



# Power Insight Hyper-V Plugin

**Installer/User Guide**

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### **Technical Support Site**

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

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# 1 Product Overview

Hyper-V Plugin is a Power Management application that enables you to administer Vertiv™ Power Insight UPS data and Hyper-V Servers associated with the UPS.

## 1.1 Keywords

Abbreviation	Description
Hyper-V	Microsoft's native Hypervisor
SCVMM	Microsoft System Center Virtual Machine Manager
VM	Virtual Machine
UPS	Uninterruptible Power Supply
HCI	Hyperconverged Infrastructure
VHD	Virtual Hard Disk
OVA	Open Virtual Appliance
7z	7 Zip
WinRM	Windows Remote Management
CredSSP	Credential Security Support Provider
Kerberos	Kerberos Authentication Protocol
NTLM	NT (New Technology) LAN Manager

## 1.2 Features and Advantages

The features and advantages of Hyper-V Plugin are.

- Simple deployment using virtual appliance.
- Convenient set up using web application.
- Power Insight integration.
- SCVMM integration.
- Centralized access to UPSs well as Hyper-V Clusters and Servers to create UPS associations.
- Automatic graceful shutdown of Hyper-V Hosts and Clusters.

## 1.3 Supported Hyper-V Version

- Hyper-V Server 2022
- System Center 2022 Virtual Machine Manager

## 1.4 Supported Power Insight Version

- Power Insight 2.4

## 1.5 System Requirements

### 1.5.1 Hardware

- One or more Hyper-V clusters running on a physical servers.
- One or more Vertiv UPS.
- At least one server to run a virtual machine with 2 CPUs, 2 GB memory, and 15 GB hard disk or higher running outside of the Hyper-V cluster.

### 1.5.2 Software

#### Supported Browsers:

- Google Chrome 115 or higher, Microsoft Edge 115 or higher.

### 1.5.3 Network and Ports

- Only IPv4 addresses are supported.
- Hyper-V Plugin must be connected to the same management network where Power Insight application, Hyper-V Hosts and SCVMM Server are running to ensure Hyper-V Plugin always has connectivity.
- Hyper-V Plugin must be installed to run outside of the Hyper-V Cluster it is configured to manage.
- WinRM ports 5985 and 5986 must be opened on all Hyper-V Hosts and SCVMM Server to ensure Hyper-V Plugin can connect and execute Host and Cluster management PowerShell commands remotely.
- HTTPS port 8443 (or any custom port used by Power Insight) must be opened on the network as well as Power Insight server to ensure Hyper-V Plugin can make REST API calls and retrieve UPS details successfully.

**NOTE: In Hyper-V Plugin virtual appliance, firewall is enabled out of the box and inbound traffic is allowed only for TCP ports 22 and 443.**

### 1.5.4 Integration

- Both SCVMM and Hyper-V are supported as Virtualization Management servers. SCVMM allows you to manage multiple clusters, while selecting Hyper-V server type allows you to manage a single cluster.
- Hyper-V Plugin connects with Hyper-V Hosts and SCVMM Server using WinRM protocol over HTTP or HTTPS. Authentication is performed using Kerberos, NTLM or CredSSP schemes. Once authenticated Hyper-V Plugin runs PowerShell *command-lets* to discover Host and Cluster details and to perform shutdown actions.
- Hyper-V Plugin registers with Power Insight application for receiving alarms and uses REST API calls to retrieve UPS IDs, UPS names, UPS metrics and more. Permissions to carry out these actions are assigned to admin user, by default. Credentials of admin user or any other user with necessary permissions are required by Hyper-V Plugin for a successful integration with Power Insight.

## 2 Installation

The instructions in this chapter will help you to download and install the Vertiv™ Power Insight Hyper-V plugin.

### 2.1 User Account Registration

If Power Insight Hyper-V plugin is the first Vertiv software you want to download, then you need to register on the Vertiv's software download portal. After registration, you can download and install the latest version of the application.

#### To register users:

1. Navigate to [www.Vertiv.com](http://www.Vertiv.com) in the web browser and hover your mouse over the Support tab.
2. Click *Software/Firmware Updates*, then click the *Software Product Downloads* menu option. The Software Download page appears. Locate the Vertiv™ Power Insight Software Download on the page.
3. Click the *Register* menu option.

**NOTE: Do not close the web page. The web page automatically refreshes and displays *Create an Account for Infrastructure Management Software* registration form. Use this form to enter your account activation code.**

4. Enter the mandatory field details, agree to the terms of use.
5. Click the *Create Account*.
6. Visit the email account you provided during the registration process and obtain the activation code from the Welcome to Vertiv Software Downloads email.
7. Enter the activation code in the Code field on the Create an Account for Infrastructure Management Software Downloads form and click *Submit*.

#### To download the Hyper-V Plugin application:

1. In the Software Download page, type the application name in the Search box that you want to download.
2. Click on the *Hyper-V Plugin* under the Download column. Once the application is downloaded, you can install the Power insight application.

**NOTE: For more information on account registration and application download, refer to the *Software Download section of the Power Insight User Manual*.**

**NOTE: Hyper-V Plugin application is available in open virtual appliance (.ova) and Virtual Hard Disk (.vhd) formats. Hyper-V Plugin vhd file is larger in size and has been compressed in a .7z file to reduce download time. You may use a tool such as 7Zip to extract vhd file from 7z file. While ova file can be imported in multiple virtualization environments, vhd file is provided primarily for import in Hyper-V environments.**

### 2.2 Hyper-V Plugin Installation

Hyper-V Plugin is available as an Ubuntu Server 22.04 LTS based OVA (.ova file) and can be imported as a Guest VM in Virtualization environments. Once imported, a static IP address must be assigned to the VM. Static IP address is required while registering with Power Insight and ensures alarms can be delivered to Hyper-V Plugin on the static IP address. In addition to static IP address, add DNS server IP address as well to ensure Hyper-V Plugin can resolve Virtualization Management Server host Fully Qualified Domain Name (FQDN) and Alarm Server FQDN specified during Plugin configuration. For Virtualization Management Server host, FQDN is mandatory while as for Alarm Server, both host FQDN and IP address are supported.

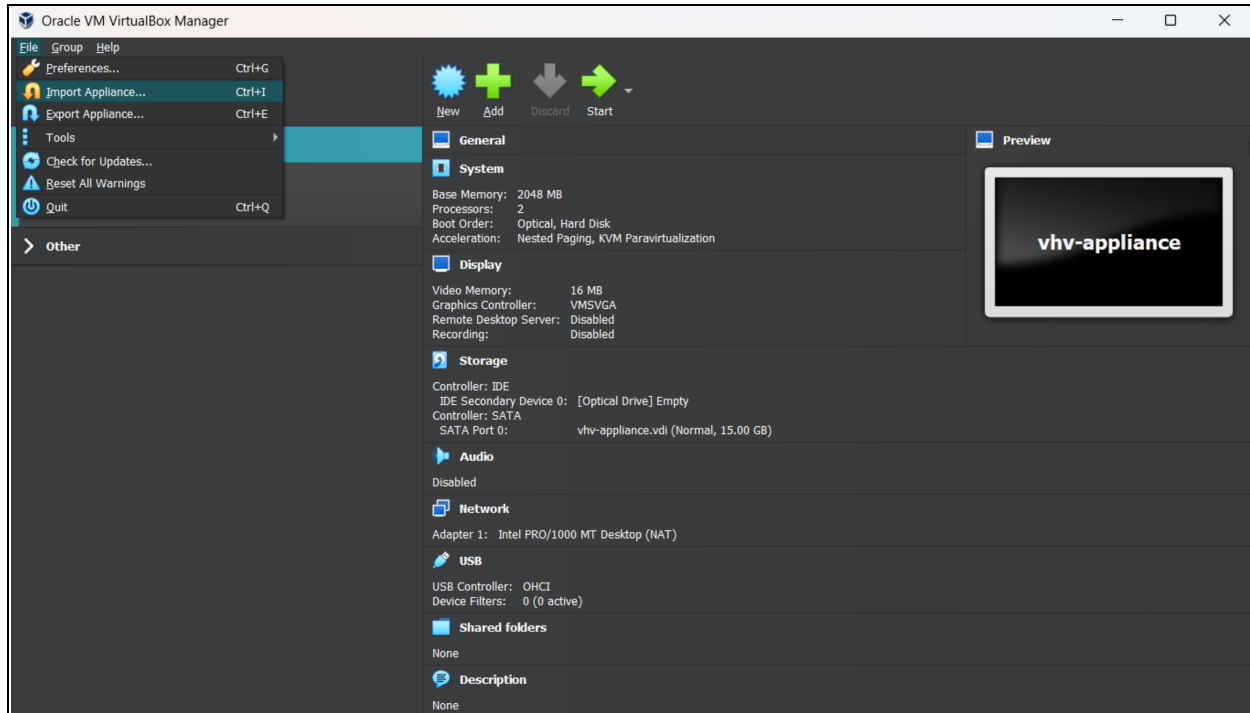
**NOTE: Do not run Hyper-V Plugin on the same Hyper-V Cluster it is eventually configured to manage.**

**NOTE:** Ensure that you have downloaded the Hyper-V Plugin installation package from the [www.Vertiv.com](http://www.Vertiv.com) website.

## 2.2.1 Import and Run Hyper-V Plugin OVA in Oracle VirtualBox

If you want to explore Hyper-V Plugin application before implementing in a test or production environment, you may import the OVA file in Oracle VirtualBox by following the steps below.

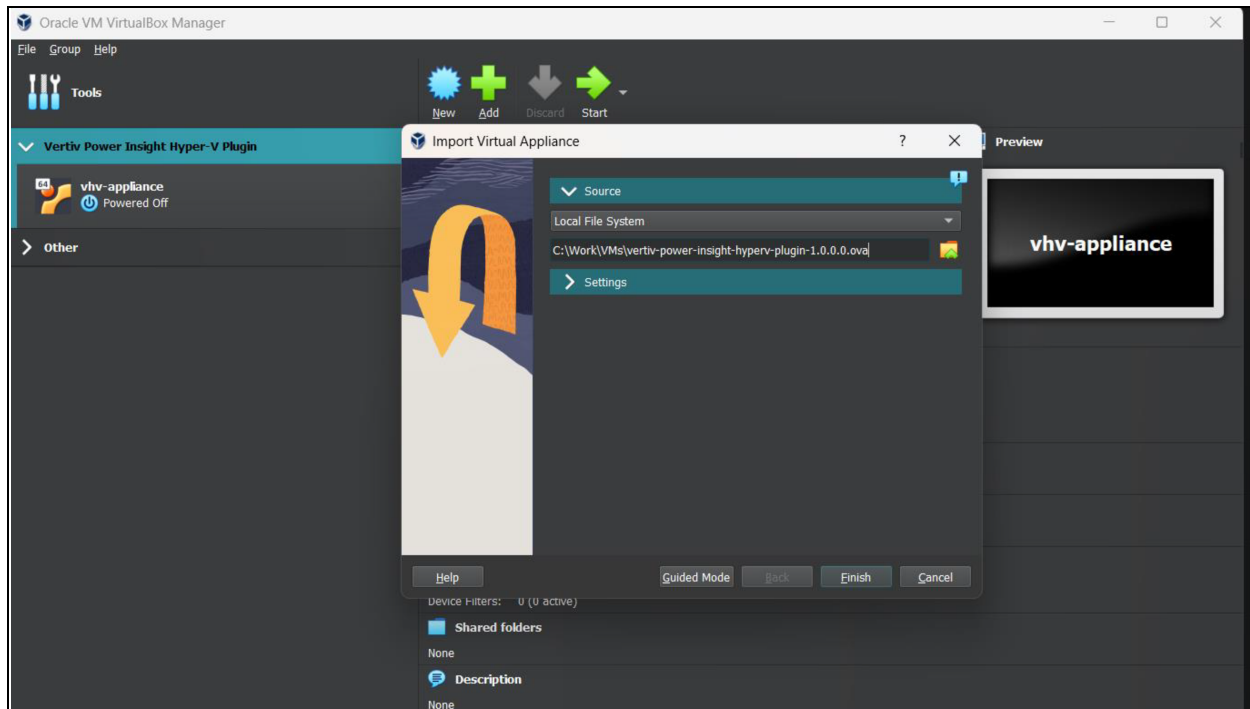
**Figure 2.1** Create New Virtual Machine



1. Open VirtualBox application UI. From File menu, select *Import Appliance* option. This launches the import wizard.

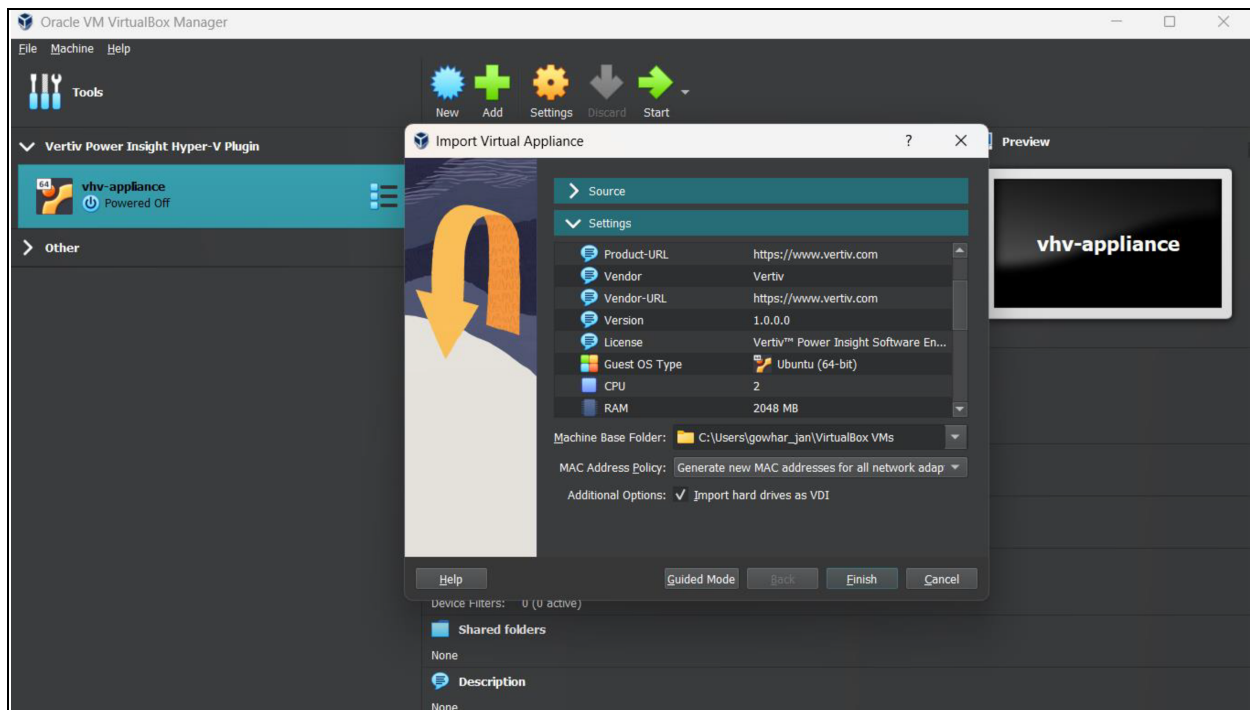


Figure 2.2 Import Virtual Appliance Wizard - Source Selection



2. Under Source select *Local File System* option. Browse and select *power-insight-hyperv-plugin-1.0.0.0.ovf*.

Figure 2.3 Import Virtual Appliance Wizard - Settings



3. Click *Settings* and select *Generate new MAC addresses for all network adapters* and click on *Finish*.

Figure 2.4 Vertiv License

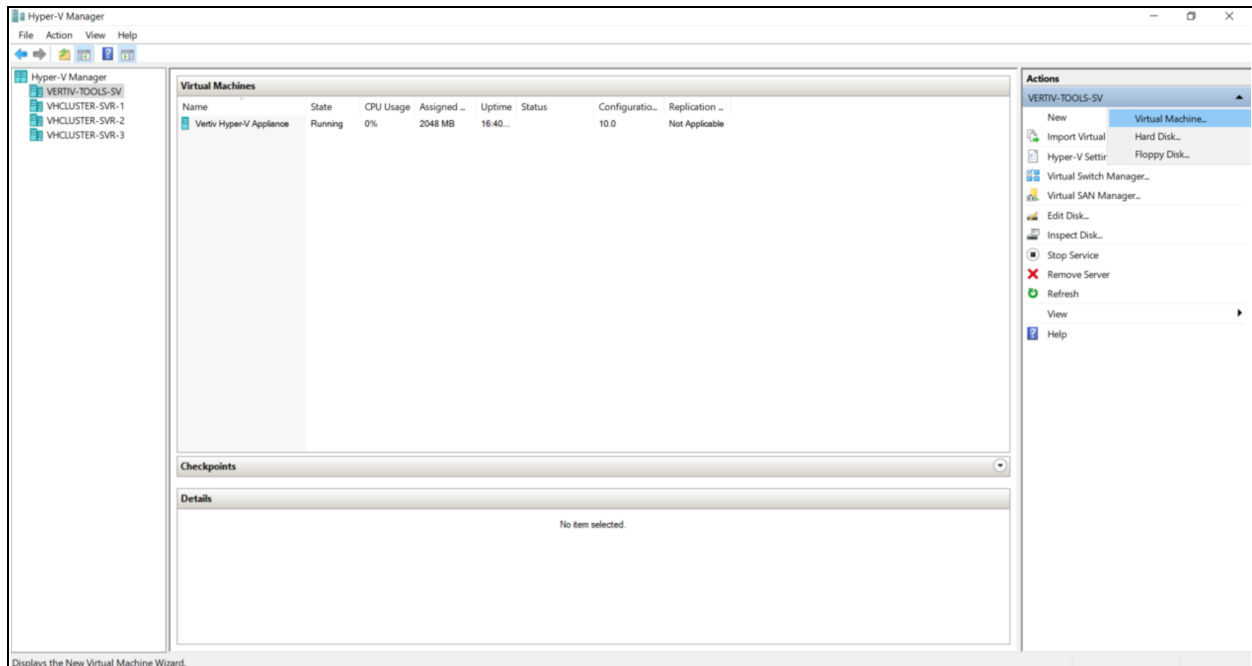


4. Click *Agree* to accept Vertiv license agreement. Virtual Appliance is imported, and a VM is created. Use the *Start* option to power on the VM. Use **vertiv** as username and **vertiv-pi-ssh** as password for login.

When VM has started, you may launch Hyper-V Plugin application. Open a web browser and enter the Hyper-V Plugin IP address to access Hyper-V Plugin UI. For example, if Hyper-V Plugin VM IP address is 1.1.2.2 then open <https://1.1.2.2/> in web browser to access login page. Refer to Hyper-V Plugin Login section for details on accessing the application.

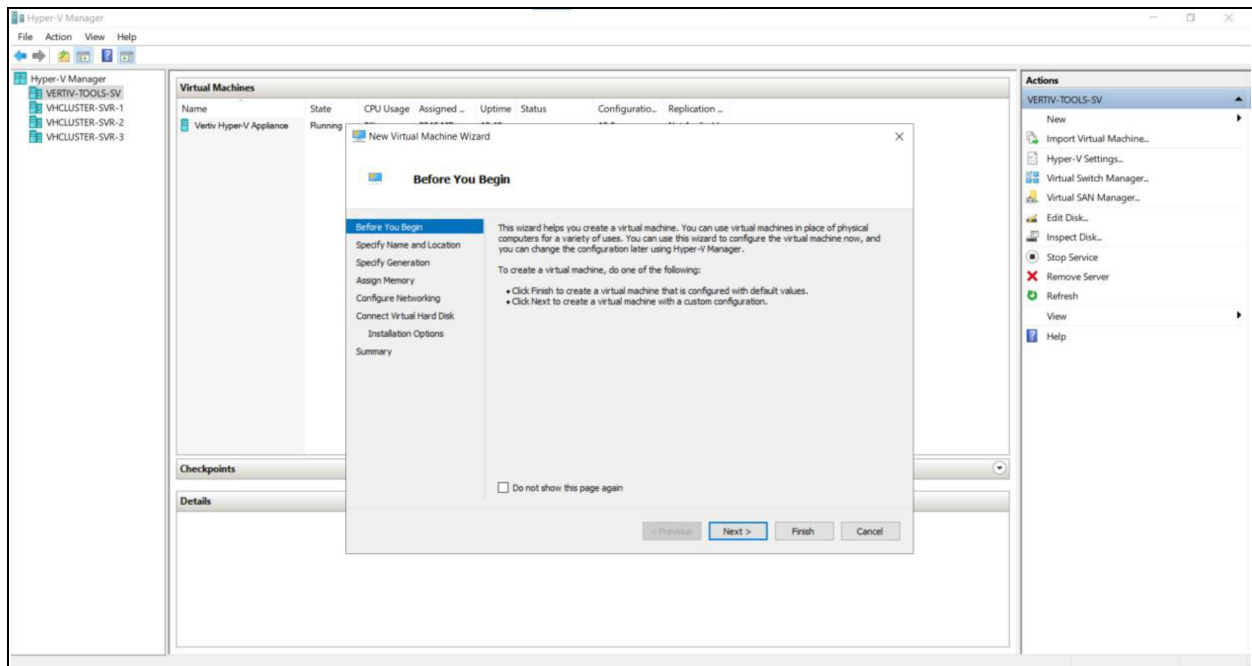
## 2.2.2 Import and Run Hyper-V Plugin in Microsoft Hyper-V

Figure 2.5 Create New Virtual Machine



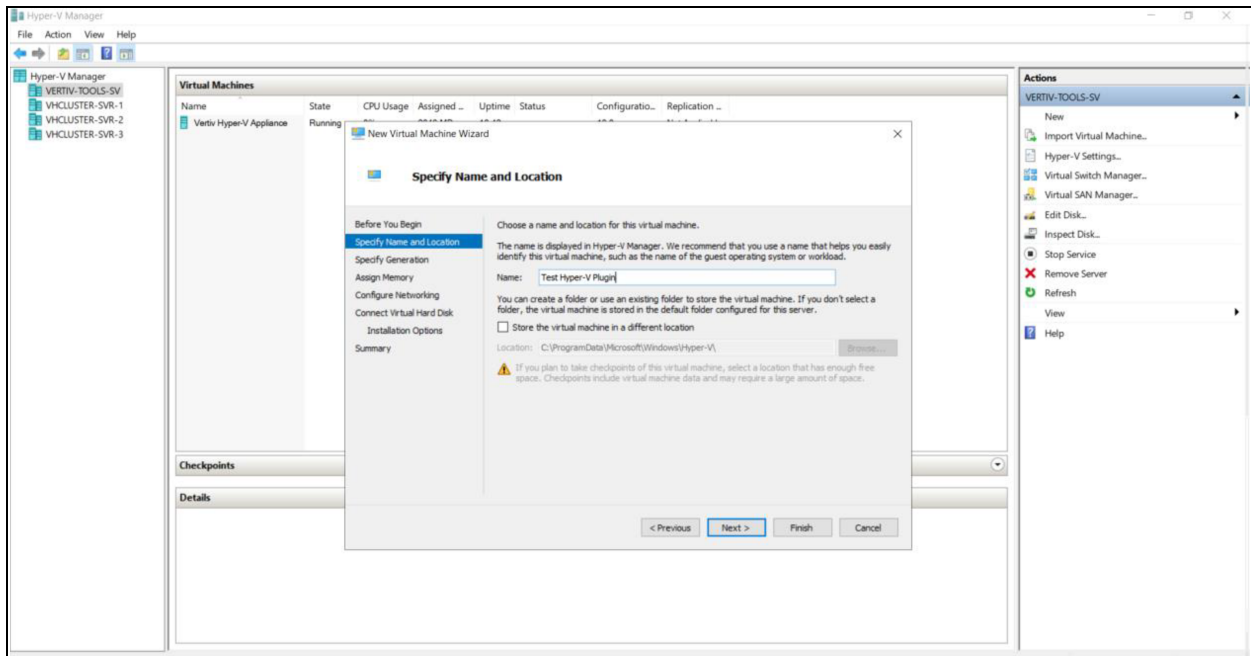
1. Open Hyper-V Manager, select *New* under *Actions* and select *Virtual Machine...* from the options available.

Figure 2.6 New Virtual Machine Wizard



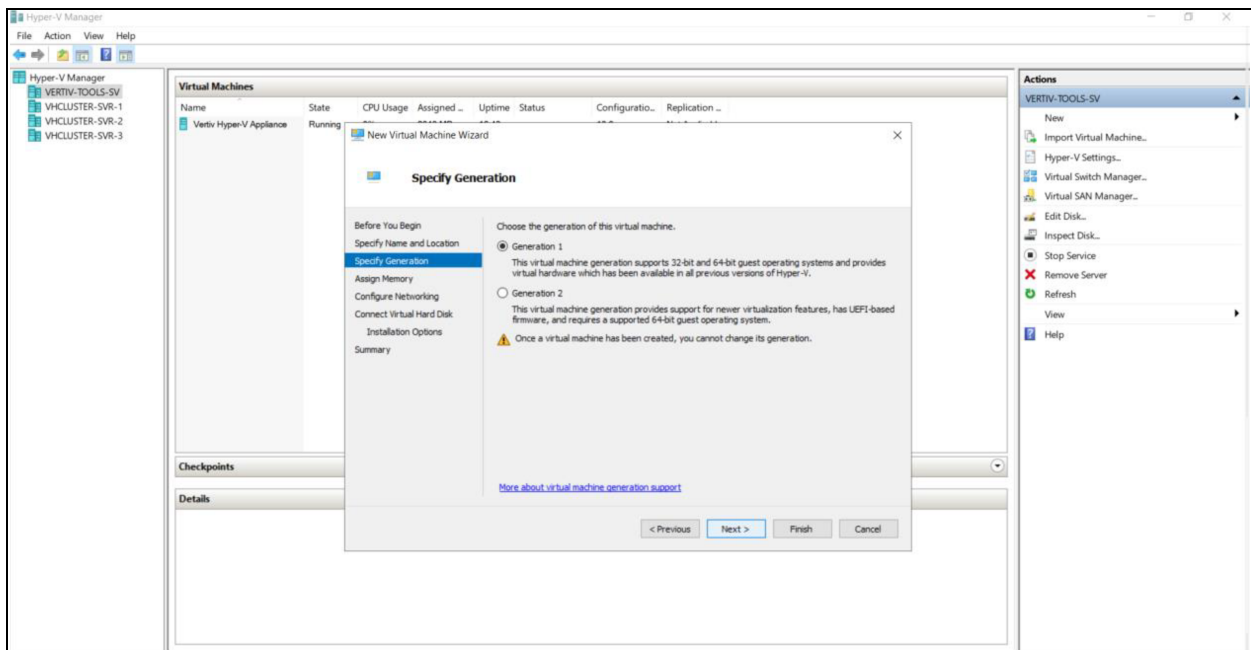
2. Click *Next*.

Figure 2.7 Virtual Machine Name and Location



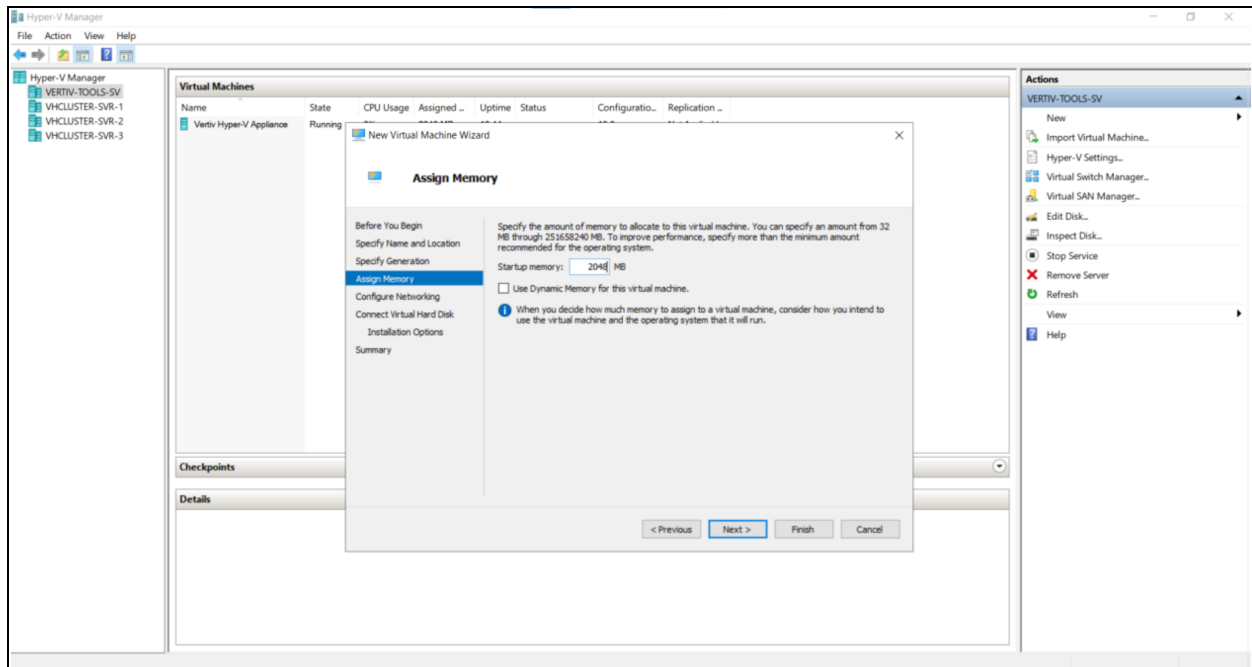
3. Specify a name for the VM and change the default location based on your requirements.

Figure 2.8 Virtual Machine Generation



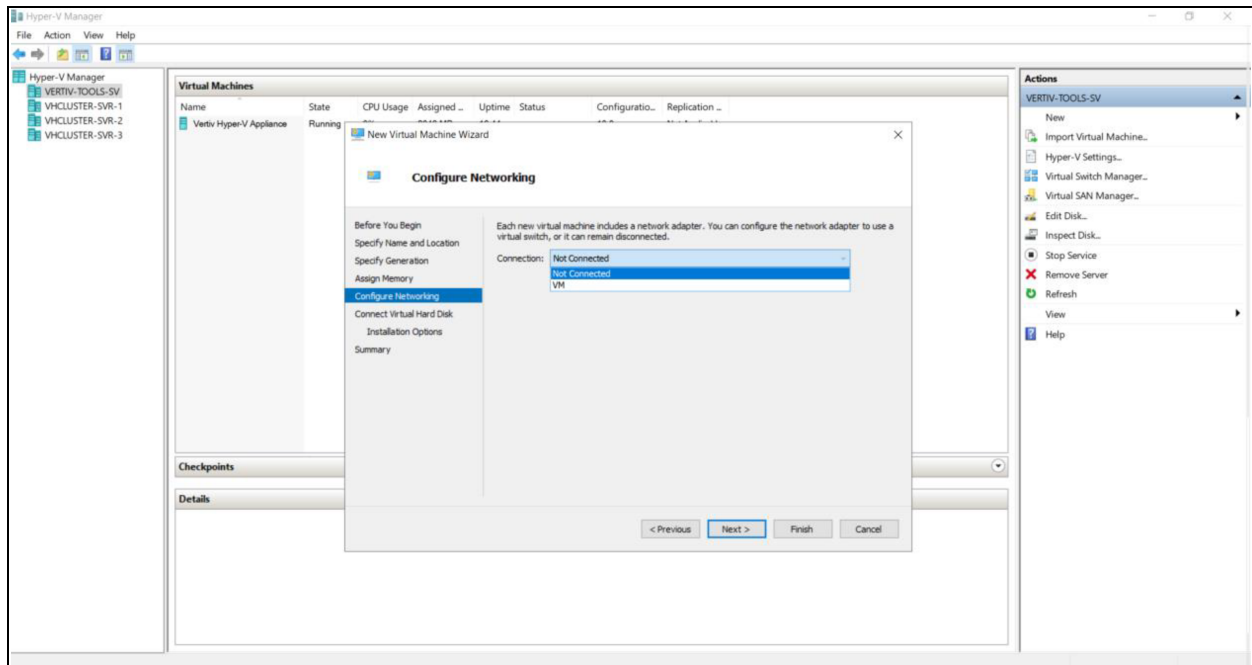
4. Select Generation 1 and click Next.

Figure 2.9 Virtual Machine Memory



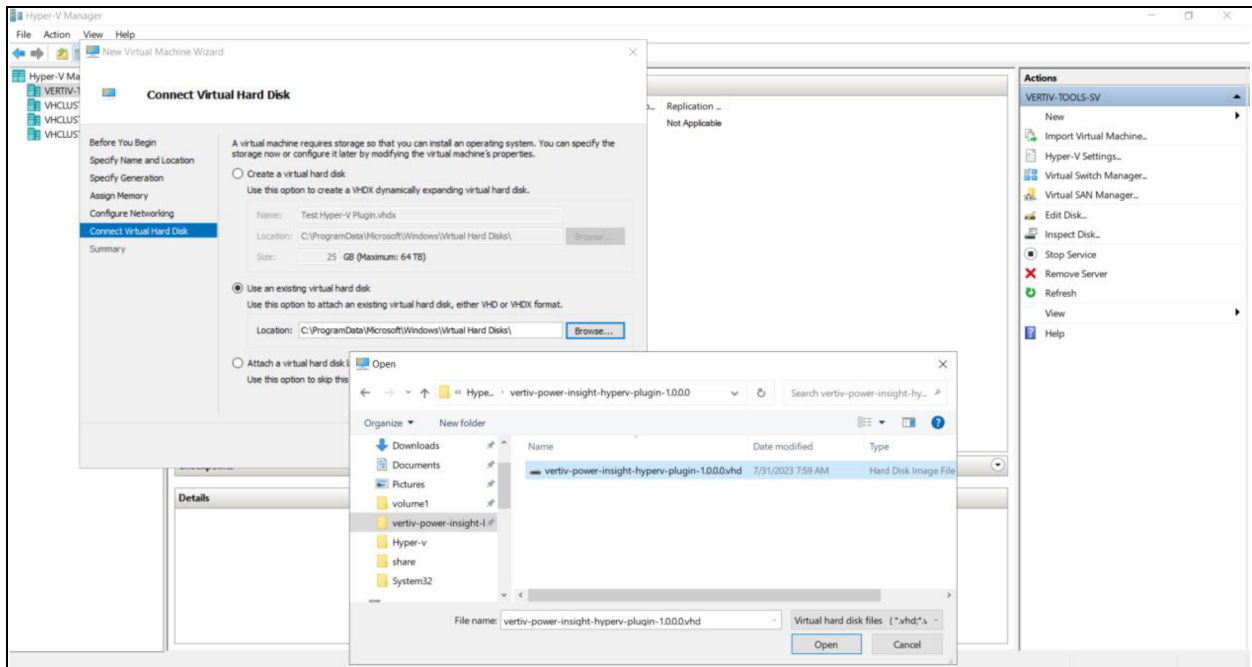
5. Assign a minimum of 2GB memory to the VM and click *Next*.

Figure 2.10 Virtual Machine Networking



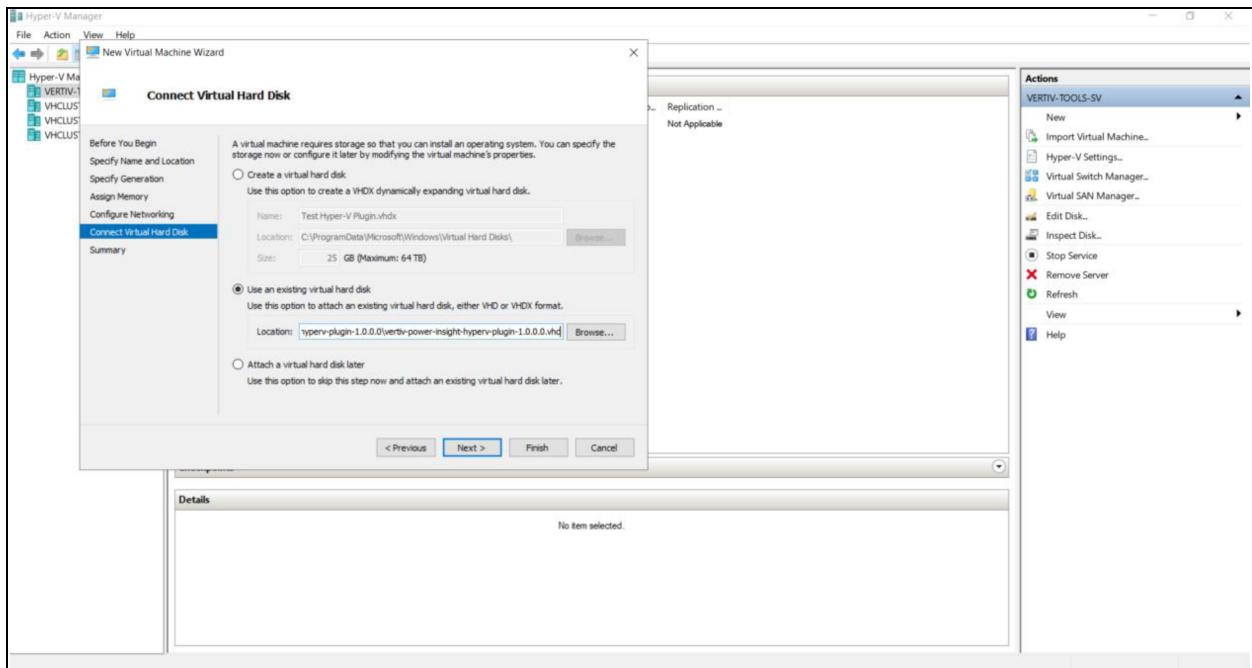
6. Attach a network interface to the VM and click *Next*.

Figure 2.11 Virtual Machine Connect Virtual Hard Disk



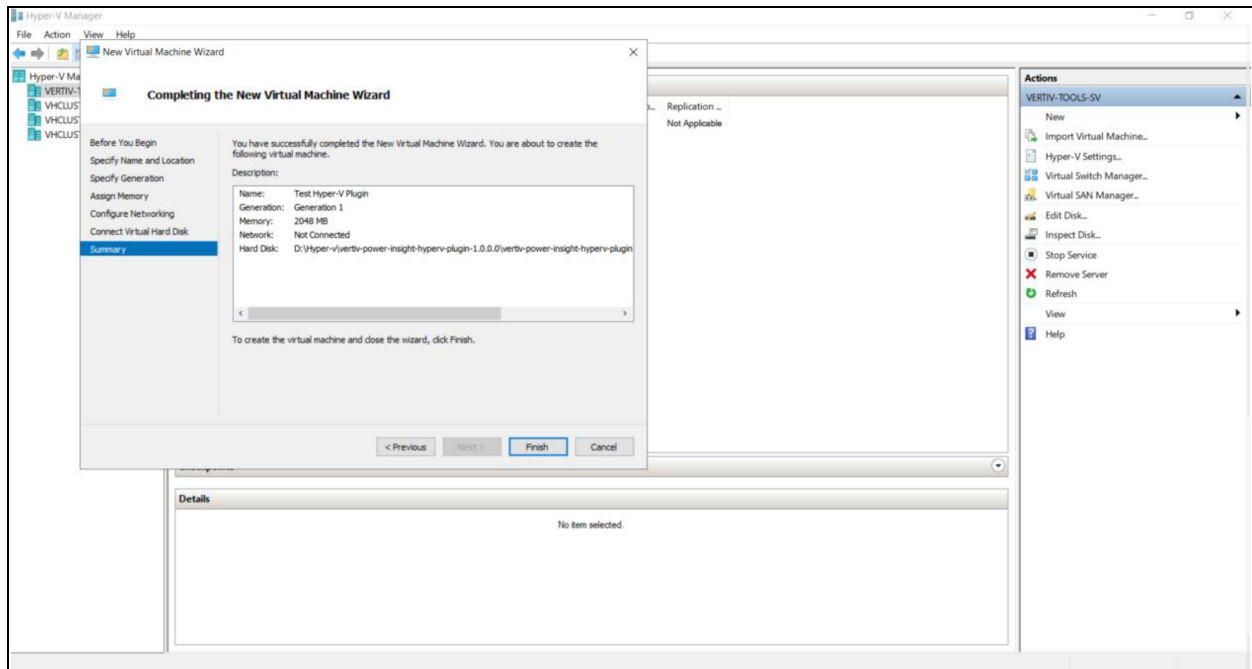
7. Instead of the default option to create a new virtual hard disk, select *Use an existing virtual hard disk* and browse to the VHD file *power-insight-hyperv-plugin-1.0.0.0.vhd* you extracted from the *power-insight-hyperv-plugin-1.0.0.0.7z* file that you downloaded from Vertiv Website. Select the VHD file and click *Open*.

Figure 2.12 Virtual Machine Select VHD



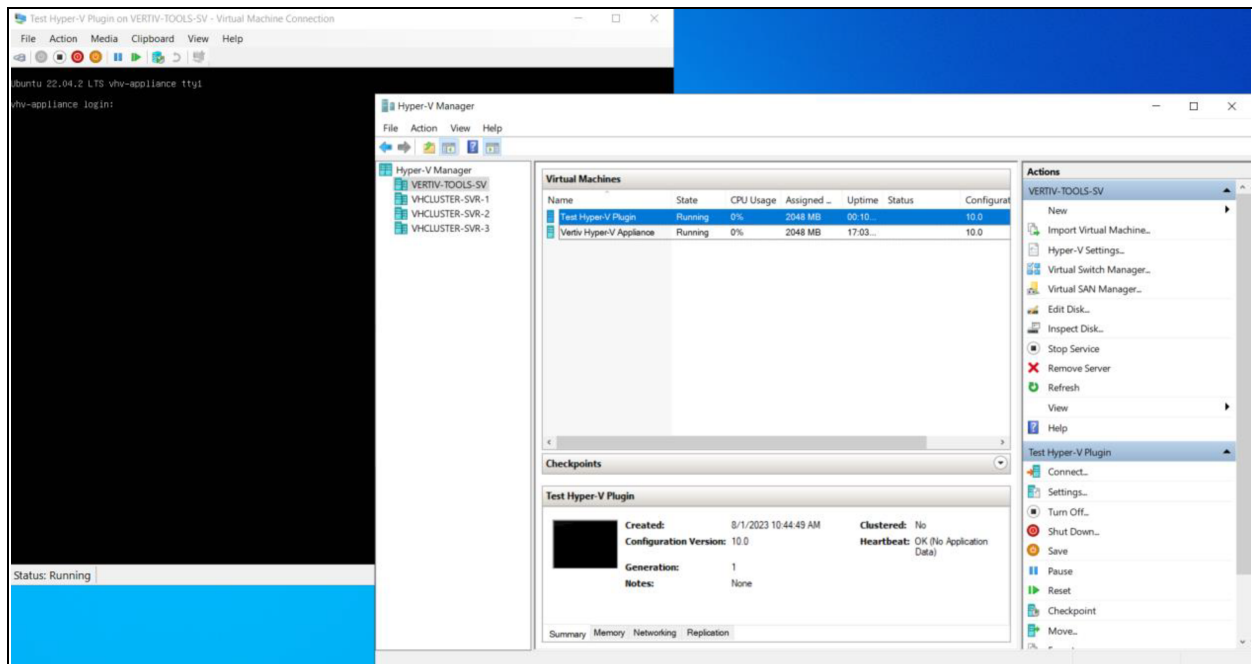
8. Selected *VHD file path* and name is populated in virtual hard disk location. Click *Next* button.

Figure 2.13 New Virtual Machine Wizard



- Review the VM configuration summary and click *Finish*. Newly created VM appears under Virtual Machines in Hyper-V Manager UI.

Figure 2.14 Start Hyper-V Plugin VM using Hyper-V Manager



- Select *VM Name* and click *Start* to power on the VM. When VM has started, use *Connect* option to connect to VM console.

Use *vertiv* as username and *vertiv-pi-ssh* as password for login. This opens Ubuntu Server shell. Assign a static IP address to the VM as well as DNS server IP address to resolve Virtualization Management Server host FQDN by modifying `/etc/netplan/00-installer-config.yaml` appropriately. Following is an example of netplan configuration file to assign `x.x.x.x/n` as static IP address, `y.y.y.y` as IPV4 gateway and `z.z.z.z` as DNS server for Hyper-V plugin VM.

```
network:
  ethernets:
    eth0:
      dhcp4: no
      addresses:
        - x.x.x.x/n
      routes:
        - to: default
          via: y.y.y.y
      nameservers:
        addresses: [z.z.z.z]
  version: 2
```

Be careful when editing yaml files as yaml is a whitespace sensitive format. Copy or paste of yaml content may result in inconsistent whitespace around yaml elements.

When all changes are made to netplan configuration file, apply the changes by executing the command.

```
sudo netplan apply
```

Verify static IP address is assigned by running the command:

```
ip address
```

If IP address is not assigned, verify network interface name from command output matches the network interface name in `/etc/netplan/00-installer-config.yaml`. Change it as necessary and apply the changes.

```
sudo netplan apply
```

When static IP address is assigned correctly, you may launch Hyper-V Plugin application. Open a web browser and enter the Hyper-V Plugin IP address to access Hyper-V Plugin UI. For example, if Hyper-V Plugin VM IP address is 1.1.2.2 then open <https://1.1.2.2/> in web browser to access login page. Refer to Hyper-V Plugin Login section for details on accessing the application.

**NOTE: Firewall (ufw) is active on Hyper-V Plugin VM and only TCP ports 22 and 443 are open out of the box.**



## 3 Application Usage

The instructions describe the screen elements of the user interface (UI).

### 3.1 Overview

Hyper-V Plugin enables Administrators to configure and automate graceful shutdown actions on Hyper-V Hosts and Clusters, based on automatic event triggers (alarms) from Vertiv's Power Devices such as low battery level of UPS.

To set up Hyper-V Plugin, follow the steps below:

1. Open Hyper-V Plugin UI and sign in with default credentials. You will be prompted to change the default password on first login.

**NOTE: It is recommended to change the default password on first login.**

2. Set up integration with SCVMM or Hyper-V virtualization management servers. Hyper-V Plugin verifies connectivity and user permissions to ensure SCVMM or Hyper-V PowerShell *command-lets* can be executed successfully with the configuration details provided.
3. Set up integration with Power Insight application. Hyper-V Plugin verifies connectivity and registers with Power Insight. This enables Hyper-V Plugin to receive alarms from Power Insight.
4. Associate UPSs with Hyper-V Hosts you would like Hyper-V Plugin to manage. When associations are set up and an alarm is received, Hyper-V Plugin uses association details to identify specific Hyper-V Hosts where graceful shutdown actions must be performed.
5. Change default timeout, delay and retry for shutdown actions and customize Hyper-V Plugin shutdown behavior to your requirements.

At this point Hyper-V Plugin is set up to receive alarms and perform graceful shutdown actions.



**WARNING! UPS associations are stored in Hyper-V Plugin configuration file `/home/vertiv/server/config.yaml`. Changing the Virtualization Management server host or Alarm Server host may render the associations invalid. For this reason, Hyper-V Plugin displays a warning when host is changed and allows associations to be cleared before setting up new Virtualization Management server and Alarm Server.**

If you do not want to perform graceful shutdown management of some clusters using Hyper-V Plugin, remove corresponding associations for all Hosts in those specific Clusters and save. These associations are removed from Hyper-V Plugin configuration file and the Clusters are essentially reverted to an un-managed state.

Graceful shutdown actions are performed in response to the four alarms received from Power Insight application.

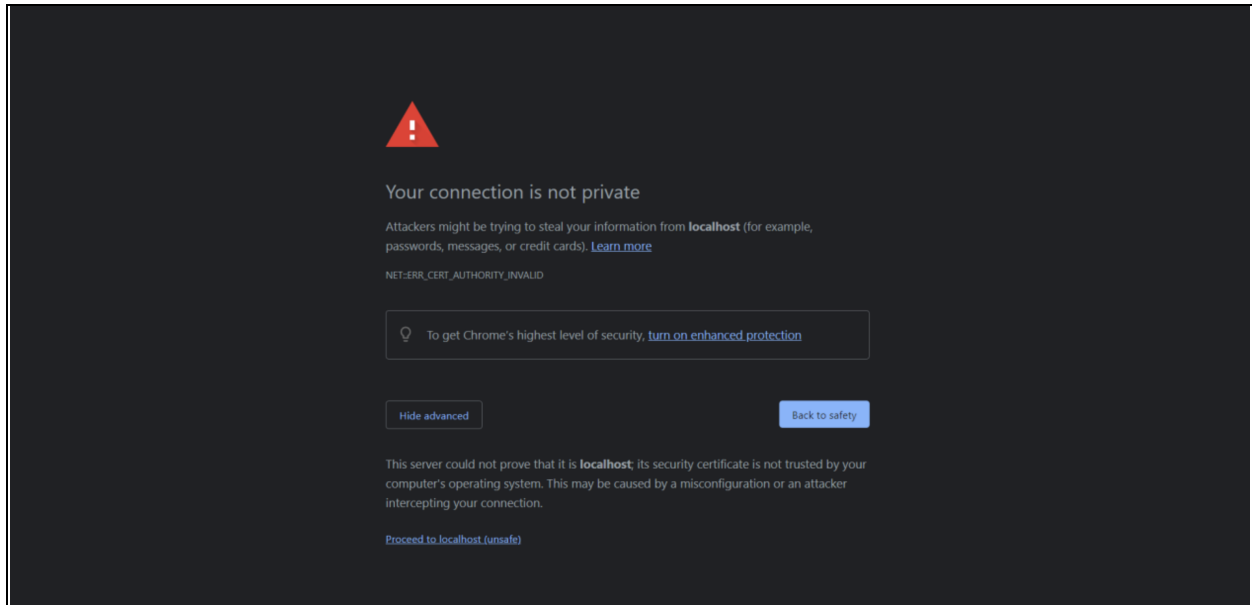
1. Trigger Event from UPS — UPS on Battery (Automatic or Manual)
2. Trigger Event from UPS — UPS Low Battery (Automatic or Manual)
3. Trigger Event from UPS — UPS Overload (Automatic or Manual)
4. Trigger Event from UPS — UPS Over Temperature (Automatic or Manual)

## 3.2 Hyper-V Plugin Login

### Login steps:

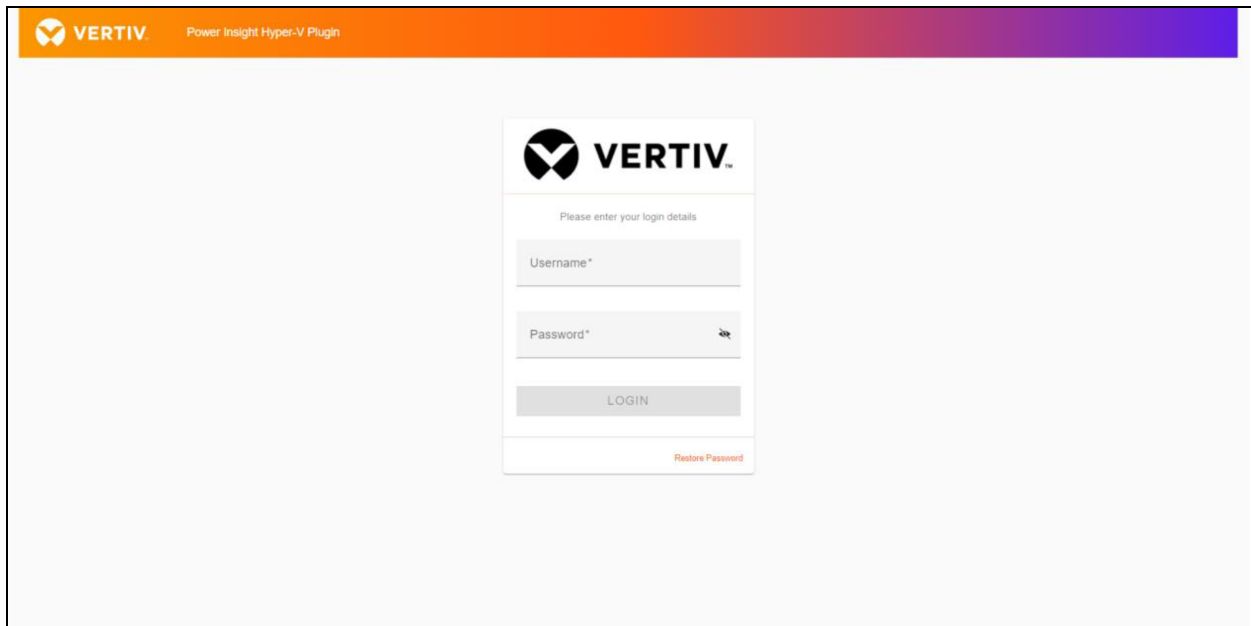
1. Open a web browser and enter the Hyper-V Plugin IP address to access Hyper-V Plugin UI. If Hyper-V Plugin VM IP address is 1.1.2.2 then open <https://1.1.2.2/> in web browser to access login page. Since Hyper-V Plugin is set up to use self-signed certificates, this generates a security warning as follows.
2. Click *Proceed* option to launch Hyper-V Plugin login page.

Figure 3.1 Launching Hyper-V Plugin



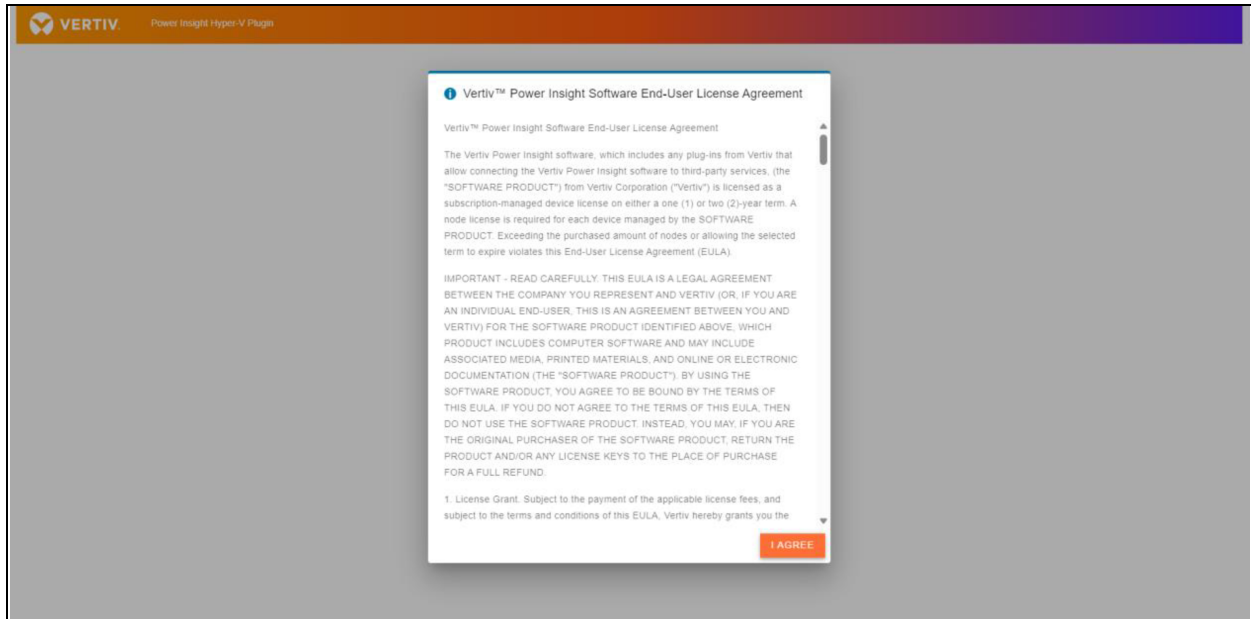
3. When login page is displayed, enter default username and password and then click *Login*. The default login credentials are.
  - a. **Default Username:** admin
  - b. **Default Password:** DefaultPassword

Figure 3.2 Hyper-V Plugin Login Page



**NOTE:** When signing in for the first time, the web interface prompts you to review and accept Vertiv™ Power Insight software license agreement.

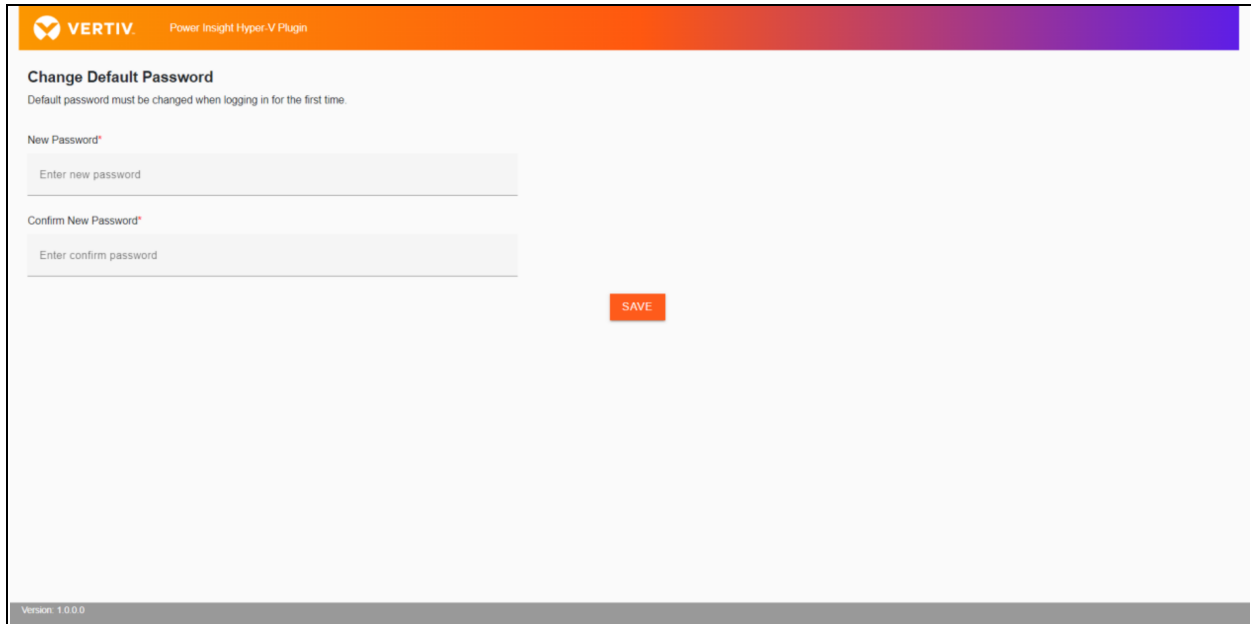
Figure 3.3 License Agreement Page



4. When you accept the license agreement you are prompted to change the default password. See **Figure 3.4** on the next page .

**NOTE:** It is recommended to change the default password on first login.

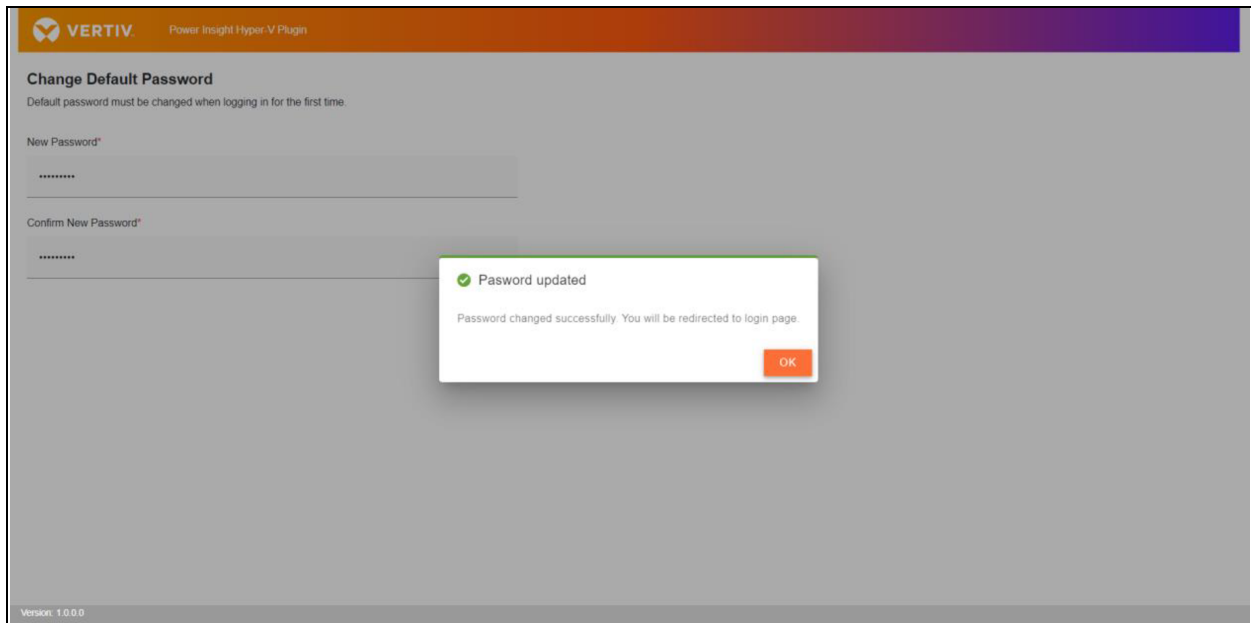
Figure 3.4 First Login Password Modification



5. Enter new password and confirm new password. See **Figure 3.5** below . Once the password is changed successfully, make sure to use the new password at next login.

**NOTE:** You cannot change the default Username.

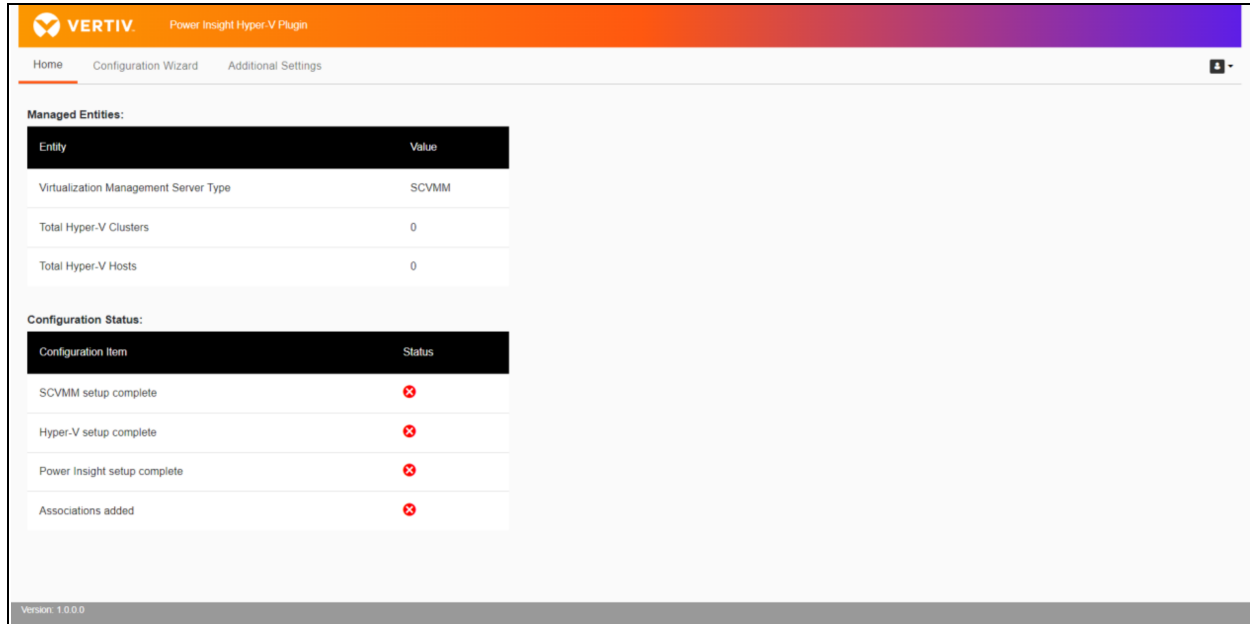
Figure 3.5 Set New Password



6. When default password is successfully changed, you will be directed to login page. Enter username and new password. After a successful login, Hyper-V Plugin Home Page is displayed with two sections to view stats and configuration status.

On first login, Configuration Wizard is available and provides a 3-step configuration experience as shown in the **Figure 3.6** below . If you successfully complete one or all 3 steps followed by a logout and login, Configuration Wizard isn't displayed anymore, and all configuration items are available as separate menu items.

**Figure 3.6 Home Page**



### 3.3 SCVMM and Hyper-V Integration

System Center Virtual Machine Manager (SCVMM) is a tool for managing and configuring virtualized data centers built on Microsoft Hyper-V and other virtualization technologies. SCVMM runs as a separate instance comprised of either a single VM or a set of VMs and acts as a centralized management tool to monitor and manage multiple clusters through a single web console.

Hyper-V Plugin integrates with SCVMM for multi-cluster management but also provides an option to manage individual Hyper-V cluster in an environment where SCVMM is not available. SCVMM and Hyper-V are available for selection as Virtualization Management servers.

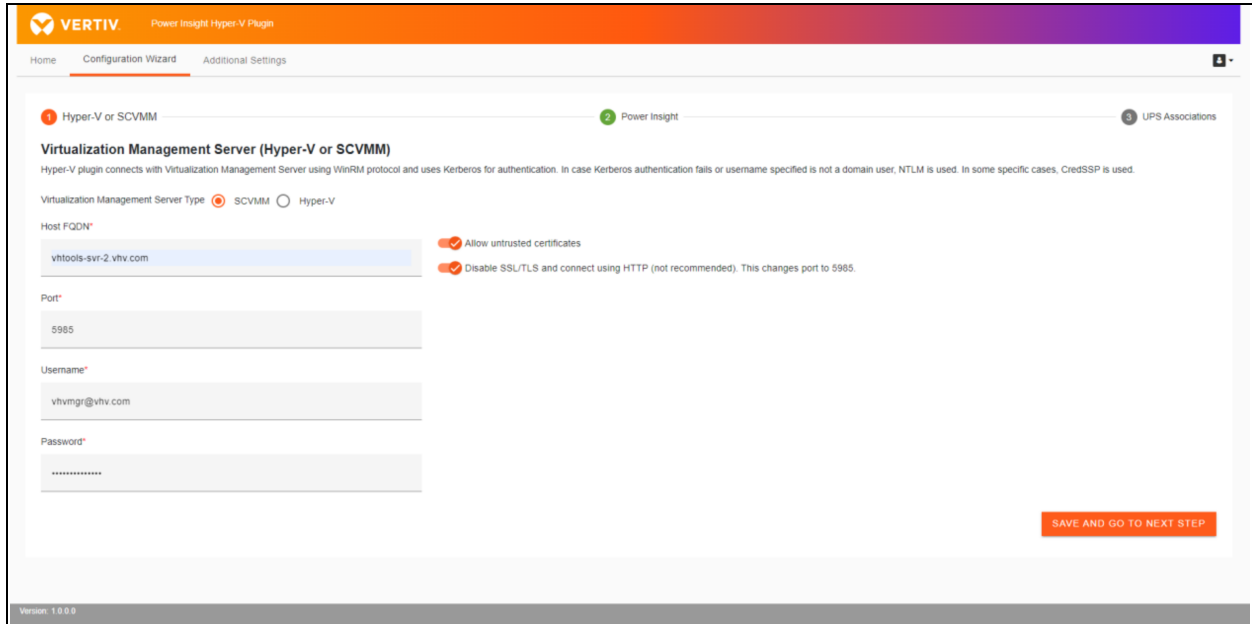
Select the correct Virtualization Management server type and fill in the fully qualified domain name of the SCVMM or Hyper-V Host, port and credentials. If you are testing the solution in a test environment and have your SCVMM or Hyper-V Hosts set up with self-signed certificates, you may enable *Allow untrusted certificates* option to avoid any certificate verification failures. If you have not configured HTTPS listeners and certificates at all then Hyper-V Plugin can be configured to connect over HTTP. This is accomplished by enabling *Disable SSL/TLS* option.

When all the details are entered, click on *Save* and go to *Next Step* button. Hyper-V Plugin connects with the Host using WinRM protocol and executes PowerShell *command-lets* over the WinRM to authenticate and verify the details. If verification is successful, all the details are saved in `/home/vertiv/vhv/server/config.yaml` except for credentials that are saved in Postgres DB instead. Credentials are saved in encrypted and salted form.

**NOTE: It is recommended that you set up SCVMM and Hyper-V Hosts with HTTPS listeners and use certificates signed by a trusted CA to ensure connections between Hyper-V Plugin and Virtualization Management servers are secure.**

**NOTE: Every time credentials are changed, a new salt is generated and used to encrypt the credentials before saving in DB.**

**Figure 3.7 Virtualization Management Server Integration**



### 3.4 Power Insight Integration

Integration with Power Insight application enables Hyper-V Plugin to receive UPS alarms from Power Insight and make REST API calls to Power Insight to retrieve list of UPSs and UPS metrics.

To complete this step, user must create API key and secret in Power Insight application and copy the details over to Hyper-V Plugin UI. In Power Insight application, browse to Settings and open Integrated Management section. Click on plus (+) icon to open the Add page. Choose the category corresponding to Hyper-V Plugin integration, enter IP address of your Hyper-V Plugin VM in Require Source Address and enter a description.

Figure 3.8 Power Insight API key and Secret

The screenshot shows the 'Add' form in the Power Insight interface. The form has a left sidebar with navigation options: ADMINISTRATION, Events, Notification Settings, System Settings, User Defined Properties, Trellis System Health, Address Book Contacts, Trust Store, and Integrated Management. The main form area is titled 'Add' and contains the following fields:

- Category:** A dropdown menu with a red 'Required' label.
- Require Sources Address:** A text input field with a red 'Required' label and a placeholder text: 'Please enter the Host Name/IP address of the plugin'.
- Description:** A text input field with a placeholder text: 'Please describe the purpose of the current operation'.

At the bottom right of the form, there are two buttons: 'CANCEL' and 'OK'.

1. Save the settings. Power Insight application will generate a unique API key and secret for you. Make note of API key, secret.

Figure 3.9 Integrated Management

The screenshot shows the 'Integrated Management' page in the Power Insight interface. The page has a search bar and a table with the following columns: COMPANY, REQUIRE SOURCES ADDRESS, API KEY, API SECRET, CREATED DATE TIME, and DESCRIPTION. The table contains three entries:

COMPANY	REQUIRE SOURCES ADDRESS	API KEY	API SECRET	CREATED DATE TIME	DESCRIPTION
VMware	10.10.10.10	18DHO...	c2b09344ed1a6ba5a7056f...	2023-07-27 09:48:04	TestVM - key3 July 27
VMware	192.168.1.1	gQfEmL...	43de27be3199fBe6890d8...	2023-07-25 19:50:35	
VMware	10.10.10.10	XqPcd...	9c44b88668ee6e496f03...	2023-06-26 17:40:42	For Testing - key2

At the bottom of the table, it says 'Showing 3 of 3 entries'.

2. In Hyper-V Plugin UI, open Power Insight Registration page and enter fully qualified domain name or IP address of Power Insight Host as well as port, username, password, API key and secret. Hyper-V Plugin authenticates with Power Insight using username and password provided. However, registration with Power Insight for the purpose of receiving alarms is performed using API key and secret. Hyper-V Plugin uses REST API for authentication and registration with Power Insight.

3. Click Save and go to next step.

**Figure 3.10 Power Insight Integration**

The screenshot displays the 'Power Insight' configuration step within the 'Vertiv Power Insight Hyper-V Plugin' interface. The page is titled 'Vertiv Power Insight Registration' and is divided into two main sections: 'Power Insight API Access' and 'Power Insight Alarm Registration'. The 'API Access' section includes fields for Host (filled with 'vertivpi.vhiv.com'), Port (filled with '8443'), Username (filled with 'admin'), and Password. The 'Alarm Registration' section includes fields for API Key (filled with '1BDhCMYe') and API Secret (masked with dots). A checkbox labeled 'Allow untrusted certificates' is checked. At the bottom, there are two buttons: 'PREVIOUS' on the left and 'SAVE AND GO TO NEXT STEP' on the right. The top navigation bar shows 'Home', 'Configuration Wizard', and 'Additional Settings'. A progress indicator at the top shows three steps: '1 Hyper-V or SCVMM', '2 Power Insight', and '3 UPS Associations', with '2 Power Insight' being the active step.

## 3.5 Specifying Associations between UPSs and Hyper-V Hosts

An Administrator specifies associations between UPSs and corresponding Hyper-V Hosts. These associations are stored in Hyper-V Plugin database. Each association uniquely identifies a Vertiv's UPS and a Hyper-V Host. When Hyper-V Plugin receives an alarm, it uses associations to identify Hyper-V Hosts affected so it can carry out graceful shutdown actions.

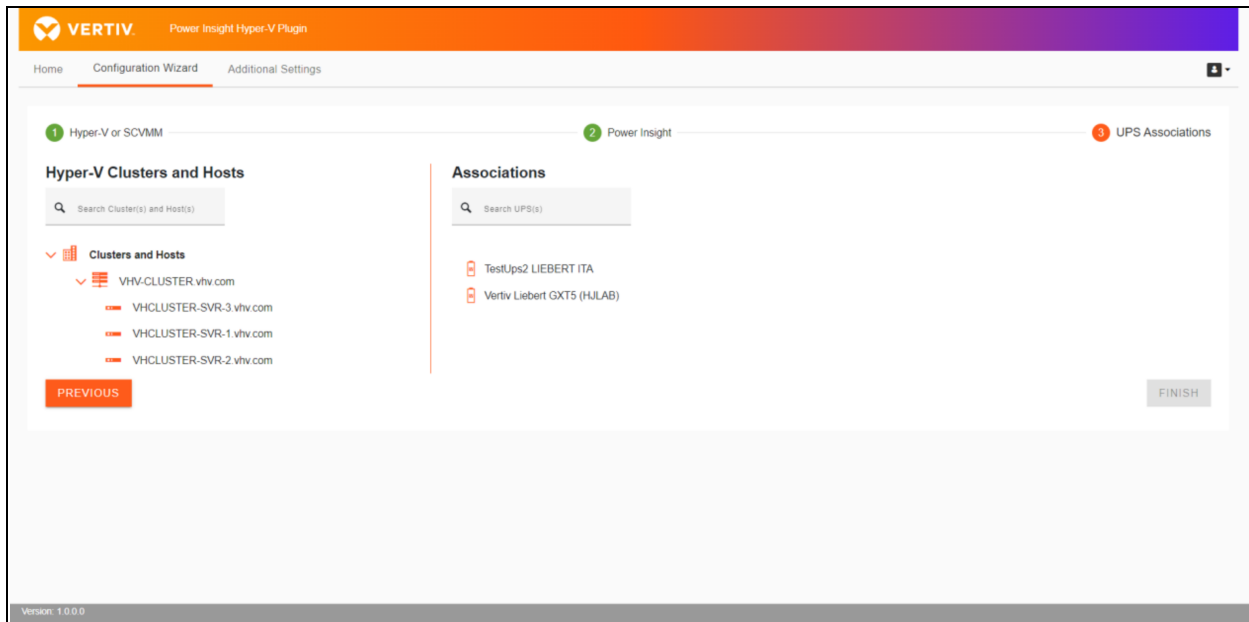
Virtualization management and alarm server integrations must be completed successfully for Hosts, Clusters and UPSs to appear in UPS associations page.

When Alarm Server Registration is completed, UPS associations page appears. If SCVMM was selected in Virtualization Management server page and multiple Hyper-V Clusters are managed by SCVMM, names of all such Clusters are populated in Hyper-V Clusters and Hosts section. However, if Hyper-V was selected the name of the corresponding Cluster is populated.

You may filter Clusters and Hosts by typing the text you want to match in the *Search Clusters and Hosts* box. You may filter UPS names by typing the text you want to match in the *Search UPSs* box.

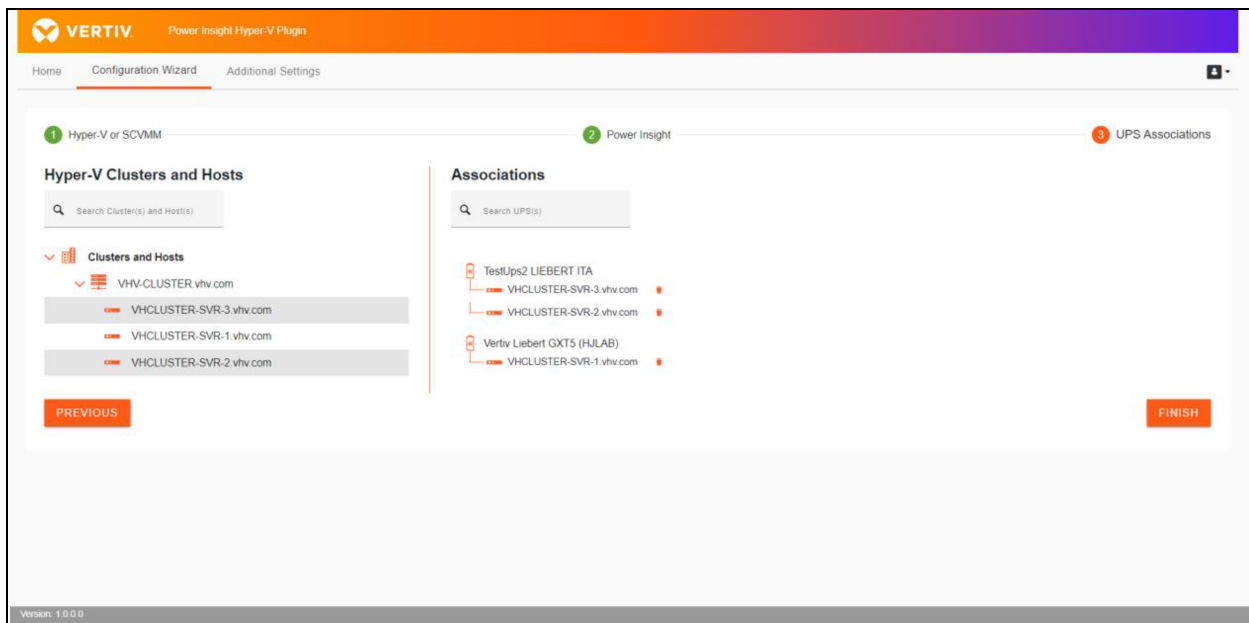


Figure 3.11 Hyper-V Hosts, Clusters and UPSs for Setting Up Associations



Hyper-V Hosts can be selected from one or more Clusters. Selected Hosts can be dragged and dropped on a UPS to create associations.

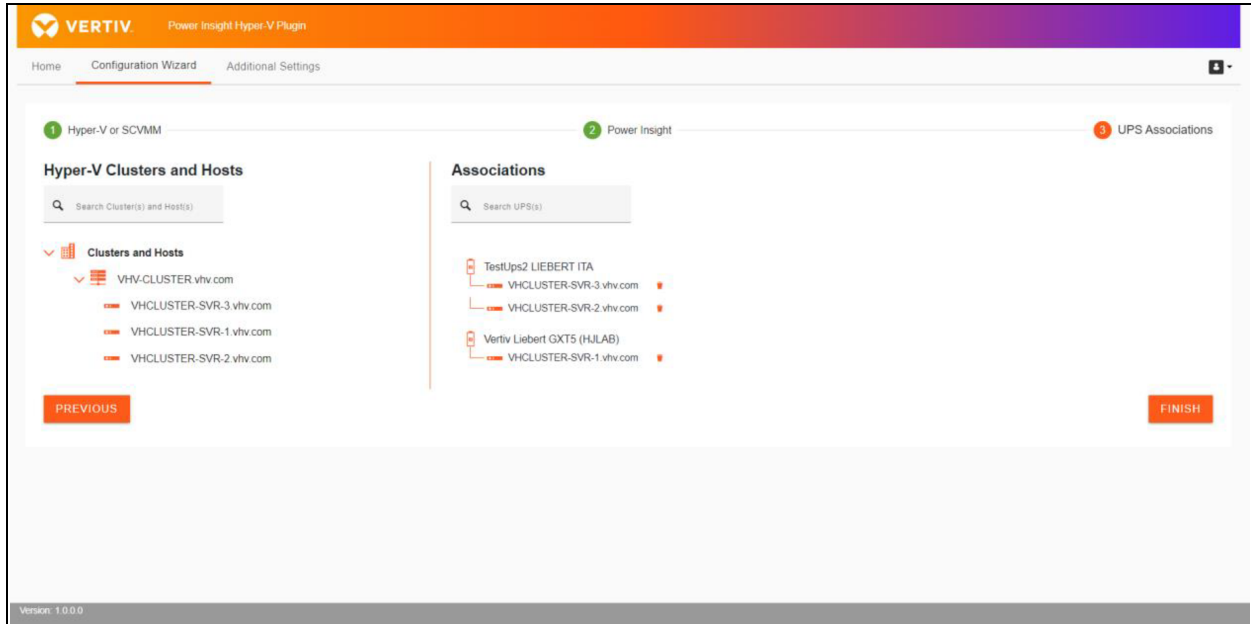
Figure 3.12 Select One or More Hosts to Associate



Associations added can be saved by clicking *Finish* button. You may revisit UPS Associations page anytime to modify, delete or add new associations. When associations are saved, Hyper-V Plugin creates a queue for each unique Cluster with associations in RabbitMQ message queue that comes pre-installed with Hyper-V Plugin virtual appliance. When an alarm is received from Power Insight, Hyper-V Plugin looks up associations and identifies each Host and Cluster affected by the alarm and deposits the alarm in RabbitMQ queue corresponding to the affected Cluster. If multiple alarms are received over time affecting the same cluster, these alarms are added in the queue and processed in a First In First Out (FIFO) manner.

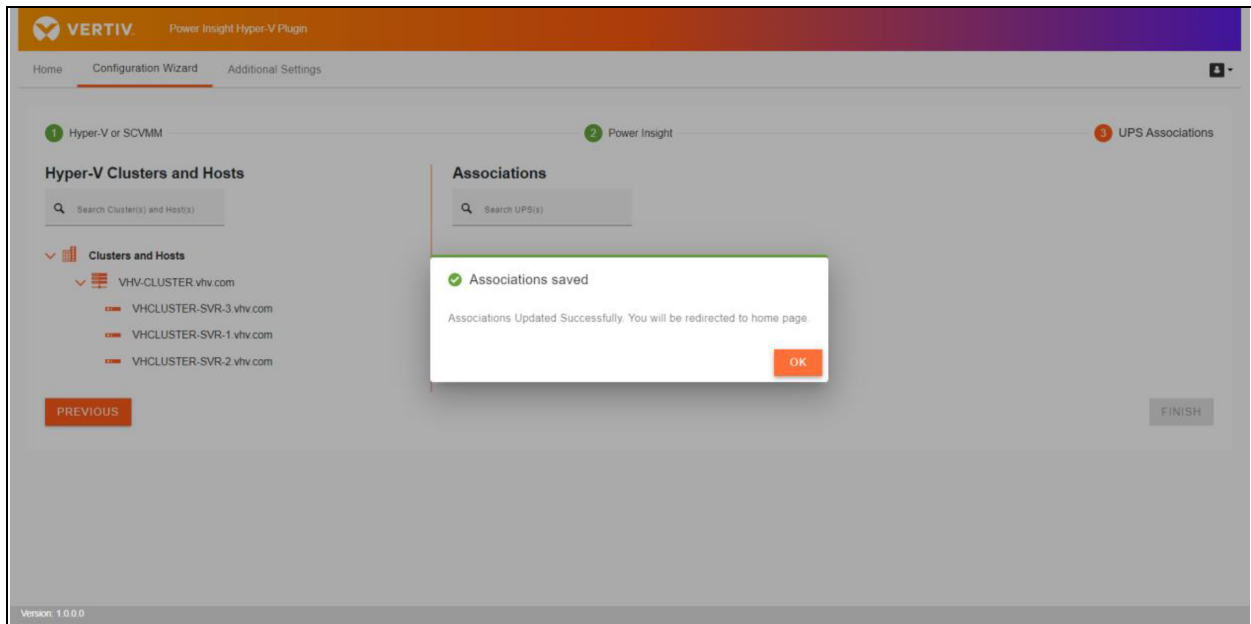
If multiple alarms are received affecting different Clusters, these are added to the corresponding RabbitMQ queues and may be processed in parallel.

**Figure 3.13 UPSs are Displayed Under Each Hyper-V Host**



Hyper-V Plugin keeps track of changes made in associations and allows associations to be applied only if changes are detected since the last time associations were applied.

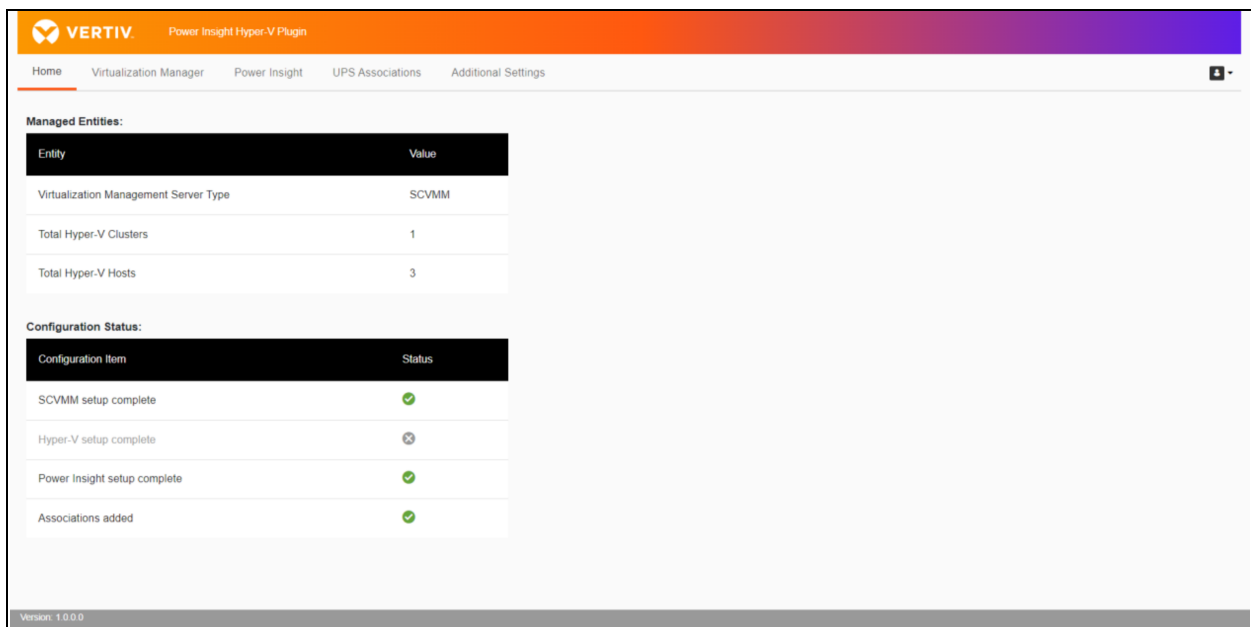
Figure 3.14 Save Associations



When associations are successfully saved, home page is opened. In Management Entities section, Hyper-V Cluster and Host statistics are displayed. This serves as a handy reference to the total number of Clusters and Hosts managed by Hyper-V Plugin.

Configuration Status provides a quick overview of configurations successfully completed.

Figure 3.15 Entity Management and Configuration Status



**NOTE: If you no longer wish to perform graceful shutdown management of a specific Hyper-V cluster, delete associations from all hosts of the specific cluster and click Save. This action deletes associations from Hyper-V Plugin configuration and removes the queue allocated for the cluster in RabbitMQ. Essentially, as far as Hyper-V Plugin is concerned, the cluster is reverted to an unmanaged state.**

**Figure 3.16 Additional Settings**

The screenshot displays the 'Additional Settings' page in the Vertiv Power Insight Hyper-V Plugin interface. The page is organized into three main sections: 'Timeout (seconds)', 'Delay (seconds)', and 'VM Shutdown'. Each section contains input fields for configuration values and a help icon (i). At the bottom, there are buttons for 'RESET TO DEFAULT' and 'SAVE'. The 'Version: 1.0.0.0' is displayed in the footer.

Section	Setting	Value
Timeout (seconds)	VM Shutdown	60
	Cluster Stop	180
	Cluster Node Stop	120
Delay (seconds)	Alarm Processing Start	0
	Alarm Processing End	0
VM Shutdown	Default Action	Shutdown (Selected)
	Buttons	Save, Shutdown, RESET TO DEFAULT, SAVE

Additional Settings allow administrators to customize graceful shutdown behavior based on their environment. Hover over the information (i) icon to see more details on some of the settings.

Hyper-V Plugin uses the values in Timeout section to determine how long it should monitor specific tasks in the graceful shutdown sequence. Hyper-V Plugin monitors the task for the configured duration and logs success or failure of the task before moving on to the next task in sequence. If the task does not complete within the configured duration, Hyper-V Plugin moves to execute the next task. If the task completes within the configured duration, Hyper-V Plugin adds the status in log file and immediately moves to execute the next task.

Alarm processing start delay determines the duration Hyper-V Plugin must wait before initiating shutdown activities for Hosts in a specific Cluster. Alarm processing end delay determines the duration Hyper-V Plugin must wait at the end of shutdown activity. This acts as a cooldown period between shutdown activities on the same Cluster.

Hyper-V Plugin retries any Virtualization Management server operations. Number of retries and delay between retries is determined by Virtualization server unreachable and Virtualization server delay configuration.

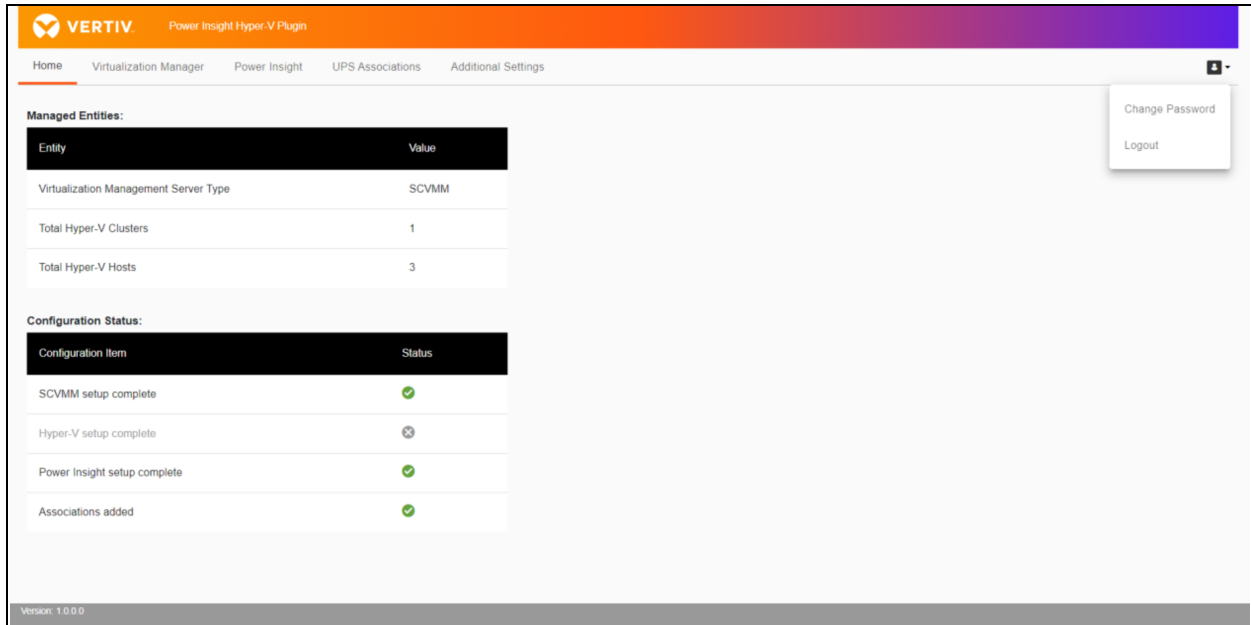
When all Hosts in a Cluster must be gracefully shutdown, Hyper-V Plugin VM Shutdown default action to determine whether to shut down or save every Guest VM.

## 3.6 Changing Password

To change password for admin user, follow the below steps

1. Click *Change Password* link in Hyper-V Plugin menu.

Figure 3.17 Change Password Menu Option



2. Enter current password, new password and then re-type new password.

Figure 3.18 Change Password

The screenshot shows the 'Change Password' form in the Vertiv Power Insight Hyper-V Plugin interface. The form includes three input fields: 'Current Password\*', 'New Password\*', and 'Confirm New Password\*'. A 'SAVE' button is located at the bottom right of the form.

Version: 1.0.0.0

3. Click Save.

**NOTE: It is recommended to change the default password on first login.**

### 3.7 Restoring the Default Password

If you forgot your login password, you may restore the password to its factory default value of *DefaultPassword* in order to access the Hyper-V Plugin application.

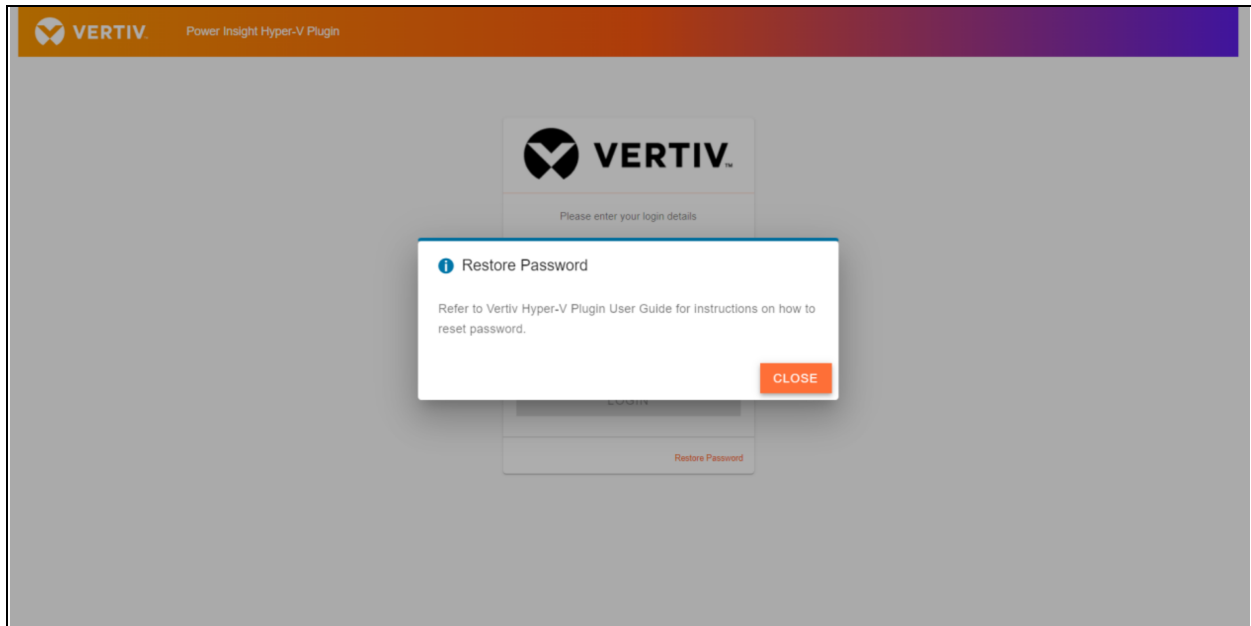
**Steps to restore password:**

1. Use an SSH client to connect with Hyper-V Plugin VM. Username is *vertiv* and the default password is *vertiv-pi-ssh*. It is highly recommended that you change the default password when setting up Hyper-V Plugin virtual appliance for the first time and subsequently based on your organizational policy.
2. Once connected, change directory to */home/vertiv/vhv/server*.
3. From */home/vertiv/vhv/server*, execute the script *reset-password.sh*. This script creates a temporary reset password marker file *resetpluginpassword* and restarts Hyper-V Plugin. On startup Hyper-V Plugin code detects the marker file and resets the password to its default value *DefaultPassword* and deletes the marker file.

**NOTE: Since reset password script restarts Hyper-V Plugin, it may abort any ongoing graceful shutdown actions hence it is preferable to carry out this action during a maintenance window to avoid disrupting any ongoing graceful shutdown actions.**

**NOTE: The Restore Password option in the Login page does not actually restore password. It only serves as a reminder to refer to this user guide for detailed steps when you wish to reset your password.**

**Figure 3.19 Reset Password**



## 4 Troubleshooting

### 4.1 Virtualization Management Server Errors

**Error: Failed to save Virtualization Management Server configuration: The host or port you entered is incorrect.**

**Resolution:** Check the FQDN of the Virtualization Management Server for any typos. Verify DNS server is set up on Hyper-V Plugin VM and DNS resolution of the Host FQDN works correctly.

Verify WinRM listeners for HTTPS and/or HTTP as well as Kerberos, NTLM and CredSSP authentication schemes are enabled.

This error may also occur if Virtualization Management Server ports are blocked by network or Host firewall. Default ports used are 5985 for HTTP and 5986 for HTTPS. PowerShell Test-NetConnection *command-let* comes in handy when verifying TCP/IP connectivity from a Windows computer.

**Error: Failed to save Virtualization Server configuration: The username or password you entered is incorrect.**

**Resolution:** Verify username and password of the domain user entered are correct and the account is enabled. PowerShell Invoke-Command *command-let* comes in handy when verifying domain user credentials from a Windows computer.

### 4.2 Alarm Server Errors

**Error: Failed to save PowerInsight server configuration: The host or port you entered is incorrect.**

**Resolution:** Check the FQDN of PowerInsight Server for any typos. Verify DNS server is set up on Hyper-V Plugin VM and DNS resolution of the Host FQDN works correctly. If you are using IP address instead, verify connectivity using the IP address and ensure PowerInsight port is not blocked by network or Host firewall.

**Error: Failed to save PowerInsight server configuration: The username or password you entered is incorrect.**

**Resolution:** Verify PowerInsight username and password by attempting a login using the same credentials directly in PowerInsight application.

**Error: Failed to save PowerInsight server configuration: API key or secret you entered is incorrect.**

**Resolution:** Check if API key and secret are deleted in PowerInsight application and verify there were no typos during copy/paste of the key and secret. If the problem persists, create a new API key and specify in Alarm Server configuration.

### 4.3 Associations Errors

Verify Virtualization Management Server and Alarm Server are set up and running. Errors can occur when opening Associations page if Hyper-V Plugin is unable to connect with Virtualization Management Server or Alarm Server. If servers are up and running correctly and connectivity is not a problem, check credentials configured in Hyper-V Plugin are still valid.

### 4.4 Uninstall Hyper-V Plugin

If you created a service account in Microsoft Active Directory specifically for use in Hyper-V Plugin and added it in Virtualization Management server integration, you may delete or disable it in Active Directory.

If you created Power Insight API key and secret and added these in Hyper-V Plugin Power Insight integration section, open Power Insight application, browse to Integration Management section and delete the API key and secret.

Shutdown Hyper-V Plugin VM and delete the virtual machine.

## 4.5 Multiple Hyper-V Plugin Instances

If you need to use two Hyper-V Plugin instances, it may happen that the IP addresses of the two virtual machines running the Hyper-V Plugins are the same. Run the following command to reset the IP address.

```
echo -n > /etc/machine-id
```

```
systemd-machine-id-setup
```



# Appendices

## Appendix A: Technical Support and Contacts

### A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2378

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

### A.2 Locations

#### United States

Vertiv Headquarters

505 N Cleveland Ave

Westerville, OH 43082

#### Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

#### Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road, Wanchai

Hong Kong

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