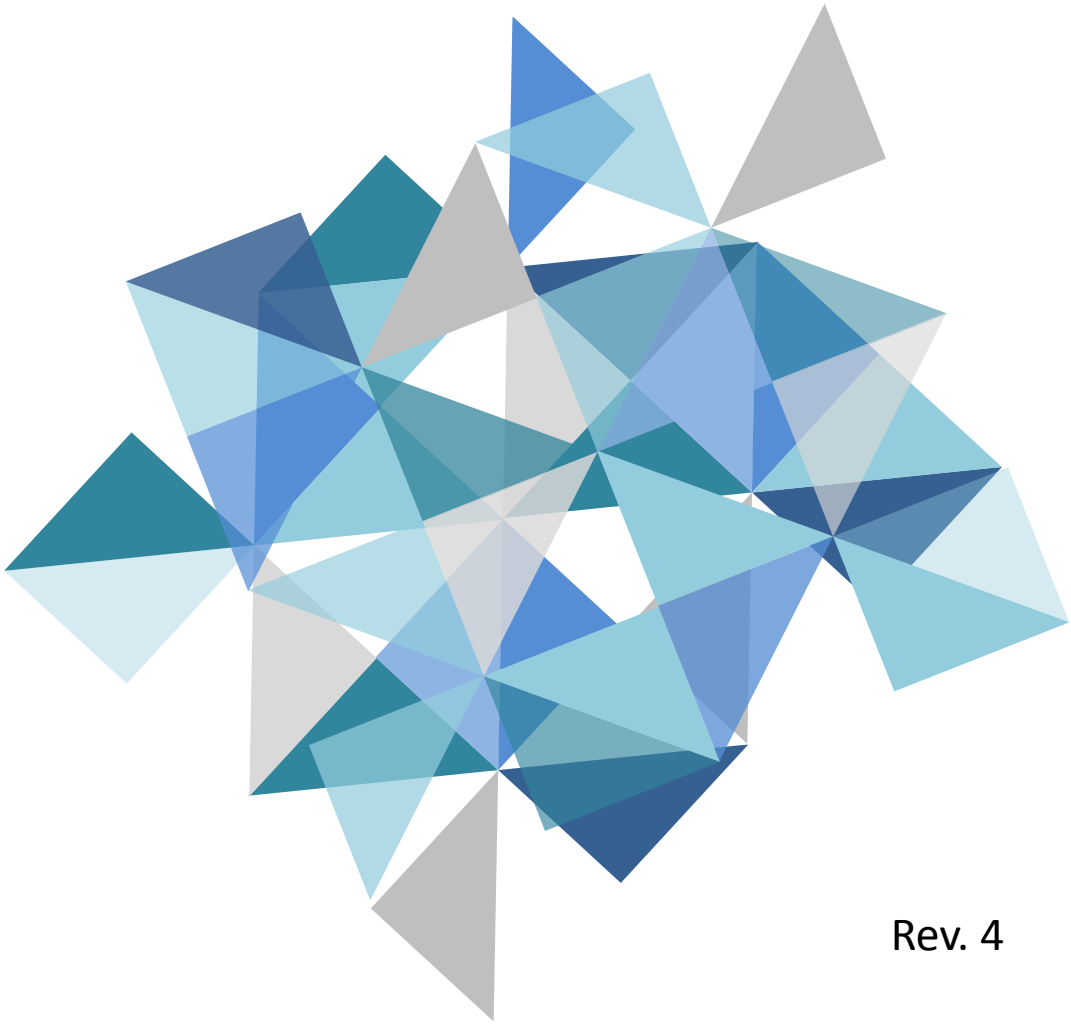
CyberPower

PowerPanel Business® (PPB) on VMware vSphere ESXi Servers

Installation Guide

--- for PowerPanel Business



Rev. 4

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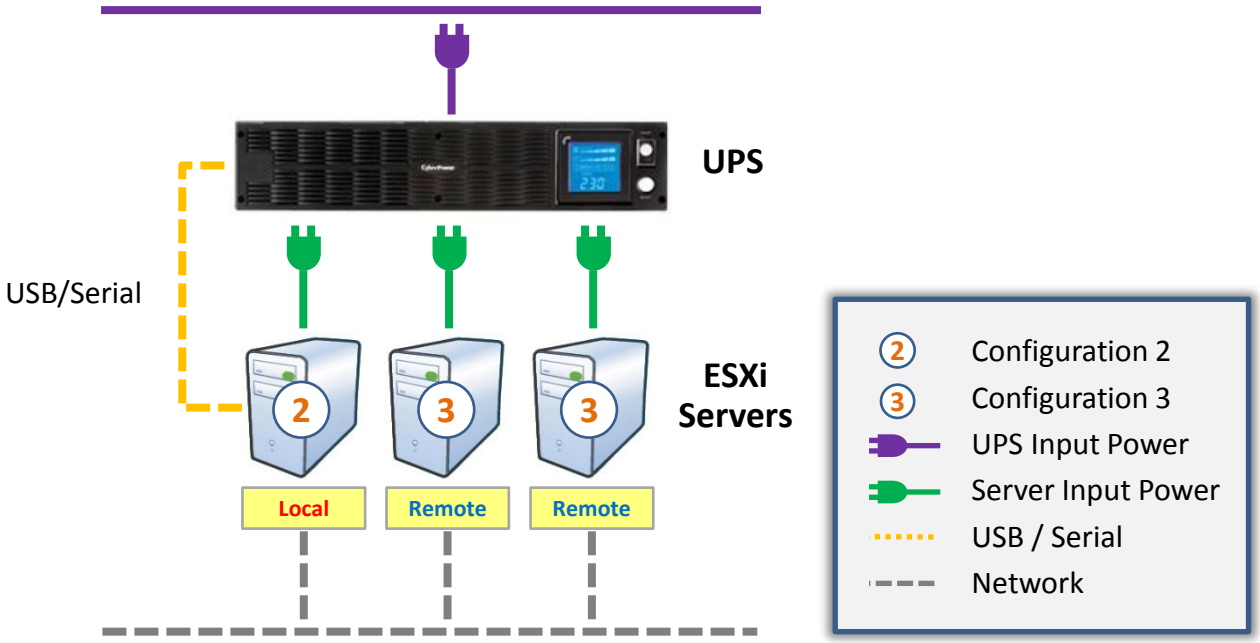
1. APPLICABLE SCENARIOS

Scenario 1 – UPS without RMCARD

Scenario 1 is recommended if:

- You have a single UPS with less than 3 ESXi servers.
- Your UPS does **NOT** have an RMCARD installed.
- You do not need central monitoring so you won't install PPB Management.



PPB Virtual Appliance (VA) Local needs to be installed in only one of the ESXi servers, the rest of the ESXi servers need to have PPB Virtual Appliance (VA) Remote installed.

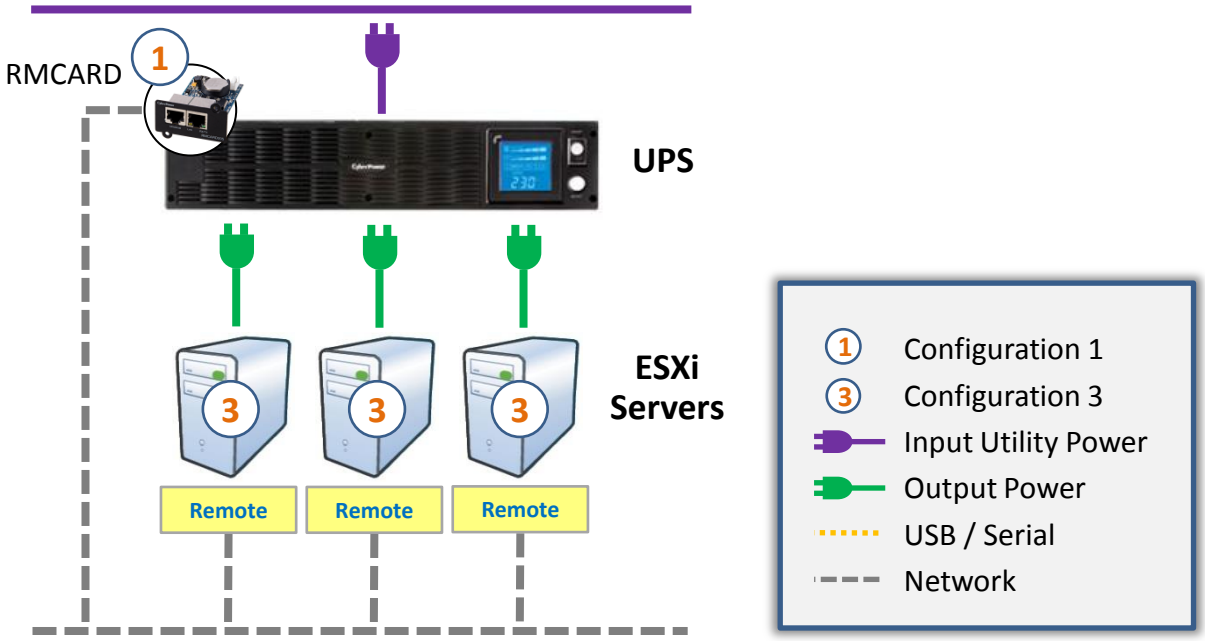
Please refer to Configuration 2 and 3 for the installation and configuration details of PPB VA Local and Remote.

1. APPLICABLE SCENARIOS

Scenario 2 – UPS with RMCARD

Scenario 2 is recommended if:

- You have a single UPS with less than 3 ESXi servers.
- Your UPS has an RMCARD installed.
- You do not need central monitoring so you won't install PPB Management.



All ESXi servers need to have PPB VA Remote installed.

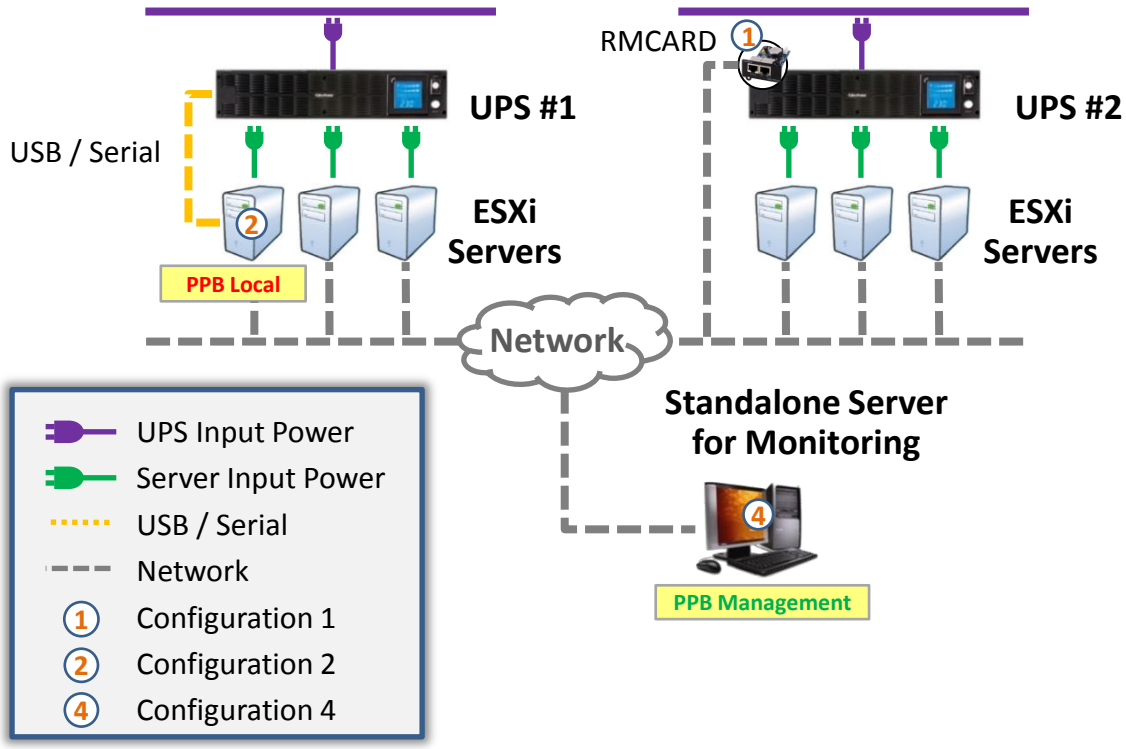
Please refer to Configuration 1 and 3 for the installation and configuration details of the RMCARD and PPB VA Remote.

1. APPLICABLE SCENARIOS

Scenario 3 – UPS (with/without RMCARD) + PPB Management

Scenario 3 is recommended if:

- You have multiple UPSs or more than 3 ESXi servers.
- You do NOT have VMware vCenter server.
- You will install PPB Management for central monitoring (RECOMMENDED).



- With PPB Management, **if UPS is without RMCARD** like UPS #1, only one ESXi server needs to have PPB VA Local installed, and other ESXi servers DO NOT need to have PPB VA Remote installed.
- With PPB Management, **if UPS is with RMCARD** like UPS #2, NONE of the ESXi servers need to have PPB VA Remote installed.

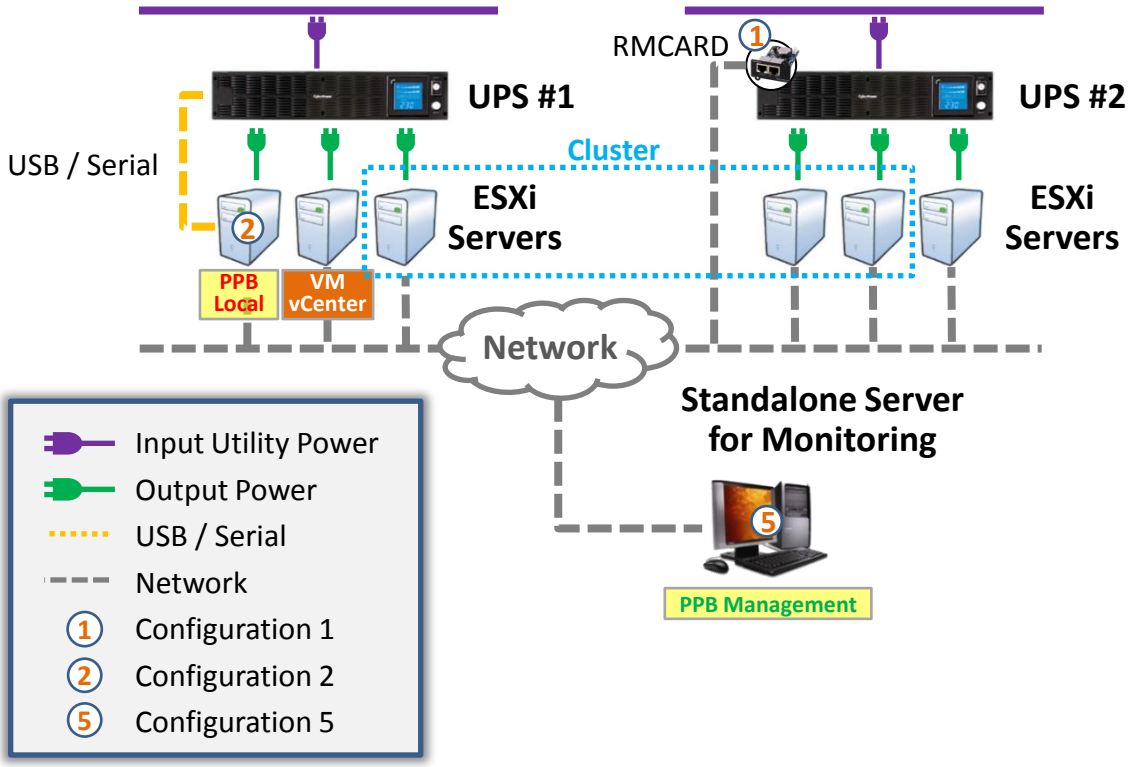
Please refer to Configuration 1, 2, and 4 for the installation and configuration details of the RMCARD, PPB VA Local, and PPB Management.

1. APPLICABLE SCENARIOS

Scenario 4 – UPS (with/without RMCARD) + PPB Management + VMware vCenter

Scenario 4 is recommended if:

- You have multiple UPSs or more than 3 ESXi servers.
- You have VMware vCenter server.
- You will/may have a cluster of ESXi hosts.



- With PPB Management, **if UPS is without RMCARD** like UPS #1, only one ESXi server needs to have PPB VA Local installed, and other ESXi servers DO NOT need to have PPB VA Remote installed.
- With PPB Management, **if UPS is with RMCARD** like UPS #2, NONE of the ESXi servers need to have PPB VA Remote installed.

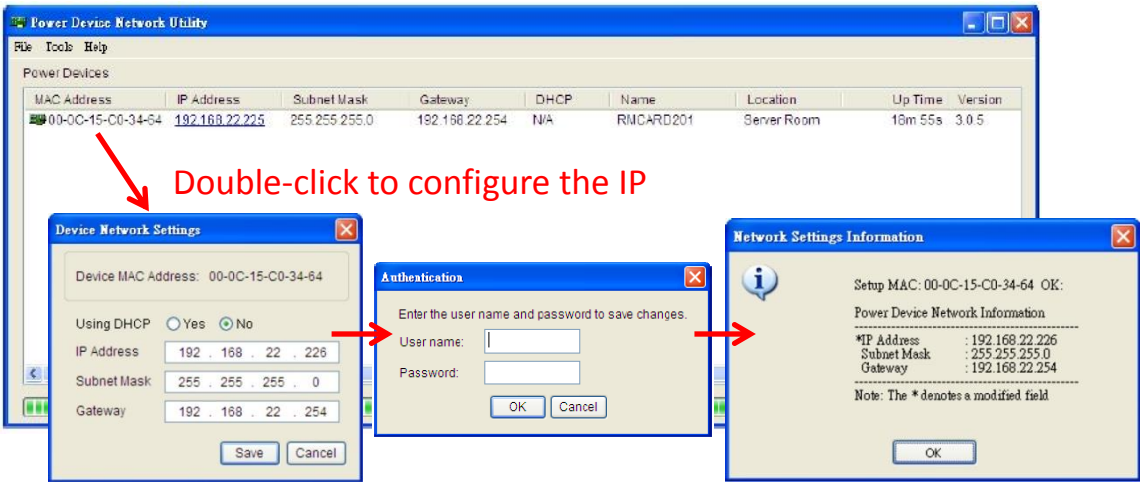
Please refer to Configuration 1, 2, and 5 for the installation and configuration details of the RMCARD, PPB VA Local, and PPB Management.

2. CONFIGURATION 1

Install RMCARD on UPS

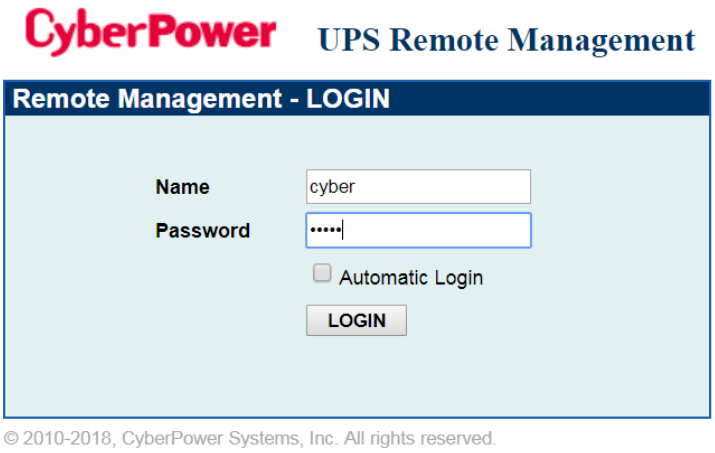
1. Download “Power Device Network Utility” tool from CyberPower official website and use it to discover the RMCARD on your network. Assign a static IP address if necessary.

You will need to enter a username and password for authentication when you modify the IP address. Default Username/Password for authentication is **cyber/cyber**.

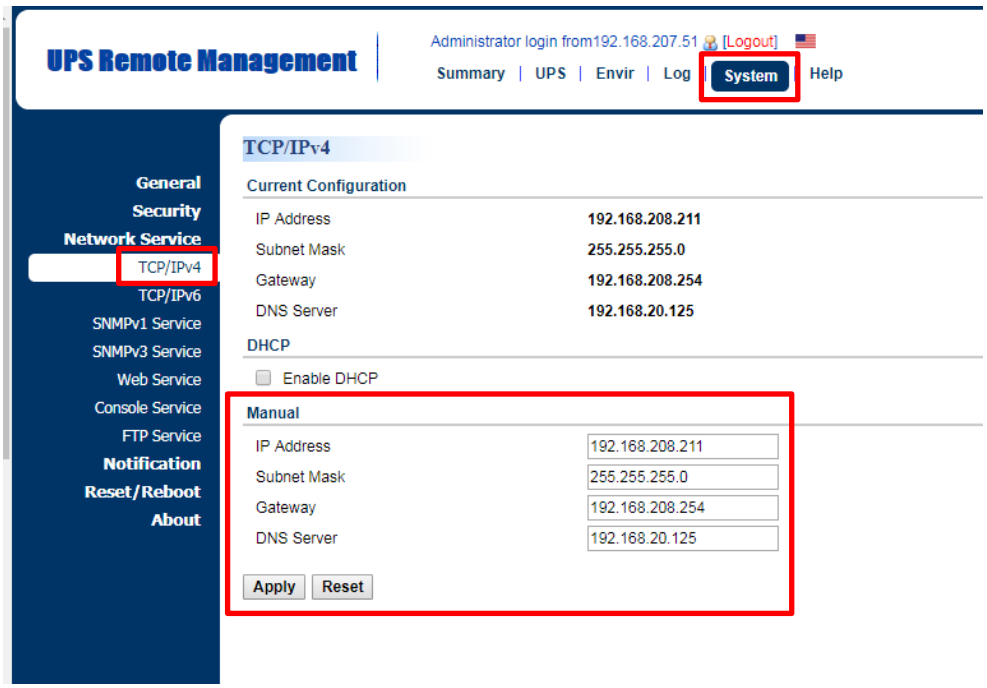


2. CONFIGURATION 1

2. Log on to the web interface of the RMCARD by directing your web browser to its IP address from step 1. Default login Username/Password is **cyber**/**cyber**.



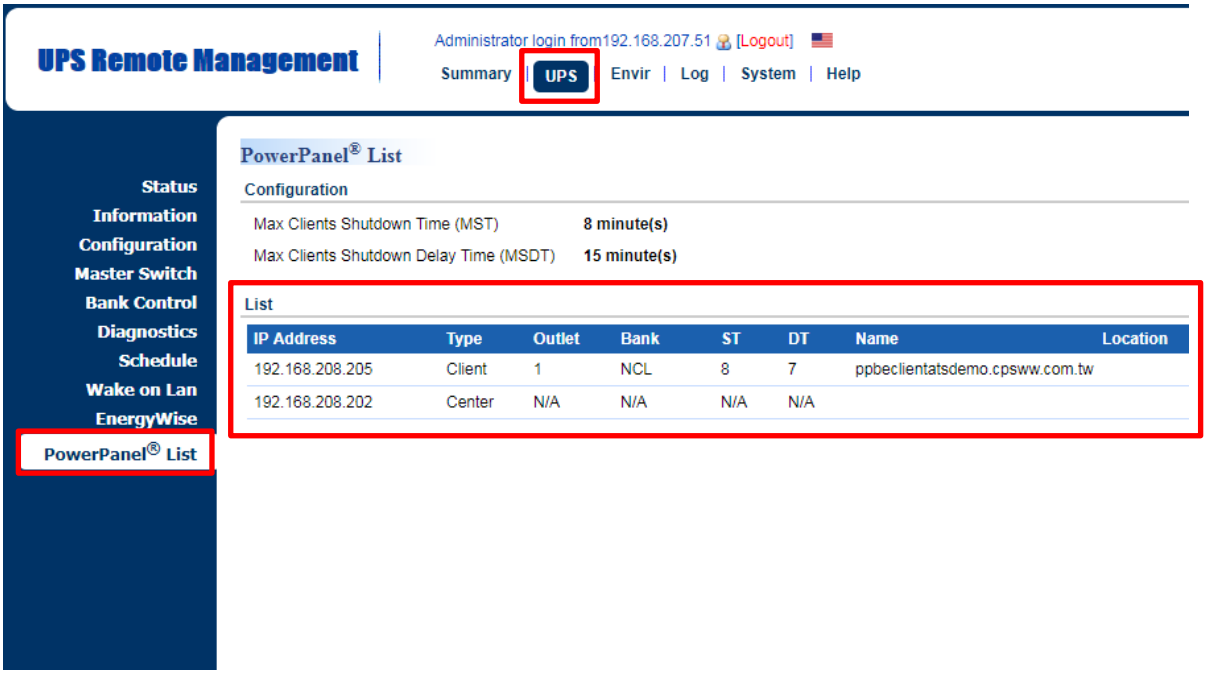
3. You can check if your new IP address is correct in web interface.
Go to **System** → **TCP/IPv4** → **Manual** section.
You can modify or re-assign another IP address if necessary.



2. CONFIGURATION 1

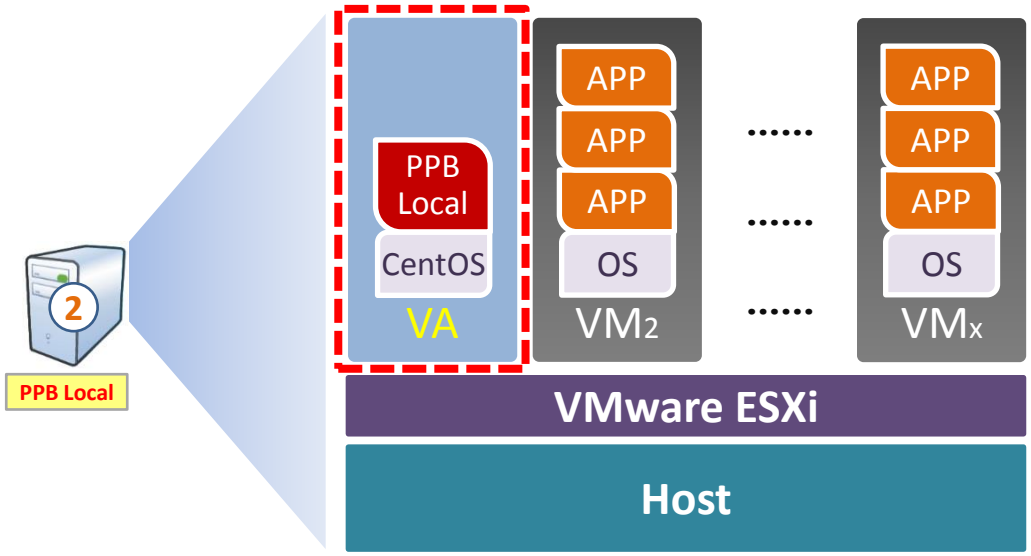
4. If the ESXi host with PPB VA Remote installed (and powered by this UPS) has been setup correctly, it will be displayed on the **UPS → PowerPanel List** screen.

After all installation and configuration are done, you can return to check if all ESXi hosts with PPB VA Remote are displayed on the list.

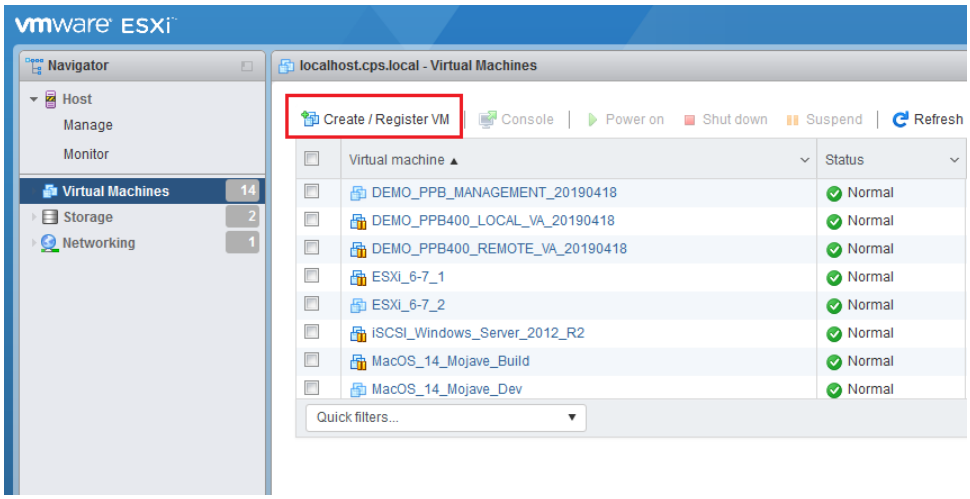


2. CONFIGURATION 2

Install PPB VA Local



1. Download the latest version of **PPB Local Virtual Appliance** from CyberPower official website.
2. Launch the vSphere Web Client. Deploy the virtual appliance from **Virtual Machines → Create / Register VM.**

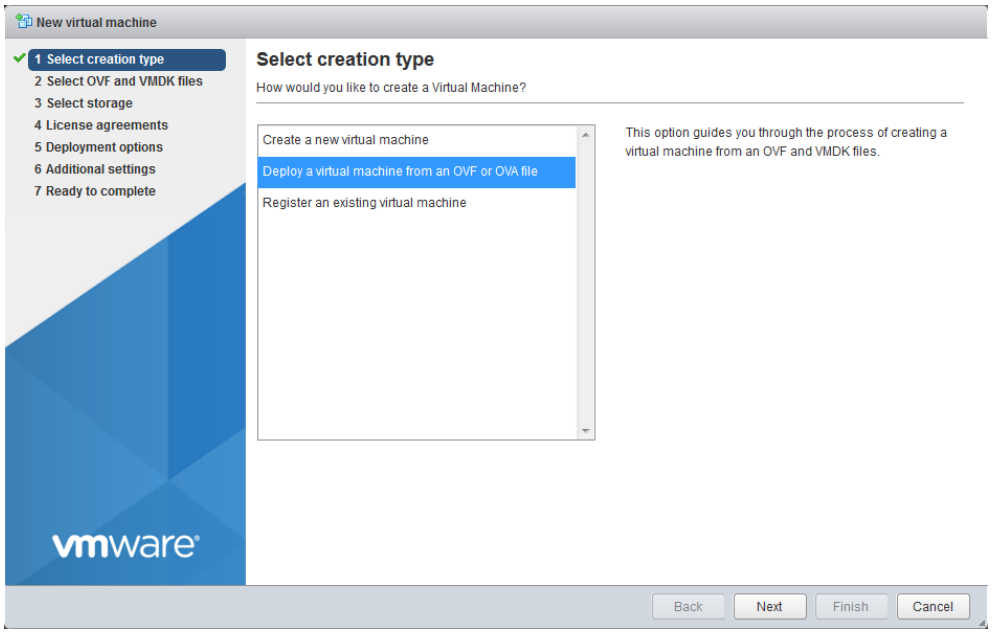


*Note: If your VMware ESXi is v6.5 or above, please use **vSphere Web Client** because vSphere Client is not supported.*

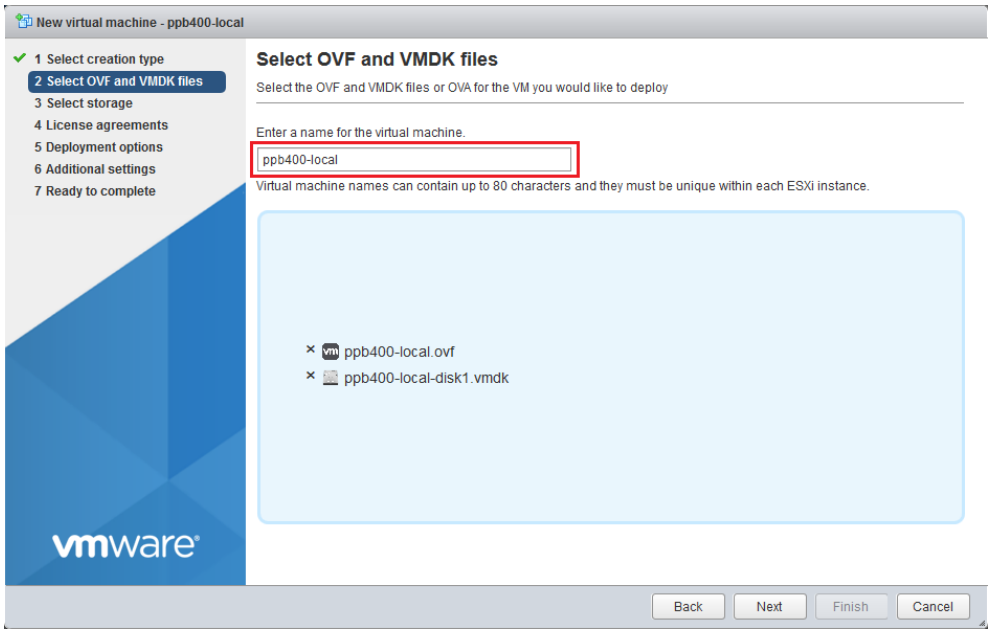
Note: PPB is not supported on ESXi free edition.

2. CONFIGURATION 2

3. Choose **Deploy a virtual machine from an OVF or OVA file** and click **Next** to next step.



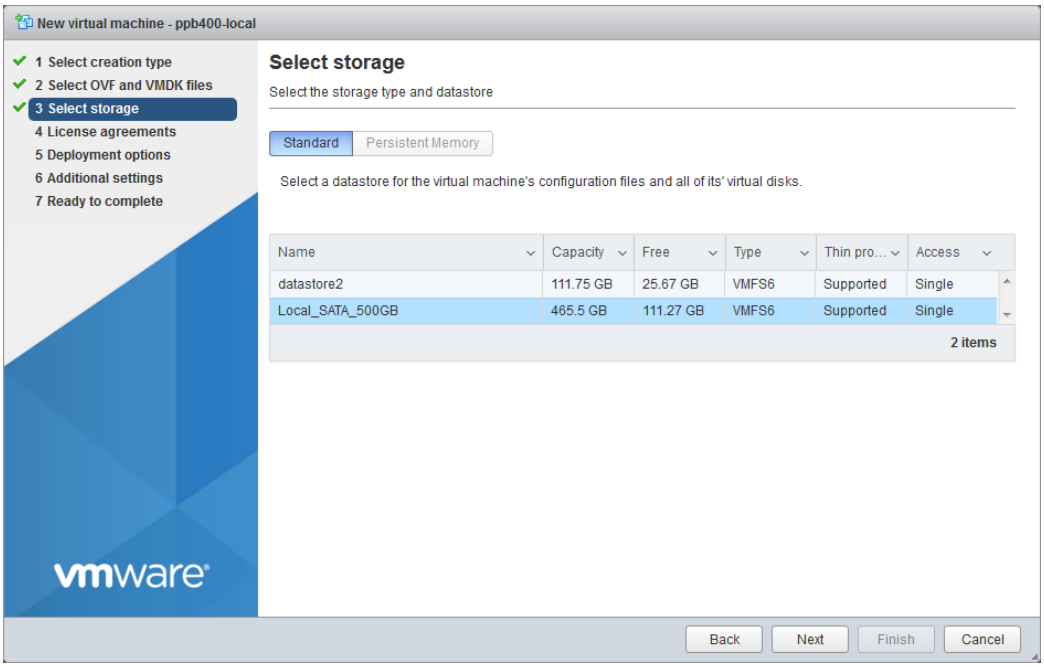
4. Click to select or drag/drop files **ppbXXX-local.ovf** and **ppbXXX-local.vmdk** extracted from the downloaded zip file, and enter a name for the deployed PPB virtual machine. This name should be unique within the inventory and include string "**ppb**". Click **Next** to continue.



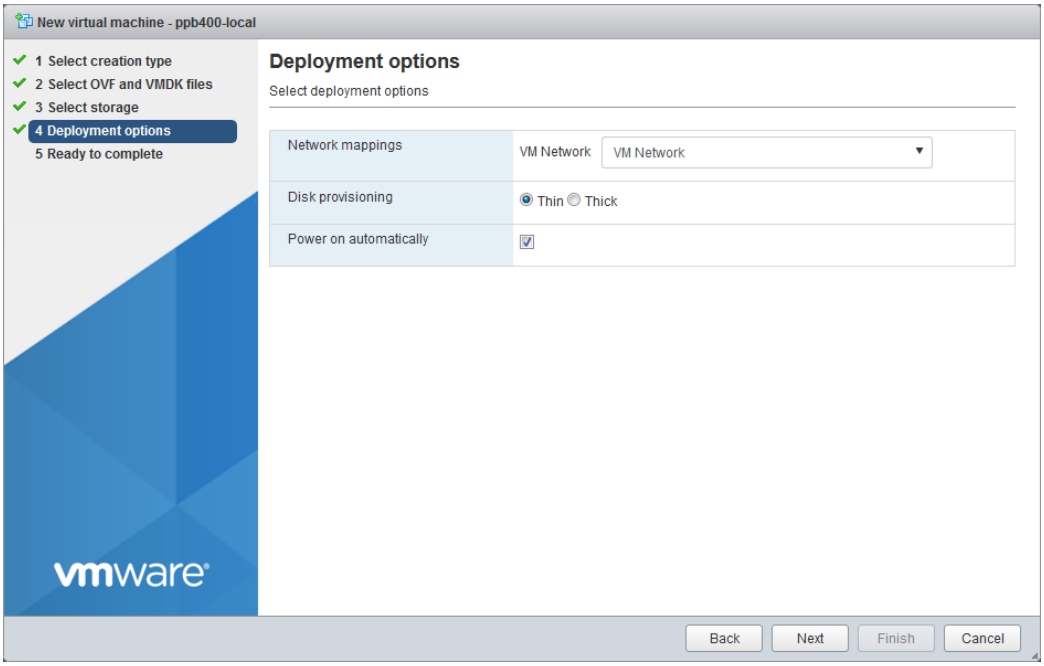
Note: *The virtual machine name MUST include the string "ppb" to be recognized by PPB.*

2. CONFIGURATION 2

5. Select the storage type and datastore. Click **Next** to continue.

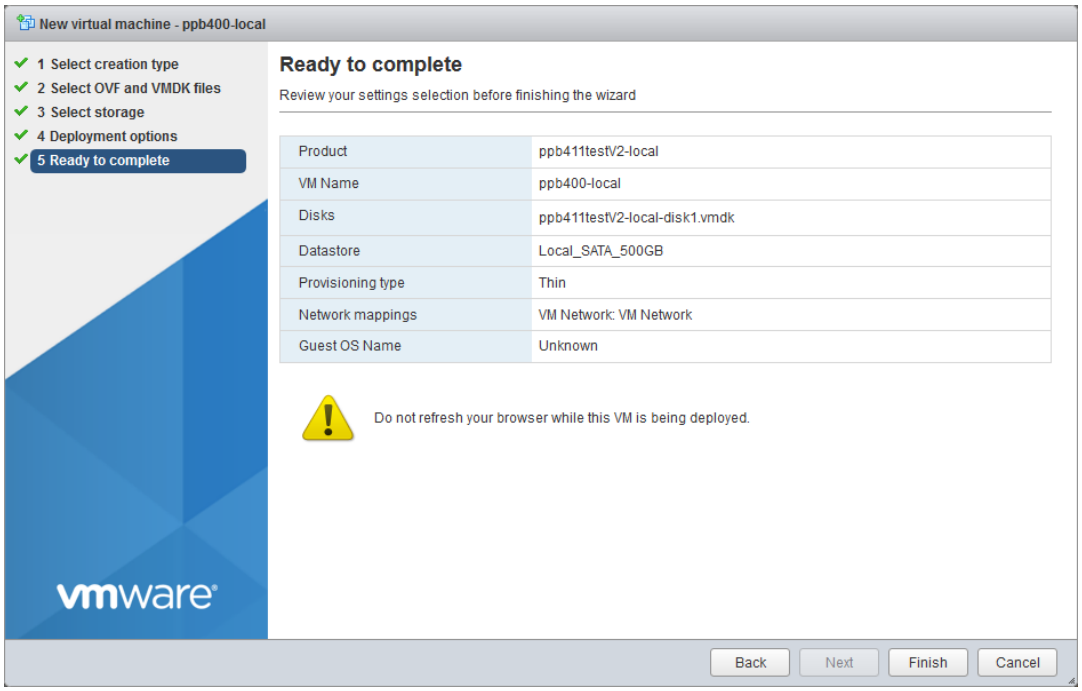


6. Select deployment options. The Disk provisioning default option is **Thin**. Click **Next** to continue.



2. CONFIGURATION 2

7. Review your settings selection before finishing the setup. Click **Finish** to start the deployment task.



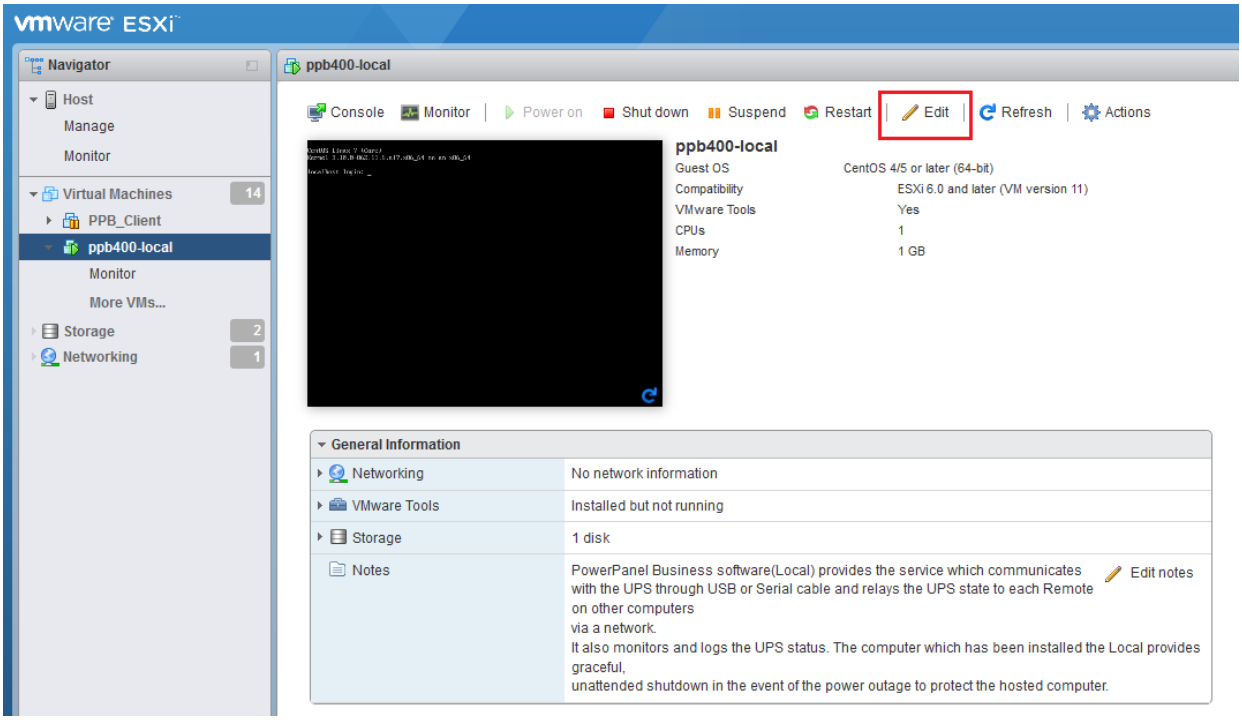
8. After the deployment task is completed, the PPB virtual appliance will be added into the inventory.

2. CONFIGURATION 2

9. Ensure the USB or serial port connection between the ESXi host and UPS is properly connected. The PPB VA Local will not monitor the UPS status if the communication is lost.

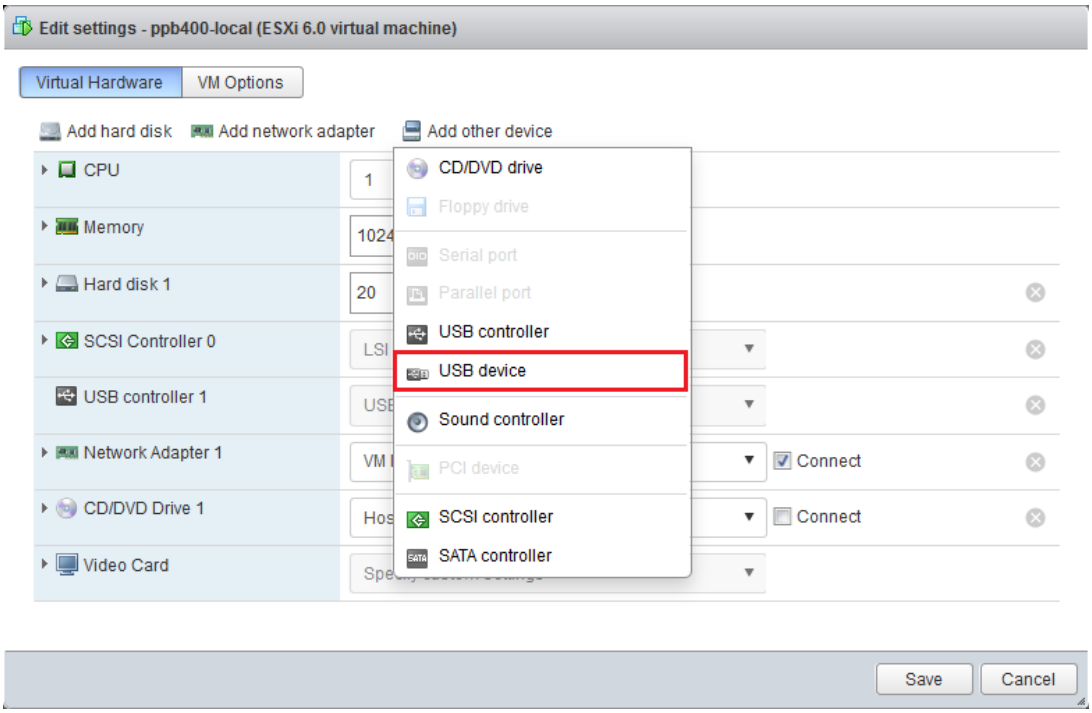
If PPB VA Local is installed on a virtual machine, then the USB or serial port will need to be manually assigned to the virtual machine. To do this, please follow these steps:.

9-1. Click **Edit** of the virtual machine. If the USB controller is available, go to step 9-6 to add a new USB device.

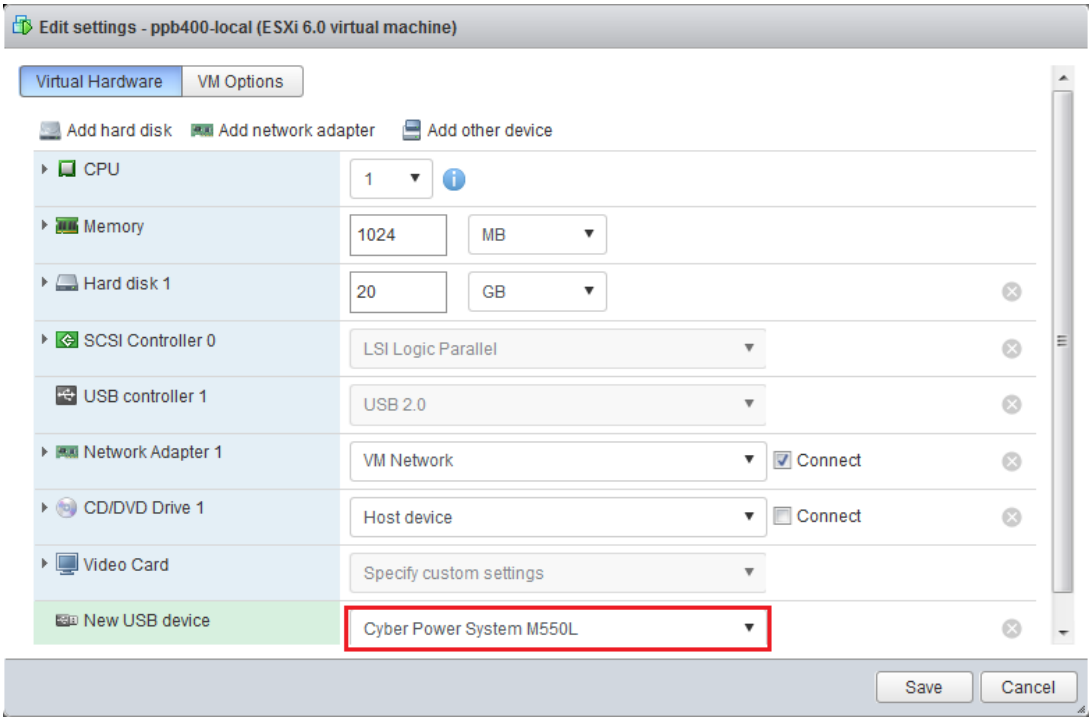


2. CONFIGURATION 2

9-2. Click **Add other device** and choose **USB device** to add a new USB device



9-3. Select the host USB device which is connected to the PPB virtual machine and click **Save**.



2. CONFIGURATION 2

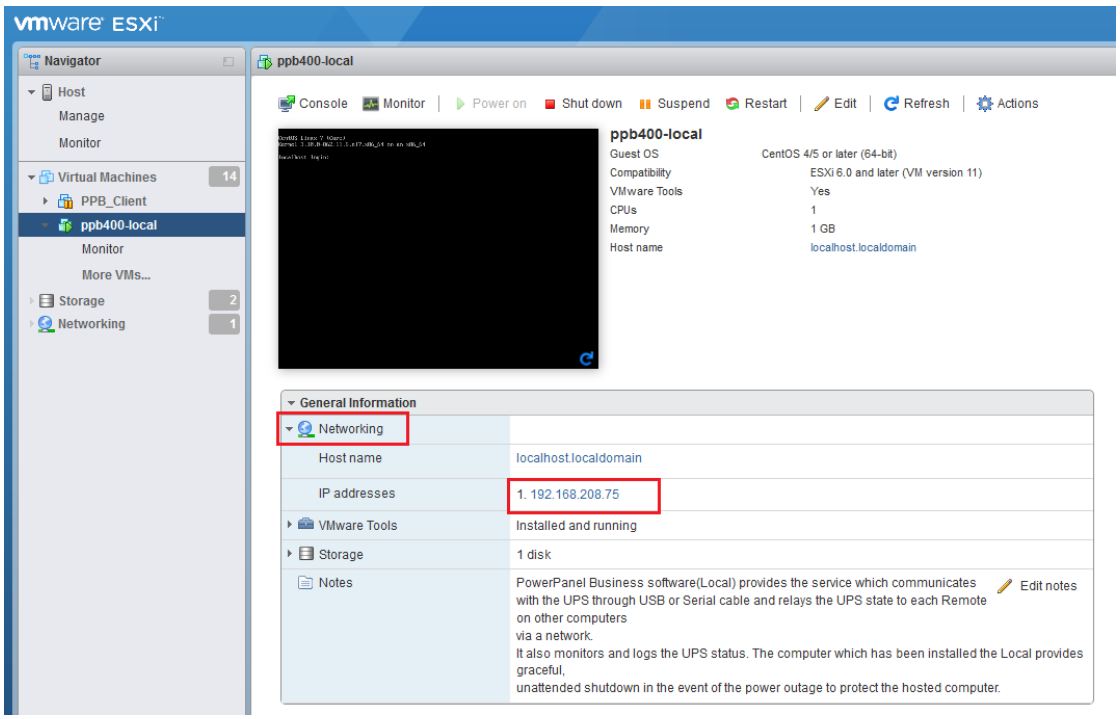
10. Follow the steps below to complete the PPB VA Local configuration.

10-1. In order to login to PPB VA Local, you will need to know the IP address of the PPB virtual appliance.

(1) Login VMware vSphere Web Client with IP and ID/Password of the host.

(2) Open the Virtual Machine window and click **Networking**.

(3) The **IP Address** will be shown as below.



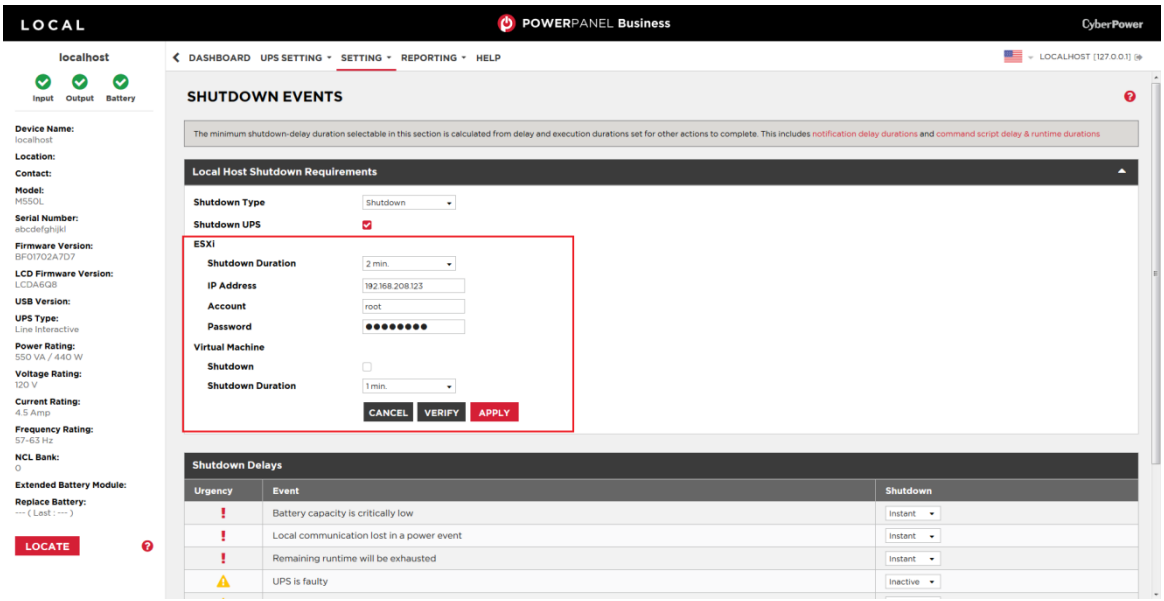
2. CONFIGURATION 2

10-2. Login to PPB VA Local through any supported web browser.
Go to http://xxx.xxx.xxx.xxx:3052/local where xxx.xxx.xxx.xxx is the IP address of the PPB VA, and login with username/Password: **admin/admin** (default).

10-3. Configure Shutdown Action for ESXi.

In order to ensure the ESXi host and all virtual machines can be shut down correctly in case of power events, users have to configure the ESXi host address, account and password of root user for the host shutdown from the virtual machine running Local. Enter actual user name and password for ESXi host in the IP Address, Account and Password fields on the **SETTING → Shutdown Events → Local Host Shutdown Requirements** page.

*Note: **IP Address** is the IP address of the ESXi host computer.*



10-4. In the same page **SETTING → Shutdown Events → Local Host Shutdown Requirements** set necessary shutdown time for the ESXi host.

2. CONFIGURATION 2

Note:

***Shutdown Duration**: Set the shutdown time for VMware ESXi host.*

***IP Address**: The IP address of the host computer.*

***Account**: The username that you use to access host via "VMware vSphere Client".*

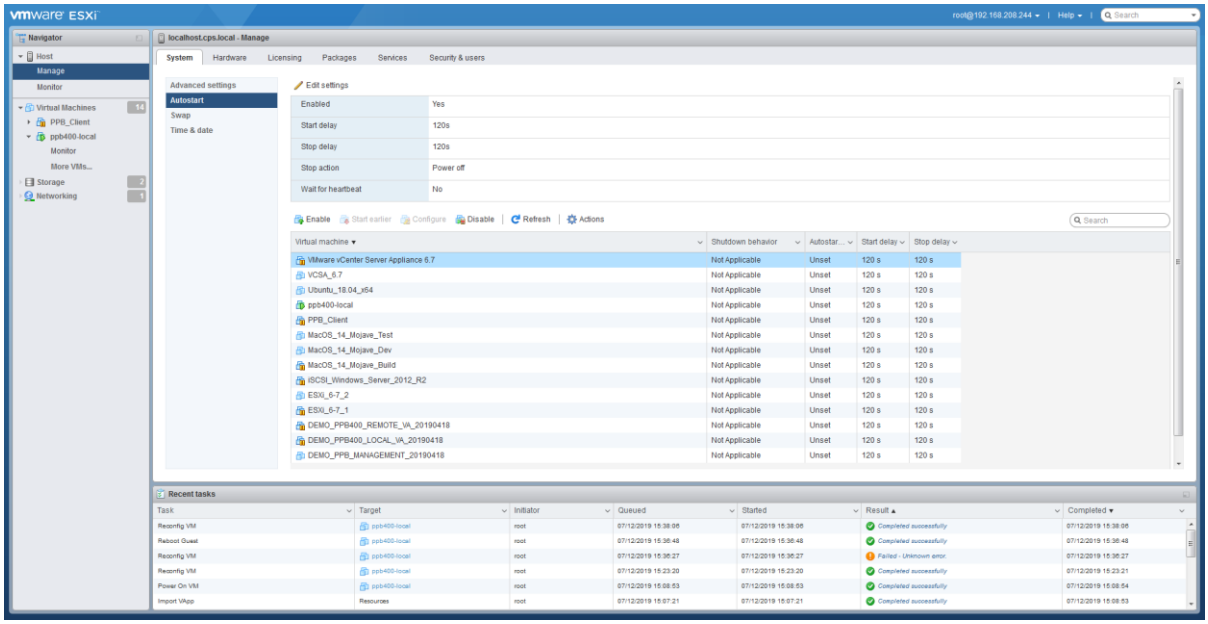
***Password**: The password that you use to access host via "VMware vSphere Client".*

*After clicking **APPLY**, you can test if the Account/Password can access the host by clicking **VERIFY**.*

10-5. Click **Virtual Machine Shutdown** and set **Shutdown Duration** if users want PPB to shut down VMs before shutting down ESXi host.

***Note:** This shutdown option will shut down all VMs at the same time. If users want to shut down VMs in a sequence, please leave this option unchecked and refer to next step.*

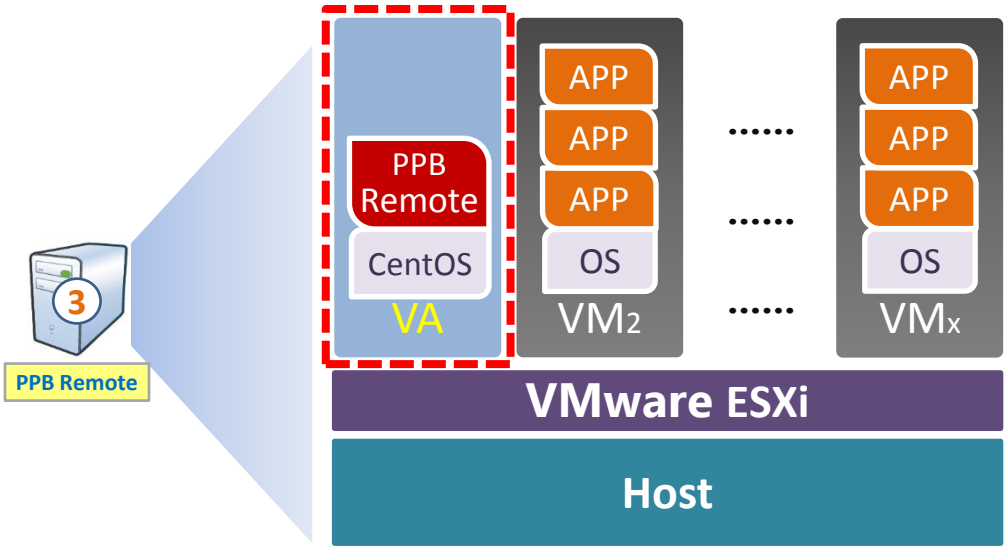
11. Configure Startup and Shutdown of Virtual Machines on ESXi.
In order to ensure that all virtual machines shut down and restart gracefully, check the “Autostart” setting through vSphere menu by going to **Host** → **Mange** → **System**



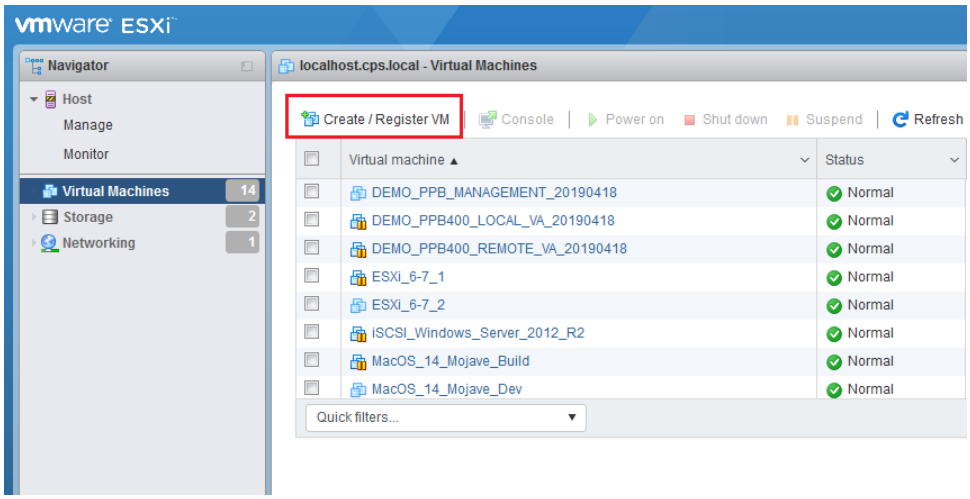
DONE! Now you can test and see if the host can work with the UPS properly.

2. CONFIGURATION 3

Install PPB VA Remote



1. Download the latest version of **PPB Remote Virtual Appliance** from CyberPower official website.
2. Launch the vShpere Web Client. Deploy the virtual appliance from **Virtual Machines → Create / Register VM.**

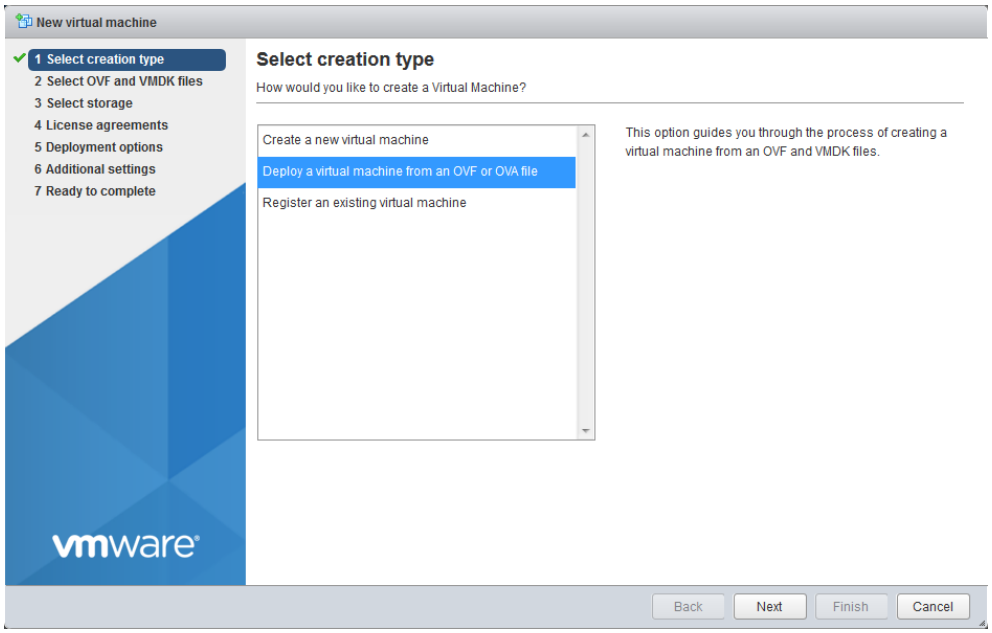


***Note:** If your VMware ESXi is v6.5 or above, please use **vSphere Web Client** because vSphere Client is not supported.*

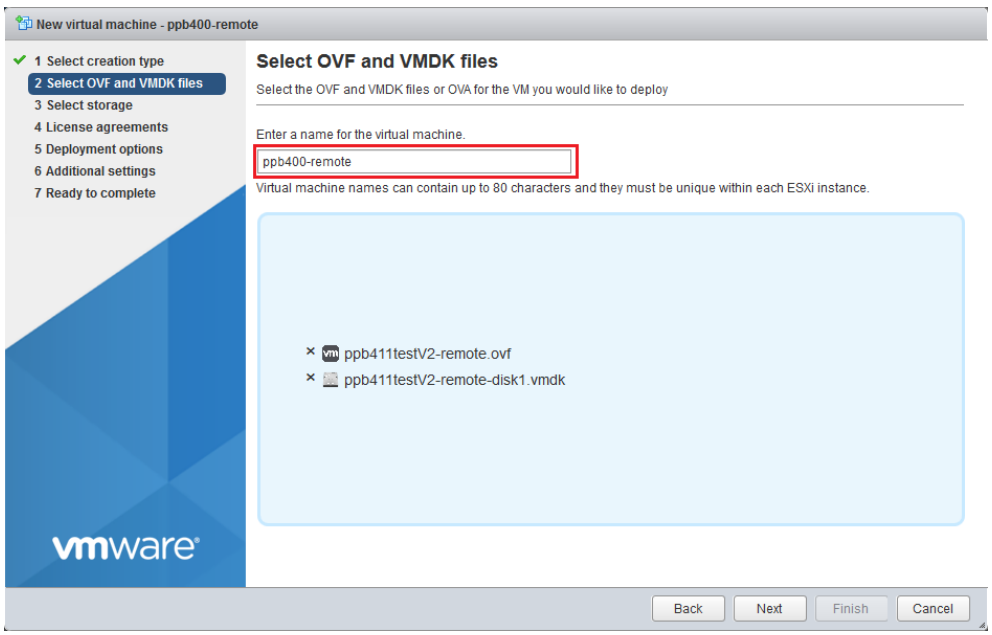
***Note:** PPB is not supported on ESXi free edition.*

2. CONFIGURATION 3

3. Choose **Deploy a virtual machine from an OVF or OVA file** and click **Next** to next step.



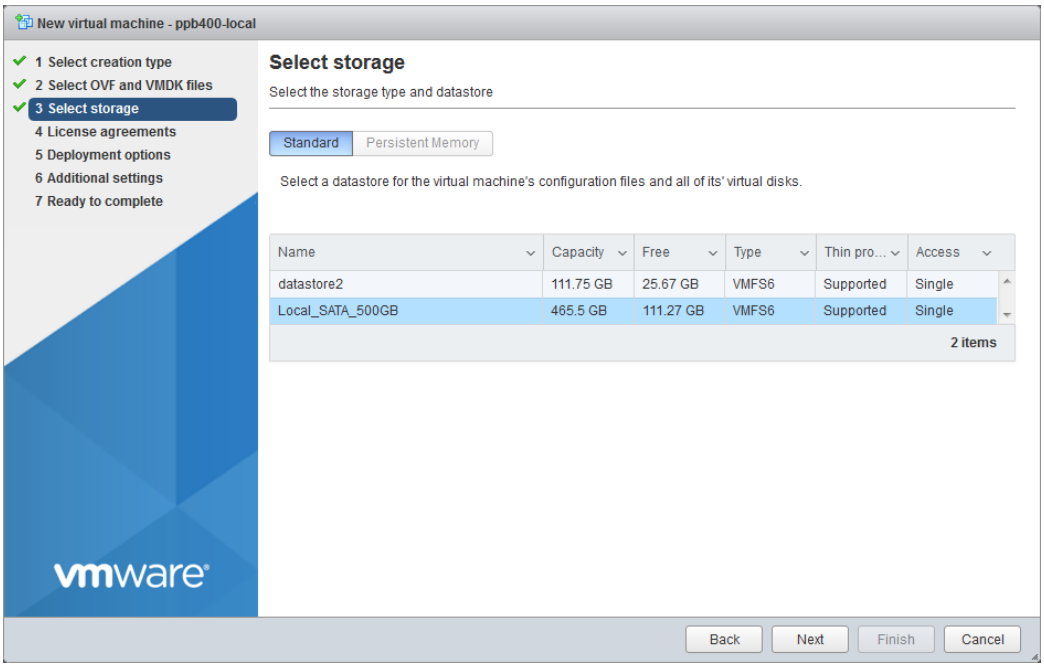
4. Click to select or drag/drop files **ppbXXX-remote.ovf** and **ppbXXX-remote.vmdk** extracted from the downloaded zip file, and enter a name for the deployed PPB virtual machine. This name should be unique within the inventory and include string "**ppb**". Click **Next** to continue.



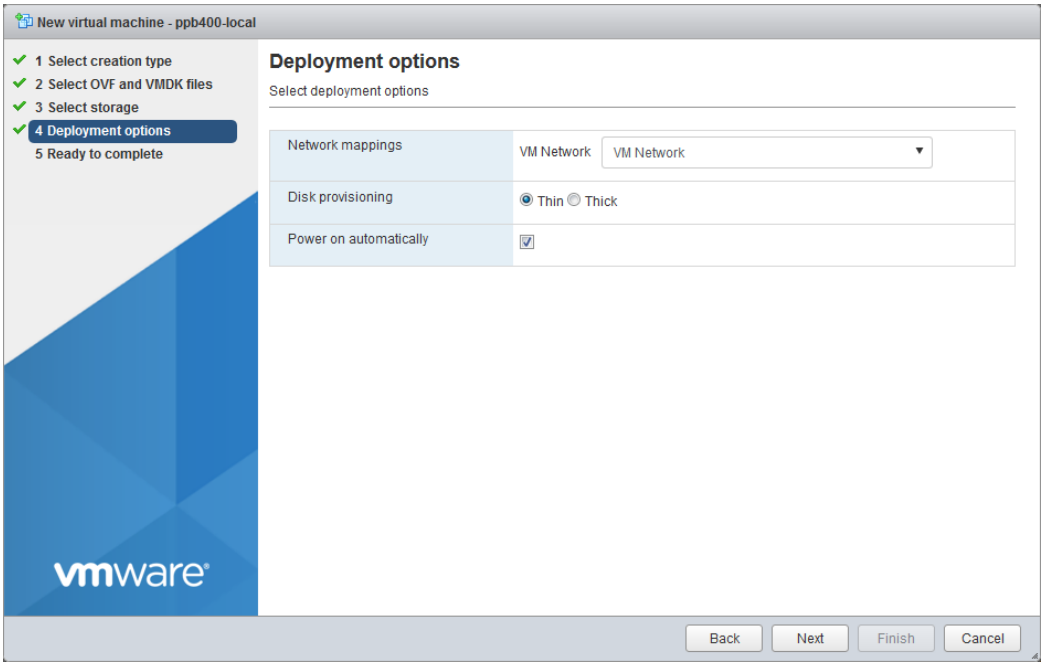
Note: *The virtual machine name MUST include the string "ppb" to be recognized by PPB.*

2. CONFIGURATION 3

5. Select the storage type and datastore. Click **Next** to continue.

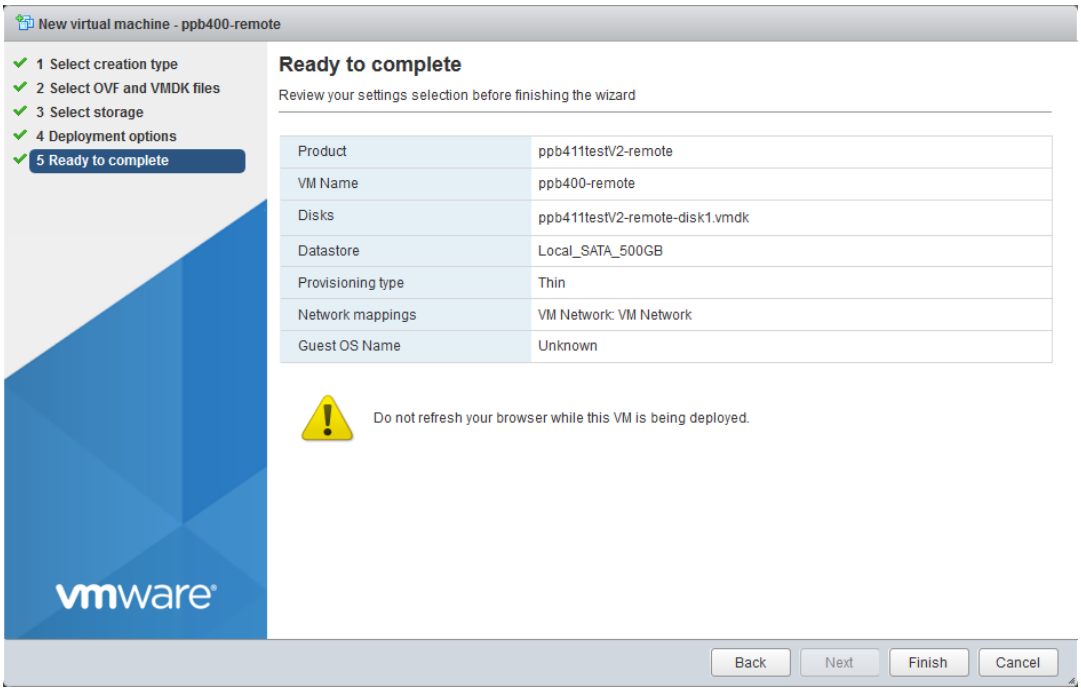


6. Select deployment options. The Disk provisioning default option is **Thin**. Click **Next** to continue.



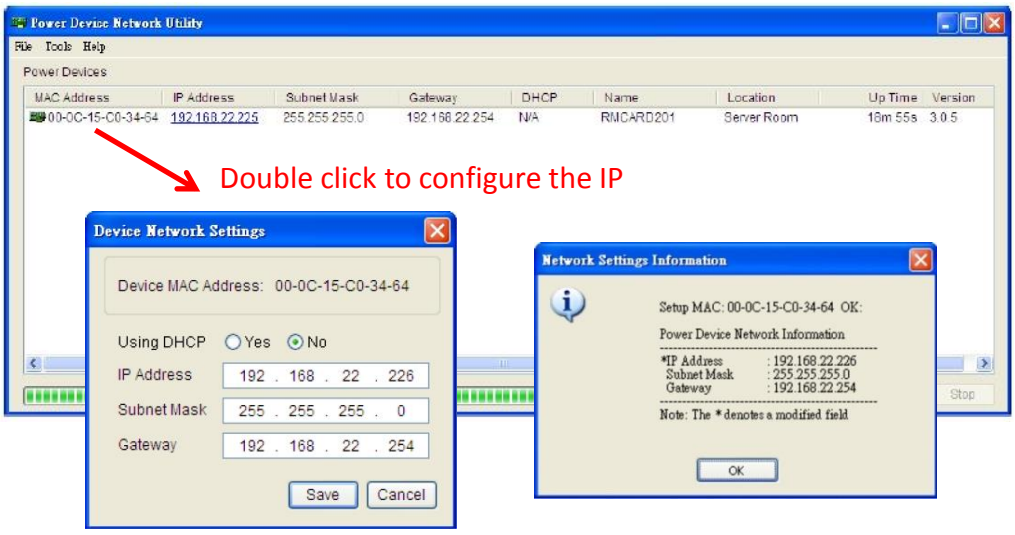
2. CONFIGURATION 3

7. Review your settings selection before finishing the setup. Click **Finish** to start the deployment task.



8. After the deployment task is completed, the PPB virtual appliance will be added into the inventory.

9. If your UPS has an RMCARD installed, use “Power Device Network Utility” to discover the IP address of the RMCARD or to assign a static IP address.



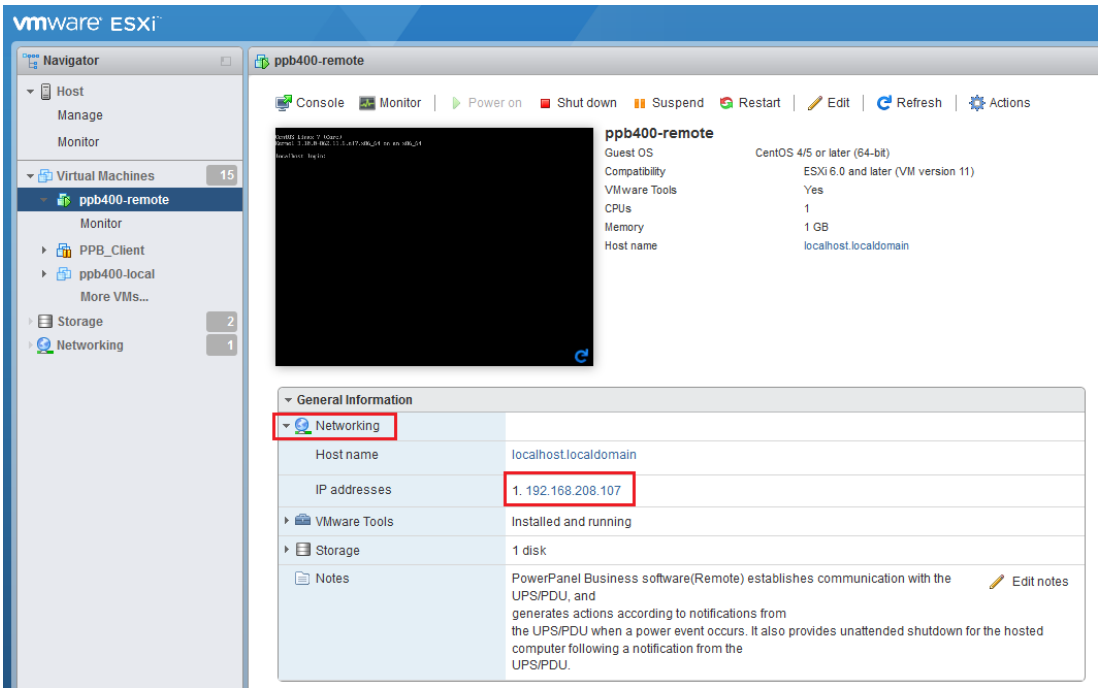
2. CONFIGURATION 3

10. In order to login to PPB VA Remote, you will need to know the IP address of the PPB virtual appliance.

(1) Login VMware vSphere Web Client with IP and ID/Password of the host.

(2) Open the Virtual Machine window and click **Networking**.

(3) The **IP Address** will be shown as below.

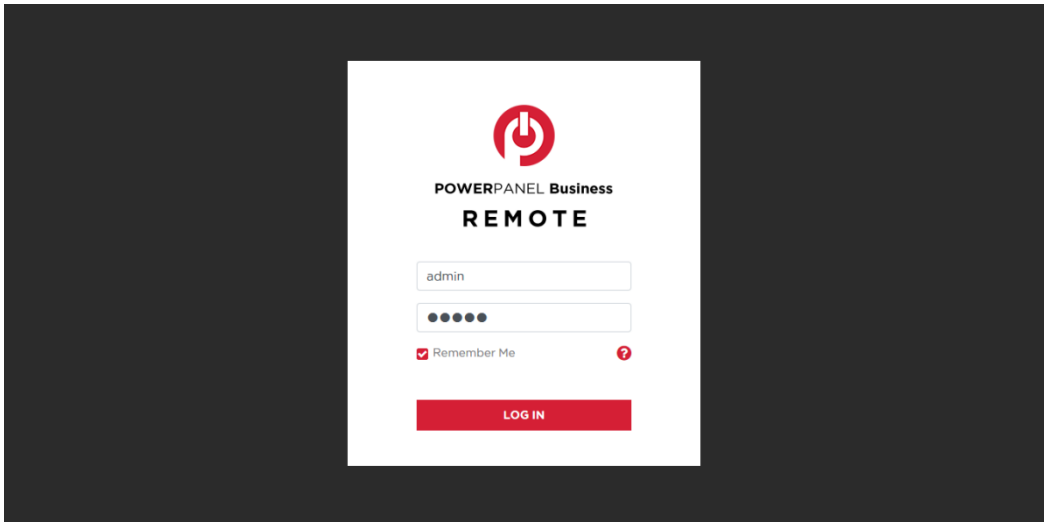


2. CONFIGURATION 3

11. Follow the steps below to complete the PPB VA Remote configuration.

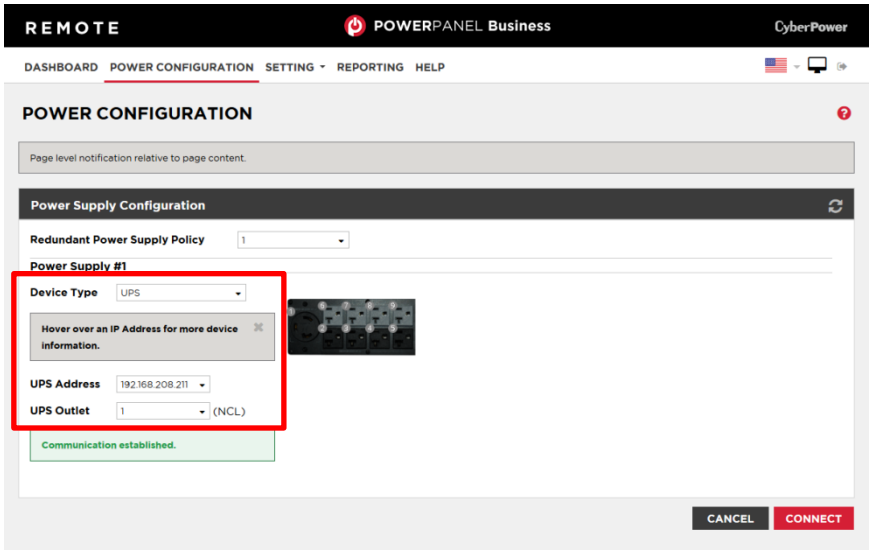
11-1. Login to PPB VA Remote through any supported web browser. Go to http://xxx.xxx.xxx.xxx:3052/remote where xxx.xxx.xxx.xxx is the IP address of the VA, and login with the default Username/Password: **admin/admin**.

Note: *If you don't know the IP address of PPB virtual appliance, see step 10.*



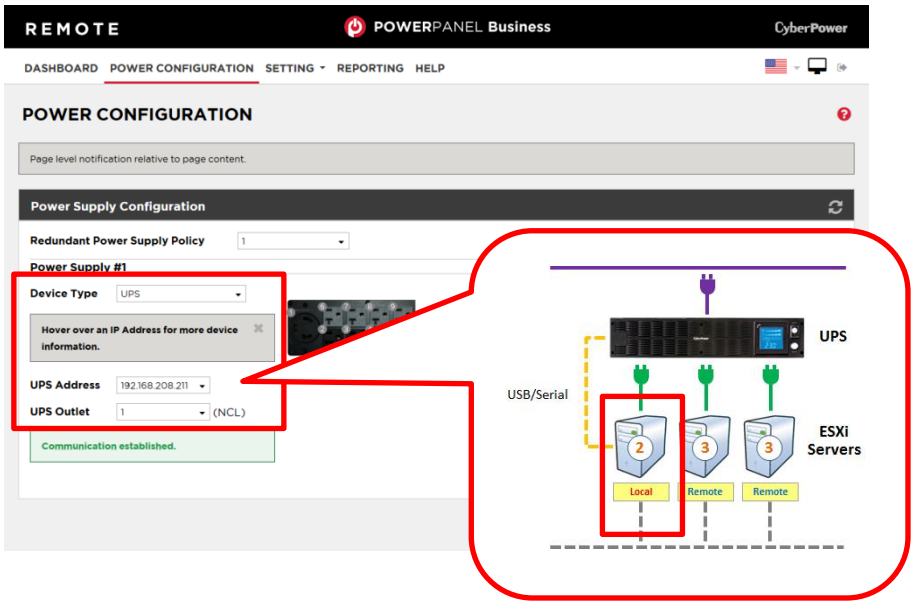
2. CONFIGURATION 3

11-2. Go to the POWER CONFIGURATION screen and set the IP address of the RMCARD (if the UPS has an RMCARD installed) and assign the UPS outlet to which the ESXi host is connected to.



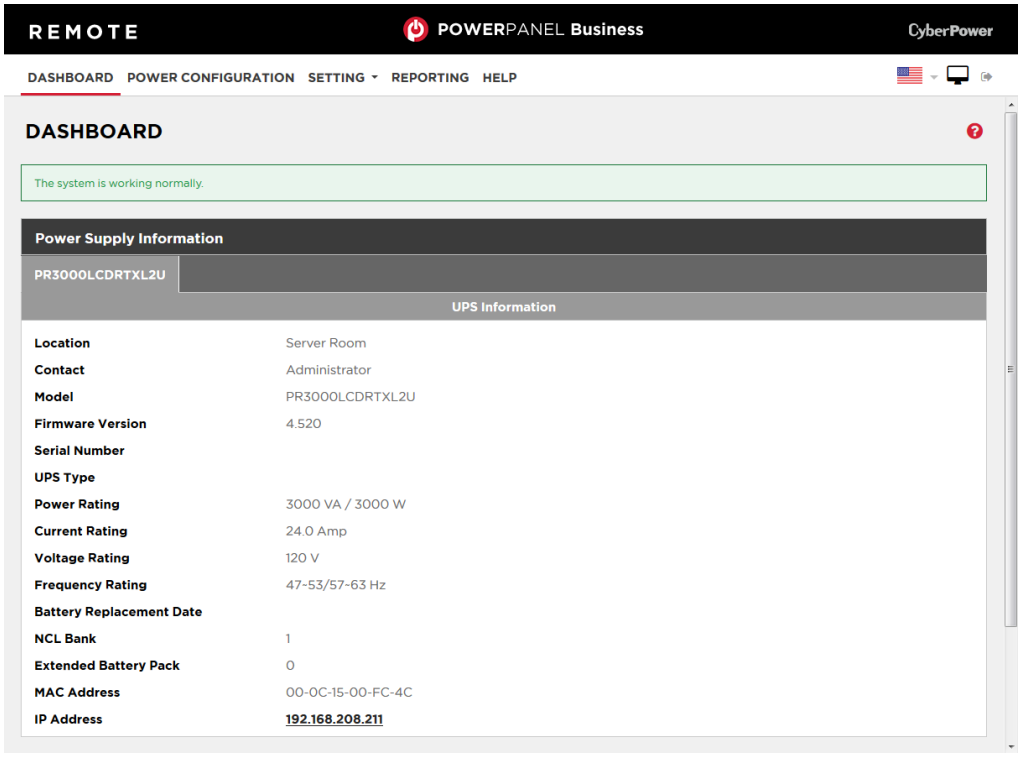
11-3. If the UPS does NOT have an RMCARD installed, set the IP address of a neighbor ESXi host server which has PPB VA Local installed and is powered by the same UPS (see below diagram).

After assigning the correct IP address, assign the UPS outlet to which the ESXi host is connected to.



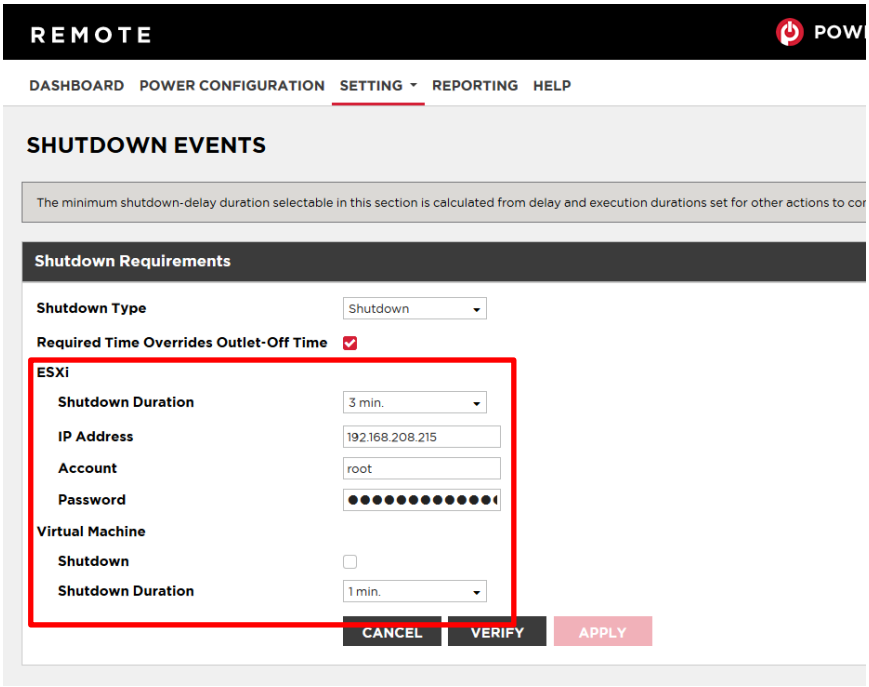
2. CONFIGURATION 3

11-4. Go to the **DASHBOARD** screen. If the correct IP address is assigned, the corresponding UPS information will be displayed in PPB VA Remote.



2. CONFIGURATION 3

11-5. Go to **SETTING** → **Shutdown Events** to set the necessary shutdown time for the ESXi host.



Note:

***Shutdown Duration**: Set the shutdown time for VMware ESXi host / VM.*

***Address**: The IP address of the host computer.*

***Account**: The account that you use to access host via "VMware vSphere Client".*

***Password**: The password that you use to access host via "VMware vSphere Client".*

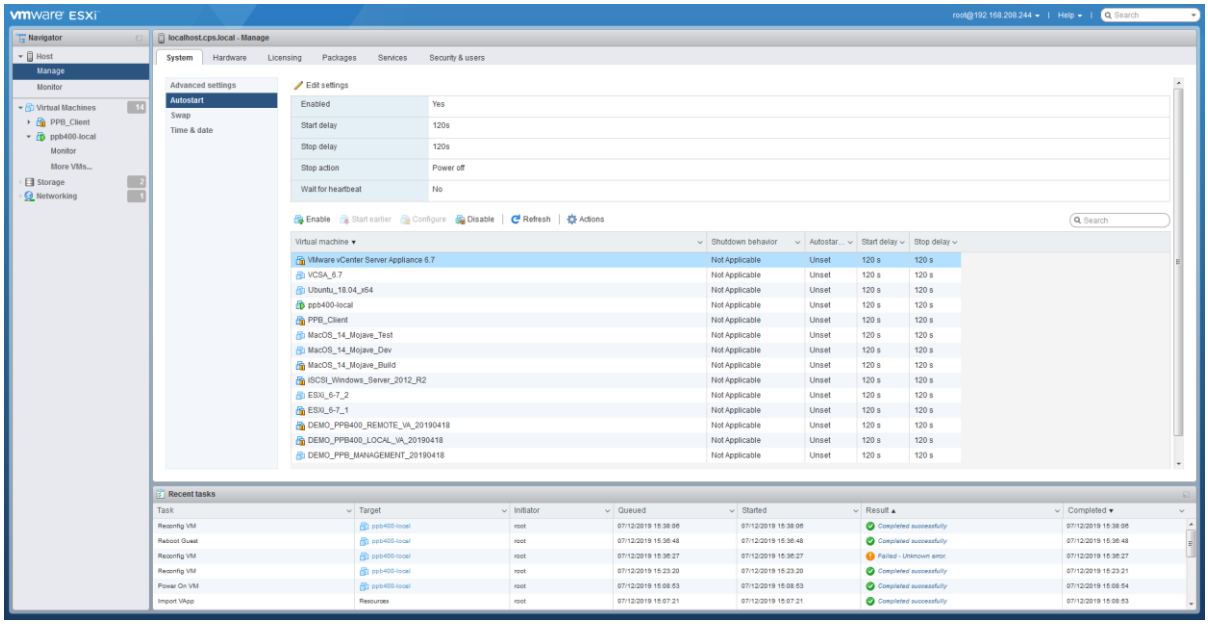
*After clicking **APPLY**, you can test if the Account/Password can access the host by clicking **VERIFY**.*

11-6. Click **Virtual Machine Shutdown** and set **Shutdown Duration** if users want PPB to shut down VMs before shutting down ESXi host.

***Note:** This shutdown option will shut down all VMs at the same time. If users want to shut down VMs in a sequence, please leave this option unchecked and refer to next step.*

2. CONFIGURATION 3

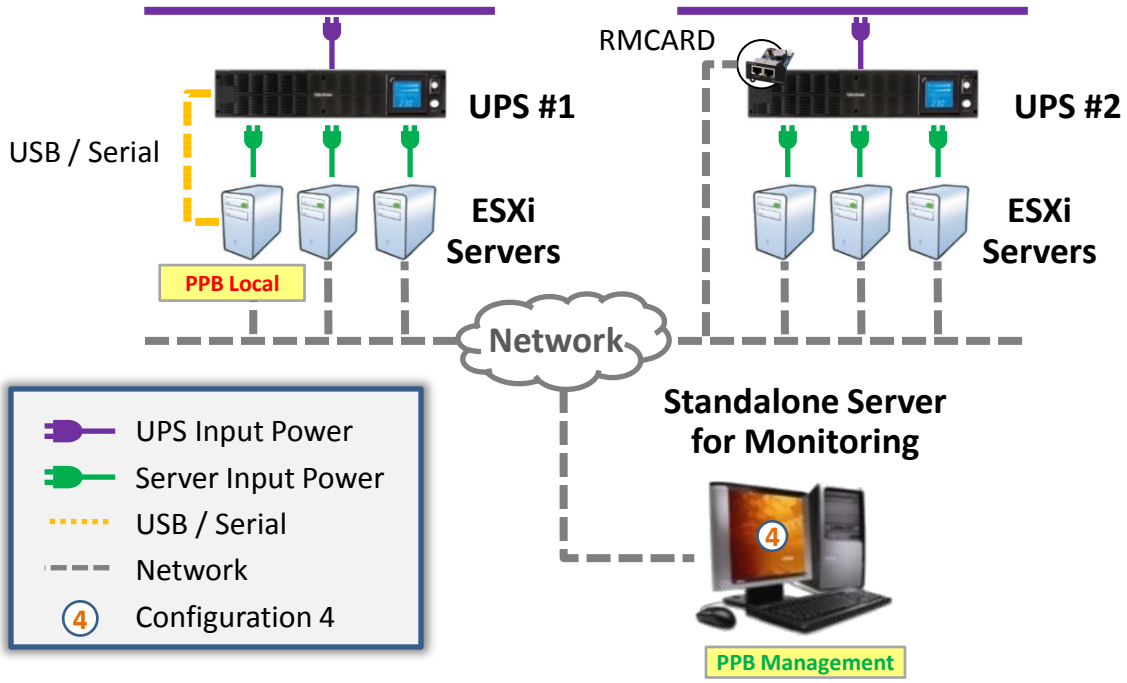
12. Configure Startup and Shutdown of Virtual Machines on ESXi.
In order to ensure that all virtual machines shut down and restart gracefully, check the “Autostart” setting through vSphere menu by going to **Host** → **Mange** → **System**



✓ **DONE!** Now you can test and see if the host can work with the UPS properly.

2. CONFIGURATION 4

Install PPB Management



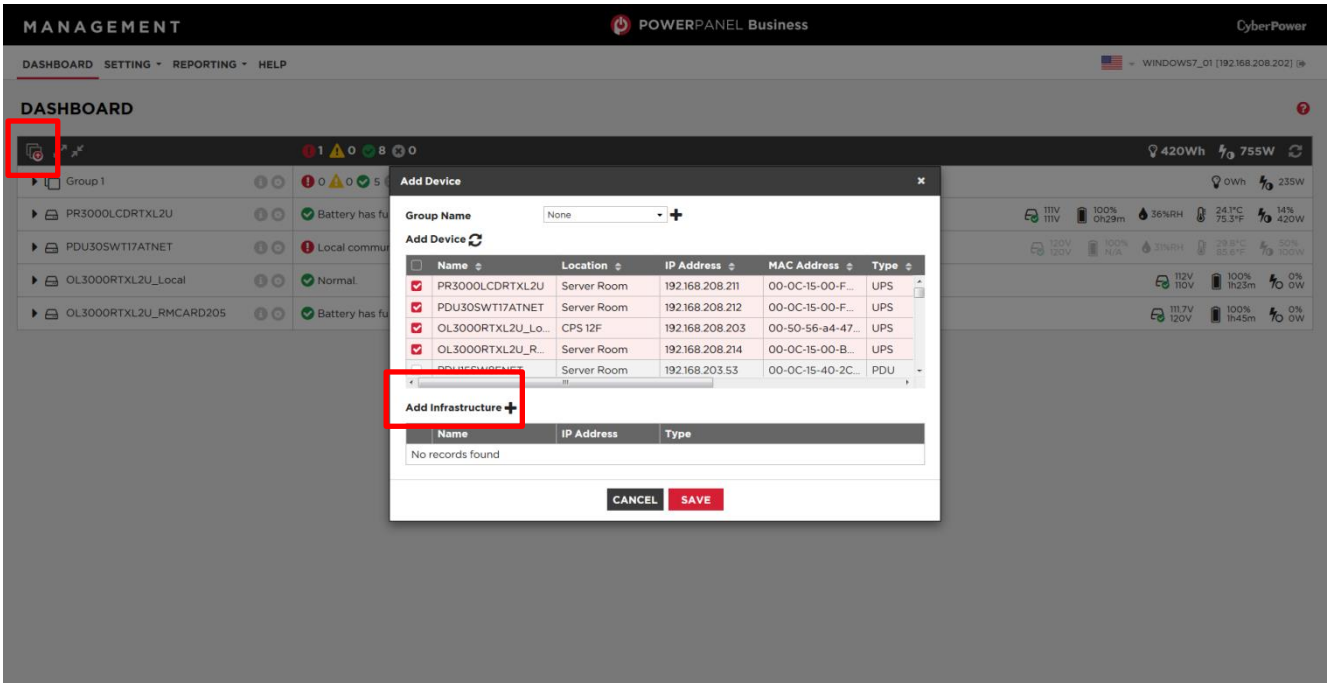
1. Download the latest version of **PowerPanel Business Management** from CyberPower official website. Please select the correct download for the OS running on the standalone computer that will be used for PPB Management.

2. Login to PPB Management through any supported web browser.
   Go to http://xxx.xxx.xxx.xxx:3052/management where xxx.xxx.xxx.xxx is the IP address of the Management computer, and login with the default Username/Password: **admin/admin**.

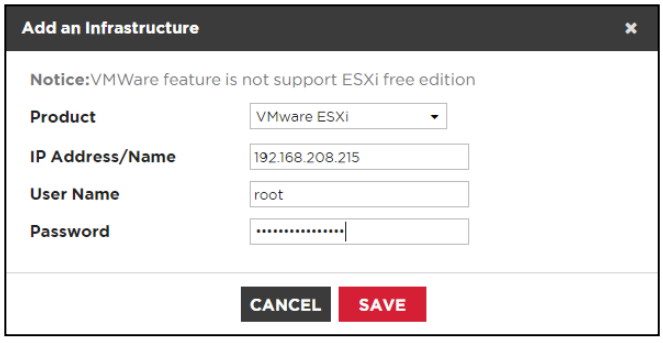
2. CONFIGURATION 4

3. To add a new ESXi server in PPB Management, go to the **DASHBORAD** screen, click on the **Add Device** icon. From the pop-up window, chick **Add Infrastructure**.

Note: *Before you add ESXi server, you must add all UPSs first on DASHBOARD. Please refer to PPB Management user's manual in the section "**Using PPB Management → Device Management**".*



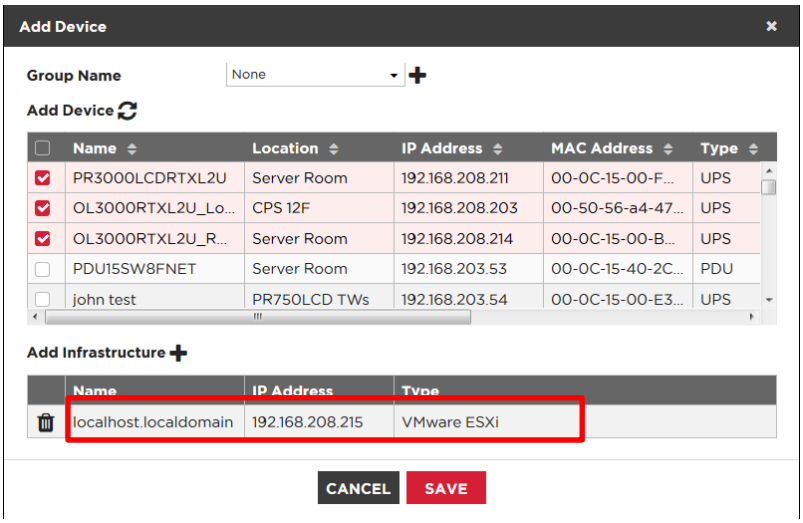
Select **VMware ESXi** from the drop-down list of **Product** item and enter related information including access username and password of the ESXi server, and click **SAVE**.



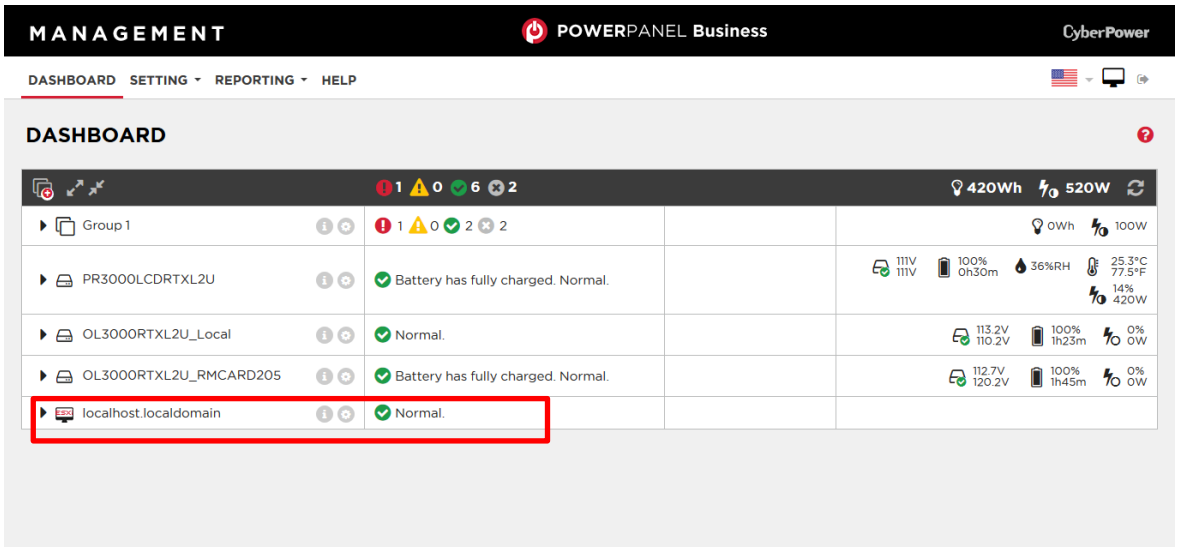
Note: *PPB is not supported on ESXi free edition.*

2. CONFIGURATION 4

The added VMware infrastructure will be shown in the **Add Device** window, then click **SAVE** to finish.

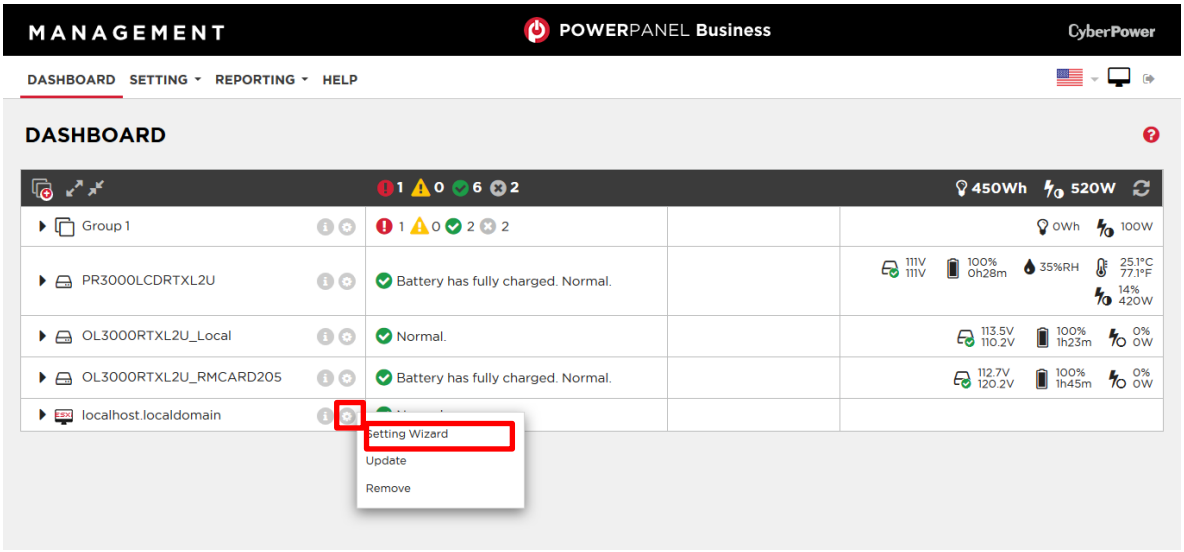


4. The icon of the new ESXi server will be displayed in **DASHBOARD** if the configuration is successful.

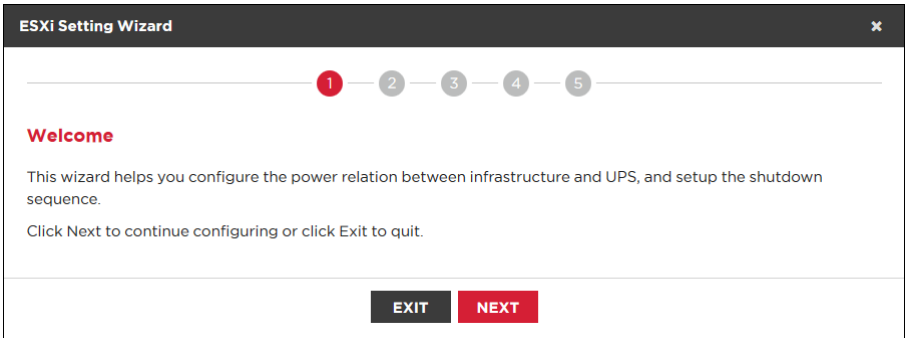


2. CONFIGURATION 4

5. To correctly set the power source (UPS) of all added ESXi hosts, click the Setting Icon of the device (ESXi hosts) and select ”**Setting Wizard**”.

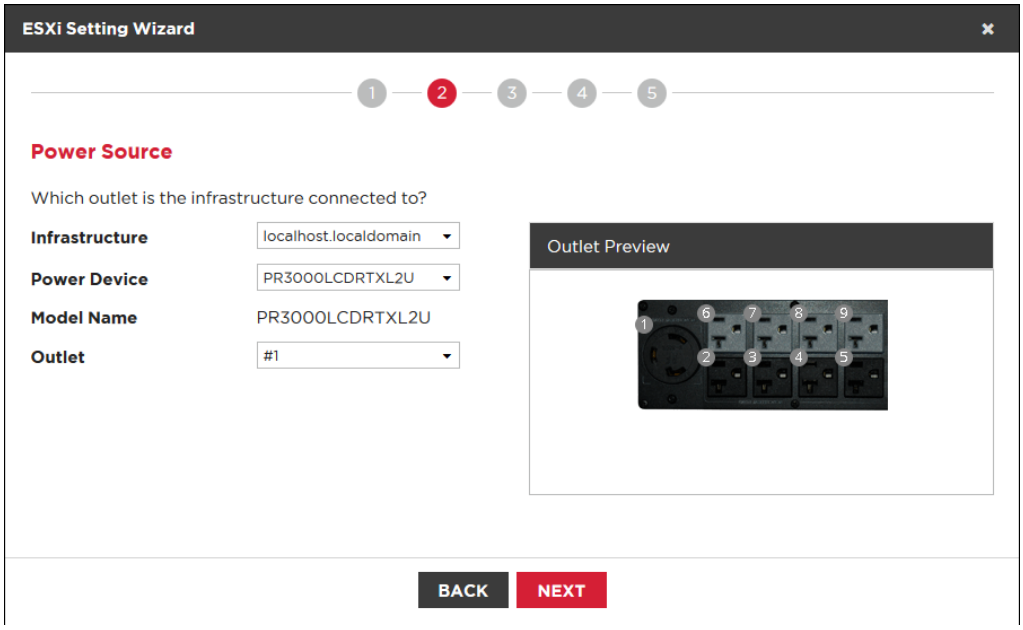


5-1. The “ESXi Setting Wizard” will appear. Please click “**NEXT**” to continue.

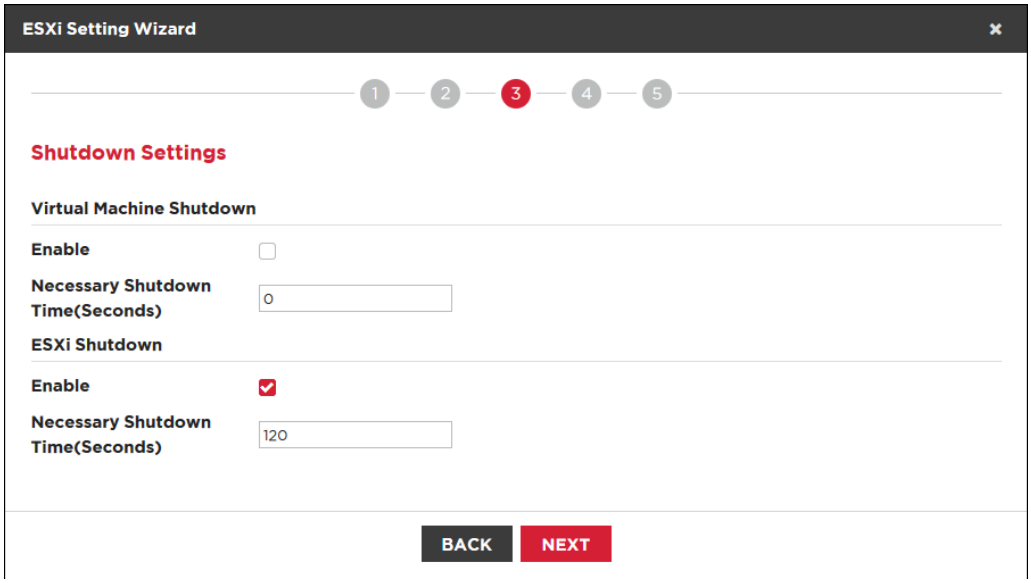


2. CONFIGURATION 4

5-2. To assign the power source (UPS) to the ESXi server, select it from the drop-down list and assign the correct UPS outlet used by the ESXi server and click **NEXT** to continue.



5-3. Next, select if the virtual machine and/or ESXi host will be shutdown, and the respective amount of time needed for each to complete a graceful shutdown. Click **NEXT** to continue. .

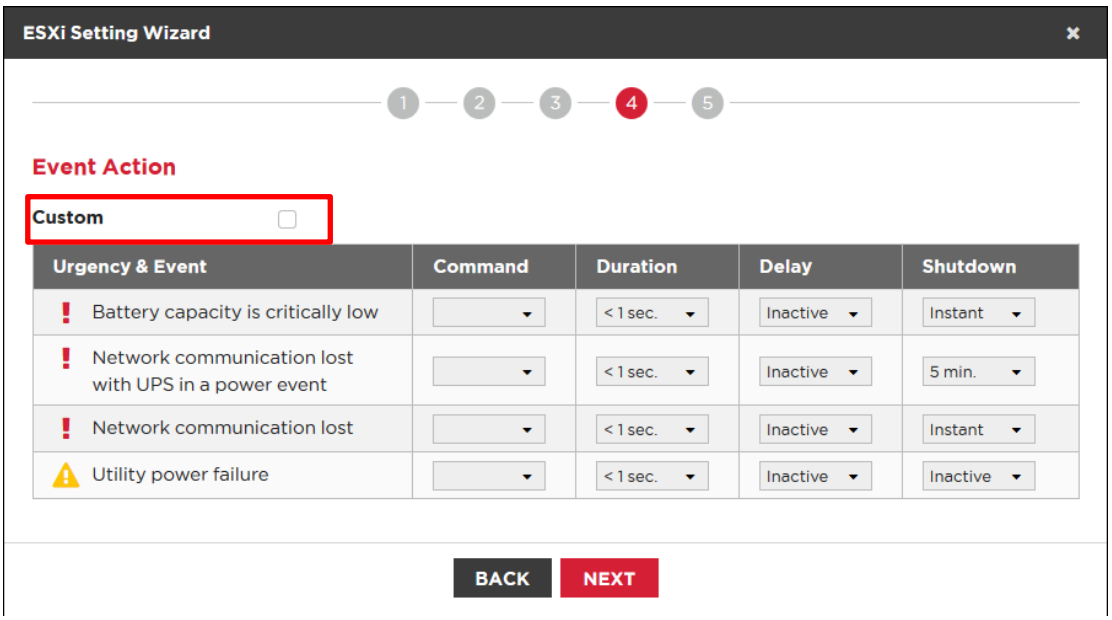


2. CONFIGURATION 4

Note: The Virtual Machine Shutdown option will shut down all VMs at the same time. If users want to shut down VMs in a sequence, please leave this option unchecked and configure the sequence in vSphere Client.

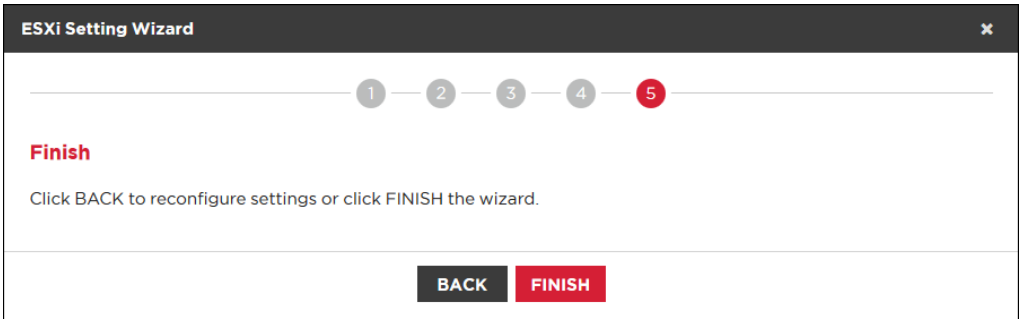
5-4. The next step is to assign the shutdown behavior. Check "**Custom**" and select the power event and graceful shutdown condition of ESXi server. Click **NEXT** when the setting is done.

Note: If you skip this step and do not assign shutdown behavior, this ESXi server will follow the shutdown behavior assigned in PPB Management (refer to step 7).

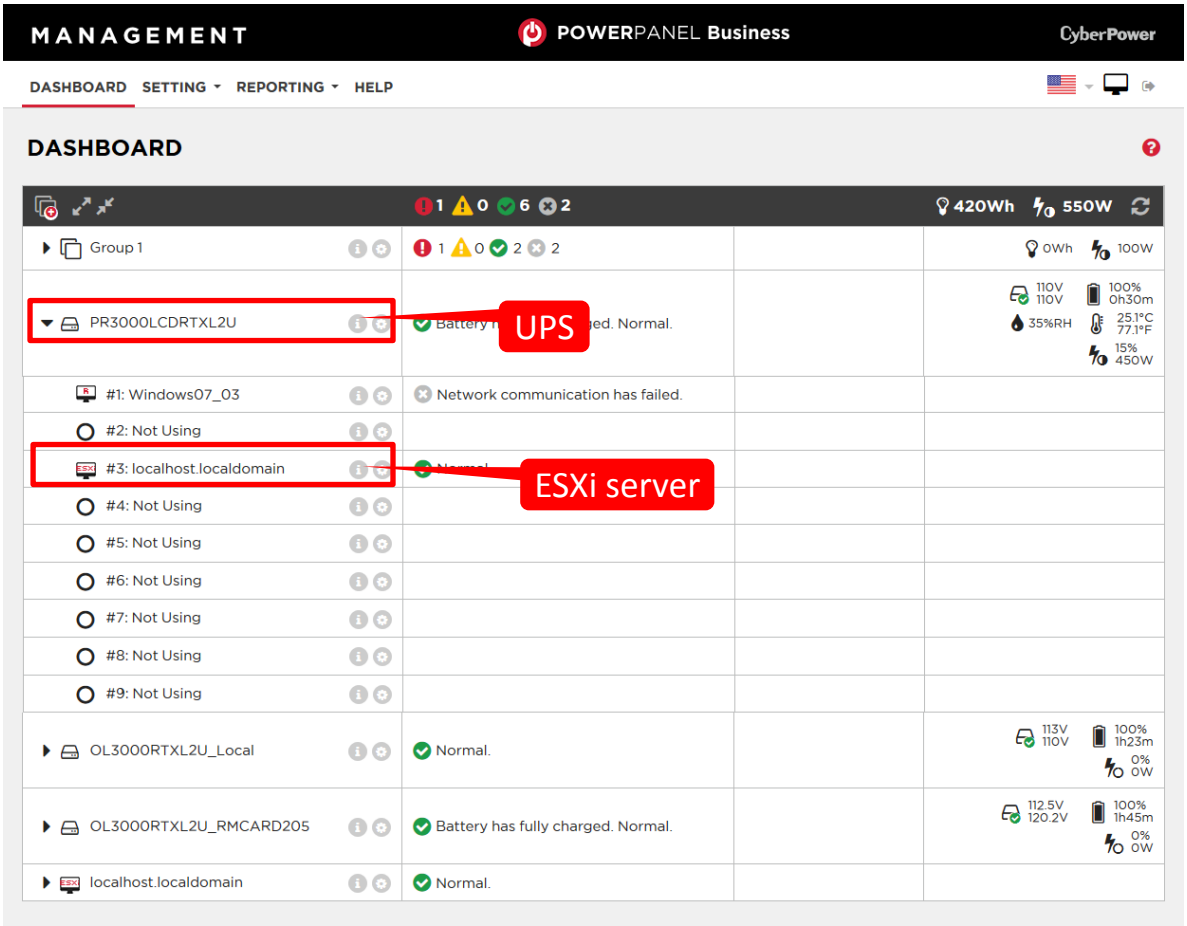


2. CONFIGURATION 4

5-5. After all setting details are checked and confirmed correct. Click **FINISH** to complete the configuration of ESXi server.

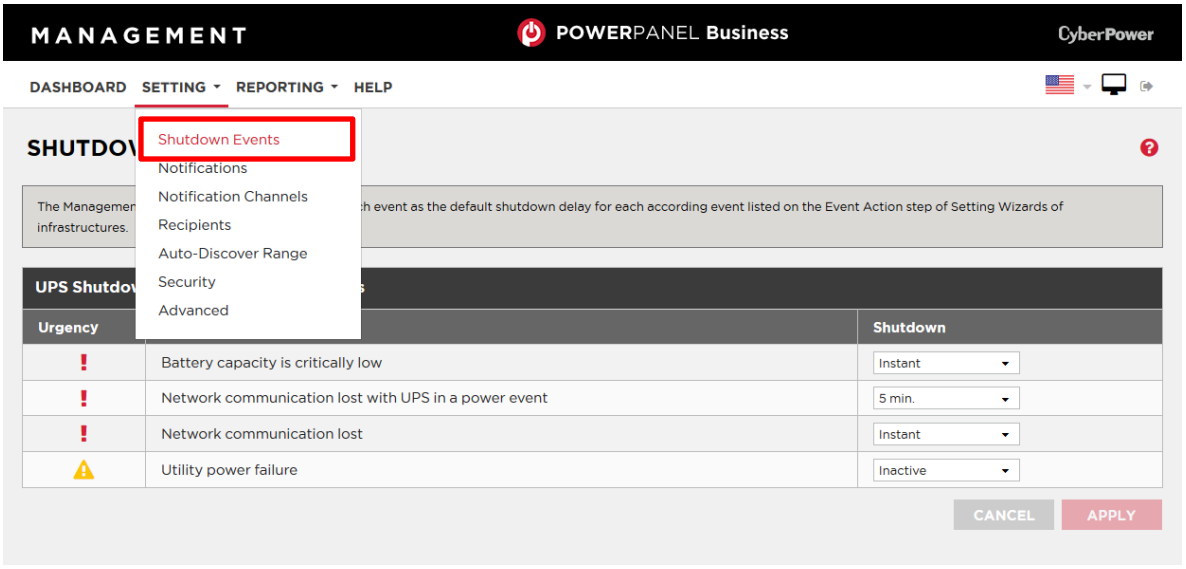


6. If the setting is done correctly, you will see the UPS as well as the ESXi servers connected to it in the **DASHBOARD** screen.



2. CONFIGURATION 4

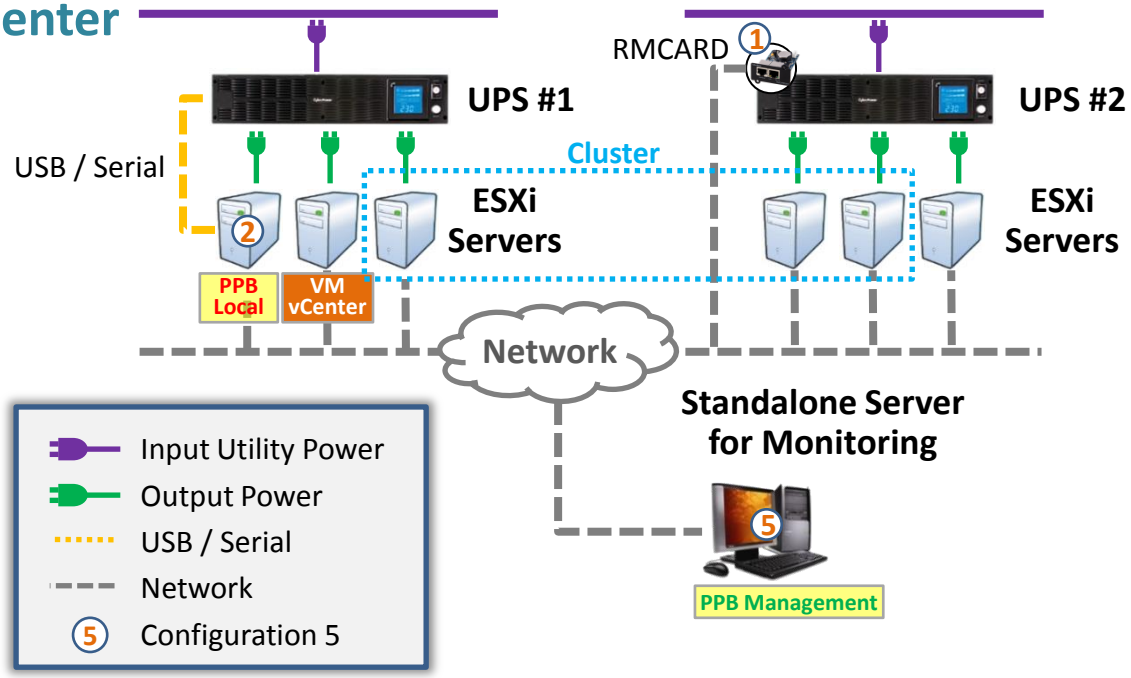
7. You can define the “Shutdown Events” details as a graceful shutdown template. All monitored ESXi servers which are not assigned individual shutdown behavior in step 5-4 will be shutdown according to these settings (without having to install PPB on each ESXi server).



Note: *We recommend using PPB Management “Shutdown Events” template for graceful shutdown of all monitored ESXi servers because it is convenient and does not need PPB Remote installed on any ESXi server.*

2. CONFIGURATION 5

Install PPB Management with the presence of VMware vCenter



1. Download the latest version of **PowerPanel Business Management** from CyberPower official website. Please select the correct download for the OS running on the standalone computer that will be used for PPB Management.

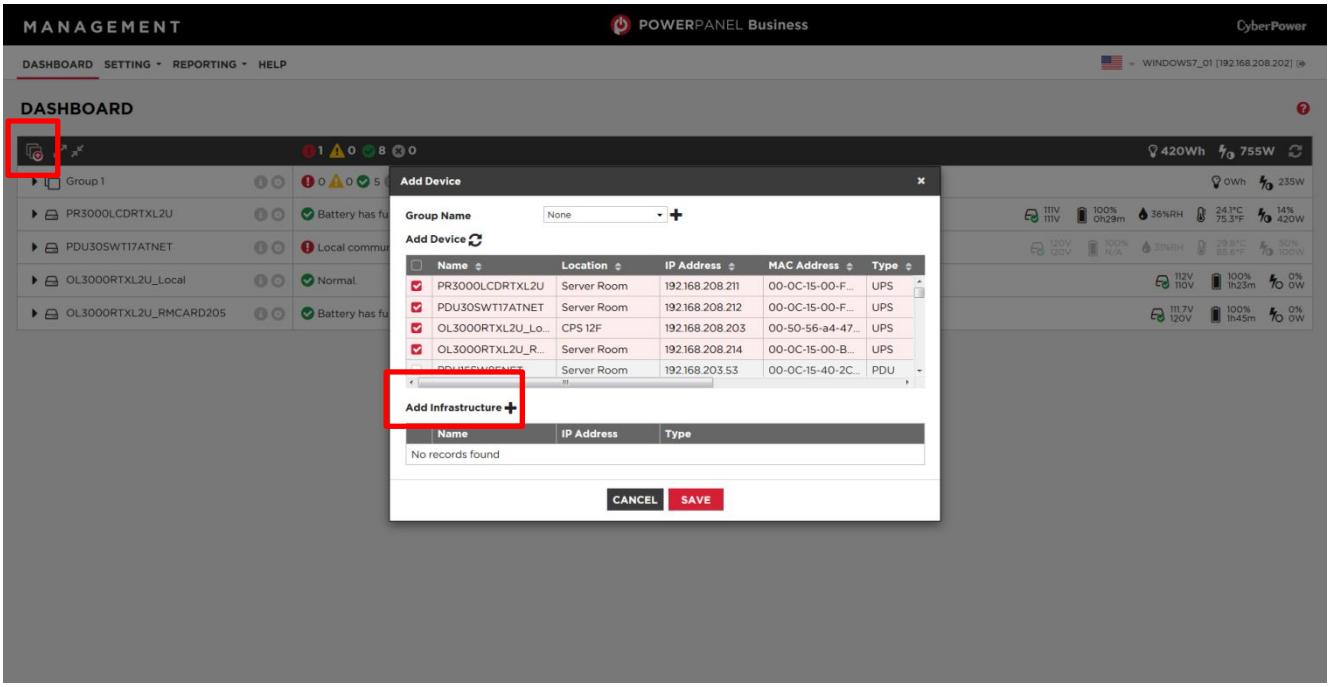
2. Login to PPB Management through any supported web browser.

   Go to http://xxx.xxx.xxx.xxx:3052/management where xxx.xxx.xxx.xxx is the IP address of the Management computer, and login with the default Username/Password: **admin/admin**.

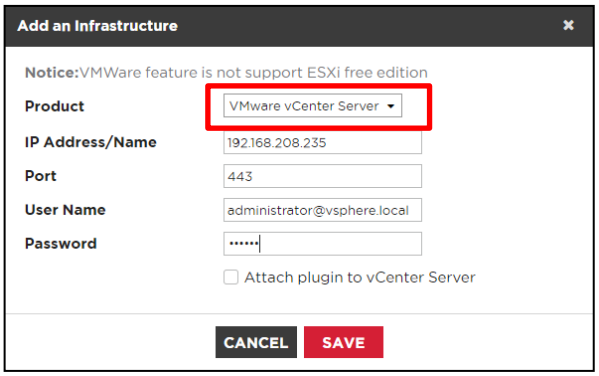
2. CONFIGURATION 5

3. To add a new vCenter server in PPB Management, go to the **DASHBORAD** screen, click on the **Add Device** icon. From the pop-up window, chick **Add Infrastructure**.

Note: *Before you add vCenter server, you must add all UPSs first on DASHBOARD. Please refer to PPB Management user's manual in the section "**Using PPB Management → Device Management**".*



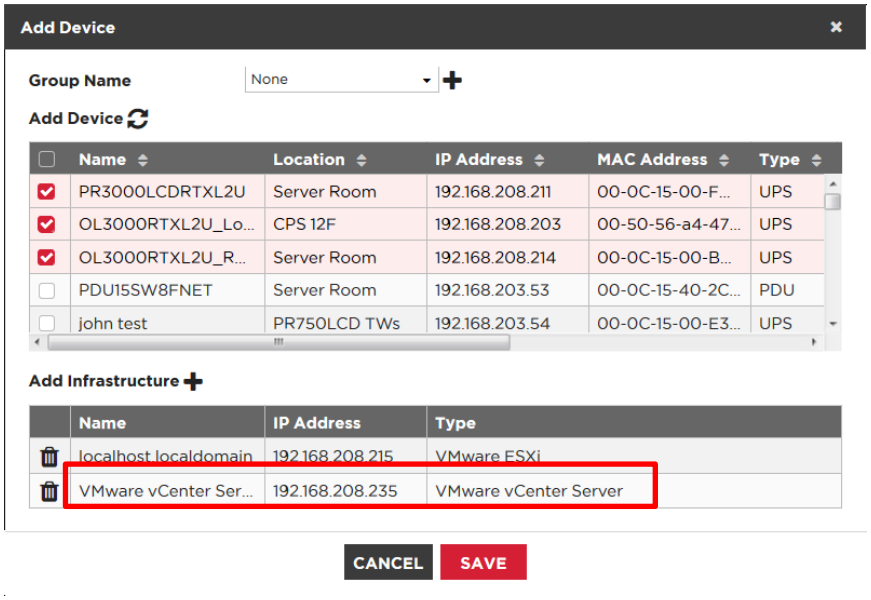
Select **VMware ESXi** from the drop-down list of **Product** item and enter related information including access username and password of the vCenter server, and click **SAVE**.



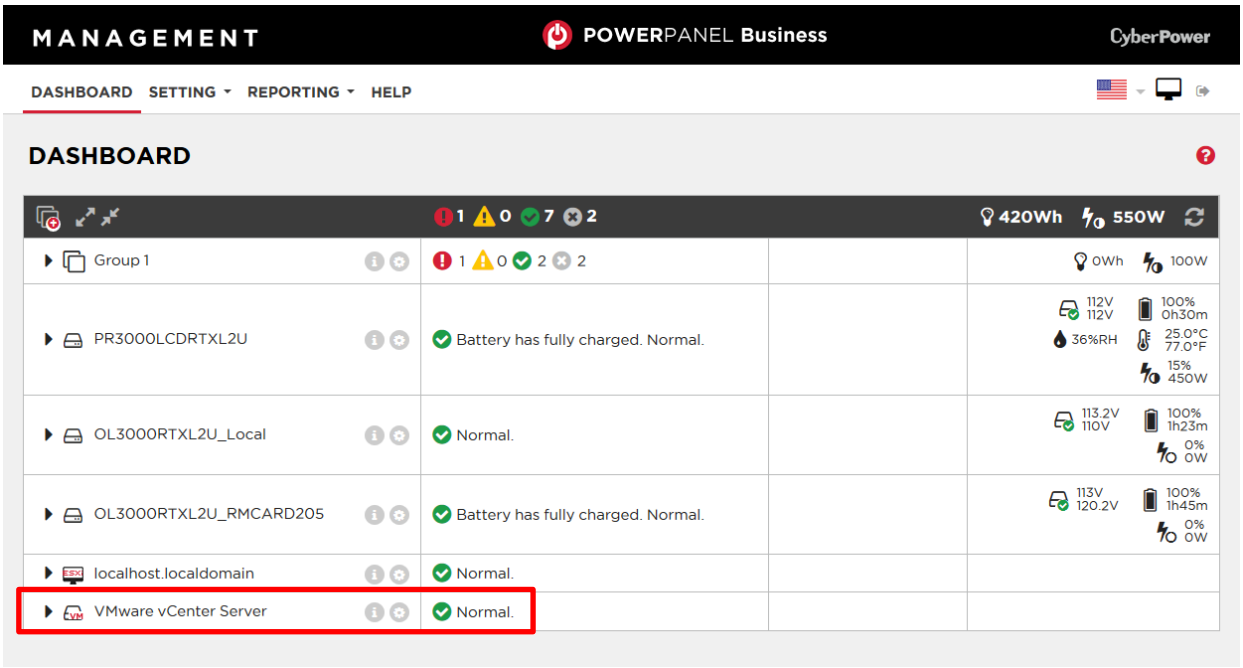
Note: *PPB is not supported on ESXi free edition.*

2. CONFIGURATION 5

The added VMware infrastructure will be shown in the **Add Device** window, then click **SAVE** to finish.

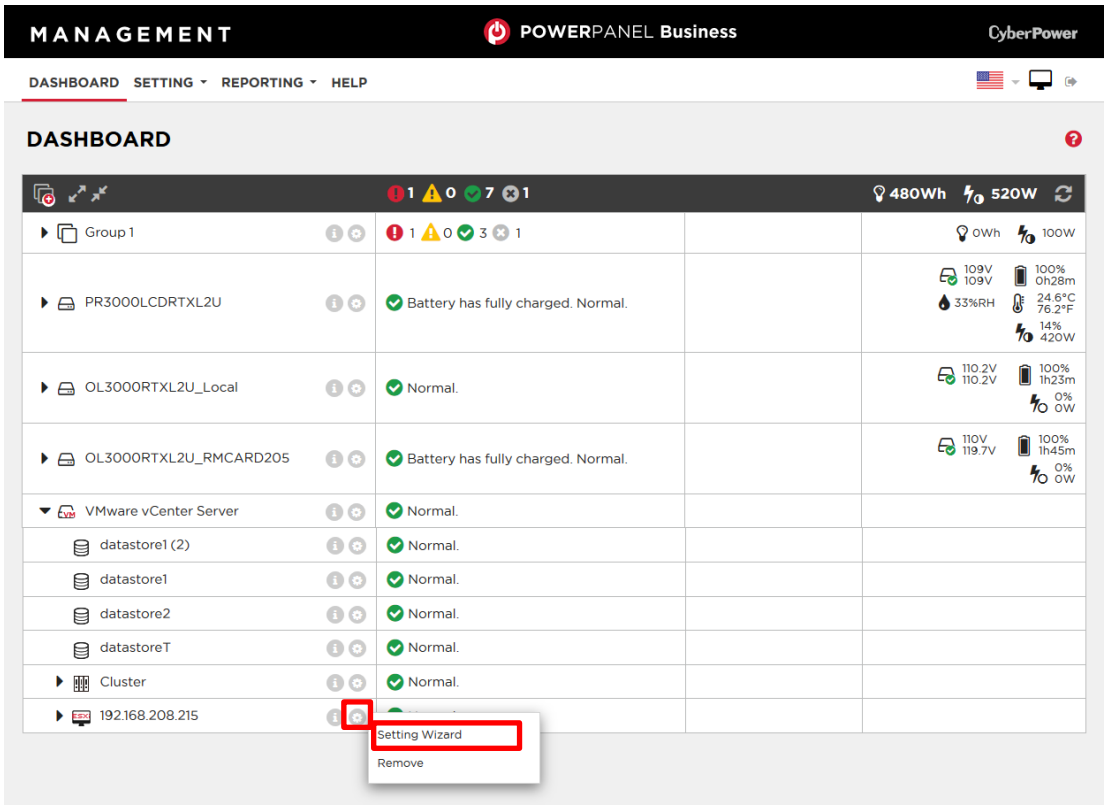


4. The icon of the new vCenter server will be displayed in **DASHBOARD** if the configuration is successful.

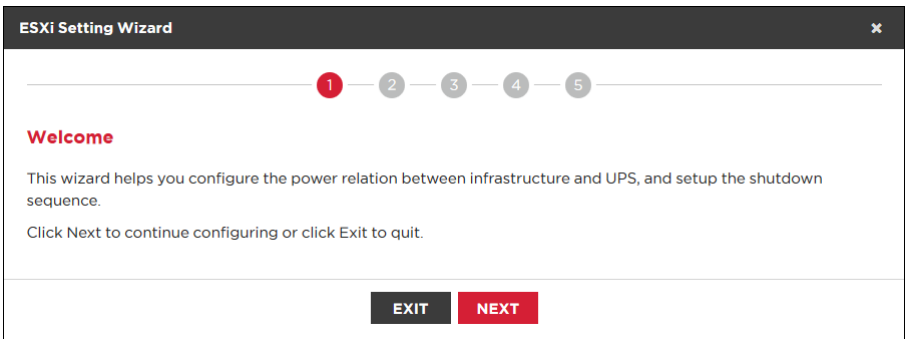


2. CONFIGURATION 5

5. To configure ESXi hosts under VMware vCenter:
Correctly set the power source (UPS) of all added ESXi hosts. To do this click the Setting Icon of device icons (ESXi hosts) and select **Setting Wizard**.

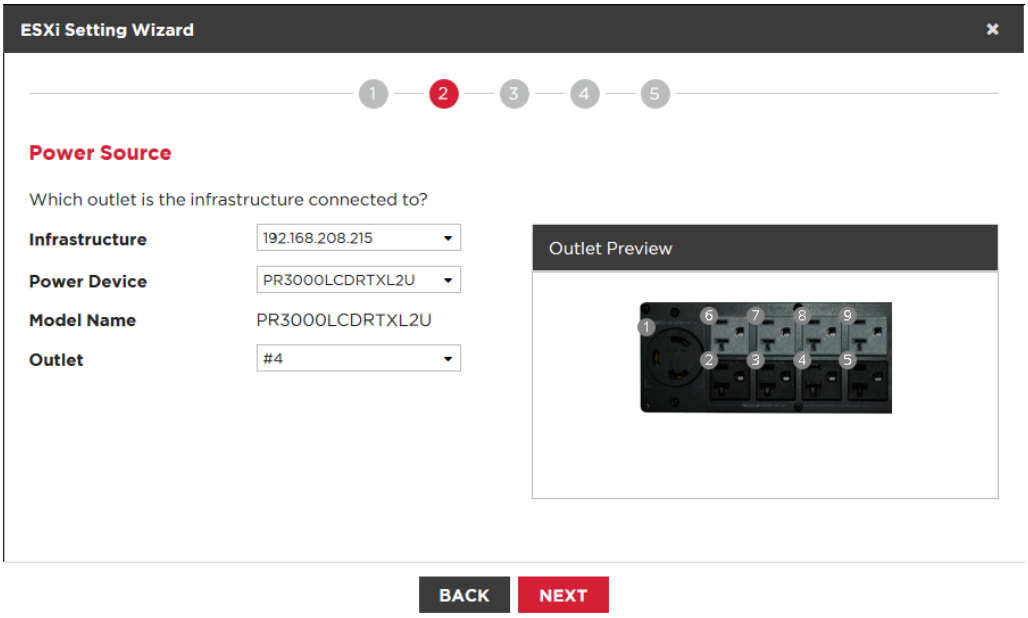


5-1. The “ESXi Setting Wizard” will appear. Please click “**NEXT**” to continue.

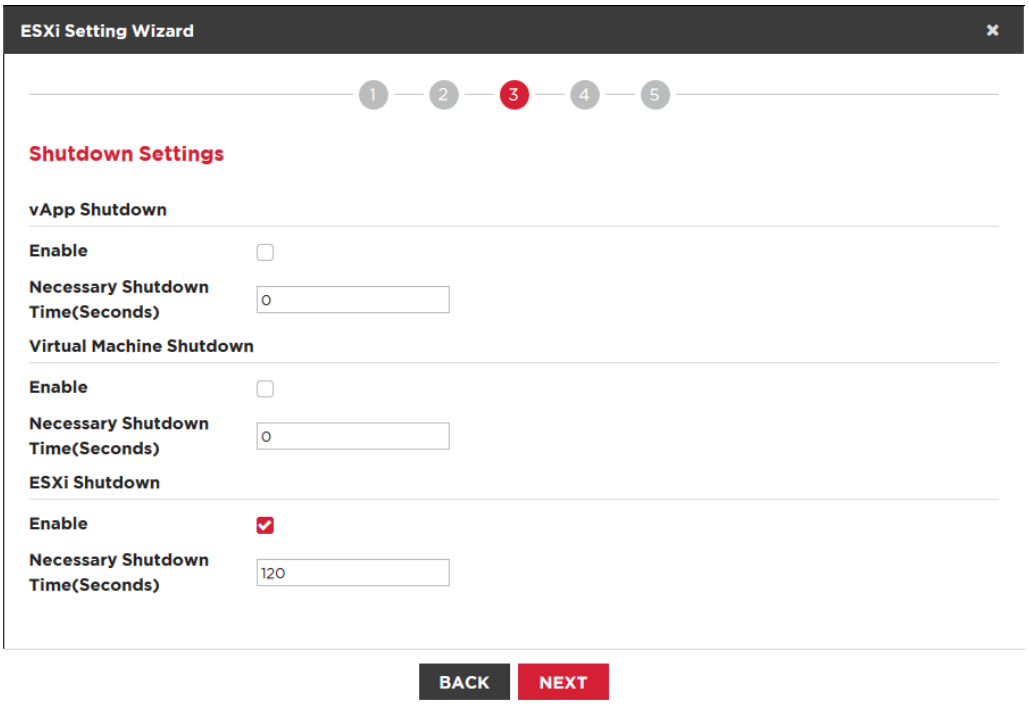


2. CONFIGURATION 5

5-2. To assign the power source (UPS) to the ESXi server, select it from the drop-down list and assign the correct UPS outlet used by the ESXi server and click **NEXT** to continue.



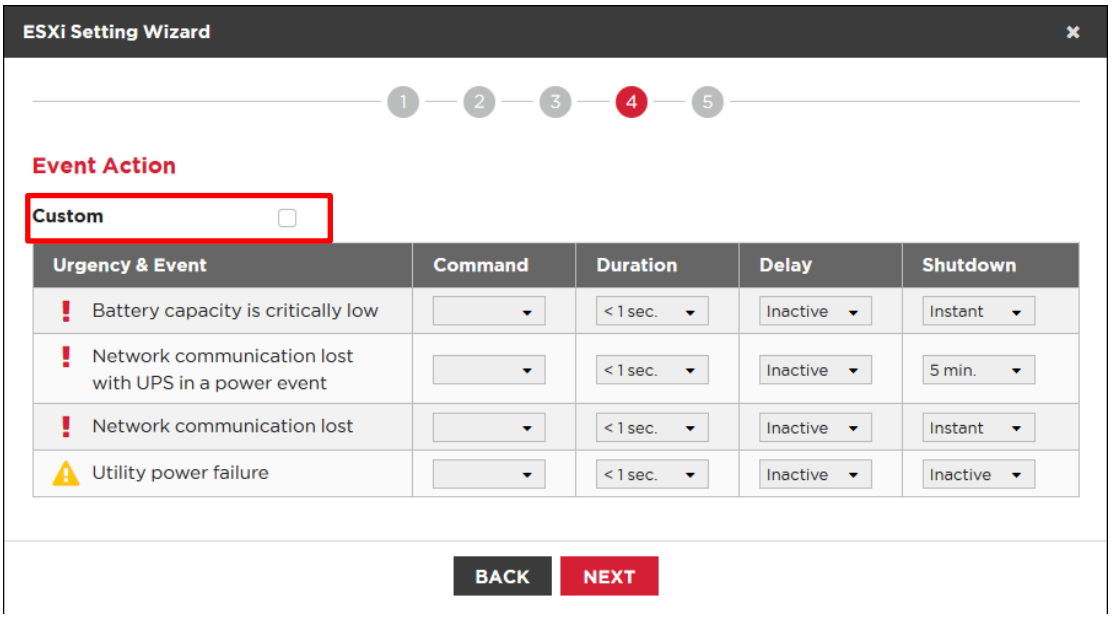
5-3. Next, select if you want vApp, virtual machine, and/or ESXi host to shut down, and the respective amount of time needed for each to complete a graceful shutdown. Click **NEXT** to continue. .



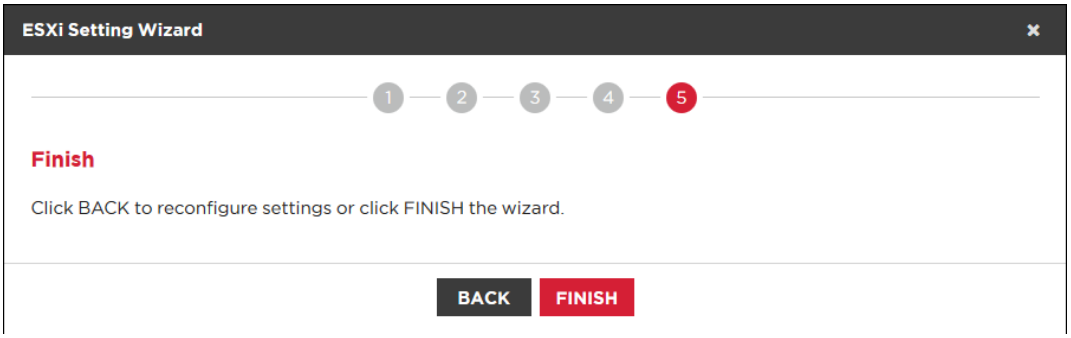
2. CONFIGURATION 5

5-4. The next step is to assign the shutdown behavior. Check "**Custom**" and select the power event and graceful shutdown condition of ESXi server. Click **NEXT** when the setting is done.

Note: *If you skip this step and do not assign shutdown behavior, this ESXi server will follow the shutdown behavior assigned in PPB Management.*

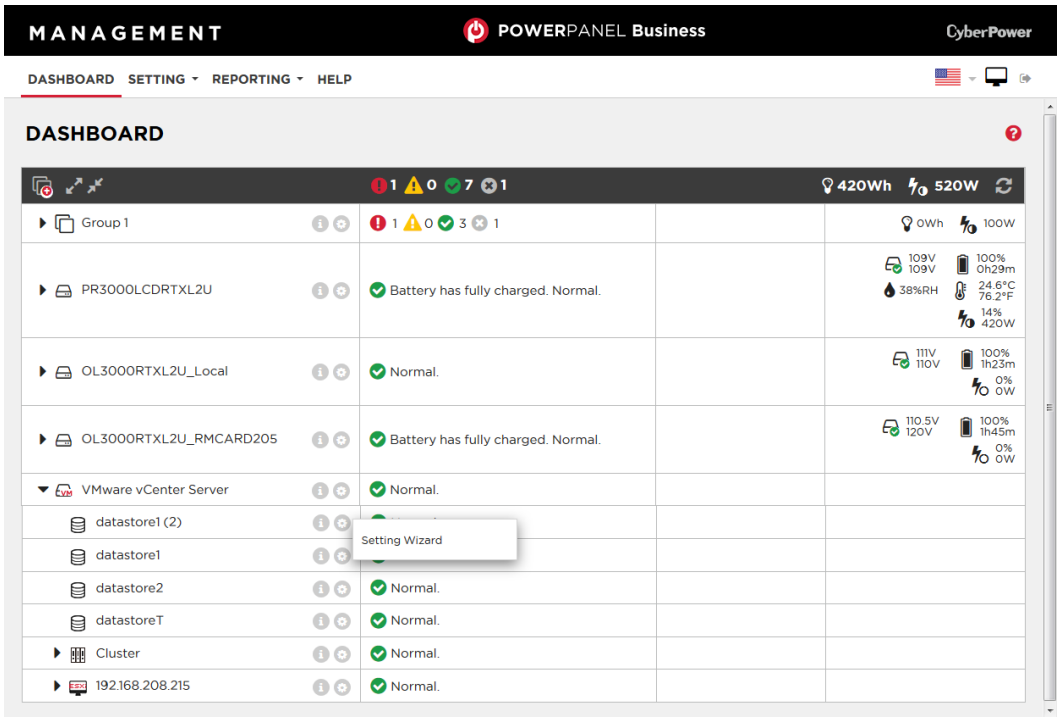


5-5. After all setting details are checked and confirmed correct. Click **FINISH** to complete the configuration of ESXi server.

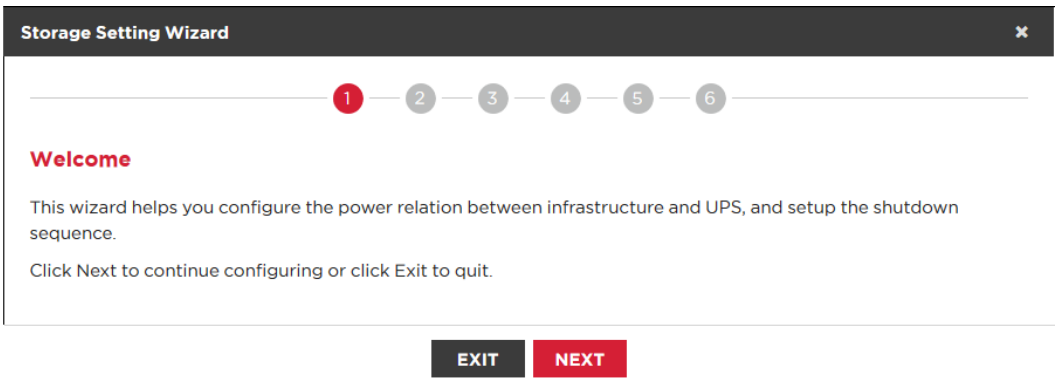


2. CONFIGURATION 5

6. To configure shared storage within VMware vCenter:
Correctly set the power source (UPS) of all shared data storage, click the Setting Icon of device (datastore) and select **Setting Wizard**.

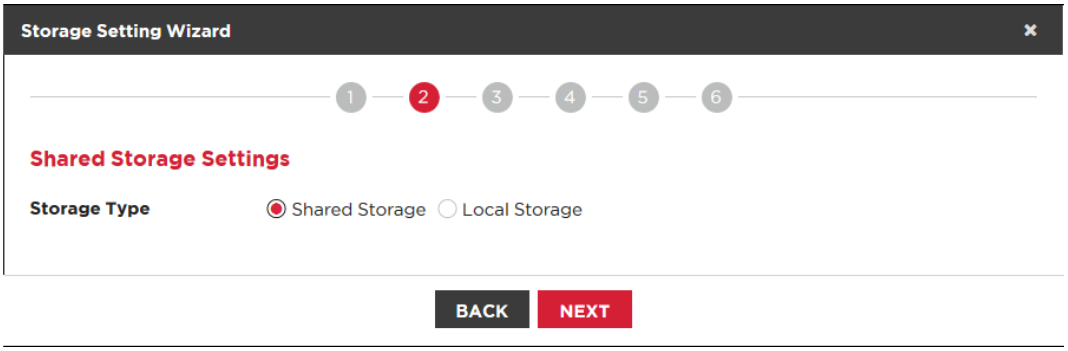


6-1. The “Storage Setting Wizard” will appear. Please click **NEXT** to continue.

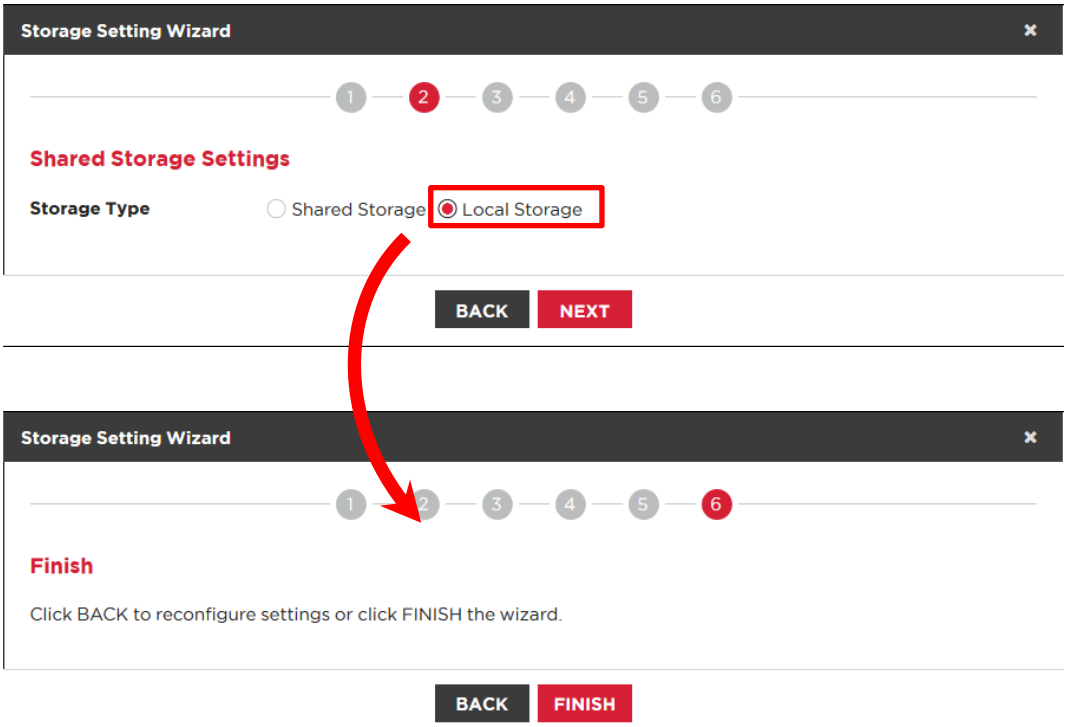


2. CONFIGURATION 5

6-2. In “Storage Type”, please check “Shared Storage” if the storage is a shared storage and has a UPS power source. Click **NEXT** to continue.

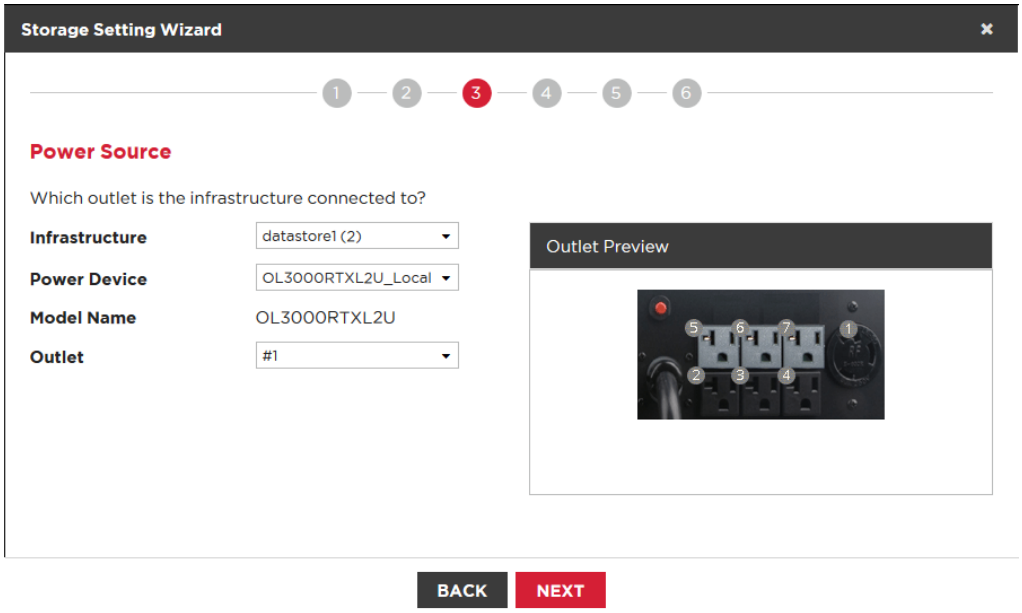


6-3. If you check “Local Storage”, the setting wizard will end and because a local storage is not powered by a separate UPS.

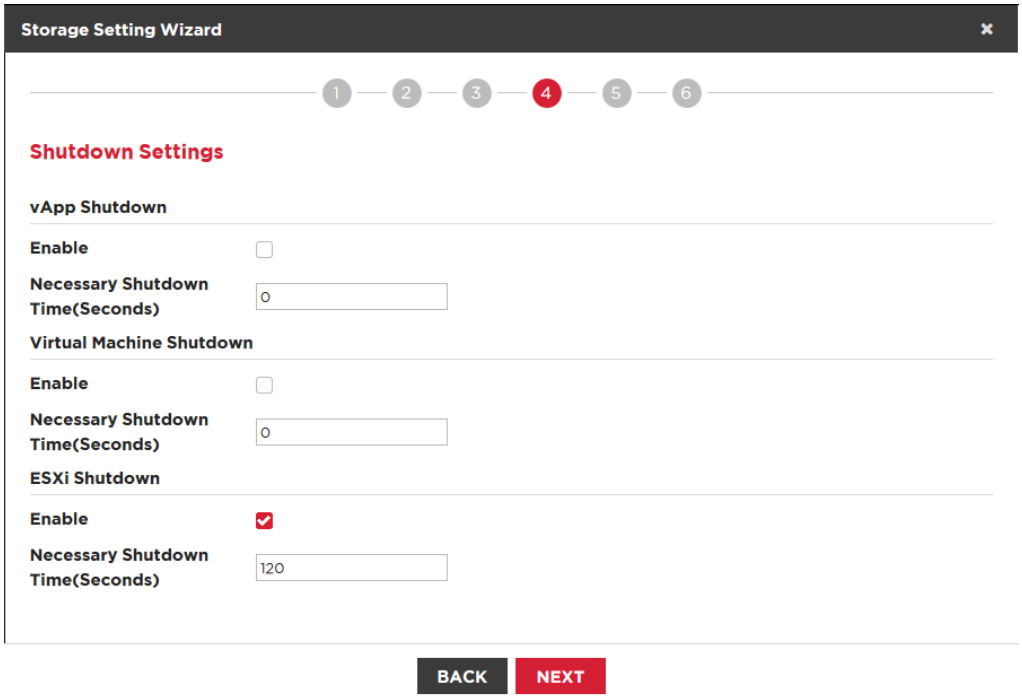


2. CONFIGURATION 5

6-4. To assign the power source (UPS) to the Storage, select it from the drop-down list and assign the correct UPS outlet used by the Storage and click **NEXT** to continue



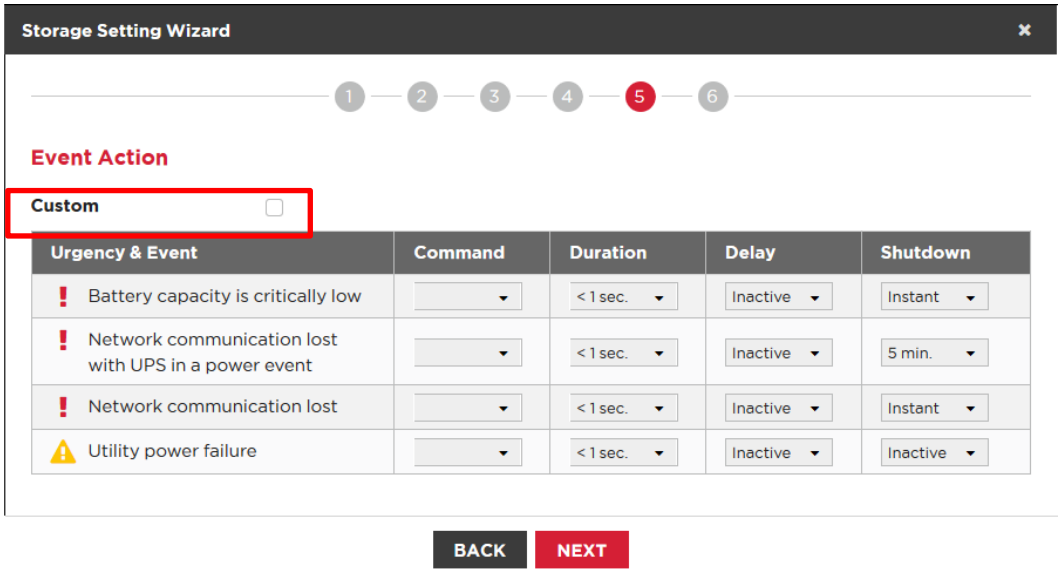
6-5. Next, select if you want vApp, virtual machine, and/or ESXi host in the Storage to shut down, and set the respective amount of time needed for each to complete a graceful shutdown. Click **NEXT** to continue. .



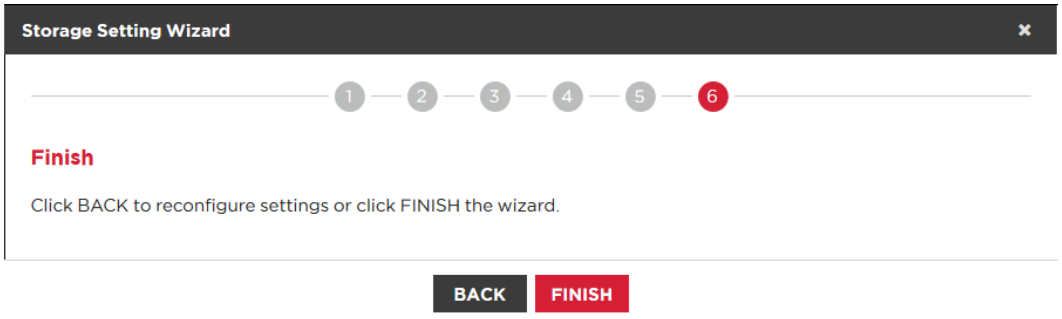
2. CONFIGURATION 5

6-6. The next step is to assign the shutdown behavior. Check "**Custom**" and select the power event and graceful shutdown condition of Storage. Click **NEXT** when the setting is done.

Note: *If you skip this step and do not assign shutdown behavior, this Storage will follow the shutdown behavior assigned in PPB Management.*

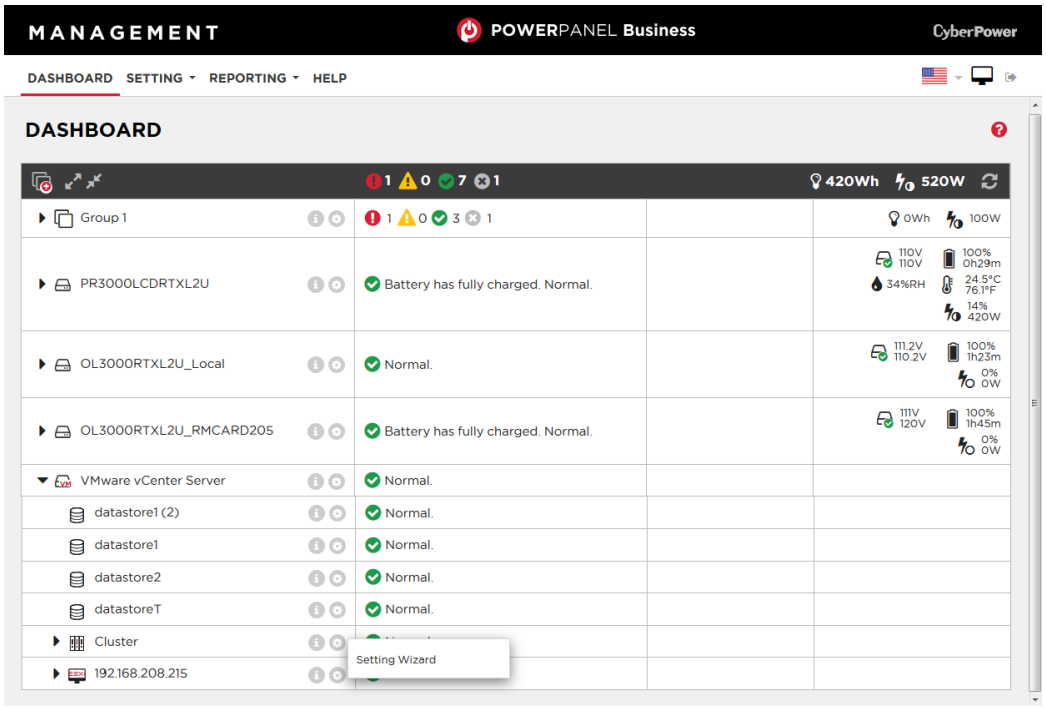


6-7. After all setting details are checked and confirmed correct. Click **FINISH** to complete the configuration of Storage.

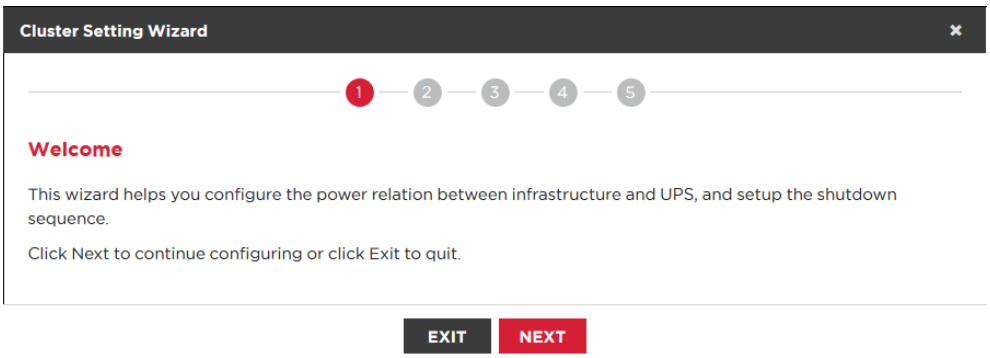


2. CONFIGURATION 5

7. To configure a cluster within VMware vCenter:
To correctly set the power source (UPS) of cluster, click the Setting Icon of device (Cluster) and select **Setting Wizard**.



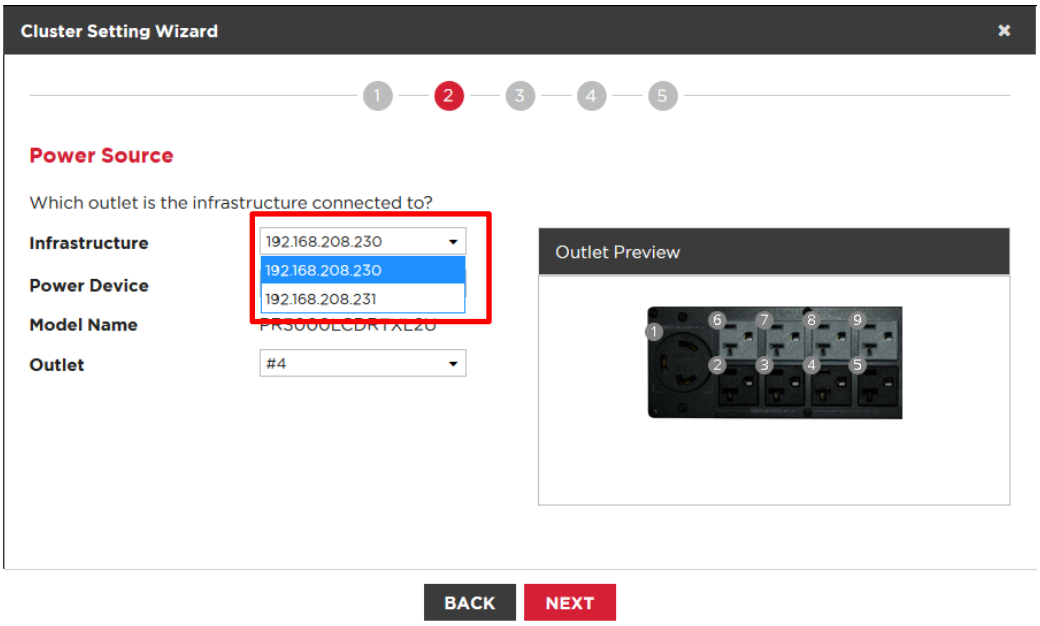
7-1. The “Cluster Setting Wizard” will appear. Please click “**NEXT**” to continue.



2. CONFIGURATION 5

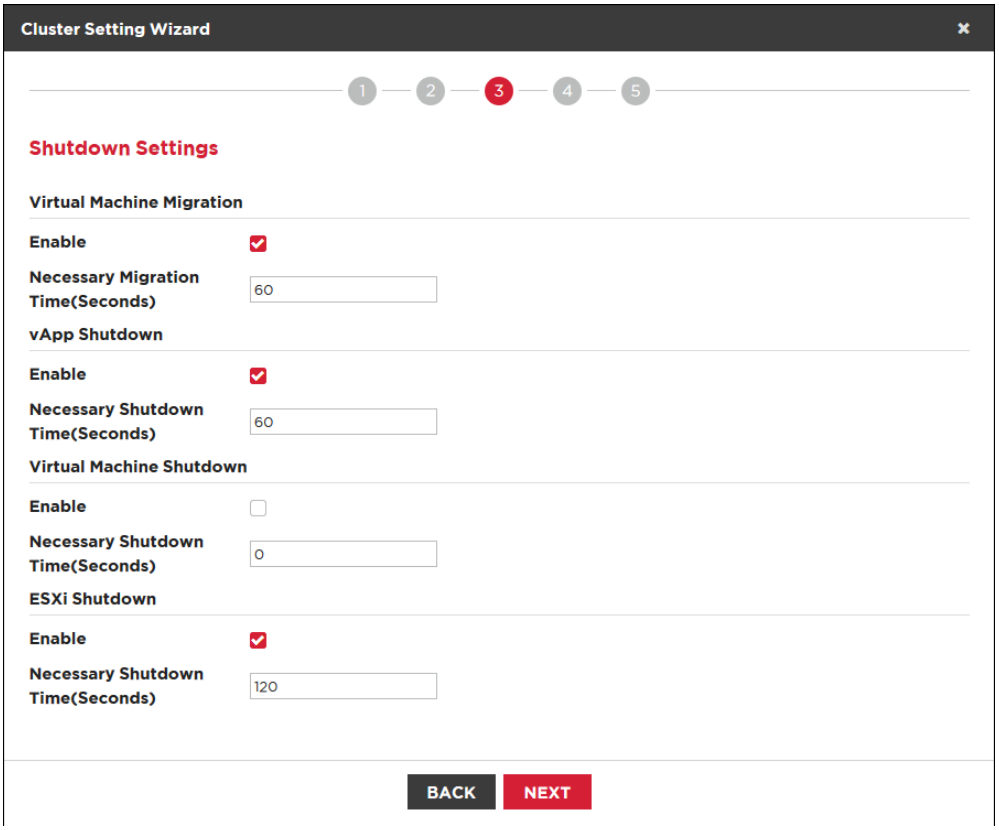
7-2. Assign the power source (UPS) of each ESXi host in the cluster, one by one, by selecting from the **Infrastructure** drop-down list and assign correct UPS and outlet, and click **NEXT** to continue.

Note: *Each ESXi should be assigned correct UPS and outlet from the drop-down list for graceful shutdown protection.*



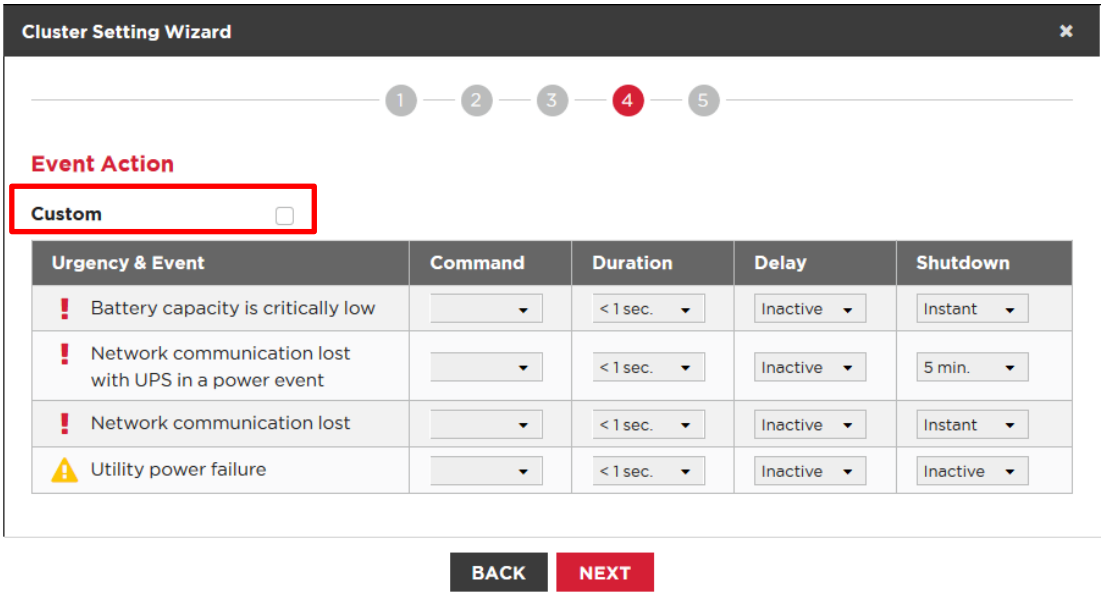
2. CONFIGURATION 5

7-3. After clicking “Next”, the shutdown settings will appear. In addition to selecting virtual machine migration (vMotion), select if you want vApp, virtual machine, and/or ESXi host to shutdown, and the respective amount of time needed for each to complete. Click **NEXT** to continue.

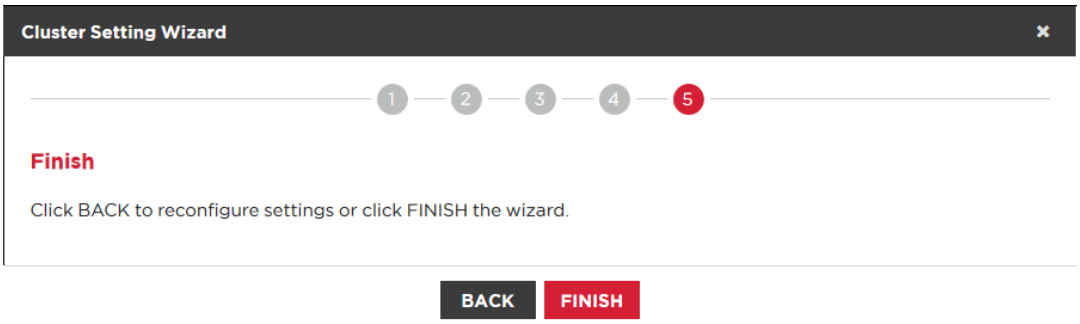


2. CONFIGURATION 5

7-4. The next step is to assign the shutdown behavior. Check “Custom” and select the power event and graceful shutdown condition of cluster. Click **NEXT** when the setting is done.



7-5. After all setting details are checked and confirmed. Click **FINISH** to complete the configuration of cluster.



3. APPENDIX

How to Find VM's IP address?

You can find the VM's IP address in vSphere Web Client interface: **Virtual Machines → General Information → Networking →** I**P Addresses**.