Managing the VM Lifecycle

This chapter contains the following sections:

Managing the VM Lifecycle

You can perform post-provisioning lifecycle management actions on virtual machines (VMs).

These actions are broadly classified into four categories:

- VM power management—Power on, power off, pause, resume, shutdown guest, standby, reset, and reboot a VM.
- VM resizing—Resize a VM and resize a VM disk.
- VM snapshot management—Create a snapshot, revert a snapshot, mark a snapshot as golden, delete a snapshot, and delete all snapshots.

- Other VM actions—Create a VM disk, delete a VM disk, repair a VM, add a vNIC, delete a vNIC, save the state of a VM, discard the saved state of a VM, view the VM details, stack view of a VM, assign a VM, assign VM credentials, launch a VM client, and request for inventory collection.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Click the row with the VM that you want to manage and click one of the following options:
Some of these options are available only from the **More Actions** drop-down list.

- **View Details**
- **Manage Tags**
- **Add Tags**
- **Delete Tags**
- **Assign VM**
- **Configure Lease Time**
- **Stack View**
- **Access VM Credentials**
- **Launch VM Client**
- **Power OFF**
- **Pause**
- **Create Snapshot**
- **Inventory Collection Request for VM**
- **Save State**
- **Reset**
- **Shutdown Guest**
- **Clone**
- **Delete Snapshot**
- **Delete All Snapshots**
- **Mark Golden Snapshot**
- **Revert Snapshot**
- **Resize VM**
- **Power ON**

You can also click **Stack View**, and **View Details** to access trend reports and details about service requests, VM action requests, events, VM snapshots, vNICs, disks, and linked clone VMs.

Managing VM Power

You can manage the power functions on VM that includes actions such as power on, power off, suspend power, reset, or reboot the VM.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 From the drop-down icon at the top right corner of the VMs table, choose an action.
The following actions appear according to the power state of the VM.

Action	Description
Power On	Powers on the VM.
Power Off	Power off the VM.
Suspend	Places the VM in a suspended state.
Shutdown Guest	Shuts down the Guest OS on the VM.
Reset	Performs a hard reset of the VM.

Step 5 On the **VM Task** screen, choose an action and complete the following fields:

Name	Description
VM Name field	Displays the name of the VM selected.
Task field	Displays the selected power management task.
Comments field	Enter comments if necessary.
Schedule Action radio button	Click one of the following options: • **Execute Now—**Applies the action on the VM immediately. • **Execute Later—**Applies the action on the VM at the specified date and time.

Step 6 Click **Proceed**.

VM Memory

You can configure the VM memory to one of the following:

Static Memory

Static memory allows you to allocate a fixed amount of memory to the VM.

SCVMM 2016 supports changing the static memory of a VM when it is in **Power On** state. This feature is also known as **Hot Add**. It allows you to resize the VM memory without incurring any downtime as you can make the change while the VM is running.

Dynamic Memory

Dynamic memory allows you to specify a range and a buffer percentage from the resource pool. This feature dynamically adjusts the amount of memory allocated to the VM, in response to changes in the amount of memory required by the workloads or applications running in the virtual machine.

Microsoft SCVMM 2012 and 2016 support **Hot add/remove** of dynamic memory, also known as Runtime Memory Resize. With hot add/remove, a VM can have its memory resource changed to a specific value even when the VM is in **Power On** state. This works for both generation 1 and generation 2 virtual machines, running Windows Server 2012, Windows Server 2016, or Windows 10.

In addition, **Memory Weight** is introduced as a parameter while provisioning a VM. Almost any host server has some VMs that are more important than others. Hyper-V lets you prioritize them so that memory is allocated to the higher priority VMs first during a physical memory shortage. You can prioritize a VM's need for dynamic memory by adjusting its memory weight. VMs with a higher memory weight take precedence over VMs with lower memory weights. The memory values can range from 0 to 10000 (both included), with 10000 being the higher precedence.

Resizing Memory and CPU for a VM

Before You Begin

Make sure that you have a Windows 10, Windows Server 2012, or Windows Server 2016 running.

During resizing of memory:

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Choose the VM that you want to resize.

Step 5 From the **More Actions** drop-down list, choose **Resize VM**.
If the **Resize VM** option is not in the list, see Enabling the Resize VM Feature, on page 6.

Step 6 On the **Resize VM** screen, complete the following fields:

Name	Description
VM Name	Displays the name of the VM.
Current Allocated CPU	Displays the current CPU on the VM.
Dynamic Memory	If status is: • **Disabled—**VM uses Static memory. • **Enabled—**VM uses Dynamic Memory.
Current Allocated Memory (GB)	Displays the current memory on the VM.
Current Allocated Memory Weight	Displays the memory weight allocated to the VM.
New CPU Count	Select the new CPU count from the drop-down list. This field cannot be changed when the VM is in the **On** state.
Static Memory — Changing the static memory of a VM when it is powered on is supported only in SCVMM 2016.	
New Memory	Choose the new memory allocation for the VM. This field is not available on Windows Server 2012 unless the VM is powered off.
New Memory Weight	Enter a value between 0 to 10000. Zero is the lowest precedence and 10000 is the highest. A lower value for this VM prevents it from starting when other VMs are running and available memory is low. This field cannot be changed when the VM is in the **On** state.
Dynamic Memory — To change from Static to Dynamic memory, you must first power off the VM. When you check **Enable Dynamic Memory**, the next three fields appear.	
New Startup Memory	Choose the amount of memory required to start the virtual machine. This field cannot be changed if the VM is in the**On** state.
New Maximum Memory (MB)	Choose the maximum amount of memory that the VM is allowed to use. The value can be as low as the value for Startup Memory to as high as one TB. However, a virtual machine can use only as much memory as the maximum amount supported by the guest operating system.
New Memory Buffer(%)	Choose the memory buffer allocation, specified as a percentage of New Maximum Memory. This is the memory Hyper-V attempts to assign to the VM, compared to the amount of memory needed by the applications and services running inside it.

Name	Description
New Memory Weight	Enter a value between 0 to 10000. Zero is the lowest precedence and 10000 is the highest. A lower value for this VM prevents it from starting when other VMs are running and available memory is low.
Current CPU Cost (currency: USD)	CPU cost per hour. This cost is calculated automatically and is based on CPU charge per unit (GHz/Core). This field is display only.
Current Memory Cost (currency: USD)	Memory cost per hour. This cost is calculated automatically and is based on maximum memory being used. This field is display only.
New CPU Cost (currency: USD)	CPU cost per hour. This cost is calculated automatically and is based on CPU charge pre unit (GHz/Core). This field is display only.
New Memory Cost (currency: USD)	Displays the updated memory cost per hour when dynamic memory is enabled. Click **Compute New Memory Cost** to update the memory cost based on the changes made earlier. This field is display only.

Step 7 Click **Resize**.

Enabling the Resize VM Feature

Step 1 Choose **Policies** > **Virtual/Hypervisor Policies** > **Computing**.

Step 2 On the **Computing** page, click **HyperV Computing Policy**.

Step 3 Choose the VM you want to edit.

Step 4 Click **Edit**.

Note The VM must be powered off before you proceed further.

Step 5 On the **Modify Policy** screen, under **Resizing Options**, check **Allow Resizing of VM**.

Step 6 Click **Submit**.

Resizing a VM Disk

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Choose the VM that you want to resize.

Note The VM must be in the power off status. If the VM is in the on status, turn off the power of the VM using the **Power Off** action.

Step 5 From the **More Actions** drop-down list, choose **VM Disk Resize**.

Step 6 In the **Resize VM Disk** dialog box, complete the following fields:

Name	Description
VM Name field	The name of the VM.
Select Disk drop-down list	Choose the disk to resize.
Total Provisioned (GB) field	The total provisioned disk size in gigabytes.
New Size(GB) field	The new disk size in gigabytes.

Step 7 Click **Resize**.

Managing VM Snapshots

You can do the following VM snapshot actions:

- Create a snapshot
- Revert a snapshot
- Delete a snapshot
- Delete all snapshots
- Mark a snapshot as golden

Note You can manage the snapshot of the VM that is in the power on state.

For a selected VM on the **VMs** screen, choose the following actions from the **More Actions** drop-down list:

Name	Description
Create Snapshot	Creates a snapshot with a name and description.
Revert Snapshot	Reverts back to the most recent snapshot of a VM, thereby bringing the VM back on line. If the VM crashes or malfunctions, you can revert back to the most recent snapshot. You can also select a specific snapshot to revert back to, if there is more than one snapshot.
Mark Golden	Marks a snapshot as golden. Marking a snapshot as golden prevents it from being accidentally deleted. The only way to delete a golden snapshot is to unmark the golden snapshot (returning it to a standard snapshot).
Delete Snapshot	Deletes a snapshot.
Delete all Snapshots	Deletes all snapshots for this VM. You can delete all of your snapshots unless a golden snapshot is present. You have to unmark the golden snapshot first before being able to delete all of your snapshots.

Creating a VM Snapshot

You can create a snapshot of a VM at any point in time. You can later choose to revert to this snapshot or delete it.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 From the **More Actions** drop-down list, choose **Create Snapshot**.

Step 5 On the **Create Virtual Machine Snapshot** screen, complete the following fields:

Name	Description
Snapshot Name field	Name for the VM snapshot.
Snapshot Description field	Description of the VM snapshot.

Step 6 Click **Proceed**.

Marking a Snapshot as Golden

You can mark a snapshot as golden to prevent it from being accidentally deleted. The only way to delete a golden snapshot is to unmark the golden snapshot (returning it to a standard snapshot).

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 From the **More Actions** drop-down list, choose **Mark Golden Snapshot**.

Step 5 On the **Mark Golden Snapshot** screen, complete the following fields:

Name	Description
Snapshot table	Choose a snapshot from the list of snapshots created for the VM.
Mark As Golden Snapshot check box	Check this check box to designate the snapshot as a golden snapshot.

Step 6 Click **Proceed**.

Adding a VM NIC

Before You Begin

Ensure that a network policy is assigned to the VM network. Turn off the power on the VM if the SCVMM version is 2012 or older.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click the **VMs** tab.

Step 4 Choose a VM to configure with NIC.

Step 5 From the **More Actions** drop-down list, choose **Add NICs**.

Step 6 On the **Add VM NICs** screen, complete the following fields:

Name	Description
Adapter Type drop-down list.	By default, this is set as **SYNTHETIC** type. Choose Synthetic or Emulated. The network adapters are used to connect the virtual machines to internal networks, or to external networks after the virtual machines are deployed on a host. Synthetic network adapters provide better performance than emulated network adapters. Emulated network adapters are available on all virtualization software platforms and allow virtual machines to be connected to virtual networks.
Enable MAC Spoofing check box	Check the box to enable MAC spoofing.
VM Networks field	Click the + icon to select a network to which you are adding the VM NIC. **Note** An error message appears if the VM is not part of a network policy.
Subnet field	Click the + icon to select a Subnet to which you are adding the VM NIC.
Use DHCP check box	By default, the box is checked because when we add a NIC to the VM, the IP address are not assigned from a static IP pool. This is due to limitations within the SCVMM.
Port Classification drop-down list	(Optional) Choose a port classification from the list. Provides global names used to identify different types of virtual network adapter port profiles. The port classification settings remain specific to each logical switch, even if they can be used across multiple logical switches.

Step 7 Click **Submit**.

Assigning a VM

You can assign a VM to a group or vDC, and modify the VM category if needed. The provisioning time, termination time, and VM label can also be assigned.

Step 1 Choose **Virtual** > **Compute**.

Step 2 On **Compute** page, choose an SCVMM cloud.

Step 3 Click the **VMs**.

Step 4 Click the row with the VM that you want to assign to a group.

Step 5 From the **More Actions** drop-down list, choose **Assign VM**.

Step 6 In the **Assign VM** screen, complete the following fields:

Name	Description
VM Name field	The name of the VM (non-editable).
VM Ownership field	Choose a **Group** or a single **User** to assign the VM.
User Group field	This field appears when you select **Group** under VM Ownership. Choose a user group from the list. Click **Validate** to confirm the user group. **Note** Only the groups with valid vDC can be selected.
User field	This field appears when you select **User** under VM Ownership. Choose a user from the list. **Note** The user list appears only when the group allows resource assignment for users.
vDC drop-down list	Choose a virtual data center (vDC).
Category drop-down list	Choose a category of the VM.
VM User Label field	VM user label, if necessary.
Set Provision Time check box	Check this check box if you want to set the provisioning time. If checked, continue to Step 6.
Provision Date/Time field	Set the date and time to provision the VM.
Comments field	Enter the comments.

Step 7 Click **Assign**.

Creating a VM Disk

You can create a new VM disk for a selected VM. The disk can be either new, or created from an existing hard disk in the library.

Note This option is available only when the VM is in **Power Off** state.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Click the row to select a VM for which you want to create a new disk.

Step 5 From the **More Actions** drop-down list, choose **Create VM Disk**.

Step 6 On the **Create VM Disk** screen, complete the following fields:

Name	Description
VM Name field	The name of the VM (non-editable).
Enter Disk Name field	The name of the disk.
Disk drop-down list	You can choose between the following: • **Create a new virtual hard disk** • **Use an existing virtual hard disk**
Select SCSI Controller drop-down list	Choose a channel and logical unit number (LUN) to which you want to add the disk.
Choose Hard Disk field	This field appears when you choose to use an existing virtual hard disk. Choose a hard disk from which you want to create a VM disk. Click **Validate** and click **Compute New Disk Cost**.
Select disk typedrop-down list	This field appears when you choose to create a new virtual hard disk. Choose **Dynamic** or **Fixed** as the disk type.
Disk Size (GB) field	The size of disk in gigabytes. Maximum size can be up to 2TB. This field appears when you choose to create a new virtual hard disk. Click **Compute New Disk Cost**.

Step 7 Click **Create**.

Cloning a VM

Cloning a VM makes a copy of an existing VM in order to make a new VM with similar qualities. Cloning saves you time by keeping the parameters that you want from the VM that you are cloning. The new name given to the clone is defined in the system policy.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Click the row with the VM that you want to clone.

Step 5 From the **More Actions** drop-down list, choose **Clone**.

Step 6 On the **Clone VM** screen, select the group on which you want the VM deployed from the **Select Groups** field.

Step 7 Click **Validate**.

Step 8 Click **Next**.

Step 9 On the **Customization Options** screen, complete the following fields:

Name	Description
Category field	Click **Select** to view a list of VDC categories. Select a category and click **Select**.
Post Provisioning Customs Actions check box	Click **Enable** to attach a workflow. The **Workflow** drop-down list appears with a list of work flows to choose from. The chosen workflow initiates when the provisioning starts.
VM App Charge Frequency drop-down list	Choose **Hourly** or **Monthly**.
Active VM Application Cost field	The cost for the application that is included in the template.
Inactive VM Application Cost field	The cost to this catalog of a VM in inactive state per hour or month.

Step 10 Click **Next**.

Step 11 On the **Deployment Configuration** screen, complete the following fields:

Name	Description
Select VDC drop-down list	Choose a VDC containing the policies you want for the VM.
VM Name or VM Prefix field	The VM name or prefix.
Comment field	Optionally, enter a description of the VDC.

Name	Description
Provision drop-down list	Choose **Now** to provision the VDC now or choose **Later** to provision the VDC at a later time. If you choose **Later**, then fields to specify the date and time appear.
Lease Time check box	Check the check box to configure a lease expiration time.

Step 12 Click **Next**.

Step 13 On the **Custom Specification** screen, complete the following fields:

Name	Description
CPU Cores drop-down list	Choose the CPU cores for the VM being provisioned.
Enable Dynamic Memory check box	Check to provision the VM with dynamically allocated memory. You can specify custom memory parameters in the **Startup Memory**, **Maximum Memory**, and **Memory Buffer**, drop-down lists.
Memory drop-down list	Choose the amount of memory for the VM being provisioned.
MemoryWeight drop-down list	Specify how to prioritize the availability of memory for this VM compared to other VMs on this computer.

Step 14 Click **Next**.

Step 15 On the **Custom Workflow** screen, if applicable, complete the required fields.

Note Custom workflow inputs apply if the catalog chosen for VM provisioning has Post Provisioning Custom Actions enabled.

Step 16 Click **Next**.

Step 17 On the **Select VM Networks** screen, if applicable, click the **VM Networks** pencil icon to edit a VM network.

Note The **Select VM Networks** screen is empty unless the **Allow end user to select optional NICs** check box is chosen in the network policy.

Step 18 On the **Select** screen, choose one or more clouds that you want associated with the VM.

Step 19 Click **Submit**.

Step 20 If you checked the **Perform deployment assessment** check box, then review the report of the assessment displayed in the **Deployment Assessment** pane.

If this assessment report identifies errors, then return to the previous panes and rectify the errors before submitting the request. If the assessment report shows no errors, then click **Next**.

Step 21 On the **Select Datastores** screen, if applicable, click **Select** in the **Select Datastore** field to select one or more datastores to associate with the VM.

Note This option is only available if **Allow user to select datastore from scope** is checked in the storage policy. The datastore choices that are available depend upon the storage policy that is associated to the VM's VDC.

Step 22 Click **Next**.

Step 23 Review the cloned VM information in the **Summary** panel.

Step 24 Click **Submit**.

Managing vNICs

SCVMM 2016 introduces **Hot Add vNIC** feature. It allows you to add/edit/delete of NICs even when the VM is in running state.

You can add a NIC to a VM, as well as edit, replace, and delete a NIC. The network policy that is mapped to the vDC determines the available options for a NIC.

However, this feature is not supported if the guest OS is running a pre Windows 10 version or CentOS operating system.

Note The VM must be powered off to perform NIC actions if the SCVMM version is 2012 or older. If the VM is in the on state, turn off the power of the selected VM using the **Power Off** action.

Adding a VM NIC

Before You Begin

Ensure that the VM is powered off to perform VM NICs actions. If the VM is in the on state, turn off the power of the VM using the **Power Off** action.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Click the row with the VM to which you want to add a VM NIC.

Step 5 From the **More Actions** drop-down list, choose **Add NIC**.

Step 6 In the **Add VM NIC** screen, complete the following fields:

Name	Description
Adapter Type drop-down list	Choose Synthetic or Emulated. The network adapters are used to connect the virtual machines to internal networks, or to external networks after the virtual machines are deployed on a host. Synthetic network adapters provide better performance than emulated network adapters. Emulated network adapters are available on all virtualization software platforms and allow virtual machines to be connected to virtual networks.
VM Network table	Network to which you are adding the VM NIC.

Name	Description
Subnet field	Subnet to which you are adding the VM NIC.
Use DHCP check box	By default, DHCP is enabled. Uncheck to disable DHCP.
Port Classification field	Provides global names used to identify different types of virtual network adapter port profiles. The port classification settings remain specific to each logical switch, even if they can be used across multiple logical switches.

Step 7 Click **Submit**.

Step 8 Click **OK**.

Editing a VM NIC

Before You Begin

Ensure that the VM is powered off to perform VM NICs actions if the SCVMM version is 2012 or older. If the VM is in the on state, turn off the power of the VM using the **Power Off** action.

Step 1 Choose **Virtual** > **Compute**.

Step 2 Expand **All Clouds** and choose an SCVMM cloud.

Step 3 Click **VMs**.

Step 4 Click the row with the VM that you want to configure.

Step 5 From the **More Actions** drop-down list, choose **Edit NIC**.

Step 6 In the **Edit VM NIC** screen, make the necessary changes.

Step 7 Click **Submit**.

Step 8 Click **OK**.