

PowerPanel Business® (PPB) on VMware vSphere ESXi Servers

Installation Guide --- for PowerPanel Business

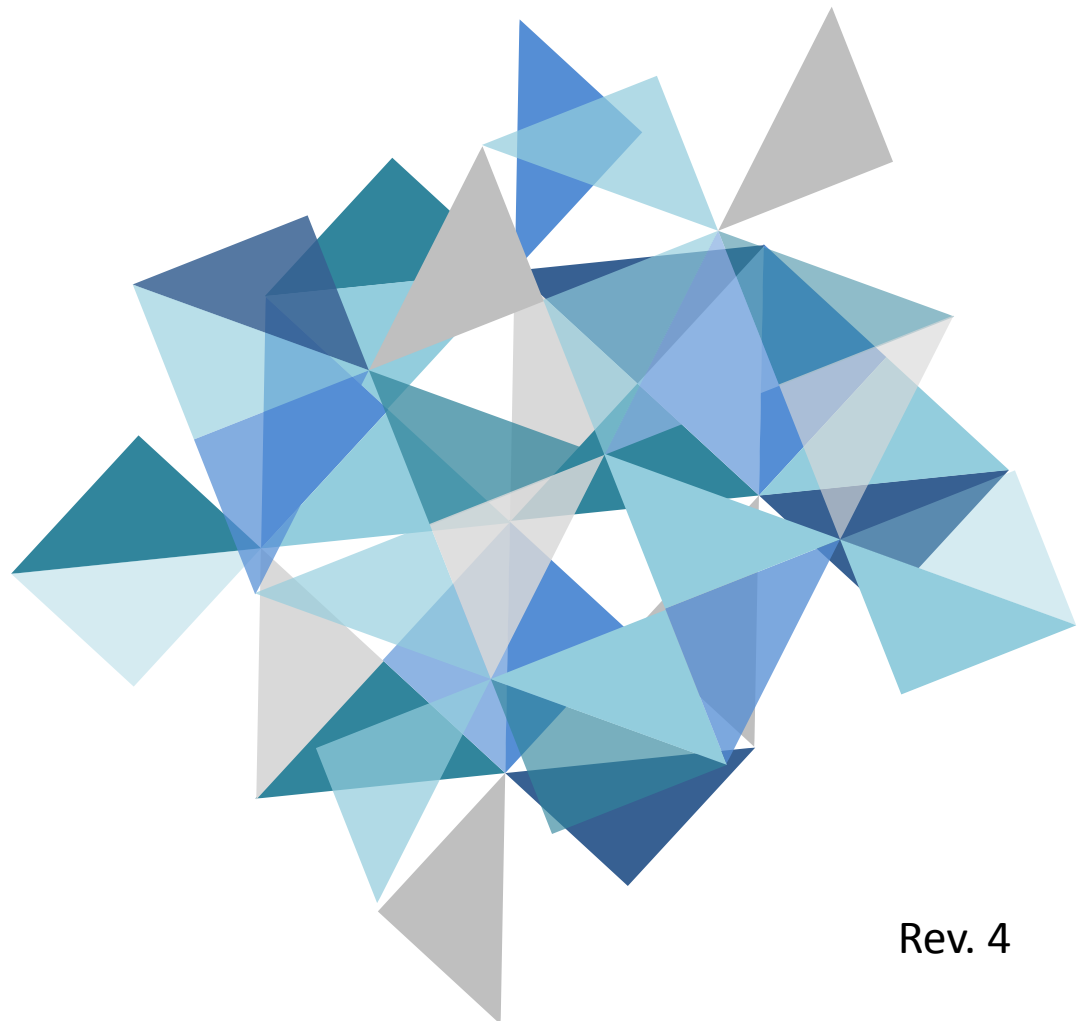


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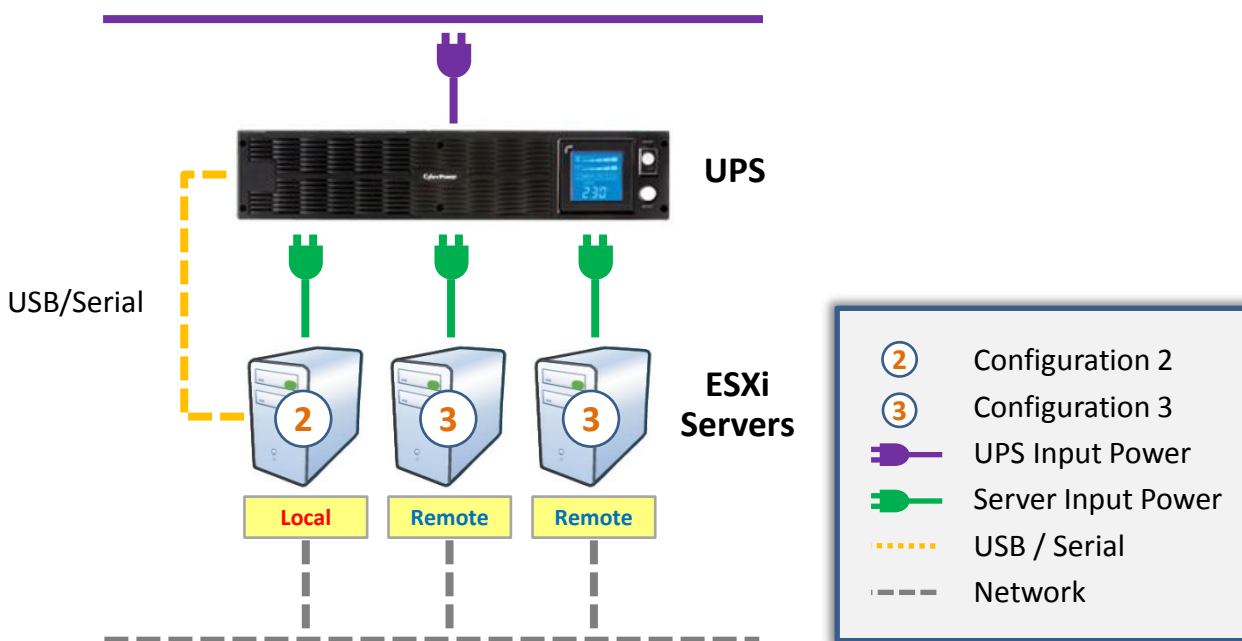
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1. APPLICABLE SCENARIOS

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.

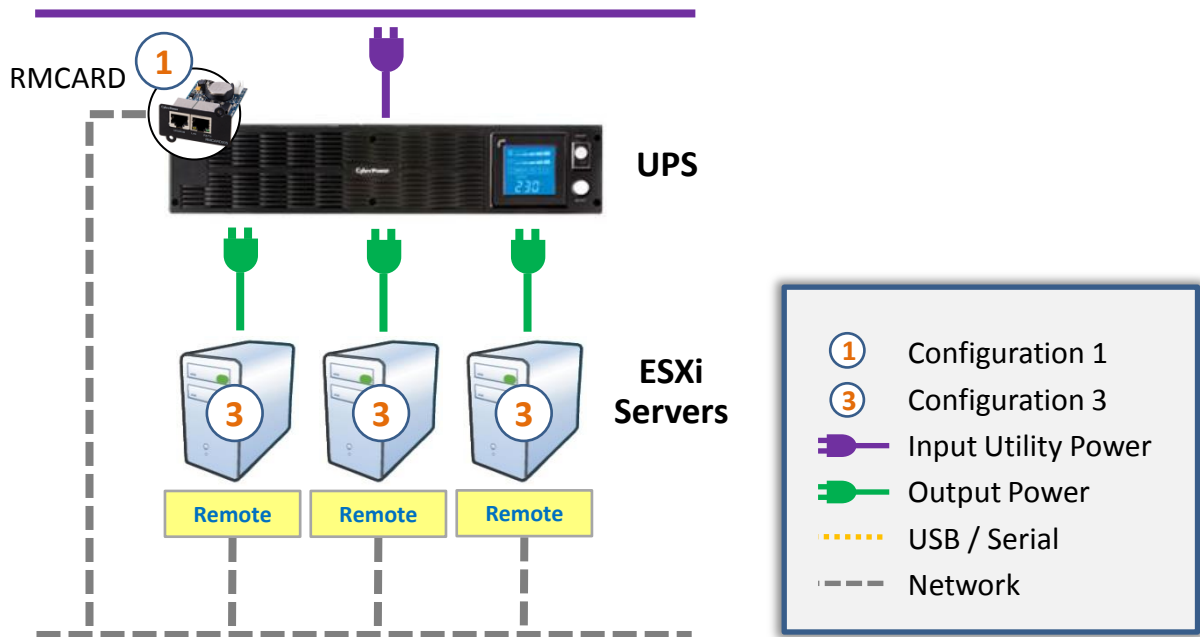
Please refer to Configuration 2 and 3 for the installation and configuration details of PPB VA Local and Remote.

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.

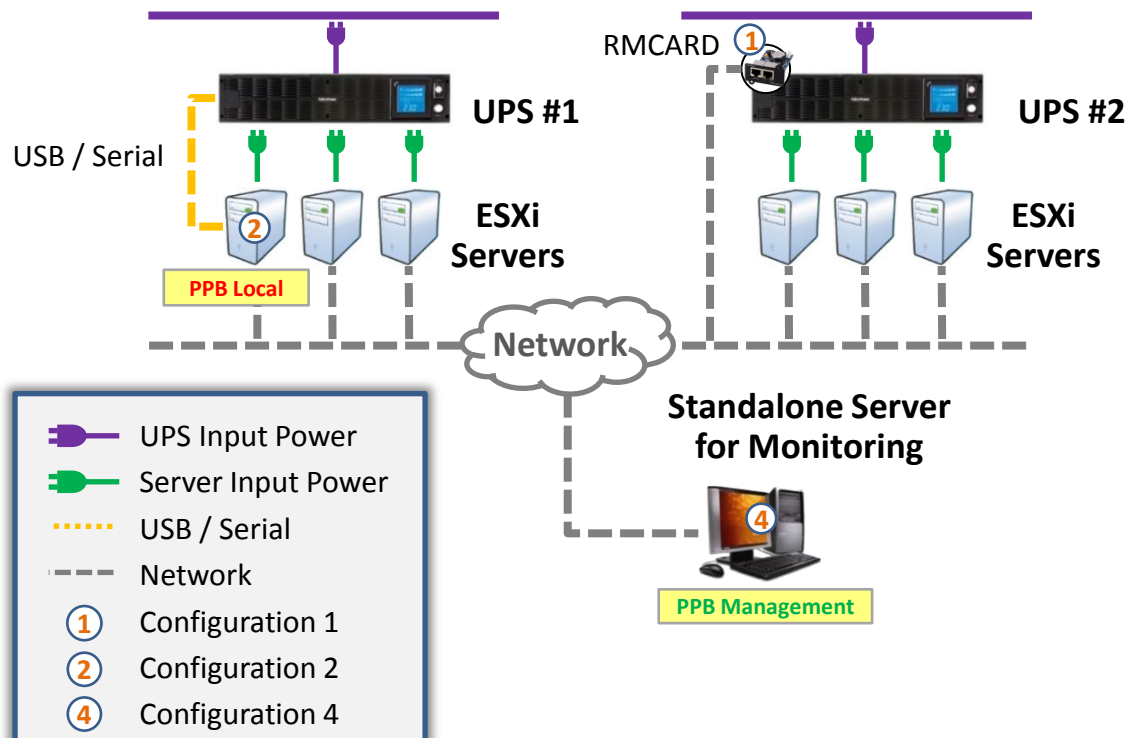
Please refer to Configuration 1 and 3 for the installation and configuration details of the RMCARD and PPB VA Remote.

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.

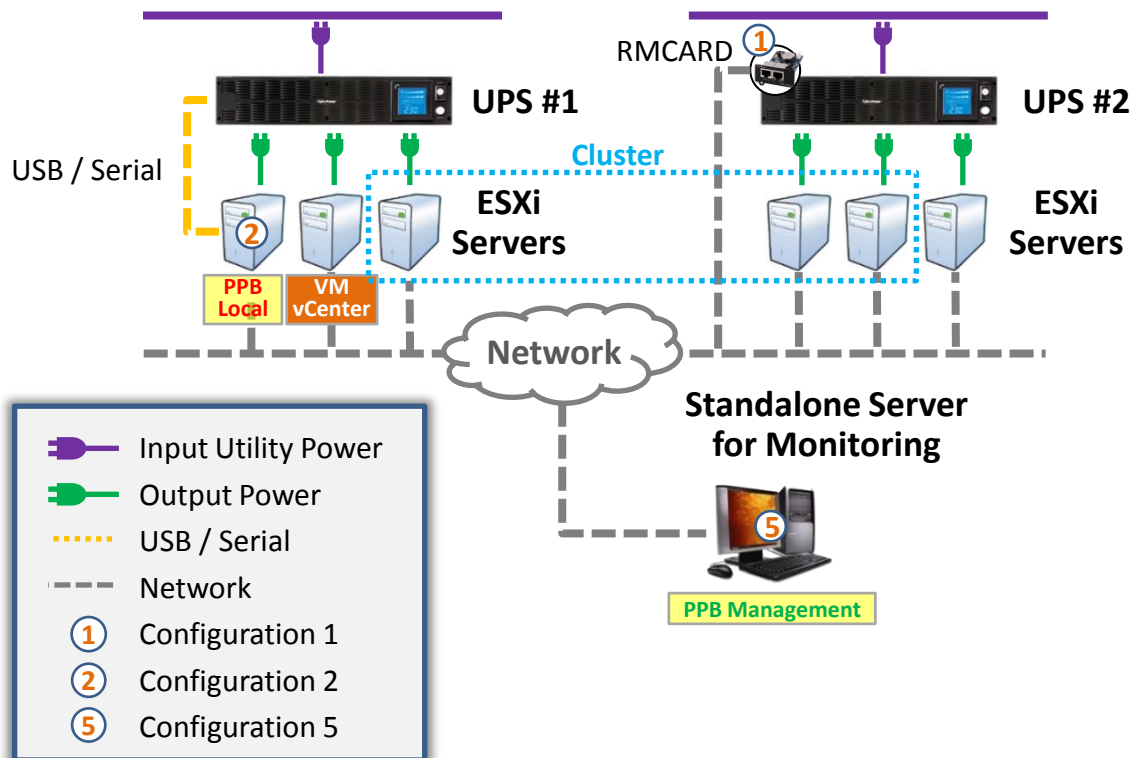
Please refer to Configuration 1, 2, and 4 for the installation and configuration details of the RMCARD, PPB VA Local, and PPB Management.

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.

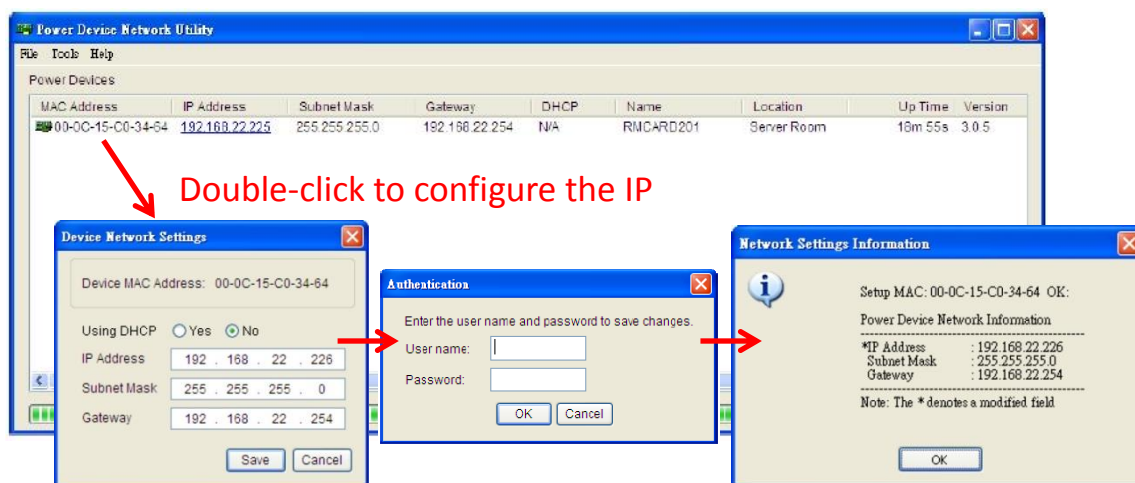
2. CONFIGURATION 1

Install RMCARD on UPS



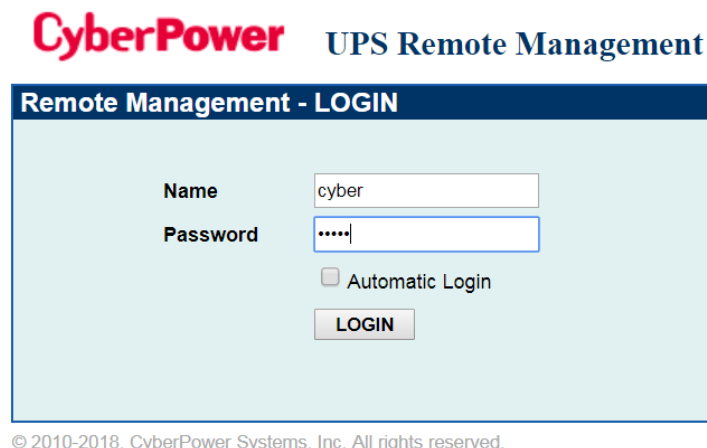
1. Download “Power Device Network Utility” tool from CyberPower official website and use it to discover the RMCARD on your network. Assign a static IP address if necessary.

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**.

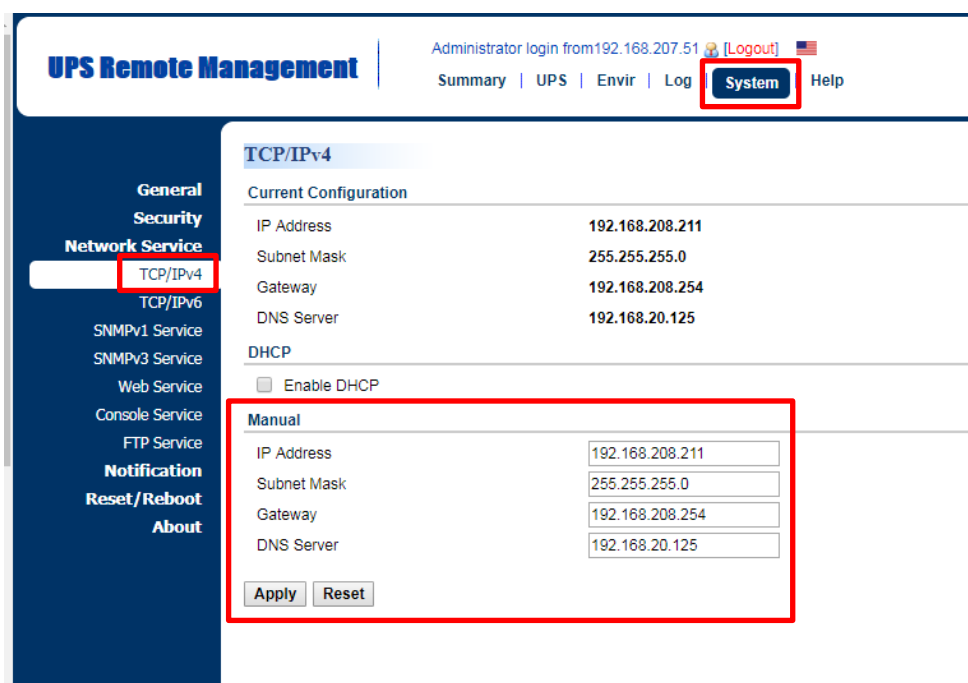


2. CONFIGURATION 1

- 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**.



- 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.

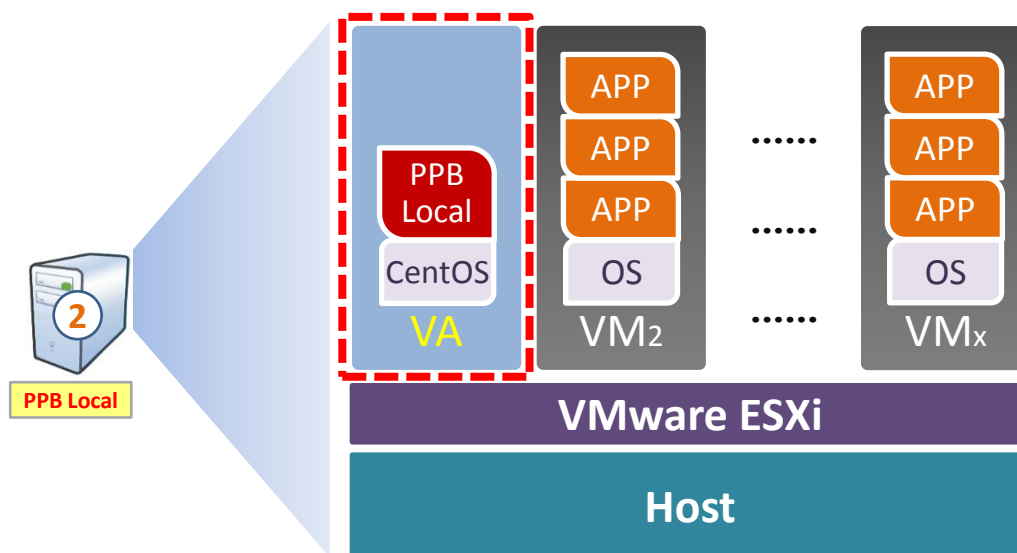
After all installation and configuration are done, you can return to check if all ESXi hosts with PPB VA Remote are displayed on the list.

The screenshot shows the 'UPS Remote Management' web interface. The top navigation bar includes 'Summary', 'UPS' (highlighted with a red box), 'Envir', 'Log', 'System', and 'Help'. The left sidebar lists various menu items: 'Status', 'Information', 'Configuration', 'Master Switch', 'Bank Control', 'Diagnostics', 'Schedule', 'Wake on Lan', 'EnergyWise', and 'PowerPanel® List' (highlighted with a red box). The main content area is titled 'PowerPanel® List' and contains a 'Configuration' section with two settings: 'Max Clients Shutdown Time (MST)' set to '8 minute(s)' and 'Max Clients Shutdown Delay Time (MSDT)' set to '15 minute(s)'. Below this is a 'List' table with the following data:

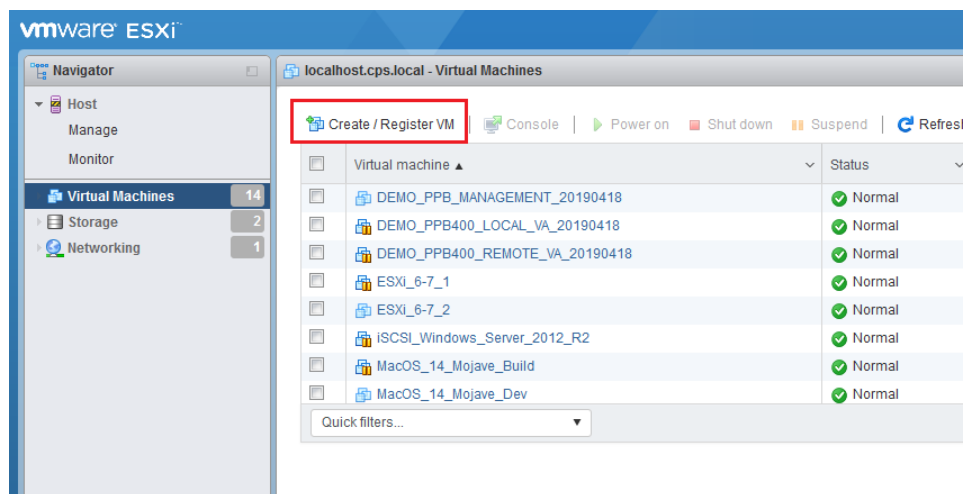
| IP Address | Type | Outlet | Bank | ST | DT | Name | Location |
|-----------------|--------|--------|------|-----|-----|--------------------------------|----------|
| 192.168.208.205 | Client | 1 | NCL | 8 | 7 | ppbeclientatsdemo.cpsww.com.tw | |
| 192.168.208.202 | Center | N/A | N/A | N/A | N/A | | |

2. CONFIGURATION 2

Install PPB VA Local



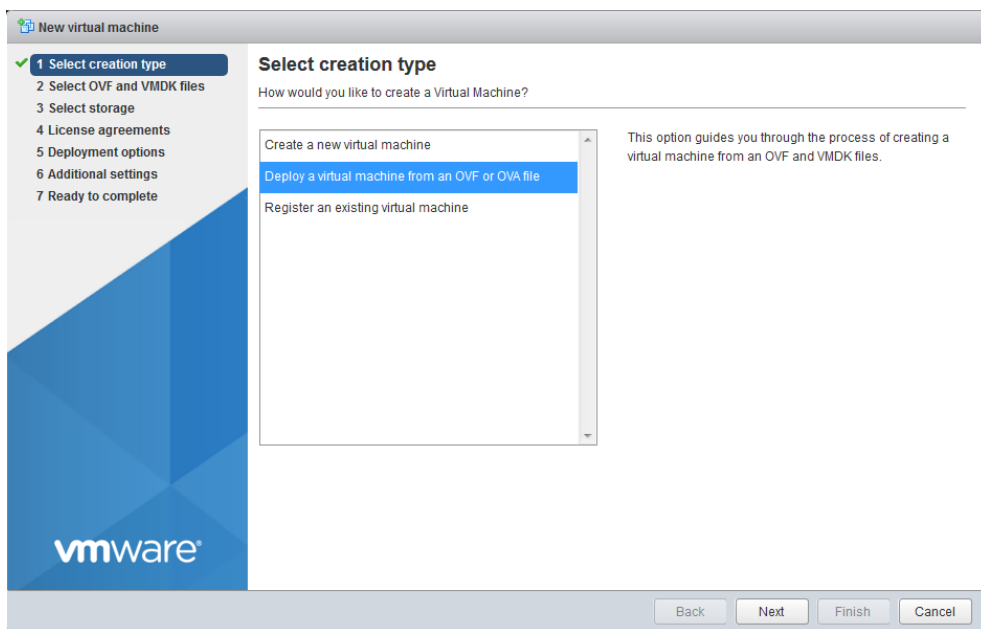
1. Download the latest version of **PPB Local Virtual Appliance** from CyberPower official website.
2. Launch the vSphere Web Client. Deploy the virtual appliance from **Virtual Machines** → **Create / Register VM**.



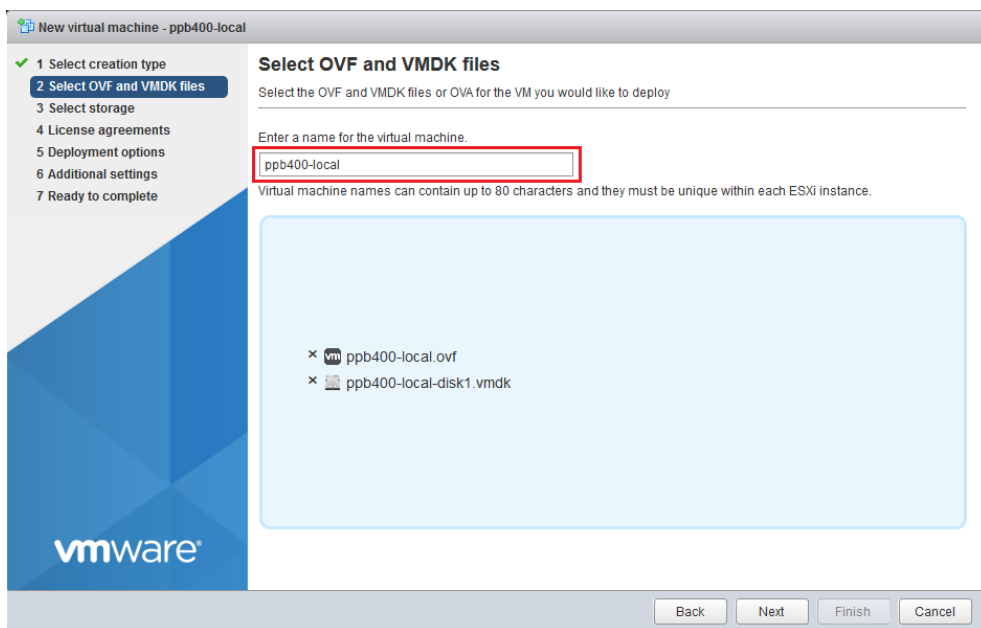
- Note:** If your VMware ESXi is v6.5 or above, please use **vSphere Web Client** because vSphere Client is not supported.
- Note:** PPB is not supported on ESXi free edition.

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.

New virtual machine - ppb400-local

1 Select creation type
2 Select OVF and VMDK files
3 Select storage
4 License agreements
5 Deployment options
6 Additional settings
7 Ready to complete

Select storage

Select the storage type and datastore

☒ Standard ☐ Persistent Memory

Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

| Name | Capacity | Free | Type | Thin pro... | Access |
|------------------|-----------|-----------|-------|-------------|--------|
| datastore2 | 111.75 GB | 25.67 GB | VMFS6 | Supported | Single |
| Local_SATA_500GB | 465.5 GB | 111.27 GB | VMFS6 | Supported | Single |

2 items

Back Next Finish Cancel

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

New virtual machine - ppb400-local

1 Select creation type
2 Select OVF and VMDK files
3 Select storage
4 Deployment options
5 Ready to complete

Deployment options

Select deployment options

Network mappings: VM Network (VM Network)

Disk provisioning: ☒ Thin ☐ Thick

Power on automatically: ☒

Back Next Finish Cancel

2. CONFIGURATION 2

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

The screenshot shows the 'New virtual machine - ppb400-local' wizard in VMware vSphere. The left sidebar shows five steps: 1 Select creation type, 2 Select OVF and VMDK files, 3 Select storage, 4 Deployment options, and 5 Ready to complete (highlighted). The main area is titled 'Ready to complete' and contains a table of settings.

| Ready to complete | |
|------------------------------------------------------------|-------------------------------|
| Review your settings selection before finishing the wizard | |
| Product | ppb411testv2-local |
| VM Name | ppb400-local |
| Disks | ppb411testv2-local-disk1.vmdk |
| Datastore | Local_SATA_500GB |
| Provisioning type | Thin |
| Network mappings | VM Network: VM Network |
| Guest OS Name | Unknown |

Below the table is a yellow warning icon and the text: 'Do not refresh your browser while this VM is being deployed.'

At the bottom right are four buttons: Back, Next, Finish, and Cancel.

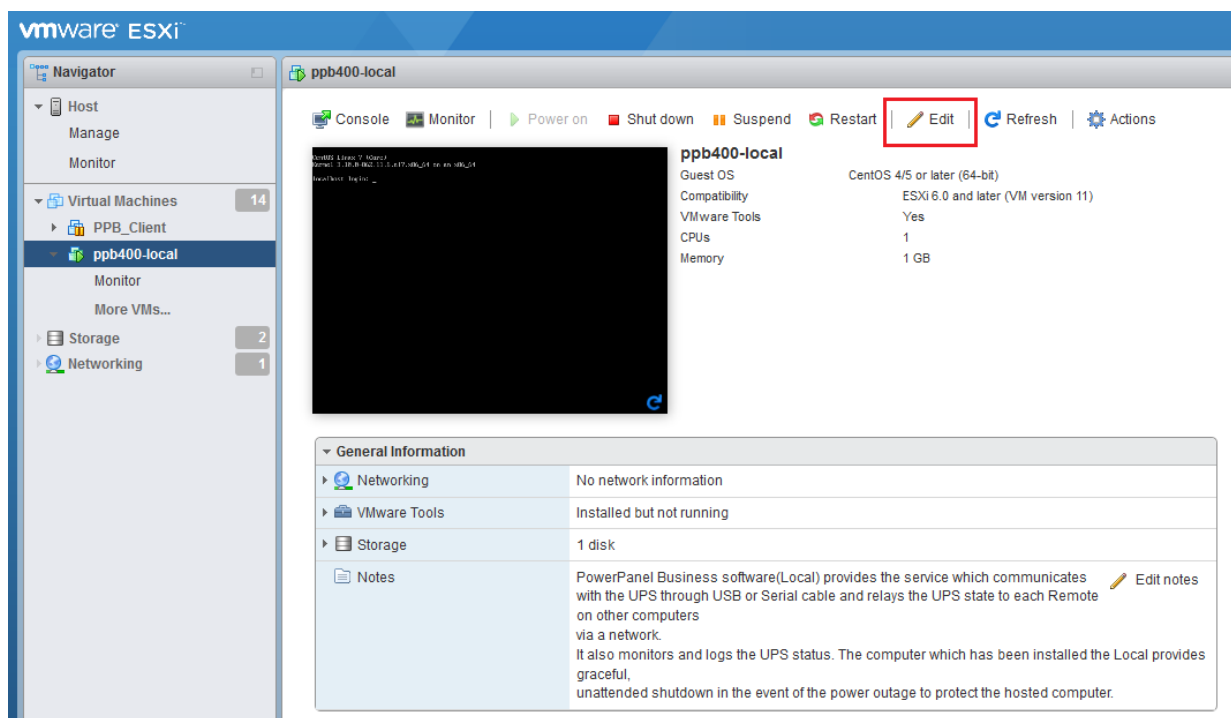
8. After the deployment task is completed, the PPB virtual appliance will be added into the inventory.

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.

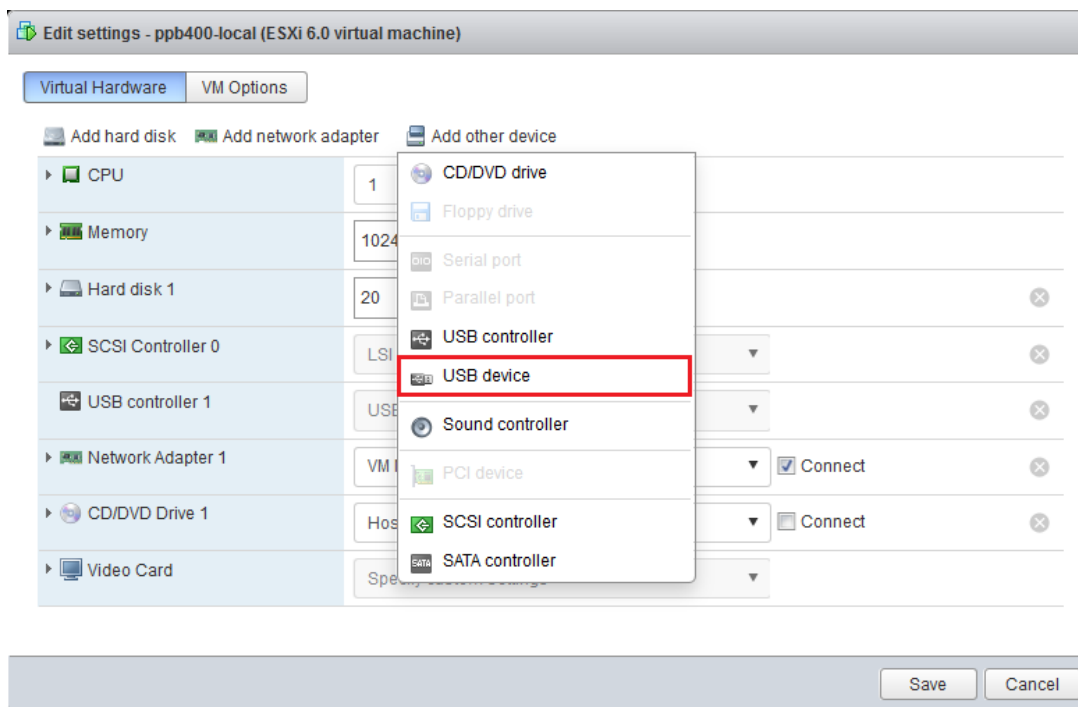
If PPB VA Local is installed on a virtual machine, then the USB or serial port will need to be manually assigned to the virtual machine. To do this, please follow these steps:.

- 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.

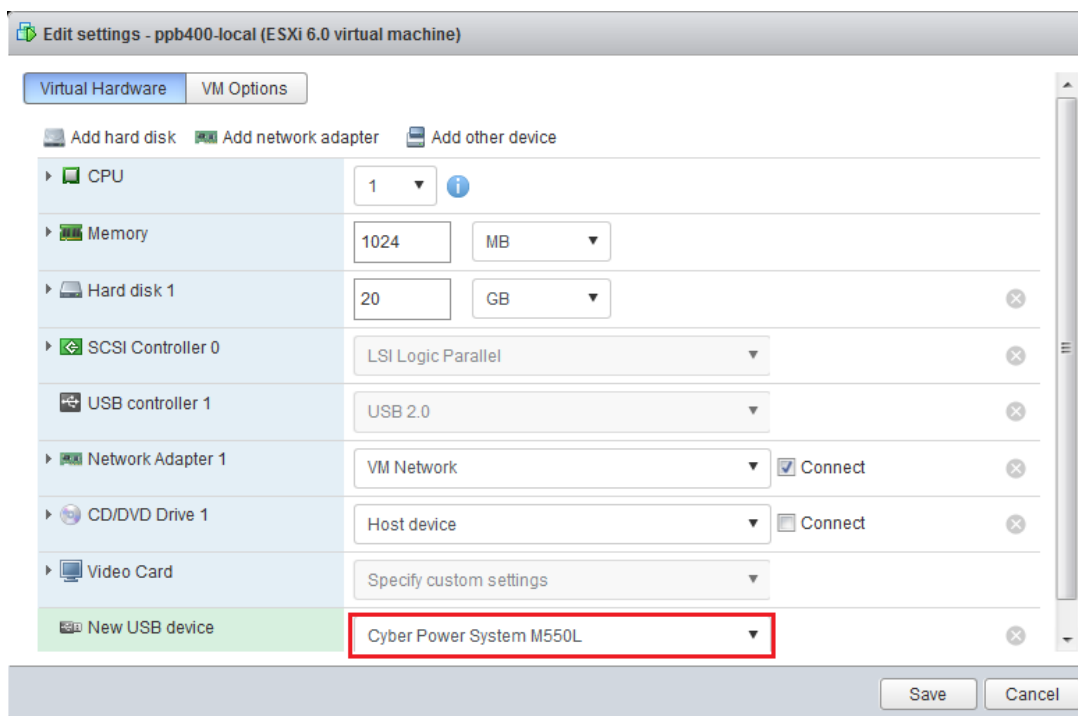


2. CONFIGURATION 2

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**.

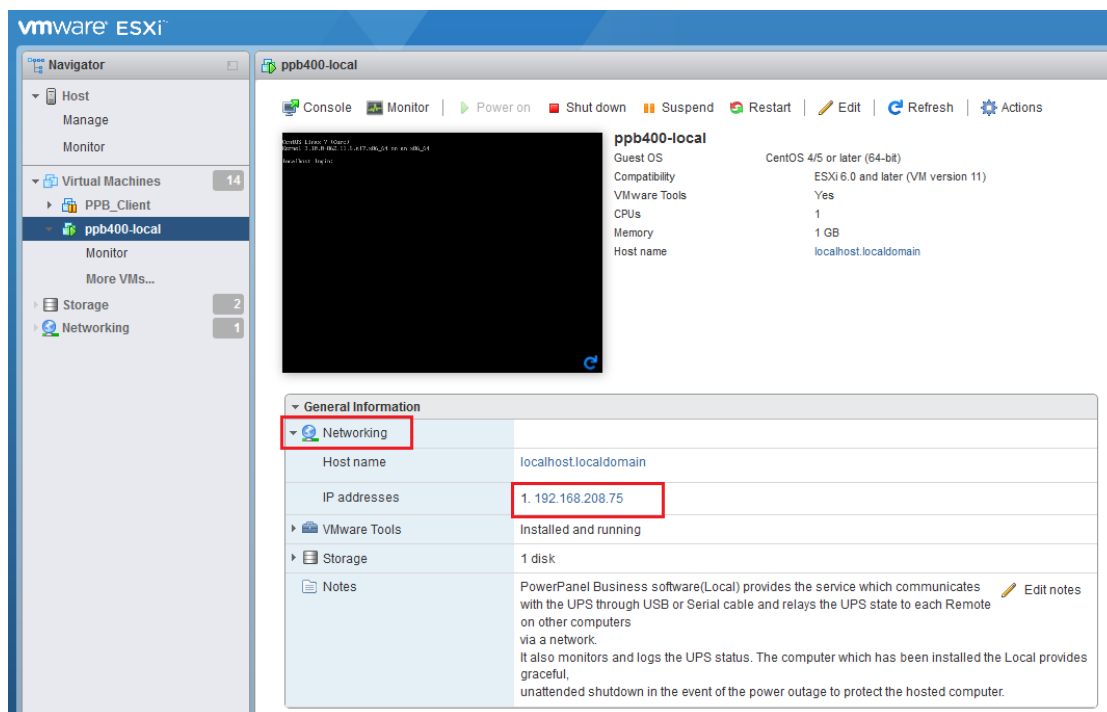


2. CONFIGURATION 2

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.



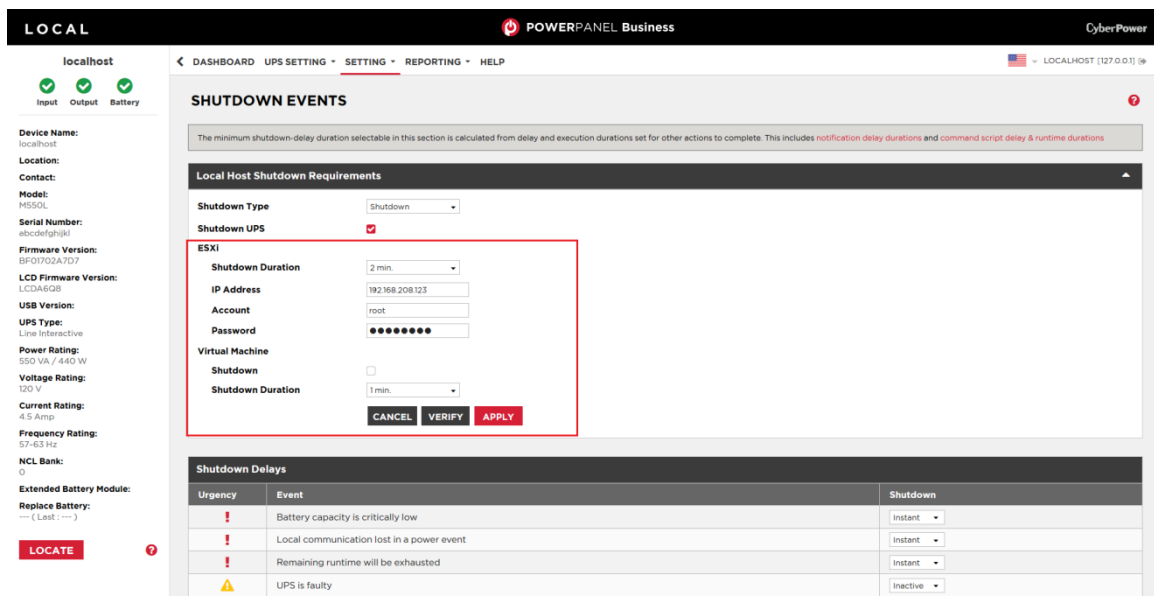
2. CONFIGURATION 2

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.



LOCAL **POWERPANEL Business** CyberPower

localhost

Input Output Battery

Device Name: localhost
Location:
Contact:
Model: H550L
Serial Number: abcdefghijkl
Firmware Version: BF01702A7D7
LCD Firmware Version: LCD4608
USB Version:
UPS Type: Line Interactive
Power Rating: 550 VA / 440 W
Voltage Rating: 120 V
Current Rating: 4.5 Amp
Frequency Rating: 57-63 Hz
NCL Bank: 0
Extended Battery Module:
Replace Battery: --- (Last : ---)

LOCATE

SHUTDOWN EVENTS

The minimum shutdown-delay duration selectable in this section is calculated from delay and execution durations set for other actions to complete. This includes notification delay durations and command script delay & runtime durations

Local Host Shutdown Requirements

Shutdown Type: Shutdown

Shutdown UPS: ☒

ESXi

Shutdown Duration: 2 min

IP Address: 192.168.208.123

Account: root

Password: ••••••••

Virtual Machine

Shutdown: ☐

Shutdown Duration: 1 min

CANCEL VERIFY APPLY

Shutdown Delays

| Urgency | Event | Shutdown |
|---------|-------------------------------------------|----------|
| ! | Battery capacity is critically low | Instant |
| ! | Local communication lost in a power event | Instant |
| ! | Remaining runtime will be exhausted | Instant |
| ! | UPS is faulty | Inactive |

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".

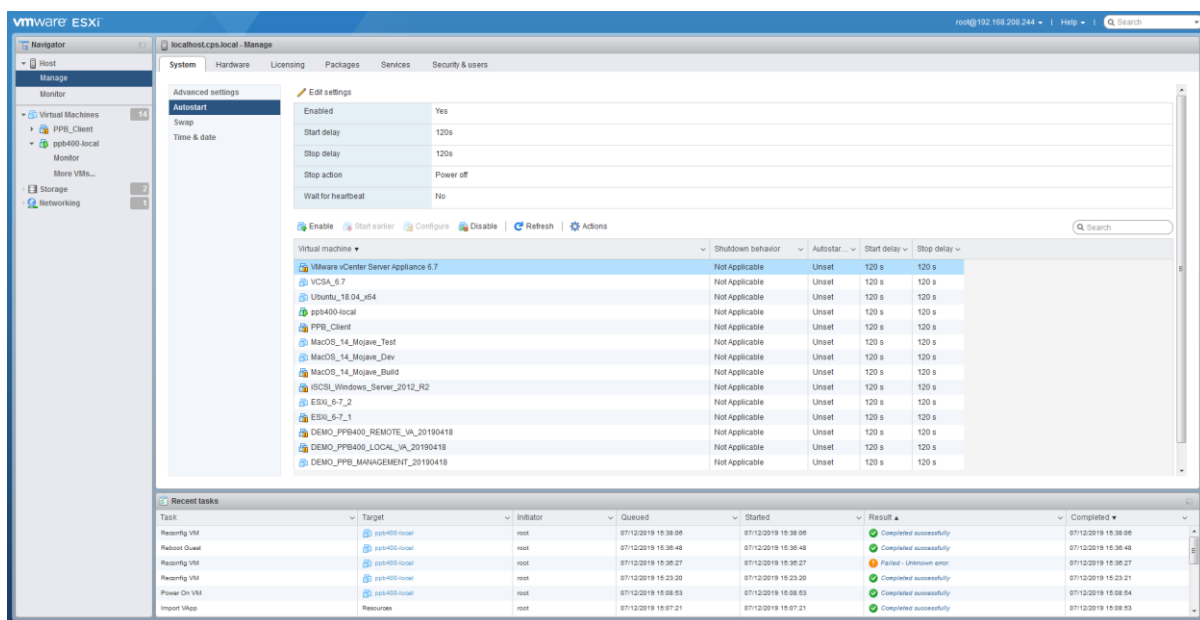
After clicking **APPLY**, you can test if the Account/Password can access the host by clicking **VERIFY**.

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.

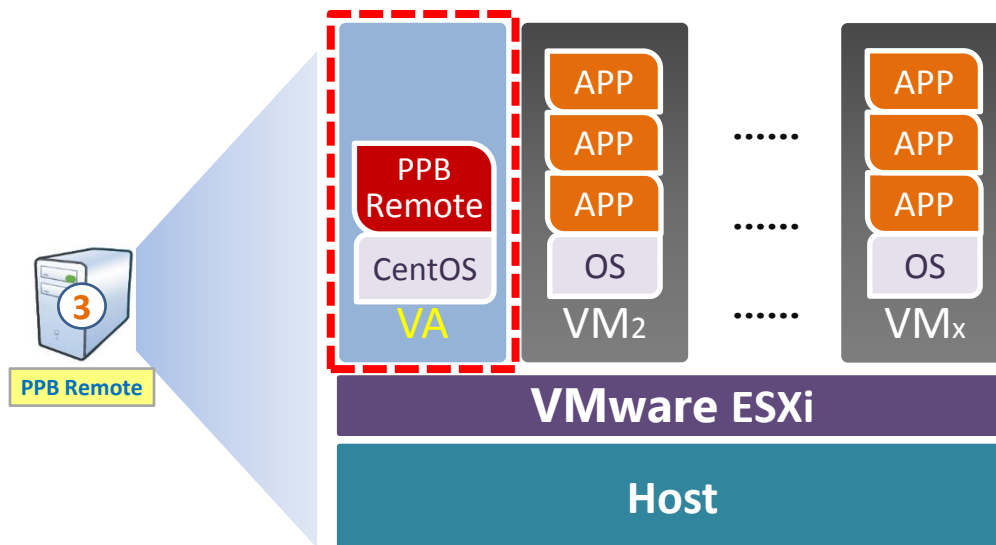
In order to ensure that all virtual machines shut down and restart gracefully, check the "Autostart" setting through vSphere menu by going to **Host → Manage → System**



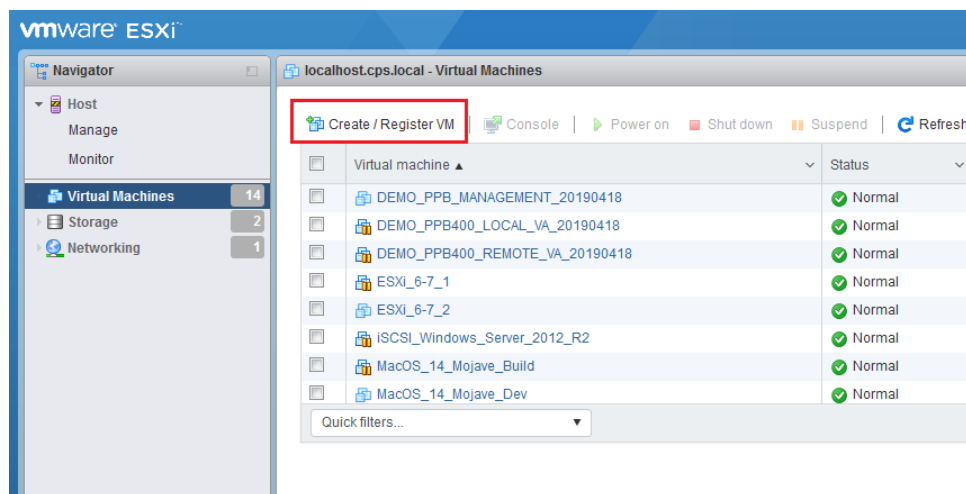
DONE! Now you can test and see if the host can work with the UPS properly.



2. CONFIGURATION 3

Install PPB VA Remote



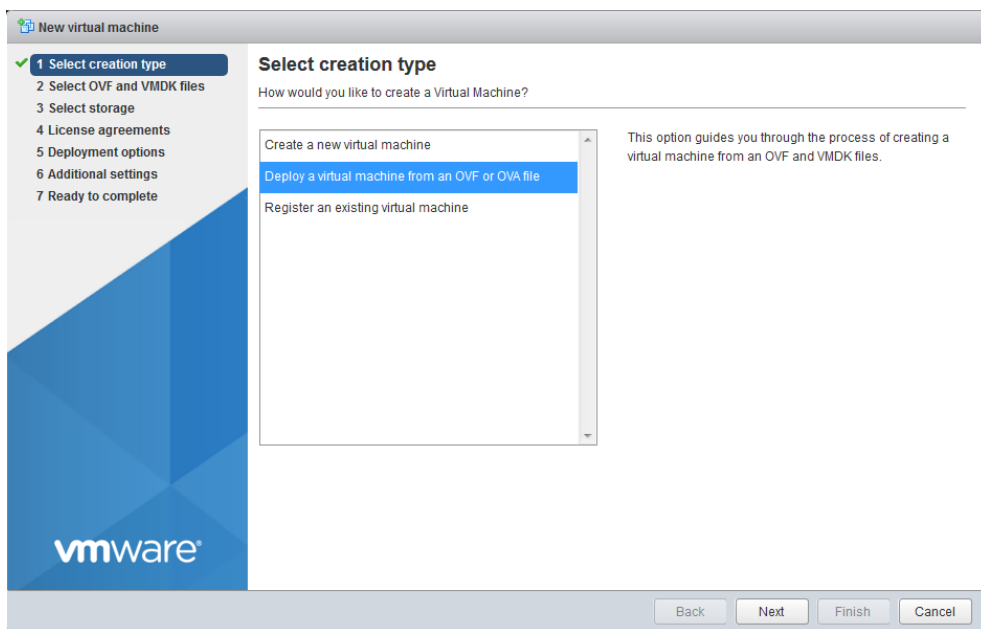
1. Download the latest version of **PPB Remote Virtual Appliance** from CyberPower official website.
2. Launch the vSphere Web Client. Deploy the virtual appliance from **Virtual Machines** → **Create / Register VM**.



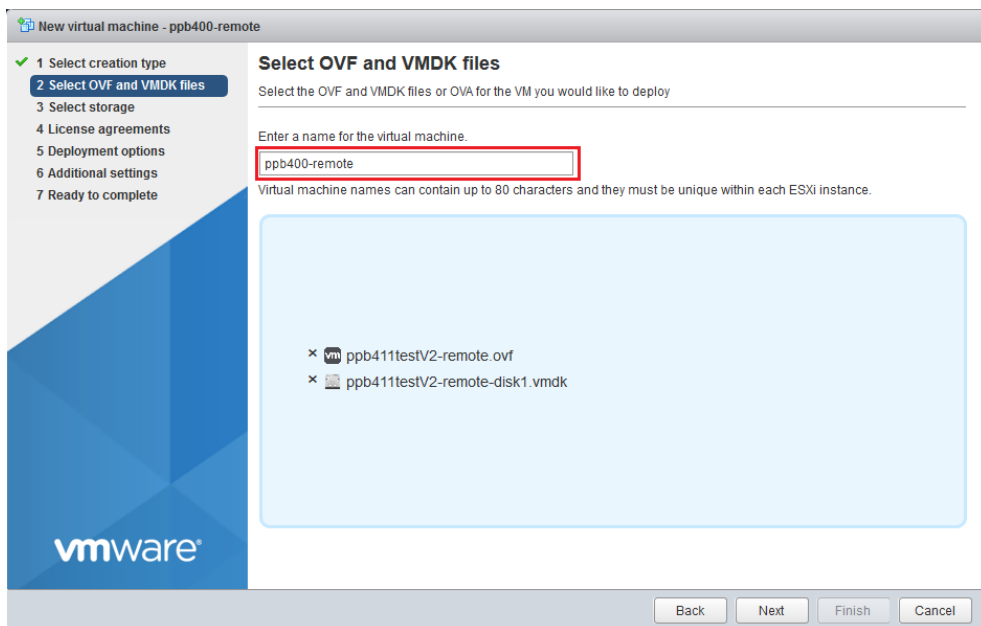
-  **Note:** If your VMware ESXi is v6.5 or above, please use **vSphere Web Client** because vSphere Client is not supported.
-  **Note:** PPB is not supported on ESXi free edition.

2. CONFIGURATION 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.

New virtual machine - ppb400-local

- 1 Select creation type
- 2 Select OVF and VMDK files
- 3 Select storage
- 4 License agreements
- 5 Deployment options
- 6 Additional settings
- 7 Ready to complete

Select storage

Select the storage type and datastore

☒ Standard ☐ Persistent Memory

Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

| Name | Capacity | Free | Type | Thin pro... | Access |
|------------------|-----------|-----------|-------|-------------|--------|
| datastore2 | 111.75 GB | 25.67 GB | VMFS6 | Supported | Single |
| Local_SATA_500GB | 465.5 GB | 111.27 GB | VMFS6 | Supported | Single |

2 items

Back Next Finish Cancel

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

New virtual machine - ppb400-local

- 1 Select creation type
- 2 Select OVF and VMDK files
- 3 Select storage
- 4 Deployment options
- 5 Ready to complete

Deployment options

Select deployment options

Network mappings: VM Network

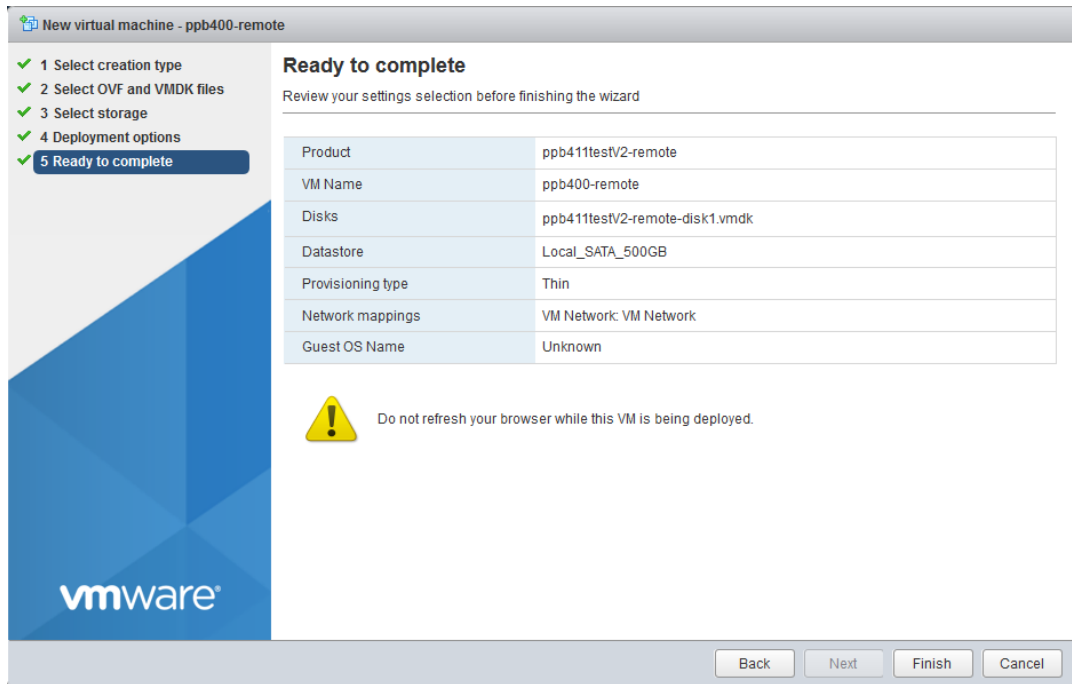
Disk provisioning: ☒ Thin ☐ Thick

Power on automatically: ☒

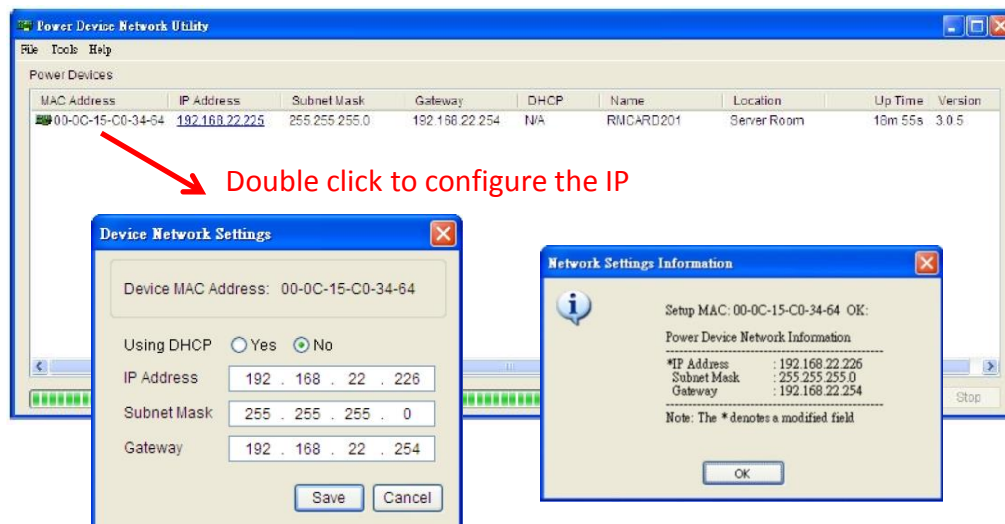
Back Next Finish Cancel

2. CONFIGURATION 3

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

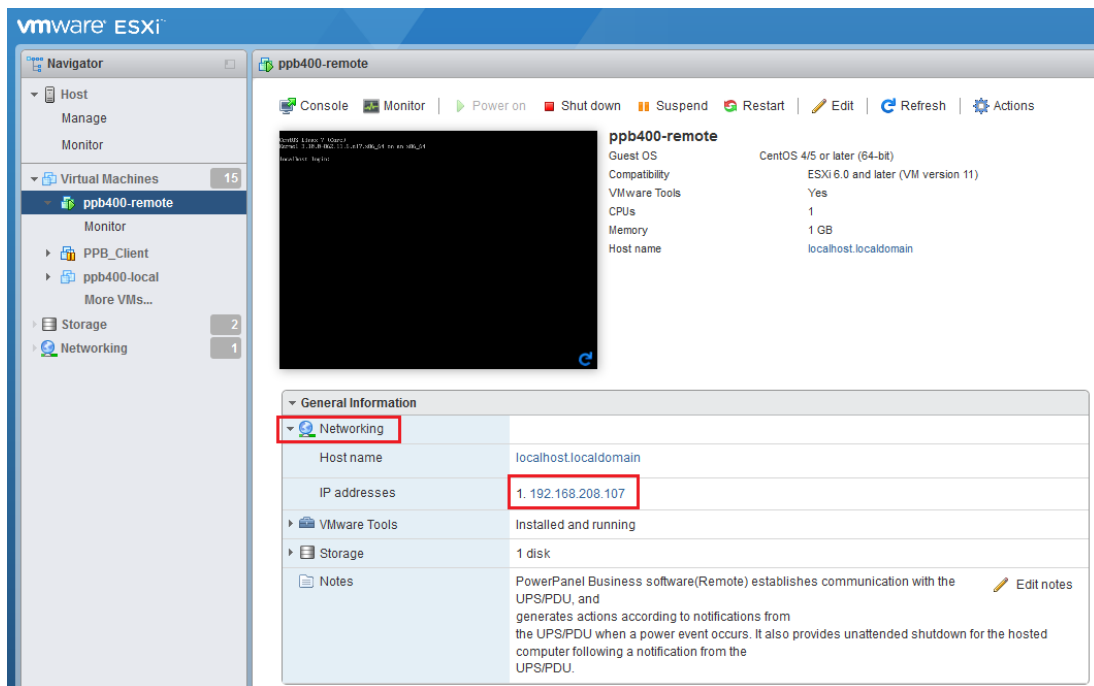


8. After the deployment task is completed, the PPB virtual appliance will be added into the inventory.
9. If your UPS has an RMCARD installed, use "Power Device Network Utility" to discover the IP address of the RMCARD or to assign a static IP address.



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.

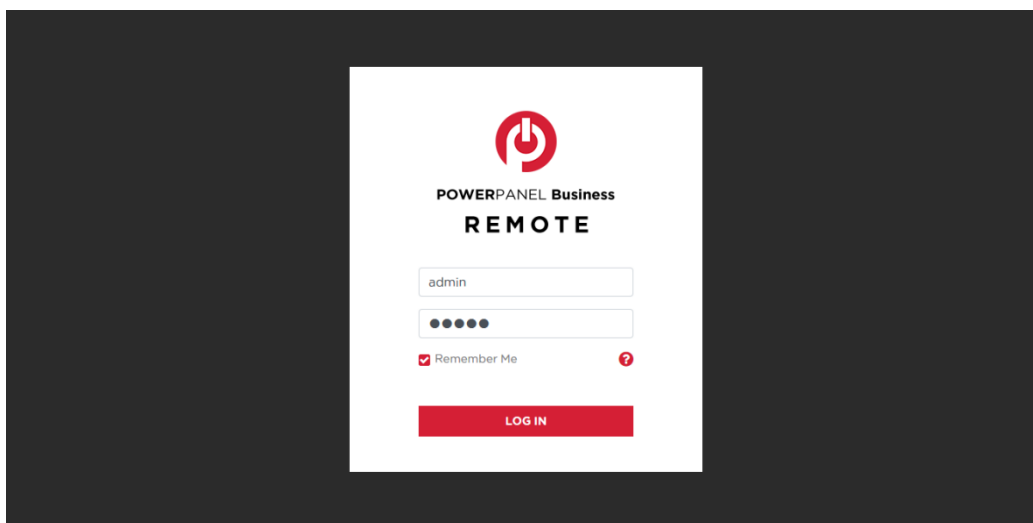


2. CONFIGURATION 3

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

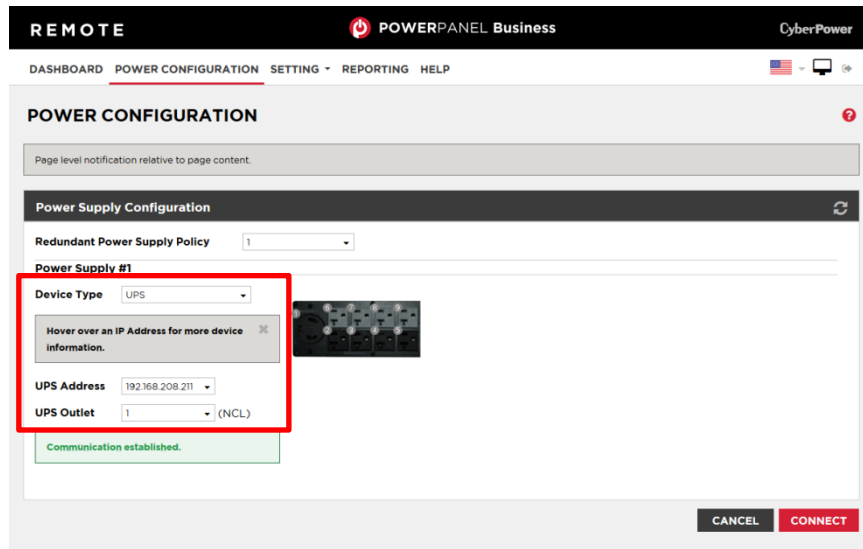
11-1. Login to PPB VA Remote through any supported web browser. Go to <http://xxx.xxx.xxx.xxx:3052/remote> where xxx.xxx.xxx.xxx is the IP address of the VA, and login with the default Username/Password: **admin/admin**.

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

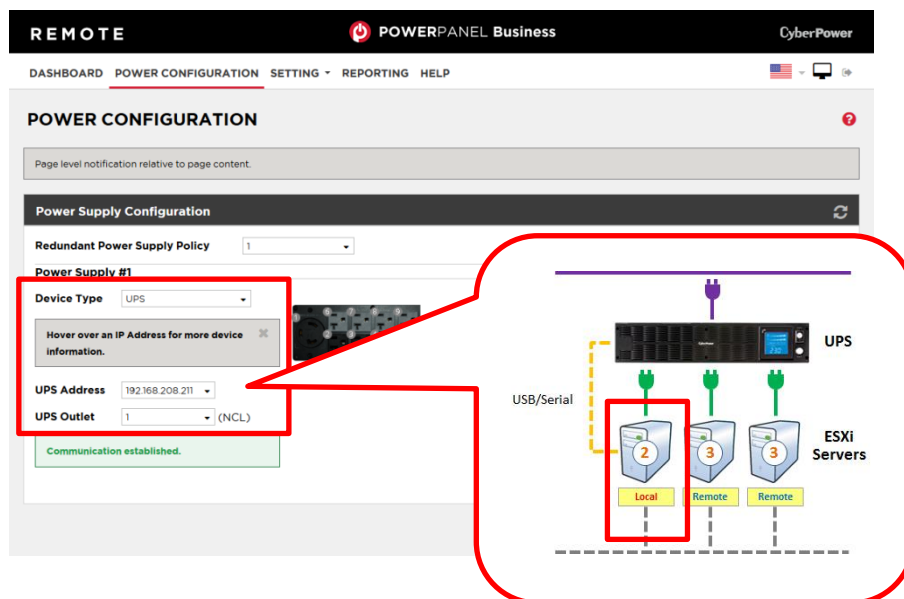


2. CONFIGURATION 3

- 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.

The screenshot displays the 'REMOTE' interface of the 'POWERPANEL Business' system. The top navigation bar includes 'DASHBOARD', 'POWER CONFIGURATION', 'SETTING', 'REPORTING', and 'HELP'. A status message at the top indicates 'The system is working normally.' Below this, the 'Power Supply Information' section is active, showing details for the 'PR3000LCDRTL2U' model. The 'UPS Information' table lists various specifications including location, contact, model, firmware version, serial number, and ratings for power, current, voltage, and frequency. The IP address is highlighted as 192.168.208.211.

| UPS Information | |
|--------------------------|------------------------|
| Location | Server Room |
| Contact | Administrator |
| Model | PR3000LCDRTL2U |
| Firmware Version | 4.520 |
| Serial Number | |
| UPS Type | |
| Power Rating | 3000 VA / 3000 W |
| Current Rating | 24.0 Amp |
| Voltage Rating | 120 V |
| Frequency Rating | 47-53/57-63 Hz |
| Battery Replacement Date | |
| NCL Bank | 1 |
| Extended Battery Pack | 0 |
| MAC Address | 00-0C-15-00-FC-4C |
| IP Address | <u>192.168.208.211</u> |

2. CONFIGURATION 3

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

REMOTE POWER

DASHBOARD POWER CONFIGURATION **SETTING** REPORTING HELP

SHUTDOWN EVENTS

The minimum shutdown-delay duration selectable in this section is calculated from delay and execution durations set for other actions to complete.

Shutdown Requirements

Shutdown Type Shutdown

Required Time Overrides Outlet-Off Time ☒

ESXi

Shutdown Duration 3 min.

IP Address 192.168.208.215

Account root

Password ●●●●●●●●●●

Virtual Machine

Shutdown ☐

Shutdown Duration 1 min.

CANCEL VERIFY APPLY

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**.

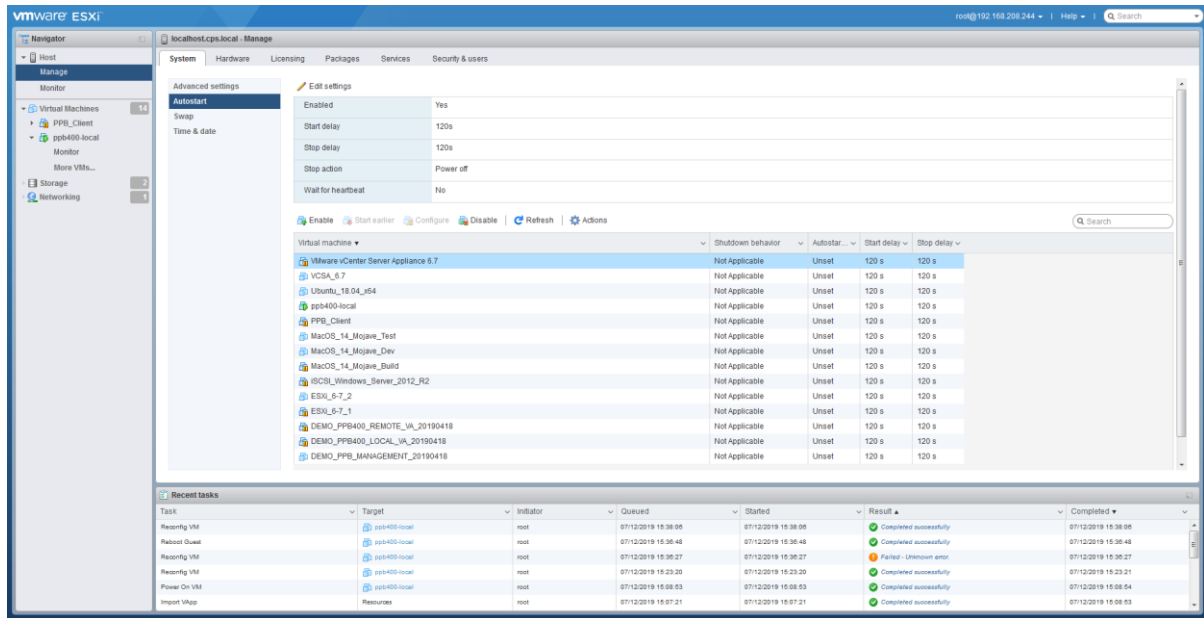
- 11-6.** Click **Virtual Machine Shutdown** and set **Shutdown Duration** if users want PPB to shut down VMs before shutting down ESXi host.

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.

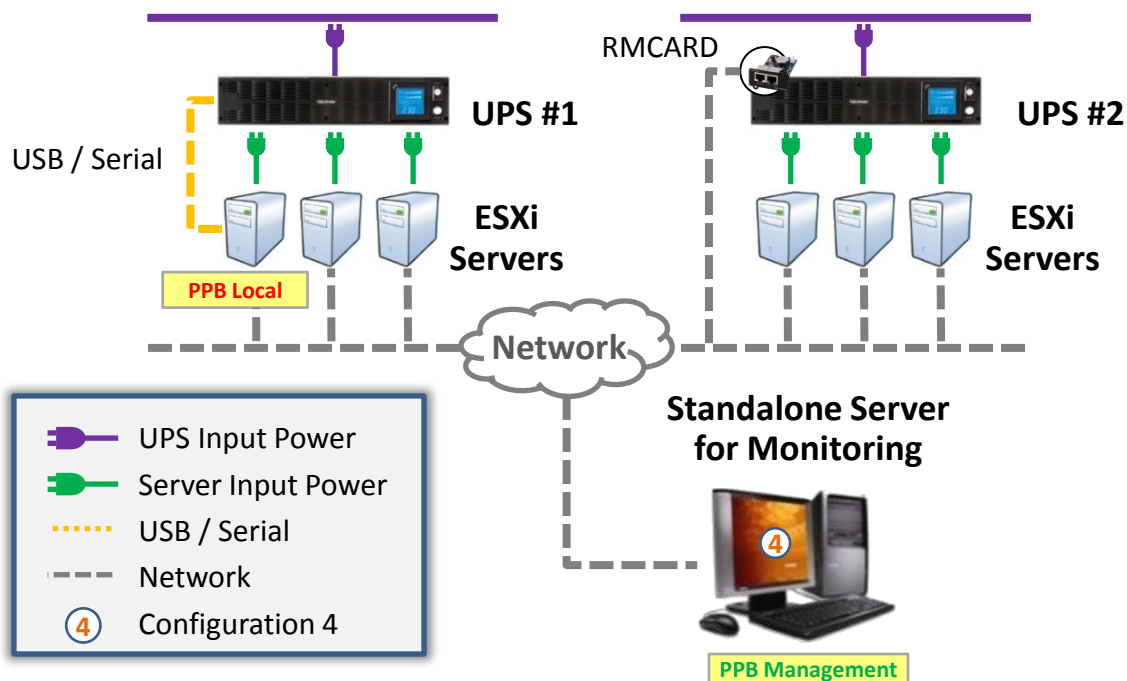
In order to ensure that all virtual machines shut down and restart gracefully, check the “Autostart” setting through vSphere menu by going to **Host → Manage → System**



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

2. CONFIGURATION 4

Install PPB Management

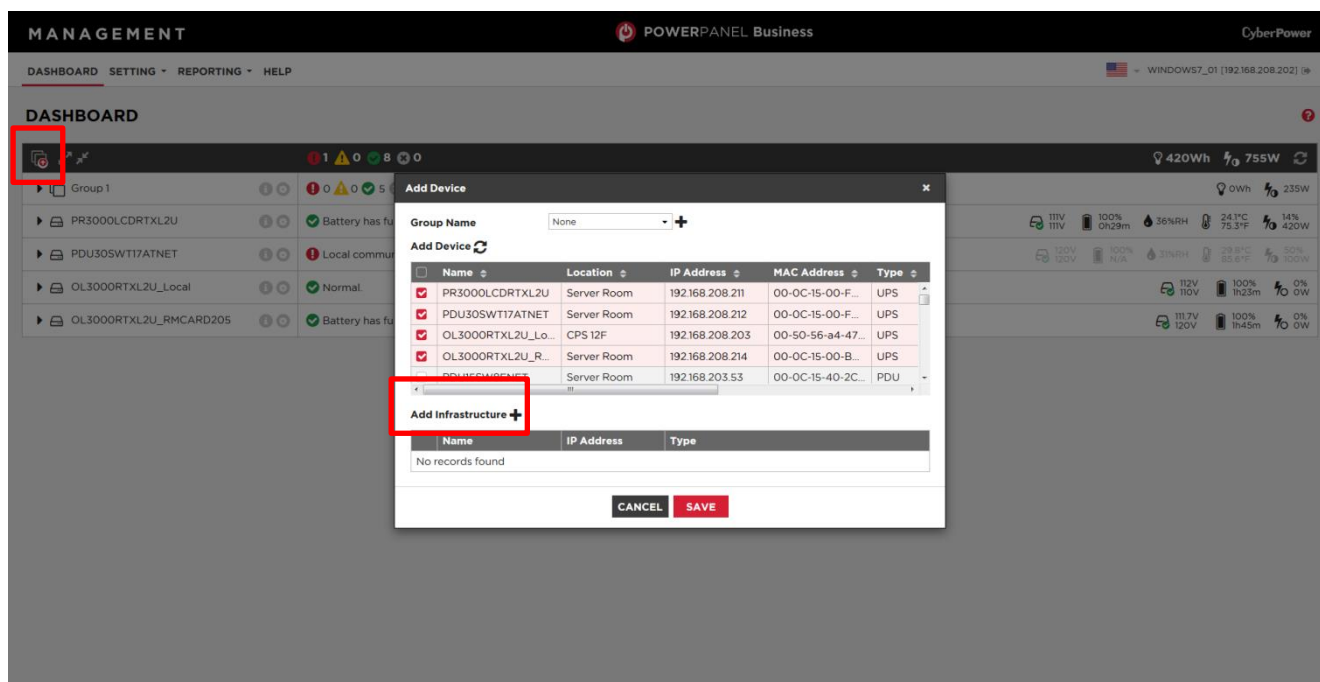


1. Download the latest version of **PowerPanel Business Management** from CyberPower official website. Please select the correct download for the OS running on the standalone computer that will be used for PPB Management.
2. Login to PPB Management through any supported web browser.
Go to <http://xxx.xxx.xxx.xxx:3052/management> 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

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

Add an Infrastructure

Notice: VMWare feature is not support ESXi free edition

Product VMware ESXi

IP Address/Name 192.168.208.215

User Name root

Password

CANCEL **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.

Add Device

Group Name: None +

Add Device

| Name | Location | IP Address | MAC Address | Type |
|-------------------------------------------------------|--------------|-----------------|-------------------|------|
| <input checked="" type="checkbox"/> PR3000LCDRTL2U | Server Room | 192.168.208.211 | 00-0C-15-00-F... | UPS |
| <input checked="" type="checkbox"/> OL3000RTL2U_Lo... | CPS 12F | 192.168.208.203 | 00-50-56-a4-47... | UPS |
| <input checked="" type="checkbox"/> OL3000RTL2U_R... | Server Room | 192.168.208.214 | 00-0C-15-00-B... | UPS |
| <input type="checkbox"/> PDU15SW8FNET | Server Room | 192.168.203.53 | 00-0C-15-40-2C... | PDU |
| <input type="checkbox"/> john test | PR750LCD TWs | 192.168.203.54 | 00-0C-15-00-E3... | UPS |

Add Infrastructure +

| Name | IP Address | Type |
|-----------------------|-----------------|-------------|
| localhost.localdomain | 192.168.208.215 | VMware ESXi |

CANCEL SAVE

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

MANAGEMENT POWERPANEL Business CyberPower

DASHBOARD SETTING REPORTING HELP

DASHBOARD

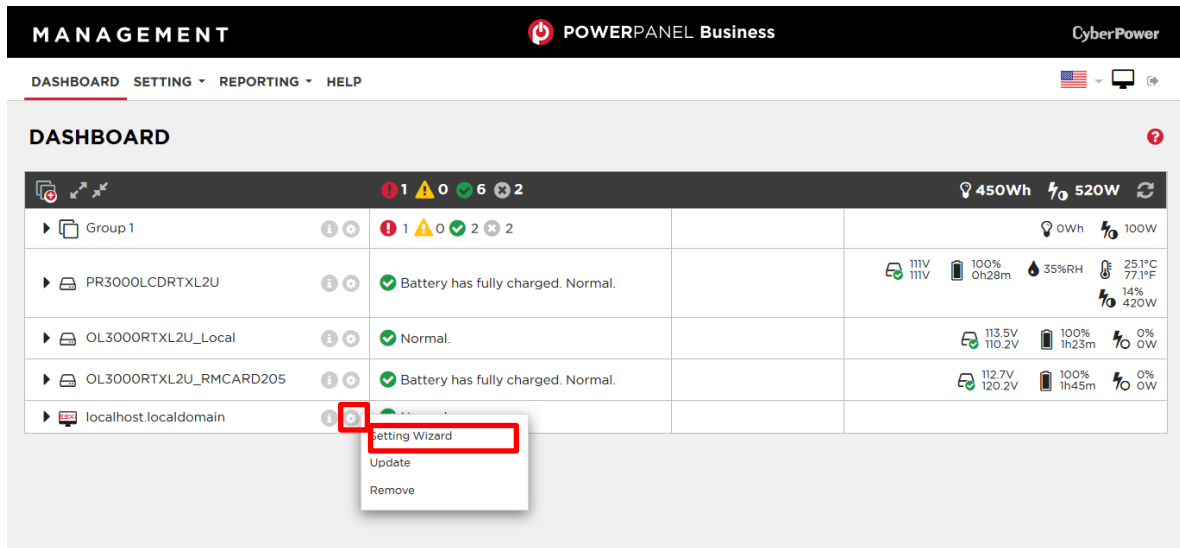
1 0 6 2

420Wh 520W

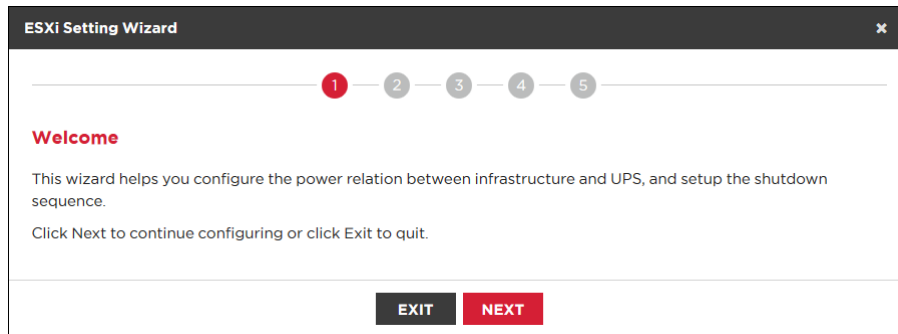
| Group | Device | Status | Power | Temp |
|---------|-----------------------|------------------------------------|----------|--------|
| Group 1 | PR3000LCDRTL2U | Battery has fully charged. Normal. | 0Wh 100W | 25.3°C |
| Group 1 | OL3000RTL2U_Local | Normal. | 0Wh 0W | 77.5°F |
| Group 1 | OL3000RTL2U_RMCARD205 | Battery has fully charged. Normal. | 0Wh 0W | 14°C |
| Group 1 | localhost.localdomain | Normal. | 0Wh 0W | 0W |

2. CONFIGURATION 4

- 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"**.



- 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.

The screenshot shows the 'ESXi Setting Wizard' window with a progress bar at the top indicating five steps. Step 2 is highlighted in red. The main section is titled 'Power Source' and asks 'Which outlet is the infrastructure connected to?'. It contains four dropdown menus: 'Infrastructure' (set to 'localhost.localdomain'), 'Power Device' (set to 'PR3000LCDRTL2U'), 'Model Name' (set to 'PR3000LCDRTL2U'), and 'Outlet' (set to '#1'). To the right is an 'Outlet Preview' image showing a rack of outlets with the first one circled and numbered 1. At the bottom are 'BACK' and 'NEXT' buttons.


- 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. .

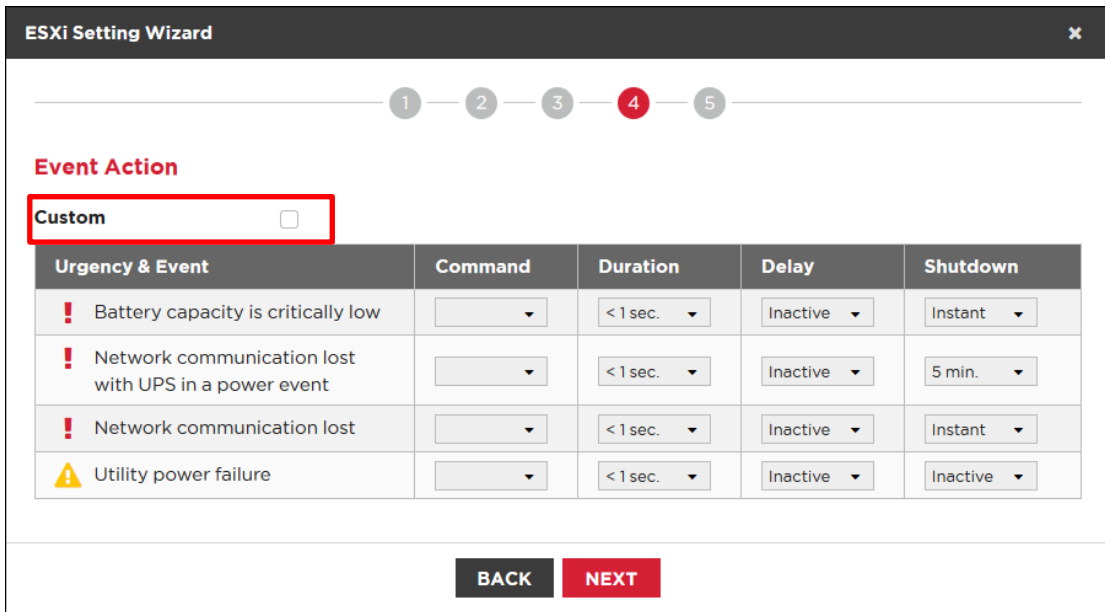
The screenshot shows the 'ESXi Setting Wizard' window with a progress bar at the top indicating five steps. Step 3 is highlighted in red. The main section is titled 'Shutdown Settings' and is divided into two parts: 'Virtual Machine Shutdown' and 'ESXi Shutdown'. Under 'Virtual Machine Shutdown', there is an 'Enable' checkbox (unchecked), a 'Necessary Shutdown Time(Seconds)' input field (set to 0), and an 'ESXi Shutdown' section. Under 'ESXi Shutdown', there is an 'Enable' checkbox (checked), a 'Necessary Shutdown Time(Seconds)' input field (set to 120), and 'BACK' and 'NEXT' buttons at the bottom.

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).

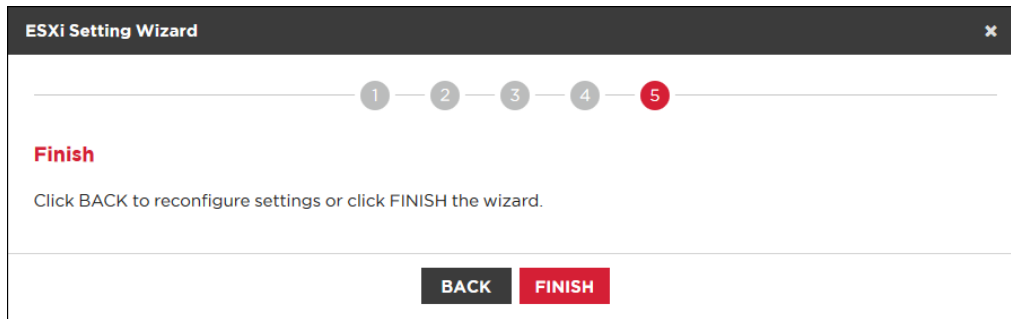


The screenshot shows the 'ESXi Setting Wizard' window. At the top, there is a progress bar with five steps: 1, 2, 3, 4 (highlighted in red), and 5. Below the progress bar, the 'Event Action' section is visible. A red box highlights the 'Custom' option, which is currently unchecked. Below this, there is a table with five columns: 'Urgency & Event', 'Command', 'Duration', 'Delay', and 'Shutdown'. The table contains four rows of settings for different events. At the bottom of the wizard, there are two buttons: 'BACK' and 'NEXT'.

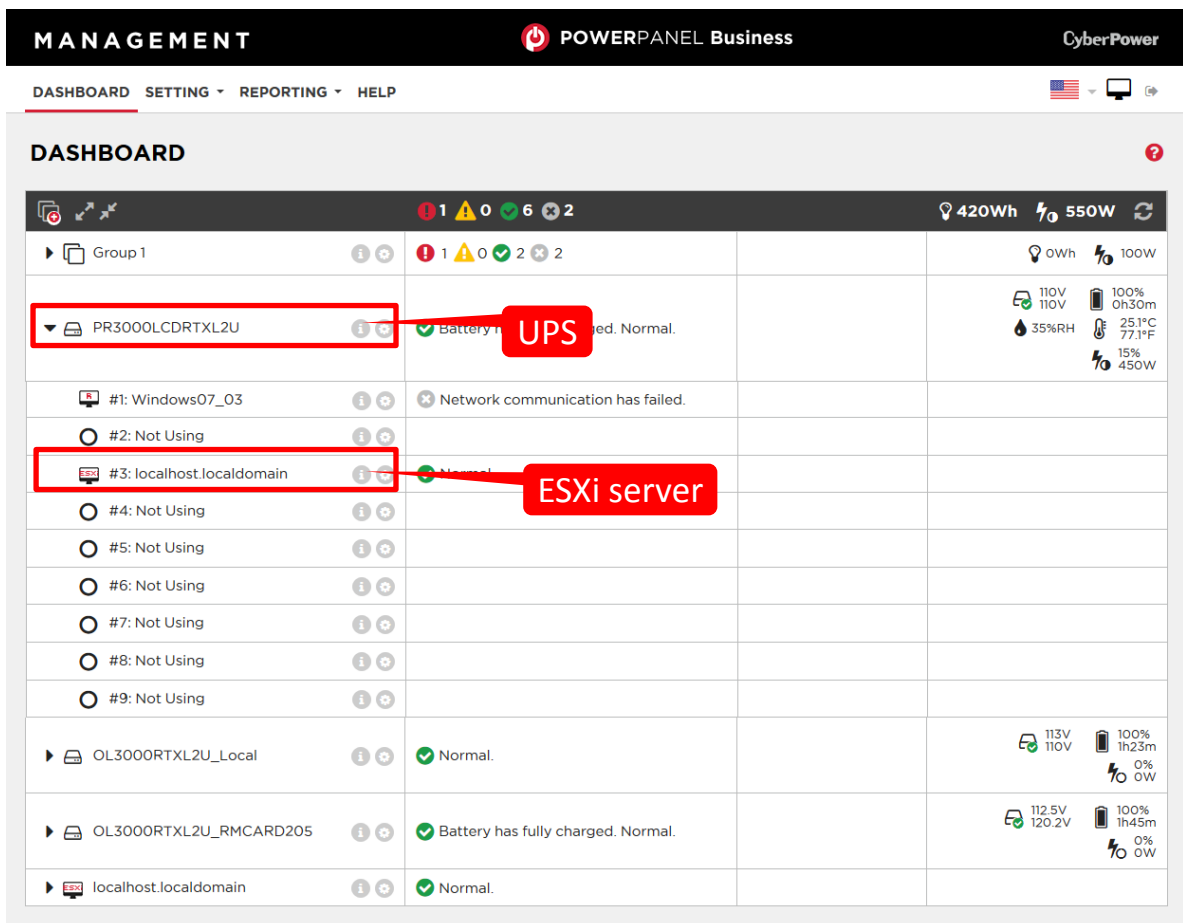
| Urgency & Event | Command | Duration | Delay | Shutdown |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------|----------|----------|
|  Battery capacity is critically low | <input type="text"/> | < 1 sec. | Inactive | Instant |
|  Network communication lost with UPS in a power event | <input type="text"/> | < 1 sec. | Inactive | 5 min. |
|  Network communication lost | <input type="text"/> | < 1 sec. | Inactive | Instant |
|  Utility power failure | <input type="text"/> | < 1 sec. | Inactive | Inactive |

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).

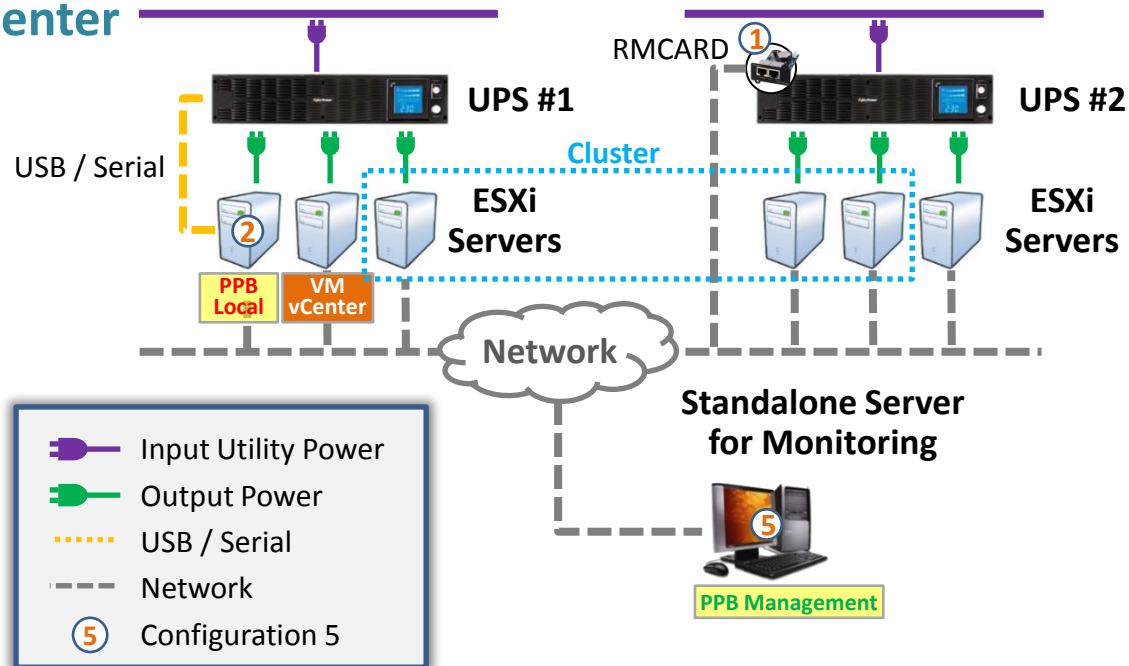
The screenshot shows the CyberPower PowerPanel Business Management interface. The top navigation bar includes 'MANAGEMENT', 'POWERPANEL Business', and 'CyberPower'. Below this, a secondary navigation bar has 'DASHBOARD', 'SETTING', 'REPORTING', and 'HELP'. The 'SETTING' menu is expanded, showing a dropdown with 'Shutdown Events' highlighted. The main content area is titled 'SHUTDOWN' and contains a table with columns for 'Urgency' and 'Shutdown'. The table lists four events: 'Battery capacity is critically low' (Instant), 'Network communication lost with UPS in a power event' (5 min.), 'Network communication lost' (Instant), and 'Utility power failure' (Inactive). At the bottom right, there are 'CANCEL' and 'APPLY' buttons.

| Urgency | Event | Shutdown |
|---------|------------------------------------------------------|----------|
| ! | Battery capacity is critically low | Instant |
| ! | Network communication lost with UPS in a power event | 5 min. |
| ! | Network communication lost | Instant |
| ⚠ | Utility power failure | Inactive |

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

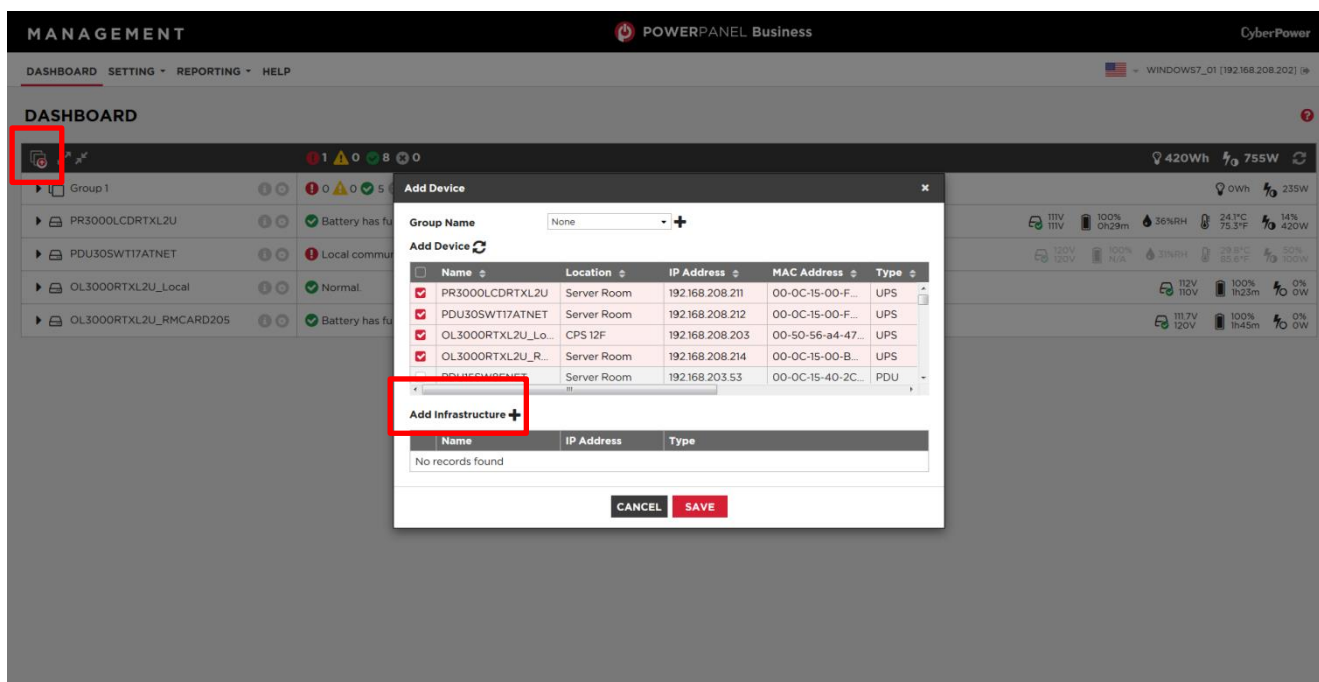


1. Download the latest version of **PowerPanel Business Management** from CyberPower official website. Please select the correct download for the OS running on the standalone computer that will be used for PPB Management.
2. Login to PPB Management through any supported web browser.
Go to <http://xxx.xxx.xxx.xxx:3052/management> 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

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

The 'Add an Infrastructure' form contains the following fields and options:

- Notice:** VMWare feature is not support ESXi free edition
- Product:** VMware vCenter Server (highlighted with a red box)
- IP Address/Name:** 192.168.208.235
- Port:** 443
- User Name:** administrator@vsphere.local
- Password:** (masked with dots)
- ☐ Attach plugin to vCenter Server
- Buttons:** CANCEL, 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.

Add Device

Group Name

None

+

Add Device

| | Name | Location | IP Address | MAC Address | Type |
|-------------------------------------|-------------------|--------------|-----------------|-------------------|------|
| <input checked="" type="checkbox"/> | PR3000LCDRTL2U | Server Room | 192.168.208.211 | 00-0C-15-00-F... | UPS |
| <input checked="" type="checkbox"/> | OL3000RTL2U_Lo... | CPS 12F | 192.168.208.203 | 00-50-56-a4-47... | UPS |
| <input checked="" type="checkbox"/> | OL3000RTL2U_R... | Server Room | 192.168.208.214 | 00-0C-15-00-B... | UPS |
| <input type="checkbox"/> | PDU15SW8FNET | Server Room | 192.168.203.53 | 00-0C-15-40-2C... | PDU |
| <input type="checkbox"/> | john test | PR750LCD TWs | 192.168.203.54 | 00-0C-15-00-E3... | UPS |

Add Infrastructure

| | Name | IP Address | Type |
|--------------------------|-----------------------|-----------------|-----------------------|
| <input type="checkbox"/> | localhost.localdomain | 192.168.208.215 | VMware ESXi |
| <input type="checkbox"/> | VMware vCenter Ser... | 192.168.208.235 | VMware vCenter Server |

CANCEL

SAVE

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

MANAGEMENT

POWERPANEL Business

CyberPower

DASHBOARD

SETTING

REPORTING

HELP

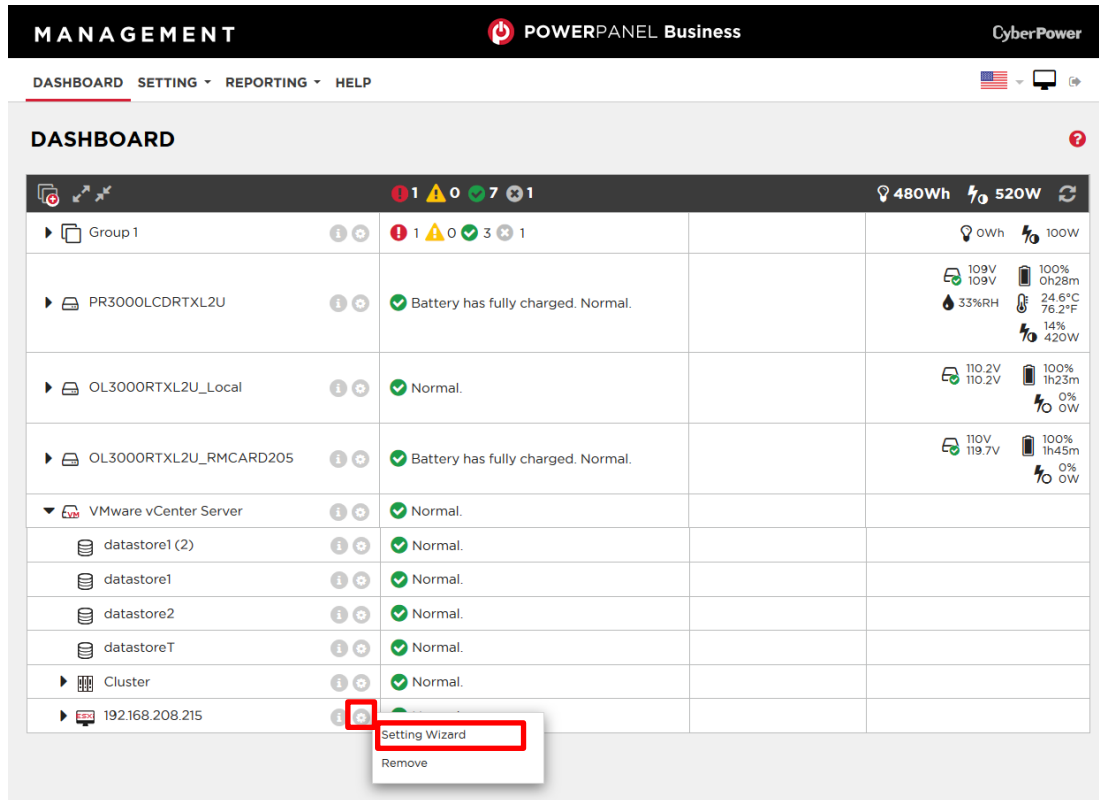
420Wh

550W

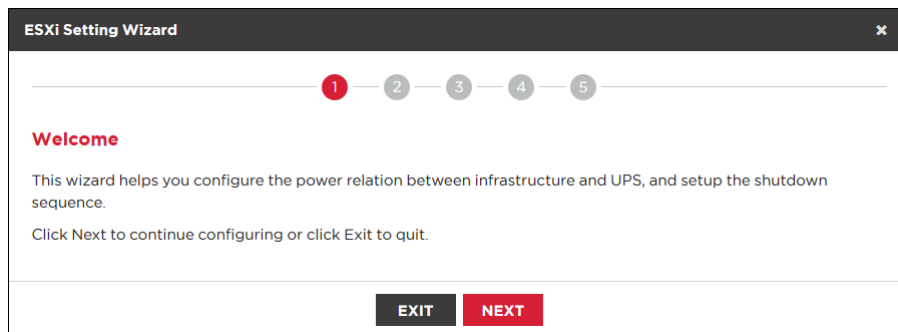
| Group | Status | Details | Power |
|-----------------------|------------------------------------|---------|----------------------------------------------|
| Group 1 | 1 0 7 2 | | 0Wh 100W |
| PR3000LCDRTL2U | Battery has fully charged. Normal. | | 112V 100% 0h30m 36%RH 25.0°C 77.0°F 15% 450W |
| OL3000RTL2U_Local | Normal. | | 113.2V 100% 1h23m 0% 0W |
| OL3000RTL2U_RMCARD205 | Battery has fully charged. Normal. | | 113V 100% 1h45m 0% 0W |
| localhost.localdomain | Normal. | | |
| VMware vCenter Server | Normal. | | |

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**.

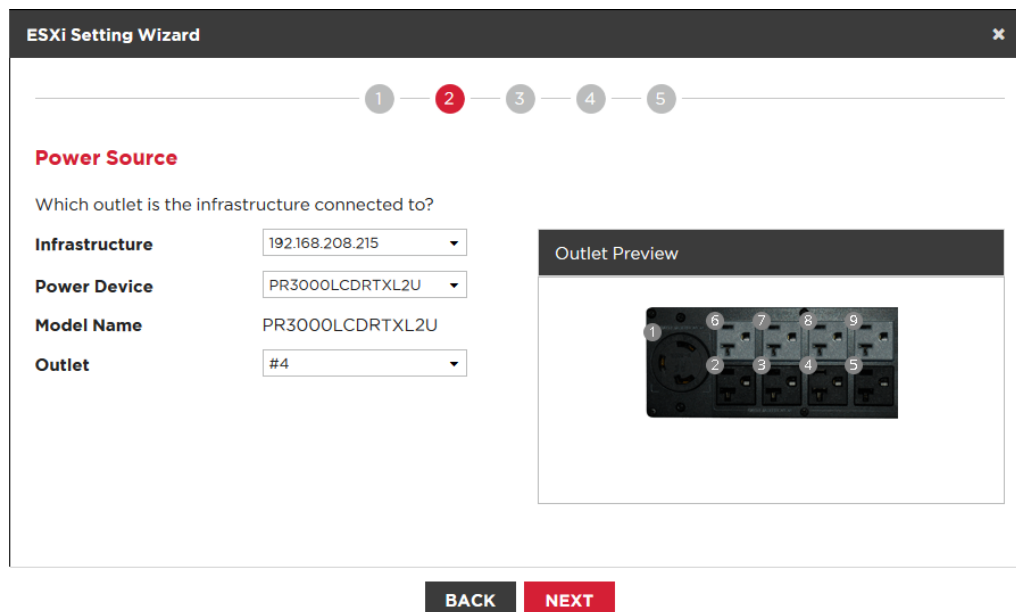


- 5-1. The “ESXi Setting Wizard” will appear. Please click “NEXT” to continue.



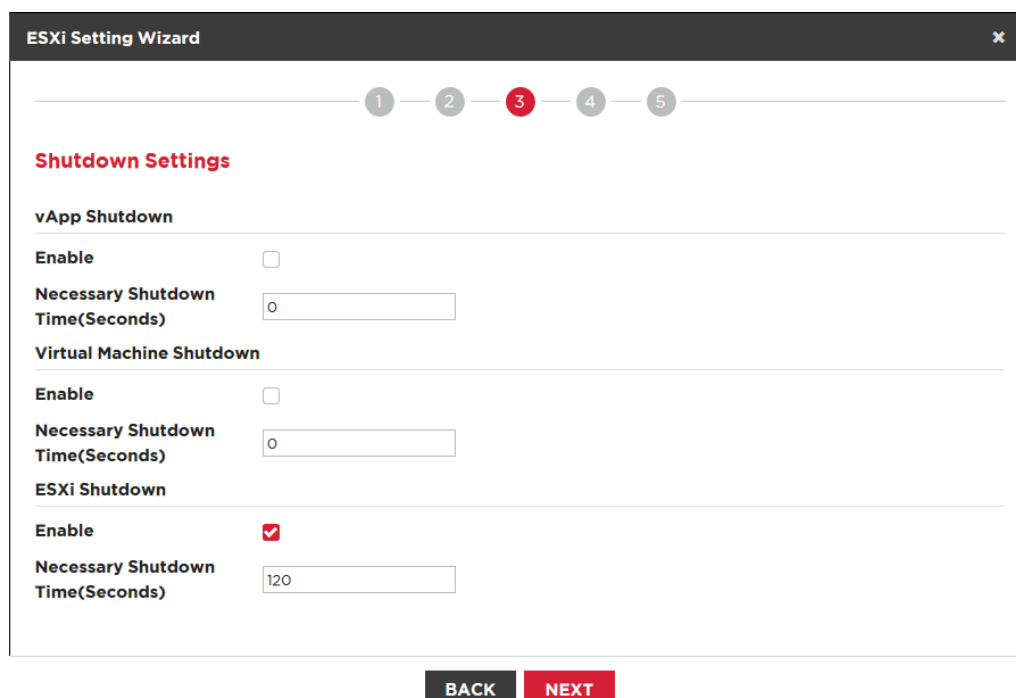
2. CONFIGURATION 5

- 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.



The screenshot shows the 'ESXi Setting Wizard' window with a progress bar at the top indicating five steps. Step 2, 'Power Source', is currently active and highlighted in red. The wizard asks 'Which outlet is the infrastructure connected to?'. Below this question, there are four fields with dropdown menus: 'Infrastructure' (set to 192.168.208.215), 'Power Device' (set to PR3000LCDRTL2U), 'Model Name' (set to PR3000LCDRTL2U), and 'Outlet' (set to #4). To the right of these fields is an 'Outlet Preview' image showing a physical UPS unit with nine numbered outlets (1-9). At the bottom of the window, there are two buttons: 'BACK' and 'NEXT'.

- 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. .



The screenshot shows the 'ESXi Setting Wizard' window with a progress bar at the top indicating five steps. Step 3, 'Shutdown Settings', is currently active and highlighted in red. The wizard is divided into three sections: 'vApp Shutdown', 'Virtual Machine Shutdown', and 'ESXi Shutdown'. Each section has an 'Enable' checkbox and a 'Necessary Shutdown Time(Seconds)' input field. In the 'vApp Shutdown' section, 'Enable' is unchecked and the time is 0. In the 'Virtual Machine Shutdown' section, 'Enable' is unchecked and the time is 0. In the 'ESXi Shutdown' section, 'Enable' is checked (indicated by a red checkmark) and the time is 120. At the bottom of the window, there are two buttons: 'BACK' and 'NEXT'.

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.*

ESXi Setting Wizard

1 2 3 **4** 5

Event Action

Custom ☒

| Urgency & Event | Command | Duration | Delay | Shutdown |
|------------------------------------------------------|----------------------|----------|----------|----------|
| Battery capacity is critically low | <input type="text"/> | < 1 sec. | Inactive | Instant |
| Network communication lost with UPS in a power event | <input type="text"/> | < 1 sec. | Inactive | 5 min. |
| Network communication lost | <input type="text"/> | < 1 sec. | Inactive | Instant |
| Utility power failure | <input type="text"/> | < 1 sec. | Inactive | Inactive |

BACK **NEXT**

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

ESXi Setting Wizard

1 2 3 4 **5**

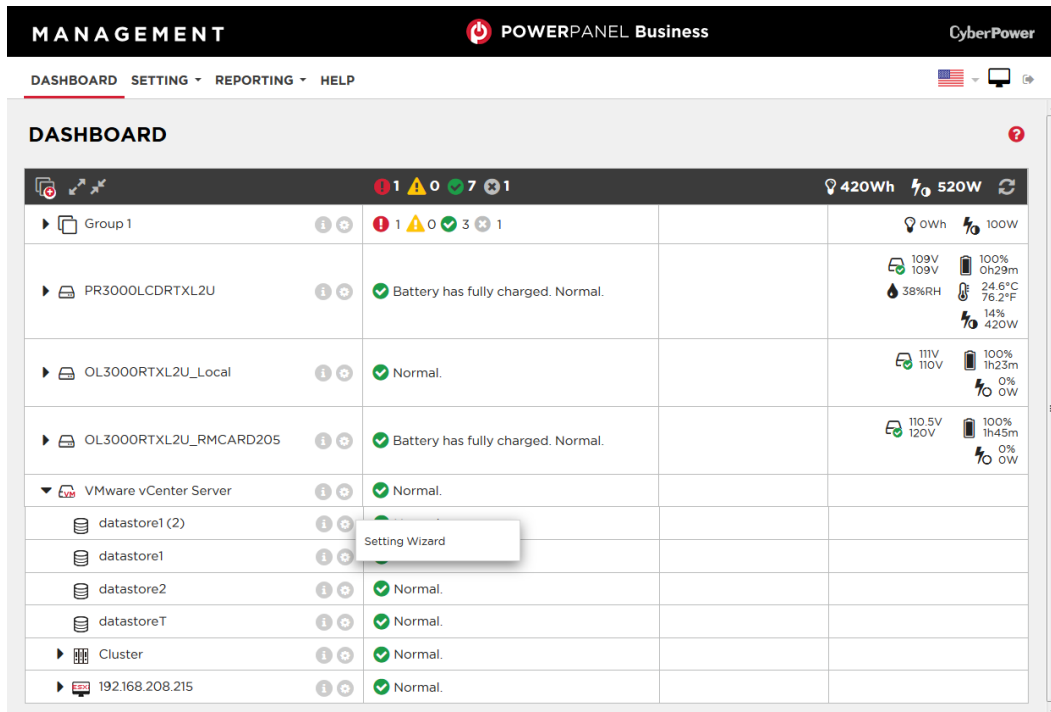
Finish

Click BACK to reconfigure settings or click FINISH the wizard.

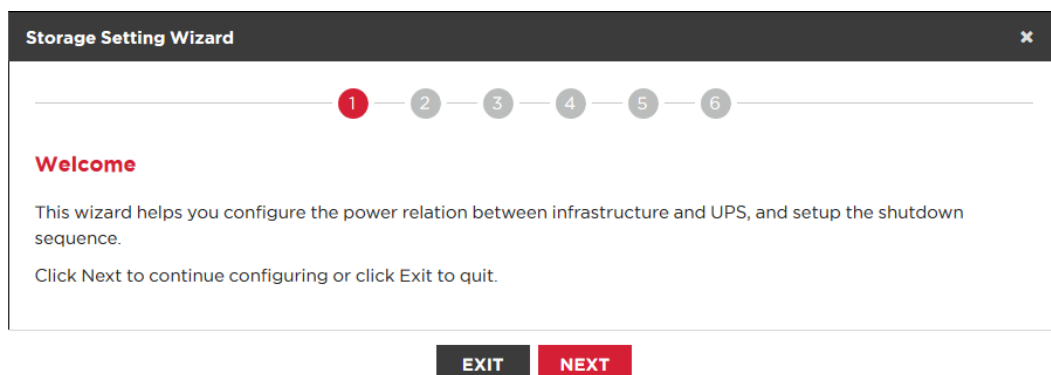
BACK **FINISH**

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**.

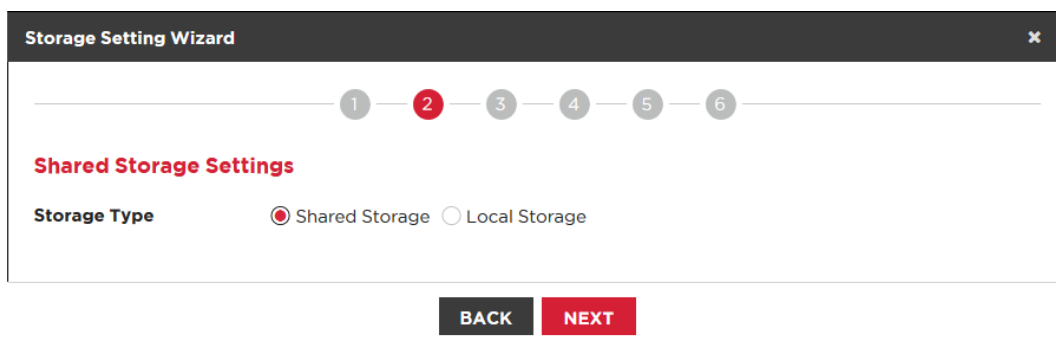


- 6-1. The “Storage Setting Wizard” will appear. Please click **NEXT** to continue.



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.



Storage Setting Wizard

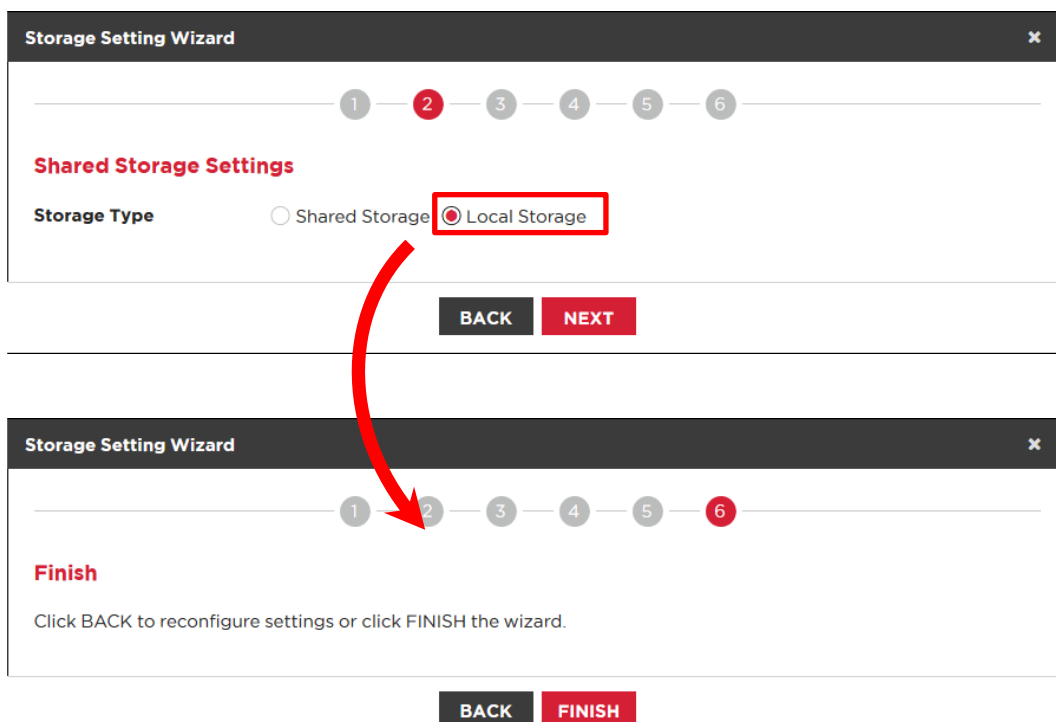
1 2 3 4 5 6

Shared Storage Settings

Storage Type ☒ Shared Storage ☐ Local Storage

BACK NEXT

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



Storage Setting Wizard

1 2 3 4 5 6

Shared Storage Settings

Storage Type ☐ Shared Storage ☒ Local Storage

BACK NEXT

Storage Setting Wizard

1 2 3 4 5 6

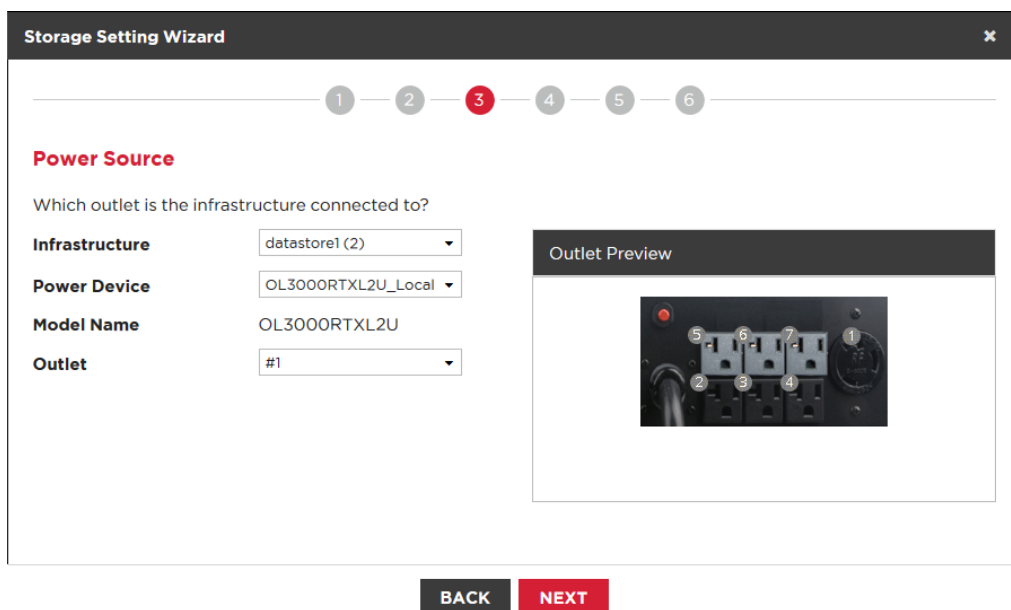
Finish

Click BACK to reconfigure settings or click FINISH the wizard.

BACK FINISH

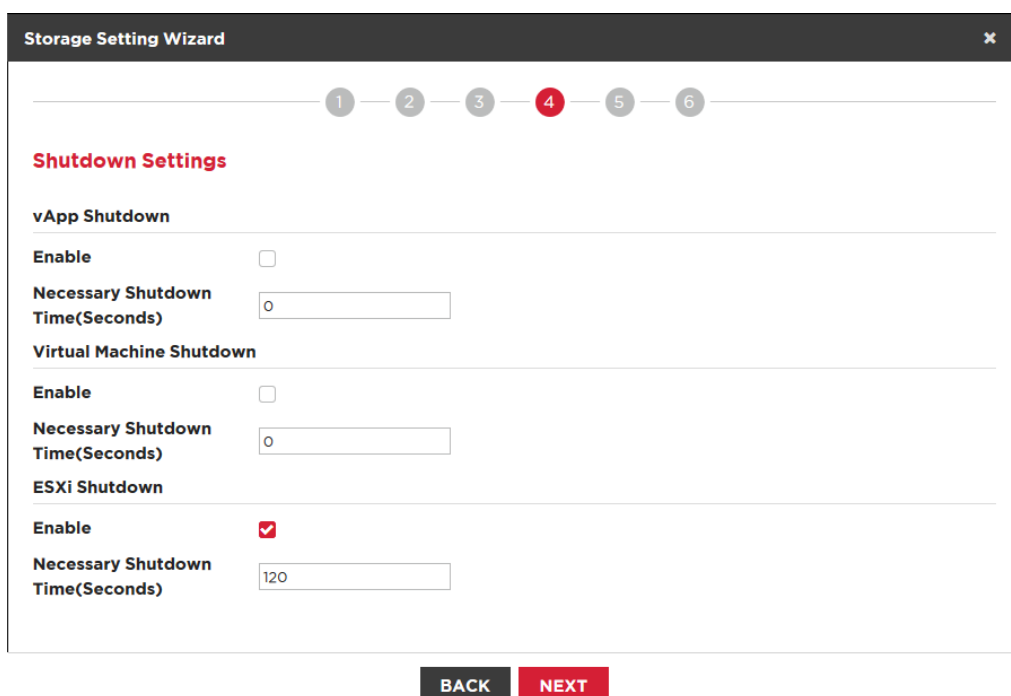
2. CONFIGURATION 5

- 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



The screenshot shows the 'Storage Setting Wizard' window. At the top, a progress bar has six steps, with step 3 highlighted in red. The main section is titled 'Power Source' and asks 'Which outlet is the infrastructure connected to?'. It contains four dropdown menus: 'Infrastructure' (selected: datastore1 (2)), 'Power Device' (selected: OL3000RTXL2U_Local), 'Model Name' (selected: OL3000RTXL2U), and 'Outlet' (selected: #1). To the right is an 'Outlet Preview' image showing a power strip with outlets numbered 1 through 7. At the bottom are 'BACK' and 'NEXT' buttons.


- 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. .

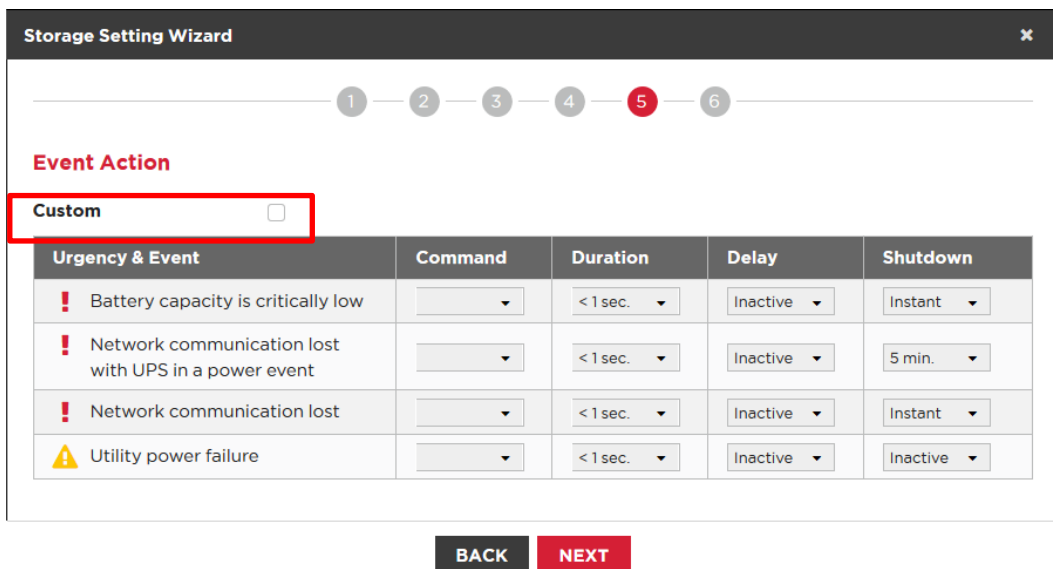


The screenshot shows the 'Storage Setting Wizard' window at the 'Shutdown Settings' step. The progress bar at the top shows step 4 highlighted in red. The section is titled 'Shutdown Settings' and contains three sub-sections: 'vApp Shutdown', 'Virtual Machine Shutdown', and 'ESXi Shutdown'. Each sub-section has an 'Enable' checkbox and a 'Necessary Shutdown Time(Seconds)' input field. For 'vApp Shutdown' and 'Virtual Machine Shutdown', the 'Enable' checkboxes are unchecked and the time is 0. For 'ESXi Shutdown', the 'Enable' checkbox is checked and the time is 120. At the bottom are 'BACK' and 'NEXT' buttons.

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.

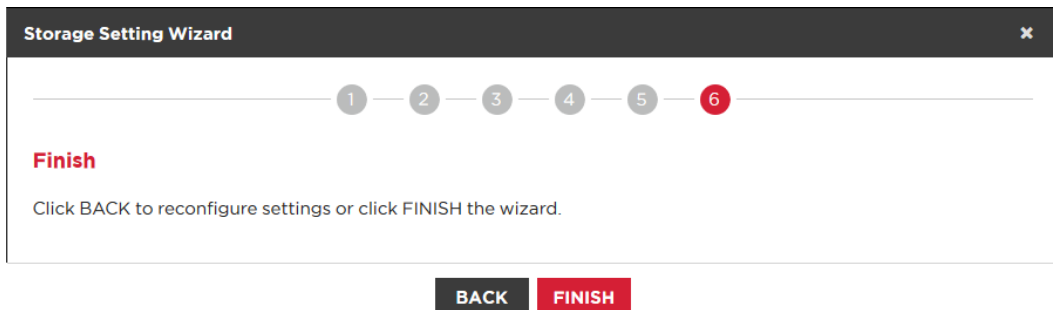


The screenshot shows the 'Storage Setting Wizard' at step 5, 'Event Action'. A progress bar at the top indicates steps 1 through 6, with step 5 highlighted in red. Below the progress bar, the 'Event Action' section has a 'Custom' checkbox that is checked and highlighted with a red border. Below this is a table with four rows of power events, each with dropdown menus for Command, Duration, Delay, and Shutdown.

| Urgency & Event | Command | Duration | Delay | Shutdown |
|--------------------------------------------------------|----------------------|----------|----------|----------|
| ! Battery capacity is critically low | <input type="text"/> | < 1 sec. | Inactive | Instant |
| ! Network communication lost with UPS in a power event | <input type="text"/> | < 1 sec. | Inactive | 5 min. |
| ! Network communication lost | <input type="text"/> | < 1 sec. | Inactive | Instant |
| ! Utility power failure | <input type="text"/> | < 1 sec. | Inactive | Inactive |

At the bottom of the wizard are two buttons: 'BACK' and 'NEXT'.

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

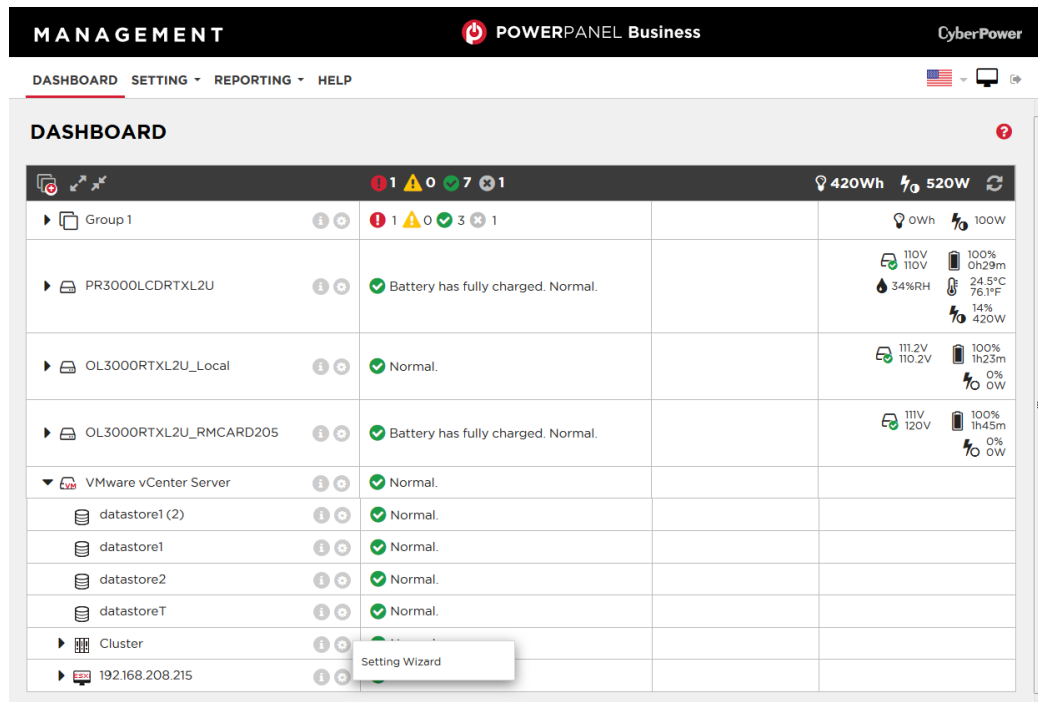


The screenshot shows the 'Storage Setting Wizard' at step 6, 'Finish'. The progress bar at the top shows steps 1 through 6, with step 6 highlighted in red. Below the progress bar, the 'Finish' section contains a message: 'Click BACK to reconfigure settings or click FINISH the wizard.' At the bottom of the wizard are two buttons: 'BACK' and 'FINISH'.

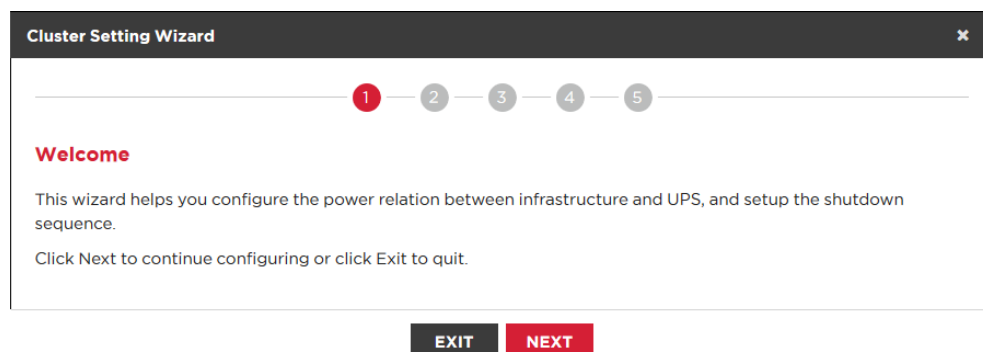
2. CONFIGURATION 5

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.

Cluster Setting Wizard ✕

1 2 3 4 5

Power Source

Which outlet is the infrastructure connected to?


Infrastructure 192.168.208.230 ▼

Power Device 192.168.208.230 ▼

Model Name PR3000LCDRTXL20 ▼

Outlet #4 ▼

Outlet Preview



BACK **NEXT**

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.

The screenshot shows the 'Cluster Setting Wizard' window with a progress bar at the top indicating five steps. Step 3, 'Shutdown Settings', is the current step and is highlighted with a red circle. The window contains the following settings:

- Virtual Machine Migration**
 - Enable: ☒
 - Necessary Migration Time(Seconds):
- vApp Shutdown**
 - Enable: ☒
 - Necessary Shutdown Time(Seconds):
- Virtual Machine Shutdown**
 - Enable: ☐
 - Necessary Shutdown Time(Seconds):
- ESXi Shutdown**
 - Enable: ☒
 - Necessary Shutdown Time(Seconds):

At the bottom of the wizard, there are two buttons: 'BACK' and 'NEXT'.

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.

Cluster Setting Wizard ×

1 2 3 **4** 5

Event Action

Custom ☐

| Urgency & Event | Command | Duration | Delay | Shutdown |
|--------------------------------------------------------|----------------------|-------------------------------|-------------------------------|-------------------------------|
| ! Battery capacity is critically low | <input type="text"/> | < 1 sec. <input type="text"/> | Inactive <input type="text"/> | Instant <input type="text"/> |
| ! Network communication lost with UPS in a power event | <input type="text"/> | < 1 sec. <input type="text"/> | Inactive <input type="text"/> | 5 min. <input type="text"/> |
| ! Network communication lost | <input type="text"/> | < 1 sec. <input type="text"/> | Inactive <input type="text"/> | Instant <input type="text"/> |
| ! Utility power failure | <input type="text"/> | < 1 sec. <input type="text"/> | Inactive <input type="text"/> | Inactive <input type="text"/> |

BACK **NEXT**

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

Cluster Setting Wizard ×

1 2 3 4 **5**

Finish

Click BACK to reconfigure settings or click FINISH the wizard.

BACK **FINISH**

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** → **IP Addresses**.

The screenshot shows the VMware ESXi vSphere Web Client interface. On the left, the 'Navigator' pane shows the 'Virtual Machines' folder expanded, with 'ppb400-local' selected. A red box highlights 'ppb400-local' with a red arrow pointing to a red box labeled 'VM'. The main pane shows the configuration for 'ppb400-local'. The 'General Information' tab is selected, and the 'Networking' sub-tab is also selected. The 'IP addresses' field shows '1. 192.168.208.75', which is highlighted with a red box and labeled 'IP address' with a red arrow. Other fields include 'Host name' (localhost.localdomain), 'VMware Tools' (Installed and running), and 'Storage' (1 disk). The 'Notes' field contains text about PowerPanel Business software.

| General Information | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Networking | |
| Host name | localhost.localdomain |
| IP addresses | 1. 192.168.208.75 |
| VMware Tools | Installed and running |
| Storage | 1 disk |
| Notes | PowerPanel Business software(Local) provides the service which communicates with the UPS through USB or Serial cable and relays the UPS state to each Remote on other computers via a network. It also monitors and logs the UPS status. The computer which has been installed the Local provides graceful, unattended shutdown in the event of the power outage to protect the hosted computer. |