



# IOA VLAN Configuration with OpenManage Essentials

A how to and best practices guide for using Dell OpenManage Essentials to configure VLANs on IOA devices.

Dell Engineering  
July 2016

## Revisions

Date	Description
July 2016	Initial release

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## Executive Summary

Configuring VLANs on one or more I/O aggregators (IOA) present on the chassis to match precise standards can be an arduous task. OpenManage Essentials version 2.2 introduces new features to easily view and modify the VLAN configurations on IOA devices. This white paper covers using the new features that enable you to view and modify the VLAN configurations on IOA devices.

This white paper describes the steps to view and modify the VLAN configurations on IOA devices by using the IOA VLAN configuration feature available in OpenManage Essentials. It also includes the best practices and troubleshooting information for the IOA VLAN configuration feature.

# 1 Covered features

This white paper covers the following topics related to the IOA VLAN configuration feature available in OpenManage Essentials:

- Complete use case examples for using the IOA VLAN configuration feature
- Requirements and setup for using the IOA VLAN configuration feature
- View the existing IOA VLAN configuration
- Modify the existing IOA VLAN configuration



## 2 Preparing OpenManage Essentials for VLAN configuration on IOA devices

To view and modify the IOA VLAN configuration by using OpenManage Essentials:

- The CMC has to be discovered by using the **Chassis (CMC) Discovery - All Components** option in the discovery wizard. When a CMC is discovered by using the **Chassis (CMC) Discovery - All Components** option in the discovery wizard, all the servers and IOAs of the chassis are also discovered automatically in OpenManage Essentials.
- If the CMC is not discovered using **Chassis (CMC) Discovery - All Components** option in the discovery wizard, you must discover the CMC via WS-Man protocol and all the IOA devices and servers (present on the chassis) via the recommended protocols.

### 2.1 Target device requirements

The following table provides the supported CMC firmware and the IOA models for VLAN configuration:

Chassis (CMC) type	Supported CMC Firmware	Supported IOA Model
Dell PowerEdge M1000E	CMC firmware version 5.1 or later	PowerEdge M I/O Aggregator
Dell PowerEdge FX2/FX2s	CMC firmware version 1.3 or later	PowerEdge FN410S PowerEdge FN410T PowerEdge FN2210S

Target IOA requirements:

- The minimum supported version of Dell Networking OS firmware is 9.10.
- Supported modes:
  - Standalone
  - Virtual Link Trunk (VLT)

To verify whether your device meets requirements, see the Troubleshooting section.



### 3 How to view the VLAN configuration of an IOA device

**Example use case** – You have a new blade chassis (with IOAs) or an existing blade chassis (with IOAs) for which you want to view VLAN configurations.

To accomplish this use case you must perform the following steps.

1. Click **Manage** → **Devices**.
2. Select a CMC device. The CMC device details are displayed.

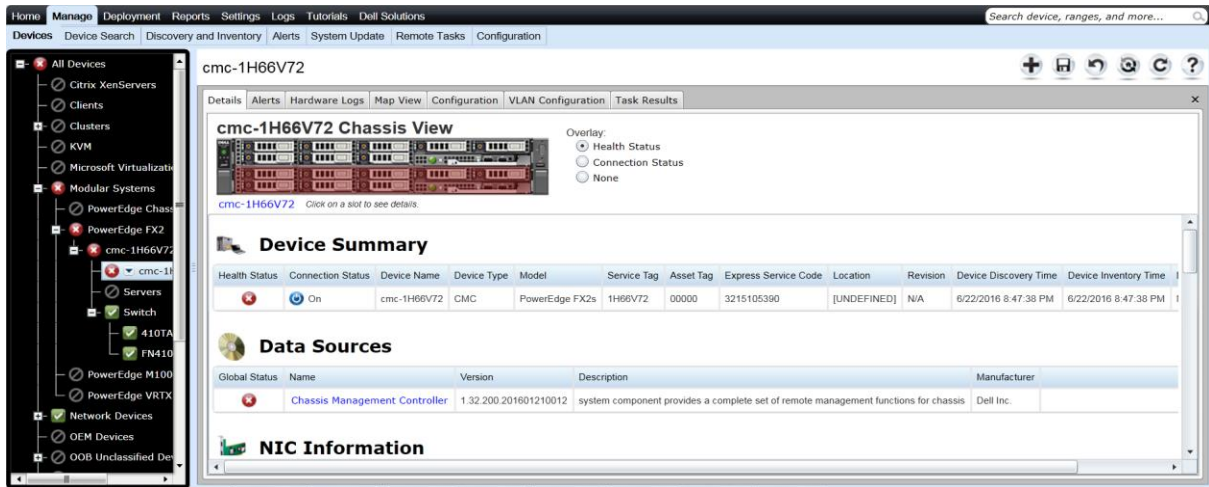


Figure 1 CMC inventory

3. Click the VLAN Configuration tab

**Note:** If you are accessing the **VLAN Configuration** tab for the first time, a *Load* button will be displayed. If the VLAN inventory is available in OpenManage Essentials database then, OpenManage Essentials shows the last inventoried VLAN configuration for all the IOA devices on the chassis.

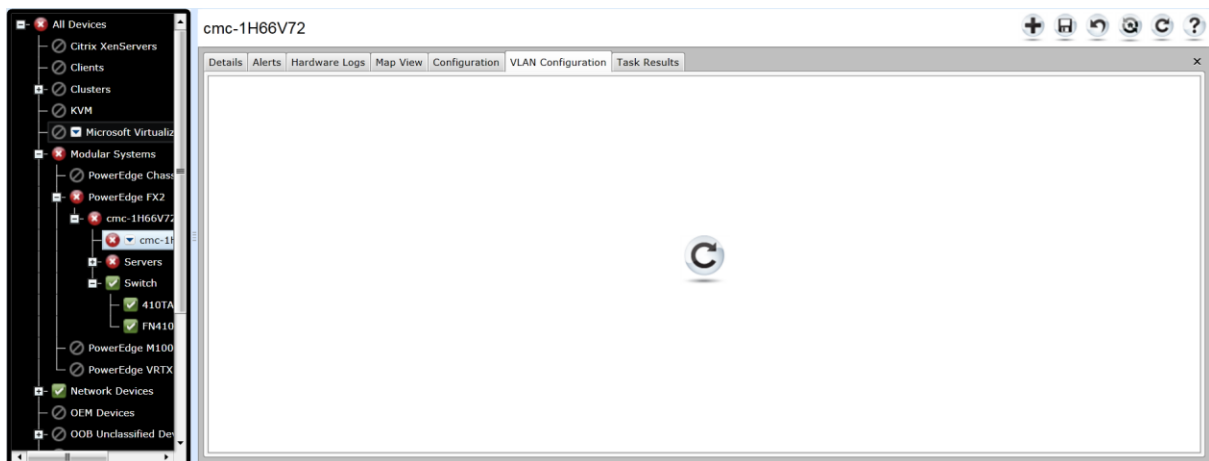


Figure 2 VLAN Configuration tab with the *Load* button

4. Click the *Load* button.

In the background OpenManage Essentials creates a VLAN Inventory task to retrieve the VLAN configuration of all the IOAs of the chassis. The progress of retrieval of the IOA VLAN information is shown in Figure 3.

**Note:** The VLAN configuration will be displayed only for the IOAs that are discovered in OpenManage Essentials.

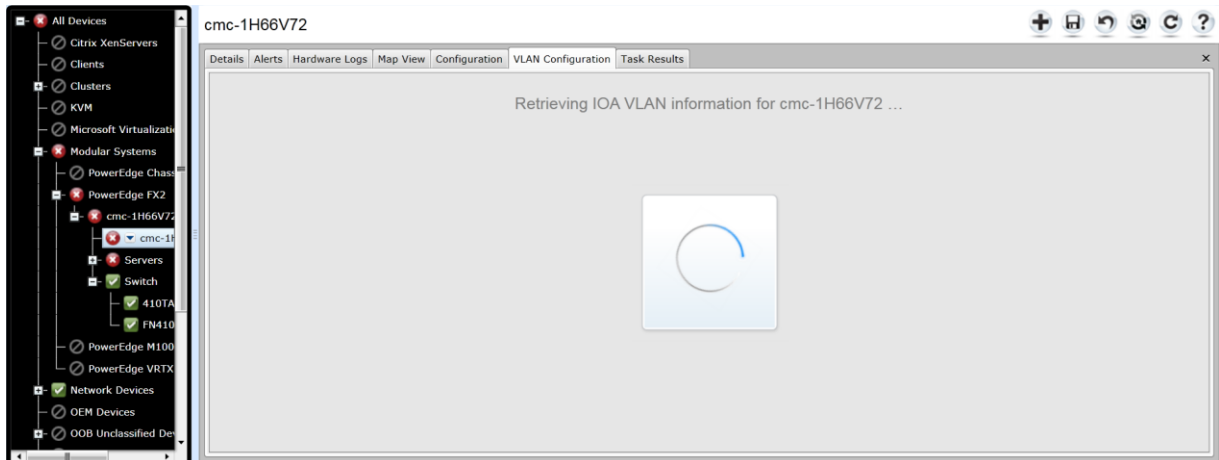


Figure 3 Retrieval of IOA VLAN information

The IOA VLAN Configuration retrieval task details will be shown in **Task Results** tab.

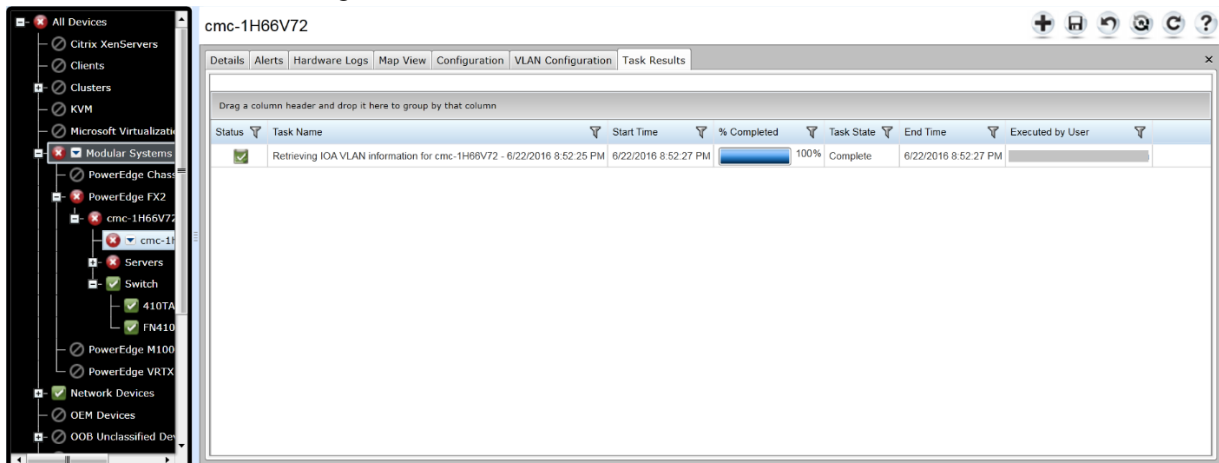


Figure 4 IOA VLAN configuration task status



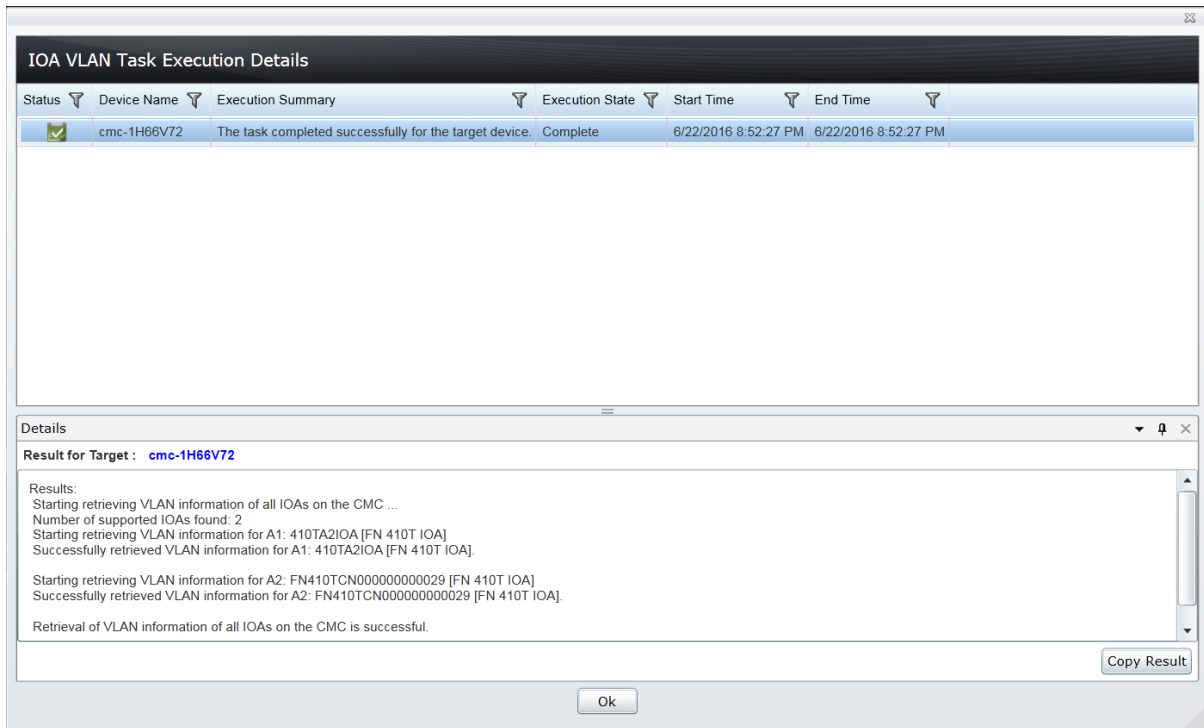


Figure 5 IOA VLAN configuration task execution details

The VLAN configuration of the IOAs will be displayed.

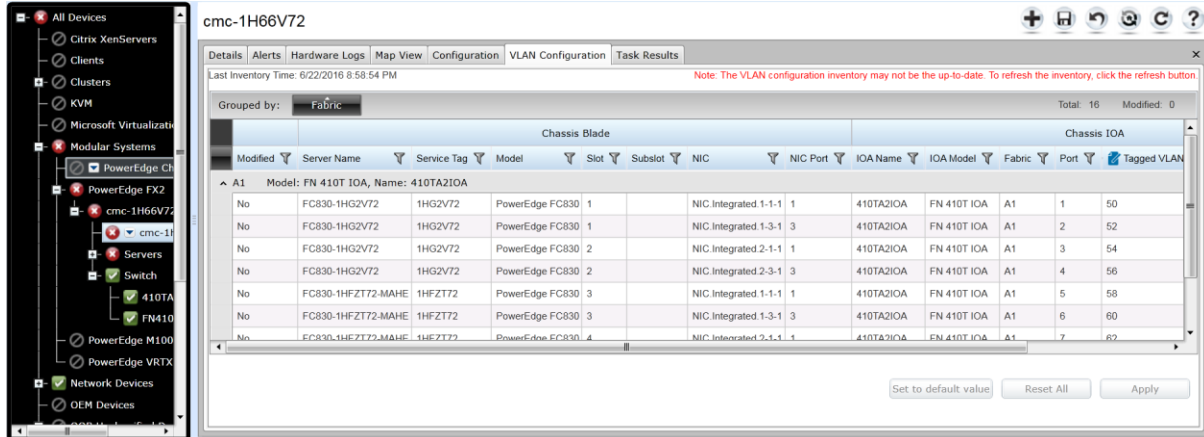


Figure 6 IOA VLAN configuration inventory

The **Last Inventory Time** indicates the time when the latest VLAN Configuration Inventory was retrieved. VLAN inventory is displayed in a grid and data is grouped by fabric name. The following fabric details are displayed in the group header:

- Fabric Name
- Fabric Model Name
- Status (if there is an issue retrieving VLANs of the IOA)

IOA information will not be available in following scenarios:

- The slot is empty.
- Firmware or mode is not supported
- The device is not discovered
- OpenManage Essentials is unable to retrieve data. For more details, to the **Task Results** tab.
- The model not supported

For more details on troubleshooting the prior mentioned scenarios, see the [Troubleshooting](#) section.

The VLAN Configuration table or grid will have extra information related to the blade server attached to IOA. All the blade server related columns will be grouped in **Chassis Blade** column group. The server information will be available only when a server is installed in the slot.

- Server Name: The name of server.
- Service Tag: Service Tag of the server.
- Model: The Model of the server.
- Slot: Slot in which the server is installed.
- Sub Slot: The sub slot in which the blade server is installed.
- NIC Port: The NIC port of the NIC on the blade server to which the IOA is connected.

**Note:** VLAN configuration management is not supported for the Dell PowerEdge FM120x4 sleds. Only the server-chassis slot mapping is displayed in the **VLAN Configuration** tab for the PowerEdge FM120x4 sleds. The server name and NIC port details are not displayed in the **VLAN Configuration** tab for the PowerEdge FM120x4 sleds.

It is recommended to refresh (using the *Refresh* button at the top-right of the OpenManage Essentials console) the VLAN Configuration Inventory before changing any VLANs on the IOAs.



## 4 How to modify VLAN configuration(s) of one or more IOA devices

**Example use case** - You have a new blade chassis (with IOAs) or an existing blade chassis (with IOAs) for which you want to change VLAN configurations.

To accomplish this use case you must perform the following steps.

5. Click **Manage** → **Devices**.
6. For the steps to view the VLAN configurations of all the IOAs of a chassis, see [How to view the VLAN configuration of an IOA device](#).

Service Tag	Model	Slot	Subslot	NIC	NIC Port	IOA Name	IOA Model	Fabric	Port	Tagged VLAN(s)	Untagged VLAN
1HG2V72	PowerEdge FC830	1		NIC Integrated 1-1-1	1	410TA2IOA	FN 410T IOA	A1	1	50	51
1HG2V72	PowerEdge FC830	1		NIC Integrated 1-3-1	3	410TA2IOA	FN 410T IOA	A1	2	52	53
1HG2V72	PowerEdge FC830	2		NIC Integrated 2-1-1	1	410TA2IOA	FN 410T IOA	A1	3	54	55
1HG2V72	PowerEdge FC830	2		NIC Integrated 2-3-1	3	410TA2IOA	FN 410T IOA	A1	4	56	57
1HFZT72	PowerEdge FC830	3		NIC Integrated 1-1-1	1	410TA2IOA	FN 410T IOA	A1	5	58	59
1HFZT72	PowerEdge FC830	3		NIC Integrated 1-3-1	3	410TA2IOA	FN 410T IOA	A1	6	60	61
1HFZT72	PowerEdge FC830	4		NIC Integrated 2-1-1	1	410TA2IOA	FN 410T IOA	A1	7	62	63

Figure 7 VLAN configuration inventory

All the tagged/untagged VLANs for the all the ports of all the IOAs on the chassis are displayed. The VLAN configuration is displayed in a table format, where you can filter the data to see only the interested port(s)/IOA(s).

7. Edit the **Tagged VLAN(s)** column for a port to change the tagged VLANs for the port.
8. Edit the **Untagged VLAN** column for a port to change the Untagged VLAN for the port.

The **Set to default value** button can be used to set the Tagged/Untagged VLANs to the default value. The default value for Tagged VLAN is displayed as **All VLANs**. The default values for tagged VLANs is 2-4094 and untagged is 1.

The **Reset All** button can be used to discard any modifications done in the OpenManage Essentials user interface. The **Reset All** action will not have any effect on the IOA device until you click the **Apply** button.

If you enter invalid values in the **Tagged VLANs** and **Untagged VLAN** columns, then no further operation is possible without correcting the error.

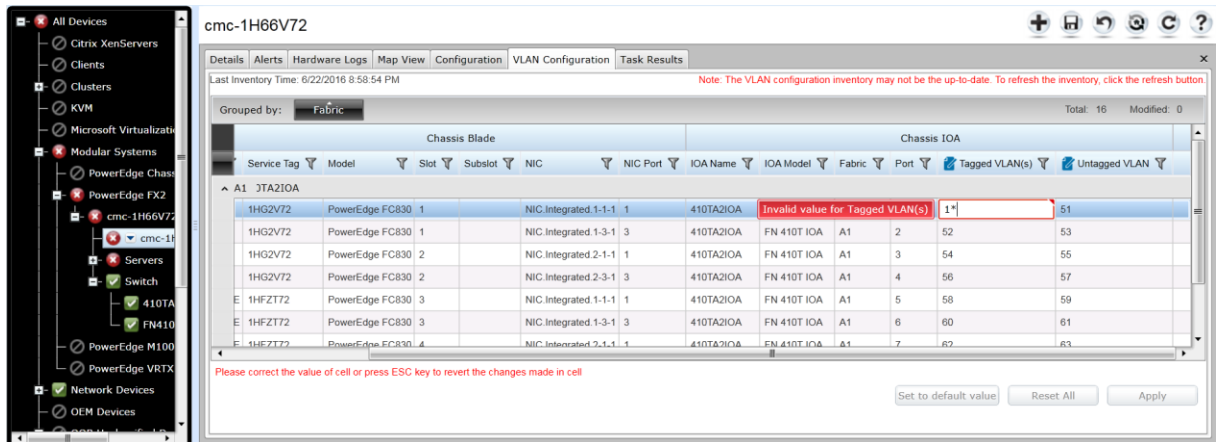


Figure 8 Invalid value error

For example, in Figure 8, till you delete the \* (asterisk) character, you will not be able to navigate to any other cell or perform any other operations.

Ensure that valid values are entered in the **Tagged VLANs** and **Untagged VLAN** columns.

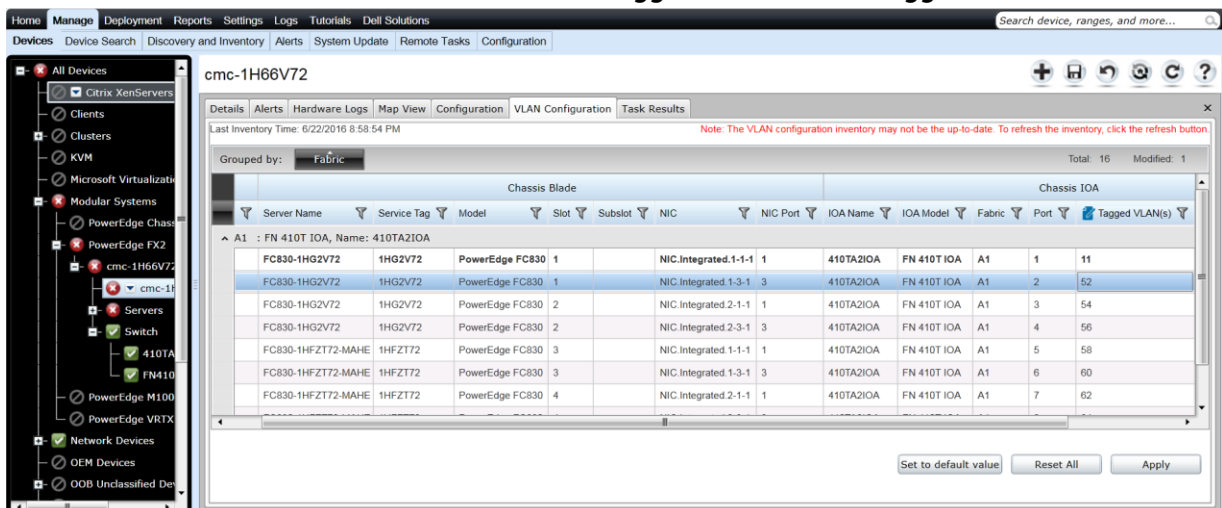


Figure 9 IOA VLAN configuration inventory

9. After all the required VLANs are modified, click the **Apply** button.

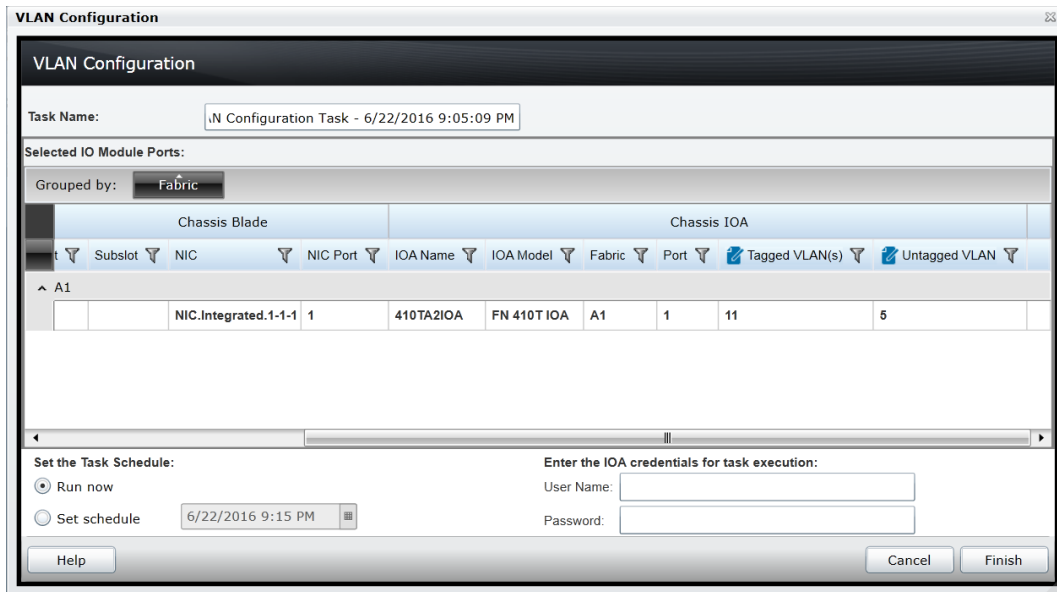


Figure 10 IOA VLAN configuration window

The *VLAN Configuration* window will be displayed where you must enter the credentials of IOA(s) and set a schedule for the VLAN configuration task.

10. Click the **Finish** button.

A VLAN Configuration task is created.

11. Click the **Task Results** tab to see the VLAN configuration task details.

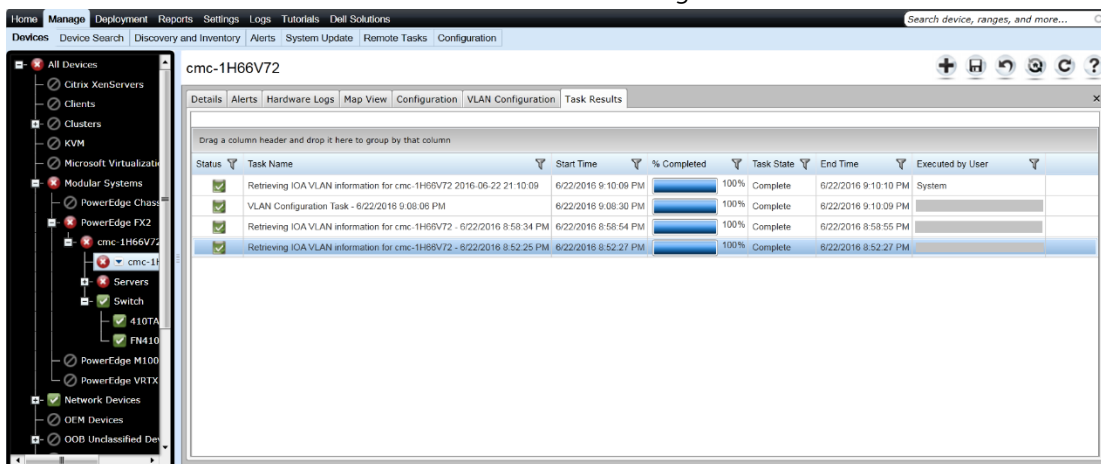


Figure 11 Task Results tab

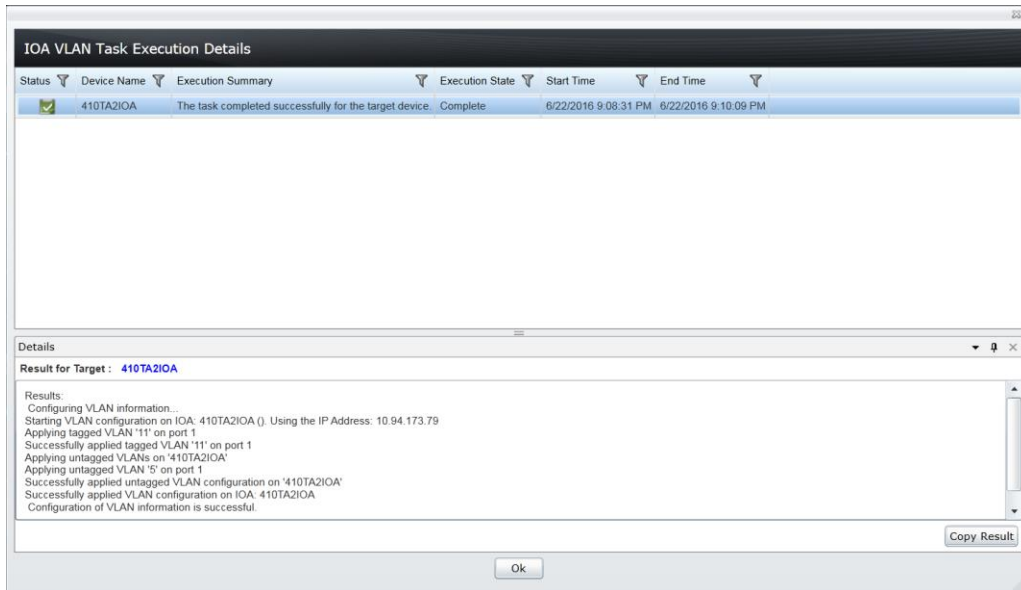


Figure 12 IOA VLAN configuration task execution details

When the VLAN configuration task is completed, a VLAN Configuration retrieval task is created and the **VLAN Configuration** tab is updated with the latest VLAN Configuration from all the IOAs.

## 5 Troubleshooting


This section provides the information required to troubleshoot problems with the IOA VLAN configuration feature.

### 5.1 Firmware or mode is not supported

OpenManage Essentials is not able to display the VLAN information for the IOA because the firmware of the IOA is not supported or the IOA is not in a mode that is supported by OpenManage Essentials.

For information on the supported firmware and IOA modes, see the [Target device requirements](#) section.

To identify the firmware version of the IOA, see the **Firmware Information** table of the **Details** tab.




Name	Version	Enclosure ID	Type
12-port GE/TE (FN)	9.10(0.0)	1	Firmware

Figure 13 Firmware Information table

If the firmware of the IOA is prior to the supported version, you must upgrade the firmware to the required version.

To identify the switch mode of the IOA, see the **Switch Device Information** table of the **Details** tab.



Index	Service Tag	Serial Number	Asset Tag	Switch Role	Switch Mode	Slot
1	N/A	CN000000000002	OMETEST000	Management Unit	standalone	A1

Figure 14 Switch Device Information table

### 5.2 CMC is not discovered via WS-Man

OpenManage Essentials is not able to display the VLAN information for the IOA(s) because the CMC was not discovered with WS-Man protocol. OpenManage Essentials needs information on which IOA belongs to which chassis. This information is available via WS-Man protocol from CMC. Therefore, it is recommended to discover CMC with the **Chassis (CMC) Discovery - All Components** option in discovery wizard.

### 5.3 Device is not discovered

OpenManage Essentials is not able to display the VLAN information for the IOA(s) because the IOA device is not discovered. This error occurs in rare cases where the IP address of the IOAs are not accessible by OpenManage Essentials during discovery. To resolve the error, ensure that the IOAs are accessible and rediscover the discovery range in which the IP addresses of the IOAs is present.

## 5.4 Model not supported

OpenManage Essentials is not able to display the VLAN information for the IOA because the IOA to which the server is connected is not a supported model of IOA. For the list of supported IOA models, see the [Target device requirements](#) section.

## 5.5 Slot is empty

OpenManage Essentials is not able to display the VLAN information for the IOA because IOA or IOM is not present in the chassis or fabric.

## 5.6 VLAN config failed for the port <PORTNUMBER> on IOA <FABRICNAME> at <IPADDRESS> after multiple retries. Check the VLAN configuration on the IOA and retry if needed.

<PORTNUMBER> may include values from 1 to 32; <FABRICNAME> may include values like "A1", "A2", "B1", "C1", and so on; <IPADDRESS> may include the IP address of the IOA.

This error message is displayed in the **VLAN Configuration Task Execution Details** window when the IOAs are loaded and OpenManage Essentials is not able to get the status of the VLANs written. In such a scenario, you can verify the VLANs configured on the IOA port(s) and retry the operation on those ports where the intended VLANs were not configured.





## A Additional resources

Dell.com/support is focused on meeting your needs with proven services and support.

DellTechCenter.com is an IT Community where you can connect with Dell Customers and Dell employees for the purpose of sharing knowledge, best practices, and information about Dell products and installations.

Referenced or recommended Dell publications:

- Dell OpenManage Essentials TechCenter page:  
<http://en.community.dell.com/techcenter/systems-management/w/wiki/1989.openmanage-essentials.aspx>
- Chassis discovery feature in OpenManage Essentials:  
[http://en.community.dell.com/techcenter/extras/m/white\\_papers/20441673](http://en.community.dell.com/techcenter/extras/m/white_papers/20441673)
- Deployment and Managing Configurations with Dell OpenManage Essentials

