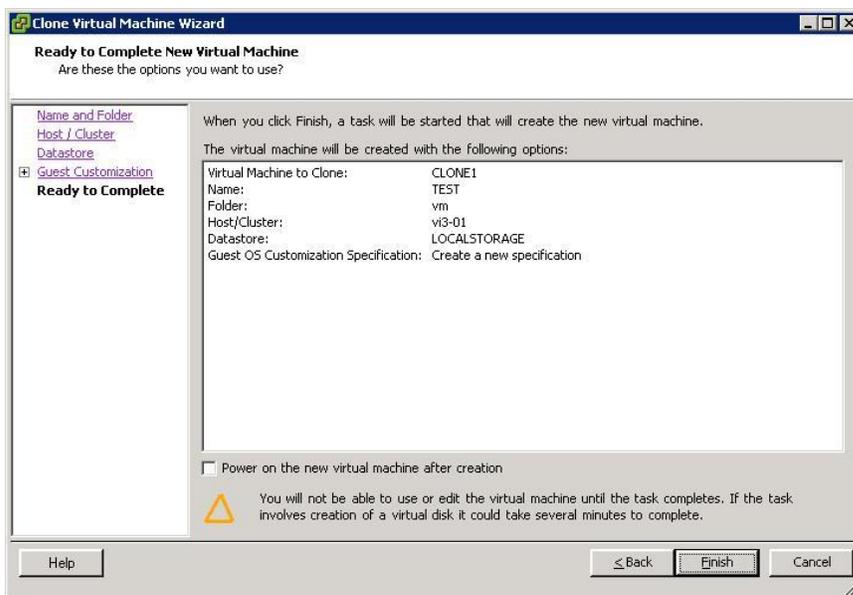**Figure 1: VC 1.4 – Uncheck "Automatically Power On"**

Figure 2: VC 2.0 – Uncheck "Power on the new virtual machine after creation"

This will give you the opportunity to resize the disk before it runs Sysprep

2. Use Putty to SSH to an ESX Server that has access to the LUN that has the .vmdk on it. (This can be a SAN LUN or on local storage)

3. Use vmkfstools –X Size[gGmMkK] and the full path of the .vmdk. For example, if using a 2GB vmdk the below command would resize the .vmdk to 10GB

```
[root@esxserver ~]# vmkfstools –X 10G /vmfs/storage/winvm.vmdk
```
Figure 3: Resize the VM to a larger size

4. Done. When the Windows VM powers on, the root partition (C:\) will automatically extend to the new .vmdk size of 10GB, rather than having a 2GB partition and an 8GB empty partition.