

Technical White Paper

Server-Initiated Discovery with OpenManage Enterprise 3.4

This technical white paper provides information about automatic discovery of servers in OpenManage Enterprise (OME).

Abstract

What if servers in your data center could announce their presence and automatically be managed by OME? With the Server-Initiated Discovery feature in OME 3.4, servers can automatically notify OME of their presence and get discovered by OME. Read on to know more.

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Revisions

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Acknowledgements

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Executive summary

Traditionally, managing servers with OpenManage Enterprise requires the administrator to first configure discovery jobs with IP ranges and credentials. With the introduction of factory random passwords that are unique per device, this discovery configuration is an onerous task. With OpenManage Enterprise 3.4, servers running iDRAC firmware version 4.00.00.00 can automatically initiate contact with the management console and get discovered. This eliminates the need for manual discovery job configuration. Read on to see how simple it is to enable this feature with OpenManage Enterprise 3.4 and iDRAC 4.00.00.00.

Server-Initiated Discovery in OME 3.4

This technical whitepaper describes how OME 3.4 can automatically discover servers in a data center, based on signals sent by servers to announce their presence. Servers can now automatically locate the console by querying the DNS and initiate their own discovery.

The following topics are discussed in this paper:

• System requirements

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- How does Server-Initiated Discovery work?
- Navigating the Server-Initiated Discovery workflow
- Security with Server-Initiated Discovery
- <u>Troubleshooting Server-Initiated Discovery issues</u>

1.1 System requirements

- PowerEdge servers running iDRAC firmware version 4.00.00.00 or later
- OpenManage Enterprise version 3.4 or later

1.2 How does Server-Initiated Discovery work?

DNS configuration is a key element to enabling Server-Initiated Discovery.

First, the administrator registers OME with DNS. Next, the administrator can either use OME to update DNS via an option in the TUI, or update DNS manually for SRV / PTR and TXT records (in the case of secure DNS updates). The context sensitive help on OME has information on the values to configure for SRV / PTR / TXT records, and also has steps to effect these via nsupdate commands.

Thereafter, any server running 4.00.00.00 or later firmware is registered with the same domain, it knows about the OME to signal through the records in DNS. By default, the servers notify OME about their presence once a day.

If the "discovery approval policy" is automatic in OME, then OME initiates discovery of the servers by pooling together notifications received in the last 10 minutes. The credentials to be used for discovery are picked up from a CSV file that the administrator imports into OME.

In the next sections, the user workflow is detailed.

1.3 Navigating the Server-Initiated Discovery workflow

User workflow is detailed in this section.

1. The administrator registers the OME instance with the DNS by using the TUI as shown in Figure 2

OpenHanage Enterprise 3.4.0.118 Configure Network Interface (ens160 <primary>)</primary>
Enable IPv4 [X] Enable DHCP [X]
Use DHCP to Obtain DNS Server Address [X]
Enable IPv6 []
Register with DNS: [X] Use DHCP for DNS Domain Name: [X]
DNS Name: openmanage-enterprise
Domain Name: smd.devops.dell.com
< Apply >
< Cancel >

Figure 2 Configure DNS in OME by using TUI

2. The administrator can then configure the DNS directly from OME, by selecting the **Configure Server Initiated Discovery** option in the TUI as shown in Figure 3 and Figure 4.

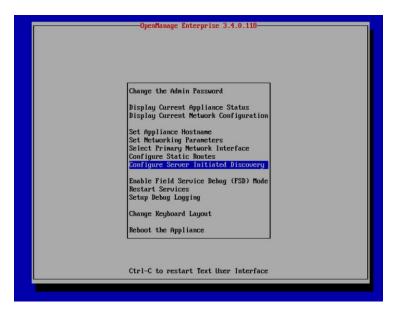


Figure 3 Navigate to the Configure Server Initiated Discovery option in TUI

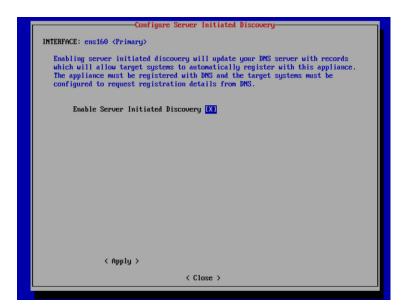


Figure 4 Enable Server Initiated Discovery in TUI

3. After successful updates to the DNS server, the following confirmation message is displayed. In-case security policies prevent updates to the DNS server, the entries can be manually configured in DNS.

Configure Server Initiated Discovery-
INTERFACE: ens160 (Primary)
Enabling server initiated discovery will update your DNS server with records which will allow target systems to automatically register with this appliance. The appliance must be registered with DNS and the target systems must be configured to request registration details from DNS.
Enable Server Initiated Discovery [X]
Configuration
Server initiated discovery ENABLED
< Apply > < Close >

Figure 5 Confirmation message indicating server-initiated discovery is enabled in the TUI

4. If unsuccessful, then the error message is displayed with details.



Figure 6 Error in enabling server-initiated discovery in the TUI

5. To navigate to the Server-Initiated Discovery page in OME, click **Monitor** → **Server-Initiated Discovery** as shown in Figure 7 and Figure 8.

📑 OpenManage Enterprise		Search Everythin
🛉 Home 🗏 Devices 🔗 Configuration 🗸 🔰 Alerts 🗸 📼 Me	onitor 🔨 🌣 Application Settings 🗸	
Dashboard	Audit Logs Jobs	
Device Groups All Devices	Discovery Server Initiated Discovery	
Hardware Health	Inventory Prts Warranty	
	Reports MIB	
	Critical: 46	

Figure 7 View the Server-Initiated Discovery option in OME

Monitor							
Audit Logs Jobs	Discovery Server Initiated	Discovery Inventory	Warranty Reports	MIB			
Configure the console to	discover servers that announce th	neir presence.					
Import Discover							
✓ ▼ Advanced Filters Clea	r All Filters						
Service Tag		Has Credentials		IP Address			tus
		All		•		Al	· ·
SERVICE TAG	HAS CREDENTIALS IP AD	DRESS	ANNOUNCED TIME	DISCOVERY START TIME	STATUS		
						*	Port Number:
0 item(s) found, 0 item(s) se	elected. Displaying items 0 - 0.						Created On:
							Created By:

Figure 8 View the Server-Initiated Discovery page in OME

 The Import option on the Server-Initiated Discovery page can be used to upload a CSV file consisting of ServiceTag and credentials. To view a sample CSV file of the server credentials, click Download sample CSV file.

OpenManage Enterprise		Search Everything Q	C 38
Home Devices & Configuration V Alerts	🔯 Import From File	0 ×	
Monitor	Select a File Upload Service Tags File Download sample CSV file		
Audit Logs Jobs Discovery Server Initiated Di		Cancel	
• Configure the console to discover servers that announce the		Cancel	
Import Discover Delete Export			
✓ ▼ Advanced Filters Clear All Filters			
Service Tag	Has Credentials IP Address	Status All	5
SERVICE TAG HAS CREDENTIALS IP ADDR	SS ANNOUNCED TIME DISCOVERY START TIME	STATUS	

Figure 9 Import server credentials into OME

7. After successful import of the CSV file, the server credentials are displayed on the Server-Initiated Discovery page. The status of entries—Credentials Added—indicate that the credentials to discover the servers are available, but the servers have not yet initiated contact with OME, and so discovery has not yet started.

Home ■ Devices ● Configuration × ● Address ● Address Audit Logs Jobs Discovery Server Initiated Discovery Inventory Warranty Reports MIB Ponfigure the console to discover servers that amounce their presence. Inventory Discovery Export MIB V Advanced Files Clear Al Filers Interview Interview Interview Data	
Addit Logs Jobs Discovery Server hitilated Discovery Inventory Warranty Reports MIB Configure the console to discover servers that announce their presence. Import Oscover Delete Eport X-Ananced Fiters Clear Al Fiters Exercise Tag IP Address Data	
Configure the console to discover servers that announce their presence.	
Import Descover Delete Export T Advanced Filters Clear All Filters Service Tag Has Credentials IP Address Status	
Y Advanced Filters Clear All Filters Service Tag Has Credentals P Address Status	
Service Tag Has Oredentials IP Address Status	
SERVICE TAG HAS CREDENTIALS IP ADDRESS ANNOUNCED TIME DISCOVERY STATT TIME STATUS	
Yes Unavailable Oradentials Added	
Yes Unavailable Credentials Added Credentials Added Oct 3000 1241-48 PM	
v Constad By:	
em(s) found, 0 item(s) selected. Displaying items 1 - 2.	

Figure 10 Credentials of servers are available in OME

8. Once the servers notify OME of their presence, the announced time information is updated. If the approval process is set to Automatic, a job is initiated to discover all those servers that have initiated contact with OME within 10 minutes of the first signal.

Configuration A data configuration Home Devices Configuration A data configuration Multicipii Devices Monitor Addit Logs Jobs Benice Test Centification Configuration Environment Service Talo Has Celebertalias Pation Environment Environment Vest Configurationment Vest Configurationment Ve	B 0	🔒 admin	0	4									
🕈 Home 🔳 Devices	🛠 Configuration 🗸 🛛 🚩 A	lerts 🧹 🖙 Monitor	 Application Settings - 										
Monitor													
Audit Logs Jobs	Discovery Server Initiat	ted Discovery Inv	entory Warranty Reports MIB										
Configure the console to r	discover servers that announc	e their presence.											
Import Discover													
✓ ▼ Advanced Filters Clear	r All Filters												
Service Tag				IP Address			us						
			All	-		All							•
SERVICE TAG	HAS CREDENTIALS	IP ADDRESS	ANNOUNCED TIME	DISCOVERY START TIME	STATUS		-	-					
	Yes		Oct 12, 2020 8:33:22 PM		Ready For Discovery	^							
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	onfigure the console to discover servers that announce their propert Discover Delete Depart Padonced Filters Clear All Filters Advanced Filters Clear All Filters Advanced Filters Clear All Filters Ves Ves Ves Ves Ves Ves Ves Ves Ves Ve					•	Port Numbe 443 Created On	HT:	PM				

Figure 11 List of servers that have initiated contact with OME

9. The status changes to Job Submitted for Discovery after automatic discovery job starts.

OpenManage Ente							Q 🖸	0 10	0 🖻	🔒 admin	0	
🕈 Home 🛛 🔳 Devices	🛠 Configuration 🗸 🛛 🚩 A	ilerts 🗸 🖂 Monitor 🗸	Application Settings -									
Monitor												
Audit Logs Jobs	Discovery Server Initia	ted Discovery Inventory	Warranty Reports MIB									
Configure the console to	discover servers that annound	e their presence.										
Import Discover												
Advanced Filters Clea	r All Filters											
Service Tag			redentials	IP Address								
		All		•		All						•
SERVICE TAG	HAS CREDENTIALS	IP ADDRESS	ANNOUNCED TIME	DISCOVERY START TIME	STATUS							
	Yes		Oct 12, 2020 8:33:22 PM	Oct 12, 2020 10:30:01 PM	Job Submitted For Discovery	Status All						
	Yes		Oct 12, 2020 10:06:18 PM	Oct 12, 2020 10:30:01 PM	Job Submitted For Discovery							
Configure the console to discover servers that amounce their presence. Import Discover Provents that amounce their presence. Paddress Paddress Paddress Paddress Paddress Paddress Status N Status N Status N Status N Status N Status Stat												
Configure the console to discover servers that announce the import Decover Celete Export T Advanced Fitters Clear All Filters Service Tag HAS CREDENTIALS I Yes Yes C						0	Oct 12, 2020 10:06	18 PM				

Figure 12 Discovery of servers is initiated

10. The Discovery-Approval policy can be configured from the Console Preferences page.

Application Settings

Network Users Console Preferences Security Alerts Incoming Alerts Warrantic > Report Settings > Device Health >	Warranty				
> Device He> Discovery	ealth Setting	covery			
• A	utomatic	ery Approval Policy			
	-	nation			

Figure 13 Configure the Discovery-Approval policy

11. Once discovered, the servers automatically appear on the OME All-Devices page and can be managed like any other server.

me ■Devices ● Configuration ↓ ► Ale STEM GROUPS ■ & All Devices ▶ ○ & Higherise Systems ▶ ○ & Mighter Systems	~	itor > Applica	ces									
Image: Construction Image: Const												
 > ○ ▲ HCI Appliances > ○ ▲ Hypervisor Systems > ○ ▲ Modular Systems 	:	Group associated t	o all devices.									
O A Hypervisor Systems O Modular Systems												
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		3 Devices	3 Normal		Ale			Discover Run Inver				
		\smile						Global Ex				
O 🛔 Network Devices												
🕨 🖬 Servers						More Actions 👻						
▶ ○ ≜ Storage Devices		> Y Advanced Filt										
STOM GROUPS	+~		+ NAME	IP ADDRESS	SERVICE TAG	MODEL	TYPE CHASSIS NAMI					
O 🛔 Static Groups						PowerEdge C6420 PowerEdge MX740c	Compute			11120 ⁻⁰	h	
C 🛔 Query Groups			· Contage			PowerEdge M640 (V			- 4 C	Designer ton	é	
								Device T Compute				
								Service				
									ige C6420			
								Online: Offline				
		4										

Figure 14 Servers that signaled OME and got discovered are displayed on the All Devices page

1.4 Security with Server-Initiated Discovery

When a server initiates contact with OME to announce its presence, OME ensures that it is a valid Dell server by checking the factory identity certificate. The iDRAC provides the SSL certificate also when initiating contact

with OME. As an added security measure, when the server is discovered, the thumbprint of the SSL certificate is also verified with that provided by iDRAC.

1.5 Troubleshooting Server-Initiated Discovery

Issues	Troubleshooting steps
The status of the servers does not change to Announced or Discovered.	Check DNS configuration. Also check if the domain name on servers matches that of OME. If both the above match, check if the announcement came in to OME via the application.log.
Servers stay "Announced" and do not get discovered.	Verify if the credentials have been uploaded on the Server-Initiated Discovery page. Try uploading a new CSV file with the credentials.

A.1 Related resources

OpenManage Enterprise Version 3.4 and OpenManage Enterprise - Modular Edition Version 1.20.00 RESTful API Guide