HOL-0315-01 DELL POWERONE NAVIGATOR

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Lab Overview - HOL-0315-01 - PowerOne Navigator - [Getting Started - 55 Minutes]

Notices

Notice: This is a simulator of a PowerOne System, actual results may vary. Content, options, and dialogs may not reflect actual features, functionality, or options available in a PowerOne System.

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Lab Guidance

It will take no more than 60 minutes to complete this lab. You should expect to finish the 2 modules of the lab during your time. The modules are independent of each other so you can start at the beginning of any module and proceed from there. You can use the Table of Contents to access any module of your choosing.

PowerOne Navigator - Getting Started

Traditional approaches to building, operating, and maintaining data center technology, with fragmented technology silos and vendors, are no longer effective in meeting the growing needs of a modern digitally fueled enterprise. A new approach to IT and data center infrastructure is required: one founded on modern principles of operational simplicity, integration, and automation. The Dell EMC PowerOne System is designed specifically to meet the demands of the modern, digitally driven organization. PowerOne is built using industry-leading Dell EMC technologies. Although PowerOne consists of independently available components (server, storage, networking, and software), it is engineered, manufactured, managed, and supported as a single product. The Dell EMC factory expertly assembles, integrates, and tunes the system based on industry best practices before delivery and is then refined to your requirements after delivery of the system.

This lab introduces you to the Dell EMC PowerOne System and the PowerOne Navigator User Interface.

Lab Module List:

- **Module 1 - PowerOne Launch Assist** (25 minutes) - Basic - This module walks you through initial configuration of a PowerOne System using PowerOne Launch Assist capability.
- **Module 2 - PowerOne Life-Cycle Assist** (30 minutes) - Basic - This module introduces the life-cycle management capabilities of PowerOne through the Life-Cycle Assist feature of the PowerOne System.

Lab Champions:

- Module 1 and 2 - Anthony Foster, Principal Engineer, Technical Marketing

Lab Credentials

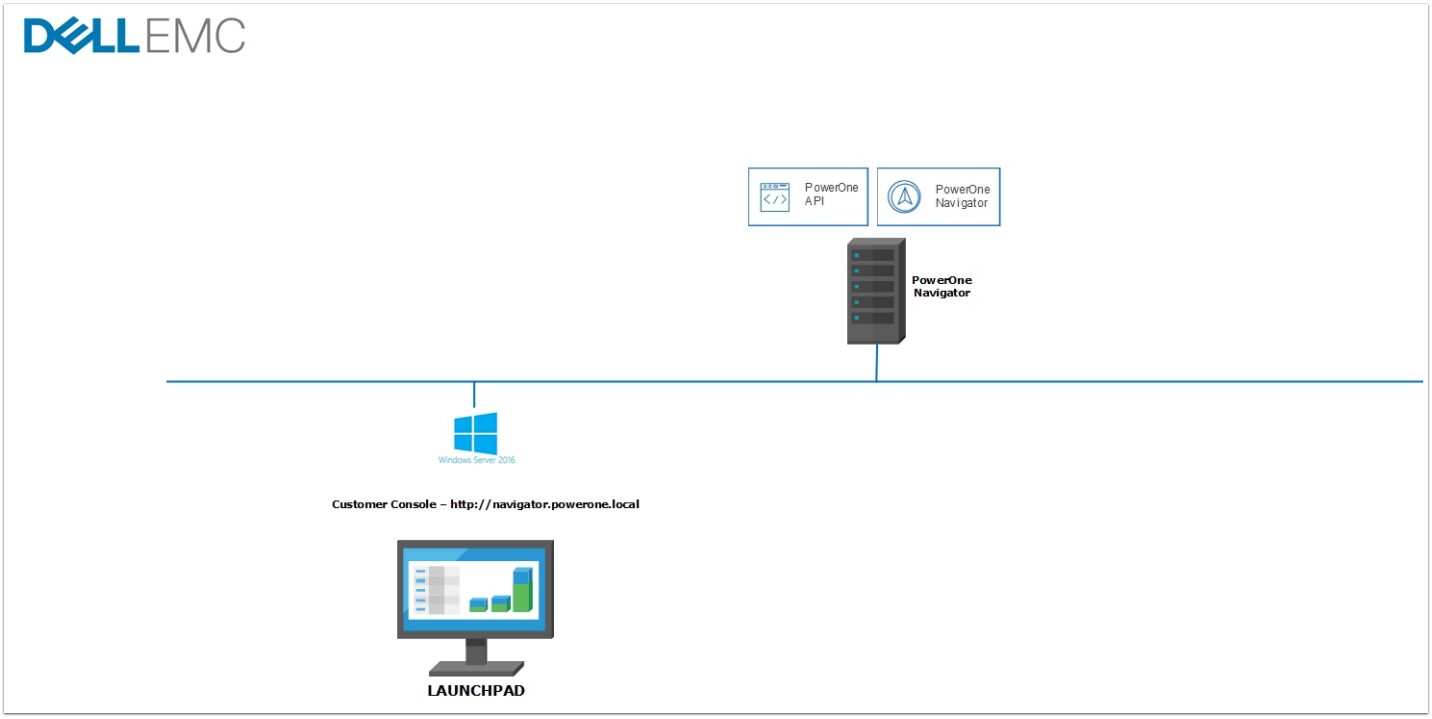
Note 1: This table is for reference purposes, you may not access everything when completing the use cases in the lab guide.

Note 2: The VMs are listed in the recommended shutdown order

Server / VM / Appliance Name	Use	IP Address	Credentials	Shutdown Procedure
LaunchPad	Lab	192.168.1.2	demo\	>cmd

Server / VM / Appliance Name	Use	IP Address	Credentials	Shutdown Procedure
	Desktop and PowerOne SIM		administrator / Password123!	>shutdown -s-t 0

Network Diagram



What is PowerOne

Traditional approaches to building, operating, and maintaining data center technology, with fragmented technology silos and vendors, are no longer effective in meeting the growing needs of a modern digitally fueled enterprise. A new approach to IT and data center infrastructure is required: one founded on modern principles of operational simplicity, integration, and automation. The Dell EMC PowerOne System is designed specifically to meet the demands of the modern, digitally driven organization. PowerOne is built using industry-leading Dell EMC technologies. Although PowerOne consists of independently available components (server, storage, networking, and software), it is engineered, manufactured, managed, and supported as a single product. The Dell EMC factory expertly assembles, integrates, and tunes the system based on industry best practices before delivery and is then refined to your requirements after delivery of the system.

PowerOne architecture enables asymmetrical scaling that allows you to invest only in the required resources to scale compute or storage capacity and performance independently. For example, you can reduce or increase compute and storage resources independently of each other, according to your needs. This can result in substantial cost avoidance (in hardware and software licensing) compared to more rigid (symmetrically scaling) architectural alternatives.

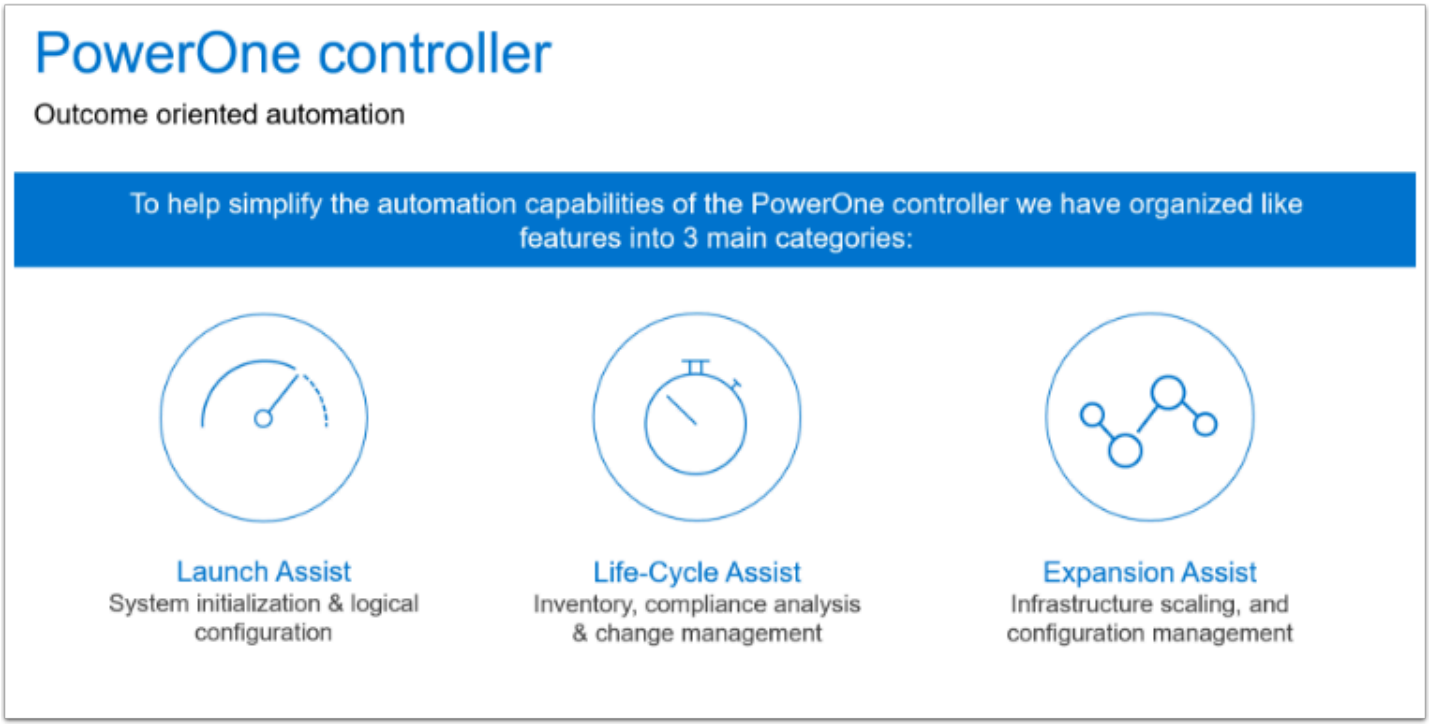
The highly available PowerOne Controller is the core of the system, designed to remove operational complexity. The PowerOne Controller provides a 'single system' administrative experience through its centralized intelligent automation capability. This technology has been designed exclusively for PowerOne.

Unlike traditional approaches to system management and automation, the PowerOne Controller is not a tool to build, maintain, and operate your own custom-built automation. Instead, it comes 'out of the box' with pre-embedded automation, enabling you to orchestrate most of the components of PowerOne based on administrative direction. This paradigm shift from 'tool' to 'declarative controller' enhances operational efficiency, simplicity, and agility.

As the orchestration layer for PowerOne, the PowerOne Controller exposes its full capability through an Application Programming Interface (API) for simple business process integration and on-premise cloud-like operations. In addition, PowerOne also includes a modern and intuitive user interface (PowerOne Navigator) for PowerOne operations.

In turn, the PowerOne Controller helps you to avoid the manual burden of researching, qualifying, and running the many procedures and integrations that often represent the largest cost of running a data center.

PowerOne Assists



To help simplify the automation capabilities of the PowerOne Controller, we have organized PowerOne features into 3 main categories:

- **Launch Assist**: PowerOne system initialization
- **Life-Cycle Assist:** System maintenance and day to day operations
- **Expansion Assist:** Adding resources

Much like ordering food at a restaurant (where the chef knows the recipes for menu items, and the guest orders what they want to eat without knowing all the steps to prepare the dish), PowerOne provides the same outcome based results for infrastructure. You order what you would like, the PowerOne Controller knows the recipes, and it provides the desired result that follows best practices and is based on the infrastructure available.

This lab will guide you through each of the assists, allowing you to experience using a PowerOne System to declare outcome based results.

Module 1 - PowerOne Launch Assist

Module 1 - Overview

Module 1 - PowerOne Launch Assist (25 Minutes) - Basic - This module will introduce you to the PowerOne Launch Assist capability. You will become familiar with the tasks involved in the provisioning on a PowerOne System through Launch Assist.

This module covers the following areas:

- System Acceptance
- Data Center Services
- Management Network Configuration
- Storage Configuration
- System Fabric Configuration
- Platform Configuration

Lessson 1- PowerOne Launch Assist Overview

Open a web browser by clicking on the Chrome shortcut on the LaunchPad Desktop.

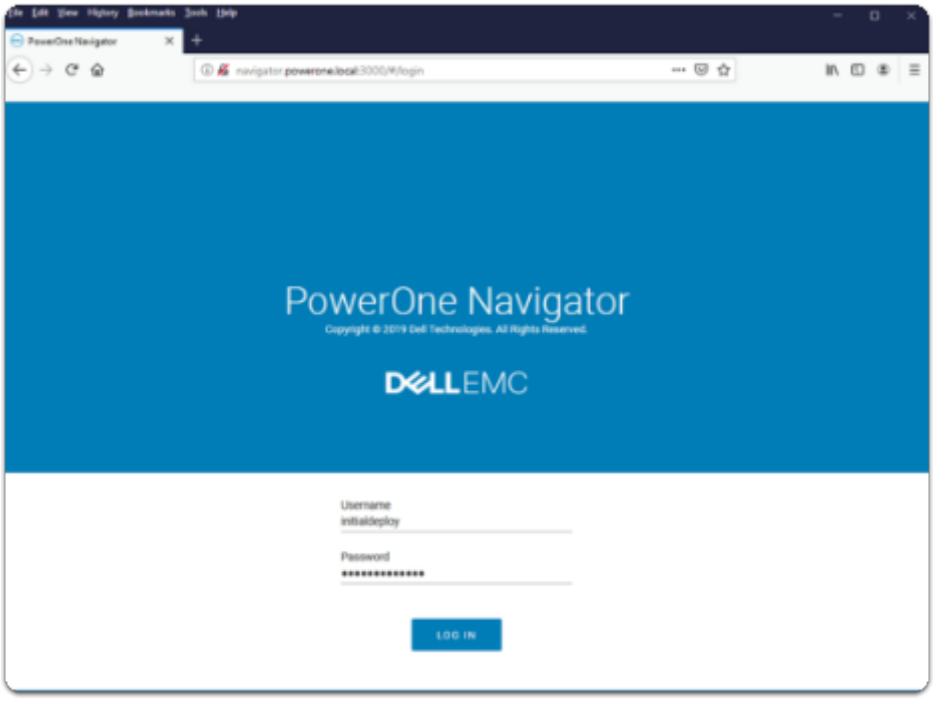
PowerOne Navigator Login

The PowerOne Navigator UI has been set as the Chrome Homepage. The Navigator log in page will display automatically.

Please use the following credentials to log -in:

- Username: **initialdeploy**
- Password: **initialdeploy**

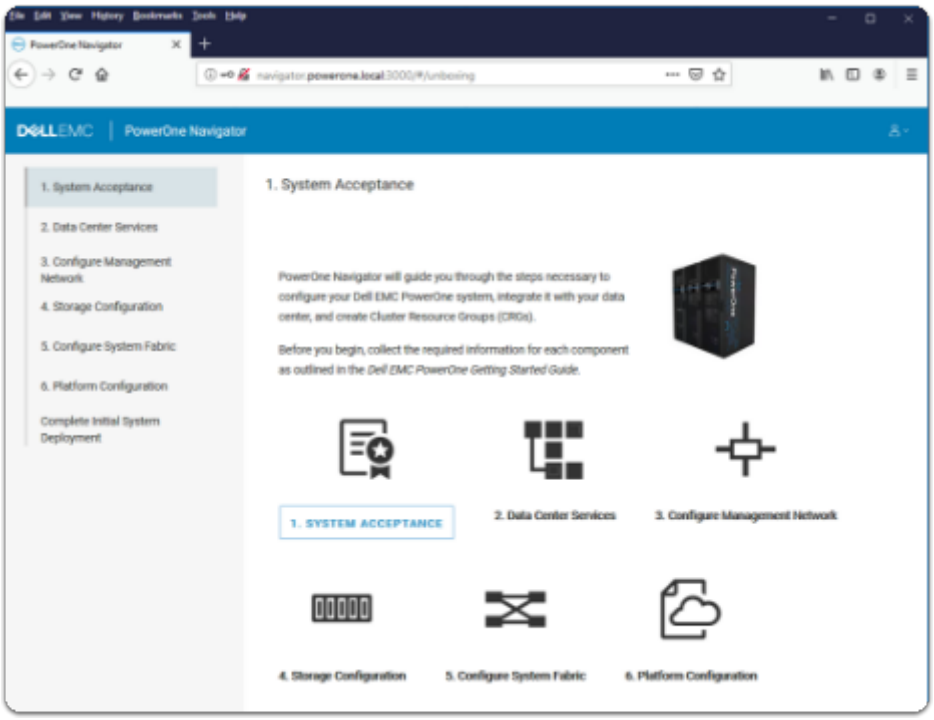
Click the **LOG IN** button



PowerOne Navigator initial login

PowerOne Navigator will guide you through the steps necessary to configure your Dell EMC PowerOne system, integrate it with your data center, and create Cluster Resource Groups (CRGs).

Launch Assist consist of 6 steps that will set up and configure the PowerOne System.



Lesson 2 - PowerOne Launch Assist

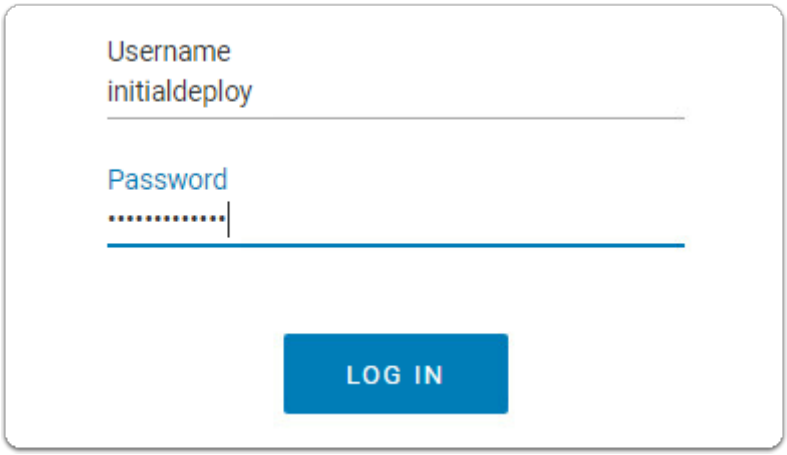
Once your lab session has provisioned on the LaunchPad Desktop, double-click on the **PowerOne Navigator** shortcut. The PowerOne Navigator login page will be displayed.

Navigator Login

To log in to the Navigator portal, use the following credentials:

- Username: **initialdeploy**
- Password: **initialdeploy**

Click **Log In**



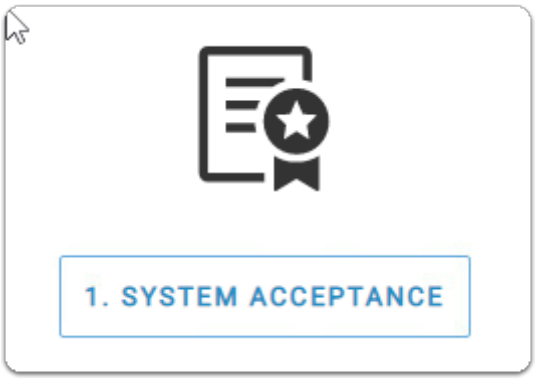
System Acceptance

PowerOne Navigator will guide you through the steps to configure your Dell EMC PowerOne system, integrate it with your data center and create Cluster Resource Groups (CRGs).

Launch Assist consists of six steps for setting up and configuring your PowerOne system.

The first of these six steps is System Acceptance.

Click on the **System Acceptance** label.



Initial System Deployment

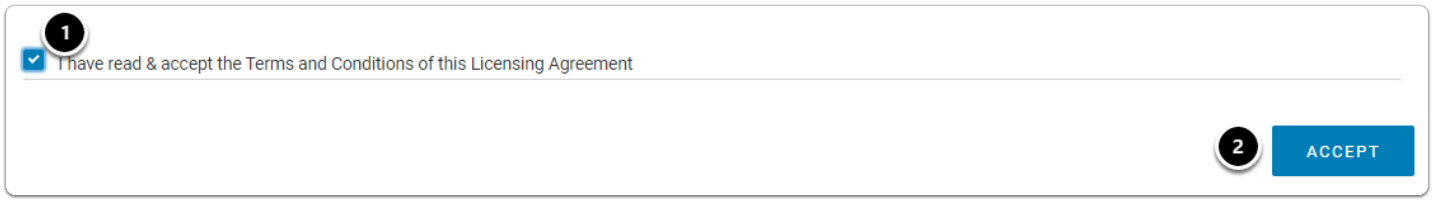
The Initial System Deployment page is displayed. It recommends that you have all the necessary information required to configure your PowerOne system available.

Click **Next** to proceed.

Enterprise User License Agreement

To proceed with the provisioning of your PowerOne system, you are required to accept the Enterprise User License Agreement (EULA). Review the PowerOne EULA, scrolling through it until reaching the bottom.

1. Click the **I have read & accept the Terms and Conditions of the Licensing Agreement** checkbox.
2. Click **Accept**.



Validate Configuration

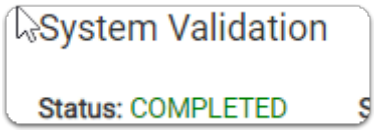
Read the text about system validation.

Click **Start System Validation.**

System Validation

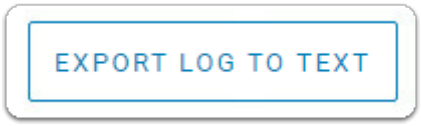
The System Validation window is displayed. This is simulating the validations on all components within the PowerOne system. On an actual system this validation task can take a significantly longer time depending on the components within your PowerOne system.

The validation should complete successfully. Check the **Status** of the System Validation.



Export the Logs

When the status shows as **Completed**, click the **Export Log to Text** button.



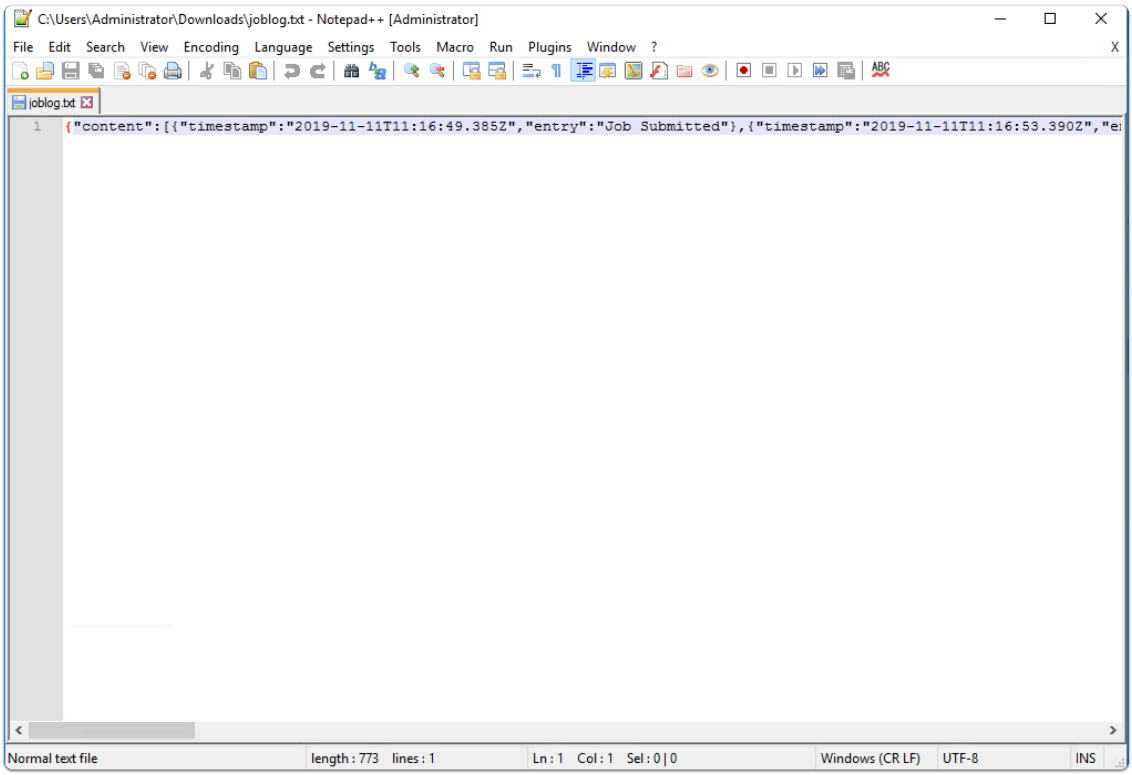
Open Exported Logs

The logs will be automatically downloaded and saved. Double-click the file **joblog.txt** in the Chrome browser.

View joblog.txt

This will display the output of the validation in JSON format.

When finished reviewing the output, close **NotePad++.**



System Validation

Let's return to the System Acceptance page. Click **Close** within the System Validation pop out.

Validation Complete

After System Validation has completed successfully, a list of validated components appears. Each has a **Status** of **Success.**

Click the **Next** button.

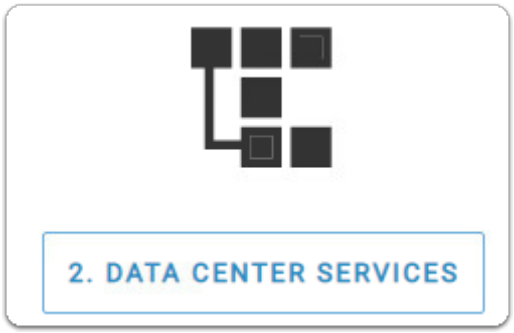
If for some reason you have had to leave the configuration of your PowerOne system and the Navigator session has time out, you are required to log back into the interface. Don't

worry -- PowerOne Navigator will save any configuration applied during the Launch Assist process.

Data Center Services

You are returned to the Launch Assist screen. You will now proceed to configure the Data Center Services.

Click the **Data Center Services** label to begin.

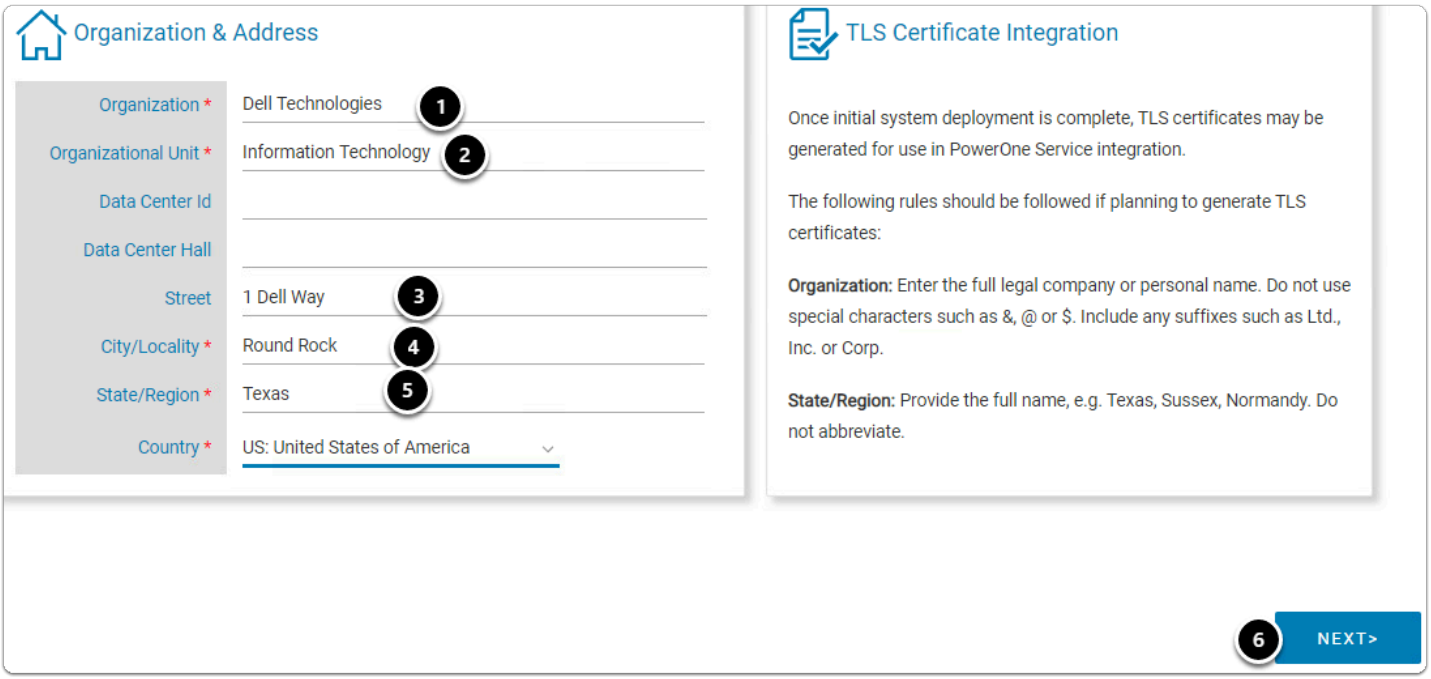


Location Information

Complete the **Organization & Address** table with the information below.

This information is used for the automatic creation of support tickets and for the optional integration of a TLS certificate.

1. Organization: **Dell Technologies**
2. Organization Unit: **Information Technology**
3. Street: **1 Dell Way**
4. City/Locality: **Round Rock**
5. State/Region: **Texas**
6. Country: **US: United States of America**
7. Click **Next**.

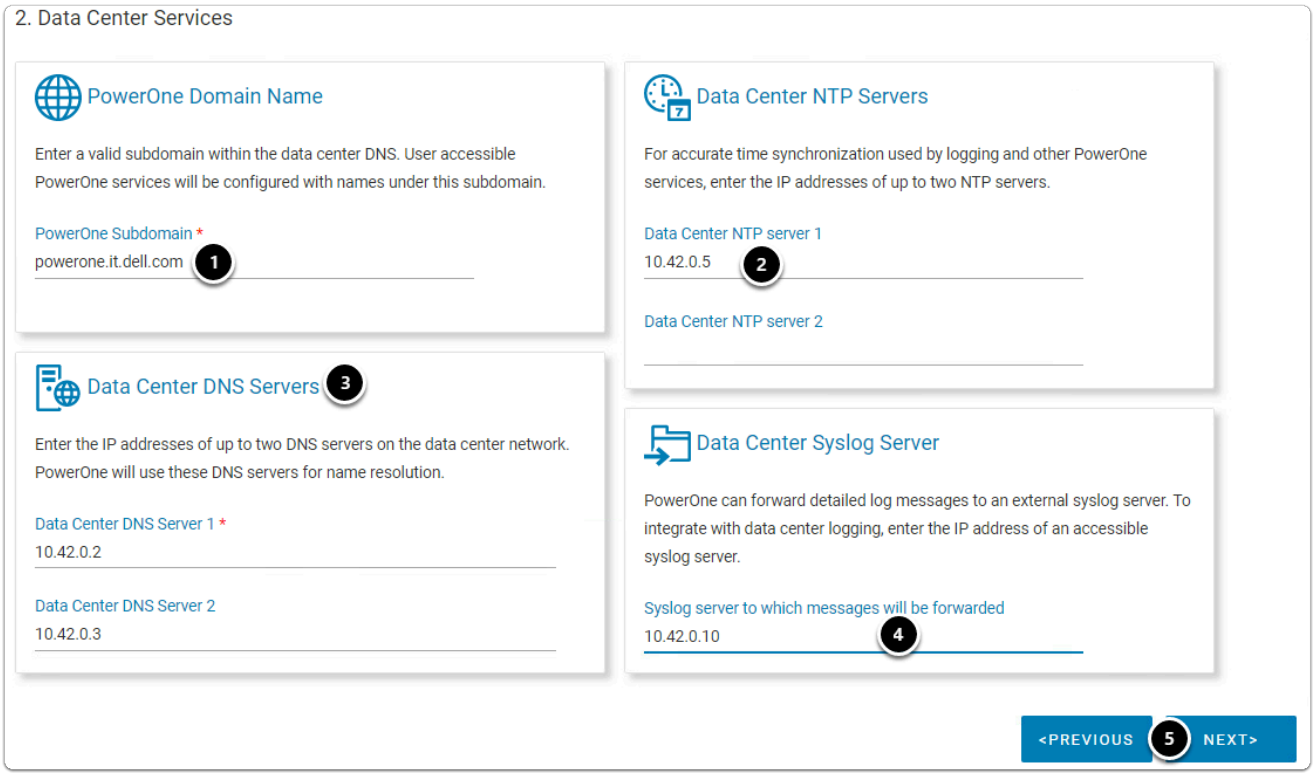


Network Services

You will now enter the Network Services that PowerOne uses for its operations. Items marked with a red asterisk (*) are mandatory.

Enter the following configuration values:

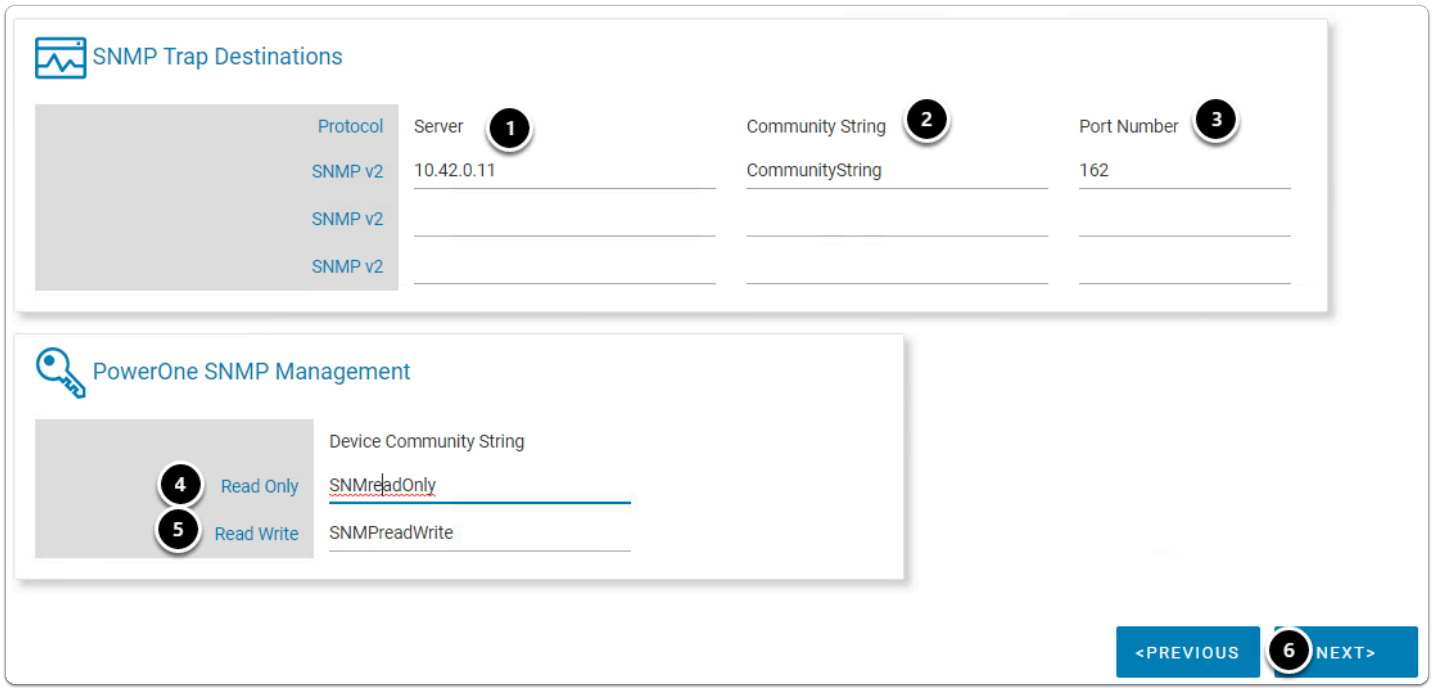
1. PowerOne Subdomain: **powerone.it.dell.com**
2. Data Center NTP server 1: **10.42.0.5**
3. Data Center DNS Servers: **10.32.0.2, 10.42.0.3**
4. Data Center Syslog Server: **10.42.0.10**
5. Click **Next**.



SNMP Configuration

You will now enter the SNMP configuration settings. Use the following settings for **SNMP Trap Destinations** and **PowerOne SNMP Management**.

1. Server: **10.42.0.11**
2. Community String: **CommunityString**
3. Power Number: **162**
4. Read Only: **SNMPreadonly**
5. Read Write: **SNMPreadWrite**
6. Click **Next**.



Configure Services

Please review the configuration information entered. If incorrect, select **Previous** to return and fix any errors in the settings entered.

If the information displayed is correct, click **Start Configuration Job**.

Configure Network Services

The Configure Network Services dialog box appears. On an actual PowerOne system, this configuration task may take significantly longer, depending on the number of components in the PowerOne System.

The operation **Status** will show as **COMPLETED.**

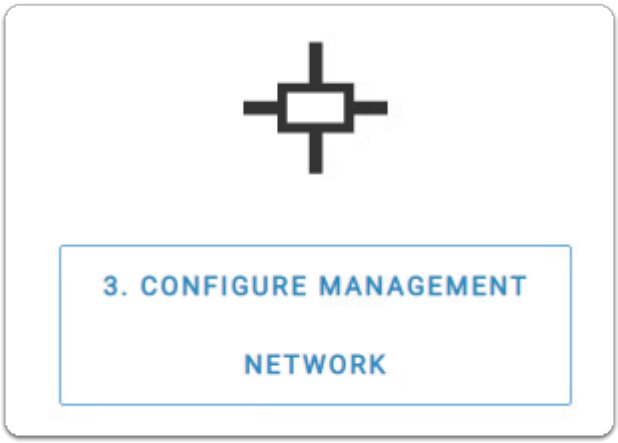
Click **Close**.

Job Completed

The Data Center Services job has completed. Click **Next**.

Management Network

Let's begin step three. Click **Configure Management Network**.

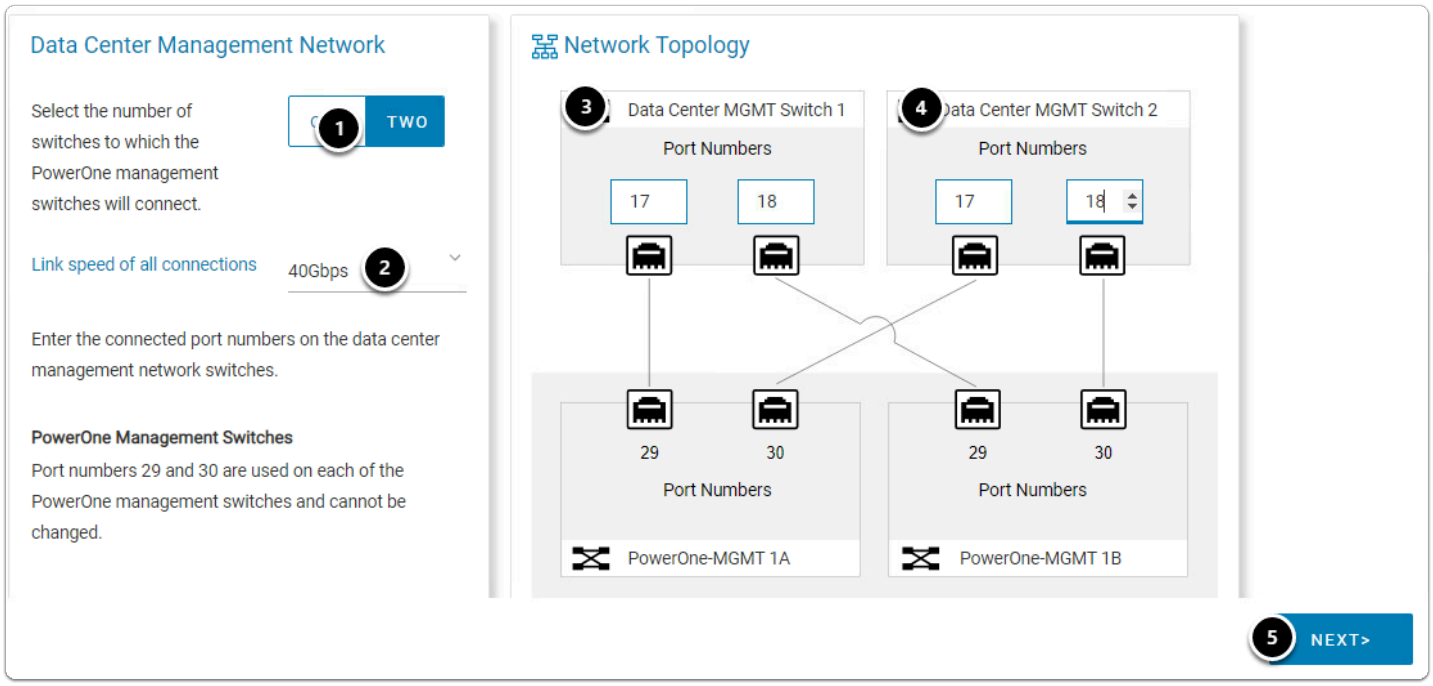


Physical Connectivity

We need to configure the network topology for the management network. Use the following settings:

1. Select the number of switches to which the PowerOne management switch will connect: **TWO**
2. Link speed of all connections**: 40Gbps**

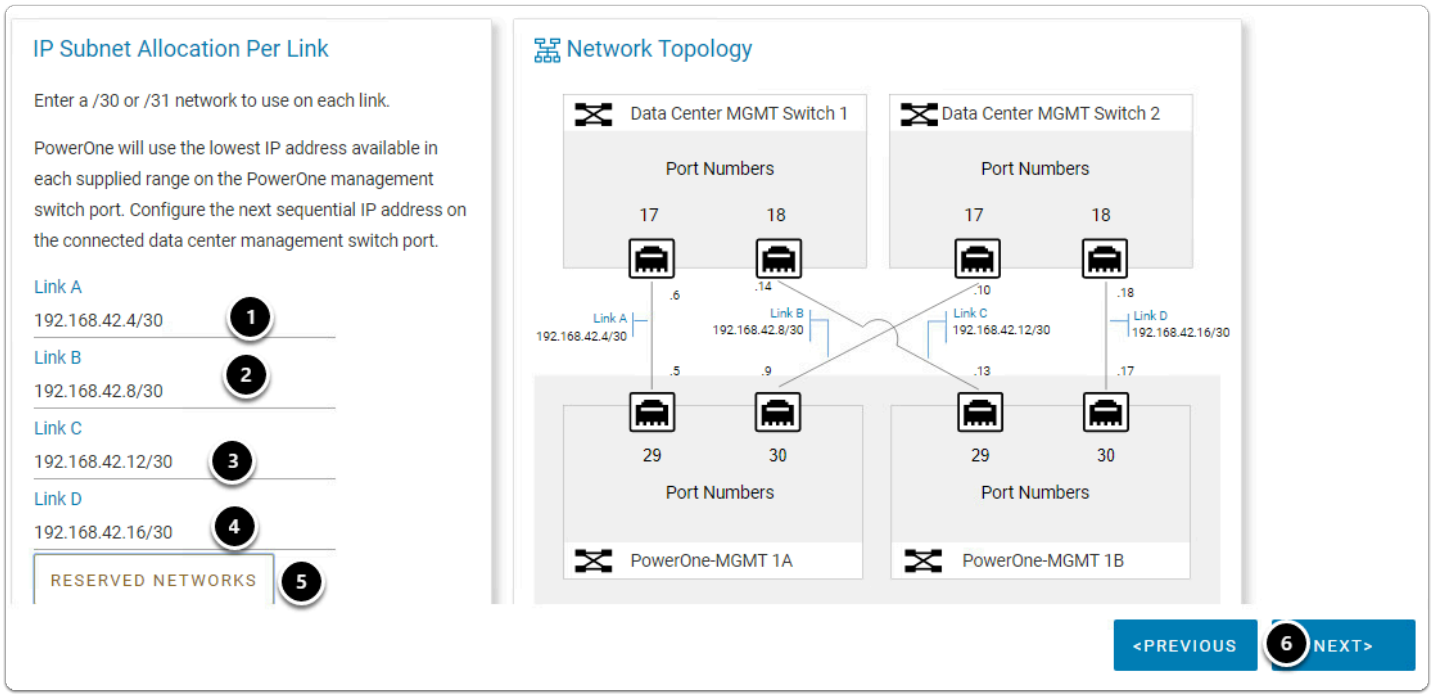
3. Data Center MGMT Switch 1 Port Numbers: **17 & 18**
4. Data Center MGMT Switch 2 Port Numbers: **17 & 18**
5. Click **Next**.



IP Subnets

Each link on the management network requires either a /30 or /31 subnet. For the labs, use the following settings:

1. Link A: **192.168.42.4/30**
2. Link B: **192.168.42.8/30**
3. Link C: **192.168.42.12/30**
4. Link D: **192.168.42.16/30**
5. Click **Reserved Network**.
6. Click **Next**.

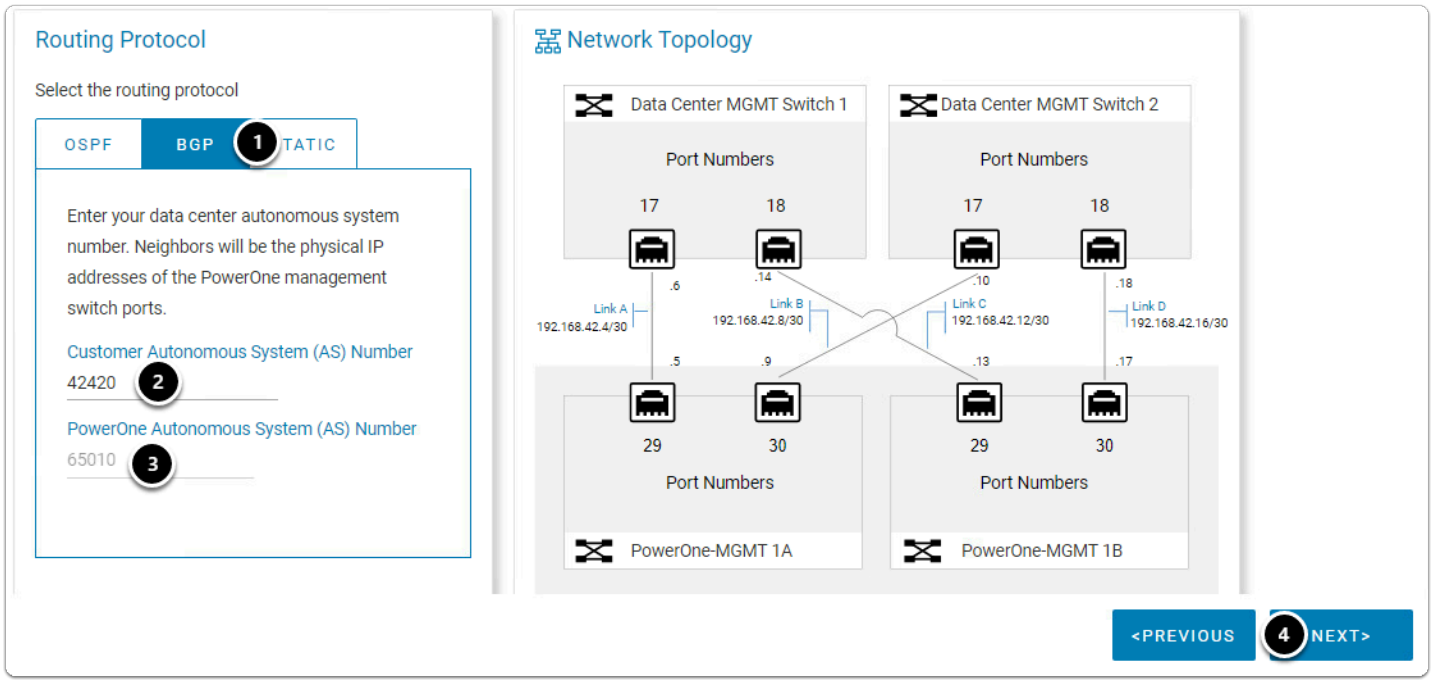


Routing Protocol

The routing protocol between the PowerOne management network and the data center network is the next aspect to define. PowerOne supports OSPF, BGP, and Static routing.

For this lab we will use BGP:

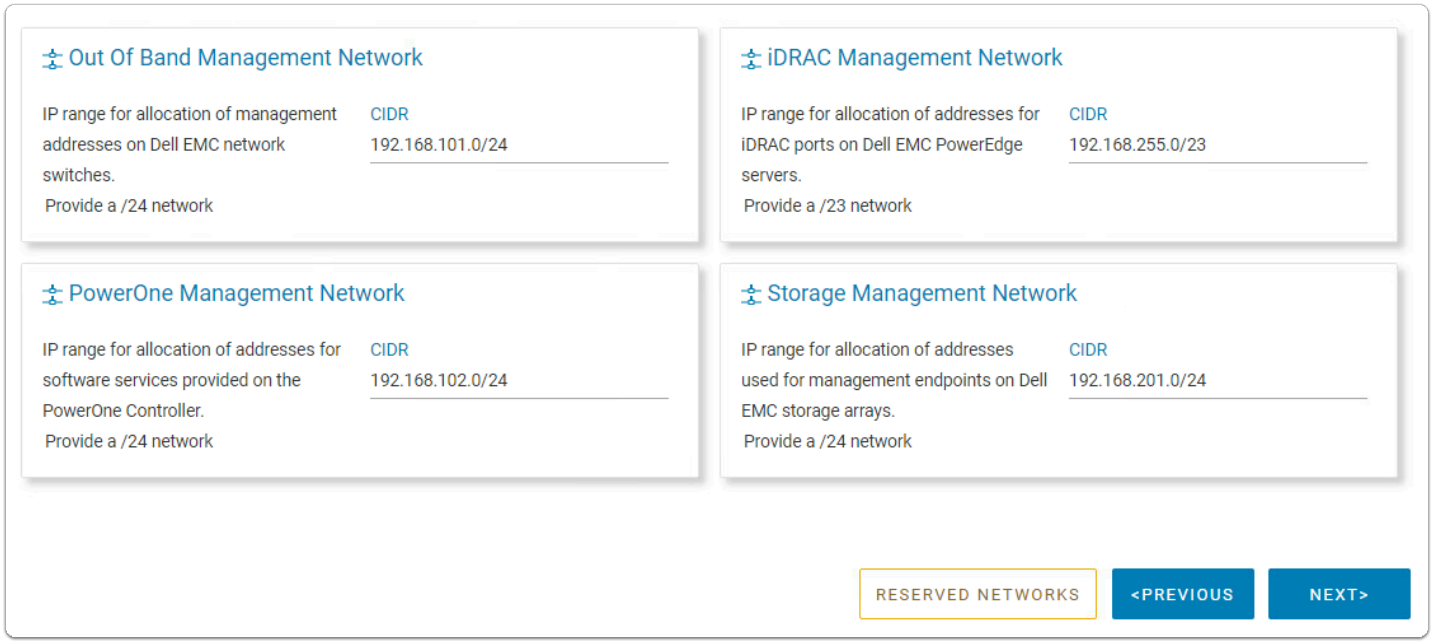
1. Select **BGP** under Routing Protocol
2. Customer Autonomous System (AS) number: **42420**
3. PowerOne Autonomous System (AS) Number: Accept the default **65010**
4. Click **Next**.



PowerOne Management

IP ranges are needed for several management services. In this lab we will use the default values provided.

1. Out of Band Management Network: **192.168.101.0/24**
2. iDRAC Management Network: **192.168.255.0/23**
3. PowerOne Management Network: **192.168.102.0/24**
4. Storage Management Network: **192.168.201/24**
5. Click the **NEXT>** button in the lower right corner.



Configure Management Network

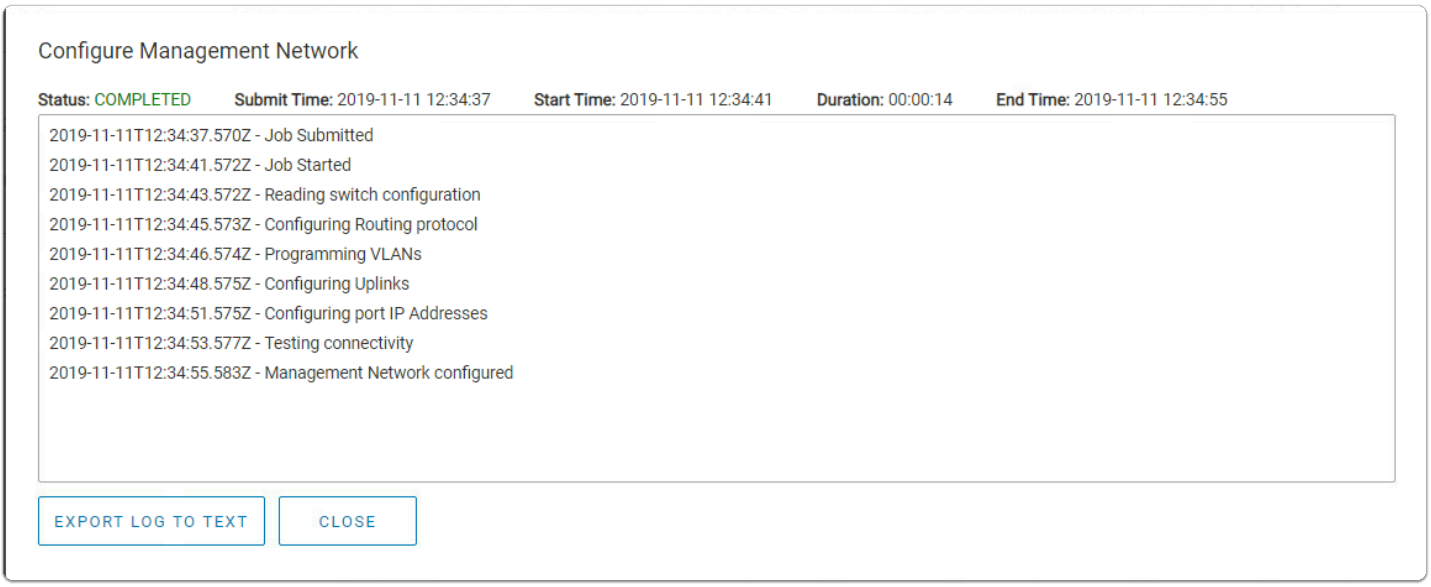
Review the management network configuration in the tables and confirm it is correct. If it is not correct, click the **PREVIOUS** button to go back and correct the information.

If the information is correct, proceed and click **Start Configuration Job.**

Management Network Job

The Configure Management Network dialog box appears. On an actual PowerOne system, this configuration task may take significantly longer depending on the number of components in the PowerOne System.

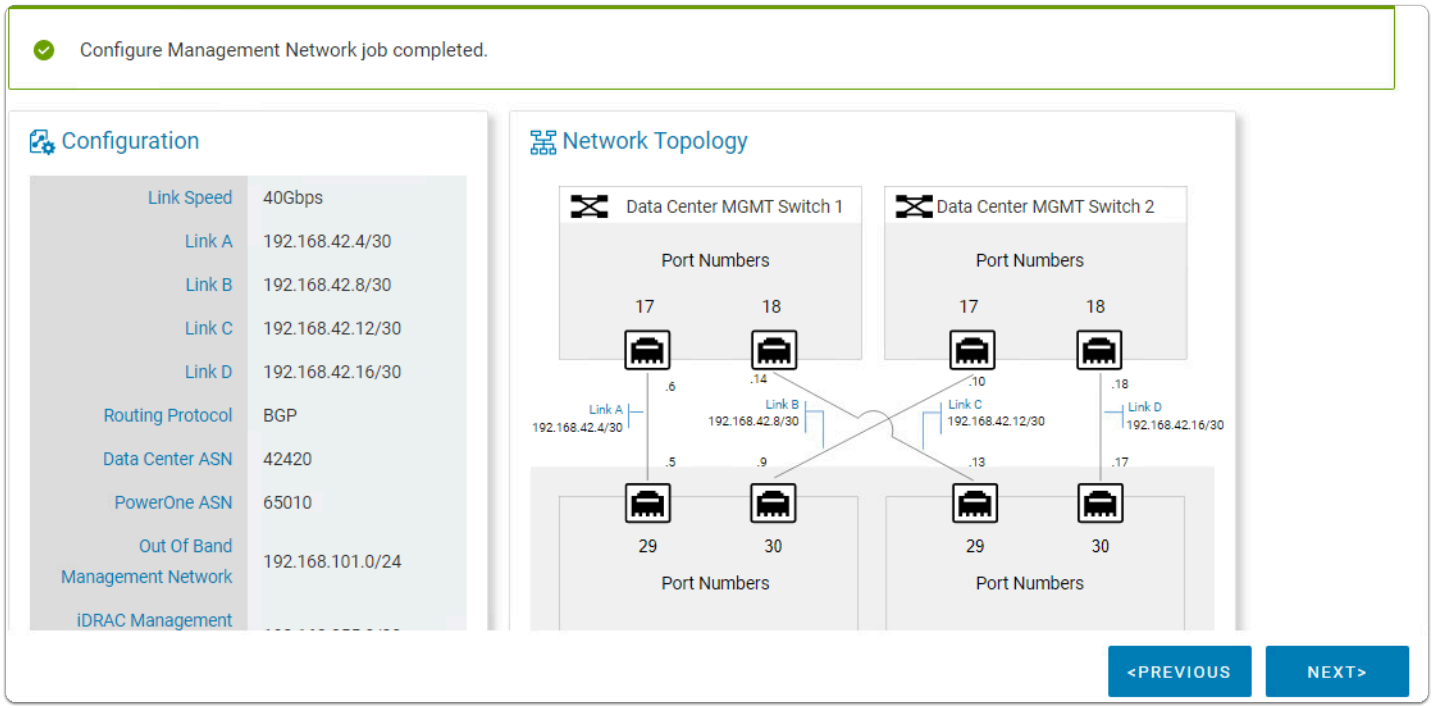
When the **Status** shows a green **COMPLETED** message, click **Close.**



Job Complete

The Configure Management Network job has completed successfully. The **Configuration** and **Network Topology** are displayed.

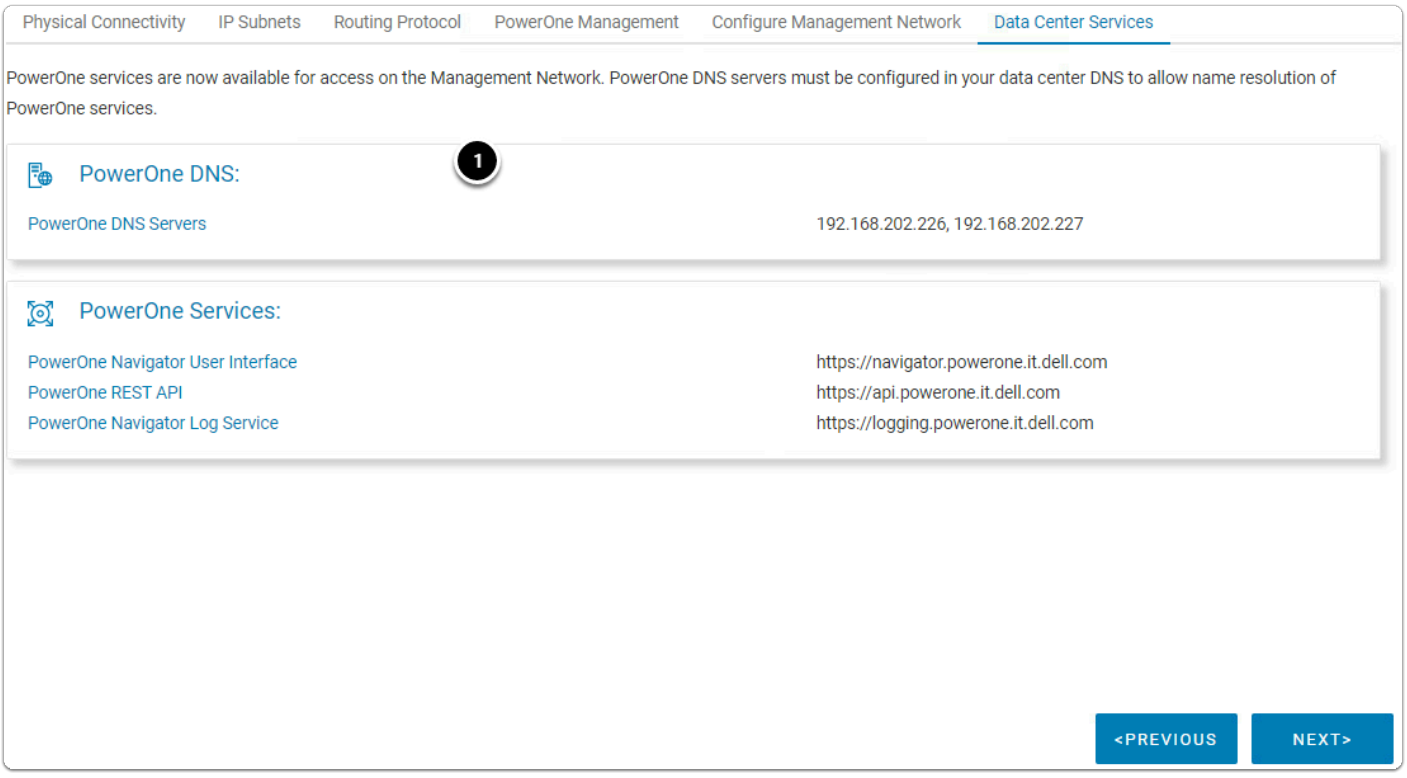
Click **Next**.



Data Center Services

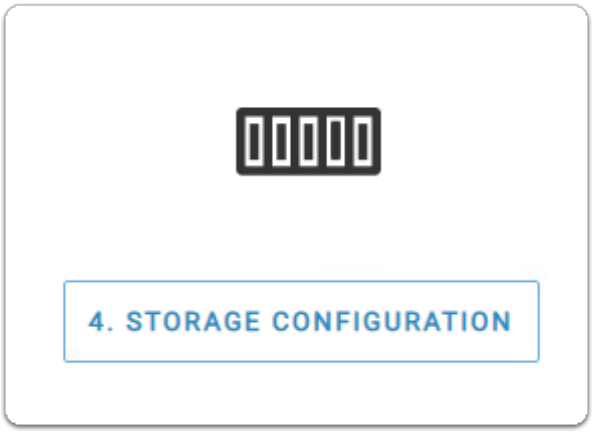
At this point, PowerOne management services are reachable from outside of the PowerOne system. A page is displayed with URLs to different services. An example of available services is shown.

Click **Next.** This completes the Management Network Configuration.



Storage Configuration

Click **Storage Configuration.**



Storage Array Setup

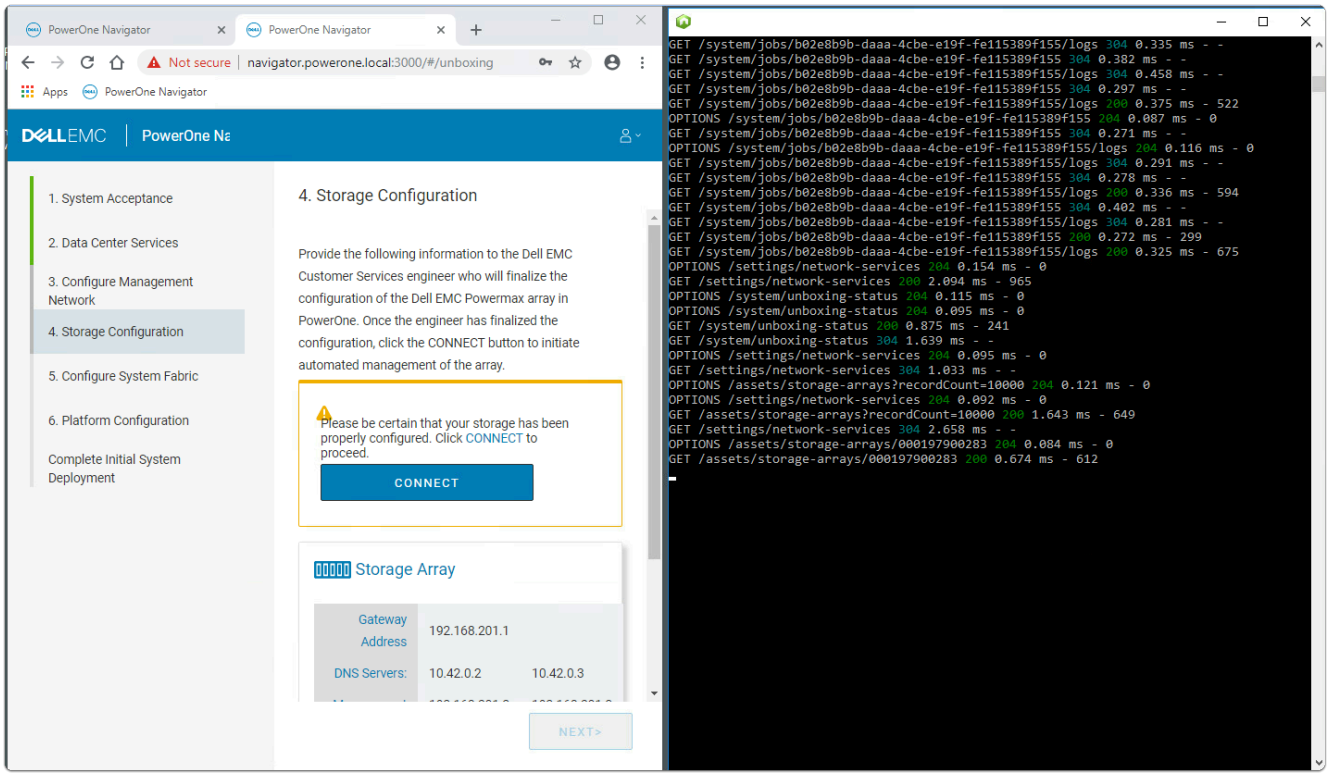
In an actual PowerOne deployment, a Dell EMC Service Engineer will connect and configure the IP addresses for the PowerMax storage array in the PowerOne System. In this lab, the storage array has already been configured for you and is ready to be integrated.

The PowerOne Navigator (web UI) is built on top of the PowerOne API. For the following section, we will watch calls to the PowerOne API that configure the PowerMax storage array.

On the task bar you should see a green hexagonal icon.

Arrange application windows

Arrange the browser window with the PowerOne Navigator and the PowerOne Simulator API window so that both are visible, as shown here.



Initiate Array Management

Click **Connect i**n PowerOne Navigator.

Watch the PowerOne Simulator API screen: you will see PowerOne API calls scrolling across the screen as the PowerMax storage array is configured.

Return to PowerOne Navigator

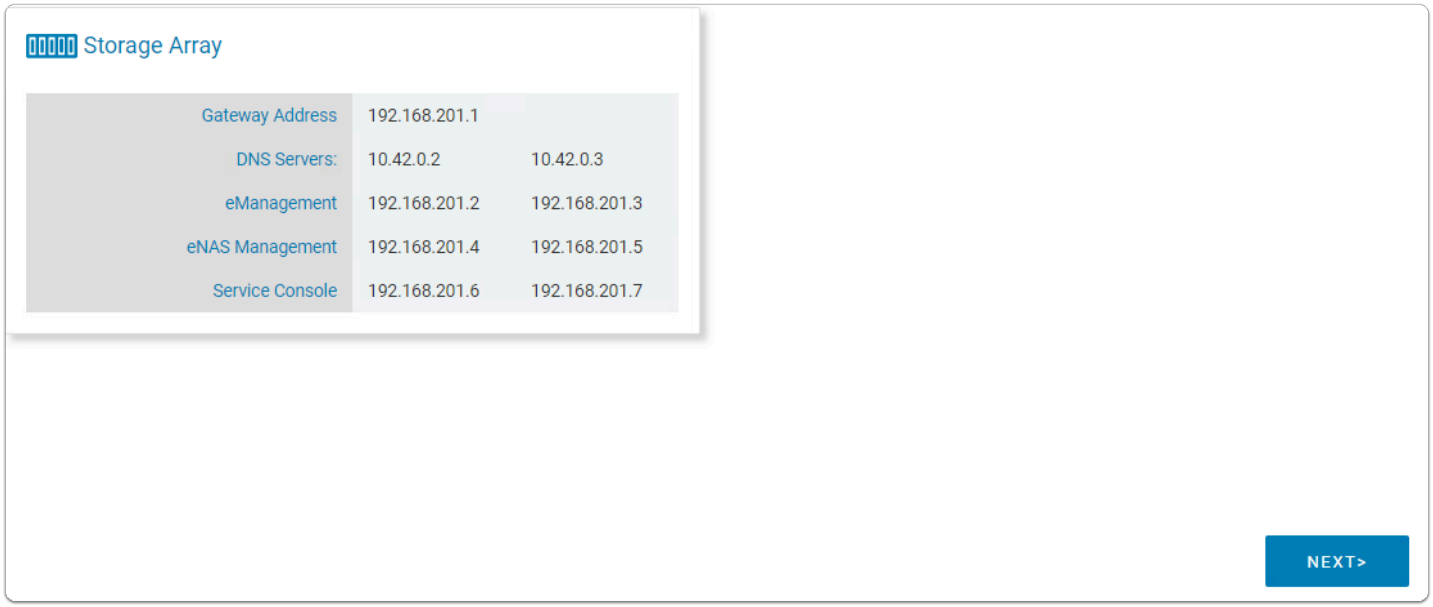
Minimize the PowerOne Simulator API screen and expand the browser window to its normal size.

When the **Status** of the Configure Storage Arrays job shows as **Completed,** click **Close**.

Job completed

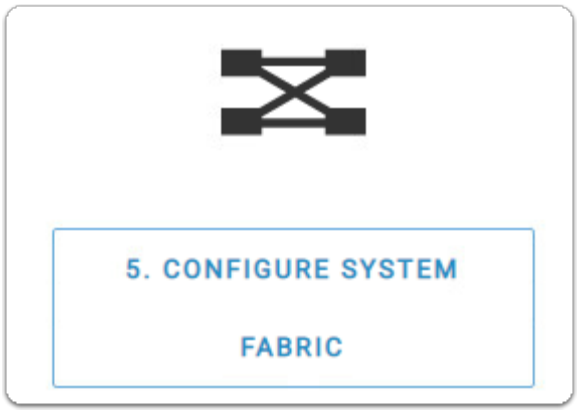
This completes the Storage Device configuration. The management settings for the array are displayed.

Click **Next**.



Configure System Fabric

To start the configuration of the system fabric, click **Configure System Fabric**.



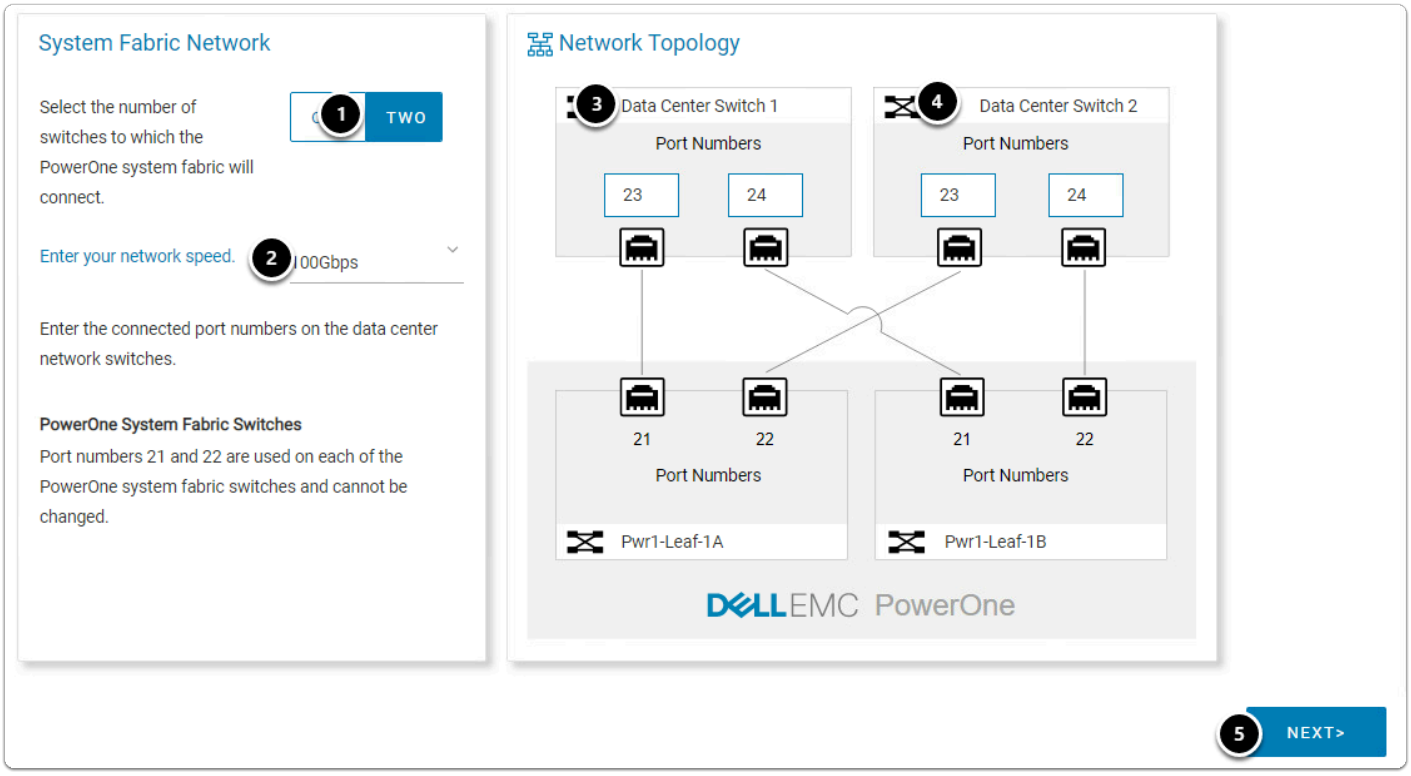
Physical Connectivity

First, we need to configure the network topology for the System Fabric.

Enter the following configuration settings:

1. Select the number of switches to which the PowerOne system fabric will connect: **TWO**
2. Enter your network speed: **100Gbps**
3. Data Center Switch 1 Port numbers: **23 & 24**
4. Data Center Switch 2 Port numbers: **23 & 24**
5. Click **Next.**

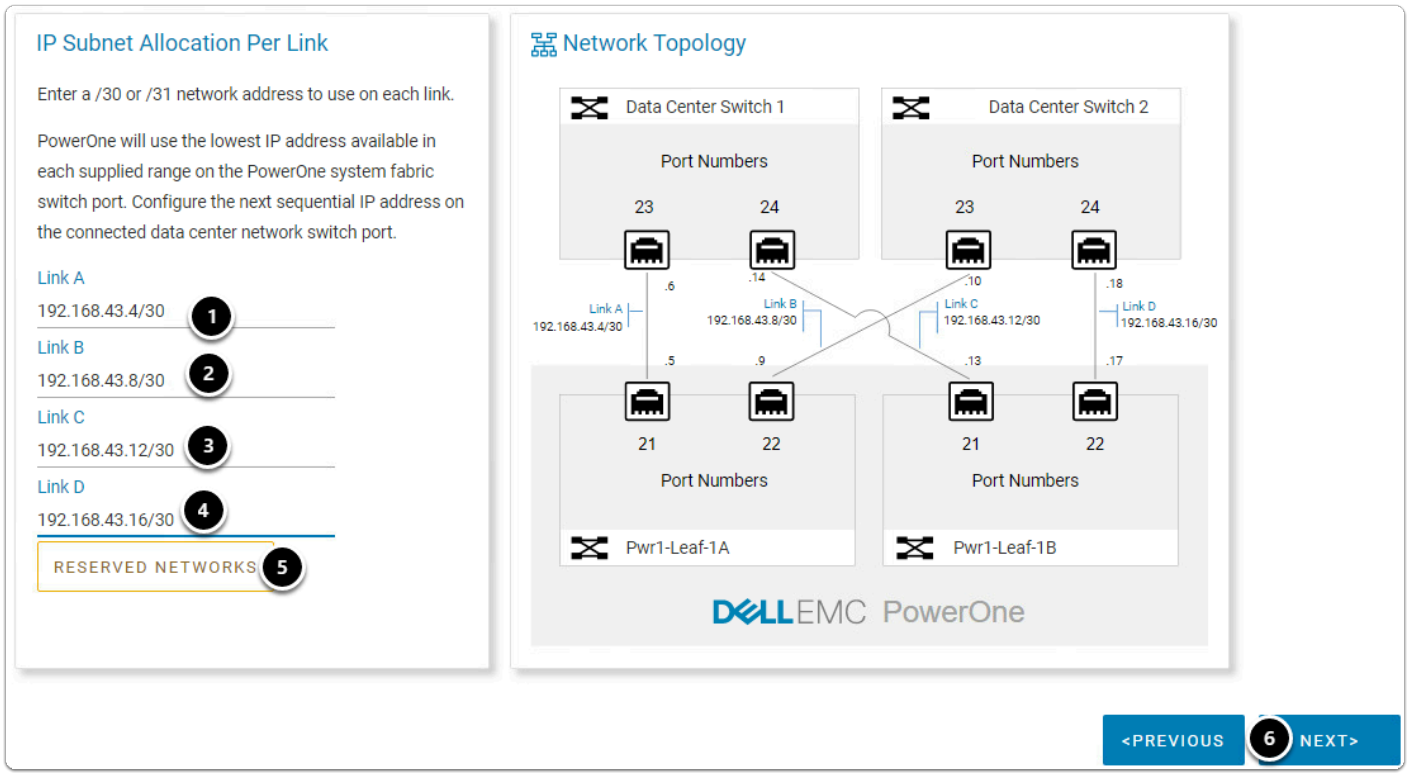
The port numbers for the Data Center workload switches specify the northbound connectivity to the core network.



IP Subnets

Each switch link requires a /30 or /31 network. For this lab, we will use the following:

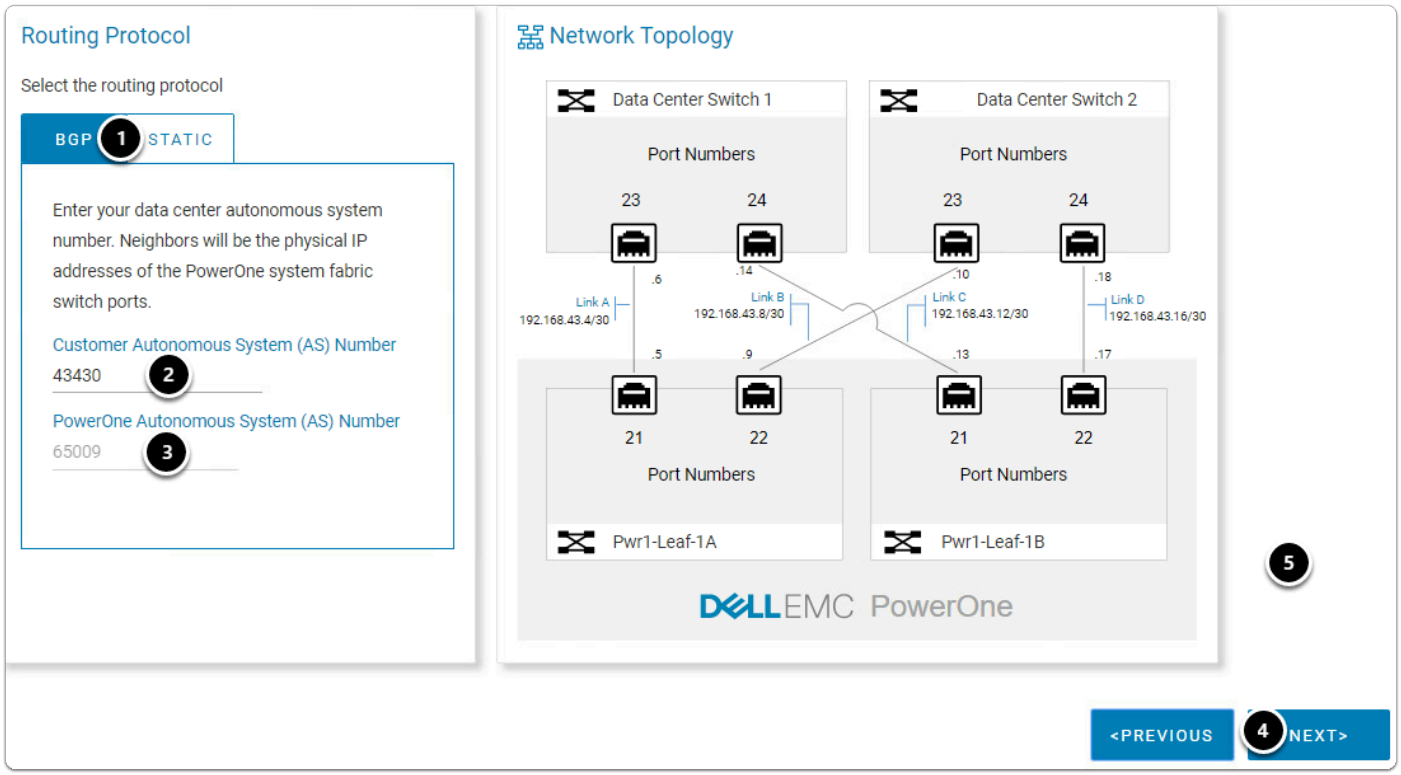
1. Link A: **192.168.43.4/30**
2. Link B: **192.168.43.8/30**
3. Link C: **192.168.43.12/30**
4. Link D: **192.168.43.16/30**
5. Click on the **RESERVED NETWORKS** to verify that these networks are not reserved. Close the dialog box when finished.
6. Click **Next.**



Routing Protocol

The routing protocol between the PowerOne System Fabric network and the data center workload network is the next aspect to define. PowerOne supports BGP and Static routing for the System Fabric links. Please use the following settings:

1. Routing Protocol: **BGP**
2. Customer Autonomous System (AS) Number: **43430**
3. PowerOne Autonomous System (AS) Number: Use the pre-configure **65009**
4. Click **Next.**



Configure System Fabric

Review the System Fabric configuration in the tables and confirm it is correct. If it is not correct, click the **PREVIOUS** button to go back and correct the information.

If the information in the table is correct, click **START CONFIGURATION JOB**.

Configure Production Network

The Configure Production Network dialog box appears. On an actual PowerOne system, this configuration task may take significantly longer depending on the number of components in the PowerOne System.

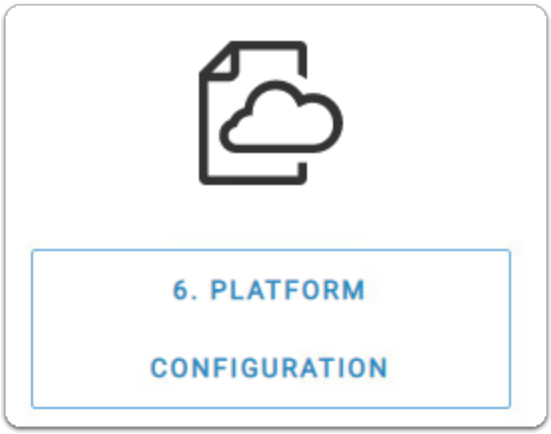
When the **Status** shows a green **COMPLETED** message, click **CLOSE**.

Configure System Fabric completed

The Configure System Fabric job has completed successfully. Click **Next** to proceed.

Platform Configuration

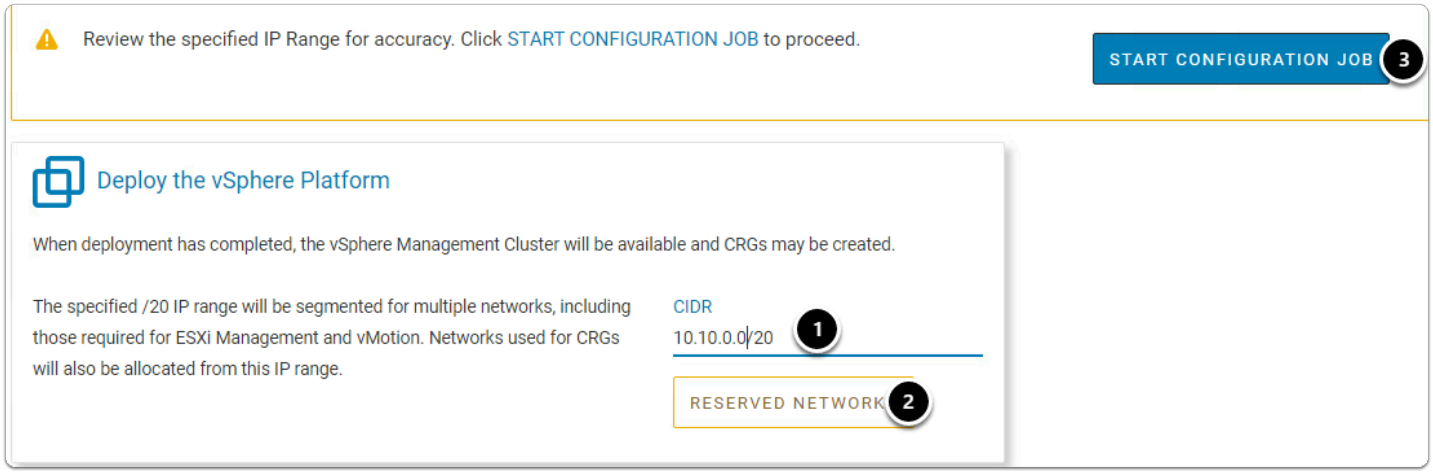
Click on the **PLATFORM CONFIGURATION** label to begin configuring the VMware vSphere environment.



Deploy vSphere Platform

A /20 network segment is needed for the vSphere environment and its associated services, such as vMotion. Use the following settings:

1. CIDR: **10.10.0.0/20**
2. Click **Reserved Networks** to verify these networks are not taken. Close the pop dialog box when finished.
3. Click **Start Configuration Job.**



Deploy Platform Controller

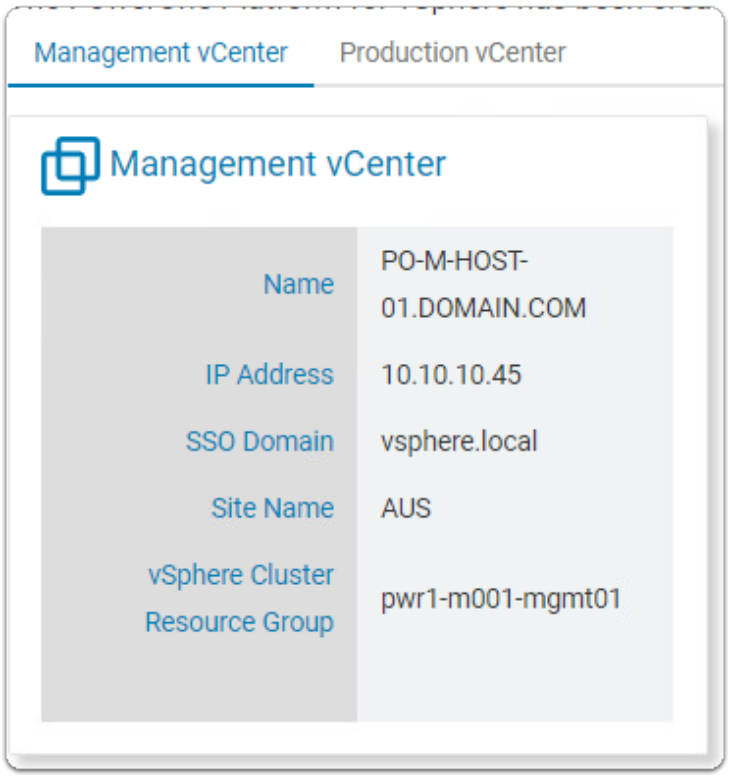
The Deploy Platform Controller dialog box appears. On an actual PowerOne system, this configuration task may take significantly longer depending on the number of components in the PowerOne System.

When the **Status** shows a green **COMPLETED** message, click **CLOSE**.

Platform Configuration

There are two tabs: one labeled **Management vCenter** and one labeled **Production vCenter**. The one in blue text is the configuration actively displayed.

Click the **Management vCenter** tab and notice the IP address of the Management vCenter.



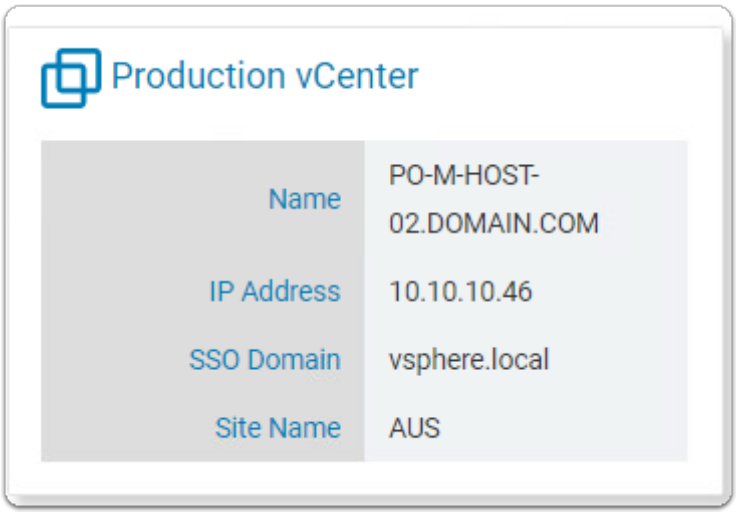
NSX-V Configuration

Click the **SHOW NSX-V CONFIGURATION** button at the bottom right of the screen, then take note of the Master virtual machine IP Address.

When finished reviewing the reserved networks, click the **X** in the top right corner of the dialog box.

Production vCenter

Click the **Production vCenter** tab and notice the IP address of the Production vCenter.



Platform Configuration Job complete

Now that the Platform Configuration job has completed successfully, click **Next**.

This returns you to the PowerOne Navigator home screen.

Complete Initial System Deployment

All six steps required for PowerOne system initial deployment have now been completed. Click **Next** to view the deployed system.

Module 1 - Conclusion

Congratulations on completing Module 1! In this module, you did the following:

1. Logged into the PowerOne Navigator web UI.
2. Performed all six Launch Assist steps for initializing your PowerOne System:
   - **Completed System Acceptance tasks** - accepted the EULA, validated the system components, examined the resulting log file, displayed the validated components.
   - **Configured data center services** - filled out the PowerOne system name and location, integrated it with automatic ticketing and (optionally) with a TLS certificate, defined for PowerOne your data center's subdomain, NTP server, DNS servers, and SYSLOG server, and configured SNMP.
   - **Configured the management network** - its switches, its IP subnets, its routing protocol.
   - **Configured storage** - used the PowerOne API to watch as storage is externally configured, used Navigator to verify that the storage config is validated and complete.
   - **Configured the system fabric** - configured the network topology, its IP subnets, its routing protocol.
   - **Configured the platform** - including VMware vSphere, the Management vCenter, the Production vCenter, and VMware NSX-v.

Module 2 - PowerOne Life-Cycle Assist

Module 2 - Overview

Module 2 - PowerOne Life-Cycle Assist (30 Minutes) - Basic - This module will introduce you to the PowerOne Life-Cycle Asssist capabilities. You will gain experience of using the PowerOne Navigator web UI to perform delay operations within a PowerOne system including monitoring and maintainance.

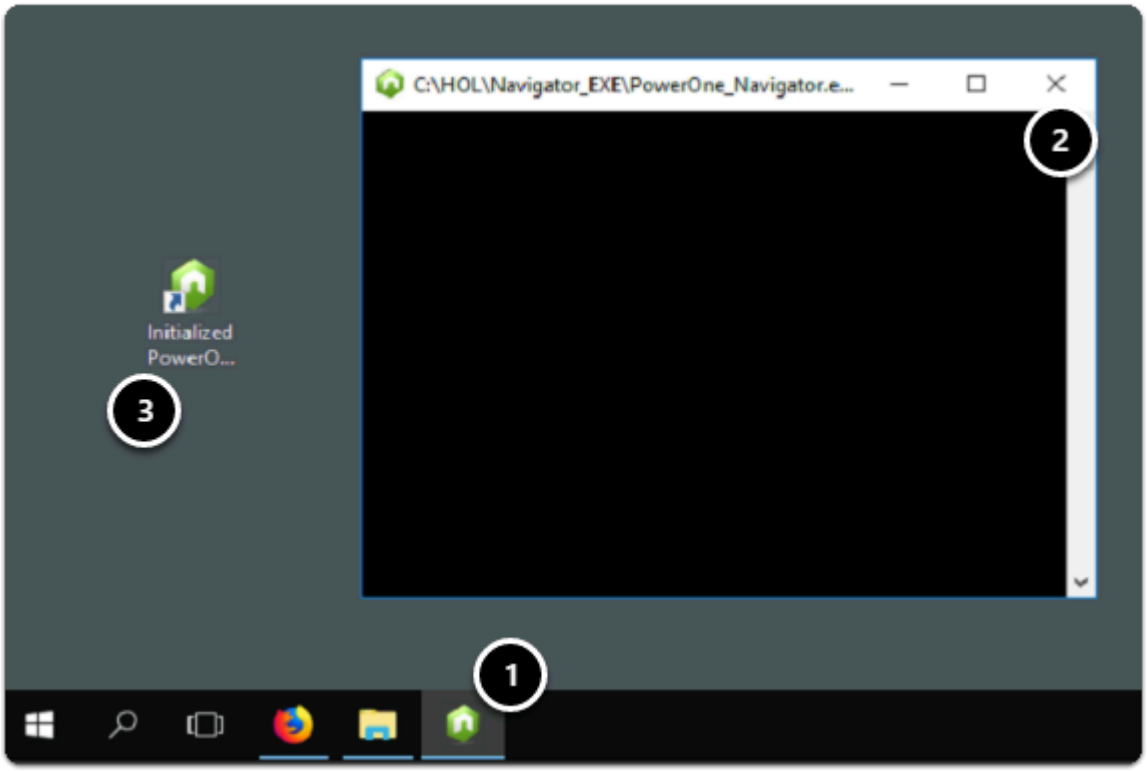
This module covers the following areas:

- Cluster Resource Groups (CRG's)
- PowerOne Navigator Jobs
- PowerOne Navigator Platforms
- PowerOne Navigator Inventory

Lesson 1 - Life-cycle Assist - Cluster Resource Groups (CRGs)

If you are skipping ahead to this module and would like to skip the initialization module, you can do so by following these steps.

1. On the task bar, find the **green** hexagonal icon. **Click on the icon** to bring up a window that looks like a command prompt.
2. Close the window that is displayed by clicking the **X** in the top right corner.
3. On the desktop there is a shortcut titled **Initialized PowerOne Navigator. Double click the icon** to launch a new window. This will provide a fully initialized PowerOne Navigator instance.



PowerOne Navigator Portal

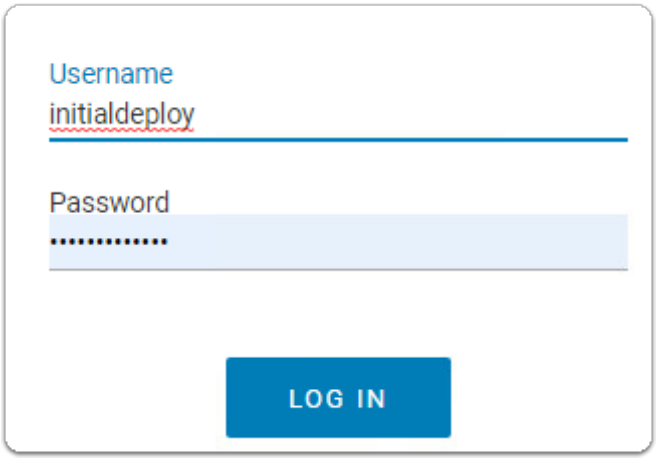
On the LaunchPad Desktop, double-click the **PowerOne Navigator** shortcut. The PowerOne Navigator login page will be displayed.

Navigator Login

To log in to the Navigator Portal, use the following credentials.

- Username: **initialdeploy**
- Password: **initialdeploy**

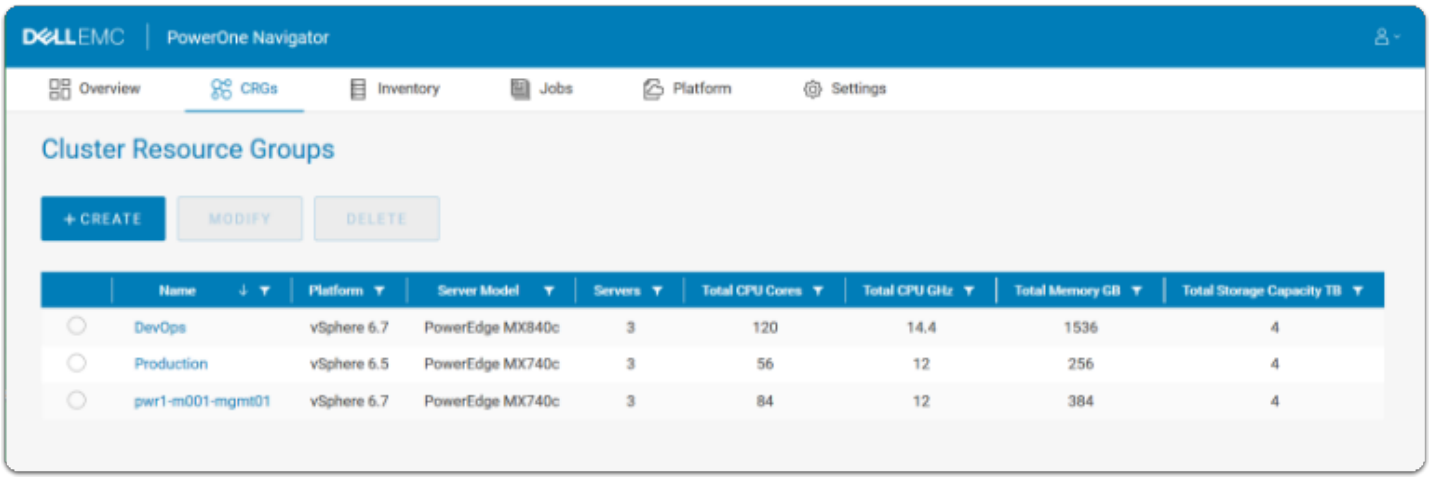
Click **Log In**.



PowerOne CRGs

When PowerOne Launch Assist has completed, you will be taken to the Cluster Resource Group screen of the PowerOne Navigator in your browser. This is where all of the unique resources in PowerOne are assembled and managed through automation.

The lab environment contains three CRGs that have already been created for this lab. We will work with the DevOps and Production CRGs first. The last CRG in the list, pwr1-m001-mgmt01 is a special type of CRG where the VMware vSphere management environment resides.



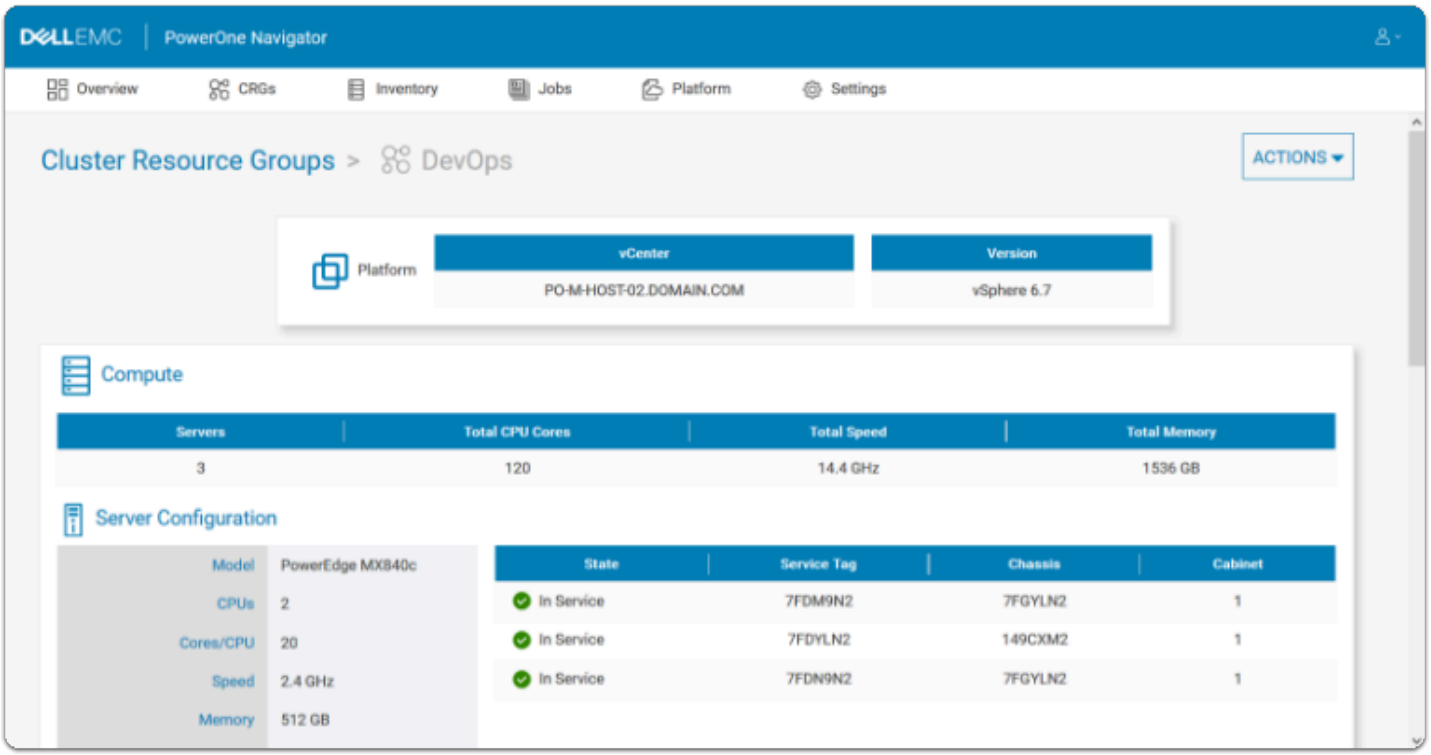
DevOps CRG

Begin by clicking **DevOps** in the Name column. When you click on the name, it will take you to a details screen where you can see more about the CRG. The screen will contain information about:

- The vSphere environment including what vCenter the CRG is connected to and the version of vSphere installed on the servers, in this case, compute sleds
- Details about the servers used in the CRG, including:
  - Processors
  - Memory
  - Operational State
  - Service Tags
  - Chassis
  - Cabinet
- Details about associated storage including:
  - Total capacity
  - Number of volumes
  - Volume size
  - The array model
  - Names of volumes on the array

In your browser window, see if you can locate these DevOps CRG attributes:

Look for	Answer
vSphere Version	
Number of servers	
State of the second server	
Total storage capacity	
Storage array model	



Return to CRGs

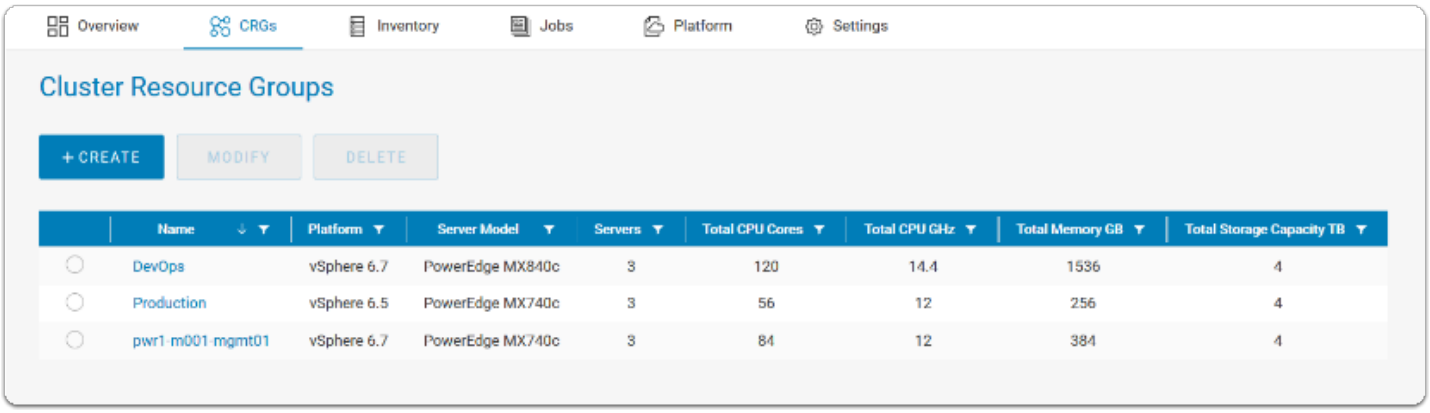
Click on **CRGs** from the top navigation bar to return to the list of CRGs.

PowerOne CRG Actions

On the Cluster Resource Groups screen you will notice that the DevOps CRG is running vSphere 6.7 and it's time to upgrade it to vSphere 6.7 Update 1. Additionally we need to add another server to the cluster to address a new call center application being developed. These are both routine lifecycle tasks.

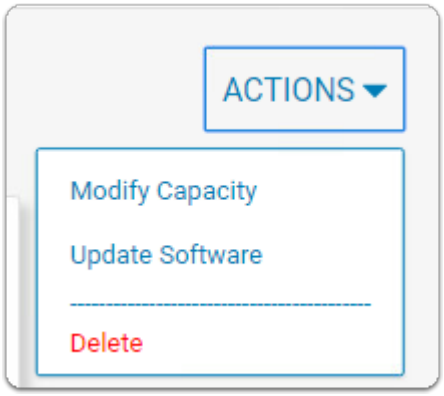
We will start by upgrading the DevOps CRG to vSphere 6.7 Update 1.

To do this click on **DevOps** under the Name column in the CRG listing.



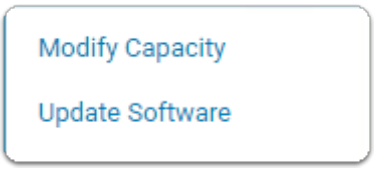
Dev CRG ACTIONS

In the top right corner of the screen, click the **ACTIONS** button. This displays a menu to allow you to either Modify Capacity or Update Software.



PowerOne CRG Software Update

Select the **Update Software** option.

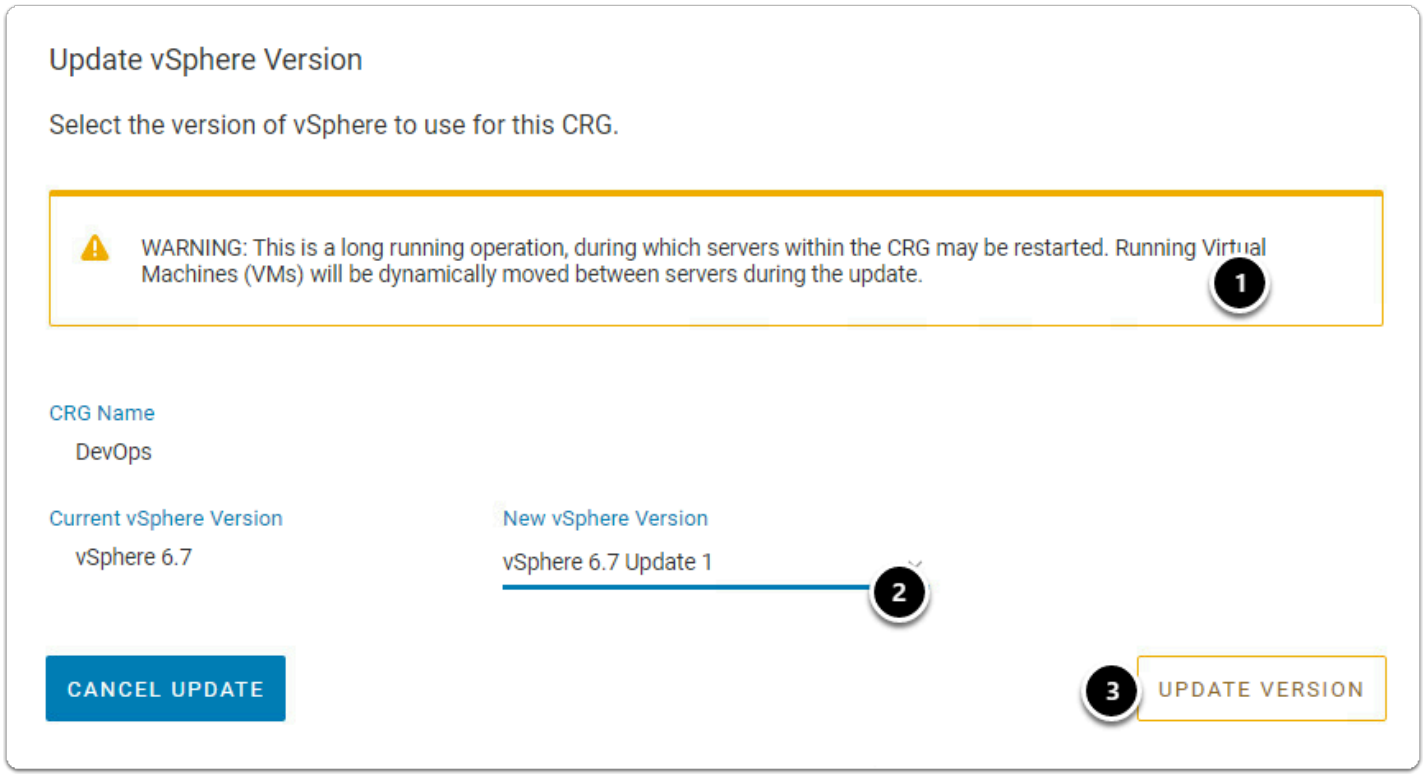


Update vSphere Version

This brings up the Update vSphere Vers

1. Note the **WARNING** text in the yellow box.
2. Next we notice that we are currently running vSphere 6.7 for this CRG. If we click the drop down under New vSphere Version, we see that both Update 1 and Update 2 of vSphere 6.7 are available. We want to select **vSphere 6.7 Update 1**.

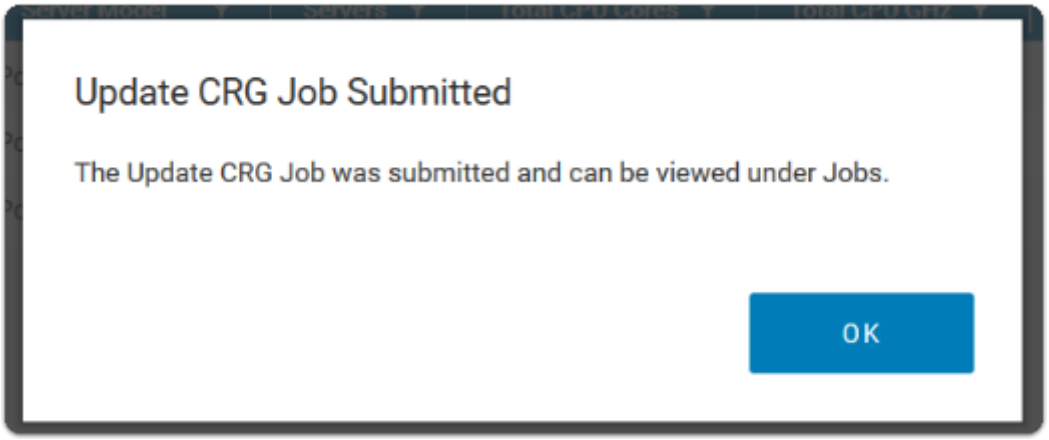
3. Click **Update Version**.



When we click the **UPDATE VERSION** button, this starts updating the CRG. This involves not only applying vSphere 6.7 Update 1 to the CRG, this also includes firmware and drivers for the compute sleds (servers). This keeps all components in a CRG up-to-date with firmware, drivers, and hypervisor.

Dialog Box

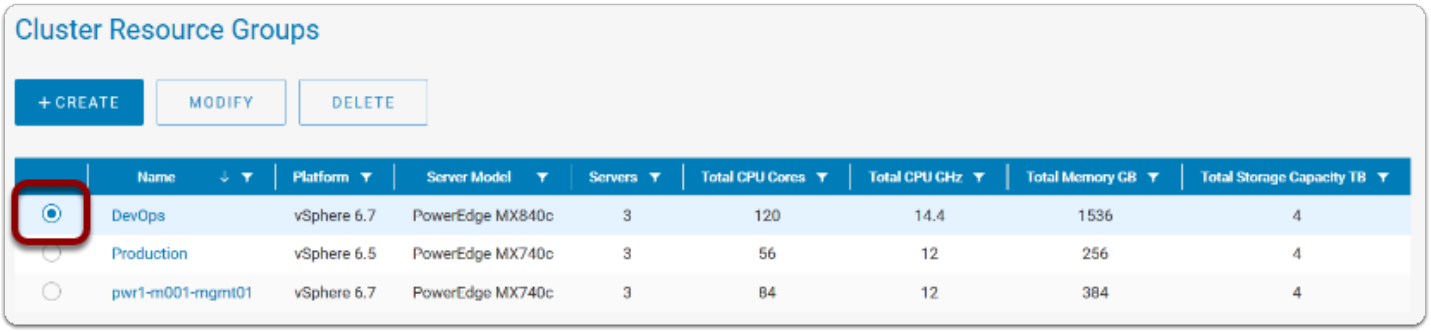
A dialog box, **Update CRG Job Submitted,** is displayed. We will review jobs in the Jobs section of this lab. For now, click **OK**.



PowerOne CRG Modify

We will now modify the DevOps Cluster by adding an additional server for the new call center project the DevOps team is working on.

Click on the **radio button** to the left of DevOps in the CRG list. Notice the buttons **MODIFY** and **DELETE** are now active.



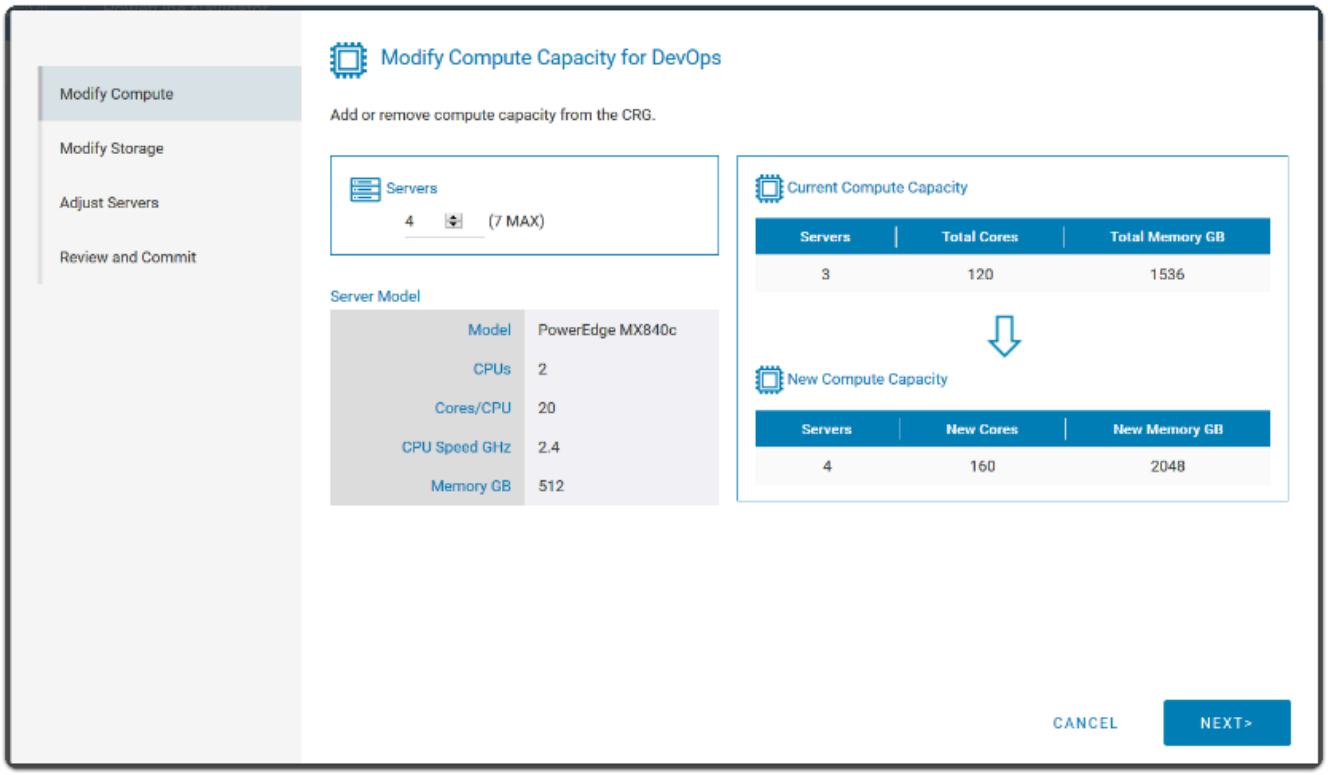
Modify DevOps CRG

Click the **MODIFY** button.

This brings up the Modify dialog for the DevOps CRG.

Modify Compute Capacity

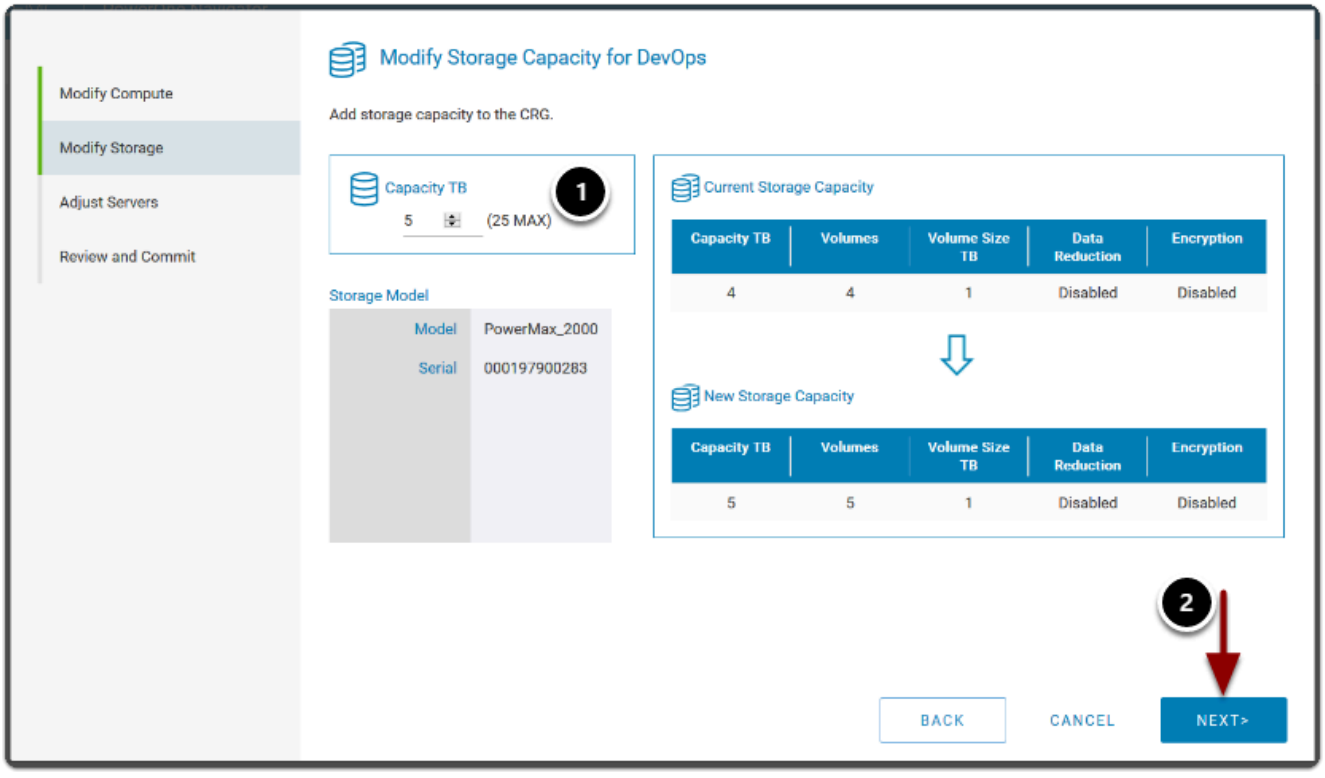
Increase the number of servers from 3 to **4**, then click **NEXT**.



Increase Storage Capacity

The DevOps team needs additional storage as well. Increase the capacity to **5** TB of storage.

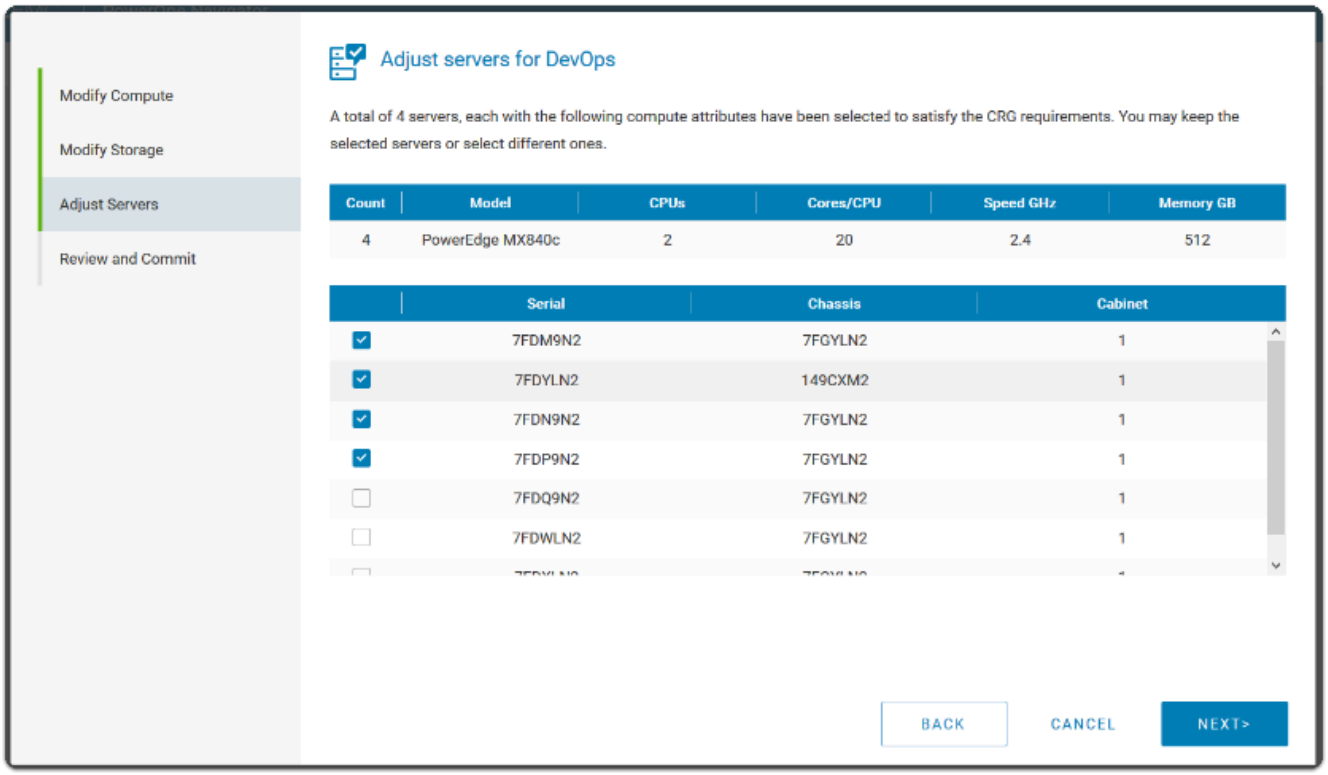
Click **NEXT**.



Adjust Servers

We can then Adjust servers for DevOps. If for some reason we wished to select a different server, for example if this lab had more cabinets and it were a requirement to have servers in different racks, we could select the servers appropriately.

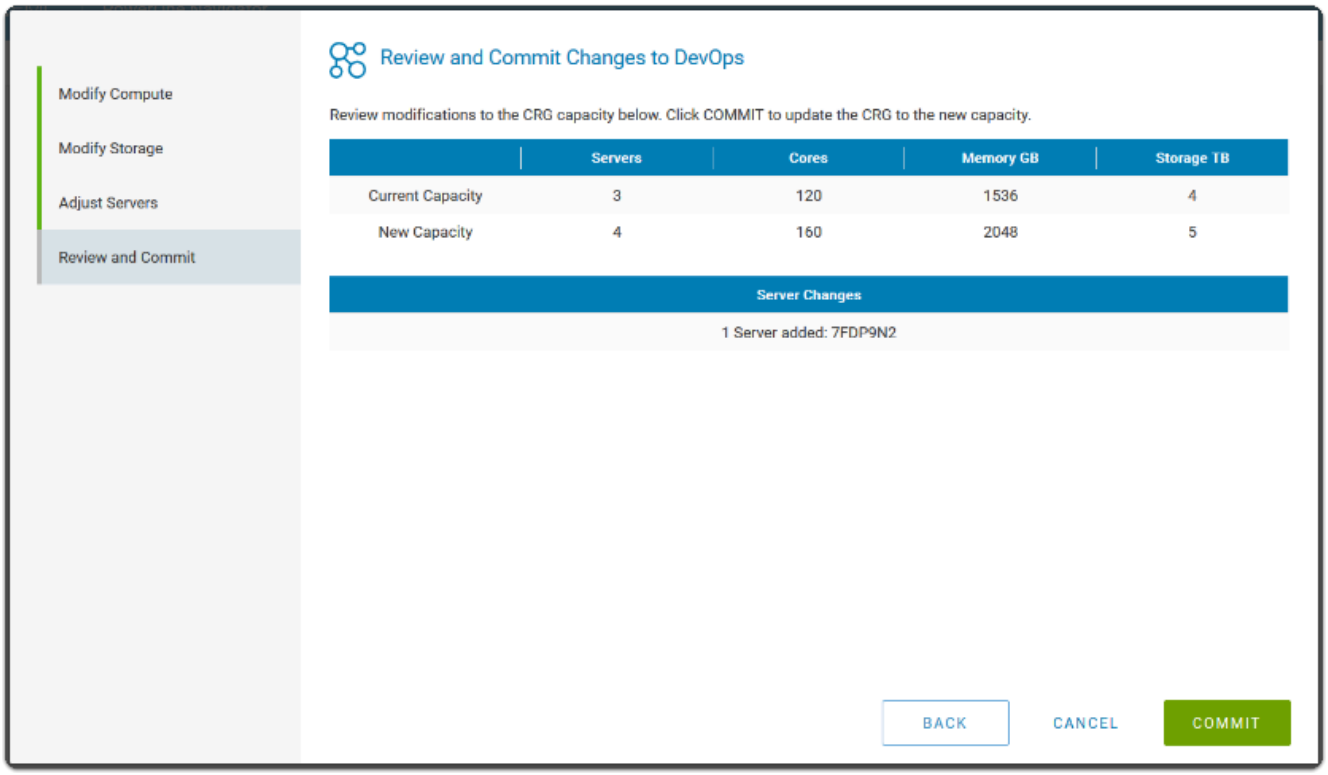
Our DevOps CRG does not have any of these requirements. Click **NEXT**.



Commit Changes

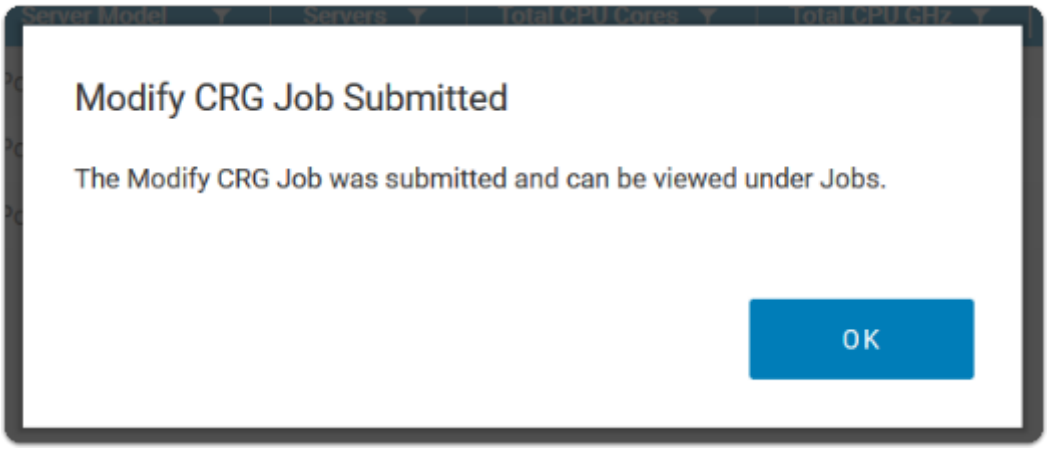
Review the modifications we have specified for the DevOps CRG. Note that the New Capacity line shows the additions we will be making to the CRG.

If satisfied, click the green **COMMIT** button.



Modify CRG Job

A dialog box, Modify CRG Job Submitted, is displayed. We will review jobs in the Jobs section of this lab. For now click the **OK** button.



It's important to note that you didn't have to install vSphere or perform updates when you added the additional server to this CRG. PowerOne automatically installs the same version of ESXi as other servers in the CRG along with identical drivers and firmware versions. This insures that the CRG maintains consistency through out its lifecycle.

PowerOne CRG Creation

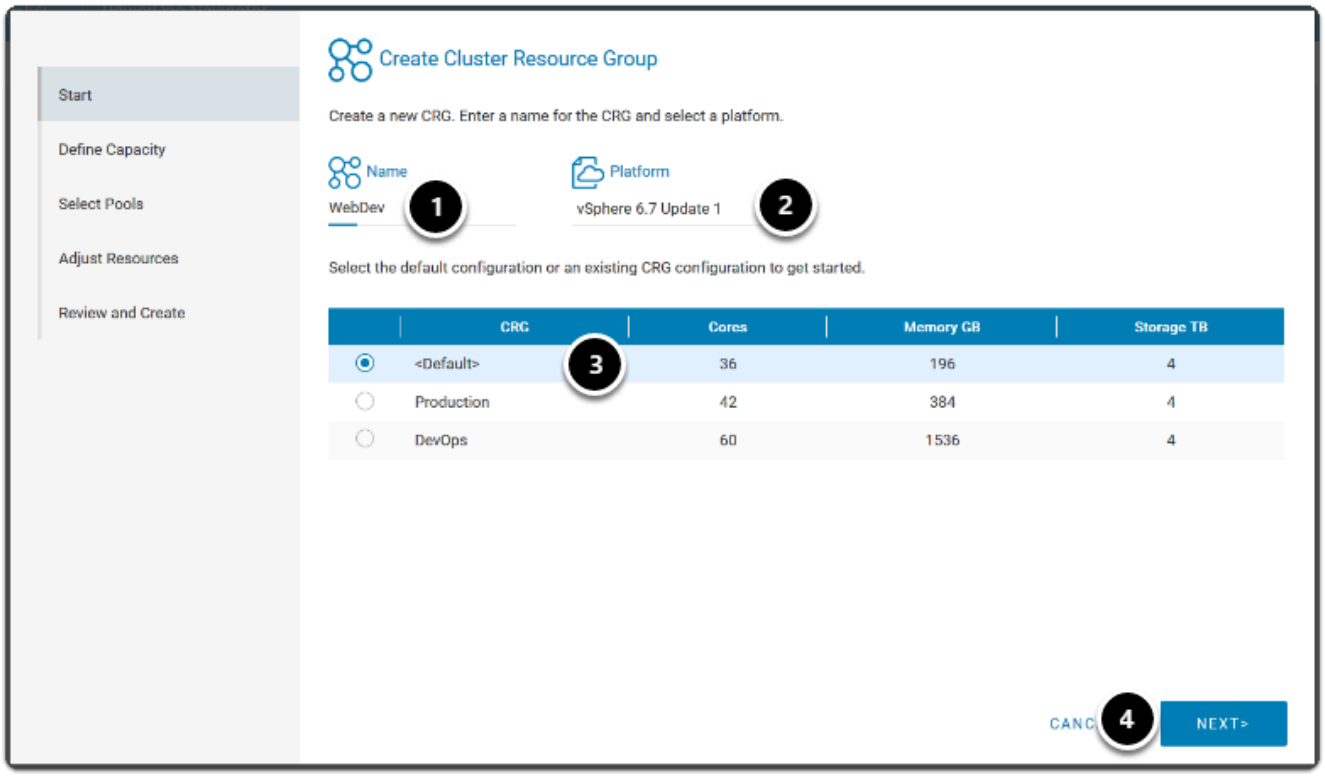
We are going to create a new CRG for a web development team.

From the Cluster Resource Groups screen, click the **+CREATE** button.

Create Cluster Resource Group

The dialog that appears guides us through the allocation of resources for our new Cluster Resource Group (CRG). For the **Start** section of the dialog we will use the following settings:

1. Name: **WebDev**
2. Platform: **vSphere 6.7 Update 1**
3. CRG configuration: **<Default>**
4. Click **Next**.

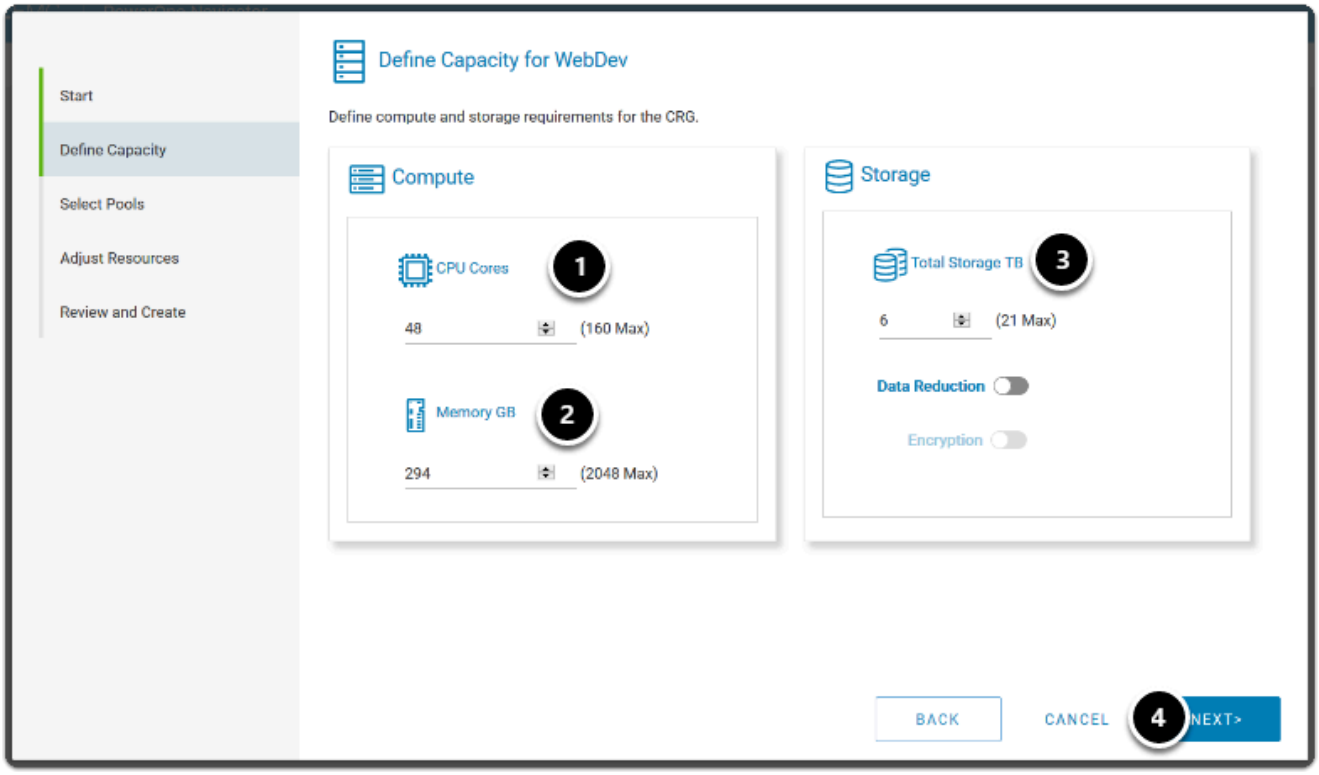


Define Capacity

Because PowerOne is an outcome orientated system, you begin by declaring your needs (CPU cores, memory, and storage).

On the Define Capacity dialog screen, we are going to declare our needs for the web development team. We will declare the following needs:

1. CPU Cores: **48**
2. Memory GB: **294**
3. Total Storage TB: **6**
4. Click **NEXT**.

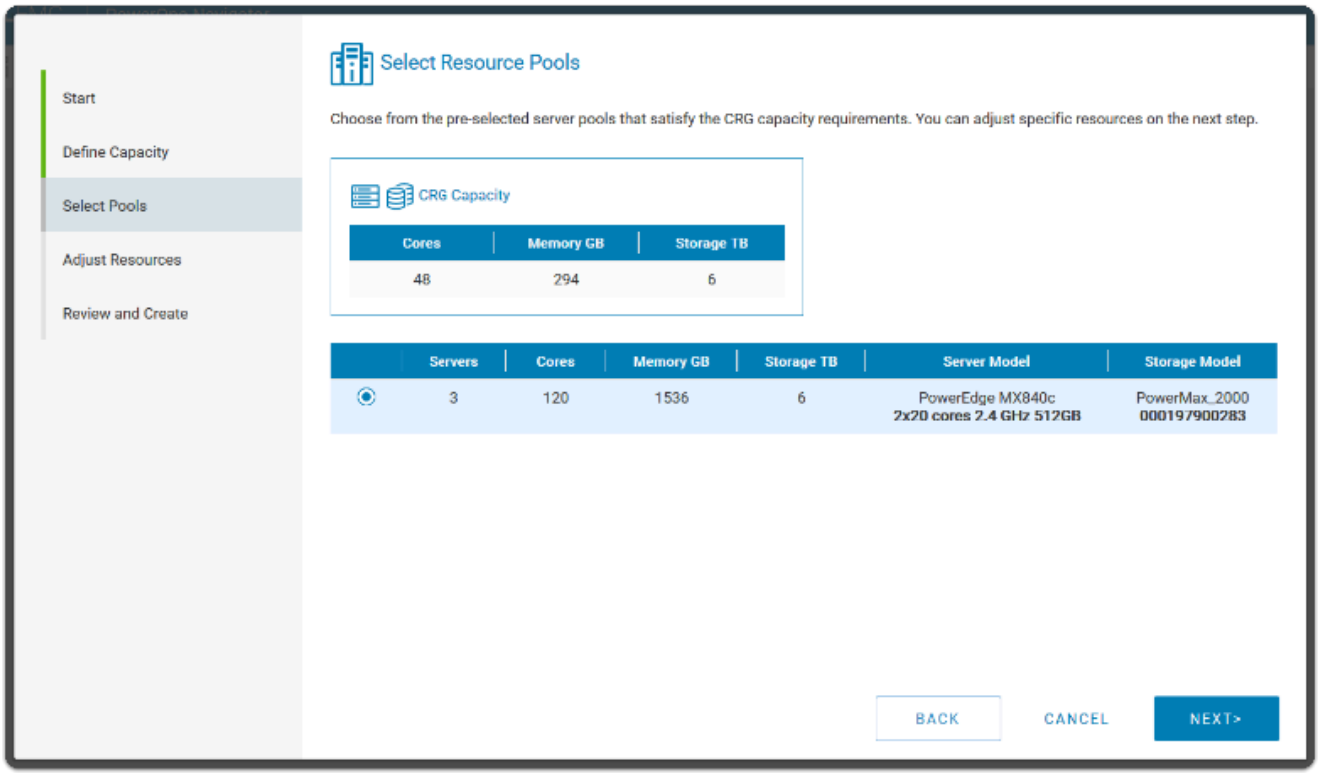


Resource Pools

We have now declared what outcome we would like. On the Select Resource Pools dialog, PowerOne has determined what resources are currently available and satisfies those outcomes as well as what complies with built in best practices (such as needing a minimum of three hosts).

The Select Resource Pools dialog shows us the infrastructure that will meet our declared needs.

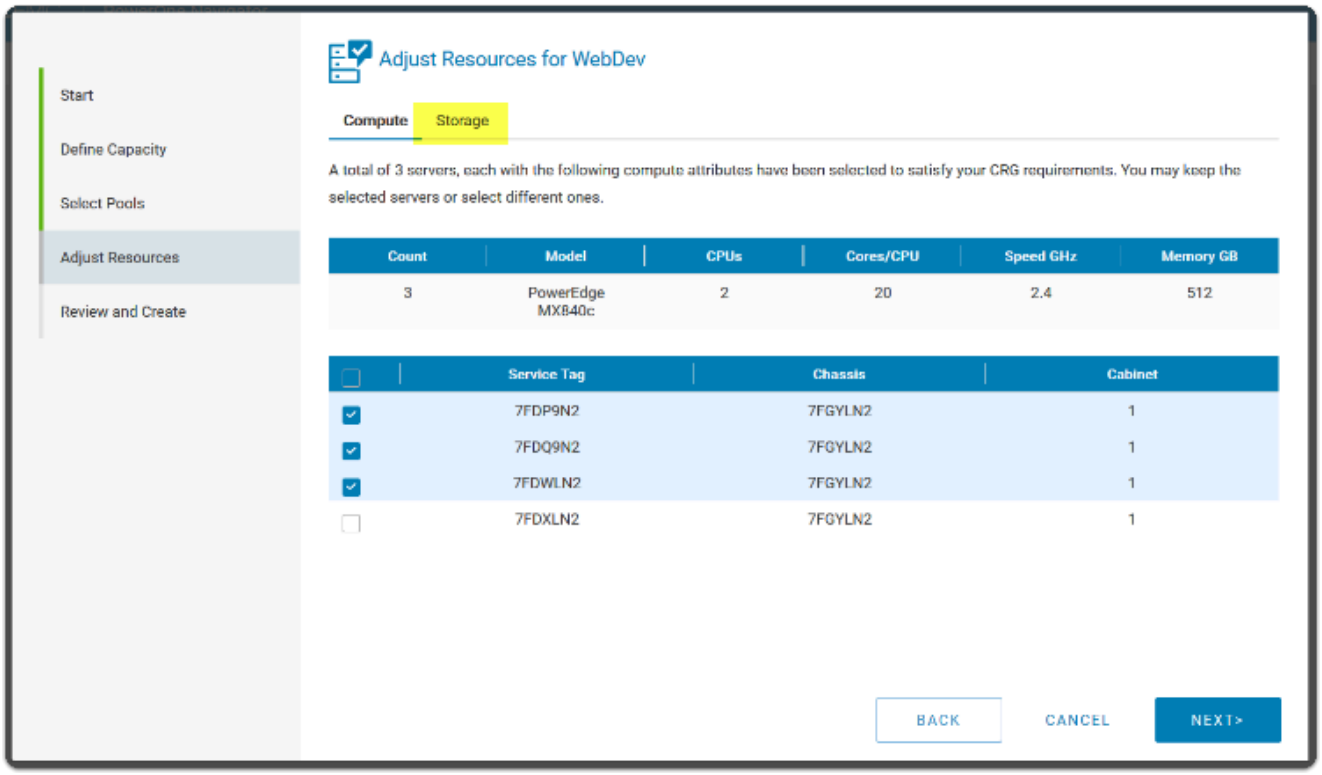
Click **Next**.



Resource Adjustment

On the Adjust Resources dialog screen, we can expand upon those declared needs and built-in PowerOne best practices. This dialog has two sub tabs, **Compute** and **Storage**.

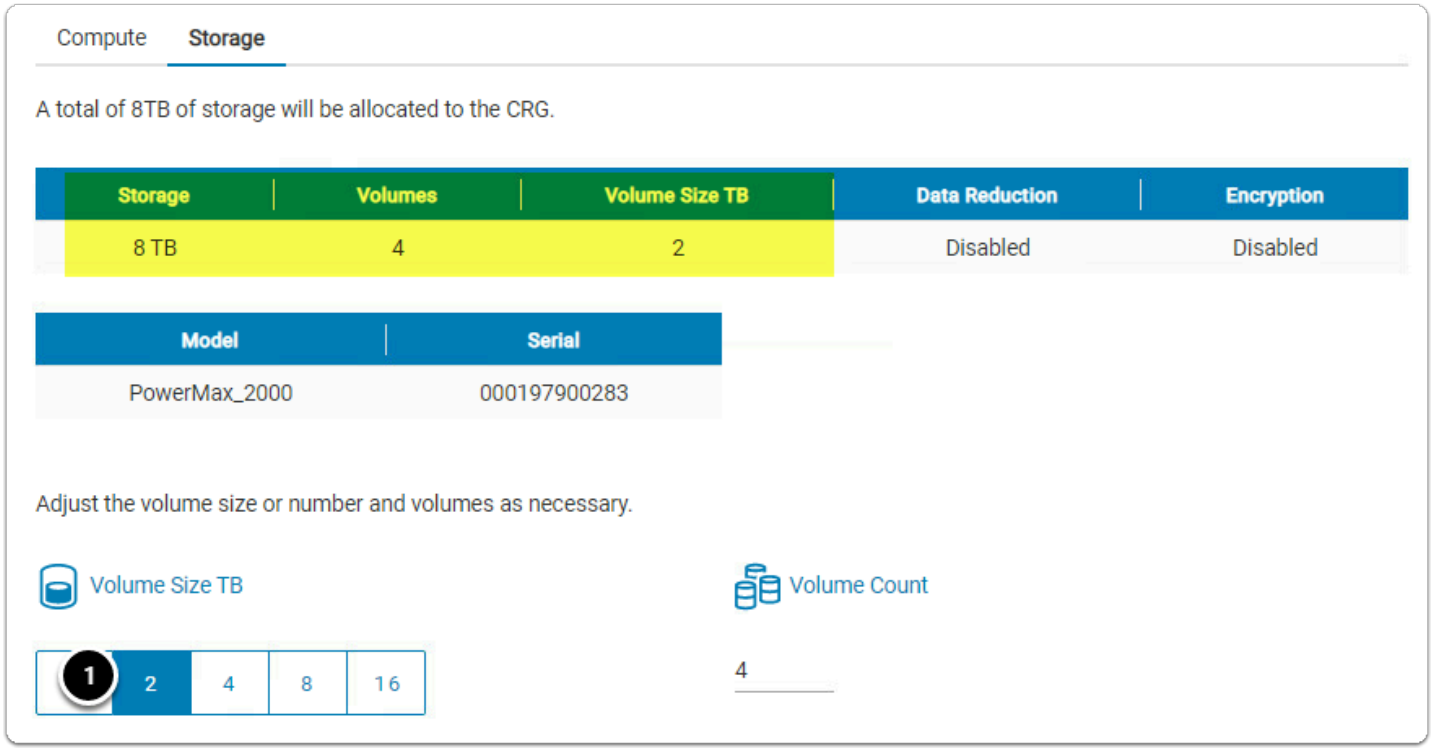
The Compute tab allows you to change or increase the number of servers used in a CRG. We will not add any additional servers to the CRG at this time. Click on the **Storage** tab.



Storage Resources

On the storage screen we see the PowerMax storage that will be used for our CRG. We can modify the volume size and the number of volumes to be created.

1. Increase the Volume Size TB to 2 by **clicking on the 2 box**.



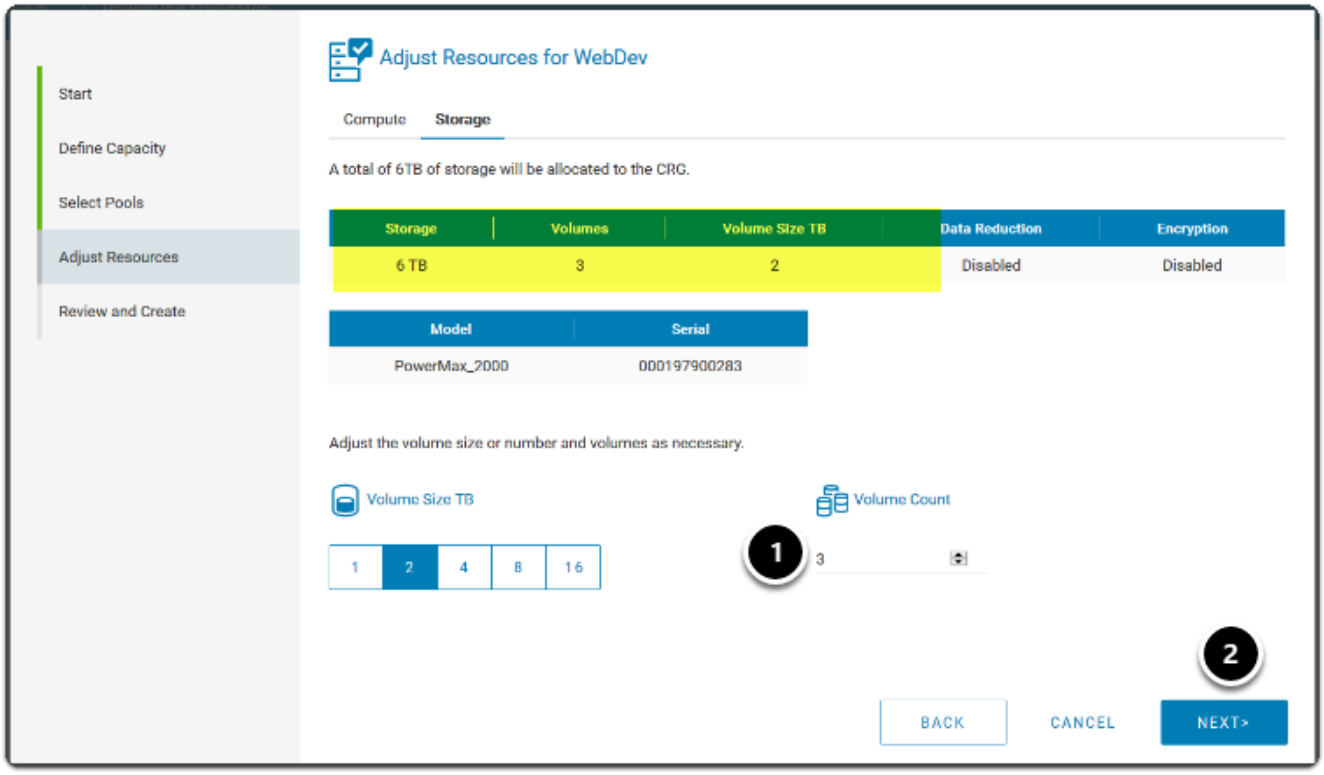
Notice that by changing the Volume Size to 2 we doubled the amount of storage used. If we want more storage than what we declared in our outcomes, or need a different volume size to meet a requirement of the system, we can declare those changes.

Reduce volume count

In this instance, we only require 6 TB of space for the WebDev CRG but we would like them to be in 2 TB volumes.

1. To achieve this, we will set the Volume Size TB to **2** and the Volume Count **3**.
2. Click **NEXT**.

Notice that the total storage is back to 6 TB in size.

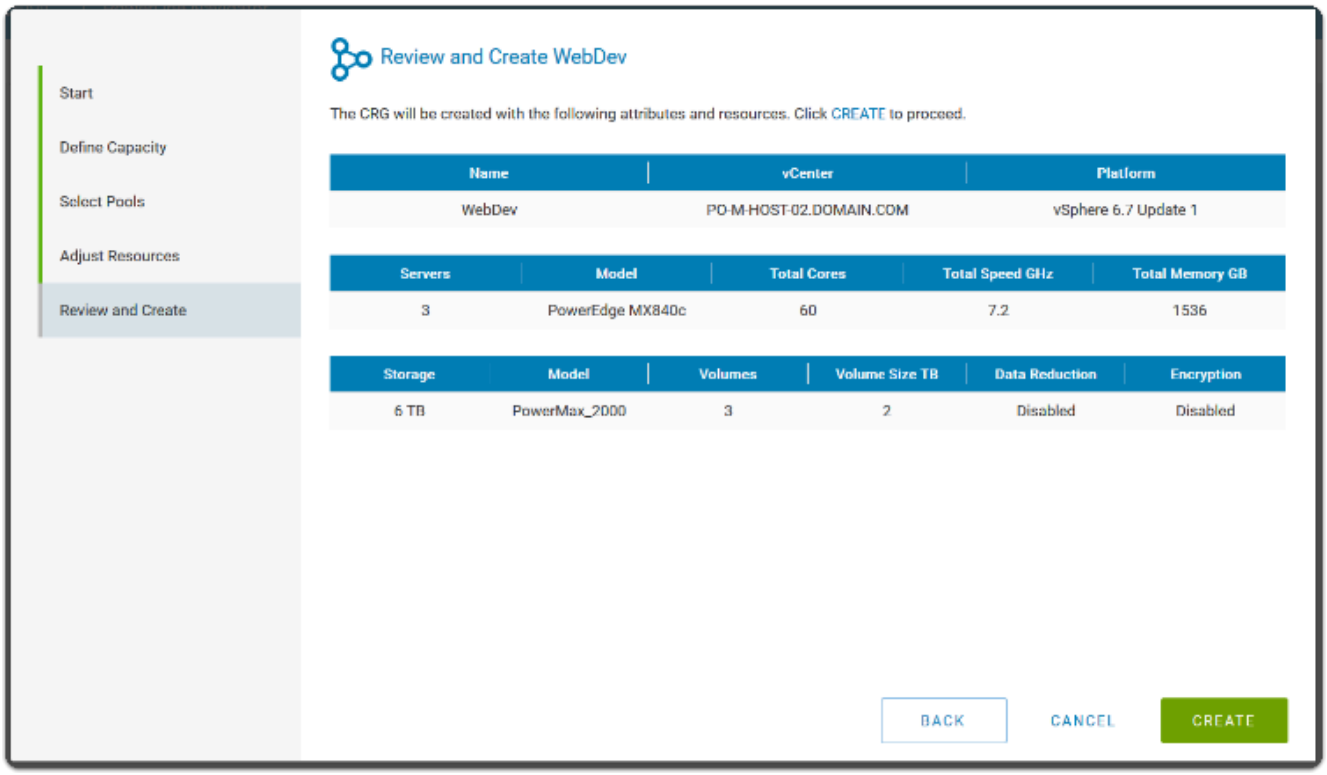


Review WebDev CRG

We can review the CRG we are about to create.

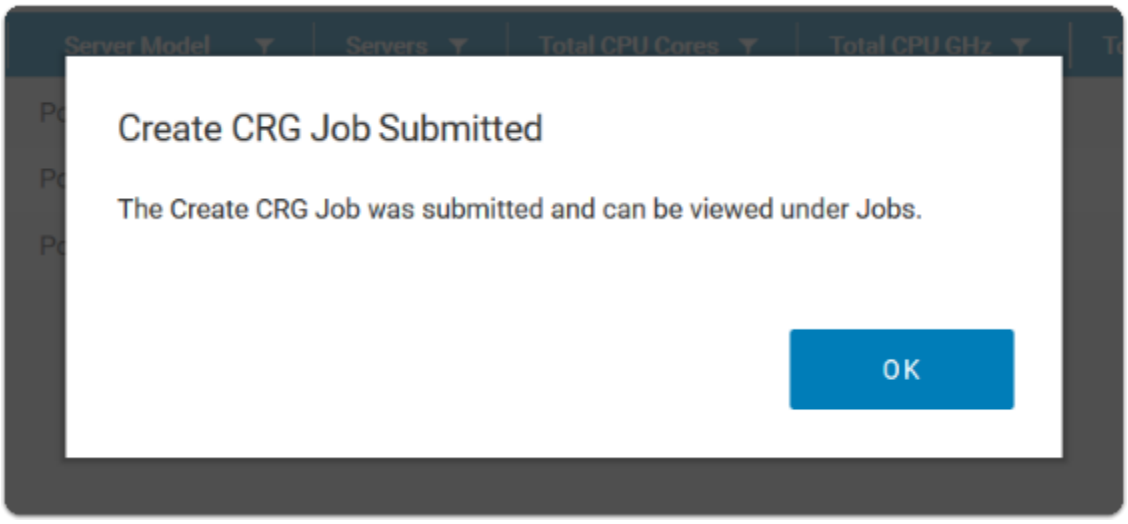
If everything is correct, click the **green CREATE** button.

If something needs to be corrected, use the BACK button to go back and correct it.



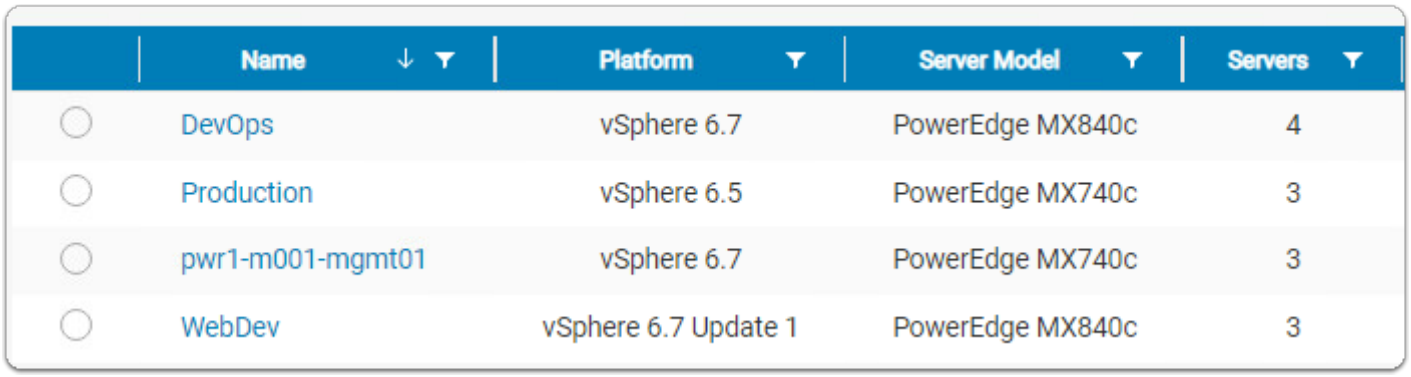
Create CRG Dialog

A dialog appears that states that the CRG Job has been Submitted. We will review jobs in the Jobs section of this lab. For now click the **OK** button.



Cluster Resource Groups

After the CRG job creation process has completed, you will be returned to the Cluster Resource Groups view. A new CRG will be displayed named **WebDev**.



	Name	Platform	Server Model	Servers
○	DevOps	vSphere 6.7	PowerEdge MX840c	4
○	Production	vSphere 6.5	PowerEdge MX740c	3
○	pwr1-m001-mgmt01	vSphere 6.7	PowerEdge MX740c	3
○	WebDev	vSphere 6.7 Update 1	PowerEdge MX840c	3

If the new CRG does not appear in the PowerOne Navigator window, please refresh your Chrome browser to display it.

Lesson 2 - Life-cycle Assist - Jobs

Actions performed in PowerOne generate Jobs. Jobs can be viewed in the Job Center of PowerOne Navigator.

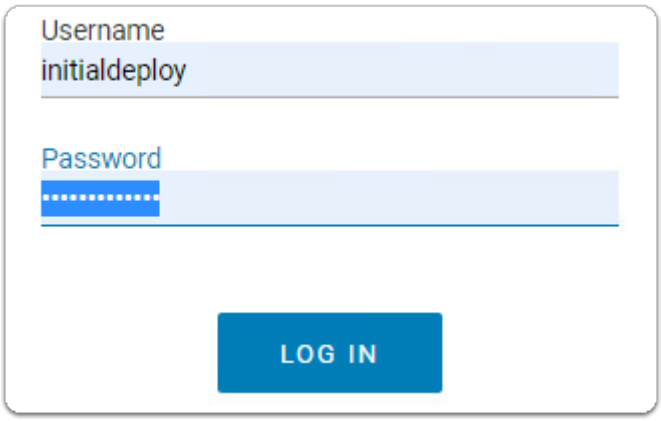
If necessary, open a web browser by clicking on the icon on the LaunchPad Desktop.

PowerOne Navigator Login

To log in to the Navigator Portal, use the following credentials:

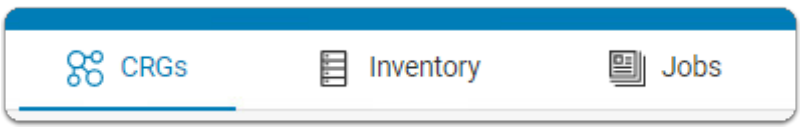
- Username: **initialdeploy**
- Password: **initialdeploy**

Click the **LOG IN** button.



Select Jobs

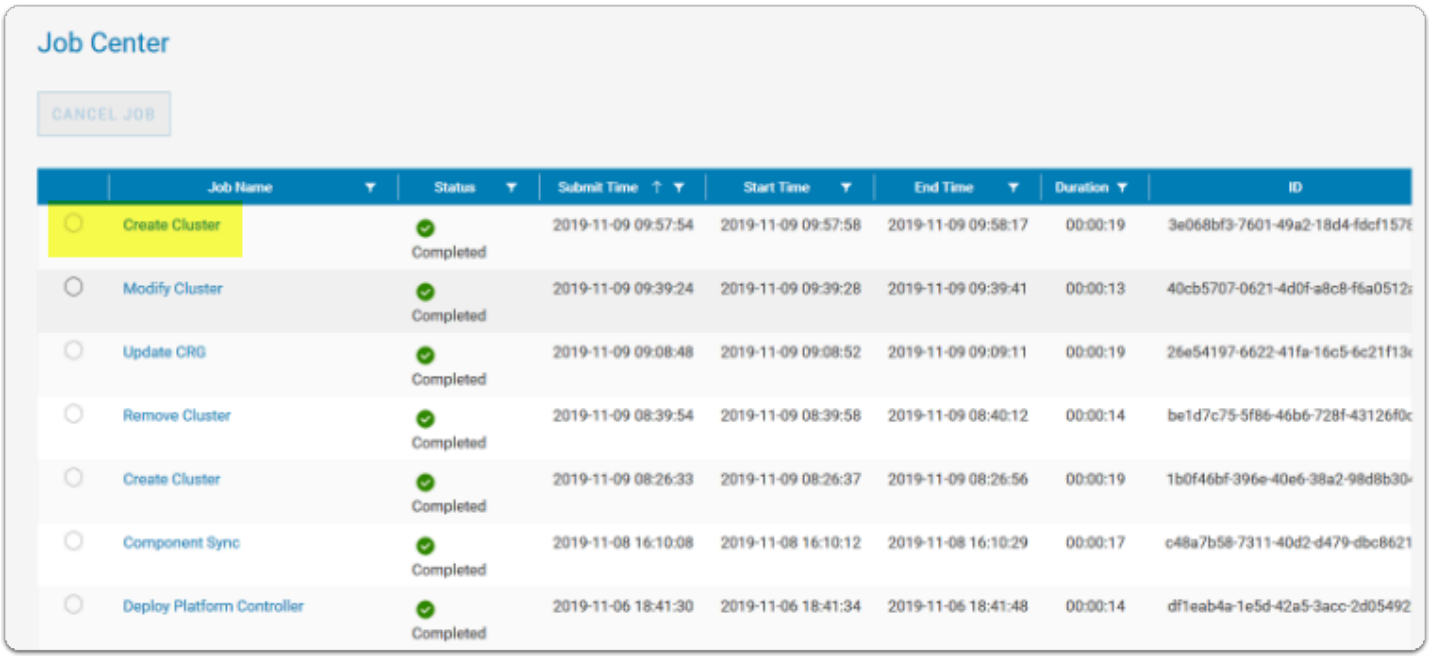
Click the **Jobs** item in the PowerOne Navigator menu bar.



Create Cluster

In the Job Center we can see all of the activities we performed to the DevOps CRG as well as the new CRG we created for WebDev. The create CRG may even still be running.

We will click on **Create Cluster** job from when we created the WebDev CRG.

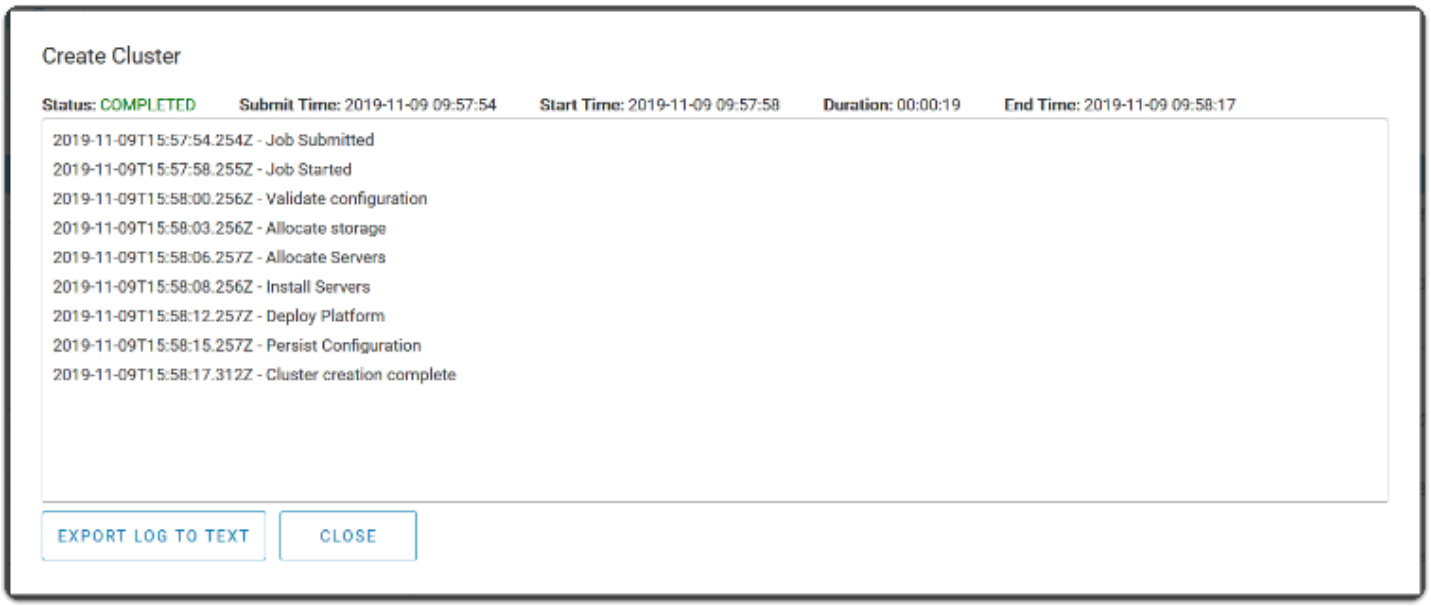


Create Cluster Pop-out

This brings up the job log for creating the WebDev CRG.

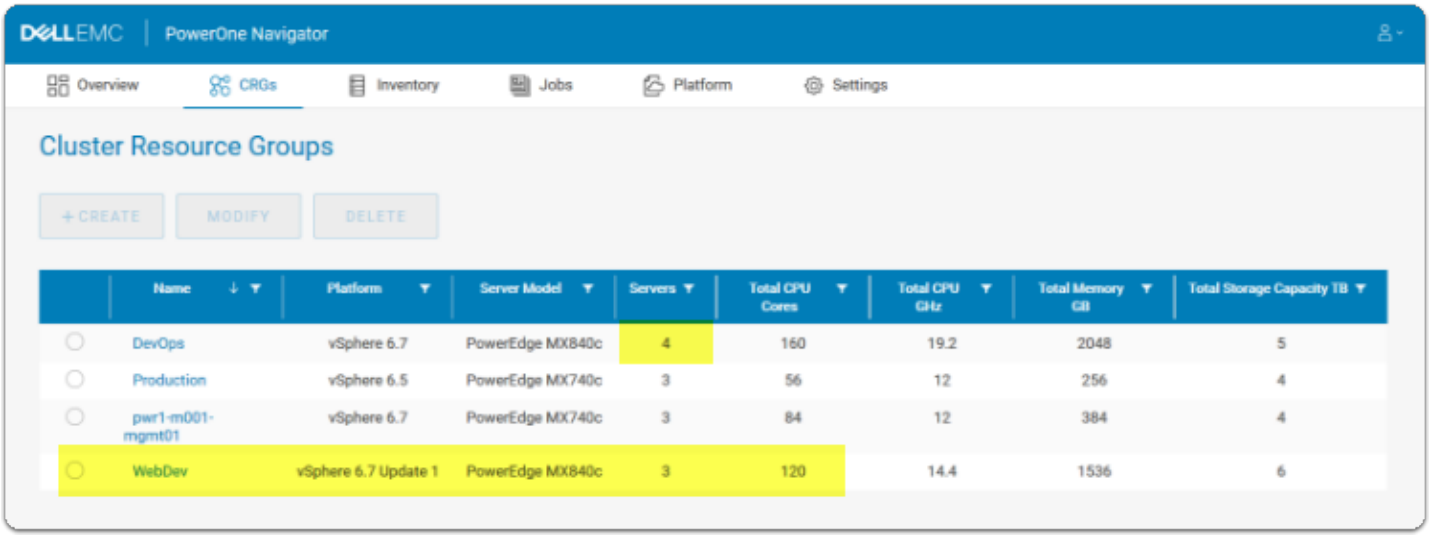
Notice that it shows that it completed, and in the log it shows the high level steps performed in creating the CRG.

When done reviewing, click **CLOSE**.



Cluster Resource Groups

If we click the CRGs menu option from the top PowerOne Navigator menu, we see that all of our updates have been made.



Lesson 3 - Life-cycle Assist - Platform

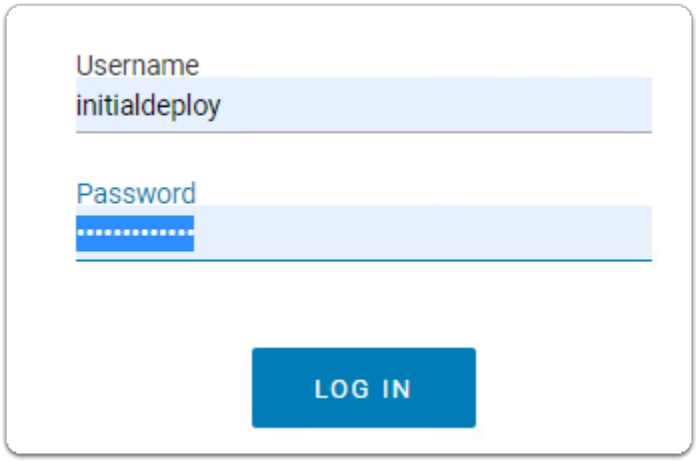
If necessary, open a web browser by clicking on the shortcut on the LaunchPad Desktop.

PowerOne Navigator Login

To log in to the Navigator Portal, use the following credentials:

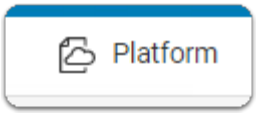
- Username: **initialdeploy**
- Password: **initialdeploy**

Click the **LOG IN** button.



Platform tab

From the PowerOne Navigator menu, click **Platform**.



vSphere Platform

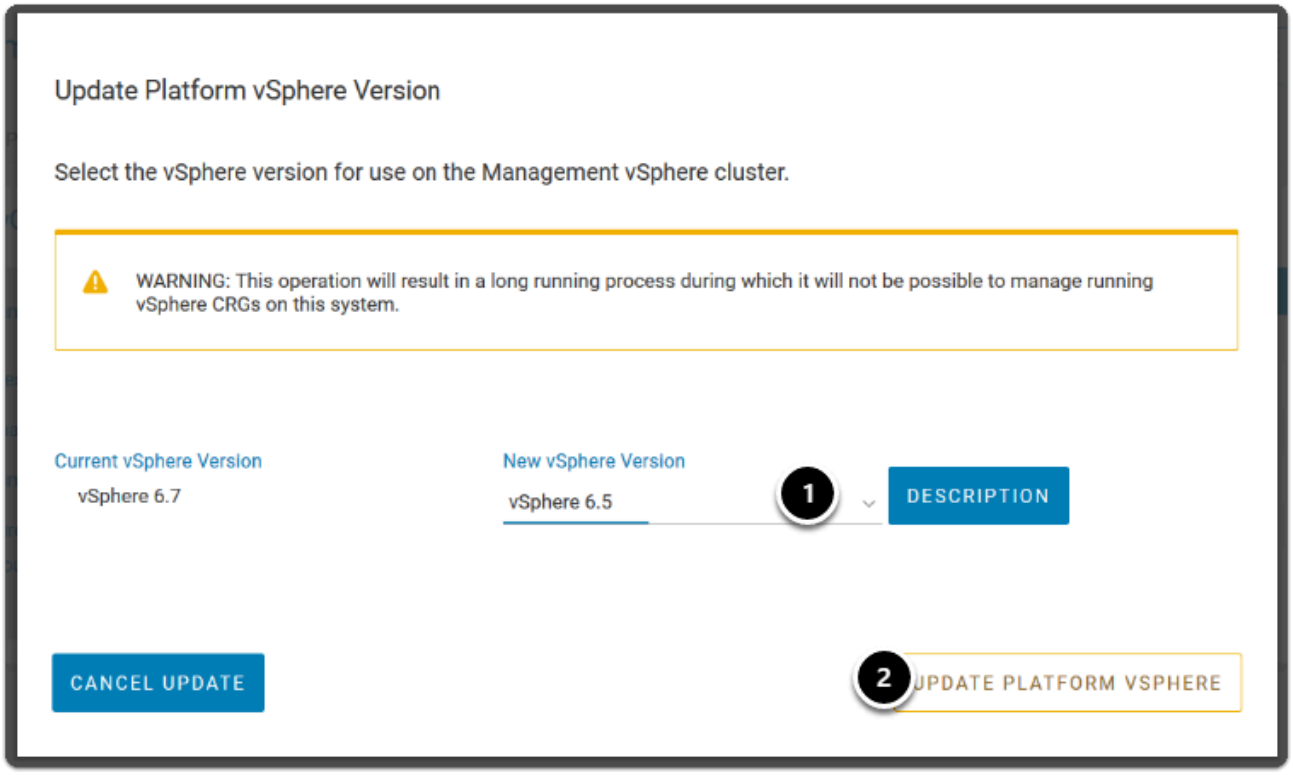
Click **UPDATE VERSION**.

Update Platform vSphere Version

This displays the **Update Platform vSphere Version** dialog. Read the WARNING message in the yellow bo

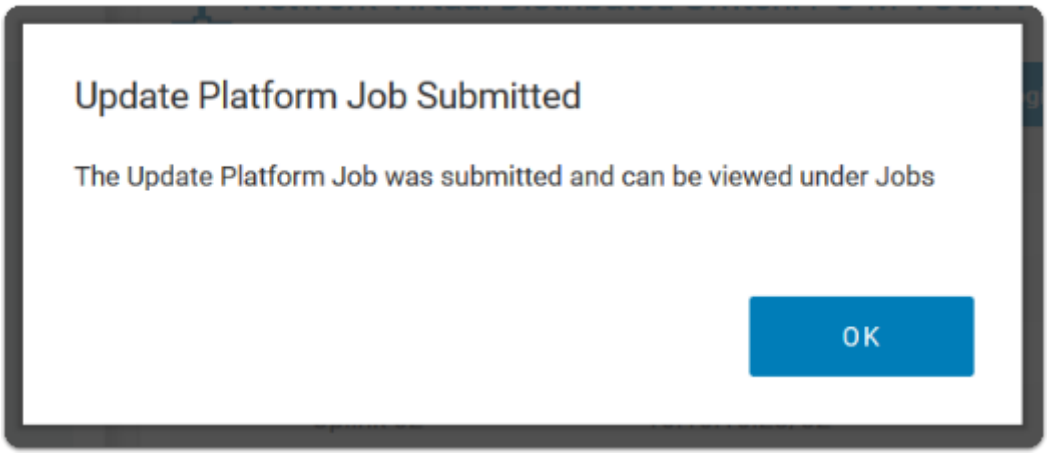
This update process updates **BOTH** vCenters in the vSphere Management Cluster to the version selected.

1. Click the **New vSphere Version** drop down and select **vSphere 6.7 Update 1** from the drop down list.
2. Click the **UPDATE PLATFORM VSPHERE** button at the bottom right corner of the dialog.



Job Submitted

This displays the message **Update Platform Job Submitted**. Click **OK**.



For the vSphere Management Cluster, this starts the update process that includes firmware and drivers for the servers that comprise the vSphere Management Cluster. This process appears under the Jobs menu item.

Jobs Center

This processed job appears in the **Job Name** column as **Update Platform Controller**.

Job Name	Status	Submit Time	Start Time	End Time	Duration	ID
Update Platform Controller	Completed	2019-11-11 15:39:51	2019-11-11 15:39:55	2019-11-11 15:40:12	00:00:17	138e571f-fe61-493b-13a0-d66399fd81f1

Lesson 4 - Life-cycle Assist - Inventory

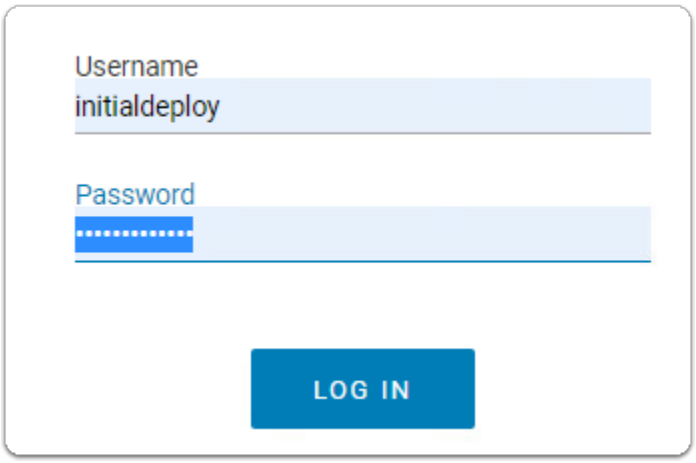
If necessary, open a web browser by clicking on the icon shortcut on the LaunchPad.

PowerOne Navigator Login

To log in to the Navigator Portal, use the following credentials:

- Username: **initialdeploy**
- Password: **initialdeploy**

Click the **LOG IN** button.

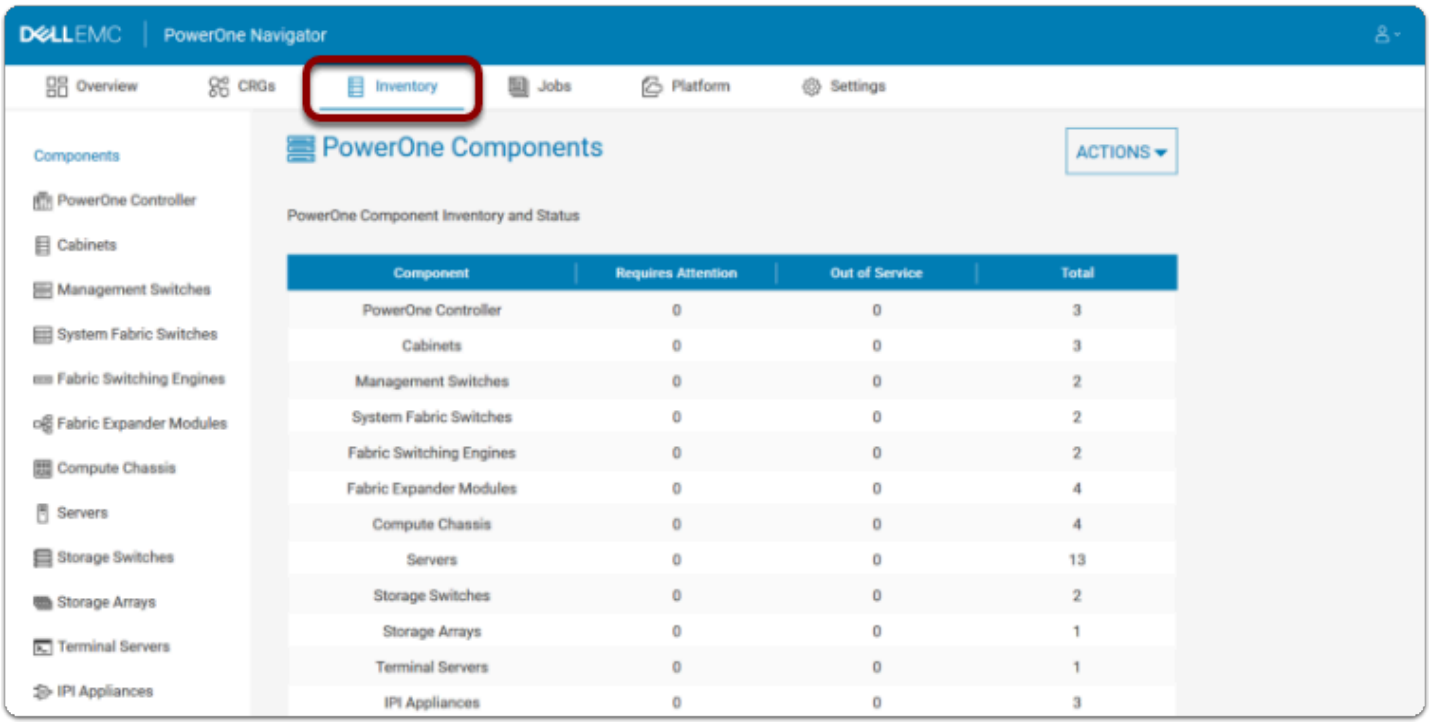


Inventory Tab

The last area we explore in this section of the lab is the Inventory menu item.

Click on the **Inventory** menu in the PowerOne Navigator menu bar.

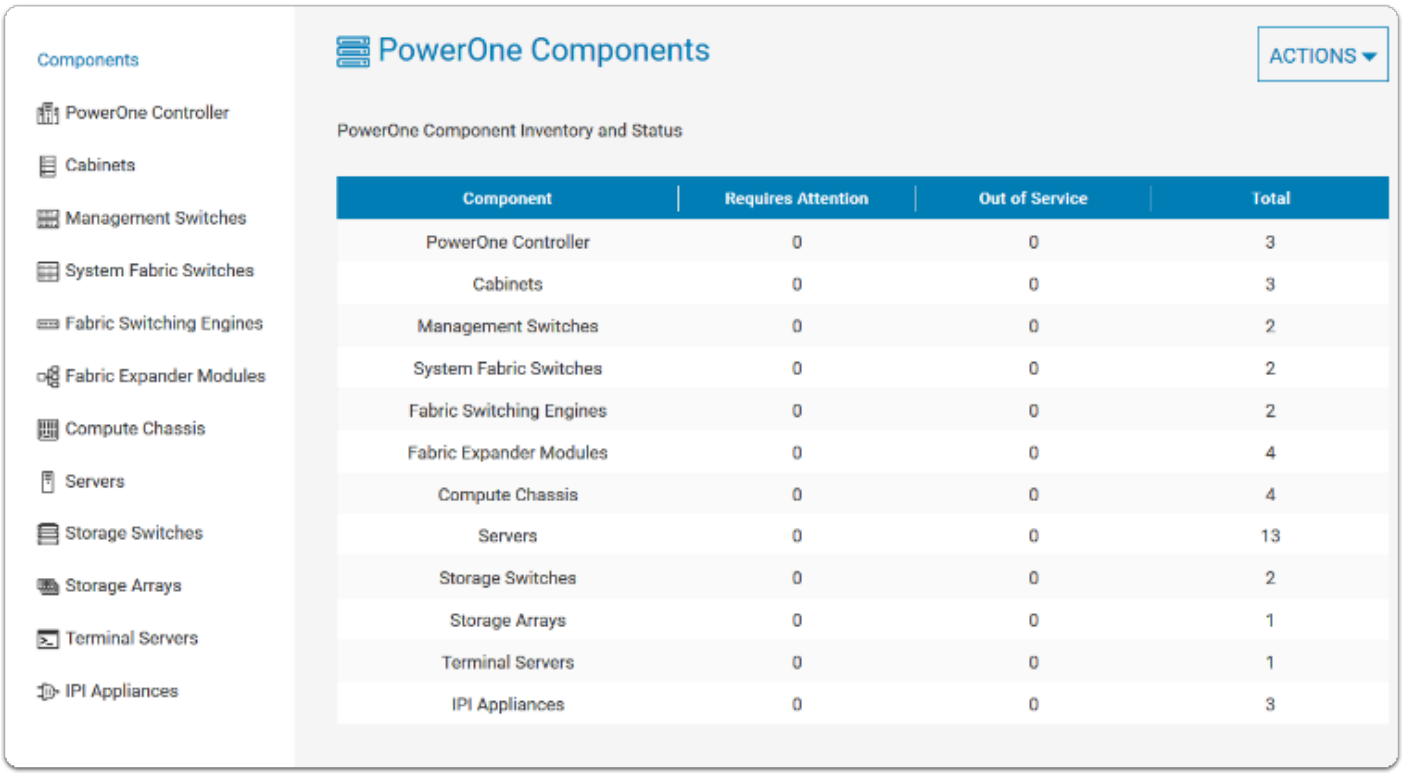
The Inventory menu contains all of the infrastructure that makes up a PowerOne System.



PowerOne Components

The main screen provides an overview all components in the PowerOne System and their status. Note that none of components require attention or are out of service. Note the total number of servers is 13.

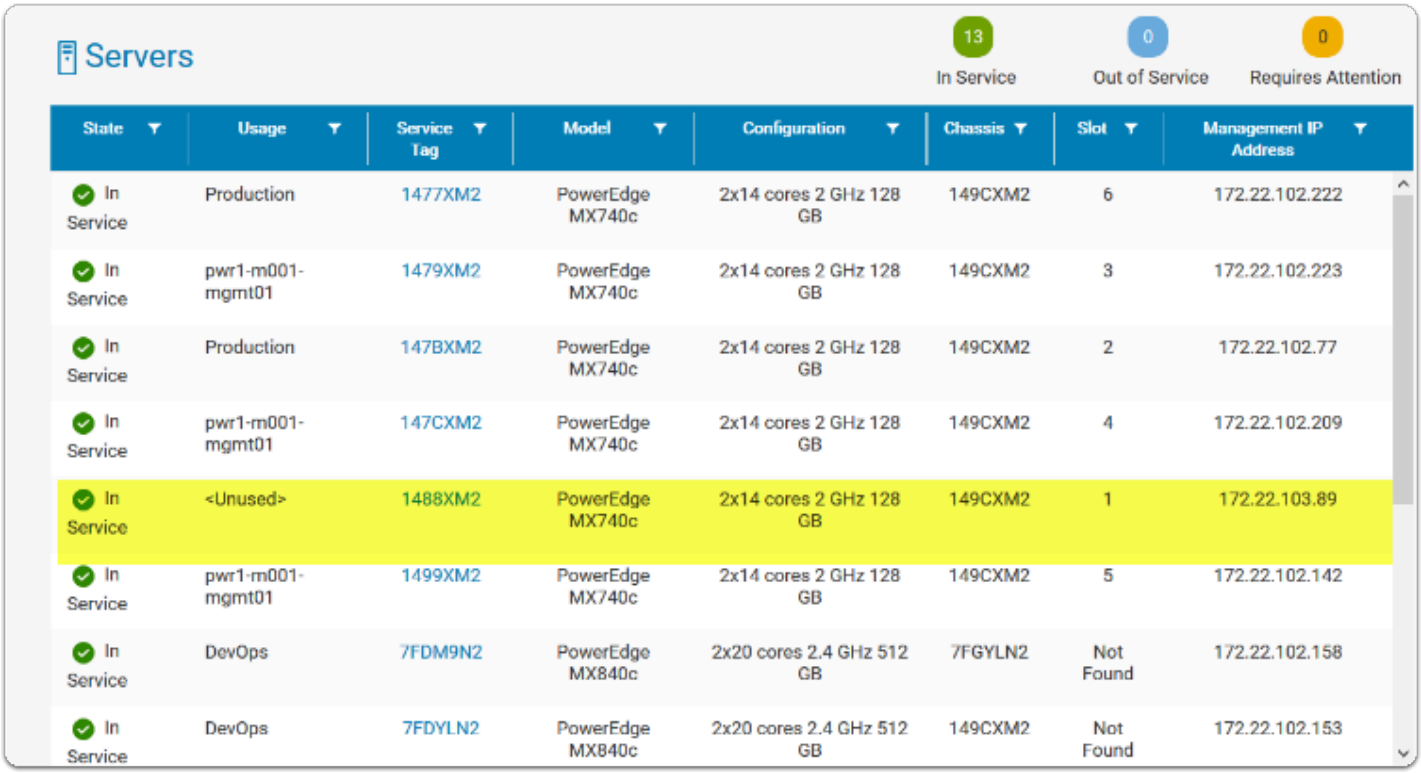
Click on **Servers** in the left hand Components menu.



Servers

In the Servers screen, you can see all of the servers currently in the PowerOne System.

Find the server in the list that has a **Usage** of **<Unused>** and in the Service Tag column, click it



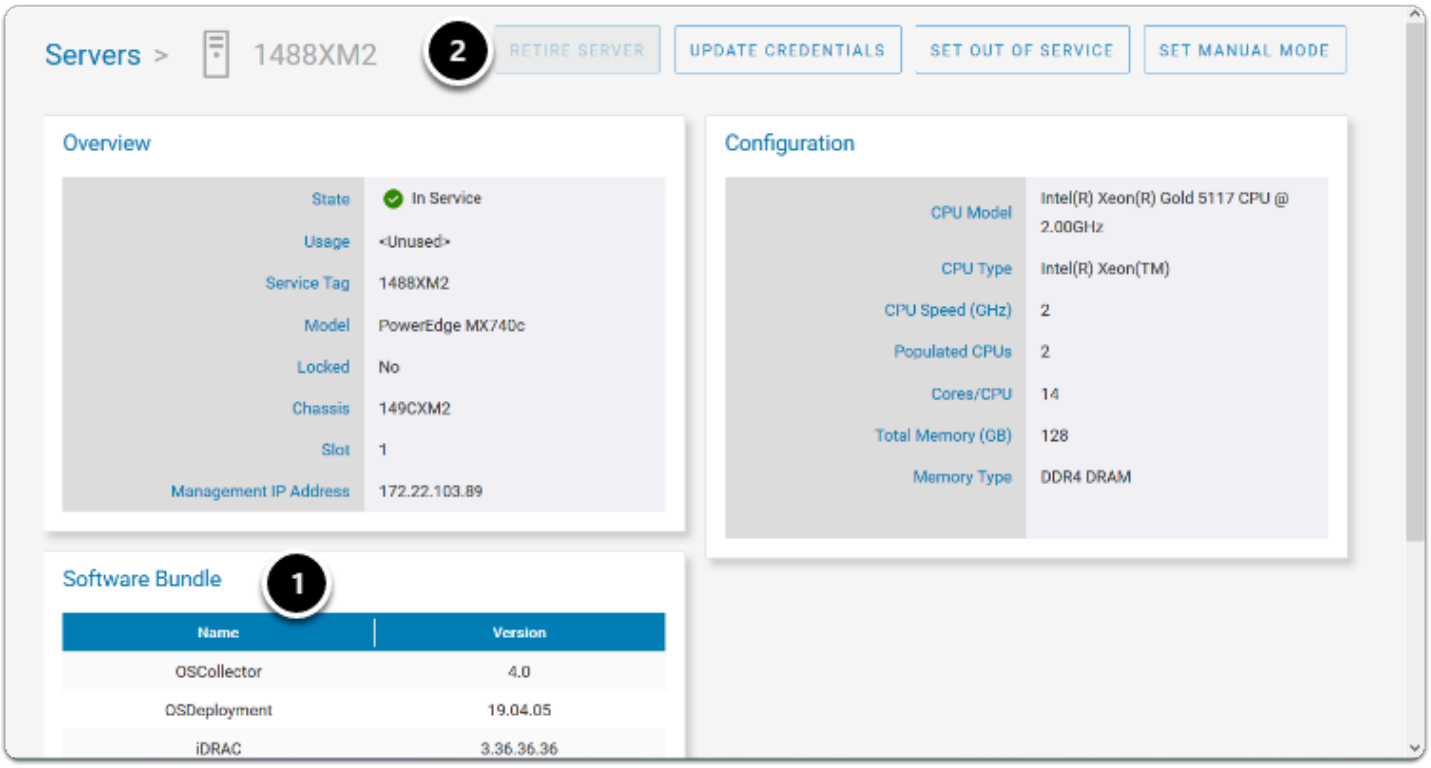
State	Usage	Service Tag	Model	Configuration	Chassis	Slot	Management IP Address
In Service	Production	1477XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	6	172.22.102.222
In Service	pwr1-m001-mgmt01	1479XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	3	172.22.102.223
In Service	Production	147BXM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	2	172.22.102.77
In Service	pwr1-m001-mgmt01	147CXM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	4	172.22.102.209
In Service	<Unused>	1488XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	1	172.22.103.89
In Service	pwr1-m001-mgmt01	1499XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	5	172.22.102.142
In Service	DevOps	7FDM9N2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.158
In Service	DevOps	7FDYLN2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	149CXM2	Not Found	172.22.102.153

Component Details

This displays details about the server, including the current Software Bundle (1) installed on it. Also notice at the top, to the right of the service tag (2), there are three active buttons. These perform the following tasks:

- UPDATE CREDENTIALS - Used to update login credentials to the server
- SET OUT OF SERVICE - This removes the server from service and is used mostly for maintenance operations
- SET MANUAL MODE - This allows a compute sled to be used outside of the automation of PowerOne, allowing for bare-metal usage (outside of all PowerOne automation.)

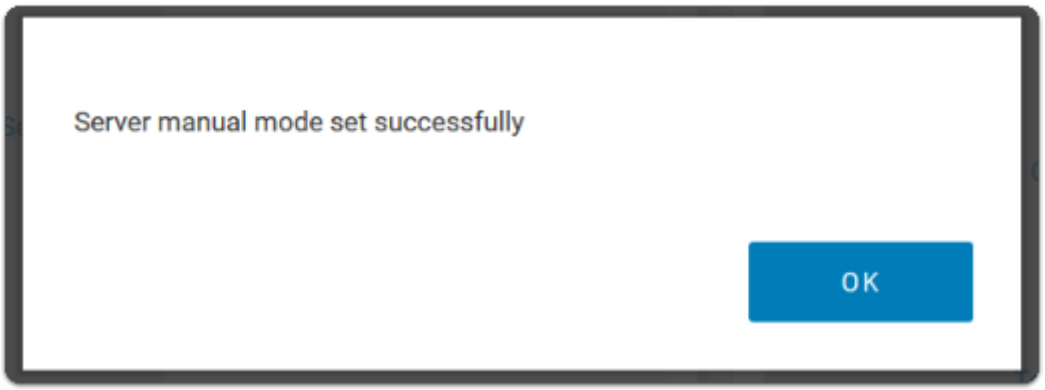
Click the **SET MANUAL MODE** button in the top right corner of the page.



Server Manual Mode

When you click the SET MANUAL MODE button, a dialog appears indicating that manual mode was set successfully on the server.

Click **OK**.



Return to Servers

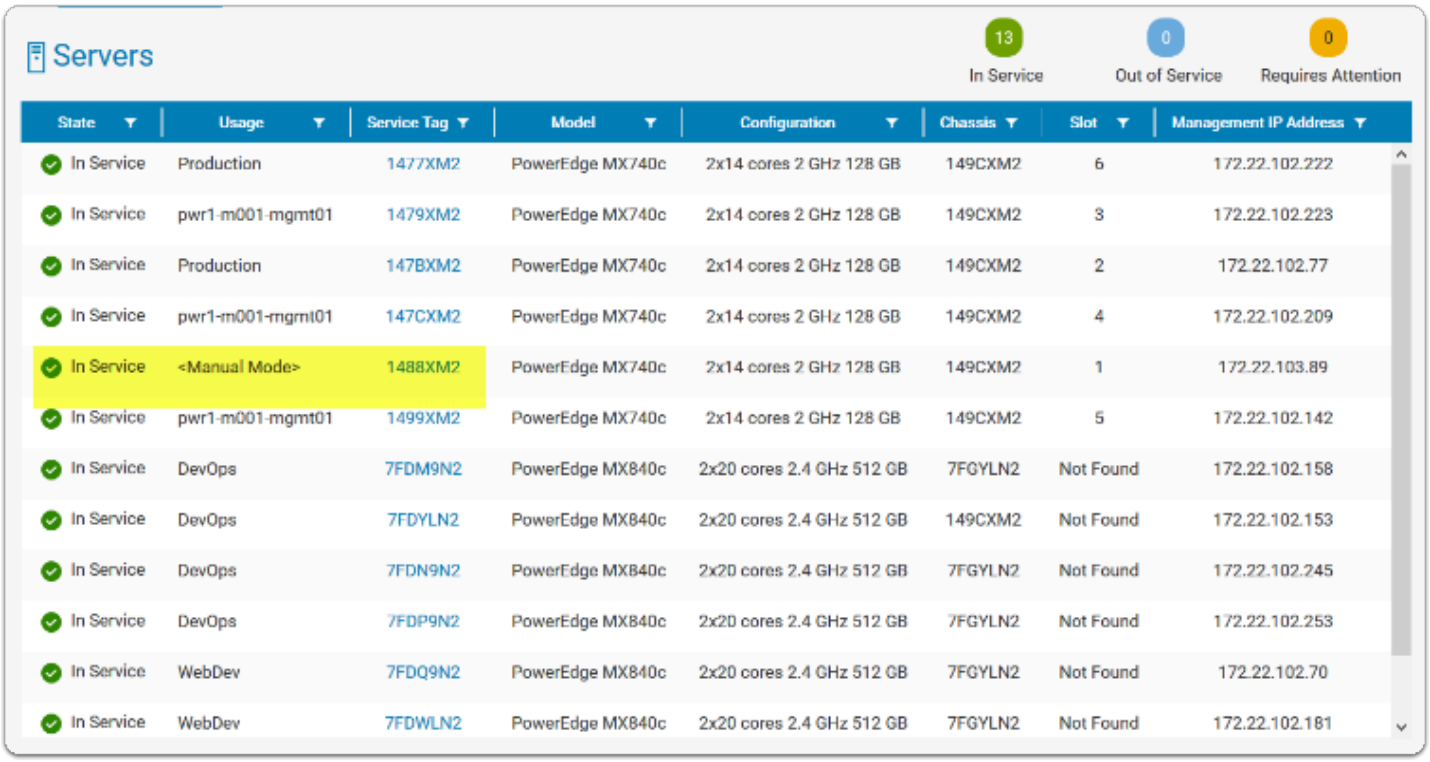
Click on **Servers** > at the top left of the screen under the Inventory menu item.

Manual Mode Enabled

Notice in the listing that the server is now in **<Manual Mode>** in the list of servers.

In a live PowerOne environment you could then connect to that server on it's Management IP and use it like a traditional server without ANY of the automation provided by PowerOne.

Click on the **service tag** for the server we set to Manual Mode.

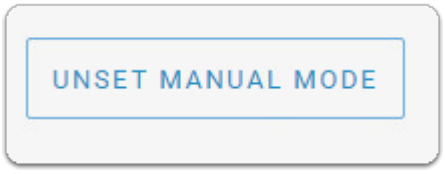


State	Usage	Service Tag	Model	Configuration	Chassis	Slot	Management IP Address
In Service	Production	1477XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	6	172.22.102.222
In Service	pwr1-m001-mgmt01	1479XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	3	172.22.102.223
In Service	Production	147BXM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	2	172.22.102.77
In Service	pwr1-m001-mgmt01	147CXM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	4	172.22.102.209
In Service	<Manual Mode>	1488XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	1	172.22.103.89
In Service	pwr1-m001-mgmt01	1499XM2	PowerEdge MX740c	2x14 cores 2 GHz 128 GB	149CXM2	5	172.22.102.142
In Service	DevOps	7FDM9N2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.158
In Service	DevOps	7FDYLN2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	149CXM2	Not Found	172.22.102.153
In Service	DevOps	7FDN9N2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.245
In Service	DevOps	7FDP9N2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.253
In Service	WebDev	7FDQ9N2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.70
In Service	WebDev	7FDWLN2	PowerEdge MX840c	2x20 cores 2.4 GHz 512 GB	7FGYLN2	Not Found	172.22.102.181

Reset Server Mode

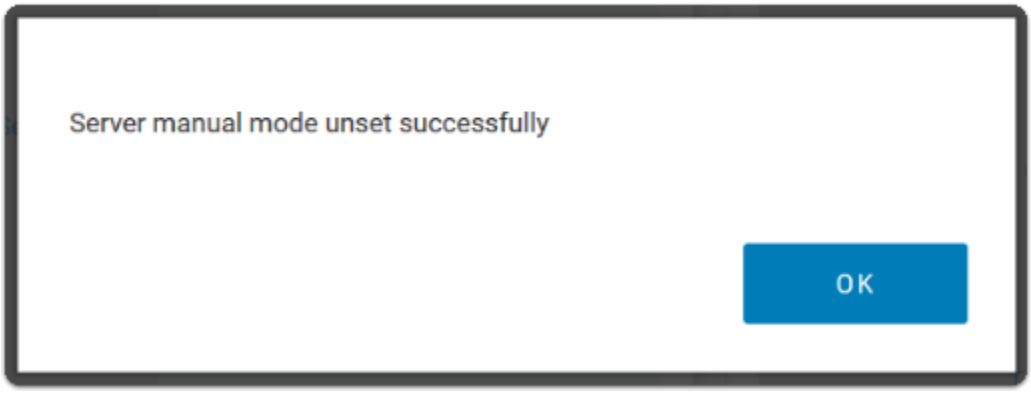
Click the **UNSET MANUAL MODE** button.

This allows the server to be allocated to CRGs again. This will result in any changes to the server being reset, insuring the server will now match those of the CRG it's added to.



Unset confirm

When you click the **UNSET MANUAL MOD**E button, a dialog appears indicating that manual mode was unset successfully on the server. Click **OK**.



Return to Server Inventory

Return to the Servers inventory listing by clicking **Servers** in the left hand menu.

Module 2 - Conclusion

Congratulations on completing Module 2! In this module, you performed one or more of the following steps for managing the lifecycle health of PowerOne resources:

- Logged into the PowerOne Navigator web UI.
- In Lesson 1 you:
  - Listed the cluster resource groups (CRGs).
  - Examined a CRG in detail (DevOps).
  - Upgraded the version of vSphere in this CRG.
  - Modified the CRG's resources (compute, storage, number of servers)
  - Created a new CRG.
- In Lesson 2, you examined the status of jobs in Job Center.
- In Lesson 3, you updated the version of the vSphere management platform.
- In Lesson 4, you examined the inventory PowerOne components, updated login credentials to a server, placed a server into Manual Mode, then restored it back from Manual Mode and verified its successful return.