

Power IQ VMWare Quick Setup Guide

Thank you for your purchase of Sunbird's Power IQ. This Quick Setup Guide explains how to install and configure the Power IQ.

For additional information on any aspect of Power IQ, see Power IQ help, which can be accessed from the [Sunbird Support portal](#).

Virtual Machine Requirements

Minimum Configuration (Number of PDUs)*	RAM (GB)	CPU (Cores)	Datastore (GB)	OS	VMware
Up to 50	4	4	160 or more	CentOS 64-Bit	ESX/ESXi
51-100	8	4	160 or more	CentOS 64-Bit	ESX/ESXi
101-500	8	6	160 or more	CentOS 64-Bit	ESX/ESXi
501-1000	8	8	160 or more	CentOS 64-Bit	ESX/ESXi
1001-1500	16	8	160 or more	CentOS 64-Bit	ESX/ESXi
More than 1500	24	8	160 or more	CentOS 64-Bit	ESX/ESXi

*Based on 30 outlets per PDU

Preparing to Install Power IQ

1. Download the Power IQ .ISO file from the Sunbird Support portal at <http://support.sunbirdcim.com/support/home>.
2. Verify the datastore has at least 160GB free for a new virtual machine.

3. If you plan to install the virtual machine from the datastore, verify that there is sufficient extra space free for the installation ISO file, and copy the downloaded file to the datastore.

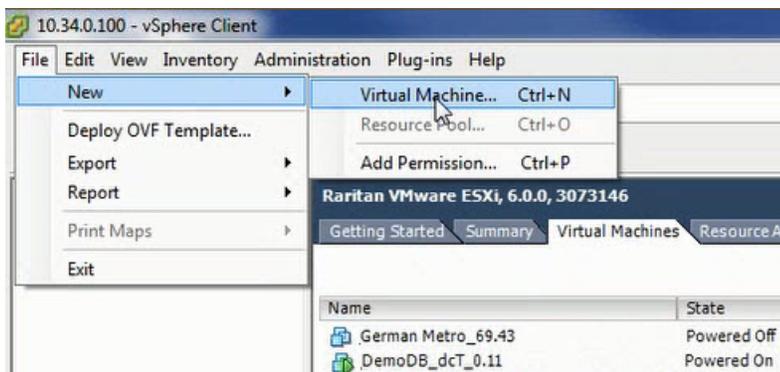
Note: The instructions in this guide refer to the vSphere client, which is compatible with ESX/ESXi 4.0 and higher.

Create the Virtual Machine and Install the ISO

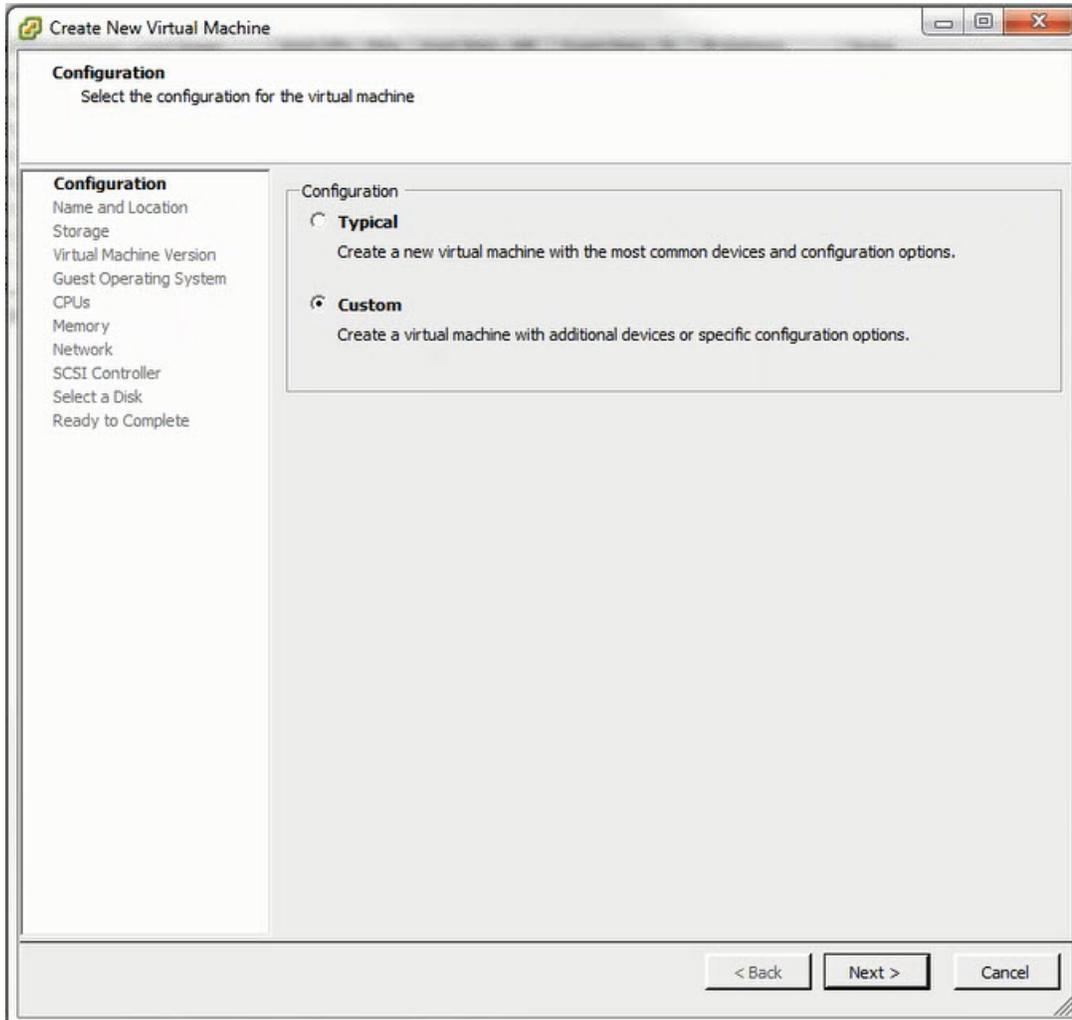
This section walks you through creating the virtual machine and installing the ISO. See [Virtual Machine Requirements & Recommendations](#) for information on the number of virtual processors and the amount of memory allocated for the virtual machine.

Note: The following steps are provided as an example of a virtual machine installation; follow your installation preferences if they differ.

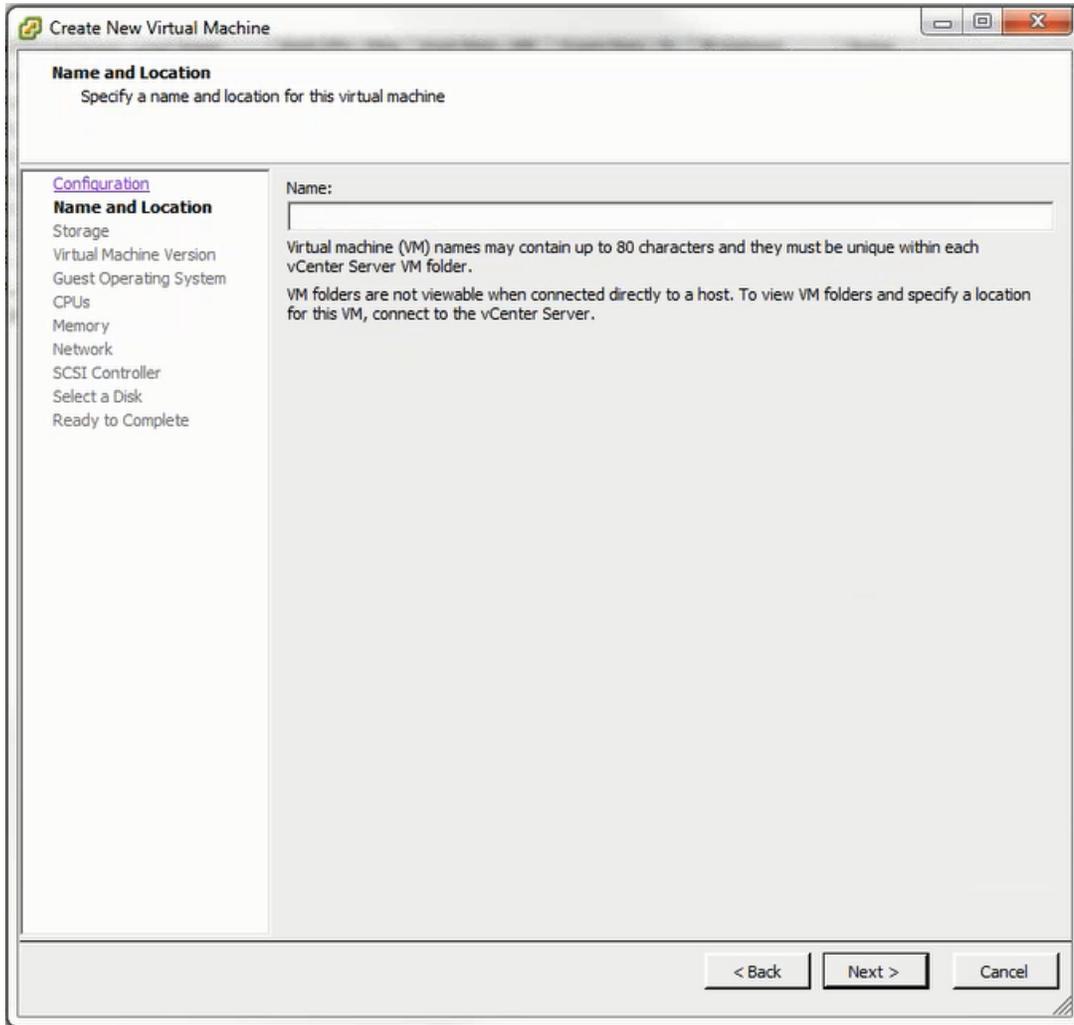
1. Connect to the VMware server using vSphere client (or the client of your choosing).
2. Log in as a user that has permission to create, start, and stop virtual machines.
3. On the Virtual Machine tab, select the server you want to create the virtual machine on.
4. Click File > New > Virtual machine from the menu bar.



5. The Create New Virtual Machine dialog opens. Select Custom and click Next.



6. Enter a name for the virtual machine. Click Next.



Create New Virtual Machine

Name and Location
Specify a name and location for this virtual machine

[Configuration](#)

- Name and Location**
- Storage
- Virtual Machine Version
- Guest Operating System
- CPUs
- Memory
- Network
- SCSI Controller
- Select a Disk
- Ready to Complete

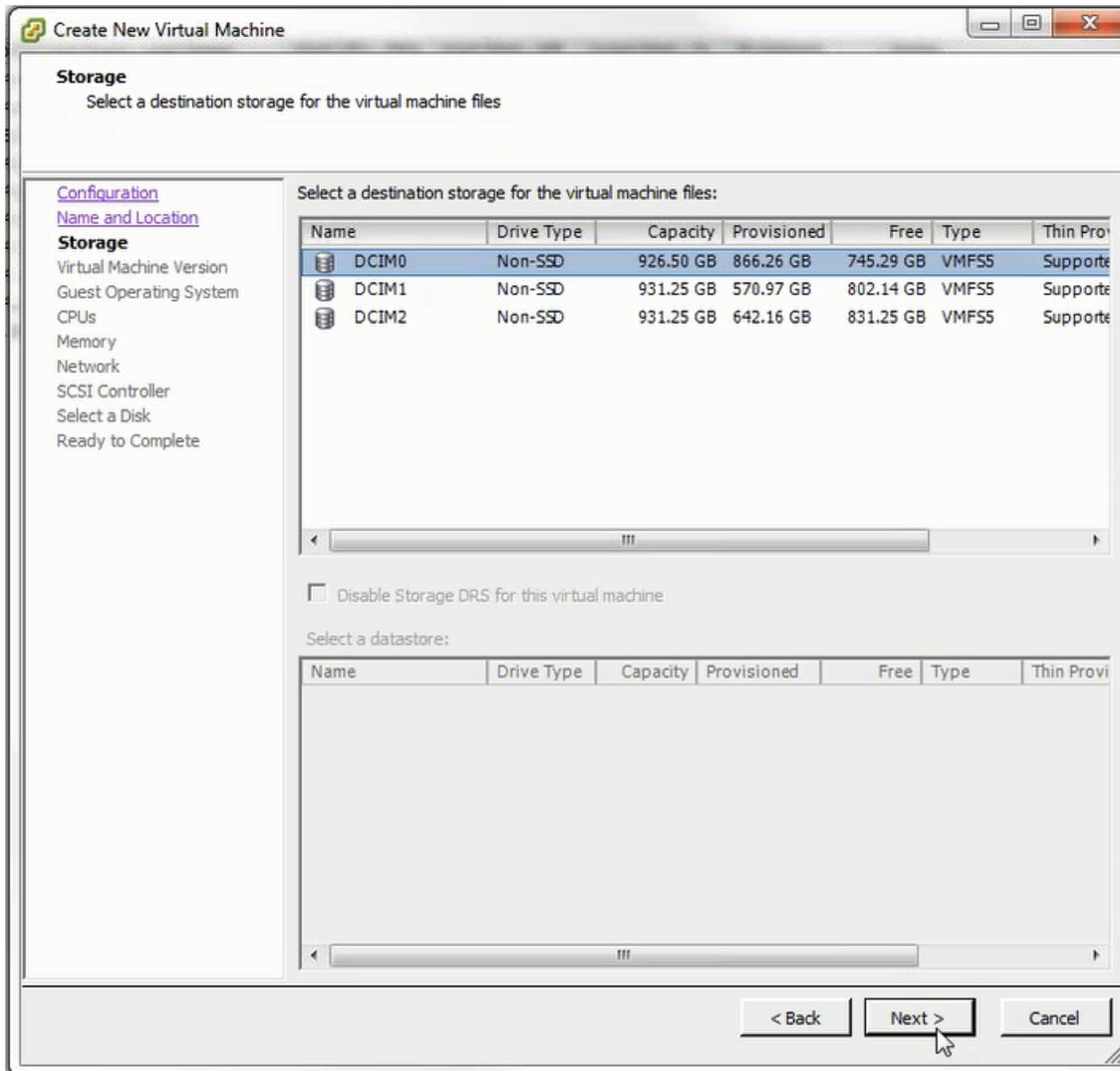
Name:

Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder.

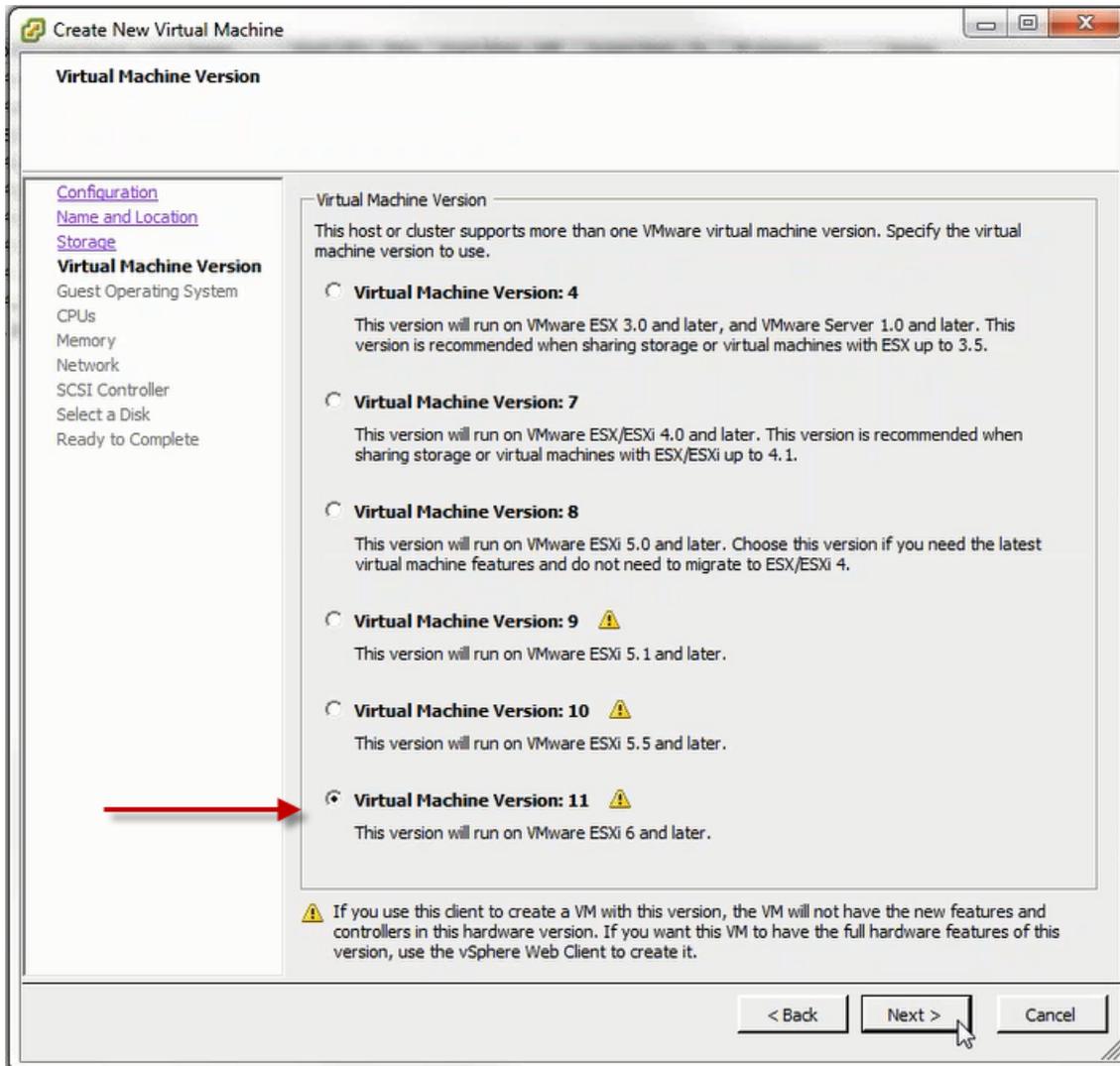
VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.

< Back Next > Cancel

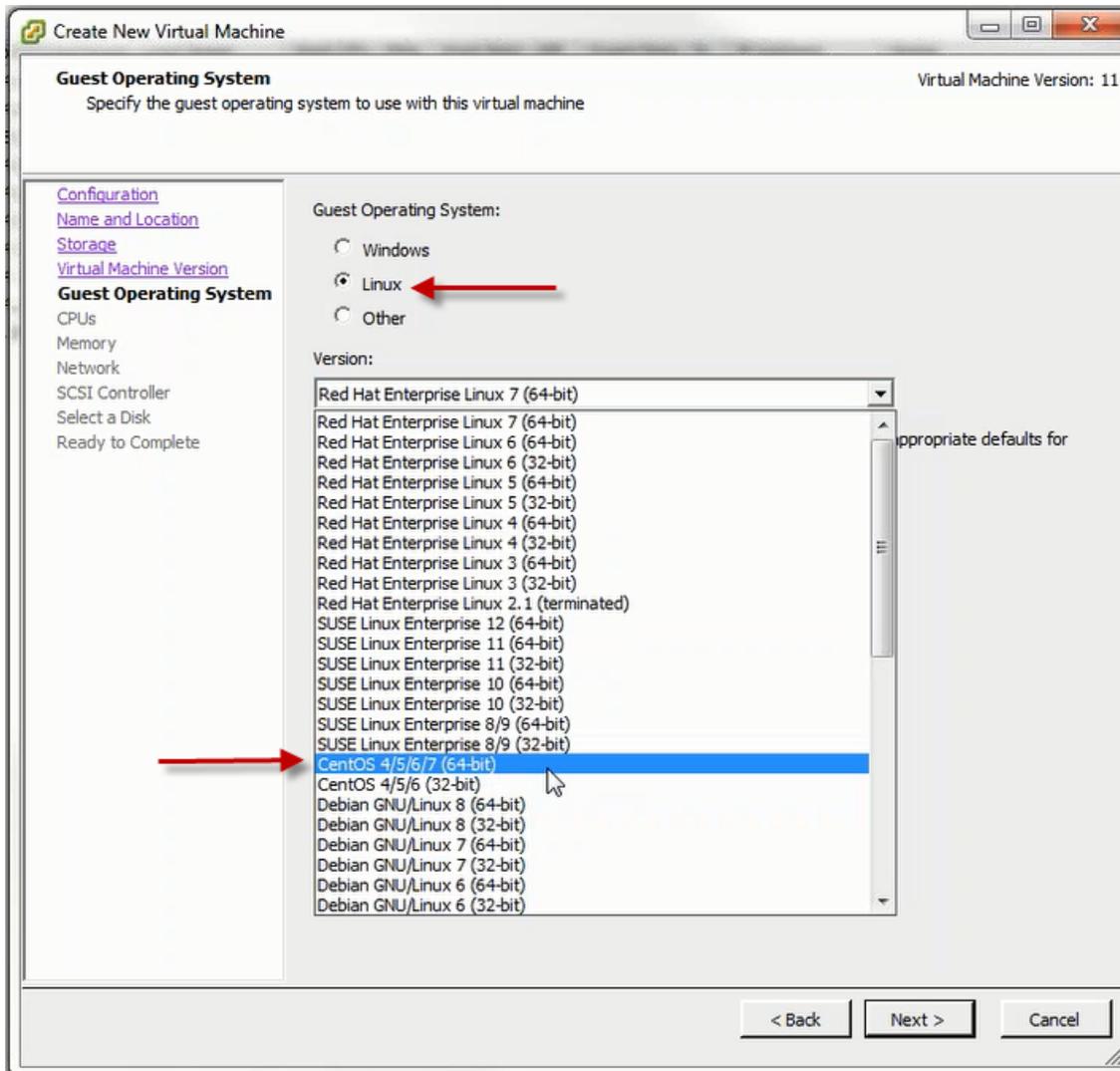
7. Select a destination storage location for the virtual machine files. Click Next.



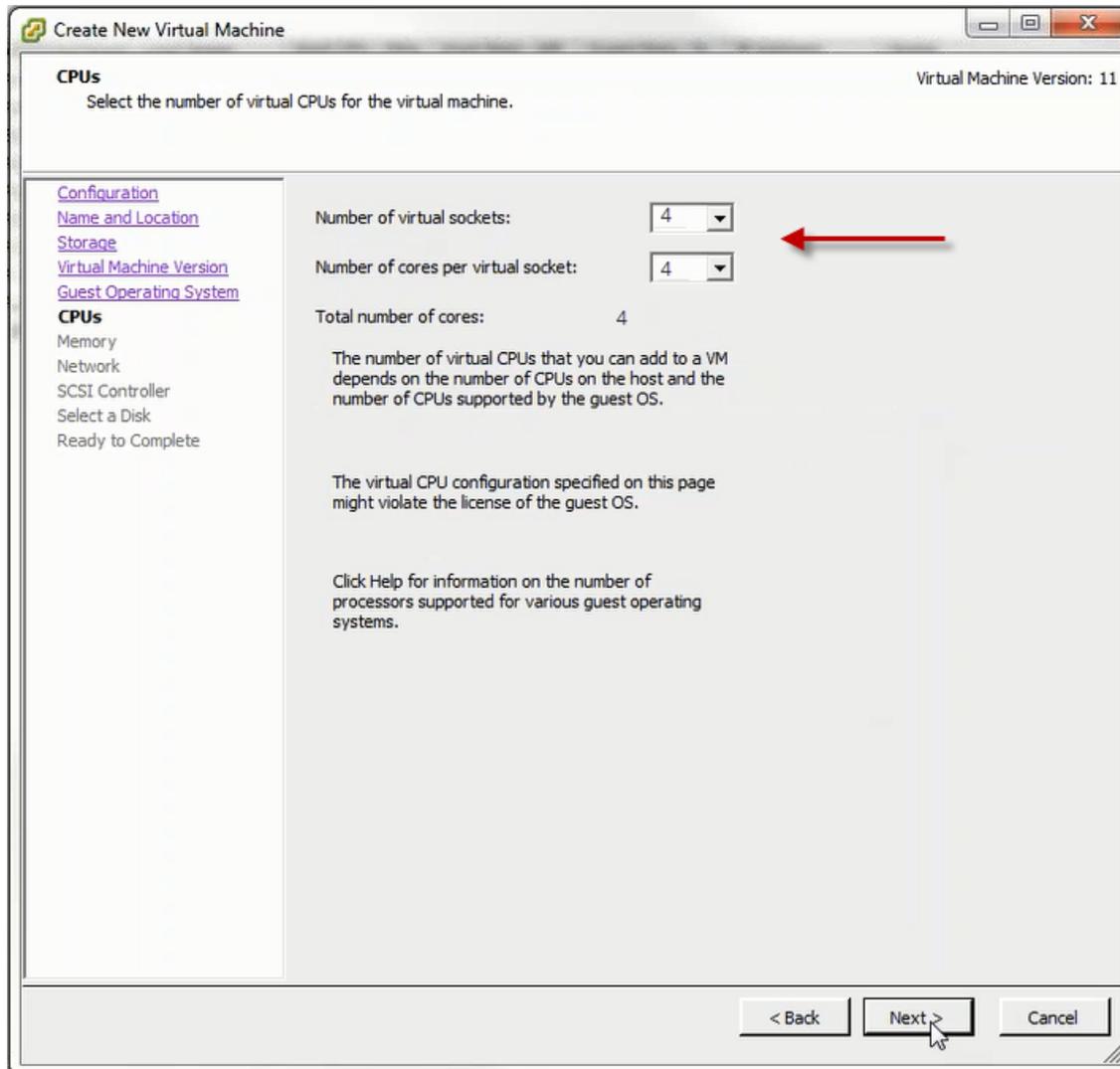
8. Depending on your host, you may need to select the virtual machine version. Select the version and click Next.



- From the Version drop-down, select Linux for the Guest Operating System, then select CentOS 64-bit. If CentOS 64-bit is not available, select Other Linux (64-bit). Click Next.

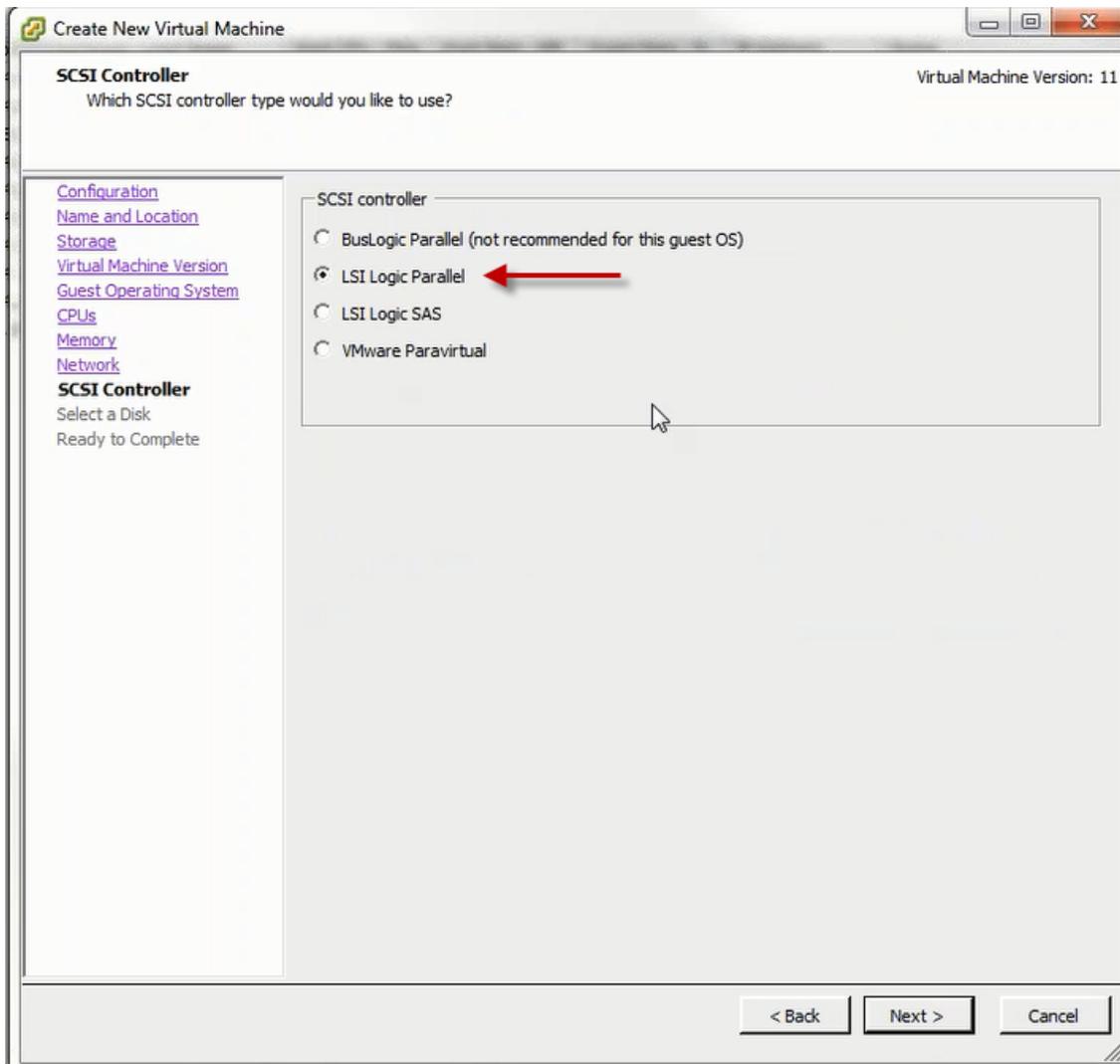


10. Select 4 for the "Number of virtual sockets". Select 4 for the "Number of cores per virtual socket". Click Next.



The screenshot shows the 'Create New Virtual Machine' wizard window. The title bar reads 'Create New Virtual Machine' and the top right corner shows 'Virtual Machine Version: 11'. The main heading is 'CPUs' with the instruction 'Select the number of virtual CPUs for the virtual machine.' On the left is a navigation pane with links for 'Configuration', 'Name and Location', 'Storage', 'Virtual Machine Version', and 'Guest Operating System'. Below these are 'CPUs', 'Memory', 'Network', 'SCSI Controller', 'Select a Disk', and 'Ready to Complete'. The main area shows 'Number of virtual sockets:' and 'Number of cores per virtual socket:' both set to '4' in dropdown menus. A red arrow points to the 'Number of virtual sockets:' dropdown. Below these is 'Total number of cores: 4'. There are two informational paragraphs: one about the number of virtual CPUs depending on host and guest OS, and another warning that the configuration might violate the guest OS license. A help link is provided. At the bottom are '< Back', 'Next >', and 'Cancel' buttons. A mouse cursor is over the 'Next >' button.

11. Adjust the amount of memory allocated for the virtual machine to at least the minimum required. Click Next.
12. Select the NIC and specify its Network. Click Next.
13. Select LSI Logic Parallel for the SCSI Controller. Click Next.



14. Select "Create a new virtual disk." Click Next.

15. Under Capacity -

- Set the Disk Size to 160GB (based on your earlier datastore selection).
- Under Disk Provisioning, select one of the following depending on your needs.
 - "Thin Provision for improved I/O."

OR

- "Thick Provision Eager Zeroed" for better performance since the space is preallocated before the virtual machine runs.
- Select "Store with the virtual machine" under Location. Click Next.

16. Leave all advanced options at default. Click Next.
17. Select "Edit the virtual machine settings before completion" and click Continue to open the Create New Virtual Machine dialog and install the ISO.
18. To install the ISO on the virtual machine, do this -
 - Select "New CD/DVD".
 - Under Device Status, select "Connect at power on".
 - Select the "Datastore ISO File" and use Browse to locate and select the ISO file.
19. Click Finish to create the virtual machine.
20. Power on your virtual machine.

Configure Network Access

After installing the application, you must configure it for access over your network.

1. Access the local port from the Console tab of the VMware Infrastructure Client.
2. When prompted to log in, enter the username *config* and the password *sunbird*. The configuration page opens.

```
Network Configuration: Main Menu
-----+-----
+ -Appliance Configuration- ----+
| Networking Setup >>           | LAN 0: 192.168.42.107
| Security Setup >>             | MAC: 00:0C:29:12:E8:29
| Ping Network Test             | Domain: raleigh.raritan.com
| Routing Network Test          | Gateway: 192.168.42.1
| Restart Appliance             | Gateway:
| Shutdown Appliance           | DNS 1: 192.168.42.10
| Support Connection            | DNS 2:
| Exit                           | DNS 3:
|                               | IPACL: Enabled
|                               | Tunnel: Support Disabled
+-----+-----+
5.0.0.103. Copyright 2007-2015 Sunbird Software All Rights Reserved.
```

3. Select `Networking Setup`, then select `Setup LAN 1` to configure the primary Ethernet port.
4. Press the Space bar to select "Enable this LAN Port".
5. To manually assign the network settings to the application:
 - Deselect "Use DHCP".
 - Type the IP address and network masks into the appropriate fields.
 - Select `Accept` to reset the network interface.
6. To setup the gateway IP address, select `Setup IPv4 Network Routes` and type the appropriate IP address in the Default Gateway Route field.

7. Select `Accept` to reset the network interface.
 - If using DHCP, note the address. There must be a DHCP server available on the LAN.
8. If you are using a second network interface, configure it by selecting `Setup LAN 2` from the Network Configuration menu, then perform the same steps as you did for LAN 1.
9. **Optional** Select `Ping Network Test` to ensure the application is communicating over the network.
10. Select `Name Servers` under Network Configuration to setup the server names.

Optional If server names are not set up, DNS names cannot be resolved.

Note: Failing to configure DNS servers causes LDAP integration issues.

11. **Optional** To increase security, it is advisable to disable SSH remote access.
12. Select `/Networking Setup/Setup Access Controls`.
13. Enable `Block SSH`. By default, the config account has access to the application. SSH is re-enabled if a support connection is created.
14. Select `Exit` from the main menu. You can now access the application from any client on the network.

Connecting to Power IQ

1. Connect to Power IQ using a web browser on any machine on the network.
2. In the browser's address bar, enter the IP address or hostname assigned to Power IQ. For example:
`https://192.168.1.10`
3. Answer yes to any security alerts and accept all certificates. If this is your first time connecting to Power IQ, you must upload your license and accept the End User Licensing Agreement before logging in. If this is not your first time connecting to Power IQ, skip to step 4.

Licenses are .LIC files. Repeat this step to add incremental licenses if needed.

Note: You will receive an email with your license from Sunbird.

4. Log in with the default username `admin` and password `sunbird`.

The Power IQ dashboard opens.

Configuring the System Clock

Power IQ uses the system clock to time-stamp events and data records. Set the system clock as soon as possible to keep an accurate record of events.

Using an NTP server is recommended to keep the system clock synchronized between Power IQ and the PDUs it manages.

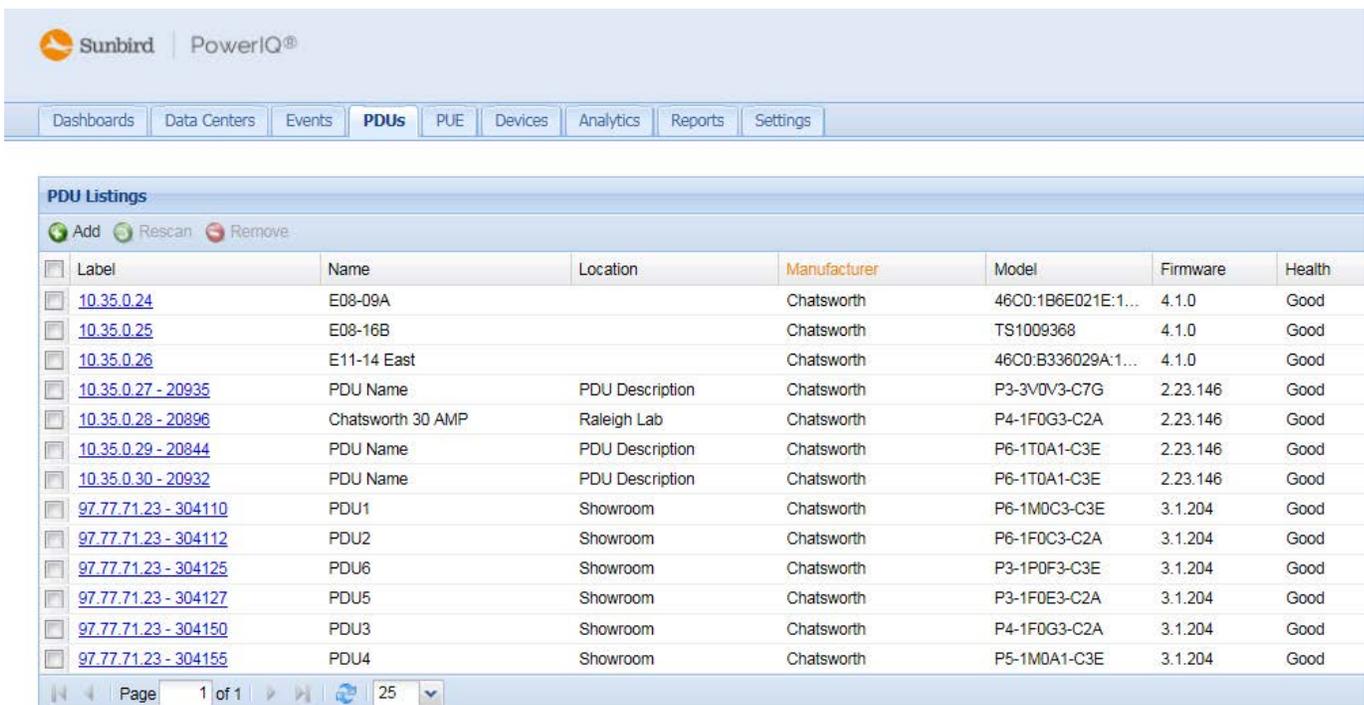
Configuring NTP Server Settings

The Configure Time Servers table lists the NTP servers Power IQ contacts to get date and time information. NTP must be enabled first.

1. In the Settings tab, click Application Settings in the Appliance Administration section.
2. In the Time Settings box, click the arrow to expand the NTP Settings
3. Select the Enable NTP checkbox.
4. Click Add.
5. Type the time server's IP address in the Time Server field then click OK.
6. Click Save Time Settings.

PDU Autodiscovery

1. Click the PDUs tab in Power IQ to open the PDU dashboard.
2. Click Add.
3. On the Add PDUs page, click the "discover PDUs on the network" link to open the PDU Autodiscovery page.



The screenshot shows the Sunbird PowerIQ interface. At the top, there is a navigation bar with tabs for Dashboards, Data Centers, Events, **PDUs**, PUE, Devices, Analytics, Reports, and Settings. Below the navigation bar, the 'PDU Listings' section is visible. It includes an 'Add' button, a 'Rescan' button, and a 'Remove' button. The main content is a table with the following columns: Label, Name, Location, Manufacturer, Model, Firmware, and Health. The table contains 14 rows of PDU information, including labels like '10.35.0.24', '10.35.0.25', '10.35.0.26', and '97.77.71.23 - 304110' through '97.77.71.23 - 304155'. At the bottom of the table, there is a pagination control showing 'Page 1 of 1' and a refresh button.

Label	Name	Location	Manufacturer	Model	Firmware	Health
10.35.0.24	E08-09A		Chatsworth	46C0:1B6E021E:1...	4.1.0	Good
10.35.0.25	E08-16B		Chatsworth	TS1009368	4.1.0	Good
10.35.0.26	E11-14 East		Chatsworth	46C0:B336029A:1...	4.1.0	Good
10.35.0.27 - 20935	PDU Name	PDU Description	Chatsworth	P3-3V0V3-C7G	2.23.146	Good
10.35.0.28 - 20896	Chatsworth 30 AMP	Raleigh Lab	Chatsworth	P4-1F0G3-C2A	2.23.146	Good
10.35.0.29 - 20844	PDU Name	PDU Description	Chatsworth	P6-1T0A1-C3E	2.23.146	Good
10.35.0.30 - 20932	PDU Name	PDU Description	Chatsworth	P6-1T0A1-C3E	2.23.146	Good
97.77.71.23 - 304110	PDU1	Showroom	Chatsworth	P6-1M0C3-C3E	3.1.204	Good
97.77.71.23 - 304112	PDU2	Showroom	Chatsworth	P6-1F0C3-C2A	3.1.204	Good
97.77.71.23 - 304125	PDU6	Showroom	Chatsworth	P3-1P0F3-C3E	3.1.204	Good
97.77.71.23 - 304127	PDU5	Showroom	Chatsworth	P3-1F0E3-C2A	3.1.204	Good
97.77.71.23 - 304150	PDU3	Showroom	Chatsworth	P4-1F0G3-C2A	3.1.204	Good
97.77.71.23 - 304155	PDU4	Showroom	Chatsworth	P5-1M0A1-C3E	3.1.204	Good

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Dashboards Data Centers Events **PDUs** PUE Devices Analytics Reports Settings

Add a New PDU

IP Address: **3**

Proxy Index:

External Key:

Test 1 :

Custom Field 2 :

SNMP Version:

PDU Administrative Credentials

Username:

Password:

Password Confirm:

SNMP v1/2c Credentials

Community String:

Community String Confirm:

Validate and wait for discovery to complete before proceeding

ADD MULTIPLE PDUS
If you have a lot of PDUs to add, you can [import multiple PDUs and their credentials from a CSV file](#) or you can [discover PDUs on the network](#)

4. Enter the starting IP address.

 **PowerIQ®**

Dashboards
Data Centers
Events
PDU
PUE
Devices
Analytics
Reports
Settings

Discover PDUs on the Network

Starting IP Address:

Quantity:

SNMP Version:

PDU Administrative Credentials

Username:

Password:

Password Confirm:

SNMP v1/2c Credentials

Community String:

Community String Confirm:

 You can monitor the progress of the discovery session from **Settings** > [Audit Log](#).

Note: All scheduled and running discovery sessions will be lost on a poller restart and will need to be recreated.

4

5. Enter the Quantity. This is the number of PDUs on the specific string that you want to discover.
6. Select the SNMP version.
7. Enter PDU access credentials.
8. Enter the community string of the PDUs, if applicable.
9. Click Start Discovery.
10. When prompted, confirm you want to begin.

Confirm PDU Discovery ✕

Depending on various factors, this session could take up to 2 minutes. Click ok to continue.

Note: To stop autodiscovery once it has begun, you must restart the poller.

Note: If the autodiscovery process is interrupted, the event is recorded in the audit log.

Autodiscovery runs in the background and you can work in other screens while it runs.

PDUs located by autodiscovery are listed on the PDUs page.

Audit Log Entries	
Download	
Date	Message
2016/02/10 15:28:45 -0500	Power IQ: Discovery: Completed Session ID 1996 by user jeannez for 5 IP addresses starting at 192.168.1.1. 0 PDUs wer...
2016/02/10 15:28:15 -0500	Power IQ: Web UI: Discovery: SCHEDULED Session ID 1996 by user jeannez for 5 IP addresses starting at 192.168.1.1
2016/02/10 15:28:15 -0500	Power IQ: Discovery: Started Session ID 1996 by user jeannez for 5 IP addresses starting at 192.168.1.1.

Adding PDUs to Power IQ Manually

Once Power IQ is configured, add PDUs. Power IQ can then gather data from these PDUs. If you're adding a PDU that uses a custom dynamic plugin, see [Adding PDUs with Custom Dynamic Plugins](#).

You can also add PDUs to Power IQ by uploading a CSV file containing the information. See [Adding PDUs in Bulk with CSV Files](#).

1. In the PDUs tab, click Add.
2. Enter the IP address of the PDU.
3. If the PDU is in a daisy-chained configuration or console server configuration, enter the PDU's position number in the chain or serial port number in the Proxy Index field.

Note: If the PDU is not in this type of configuration, leave the Proxy Index field blank.

4. Enter an asset tag number or other asset management code in the External Key field. Optional.
5. Enter data in Custom Field 1 and Custom Field 2. Optional. The labels may have been changed in Power IQ to identify these fields.
6. Select the SNMP Version.
 - For SNMP version 1/2c PDUs, enter an SNMP Community String that has at least READ permissions to this PDU. This enables polling the PDU for data. Enter an SNMP community string that has both READ and WRITE permissions to the PDU to enable power control, outlet naming, sensor naming, and buffered data retrieval.
 - For SNMP version 3 PDUs, enter the Username and select an Authorization Level. The authorization levels are:
 - noAuthNoPriv - No Authentication Passkey, No Encoding Passkey
 - authNoPriv - Authentication Passkey, No Encoding Passkey
 - authPriv - Authentication Passkey, Encoding Passkey
- a. Depending on the Authorization Level selected, you must enter additional credentials for Authorization and Privacy.

- b. Authorization Protocol: Select MD5 or SHA.
- c. Enter the PDU's Authorization Passkey, then re-enter the passkey in the Authorization Passkey Confirm field.
- d. Privacy Protocol: Select DES or AES.
- e. Enter the PDU's Privacy Passkey, then re-enter the passkey in the Privacy Passkey Confirm field.

Note: You must enable the SNMP agent on all PDUs added to Power IQ.

6. Select "Validate and wait for discovery to complete before proceeding" to check credentials and view the discovery process status as you add this PDU. Optional. See [Validating PDU Credentials](#) in the Power IQ User Guide.
7. Click Add.

Note: PDU discovery is complete once the PDU model type is determined. SNMP fields such as contact or location values are not determined until this device is polled for the first time.

Once added, the PDU appears in the PDU list. Power IQ begins polling the PDU for sensor data. You can configure how often Power IQ polls PDU. See [Configuring Polling Intervals](#) in the Power IQ User Guide.

Adding PDUs in Bulk with CSV Files

You can add PDUs in bulk by uploading a CSV file.

Power IQ does not check the credentials of the PDU while adding it during a CSV import. If the credentials are incorrect, an event called PDUcredentialsInvalid is logged.

Importing more than 100 PDUs at a time causes polling to suspend while the import is in progress.

You can download a step-by-step CSV template file from the Support portal. See <http://support.sunbirdcim.com/support/solutions/articles/6000055029-tools>.

See [Structure of the Add PDUs CSV File](#) for file requirements.

1. In the PDUs tab, choose Activities > Import PDUs from CSV file. The Import PDUs page opens.
2. Click Browse and select the CSV file.
3. Select "View progress of the import as each PDU is discovered" to view the discovery progress and the resulting status. Optional.
4. Click Begin Import.



Contents

Power IQ VMWare Quick Setup Guide	1
Virtual Machine Requirements	1
Preparing to Install Power IQ	1
Create the Virtual Machine and Install the ISO	2
Configure Network Access	10
Connecting to Power IQ	11
Configuring the System Clock	11
Configuring NTP Server Settings	12
Gathering Buffered Data	12
PDU Autodiscovery	12
Adding PDUs to Power IQ Manually	16
Adding PDUs in Bulk with CSV Files	17
Contents	18