Auto-Stop Virtual Machine Part 1

In this tutorial I will be creating a PowerShell script to automatically stop a running VirtualBox virtual machine. This is a continuation from my last tutorial **Auto-Start Virtual Machine Basic**, accessible **here**. Refer to the prerequisites listed below to complete this tutorial.

Prerequisites

- VirtualBox VM

For instructions on how to install VirtualBox and extension pack, see my **VirtualBox Install** tutorial **here**.

If you do not already have a virtual machine, my other tutorial, **CentOS 7 Server Install**, can be accessed **here**.

Steps to complete tutorial:

- Create Script
- Review Script
- Execute Script

Create Script

I have created an empty script file named **`auto_stop_vm.ps1`**.

First, we will determine whether, or not, the virtual machine we wish to shutdown is running.
(NOTE: use the VM name you wish to auto-stop)

```
VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"'
```

```
PS C:\Users\Administrator> VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"'

"centos7-VM" {09b978a2-7c1c-498a-888b-1c58ed673b8f}
```

We have proven that the VM is running but we need to extract the value of the property from the object passed by the **Select-String** cmdlet down the pipeline. To do this we will use the **foreach** shorthand **% to** access each of the objects passed down the pipeline. The current object is identified by **$_** and each object property can be accessed via the dot '**.**' (ie. **$_.Matches** or **$_.Value**).

```
VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % { $_.Matches } | % { $_.Value }
```

```
PS C:\Users\Administrator> VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % {
$_.Matches } | % { $_.Value }
"centos7-VM"
PS C:\Users\Administrator>
```

For each object returned by **`Select-String`**, we are finding the value of each match. Although this tutorial is not a deep-dive into PowerShell cmdlets, the default output of **`Select-String`** is a **`MatchInfo`** object, which includes detailed information (properties) about the matches. The **`MatchInfo`** object has a property called **`Matches`**, which contains a list of regular expression matches. For each of the matches in the list returned, we are using the **`Value`** property to get the actual value.

Now we will get the line count returned to use for a test in our script.

```
$vm = VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % { $_.Matches } | % {
$_.Value } | Measure-Object -line
```

```
PS C:\Users\Administrator> VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % {
$_.Matches } | % { $_.Value } | Measure-Object -line

Lines Words Characters Property
----- ----- ---------- --------
    1
```

To get only the value returned from the previous command, we will wrap it in brackets and use the **Lines** property of the resulting **TextMeasureInfo** object.

```
(VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % { $_.Matches } | % {
$_.Value } | Measure-Object -line).Lines
```

```
PS C:\Users\Administrator> (VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % {
 $_.Matches } | % { $_.Value } | Measure-Object -line).Lines
1
PS C:\Users\Administrator>
```

Now we are ready to assign this value to a variable for our first test.

```
$vm = (VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % { $_.Matches } | % {
$_.Value } | Measure-Object -line).Lines
```

We will test whether, or not, the virtual machine is running. If it is, we will use **VBoxManage** to execute a graceful shutdown, then, we will ensure the command completed successfully. If the VM is not running, we will simply exit the script.

```
if ($vm -eq 1) {
	Write-Host "Trigger a proper shutdown mechanism from within centos7-VM"
	VBoxManage controlvm "centos7-VM" acpipowerbutton
	if ( "$?" -eq "True") {
		Write-Host "VM centos7-VM was successfully shutdown."
	} else {
		Write-Host "Something went wrong during the shutdown of centos7-VM."
	}
	sleep 5

} else {
	Write-Host "VM centos7-VM is not running."
	Write-Host "Goodbye."
	sleep 5
	exit 1
}
```

Our next test will be to determine if VirtualBox is running. If it is not running, we will simply display a message to that effect. If it is running, we will close VirtualBox. You will notice that I have included **`-ErrorAction SilentlyContinue`** in our test. This is what's known as a "Common Parameter" of the **`Get-Process`** cmdlet. If VirtualBox is not running, instead of generating error messages to the PowerShell console, the command will continue execution and jump to the **`else`** clause of the **`if/else`** statement.

```
if (!(Get-Process VirtualBox -ErrorAction SilentlyContinue)) {
	Write-Host "VirtualBox NOT running."
	Write-Host "Goodbye."
} else {
	Write-Host "Closing VirtualBox"
	Stop-Process -Name VirtualBox
	if ("$?" -eq "True") {
		Write-Host "VirtualBox successfully closed."
	} else {
		Write-Host "Something went wrong stopping VirtualBox."
	}
}
```

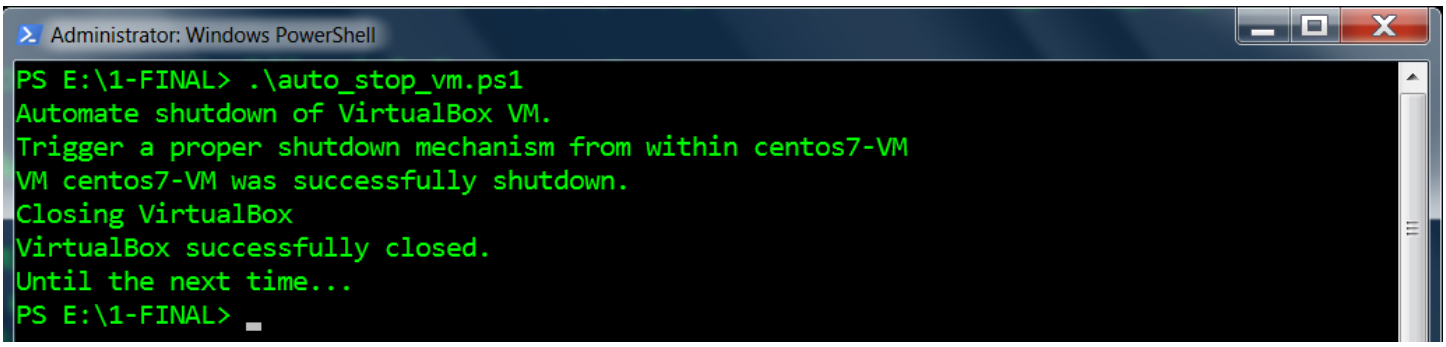
We are now ready to review the contents of the entire script.

Review Script

```
Write-Host "Automate shutdown of VirtualBox VM."

# locate running VM based on its name
# remove any empty lines from result of command
# determine line count value of result (should be 1)
$vm = (VBoxManage list runningvms | Select-String -Pattern '"centos7-VM"' | % { $_.Matches } | % {
$_.Value } | Measure-Object -line).Lines

if ($vm -eq 1) {
	Write-Host "Trigger a proper shutdown mechanism from within centos7-VM"
	VBoxManage controlvm "centos7-VM" acpipowerbutton
	if ( "$?" -eq "True") {
		Write-Host "VM centos7-VM was successfully shutdown."
	} else {
		Write-Host "Something went wrong during the shutdown of centos7-VM."
	}
	sleep 5
} else {
	Write-Host "VM centos7-VM is not running."
	Write-Host "Goodbye."
	sleep 5
	exit 1
}

# close VirtualBox
if (!(Get-Process VirtualBox -ErrorAction SilentlyContinue)) {
	Write-Host "VirtualBox NOT running."
	Write-Host "Goodbye."
} else {
	Write-Host "Closing VirtualBox"
	Stop-Process -Name VirtualBox
	if ("$?" -eq "True") {
		Write-Host "VirtualBox successfully closed."
	} else {
		Write-Host "Something went wrong stopping VirtualBox."
	}
}

Write-Host "Until the next time..."

sleep 10
```

Execute Script

To execute the script, open a PowerShell console, if need be, change directory to the location of your script and execute the following: **`.\auto_stop_vm.ps1`**



The virtual machine was successfully shutdown and VirtualBox was closed.

Hopefully, you've enjoyed completing this tutorial and found it helpful.

After completing both my basic automation tutorials to start (accessible **here**) and stop a VM, you might want to see my slightly more advanced automation tutorials. In the advanced versions of these two scripts, I include starting (**start VM adv**), or stopping (**stop VM adv**) remote passwordless SSH connections using the PuTTY terminal emulator.

If you would like to see my other tutorials, they can be accessed **here**.

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