Discovery and Inventory of Dell Devices using OpenManage Essentials

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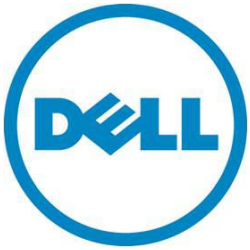

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Executive Summary

A fundamental element of any Device Management is discovery and inventory of the devices an organization is looking to manage. Discovery needs to be non-invasive, easy to administer, efficient, thorough, accurate, broad in scope and responsive to network changes.

Discovery is a process for identifying all Dell hardware devices in your network, such as Dell PowerEdge™ servers, Dell EqualLogic™ storage, Dell PowerConnect™ switches, etc. It is an unobtrusive way of searching out all networked devices and providing an analysis of each device, including its software, memory, components, serial number, etc. The Inventory Report provides detailed information on all discovered devices such as device health, available memory, and installed software.

Introduction

OpenManage™ Essentials (OME) is a hardware management application that provides a comprehensive view of Dell systems, devices, and components in the enterprise's network. OpenManage Essentials is a web-based and one-to-many systems management application. For Dell systems and other devices and components, a user can discover and inventory the systems, monitor the systems' health, and perform system updates.

Scope

The purpose of this document is to help a user with the necessary steps to perform discovery and inventory of Dell devices. These are the high-level areas covered:

- Steps to perform discovery and inventory.
- Providing a holistic view of the datacenter.
- Searching specific devices.

Discovery and Inventory

Discovery and inventory aids understanding of what hardware and software are installed across an organization and is the most basic step to effective systems management. Areas such as license compliance, health monitoring, security and upgrades, and migrations all require the networked hardware to be available to the System Administrator on a single console to help ease the process. OpenManage Essentials provides these capabilities to initialize the discovery and inventory process and perform required actions on these devices.

Prerequisites

These are the prerequisites for performing discovery and inventory:

Credentials: The discovery process in OME communicates to the devices using the following supported protocols:

Table 1. Protocol and Credentials

Protocols	Required credentials
SNMP	SNMP Community string
WMI	Windows Administrator credentials
IPMI	IPMI operator credentials.
WS-Man	WS-Man Administrator credentials
Dell/EMC Array	EMC credentials
SSH	SSH Administrator credentials

Setting up the systems to be managed: There are a few settings to be performed in Managed Node to make it discoverable over the network. Refer to the white paper *Make your Environment Manageable with Dell OpenManage Essentials* for more information.

OpenManage Server Administrator (OMSA): OMSA should be installed on all the systems that are required to be managed with OME.

Steps for Discovery and Inventory

After the above prerequisites are met, the discovery and inventory process can take place. The steps can be summarized as follows:

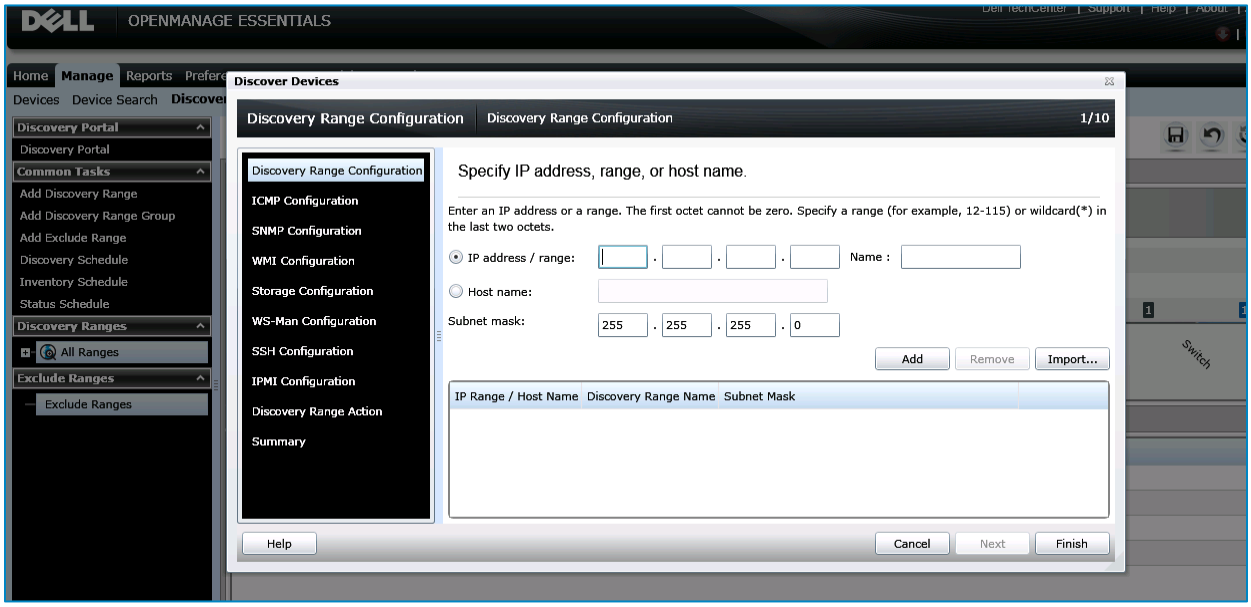
- Discovery Range Configuration
- ICMP Configuration
- SNMP Configuration
- WMI Configuration
- Storage Configuration
- WS-Man Credentials
- SSH Credentials
- IPMI Configuration
- Discovery Range Action
- Summary Screen

DIscovery Range Configuration

First, specify device IP ranges in the environment to perform discovery and inventory.

1. Navigate to **Manage →Discovery and Inventory→Discovery Ranges→Discovery Range Summary**.
2. Right-click **Include Ranges** and select **Add Discovery Range**.

Figure 1. Discovery Range Wizard



Below are some sample IP ranges that can be used as an IP range for Discovery.

IP Range	193.109.112.*
	193.104.20-40.*
	192.168.*.*
	192.168.2-51.3-91
	193.109.112.45-99
Hostname	WIN-17L2JS8
Single IP	193.109.112.99

Additionally, an Import functionality provided in OpenManage Essentials helps with importing a Discovery Range which is defined within a .csv file format, as shown in Figure 2. The maximum numbers of devices that can be imported using this method is 500.

Figure 2. .csv File

Name	Type	Data
1750-win-r03-03	Host (A)	10.94.172.180
1750-win-r04-02	Host (A)	10.94.172.184
1850-win-r04-05	Host (A)	10.94.172.179
2650-win-r01-04	Host (A)	10.94.172.193
2800-W2K3	Host (A)	10.94.168.32
2850-win-r01-03	Host (A)	10.94.161.71
2900-win-r03-07	Host (A)	10.94.161.72
2970-esx	Host (A)	10.94.168.203
4600-WIN-R04-14	Host (A)	10.94.172.168

The following example demonstrates adding a Discovery Range using SNMP or WMI protocol with the **Add Discovery Range Wizard**.

i. Enter the Discovery Range.

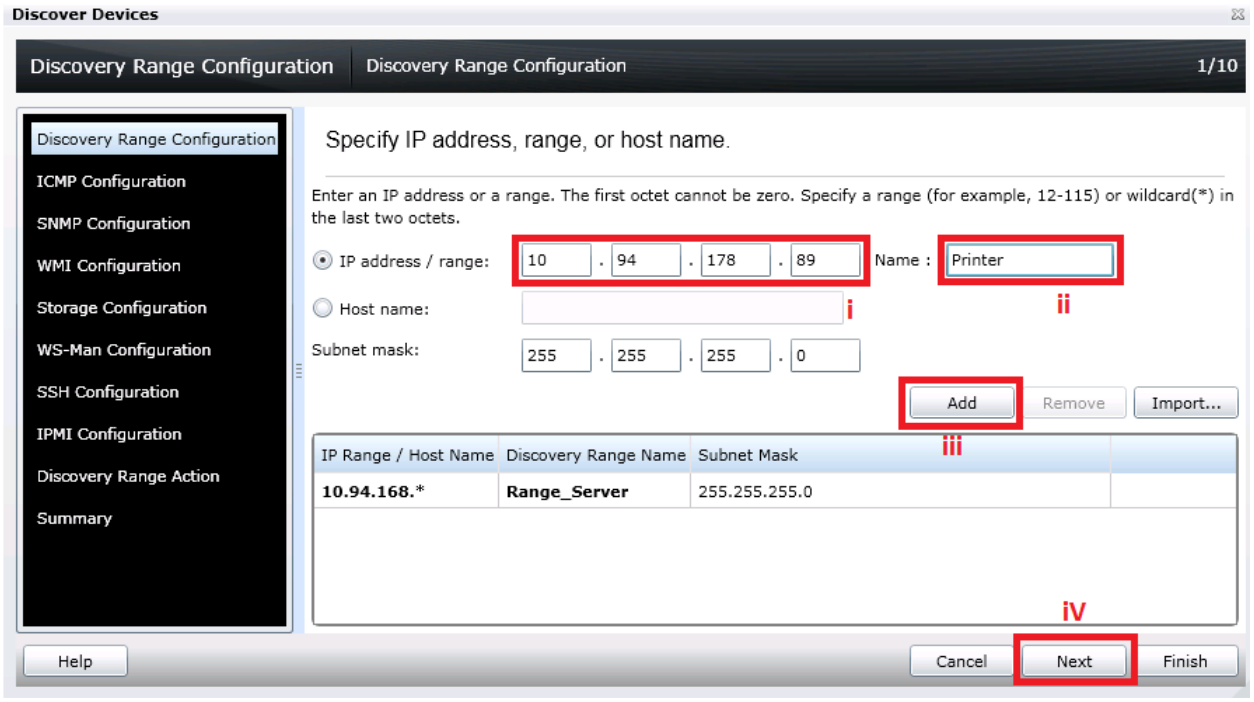
ii. Provide the Range Name (optional)

iii. Click **Add**.

Repeat steps i to iii if required.

iv. Click **Next** to proceed.

Figure 3. Specifying an IP Range



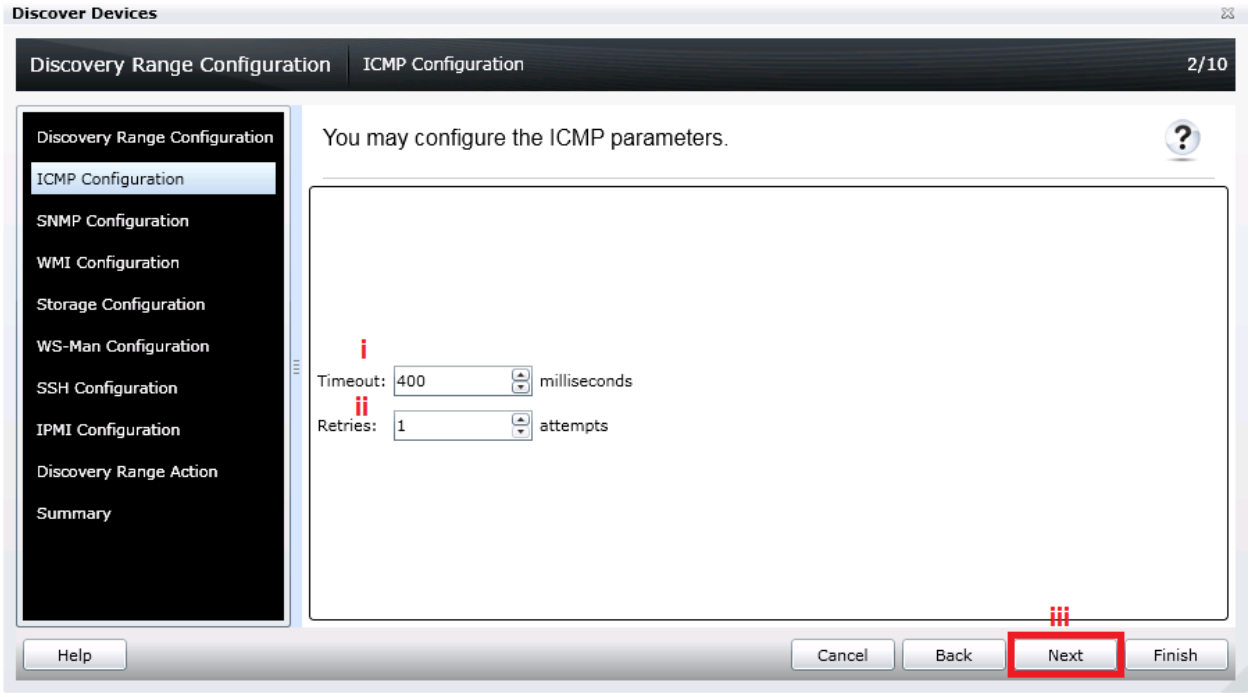
ICMP Configuration

i. Set **Ping Timeout** for pinging the device on the network.

ii. Specify the number of attempts to be tried.

iii. Click **Next** to proceed.

Figure 4. ICMP Configuration Screen



SNMP and WMI Configuration

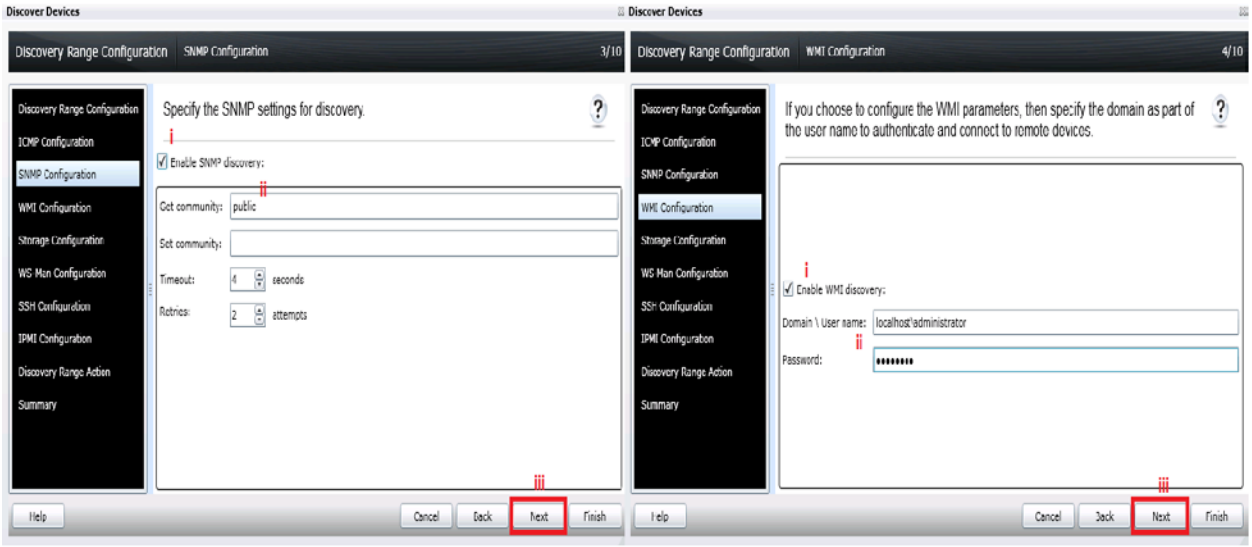
SNMP Configuration Screen

1. Select the check box to use SNMP protocol for discovery.
2. Enter the **Community Name**.
3. Click **Next** to proceed.

WMI Configuration Screen

1. Select the check box to use WMI discovery.
2. Provide Windows credentials.
3. Click **Next** to proceed.

Figure 5. SNMP and WMI Configuration Screens



Storage Configuration

This screen is only used to set the options to discover PowerVault Modular Disks or Dell | EMC Devices. Any required credentials for EMC devices are entered here.

WS-Man Credentials

This screen is used to set the options to configure WS-Man parameters for discovering ESXi-installed devices or iDRAC

SSH Configuation

This screen is used to set the options to configure Linux and ESXi.

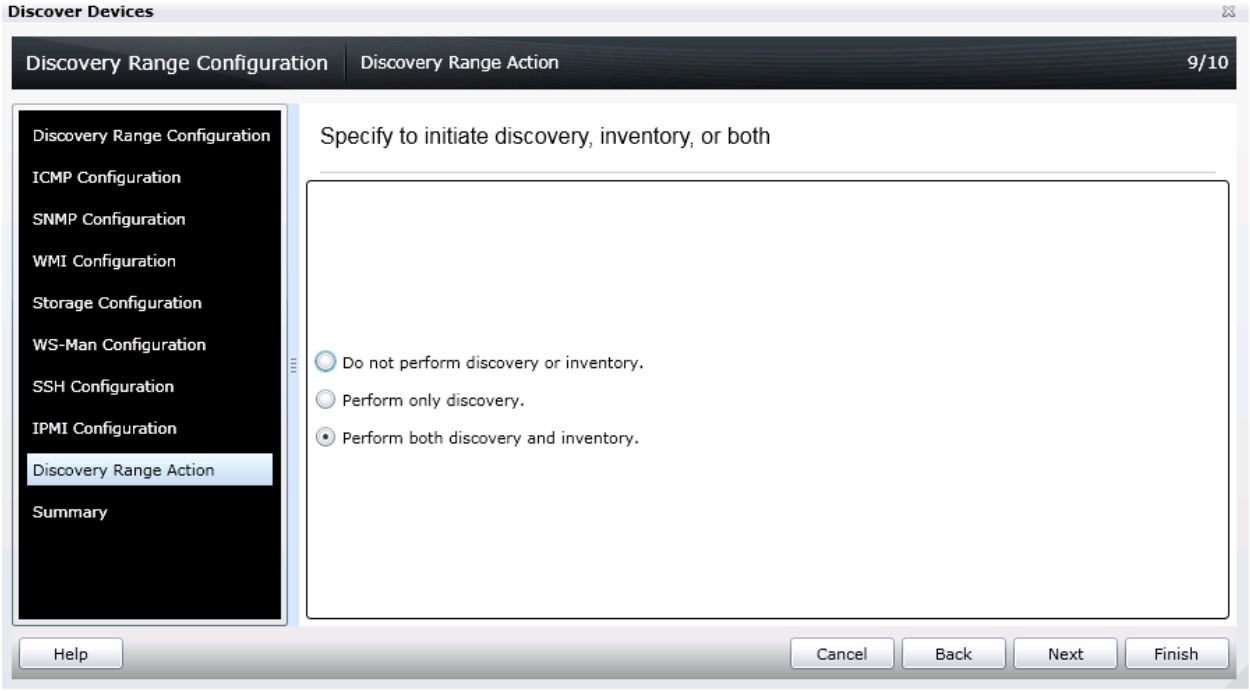
IPMI Configuration

This screen is used to set the options to configure IPMI credentials for discovering DRAC or iDRAC devices.

Discovery Range Action

Select one of the radio buttons as necessary.

Figure 6. Discovery Range Action Screen



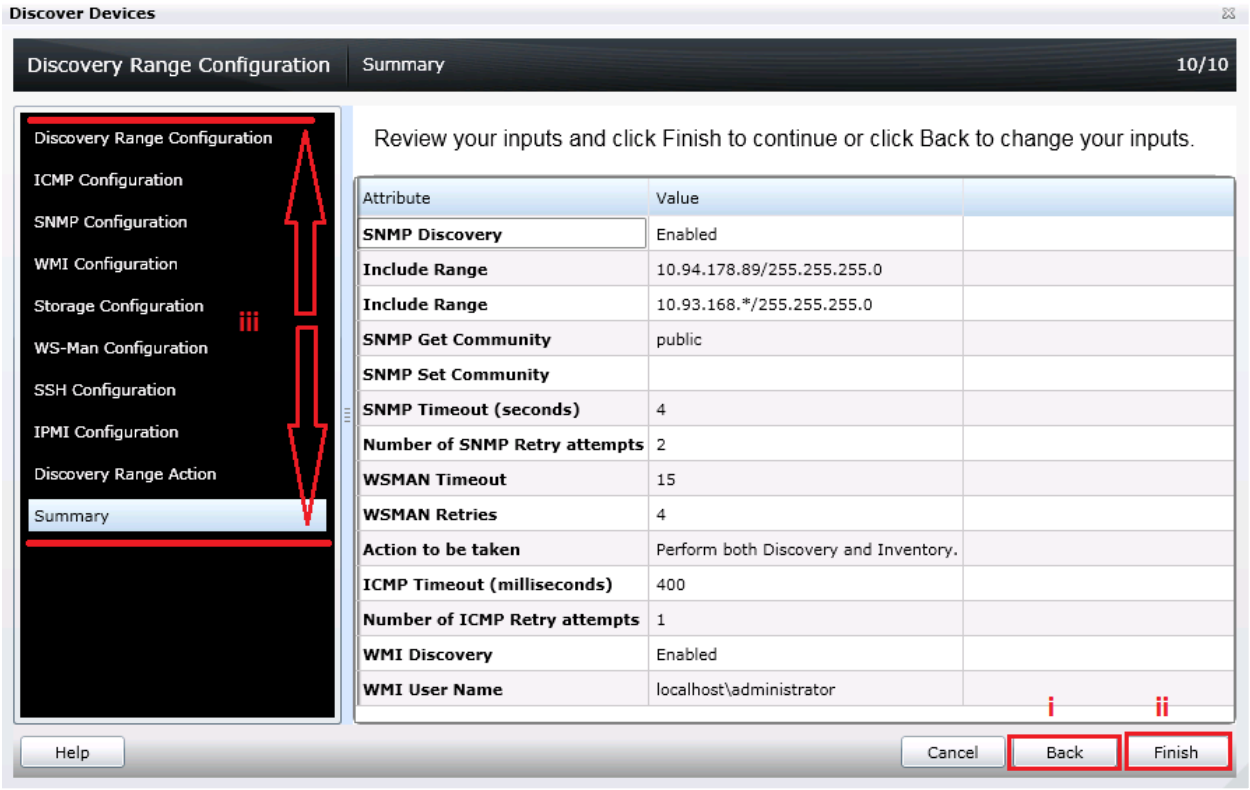
Summary Screen

This screen displays a consolidated list that summarizes the options selected from the first screen. After reviewing the summary, you can modify the settings or complete the process.

- Click **Back** to navigate to previous screens (sequentially).
- Click **Finish** to complete the range configuration.
- Select the required label to jump directly to a specific screen.

On clicking **Finish**, the range will be added to the **Include Range** list.

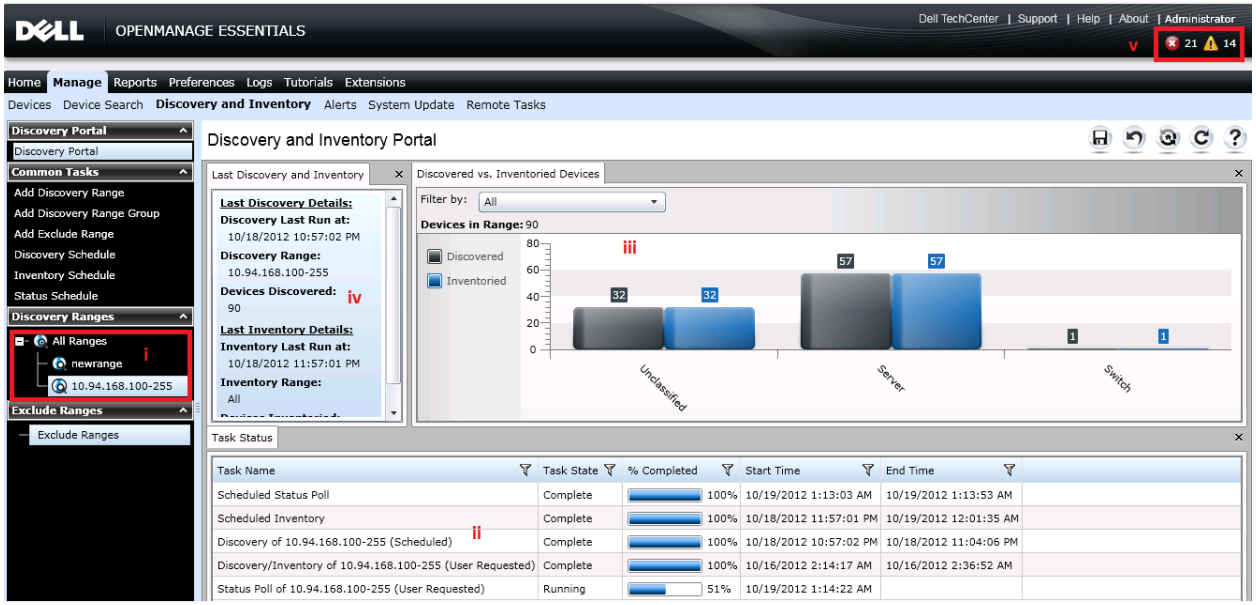
Figure 7. Summary Screen



Discovery and Inventory Portal

The Discovery and Inventory Portal screen provides a single point of access to most details of discovered/inventoried devices at any given point of time. To view the portal, navigate to **Manage→Discovery and Inventory→Discovery Ranges→Discovery Ranges→Include Ranges.** Using this screen, a System Administrator can monitor the progress of the Discovery Inventory process.

Figure 8. Discovery and Inventory Portal Page



The screen is divided into five sub-screens:

- **Discovery Ranges**: The range of IPs added through the wizard.
- **Task Status**: The progress of the Discovery process of an IP. The status changes from **Running** to **Completed**.
- **Discovered vs. Inventoried Devices:** A graphical representation of discovered and inventoried devices to help visually separate the devices.
- **Last Discovery and Inventory:** Details from the last discovery and inventory task run.
- **Dashboard:** Classified devices with critical and warning health status.

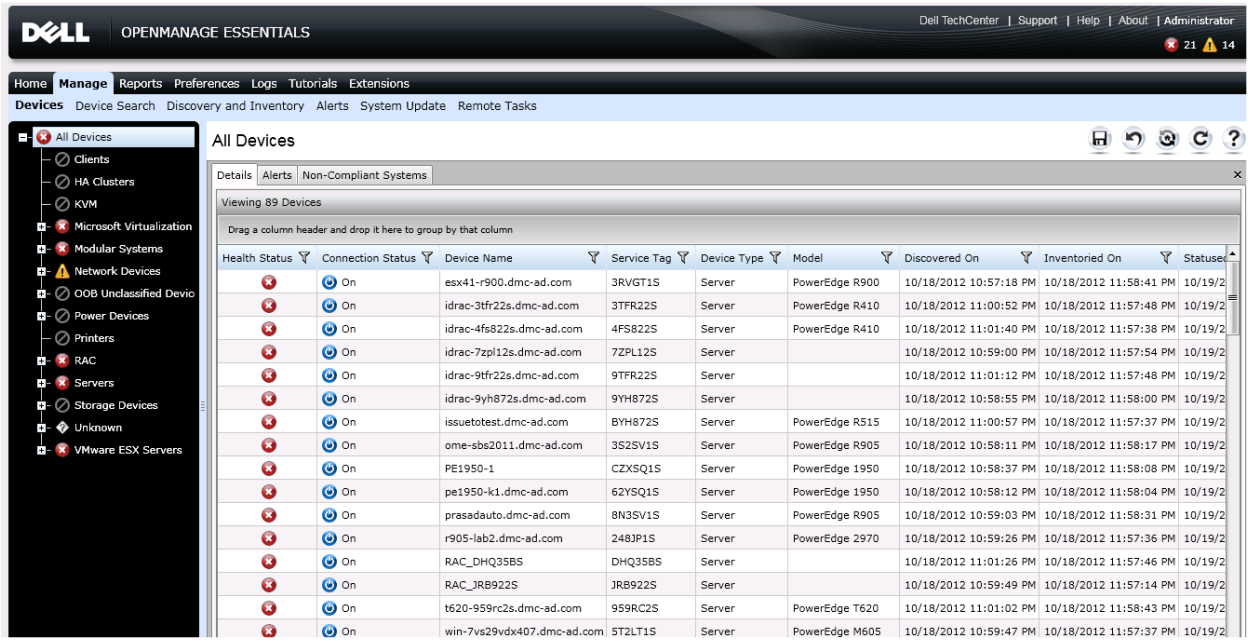
All Devices Tree

Once the discovery and inventory process is completed, the System Administrator can obtain a detailed view of all the devices using the Device Tree screen.

To view the Device Tree, navigate to the **Manage→Devices** tab and select the **All Devices** node to view the devices classified under specific nodes as per the device category. The icon corresponding to each device shows the current health status.

This screen gives a glance of all discovered and-inventoried devices, the type and health of device, and the health of each device (green: normal, yellow: warning and red: critical).

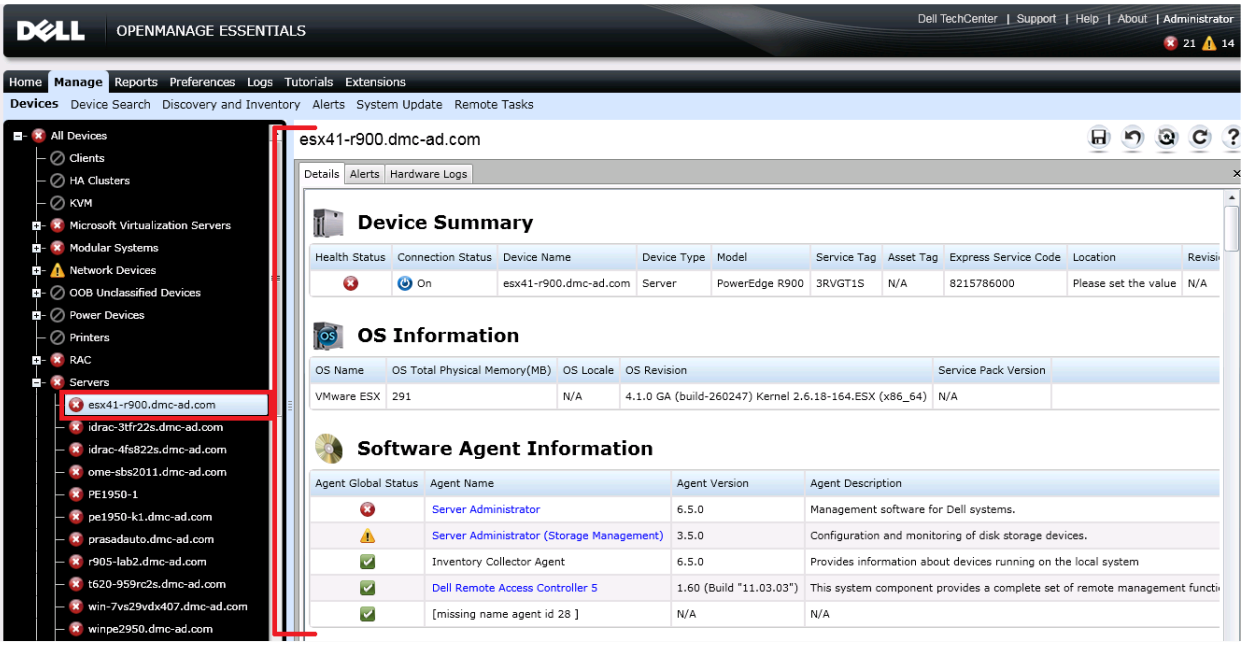
Figure 9. Device Tree Screen



Device Inventory Details

To see a detailed inventory of a particular device, select the device and view the details in the right pane.

Figure 10. Device Details



The inventory details table includes all the details displayed depending on the discovery protocol used. The following table shows all possible inventory headers captured and displayed by OME.

Table 2. Inventory Details

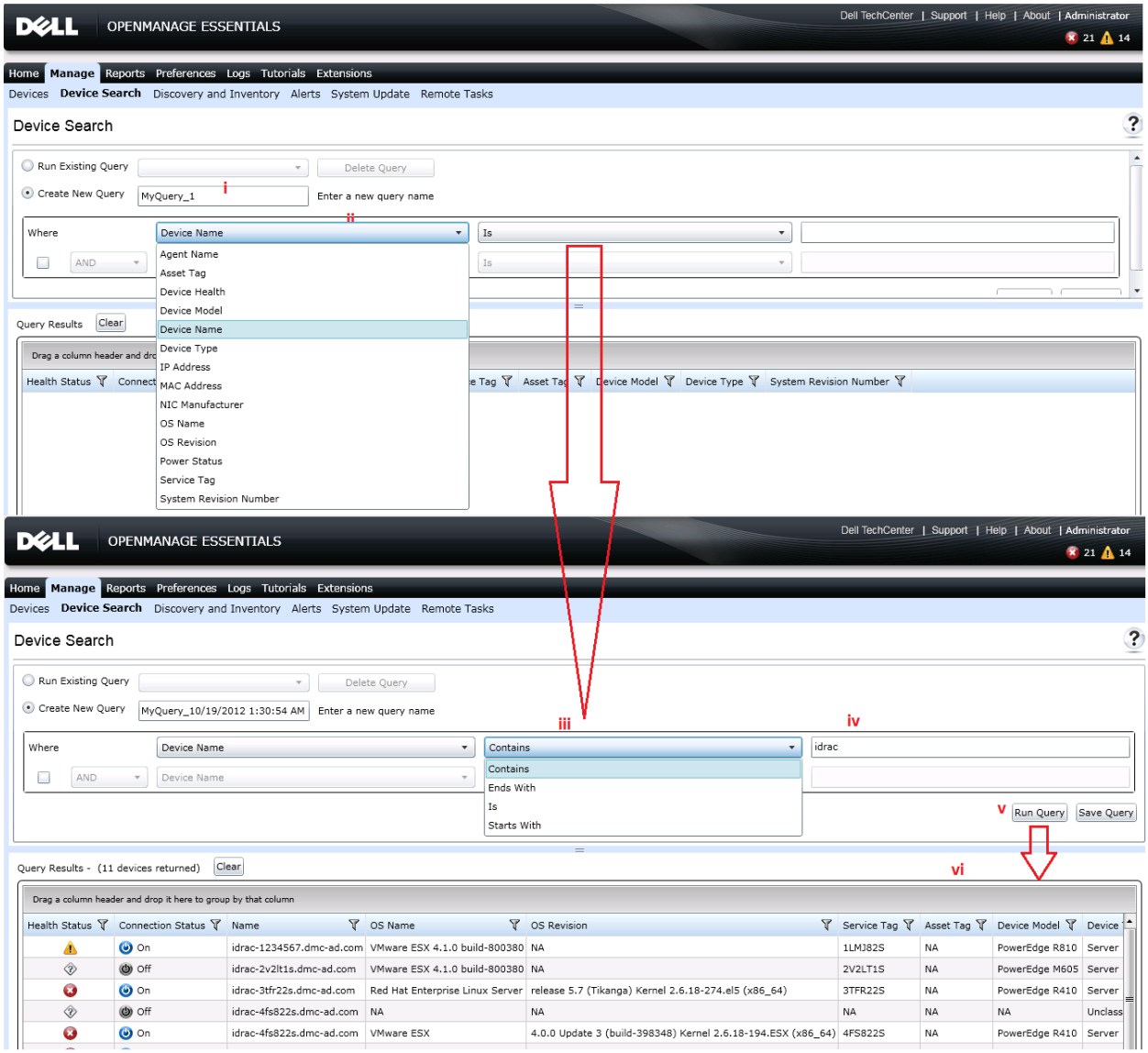
Device Summary	Physical Disk
OS information	Virtual Disk
S/w Agent Information	Contact
Nic Info.	S/w Inv.
Rac Info.	Trusted Platform Module
iDrac	FRU
Processor Info.	Acquisition Info
Memory Device Info.	Depreciation Info.
Firmware Info.	Extended Warranty
Power Supply	Ownership Info.
Embedded Device	Outsource Info.
Controller Device	Virtual Machine Guest Info.
Enclosure Info	Virtual Machine Guest Nic Info.

Device Search

If there are many devices under the tree, managing them might be difficult. Searching manually for a particular device for monitoring can be a tedious process. To overcome this situation, OME includes a Device Search option:

1. Navigate to the **Manage→Device Search** tab and provide a name for the new search query.
2. Select the desired options from the **Where** drop-down menu.
3. Select any supporting sub-criteria.
4. Provide a part of the device name.
5. Click **Run Query**.
6. The result displays in the lower pane.

Figure 11. Device Search Screen



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