

Importing Physical Groups and Device Association from a CSV file

Abstract

This whitepaper provides information about importing and creating physical groups using a CSV file.

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Revisions

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Executive summary

Use this whitepaper to import your existing device groups into OpenManage Enterprise Power Manager as physical groups to replicate the devices and their locations in your data center and, leading to an effective rack management system.

1 Requirement

Creation of physical groups hierarchies for existing devices in a data center can be a time-consuming activity and hence, Power Manager facilitates importing the devices as physical groups through a csv file. The logic of creation of physical groups is defined in the following section.

When there are device entries in the CSV file, the script performs an additional validation check to confirm that the devices are discovered in OpenManage Enterprise. Only after a successful validation, the devices are added and assigned to a rack in Power Manager. If the devices are not present in OpenManage Enterprise the devices are ignored.

Table 1 Example of csv file format (* specifies mandatory field)

Data Center	Room	Aisle	Rack*	Rack Space Capacity*	Rack Slot *	Device Identifier
DC1	Room1	Aisle1	Rack1	21	1	ServiceTag1
DC1	Room1	Aisle1	Rack1	21	3	ServiceTag5
DC1	Room1	Aisle1	Rack1	21	4	ServiceTag6
DC1	Room2	Aisle1	Rack2	48	1	ServiceTag9
DC1	Room2	Aisle1	Rack2	48	5	ServiceTag10
DC1	Room2	Aisle1	Rack2	48	4	ServiceTag14
DC1	Room2	Aisle1	Rack2	48	10	ServiceTag12

After you import the csv file, the script ensures that the validation checks mentioned below are met before running the script. If there are any errors, the operation fails with details of the error so that you can rectify and resume the upload.

Following table depicts the rules while creating a physical group hierarchy.

Table 2 Rules to create a physical group hierarchy

Physical Group	Allowable Children	Mandatory
Data Center	Room, Aisle, Rack	No
Room	Aisle, Rack	No
Aisle	Rack	No
Rack	Not applicable	Yes

Following table depicts the supported hierarchies for creation and movements of physical groups.

Table 3 Supported hierarchies for physical groups

	Data Center	Room	Aisle	Rack
--	-------------	------	-------	------

Data Center	No	No	No	No
Room	Yes	No	No	No
Aisle	Yes	Yes	No	No
Rack	Yes	Yes	Yes	No

Apart from the general considerations mentioned in Table 2 and 3, following are the CSV specific checks on validating the format of the file at the time of import:

- There is reference of only one device per row.
- Rack name, and capacity are the mandatory fields.
 - If the device exists, then the Rack Slot is also a mandatory field.
- Each physical group and their siblings in a physical group hierarchy are identified by a unique name.
 - If there are any duplicate entries the entries are ignored at the time of import.
- Only Rack Slot and Device Identifier are unique fields. You can duplicate the other fields when you are considering multiple device allocations on the same physical group hierarchy.
- Devices are identified uniquely by their Device Identifier field. The identical devices are ignored while importing, and only the unique devices are added in a rack slot.
 - This means the devices that already exist in the physical group are ignored.
- Only Administrators can import the CSV files.

Device Identifier is the Service Tag or Serial Number (in absence of a Service Tag).

1.1 Prerequisites

Following are the prerequisites for creating physical groups:

- Run the script on Python version 3.x. with the following data in physicalgroups.csv file. Add the device details incrementally. Below is a sample for your reference:

```
DC1,Room1,Aisle1,Rack1,100,42,1,GMJ3GL2
```

```
DC1,Room1,Aisle1,Rack1,100,42,3,BN1JR42
```

```
DC1,,Aisle1,Rack1,100,21,4,D4QBBS2
```

```
DC1,,,Rack1,100,21,10,6SM09X2
```

```
,Room1,Aisle1,Rack1,100,48,1,BCF5GY1
```

```
,Room1,,Rack1,100,48,5,H2CHH32
```

```
.,Aisle1,Rack1,100,48,4,DR6R7C2
```

```
.,,Rack1,100,24,4,G72SQ12
```

```
.,,Aisle4,Rack4,100,24,4,CQ2RG52
```

- Configure the console specific parameters in **configfile.properties**. Below is a sample for your reference:

```
[consoleaccessdetails]
```

```
ipaddress = 100.96.33.208
```

```
username = admin
```

```
password = linux
```

1.2 Usage

Download the following files to the local system from <https://github.com/dell/OpenManage-Enterprise/tree/master/Plugins/Power%20Manager/Import%20Physical%20Hierarchy/Python>

- createphysicalgroups.py
- physicalgroups.csv
- configfile.properties

Each file is prefilled with the input column names. Add the device details incrementally as mentioned in [Prerequisites](#) section.

Configure the console specific parameters in *configfile.properties* file.

```
[consoleaccessdetails] ipaddress = <IP address of OpenManage Enterprise console where Power Manager 1.1 is installed and enabled> username = <user name with admin role> password = <password>
```

Run the **createphysicalgroups.py** file. Run this script on Windows or Linux operating systems. The command line syntax is:

```
% python createphysicalgroups.py
```

After entering the following command, the script runs in silent mode and generates the following files:

- Physicalgroup_automation.log—this includes the script logs.
- Date-timestamp-based report file having name report_<DateTimestamp>.txt—this includes the following results:
 - List of physical groups created successfully
 - > The device to rack group association details
 - List of physical groups and device association to rack group failed

1.3 Input File Structure

Individual row of the CSV file constitutes the physical group hierarchy and the device association to a rack slot.

The individual elements in a row in the predefined order are:

<DATA-CENTER NAME>,<ROOM NAME>,<AISLE NAME>,<RACK NAME>,<RACK POWER CAPACITY>,<RACK SIZE>,<RACK SLOT NUMBER>,<DEVICE SERVICE TAG>

Below is a sample for your reference:

DC1,Room1,Aisle1,Rack1,100,42,1,GMJ3GL2

DC1,Room1,Aisle1,Rack1,100,42,3,BN1JR42

DC1,,Aisle1,Rack1,100,21,4,D4QBBS2

DC1,,,Rack1,100,21,10,6SM09X2

,Room1,Aisle1,Rack1,100,48,1,BCF5GY1

,Room1,,Rack1,100,48,5,H2CHH32

,,Aisle1,Rack1,100,48,4,DR6R7C2

,,,Rack1,100,24,4,G72SQ12

,,Aisle4,Rack4,100,24,4,CQ2RG52

The following sections provide details about these elements.

1.4 CSV Column Specification

Following are the list of columns that you can specify in the CSV file. Column names are case-insensitive. And, absence of any of these columns does not result in any error.

Table 4 DATA_CENTER

Description	Name of the Data Center to use
Value Types	String
Required	No
Constraints	Created if non-existent.

Table 5 ROOM

Description	Name of the Room
Value Types	String
Required	No
Constraints	Created if non-existent.

Table 6 AISLE

Description	Name of the Aisle
Value Types	String
Required	No
Constraints	Created if non-existent.

Table 7 RACK

Description	Name of the Rack
Value Types	String
Required	Yes
Constraints	Created if non-existent. RACK_CAPACITY and RACK_POWER must be provided for a rack entry.

Table 8 RACK_POWER

Description	Power Capacity of corresponding rack in W
Value Types	Number
Required	Yes, when device type is RACK
Constraints	Error if device type is not RACK

Table 9 RACK_CAPACITY

Description	Capacity of corresponding rack in U
Value Types	21, 24, 42 or 48
Required	Yes, when device type is RACK
Constraints	Error if device type is not RACK

Table 10 RACK_SLOT_NUMBER

Description	Specifies the rack slot number where the device will be associated
Value Types	Number
Required	Yes
Constraints	Must be unique to avoid error in device association

Table 11 DEVICE_SERVICE_TAG

Description	Service tag of the device that will be associated with rack slot
Value Types	String
Required	Yes
Constraints	Must be a valid service tag of the on-boarded devices in Open Manage Enterprise to avoid error in device association

2 Behavior

The script processes only one physical group, the defined hierarchy and device to rack group association at a time. Any grouping structure specified for the device is created only if they do not exist.

Ensure that the devices that are mentioned in the CSV file and meant for associating with the rack group in a defined slot are discovered and on-boarded in Open Manage Enterprise using the discovery task before executing the script. However, the physical groups as defined in CSV file are created irrespective of the devices being on-boarded or not. Only on-boarded devices are applicable for device association.

The order of the physical group elements mentioned in the [Input File Structure](#) section is mandatory; however, the existence of groups is not. You can skip empty group by commas, but the placeholders separated by commas are mandatory.

3 Conclusion

Using this whitepaper, create physical groups hierarchies via a CSV file by running an automated script.

4 Technical Support and Resources

- [Dell.com/support](https://www.dell.com/support) is focused on meeting customer needs with proven services and support.
- To watch quick and short videos about handling the PowerEdge server components, visit the [QRL video website](#).

4.1 Related Resources

- Knowledge Base for Dell EMC OpenManage Enterprise [HTML](#)
- Knowledge Base for Dell EMC OpenManage Enterprise Power Manager and Power Center [HTML](#)
- Dell EMC OpenManage Enterprise Power Manager Version 1.2 User's Guide [PDF HTML](#)
- Dell EMC OpenManage Enterprise Power Manager RESTful API Guide version 1.2 [PDF HTML](#)
- Dell EMC OpenManage Enterprise Power Manager 1.2 Release Notes [PDF HTML](#)