Thunder Multi-tenant Virtual Platform (MVP) Manager

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THUNDER MULTI-TENANT VIRTUAL PLATFORM (MVP) MANAGER

The Thunder Multi-tenant Virtual Platform (MVP) Manager provides Virtual Machine (VM) lifecycle functions for A10 Networks virtual Thunder (vThunder) appliances. The lifecycle functions include creating and terminating vThunder VM instances, attaching and detaching virtual network interfaces, assigning cryptographic acceleration virtual functions (VFs), and importing vThunder images. The MVP Manager also allows the administrator to configure host settings, user authentication and monitor the health of the VMs and platform.

For configuring automatic software updates, setting the management IP address, and restarting the UI, see *Hardware Installation and Configuration Guide - Dell® Series*.

This section covers the following topics:

- Logging into the MVP Manager
- Virtual Machines (VM)
- VM Networking
- SSL VF
- Image Repository
- Settings
- Audit Logs
- Host Dashboard

Logging into the MVP Manager

After installing the MVP Manager, you can log into the web-based GUI using a compatible browser such as:

- Google Chrome
- Mozilla Firefox

You can access the GUI through the default <IP> and default <Port>, which can be changed later on Host Settings.

To log into the MVP Manager, perform the following:
Logging into the MVP Manager

1. Enter the IP address in the web browser. The MVP Manager login window appears.

FIGURE 1 : MVP Manager Login Page

2. In the Username box, enter the username. The default username is 'admin'.
3. In the Password box, enter the password. The default password is 'a10'.
4. Click Login. The MVP Home page appears.
After you log in, on the home page, you can view a blue bar on the top of your screen. There are some key elements here:

- To the left corner, right next to the name of the client terminal MVP Manager is the customizable HOST Name. This name is a key factor in recognizing the device, datacenter, rack number, and so on. It takes in ASCII values and can be changed under 'Host Settings'.

- To the right corner, you can view the local date:year:time and region.

- Next to it is a drop-down for language selection. With this version of the MVP Manager, English, Chinese, Japanese, Spanish, and Portuguese languages are supported.

- To the rightmost corner is the Admin's Icon to log out.

On the home page, the virtual machines and the details of the virtual machines are enlisted. On the left-hand side the following menus are available:

- **Virtual Machines (VM)** - To create and manage the lifecycle of the VMs.
- **VM Networking**
  - **NIC VF** - It is related to networking details for each VM.
Virtual Machines (VM)

In the Virtual Machines (VM) wizard, you can create VM, view the total number of VMs, number of VMs powered on and powered off, total CPUs, total memory, and total storage (disk) that are available, reserved for the host, and used.

The Virtual Machines wizard has the following sections that explain the Virtual Machines:

- On the left-hand side, there is a rectangle box with three divisions. You can sort on the total number of VMs, powered on VMs, and powered off VMs.
Next to it on the right-hand side, there is a rectangle box with three pie charts with different colors that explains resources. The pie charts get dynamically updated as the resources are consumed.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL VMs</td>
<td>Click to view the total number VMs and the details.</td>
</tr>
<tr>
<td>POWERED ON</td>
<td>Click to view the details of the powered-on VMs.</td>
</tr>
<tr>
<td>POWERED OFF</td>
<td>Click to view the details of the powered-off VMs.</td>
</tr>
</tbody>
</table>

- TOTAL CPU: Hover over the chart to view the percentage of CPUs that are available, used, and reserved for the host. The Host has a total of 80 vCPU (with hyperthreading enabled). 16 vCPU are reserved for underlying host functions which include the hypervisor processors among others. The user of this Host has 64 vCPU available for assigning to VMs.
After viewing the information, you can create the VM.

- Click **Create VM** to create a virtual machine. For more information, see [Creating Virtual Machine (VM)].

### Creating Virtual Machine (VM)

To create the virtual machine, perform the following:

1. Log into MVP Manager and navigate to **Virtual Machines**.
2. Click **Create VM**. The **VM creation wizard** appears.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL MEMORY</td>
<td>Hover over the chart to view the total memory in MB that is available, used, and reserved for the host. The Host has a total of 186GB of Memory. 40GB are reserved for underlying host functions. The user of this Host has 146GB available for assigning to VMs.</td>
</tr>
<tr>
<td>TOTAL STORAGE (DISK)</td>
<td>Hover over the chart to view the total storage that is available, used, and reserved for the host. The Host has a total of 838GB Diskspace. 10% of the total (~8.38) are reserved for underlying host functions. The user of this Host has 829GB Diskspace available for assigning to VMs.</td>
</tr>
</tbody>
</table>

**NOTE:** The image repository also consumes disk space from the total storage space ‘available’ for the pie chart that you see on the homepage. Essentially disk space for VMs, VM images, and VM archives are consumed from the disk-space allowed for Admin use.
3. The virtual machine can be created in five steps:
   a. Name and Profile
   b. VM Sizing
   c. VF Interfaces [SR-IOV Enabled]
   d. Management Interface
   e. Review

Name and Profile

In the **Name and Profile wizard**, you can enter the unique name of the VM.
FIGURE 4: Name and Profile

Specify a unique name and solution for the new VM. This name is persistent throughout the lifecycle of the VM.

<table>
<thead>
<tr>
<th>VM Name</th>
<th>Solution</th>
<th>VM Software (OS Image)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nano-adc</td>
<td>ADC</td>
<td>a10_acos_default.qcow2</td>
</tr>
</tbody>
</table>

Uploaded | Archived
Enter the following information. Field(s) marked with ‘*’ are mandatory.

1. In the **VM Name** box, enter the unique name of the VM.

2. From the **Solution** drop-down list, select the solution. The available options are ADC, CGN, SSLi, and OPSWAT.

3. In the **VM Software (OS Image)** box, select the Uploaded or Archived using the radio button. Based on the option selected, the uploaded or archived OS images are displayed. You can select one from the drop-down list.

4. Click **Next** to move to **VM Sizing wizard** OR
   Click **Cancel** to cancel the action.

**VM Sizing**

In the **VM Sizing wizard**, you can select the standard template or customize the template. If you customize the template, you can add vCPUs, memory, and storage (Disk).
FIGURE 5 : VM Sizing

VM creation wizard

Name and Profile  VM Sizing  VF Interfaces (SR-IOV Enabled)  Management Interface  Review

- Standard Templates - Custom

Standard Templates

- large (vCPU: 32, Mem: 64 GB, Storage: 100 GB)

vCPU
- 32

Memory

- 64 GB

Storage (Disk)

- 100 GB
Enter the following information.

1. Select **Standard Templates** or **Custom** using the radio button.
2. If you select **Standard Templates**, from the Standard Templates drop-down list, select the template.
3. If you select **Custom**, perform the following:
   - In the **vCPU** box, click ‘+’ to add the vCPUs and click ‘-’ to decrease the vCPUs. An error message is displayed if the number of vCPUs selected is less than the recommended value for ADC, SSLi, and CGN solutions as shown in Figure 6.

   **NOTE:** Eight is the minimum and 32 is the maximum number of vCPUs recommended for ADC, SSLi, and CGN. The low vCPU VMs can be used for other minor applications.

   - In the **Memory** box, use the balloon icon to add the memory on a scale of 8 to 64 GB. An error message is displayed if the memory selected is less than the recommended value for ADC, SSLi, and CGN solutions as shown in Figure 6.

   **NOTE:** 12 GB is the minimum and 64 GB is the maximum memory recommended for ADC, SSLi, and CGN. The low memory VMs can be used for other minor applications.

   - In the **Storage (Disk)** field, use the balloon icon to add the storage on a scale of 30 to 805 GB.
4. Click **Next** to move to **VF Interfaces (SR-IOV Enabled) wizard** OR Click **Cancel** to cancel the action.
FIGURE 6: VM Sizing Error Message

**VM creation wizard**

- **Name and Profile**
- **VM Sizing**
- **VF Interfaces (SR-IOV Enabled)**
- **Management Interface**
- **Review**

- **Standard Templates**
- **Custom**

**vCPU**

- 4

- **Memory**

- **Storage (Disk)**

The selected vCPU is lower than the value recommended for ADC, SSL, CGN solutions.
Optionally the low vCPU VMs can be used for other minor applications.

The selected memory value is lower than the value recommended for ADC, SSL, CGN solutions.
Optionally the low Memory VMs can be used for other minor applications.
VF Interfaces (SR-IOV Enabled)

In the **VF Interfaces (SR-IOV Enabled)** wizard, you can select NIC-VFs and SSL-VFs.

**FIGURE 7 : VF Interfaces (SR-IOV Enabled)**

Enter the following information. Field marked with ‘*’ is mandatory.

1. From the **NIC VFs** drop-down list, select the number of NIC VFs.
2. From the **SSL-VFs** drop-down list, select the number of SSL VFs.
3. Click **Next** to move to **Management Interface wizard** OR Click **Cancel** to cancel the action.

Management Interface

In the **Management Interface** wizard, you can select the management interface as bridge or NAT.
Enter the following information. Field(s) marked with ‘*’ are mandatory.

1. Select Bridge or NAT using the radio button.

2. If you select Bridge, from the Select Bridge drop-down list, select the bridge. If you select NAT, the Select Bridge box will not be displayed.

3. Select the DHCP check box. The Management IP, Mgmt IP Netmask, and Default Gateway fields are disabled.

4. If you do not select the DHCP check box, perform the following:
   a. In the Management IP box, enter the management IP address.
   b. In the Mgmt IP Netmask box, enter the management IP netmask address.
c. In the **Default Gateway** box, enter the default gateway address.

5. Click **Next** to move to **Review wizard** OR
   Click **Cancel** to cancel the action.

**Review**

In the **Review** wizard, you can view the details of name and profile, VM sizing, VF interface, and management interface.
Enter the following information.

1. Click **Submit** to create the VM with the required information.
2. Click **Back** to make any changes before creating the VM.

The VM is created with the information you entered.

FIGURE 10 : VM Created

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Machine</td>
<td>The name of the virtual machine. Click the VM name to view its details.</td>
</tr>
<tr>
<td>State</td>
<td>The state of the virtual machine. The available states are power-off, active.</td>
</tr>
<tr>
<td>vCPU, Memory, Storage (Disk)</td>
<td>The total number of CPUs, memory, and storage disk.</td>
</tr>
<tr>
<td>NIC VF Count</td>
<td>The total number of NIC VF.</td>
</tr>
<tr>
<td>SSL VF Count</td>
<td>The total number of SSL VF.</td>
</tr>
<tr>
<td>Mgmt. Intf</td>
<td>The name of the management interface.</td>
</tr>
<tr>
<td>Solution</td>
<td>The solution of the virtual machine. The available solutions are CGN, ADC, SSLi, and OPSWAT.</td>
</tr>
<tr>
<td>Created</td>
<td>The date and time when the virtual machine was created.</td>
</tr>
</tbody>
</table>

**NOTE:** After creating the VM with the Management Interface, it will take four minutes to view the Management IP assigned to the VM.

After creating the VM, if you want to view the VM details like NIC name, resources used, and so on, click on the VM hyperlink. The details are displayed as shown below.
FIGURE 11: Newly Created VM Details

<table>
<thead>
<tr>
<th>Nano-Adc</th>
<th>Nano-adc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Machines</td>
<td>Nano-adc</td>
</tr>
<tr>
<td>UUID</td>
<td>7dc8cb3a-57dc-4d4e-be29-b4981b413879</td>
</tr>
<tr>
<td>vCPU Count</td>
<td>32</td>
</tr>
<tr>
<td>NIC-VFs</td>
<td>0000:5e:00:3</td>
</tr>
<tr>
<td></td>
<td>0000:5e:01:3</td>
</tr>
<tr>
<td>SSL-VFs</td>
<td>SSL-8b-01-1</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-2</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-3</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-4</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-5</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-6</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-01-7</td>
</tr>
<tr>
<td></td>
<td>SSL-8b-02-0</td>
</tr>
<tr>
<td>Image Repository</td>
<td>LARGE</td>
</tr>
<tr>
<td>Used Memory</td>
<td>64 GB</td>
</tr>
<tr>
<td>State</td>
<td>Active</td>
</tr>
<tr>
<td>Disk Space</td>
<td>100 GB</td>
</tr>
<tr>
<td>Solution</td>
<td>ADC</td>
</tr>
<tr>
<td>Bridge</td>
<td>NAT</td>
</tr>
</tbody>
</table>

After creating the VM, you can do the following:

- Actions performed when VM is powered off:
  - Click **Start** to start the VM. For more information, see [Starting Virtual Machine (VM)](#).
  - Click **Delete** to delete the VM. For more information, see [Deleting Virtual Machine (VM)](#).
  - Click **Clone** to clone the VM. For more information, see [Cloning Virtual Machine (VM)](#).
  - Click **Resize** to resize the VM. For more information, see [Resizing Virtual Machine (VM)](#).
- Actions performed when VM is powered on (Active):
Starting Virtual Machine (VM)

To start the virtual machine, perform the following:

1. In the Virtual Machines page, under Actions click Start if the VM is powered off.

![FIGURE 12 : Virtual Machine Start](image)

2. The VM is powered on and the state changes to Active.

3. An error message is displayed if the NIC VF is used by another VM when the VM is started. Make sure the VF is used by only one VM.

![FIGURE 13 : Error Message](image)

Deleting Virtual Machine (VM)

To delete the virtual machine, perform the following:

1. In the Virtual Machines page, under Actions click Delete. The Warning page appears.
FIGURE 14: Virtual Machine Deletion

2. In the **Please enter password to continue** box, enter the password.

3. Select the **Archive (For this action, power off VM first)** check box (this field is enabled only if the VM is in a power-off state).

4. Click **Archive & Delete** to archive and delete the VM OR click **Delete** to the VM without archiving. An error message is displayed if the entered password is incorrect.

5. Click **Cancel** to cancel the operation.
Cloning Virtual Machine (VM)

To clone the virtual machine, perform the following. Field marked with ‘*’ is mandatory.

**NOTE:** Only the powered-off VM can be cloned.

1. In the **Virtual Machines** page, under **Actions** click **Clone**. The **Clone VM (VM Name)** page appears.

2. In the **Enter new name for cloned VM** box, enter the new name for the cloned VM.
3. Click **Clone** to clone the VM.
4. Click **Cancel** to cancel the operation.

Resizing Virtual Machine (VM)

To resize the virtual machine, perform the following. Fields marked with ‘*’ are mandatory.

**NOTE:** Only the powered-off VM can be resized.

1. In the **Virtual Machines** page, under **Actions** click **Resize**. The **Resize Virtual Machine** page appears.
2. In the **vCPU** box, click ‘+’ to add the vCPUs and click ‘-’ to decrease the vCPUs. An error message is displayed if the number of vCPUs selected is less than the recommended value for ADC, SSL, and CGN solutions as shown in Figure 3.

**NOTE:** Eight is the minimum and 32 is the maximum number of vCPUs recommended for ADC, SSLi, and CGN. The low vCPU VMs can be used for other minor applications.

3. In the **Memory** box, use the balloon icon to add the memory on a scale of 8 to 64 GB. An error message is displayed if the memory selected is less than the recommended value for ADC, SSL, and CGN solutions as shown in Figure 3.

**NOTE:** 12 GB is the minimum and 64 GB is the maximum memory recommended for ADC, SSLi, and CGN. The low memory VMs can be used for other minor applications.
4. In the **Storage (Disk)** field, use the balloon icon to resize the storage from the current size to 805 GB. It cannot be resized less than the current disk size.

5. Click **Resize** to resize the VM.

6. Click **Cancel** to cancel the operation.

---

### Shutting Down Virtual Machine (VM)

To shut down the virtual machine, perform the following.

**NOTE:** Only the active VM can be shut down.

1. In the **Virtual Machines** page, under **Actions** click **Shutdown**. The **Warning** page appears.

![FIGURE 17 : Virtual Machine Shutdown](image)

2. In the **Please enter password to continue** box, enter the password to shut down the VM. An error message is displayed if the entered password is incorrect.

3. Click **Shutdown** to shut down the VM.

4. Click **Cancel** to cancel the operation.
Rebooting Virtual Machine (VM)

To reboot the virtual machine, perform the following.

**NOTE:** Only the active VM can be rebooted.

1. In the **Virtual Machines** page, under **Actions** click **Reboot**.
   The **Warning** page appears.

**FIGURE 18 : Virtual Machine Reboot**

2. In the **Please enter password to continue** box, enter the password to reboot the VM. An error message is displayed if the entered password is incorrect.

3. Click **Reboot** to reboot the VM.

4. Click **Cancel** to cancel the operation.

Viewing Virtual Machine (VM) Console

To view and log into the console of the virtual machine, perform the following.

**NOTE:** You can view the console of active VM only.

1. In the **Virtual Machines** page, under **Actions** click **Console**.
   The **Console for (VM Name)** page appears.
2. You can log into the console of the VM using the default username and password.

VM Networking

NIC VF

In the **NIC Virtual Function (VF)** wizard, you can view the total number of NIC VFs, the number of NIC VFs attached and detached, and you can attach or detach the VM.
The NIC VF wizard has the following sections:

- A rectangle box with three divisions that enlists all the NIC VFs including 10G interface and 100G interface depends on the Host that is procured. There are four different kinds of HOST Machines:
  - TH-640-10 - R640 Host with only 10G Interfaces
  - TH-640-100/10 - R640 Host with 10G and 100G Interfaces
  - TH-740-10 - R740 Host with only 10G Interfaces
  - TH-740-100/10 - R740 Host with 10G and 100G Interfaces
- You can sort the NIC VFs based on the total number of NIC VFS, attached NIC VFs, and detached NIC VFs and view the details.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL NIC VFs</td>
<td>Click to view the total number of NIC VFs and the details.</td>
</tr>
<tr>
<td>ATTACHED NIC VFS</td>
<td>Click to view the details of the attached NIC VFs.</td>
</tr>
<tr>
<td>DETACHED NIC VFS</td>
<td>Click to view the details of the detached NIC VFs.</td>
</tr>
</tbody>
</table>
Below the rectangle, the following information is displayed:

<table>
<thead>
<tr>
<th>NIC VF Name</th>
<th>NIC PCIe ID</th>
<th>Vendor</th>
<th>NUMA, PCIe slot</th>
<th>Link State</th>
<th>H/W Port</th>
<th>Speed (Gb/s)</th>
<th>Attached VM</th>
<th>VM State</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF:0 of PF enp13400</td>
<td>0000:96:02.0</td>
<td>Intel</td>
<td>1, 5</td>
<td>Down</td>
<td>1</td>
<td>10</td>
<td>EMEA-4</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp13401</td>
<td>0000:96:06.0</td>
<td>Intel</td>
<td>1, 5</td>
<td>Down</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp13402</td>
<td>0000:96:0a.0</td>
<td>Intel</td>
<td>1, 5</td>
<td>Down</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp13403</td>
<td>0000:96:0c.0</td>
<td>Intel</td>
<td>1, 5</td>
<td>Down</td>
<td>4</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp17500</td>
<td>0000:9f:01.0</td>
<td>Mellanox</td>
<td>1, 4</td>
<td>Up</td>
<td>1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp17501</td>
<td>0000:9f:02.0</td>
<td>Mellanox</td>
<td>1, 4</td>
<td>Up</td>
<td>2</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp17502</td>
<td>0000:9f:01.0</td>
<td>Mellanox</td>
<td>0, 1</td>
<td>Up</td>
<td>1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF:0 of PF enp17503</td>
<td>0000:9f:02.0</td>
<td>Mellanox</td>
<td>0, 1</td>
<td>Up</td>
<td>2</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 1**: NIC VF

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC VF Name</td>
<td>The name of the NIC VF. Click the NIC VF name to view its details.</td>
</tr>
<tr>
<td>NIC PCIe ID</td>
<td>The ID of the NIC PCIe.</td>
</tr>
<tr>
<td>Vendor</td>
<td>The vendor of the NIC VF. The available vendors are Intel, Mellanox.</td>
</tr>
<tr>
<td>NUMA, PCIe slot</td>
<td>The NUMA and the PCIe slot.</td>
</tr>
<tr>
<td>Link State</td>
<td>The link state of the NICVF. The available state is Up and Down. If the cable is attached to the interface it will be in the Up state. If the cable is detached from the interface it will be in a Down state.</td>
</tr>
<tr>
<td>H/W Port</td>
<td>The hardware port of the NIC VF.</td>
</tr>
<tr>
<td>Speed (Gb/s)</td>
<td>The speed of the NIC VF. It has 10 G and 100 G interfaces.</td>
</tr>
<tr>
<td>Attached VM</td>
<td>The name of the VM attached to the NIC VF.</td>
</tr>
<tr>
<td>VM State</td>
<td>The state of the VM attached to the NIC VF.</td>
</tr>
</tbody>
</table>

Best Practice Sorting Order - You must sort the NIC VF in the same order as stated below:

1. Sort on H/W Port No.
2. View NUMA, PCIe ID Slot – Tupple
3. The NIC VF name is human readable based on the port function (PF) number and the VF associated with the port number.
When you are at the NIC VF wizard initially, the NIC VF Name is sorted by VM by default, as shown:

<table>
<thead>
<tr>
<th>NIC VF Name</th>
<th>NIC Port ID</th>
<th>Vendor</th>
<th>NUMA, NUMA slot</th>
<th>Link State</th>
<th>H/W Port</th>
<th>Speed (Gb/s)</th>
<th>Attached VM</th>
<th>VM State</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC VF 1</td>
<td>0000:00:1:0</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 2</td>
<td>0000:00:1:1</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 3</td>
<td>0000:00:1:2</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 4</td>
<td>0000:00:1:3</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
</tbody>
</table>

For best results, sort it by H/W Port No., NUMA, PCIe slot, and NIC VF Name, as shown:

<table>
<thead>
<tr>
<th>NIC VF Name</th>
<th>NIC Port ID</th>
<th>Vendor</th>
<th>NUMA, NUMA slot</th>
<th>Link State</th>
<th>H/W Port</th>
<th>Speed (Gb/s)</th>
<th>Attached VM</th>
<th>VM State</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC VF 1</td>
<td>0000:00:1:0</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 2</td>
<td>0000:00:1:1</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 3</td>
<td>0000:00:1:2</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>NIC VF 4</td>
<td>0000:00:1:3</td>
<td>Mellanox</td>
<td>3.2</td>
<td>1</td>
<td>100</td>
<td></td>
<td>Attached 2</td>
<td>Available</td>
<td></td>
</tr>
</tbody>
</table>

There are 8 VFs per 10G/100G Hw Port and each VF can be associated with only 1 VM at a given time.

After viewing the information, you can do the following:

- Click **Attach VM** to attach the VM to the NIC VF. For more information, see [Attaching Virtual Machine (VM) to NIC VF](#).
- Click **Detach VM** to detach the VM attached to the NIC VF. For more information, see [Detaching Virtual Machine (VM) from NIC VF](#).

**Attaching Virtual Machine (VM) to NIC VF**

To attach the VM to the NIC VF, perform the following:

1. In the **NIC VF** page, under **Actions** click **Attach VM**. The **VM Name** page appears.
2. In the **VM NAME** box, select the VM name from the drop-down list.
3. Click **Attach NIC VF** to attach the VM to the NIC VF.

**NOTE:** The VM will reboot after attaching the NIC VF to the VM.

4. Click **Cancel** to cancel the operation.

### Detaching Virtual Machine (VM) from NIC VF

To detach the attached VM from the NIC VF, perform the following:

1. In the **NIC VF** page, under **Actions** click **Detach VM**.
   The **Warning** page appears.

![FIGURE 22: Detach VM from NIC VF](image)

2. Click **Detach NIC VF** to detach the VM attached to the NIC VF.

**NOTE:** The VM will reboot after detaching the NIC VF from the VM.

3. Click **Cancel** to cancel the operation.
In the **SSL Virtual Function (VF)** wizard, you can view the total number of SSL VFs, the number of SSL VFs attached, and the number of SSL VFs detached. You can attach or detach the VM.

**NOTE:** Med1 (medium 1) Size SSLi VM requires a minimum of 16 SSL VFs to achieve the performance advertised on Datasheet.

**FIGURE 23: SSL VF Wizard**

The following information is displayed:

**TABLE 2 : SSL VF**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL SSL VFs</td>
<td>The total number of SSL VFs. Click to view the total number of SSL VFs and the details.</td>
</tr>
<tr>
<td>ATTACHED SSL VFS</td>
<td>The number of SSL VFs attached. Click to view the details of the attached SSL VFs.</td>
</tr>
<tr>
<td>DETACHED SSL VFS</td>
<td>The number of SSL VFs detached. Click to view the details of the detached SSL VFs.</td>
</tr>
<tr>
<td>SSL VF Name</td>
<td>The name of the SSL VF. Click the SSL VF name to view the details.</td>
</tr>
<tr>
<td>SSL PCIe ID</td>
<td>The ID of the SSL PCIe.</td>
</tr>
</tbody>
</table>
NOTE: Each VF can be associated with only one VM at a given time.

You can do the following:

- Click **Attach VM** to attach the VM to the SSL VF. For more information, see [Attaching Virtual Machine (VM) to NIC VF](#).
- Click **Detach VM** to detach the VM attached to the NIC VF. For more information, see [Detaching Virtual Machine (VM) from NIC VF](#).

### Attaching Virtual Machine (VM) to SSL VF

To attach the VM to the SSL VF, perform the following:

1. In the **SSL VF** page, under **Actions** click **Attach VM**. The **VM NAME** page appears.

![FIGURE 24: Attach VM to SSL VF](#)

2. In the **VM NAME** box, select the VM name from the drop-down list.
3. Click **Attach SSL VF** to attach the VM to the SSL VF.

**NOTE:** The VM will reboot after attaching the SSL VF to the VM.

4. Click **Cancel** to cancel the operation.}

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor</td>
<td>The vendor of the SSL VF.</td>
</tr>
<tr>
<td>Attached VM</td>
<td>The name of the VM attached to the SSL VF.</td>
</tr>
<tr>
<td>VM State</td>
<td>The state of the VM attached to the SSL VF.</td>
</tr>
</tbody>
</table>
Detaching Virtual Machine (VM) from SSL VF

To detach the attached VM from the SSL VF, perform the following:

1. In the **NIC VF** page, under **Actions** click **Detach VM**. The **Warning** page appears.

FIGURE 25: Detach VM from SSL VF

<table>
<thead>
<tr>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detach SSL VF from VM?</td>
</tr>
</tbody>
</table>

2. Click **Detach SSL VF** to detach the VM attached to the SSL VF.

**NOTE:** The VM will reboot after detaching the SSL VF from the VM.

3. Click **Cancel** to cancel the operation.

Image Repository

In the **Image Repository** wizard, you can view the archived images, import, and delete the images.

The image repository consumes disk space from the total storage space available for the pie chart that you see on the homepage. Essentially disk space for VMs and VM images are consumed from the disk space allowed for Admin use.

**NOTE:** You can import and apply only A10 ACOS images to the virtual machine.
The following information is displayed:

**TABLE 3 : Image Repository**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image name</td>
<td>The name of the image.</td>
</tr>
<tr>
<td>OS Type</td>
<td>The OS type of the image. For example, ACOS.</td>
</tr>
<tr>
<td>Archived</td>
<td>This field displays whether the image is archived (Yes) or not (No).</td>
</tr>
<tr>
<td>Size</td>
<td>The size of the image in GB.</td>
</tr>
<tr>
<td>Uploaded Time</td>
<td>The time when the image was uploaded.</td>
</tr>
</tbody>
</table>

You can do the following:

- Click **Import Image** to import the image. For more information, see [Importing Image](#).
- Click the **Delete** icon under **Actions** to delete the archived image. A **Warning** page appears. Click **Delete Image** to delete the image OR click **Cancel** to cancel the operation.

**FIGURE 27 : Delete Image**

---

**Importing Image**

To import the image, perform the following:
1. On the **Image Repository** page, click **Import Image**. The **Import Image** page appears.

FIGURE 28: Import Image

2. Click **Choose file** under **Load Image from file** to select the image to import.

3. In the **Image name** box, enter the name of the image.

4. In the **OS Type**, select the type of the OS from the drop-down list.

5. Click **Import** to import the selected image.

6. Click **Cancel** to cancel the operation. A **Warning** page appears. Click **Continue Upload** to continue image import OR click **Stop Upload** to stop the image import.

---

**Settings**

Under Settings, you can do the following:
• Host Settings
• Authentication
• Certificates

Host Settings

In the **Host Settings** wizard, you can view the host settings, manage the network, change the hostname, monitor settings, reset settings, refresh the page, reboot the host device, and shut down the host device.

**FIGURE 29: Host Settings**

The following information is displayed:

**TABLE 4 : Host Settings**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Name</td>
<td>The hostname of the MVP Manager.</td>
</tr>
<tr>
<td>MVP-MANAGER</td>
<td>The version number of the MVP Manager.</td>
</tr>
<tr>
<td>PLATFORM</td>
<td>The platform on which the MVP Manager is running.</td>
</tr>
<tr>
<td>UPTIME</td>
<td>The duration for which the MVP Manager is up and running. It is in days, hours, and minutes.</td>
</tr>
<tr>
<td>SSH</td>
<td>Whether SSH is enabled or not.</td>
</tr>
<tr>
<td>IP ADDRESSES</td>
<td>The Management IP of the MVP.</td>
</tr>
</tbody>
</table>
You can do the following:

- Click **Manage Network** to add DNS Server, configure routes, and change management IP. For more information, see Managing Network.
- Click **Change Hostname** to change the name of the host. For more information, see Changing Hostname.
- Click **Monitor Settings** to save time zone, date and time, enable or disable NTP, and add or delete NTP Server. For more information, see Monitoring Settings.
- Click **Reset Settings** to reset the settings. For more information, see Resetting Settings.

### Managing Network

In the **Manage Network** wizard, you can add a DNS server, configure routes, and change management IP.

![Manage Network](image)

You can do the following:

- Click **Add DNS Server** to add the DNS server to the host. For more information, see Adding DNS Server.
- Click **Configure Routes** to configure the routes to the host. For more information, see Configuring Routes.
- Click **Change Management IP** to change the management IP of the host. For more information see Changing Management IP.
Adding DNS Server

To add the DNS server to the host, perform the following:

1. Click **Add DNS Server** under **Manage Network** and then click **Add**. The **Add DNS** page appears.

![Add DNS](image)

2. In the **DNS Server** box, enter the DNS server details.

3. Click **Add DNS Server** to add the DNS server to the host. The DNS server gets added to the **DNS Server** page. Click the **Delete** icon under **Actions** to delete the server.

4. Click **Cancel** to cancel the operation.

Configuring Routes

To configure routes to the host, perform the following:

1. Click **Configure Routes** under **Manage Network** and then click **Add Route**. The **Add Route** page appears.
2. In the **IP Address** box, enter the IP address.

3. In the **Subnet Mask** box, enter the subnet mask address.

4. In the **Gateway IP** box, enter the gateway IP address.

5. Click **Save** to add the route to the host. The route gets added to the **Configure Routes** page.

6. Click the **Edit** icon under **Actions** to edit the route.

7. Click the **Delete** icon under **Actions** to delete the route.

---

<table>
<thead>
<tr>
<th>IP Address</th>
<th>Subnet Mask</th>
<th>Gateway IP</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0.0.0</td>
<td>0.0.0.0</td>
<td>10.65.14.1</td>
<td><img src="edit_icon" alt="Edit" /> <img src="delete_icon" alt="Delete" /></td>
</tr>
<tr>
<td>10.65.14.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td><img src="edit_icon" alt="Edit" /> <img src="delete_icon" alt="Delete" /></td>
</tr>
<tr>
<td>192.168.122.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td><img src="edit_icon" alt="Edit" /> <img src="delete_icon" alt="Delete" /></td>
</tr>
</tbody>
</table>
8. Click **Cancel** to cancel the operation.

**Changing Management IP**

To change the management IP of the host, perform the following:

1. Click **Change Management IP** under **Manage Network**. The **Change Management IP** page appears.

**FIGURE 33: Change Management IP**

2. In the **IP Address** box, change the IP address.
3. In the **Subnet Mask** box, change the subnet mask address.
4. In the **Gateway IP** box, change the gateway IP address.
5. Click **Update Mgmt IP** to change the management IP of the host.
6. Click **Cancel** to cancel the operation.

**Changing Hostname**

To change the hostname, perform the following:

1. Click **Change Hostname**.
2. In the **New Hostname** box, enter the new hostname.
3. Click **Change** to change the hostname.
4. Click **Cancel** to cancel the operation.

**Monitoring Settings**

In the Monitor Settings, you can do the following:

- Save Time Zone
- Enable or disable NTP
- Add NTP Server

To save time zone, perform the following:

1. Click **Monitor Settings**. The **Monitor Settings** page appears.

2. Click **Clock and Time Zone**.
3. In the **Time Zone** box, select the time zone from the drop-down list.
4. Click **Save Time Zone** to save the time zone.

To enable or disable NTP, perform the following:

1. Click **Monitor Settings**.
   The **Monitor Settings** page appears.

**FIGURE 35: NTP**

2. In the NTP, select **Enable or Disable** check box to enable or disable NTP.
3. In the **Set Date** box, enter the date, month, and year.
4. In the **Set Time** box, select the time.
5. Click **Save Date / Time** to save the new date and time.

To add NTP Server, perform the following:

1. Click **Monitor Settings**.
   The **Monitor Settings** page appears.

2. Click **Add** in the **NTP Server List**.
   The **Add NTP Server** page appears.

**FIGURE 36: Add NTP Server**

3. In the **Add NTP Server** box, enter the NTP server details.
4. Click **Add NTP Server** to add the NTP server to the host. The NTP server will be added and displayed under the NTP Server List. Click the **Delete** icon under **Actions** to delete the NTP server.

5. Click **Cancel** to cancel the operation.

### Resetting Settings

To reset settings of the host, perform the following:

1. Click **Reset Settings**.

![FIGURE 37: Reset Settings](image)

2. You can reset the following options:
   - Delete All Users
   - Delete All VMs
   - Delete All Authentication Servers
   - Delete All Uploaded and Archived Images
   - Reset Factory Settings

3. Select the check box(es) to reset the options.
4. Click **Reset** to reset the selected options.
5. Click **Cancel** to cancel the operation.

**Authentication**

In the **Authentication** wizard, you can add user, LDAP server, TACACS server, and the RADIUS server.

**FIGURE 38: Authentication**

You can do the following:

- Click **Local** to add a user. For more information, see [Adding User](#).
- Click **LDAP** to add the LDAP server. For more information, see [Adding LDAP Server](#).
- Click **TACACS** to add the TACACS server. For more information, see [Adding TACACS Server](#).
- Click **RADIUS** to add the RADIUS server. For more information, see [Adding RADIUS Server](#).

**Adding User**

To add the user, perform the following:

1. Click **Local** in the **Authentication** wizard.
   The **Local** page appears.
2. In the **Username** box, enter the user name of the user.

3. In the **Password** box, enter the password.

4. Click **Save** to add the user. The user is added and displayed on the **Local** page.

5. Click the **Pencil** icon to edit the password of the user. The **Update Password** page appears.
   a. In the **Existing Password** box, enter the existing password.
   b. In the **New Password** box, enter the new password.
c. Click **Update** to update the new password or click **Cancel** to cancel the operation.

![Update Password](image)

6. Click the **Delete** icon to delete the user. A **Warning** page appears. Click **Delete User** to delete the user or click **Cancel** to cancel the operation.

![Warning](image)

**Adding LDAP Server**

To add the LDAP server, perform the following:

**NOTE:** You can configure only one server.

1. Click **LDAP** in the **Authentication** wizard.
2. Click Add LDAP Server. The Create LDAP Server page appears.

3. Enter the following information. Fields marked with ‘*’ are mandatory.
   a. In the Server box, enter the server address.
   b. In the Type box, select the radio button.
   c. In the Port box, enter the port number.
   d. In the Timeout (Seconds) box, enter the time in seconds.

4. Click Add LDAP Server to add the LDAP Server. The LDAP server is configured and displayed on the LDAP page or click Cancel to cancel the operation.
5. Click the **Pencil** icon to edit the LDAP server details.

6. Update the information and click **Update** to update the modified information or click **Cancel** to cancel the operation.

7. Click the **Delete** icon to delete the LDAP server. A **Warning** page appears. Click **Delete LDAP** to delete the LDAP server or click **Cancel** to cancel the operation.

---

**Adding TACACS Server**

To add the TACACS server, perform the following:

**NOTE:** You can configure only one server.

1. Click **TACACS** in the **Authentication** wizard.
FIGURE 42: Authentication - TACACS

2. Click **Add TACACS Server**. The **Create TACACS Server** page appears.

FIGURE 43: Create TACACS Server

3. Enter the following information. Fields marked with ‘*’ are mandatory.
a. In the **Server** box, enter the server address.
b. In the **Type** box, select IPv4 or Name using the radio button.
c. In the **Secret** box, enter the secret number.
d. In the **Port** box, enter the port number.
e. In the **Timeout (Seconds)** box, enter the time in seconds.

4. Click **Add TACACS Server** to add the TACACS server. The TACACS server is configured and displayed on the TACACS page or click **Cancel** to cancel the operation.

5. Click the **Pencil** icon to edit the TACACS server details.

6. Update the information and click **Update** to update the modified information or click **Cancel** to cancel the operation.

7. Click the **Delete** icon to delete the TACACS server. A **Warning** page appears. Click **Delete TACACS** to delete the TACACS server or click **Cancel** to cancel the operation.
Adding RADIUS Server

To add the RADIUS server, perform the following:

**NOTE:** You can configure only one server.

1. Click **RADIUS** in the **Authentication** wizard.

   ![Authentication - RADIUS](image)

2. Click **Add RADIUS Server**. The **Create RADIUS Server** page appears.
3. Enter the following information. Fields marked with ‘*’ are mandatory.
   a. In the **Server** box, enter the server address.
   b. In the **Type** box, select IPv4 or Name using the radio button.
   c. In the **Secret** box, enter the secret number.
   d. In the **Authentication Port** box, enter the authentication port number.
   e. In the **Timeout (Seconds)** box, enter the time in seconds.

4. Click **Add RADIUS Server** to add the RADIUS server. The RADIUS server is configured and displayed on the RADIUS page or click **Cancel** to cancel the operation.
5. Click the **Pencil** icon to edit the RADIUS server details.

6. Update the information and click **Update** to update the modified information or click **Cancel** to cancel the operation.

7. Click the **Delete** icon to delete the RADIUS server. A **Warning** page appears. Click **Delete RADIUS** to delete the RADIUS server or click **Cancel** to cancel the operation.

---

**Certificates**

In the **Certificates** wizard, you can import the active certificate for the host.
You can do the following:

- Click Import to import the active certificate for the host. For more information, see Importing Certificates.

### Importing Certificates

To import the active certificate, perform the following:

**NOTE:** You can import only one active certificate.

1. Click **Import** in the **Certificates** wizard. The **Import Certificate** page appears.

FIGURE 47: Import Certificate

2. Enter the following information. Fields marked with "*" are mandatory.
   a. In the **Type** box, select the certificate type from the drop-down list.
   b. In the **Certificate Name** box, enter the name of the certificate.
c. In the **Certificate File** box, click **Choose File** and choose the appropriate file.

d. In the **Key File** box, click **Choose File** and choose the appropriate file.

3. Click **Import** to import the active to the host. The certificate is imported and displayed on the **Certificates** page or click **Cancel** to cancel the operation.

**NOTE:** An error message is displayed if the certificate is not imported correctly.

---

**Audit Logs**

In the **Audit Logs** wizard, you can view the activities performed by the admin. You can also search for the required information.

**FIGURE 48: Audit Logs**

The following information is displayed:

**TABLE 5: Audit Logs**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>The action performed by the user.</td>
</tr>
<tr>
<td>User</td>
<td>The user who performed the action.</td>
</tr>
<tr>
<td>Time</td>
<td>The date and time when the action was performed.</td>
</tr>
</tbody>
</table>
Host Dashboard

In the Host Dashboard, you can view the details of CPU utilization, Memory utilization, Disk Latency, and Network Throughput.

FIGURE 49: Dashboard