This Dell technical white paper provides the required information about Dell client devices (OptiPlex, Precision, Latitude, and Venue 11 Pro) support in OpenManage Essentials.
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Contents

Executive Summary ..................................................................................................... 5
Introduction .............................................................................................................. 5
Scope ...................................................................................................................... 5
Assumption ............................................................................................................... 5
What is supported? ..................................................................................................... 5
Dell Command | Monitor .............................................................................................. 6
Prerequisites ............................................................................................................. 6
Discovery and Inventory ............................................................................................... 7
Inventoried Information with Dell Command | Monitor (SNMP/WMI) and Without Dell Command | Monitor .................................................................................................................. 10
Hardware Logs ......................................................................................................... 11
Warranty Information ................................................................................................ 13
Warranty Report ....................................................................................................... 13
Internal Health Alerts ............................................................................................... 15
SNMP Traps ............................................................................................................. 16
Command line - Remote Tasks ..................................................................................... 18
Running Command-Line Tasks and Configuring Custom Scripts ............................................... 18
Recommendations .................................................................................................... 22
Known Behaviors in OpenManage Essentials ..................................................................... 22
Troubleshooting tips .................................................................................................. 22
Not Able to Discover Client Device ............................................................................... 23
Hardware Logs for the Client Device Do Not Display .......................................................... 24
Learn More ............................................................................................................. 26
Conclusion .............................................................................................................. 26

Tables

Table 1. Feature comparison with/without Command | Monitor ........................................... 7
Table 2. Discovery and Inventory tables available for Dell Client devices .................................... 11

Figures

Figure 1. Specifying IP address, host name, and subnet mask .................................................. 8
Figure 2. Discovery Range Configuration - For SNMP discovery ............................................... 9
Figure 3. Discovery Range Configuration - Disable SNMP discovery ......................................... 9
    Discovery Configuration - Enable WMI discovery ......................................................... 10
<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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<td>18</td>
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Executive Summary

Dell OpenManage Essentials (OME) is a lightweight, Web-based, one-to-many systems management solution that provides a comprehensive view of Dell systems, devices, and components in an enterprise network. OME lets you discover Dell business client devices (Dell OptiPlex, Dell Precision, and Dell Latitude), and perform some management operations on these devices. OME retrieves client device hardware information using the WMI and SNMP protocols and can do so with or without Dell Command | Monitor), previously known as OpenManage Client Instrumentation (OMCI), being present on the remote device using WMI protocol. OME requires Command | Monitor to show the device health, hardware logs, and to perform specific operations on multiple devices using the generic command line task framework. Discovery and device classification using WMI protocol works without Command | Monitor installed on the remote device.

Introduction

This document helps you understand the Dell client devices support with Dell OpenManage Essentials. To learn more, go to: www.delltechcenter.com/ome

Scope

The scope of this document is to discover/inventory Dell business client devices and explore various OME features for client devices. The following devices fall under the Business client category:

- OptiPlex
- Precision
- Latitude
- Venue 11 Pro

Note: OME may support Dell Vostro, Dell XPS, and Dell Venue 8 business client devices as well, but with very limited functionality. Also, Dell Command | Monitor does not support these models.

Assumption

This document is specific to client devices supported by OME. It is assumed that you are already aware of OME, its installation and how to discover devices features. To learn more about OME and its features, go to www.delltechcenter.com/ome

What is supported?

Dell client device support was introduced in OpenManage Essentials v1.1 providing the following support to Dell client devices:

- Discovery and inventory
- Hardware logs
- Warranty
- Health monitoring alerts
Dell Command | Monitor

Dell Command | Monitor, previously known as Dell Client Instrumentation (OMCI), is available on Dell OptiPlex, Dell Precision Workstation, and Dell Latitude client systems. Using Command | Monitor, system administrators can remotely manage assets, monitor system health, and inventory deployed systems in the enterprise. To learn more and to download Command | Monitor, visit:


The default Command | Monitor install exposes hardware information with the help of the \root\dcim\sysman WMI namespace. Remotely, OME retrieves client device health and hardware logs from this namespace.

The SNMP feature has to be enabled in Command | Monitor custom install for OME to discover and inventory the client using SNMP protocol. The 10909 MIB identifies the client system exposes hardware information.

Prerequisites

The following are the requirements for discovery and classification of the client devices in OME:

- Supports only Dell client devices.
- Using SNMP protocol
  - SNMP service should be running on client
  - Dell Command | Monitor 9.x installed with SNMP feature enabled*
- Using WMI protocol
  - The device should respond to WMI queries. WMI-specific settings are enabled on the remote device.
  - Dell Command | Monitor 9.x (optional - Helps you retrieve more information. See to Table 1.)
- Client device should have the following supported operating systems installed:
  - Microsoft Windows 8.1
  - Microsoft Windows 8
  - Microsoft Windows 7
  - Microsoft Windows Vista

Note: Dell Clients with Linux kernels/Operating systems are not supported by OpenManage Essentials.

- The SNMP feature can be enabled in Custom setup type while installing Dell Command | Monitor 9.x
OpenManage Essentials can discover clients using WMI protocol with or without having Command | Monitor installed. When Command | Monitor is absent, OME fetches the information from client’s operating system. It consumes data from `\root\cimv2` WMI namespace. However, installing Command | Monitor is recommended and the differences are included in the table below.

### Table 1. Feature comparison with/without Command | Monitor

<table>
<thead>
<tr>
<th>Feature</th>
<th>With Command</th>
<th>Monitor</th>
<th>Without Command</th>
<th>Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery - Basic Information</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Inventory - Basic Information</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Inventory - Additional Information*</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Device Health &amp; Status Available</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Device’s Hardware Logs Available</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Devices Alerts</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

* To learn more about the “Inventory - Additional Information,” see Table 2.

### Discovery and Inventory

Use the following steps for the discovery of client devices using OME:

1. Launch OpenManage Essentials.
2. Navigate to **Manage → Discovery and Inventory**.
3. In the left panel, click **Add Discovery Range**.
4. Enter the IP address of the specific client device or the IP range having all the client devices with the subnet mask details.
5. Click **Next**.

6. In the **ICMP Configuration** page, click **Next**.

7. **Protocol Selection**

   From Dell Command | Monitor 9.0 onwards, both SNMP and WMI protocols are supported for discovery and inventory. Select the required protocols (only SNMP or only WMI or both SNMP and WMI) and enter the required information.

   It is recommended to use WMI protocol for discovery and inventory. The difference of inventory information fetched using WMI versus SNMP protocol is specified Table 2. And fetching of hardware logs is possible only using WMI protocol.

   a. For discovery and inventory through SNMP protocol, set the community strings in SNMP Configuration page as shown in Figure 2.

   b. To disable SNMP discovery uncheck the **Enable SNMP discovery** as in Figure 3.

   c. For discovery and inventory through WMI protocol, click **Next**, otherwise click **Finish**.

---

**Figure 1. Specifying IP address, host name, and subnet mask.**
d. In the WMI configuration page, select Enable WMI discovery. Provide the WMI credentials of remote device as shown in Figure 4.

e. Click Finish.
Discovery Configuration – Enable WMI discovery

Once the discovery task finishes, OpenManage Essentials classifies the client devices under the Clients device group.

Inventoried Information with Dell Command | Monitor (SNMP/WMI) and Without Dell Command | Monitor

Table 2 shows information about discovery and inventory with and without DCM.
Table 2. Discovery and Inventory tables available for Dell Client devices

<table>
<thead>
<tr>
<th>Category</th>
<th>With Command</th>
<th>Monitor (WMI)</th>
<th>Without Command</th>
<th>Monitor</th>
<th>With Command</th>
<th>Monitor (SNMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Summary *</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>OS Information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Data Sources *</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NIC Information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Processor Information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Memory Device Information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Firmware Information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Controller Information</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Physical Disk Information</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume Information</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Information</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRU Information</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device Card Information</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embedded Device Information</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* If Command | Monitor is not installed on a Dell Client device, then the “Data Sources” table will show only one entry for the WMI agent and health will be displayed as Unknown.

Hardware Logs

OME helps you see the hardware logs of a remote client device on which Dell Command | Monitor is installed and discovered using WMI protocol.

These logs are not stored in the OME database. The latest logs are fetched from the device when you request them by clicking on the Retrieve button. Connection to the device is made with discovery credentials. Make sure OME has connectivity to the device to fetch the logs.
Figure 6. Hardware logs (Initial)

Figure 7. Hardware Logs - Loaded
**Note:** To fetch the hardware logs from client device, the device has to be discovered using WMI protocol. Discovering client device using SNMP protocol does not fetch the hardware logs.

**Warranty Information**

OpenManage Essentials has a built-in warranty report that shows warranty information for discovered client devices. Warranty information for the client devices is available as part of this report. OME retrieves this information from the Dell Web site for the given device Service Tags.

Because this is live data, OpenManage Essentials expects connectivity to the Dell Web site when you run the report. If OpenManage Essentials is installed behind the proxy server, then provide the proxy server details in the **Preferences** → **Console settings** page.

**Figure 8.** Configuration proxy server.

**Warranty Report**

The Warranty report shows all the warranty information related to the service tag of the client hardware. To view the warranty report, navigate to **Reports** → **Warranty Information**.
### Figure 9. Warranty Information

<table>
<thead>
<tr>
<th>Service Provider</th>
<th>Start Date</th>
<th>End Date</th>
<th>Days Remaining</th>
<th>Warranty Description</th>
<th>Warranty Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/27/2014 6:39:58 PM</td>
<td>0</td>
<td>30 Days (60 days)</td>
<td>INITIAL</td>
</tr>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/26/2017 6:39:58 PM</td>
<td>90</td>
<td>Next Business Day response</td>
<td>EXTENDED</td>
</tr>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/26/2016 6:39:58 PM</td>
<td>990</td>
<td>Limited Telephone Technical Phone Support</td>
<td>INITIAL</td>
</tr>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/26/2017 6:39:58 PM</td>
<td>990</td>
<td>Parts Only Warranty</td>
<td>EXTENDED</td>
</tr>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/28/2023 6:39:58 PM</td>
<td>129</td>
<td>Parts Only Warranty</td>
<td>INITIAL</td>
</tr>
<tr>
<td>Dell</td>
<td>2/25/2014 6:30:00 PM</td>
<td>2/28/2015 6:39:58 PM</td>
<td>990</td>
<td>Extended Battery Service (1x in new battery for year 2 &amp; 3 only)</td>
<td>INITIAL</td>
</tr>
</tbody>
</table>
Internal Health Alerts

Currently, OpenManage Essentials does not have the WMI events listening functionality. Alerts generated by Client devices are not shown in OME. OME generates internal health alerts whenever it detects a change in the health state of the device. Check **Enable Internal Health Alerts** on the **Preferences** → **Alert Settings** page.

Figure 10. Internal health alert preferences.

If this feature is enabled, OME monitors the health status. The health depends upon the schedule status task. Change in the client device status generates internal traps, which you can view in the Event console and then you can configure the required alert actions for these traps. **Note:** As this feature is related to client health status, it requires that *Dell Command | Monitor* be installed on the remote device.
SNMP Traps

OpenManage Essentials supports SNMP traps for all supported client alerts. This requires Dell Command \| Monitor 9.0 to be installed on managed devices with SNMP feature enabled. More information on supported traps can be found in the Dell Command \| Monitor Version 9.0 SNMP Reference Guide at

Dell OpenManage Essentials v2.0 – Supporting Dell Client Devices
Command line - Remote Tasks

OME supports execution of generic command-line tasks on remote computers. This feature lets you run/schedule a task against a selected set of discovered devices. You can run any custom script against the client devices and perform operations on them.

To create remote command-line task navigate to Manage → Remote Tasks → Create Command Line Task.

The benefits of using remote command-line tasks against your environment include:

- Leverages the scripting capabilities within the product.
- Targets one-to-many configurations.
- Targets only specific hosts or devices groups.
- Windows power shell commands/scripts
- Command | Monitor scripts to get/set values (PowerShell/VB Script).

Running Command-Line Tasks and Configuring Custom Scripts

OME makes use of Windows power shell scripts for a variety of purposes including, but not limited to, software deployment and power cycling the device. For detailed information on how to make use of windows power shell against OME, refer to:
http://en.community.dell.com/techcenter/extras/m/white_papers/20024495.aspx

Command | Monitor supports VBScript and PowerShell based scripting. Use these scripts for:

- Remote BIOS update
- Remote system shutdown/restart
- Retrieve/set BIOS password
- Enabling/Disabling PXE boot on next reboot
To see sample Command | Monitor scripts, visit http://en.community.dell.com/techcenter/enterprise-client/w/wiki/7531.dell-command-monitor#scripts

The section below is a step-by-step creation of generic command-line task to run one Command | Monitor script to fetch the Service Tag for many client devices in a single report file.

statements

Option Explicit

```vbs
'*** Declare variables
Dim strNameSpace
Dim strComputerName
Dim strClassName
Dim strClassNameBIOS
Dim strKeyValueChassis
Dim objInstance
Dim ColSystem
Dim objWMIService
Dim strMessage

'*** Check that the right executable was used to run the script
'*** and that all parameters were passed
If (LCase(Right(WScript.FullName, 11)) = "wscript.exe") Or _
   (Wscript.Arguments.Count < 1) Then
   Call Usage()
   WScript.Quit
End If

'*** Initialize variables
strNameSpace = "root/dcim/sysman"
strComputerName = WScript.Arguments(0)
strClassName = "DCIM_Chassis"
strClassNameBIOS = "DCIM_BIOSElement"
strKeyValueChassis = "DCIM_Chassis"

'*** Retrieve the instance of DCIM_Chassis class (there should
'*** only be 1 instance).
'*** Establish a connection to the dcim\sysman namespace
Set objWMIService = GetObject("winmgmts:\{impersonationLevel=impersonate," &_
   "AuthenticationLevel=pktprivacy}" & strComputerName & "\" &_
   strNameSpace)  
Set ColSystem = objWMIService.ExecQuery("Select * from " & strClassName)
For each objInstance in ColSystem
```
if (objInstance.CreationClassName = strKeyValueChassis) Then
    strMessage = "Asset Tag: "
    strMessage = strMessage & objInstance.Properties_.Item("ElementName").Value
    strMessage = strMessage & vbCRLF & "Service Tag: "
    strMessage = strMessage & objInstance.Properties_.Item("Tag").Value
End if
Next

'*** Retrieve all instances of DCIM_BIOSElement (there should '*** only be 1 instance).
Set ColSystem = objWMServices.execquery ("Select * from " & strClassNameBIOS)
For each objInstance in ColSystem
    strMessage = strMessage & vbCRLF & "BIOS Version: "
    strMessage = strMessage & objInstance.Properties_.Item("Version").Value
Next

'*** Display the results
WScript.Echo strMessage

'*** Sub used to display the correct usage of the script
Sub Usage()
    Dim strMessage
    strMessage = "incorrect syntax. You should run: " & vbCRLF & _
    "cscript.exe //nologo serviceTag.vbs <systemname>"
    WScript.Echo strMessage
End Sub

----------------------------------- Script Ends --------------------------------------------------

Note: If you copy the above contents into the script, run it first before configuring with OME. This makes sure that any doc/pdf characters are not breaking the script.

Steps:
1. Copy the contents (between “Script Begins” and “Script Ends”) and save the file as serviceTag.vbs to the C: \ temp directory.
2. Launch the OME console and navigate to Manage \ Remote Tasks.
5. Name the task, for example: Client Service Tag.
6. In Command, type: cscript.exe
7. In Arguments, provide: //nologo c:\temp\serviceTag.vbs $IP
   Note: $IP is used to select a Task Target.
8. Select Output to file. Name the file: C:\temp\client-service-tag.txt and select the Append and Include errors check boxes.
9. Click Next.

10. Select the client devices for which you want to run this task.

11. Click Next.

12. Select Run Now or schedule the task as per your requirement.

13. Provide the OME Administrator credentials, which are applicable to this OME system (as this script runs on the OME system).

14. Finish the task.

15. Verify that the task completed successfully by right-clicking the task under Task Execution History and selecting Details.

A successful result is included below. You can see the Service Tag collected from all the devices in the C:\temp\client-service-tag.txt file.
Recommendations

The following recommendations are for performance reasons and to avoid confusion between clients and server classification.

- Use the WMI protocol for client devices.
- Enable *Internal Health Alerts* only if necessary. Some alert actions are associated with it and affect the performance of OpenManage Essentials.

Known Behaviors in OpenManage Essentials

The following information lists known behaviors in OpenManage Essentials considering support for Dell client devices:

- As of now, Command | Monitor does not support Dell XPS, Dell Vostro, and Dell Venue 8 devices. Health status for these devices is displayed as *Unknown*.

Troubleshooting tips

The Dell Troubleshooting Tool is bundled along with OpenManage Essentials and is installed with the product. Use this tool to root-cause if client devices are not getting discovered, or classified under the *Clients* device group, or if warranty reports are not showing information for these devices.
**Not Able to Discover Client Device**

Make sure that the client device is reachable from the OME system and that the credentials are proper for a successful discovery. You can run the WMI protocol test using the troubleshooting tool to verify this. An error message like “Failed to connect to windows name space” means that OME could not connect to the client device.

![Troubleshooting tool - failure.](image)

If Ping works and WMI the connection fails for the administrator credentials, then perform the following steps on the remote (client) device:

1. Run secpol.msc.
3. Right click and select Properties → Change → Local Security Settings to Classic: local users authenticate as themselves.
4. Restart the WMI service.

Now rerun the Dell Troubleshooting Tool against the same client device. The Dell Troubleshooting Tool should connect to the device, and show the available namespaces found on the remote device.

**Note:**
- The Dell Command | Monitoragent Namespace presence depends on whether the Command | Monitor is installed on the client device or not.
- Absence of Command | Monitor does not impact the discovery of the client device.

**Hardware Logs for the Client Device Do Not Display**

The hardware logs for a device are not cached or stored in the database. To show these logs, OME connects to the device when you click on the refresh/retrieve icon under **Hardware Logs** tab for the given device.

Make sure that the client is discovered using WMI protocol and OME can connect to the specific remote client device and that the supported Dell Command | Monitor (9.0 or higher) is installed on that device. Use the Dell Troubleshooting Tool to verify the Command | Monitor presence on the remote device.
Figure 17. Troubleshooting Tool - success with Command | Monitor using WMI
Learn More

To learn more, visit: [www.delltechcenter.com/ome](http://www.delltechcenter.com/ome)

Conclusion

Dell OpenManage Essentials provides Dell business client support using the WMI protocol. Use OME to discover and properly classify business client devices. In addition, you can view a client device's health status and hardware logs if Dell Command | Monitor 9.x is installed on the remote device. Making use of the task framework from OME enables you to simplify remote system management of Dell business client devices.