**Dell Update Service (DUSE)**

### **Overview**

The docker container Exposes a REST API that provides methods to orchestrate the comparison and upgrade Dell 11th Generation and newer servers using a Dell Repository Catalog. The catalog.xml file in the repository contains information about the Update Bundles and their "Dell Update Packages" (DUPs) available in the repository.

By default the dell-server-firmwareupdate docker-container will use the catalog available on ftp.dell.com, unless a custom catalog is specified in the request.

To update firmware, a NFS or CIFS folder with write permission must be mounted on the host, and the local location provided as part of the Docker run command. This share must be accessible by the IDRACs of the Dell servers that you wish to update. When a firmware update is initiated DUPs are stored in a folder this share, and downloaded from there by the IDRAC.

### **Prerequisites**

* Docker running on Linux
* A NFS or CIFS share running locally or mounted locally on the docker host.
* The IDRAC must have read access to the NFS or CIFS host
* The IDRAC must be accessible from the Docker Container
* Access to ftp.dell.com, or a repository created by the Dell Repository Manager placed on a network share.

Note:

* if you are not running docker container, ignore the docker related details make sure running microservice has access to CIFS/NFS share.
* For an already created custom repository ignore steps up to # 5, and start with step# 6

**Updateable Components**

. Lifecycle Controller

. iDRAC7 Firmware

. Diagnostics

. OS Driver Pack

. Identity Module

. BIOS

. NIC Firmware

. RAID Firmware

. Backplane Firmware

. PSU Firmware

. CPLD

**Steps for Firmware Update**

Firmware update on Dell PowerEdge servers is multi steps process using DUSE service, below are the steps used to update firmware for all components on PowerEdge server. Steps are mentioned in order they should be executed in order; some steps are optional others mandatory. Microservice is deployed with a swagger-ui for REST calls and can be accessed by

**Swagger UI**

http://YOUR-IP\_FOR\_rackHD:46010/swagger-ui.html

**Step 1 (Optional)**

**Deployed MIcroservice version**

This Webmethod returns the deployed Firmware Update microservice version

GET <http://localhost:46010/api/1.0/server/firmware/version>

Response Body

{

"name": "Dell Update Service",

"description": "Microservice for Dell PowerEdge firmware update",

"version": "1.0"

}

**Step 2**

**2 - Get updateable components**

This Webmethod returns all updateable components of a server system, webservice can update firmware version for all returned components, for successful return at least one valid parameter is required.

POST http://localhost:46010/api/1.0/server/firmware/uci

{

"serverAddress": "100.68.124.121",

"userName": "root",

"password": "calvin"

}

**Response Body**

[

{

"deviceId": "GY9TC42",

"model": "",

"collectionTime": "Tue May 09 17:53:11 CDT 2017",

"updateableComponent": [

{

"name": "QLogic 577xx/578xx 10 Gb Ethernet BCM57840 - 4C:76:25:96:97:9B",

"componentType": "FIRMWARE",

"targetIdentifier": "14E416A110281F7A"

},

{

"name": "OS COLLECTOR 1.1, OSC\_1.1, A00",

"componentType": "APPLICATION",

"targetIdentifier": "101734"

},

{

"name": "Dell OS Driver Pack, 16.08.21, A00",

"componentType": "APPLICATION",

"targetIdentifier": "18981"

},

{

"name": "Disk 0 in Backplane 1 of Integrated RAID Controller 1",

"componentType": "FIRMWARE",

"targetIdentifier": "29748"

},

{

"name": "BIOS",

"componentType": "BIOS",

"targetIdentifier": "159"

},

{

"name": "Dell 32 Bit uEFI Diagnostics, version 4239, 4239A33, 4239.41",

"componentType": "APPLICATION",

"targetIdentifier": "25806"

},

{

"name": "PERC H330 Mini",

"componentType": "FIRMWARE",

"targetIdentifier": "1000005F10281F4C"

},

{

"name": "Integrated Dell Remote Access Controller",

"componentType": "FIRMWARE",

"targetIdentifier": "25227"

},

{

"name": "Lifecycle Controller",

"componentType": "APPLICATION",

"targetIdentifier": "28897"

},

{

"name": "CMC",

"componentType": "FIRMWARE",

"targetIdentifier": "101688"

},

{

"name": "System CPLD",

"componentType": "FIRMWARE",

"targetIdentifier": "28125"

},

{

"name": "BP13G+ 0:1",

"componentType": "FIRMWARE",

"targetIdentifier": "101434"

}

]

}

]

**Step 3**

**Downloader**

This Webmethod connects to provided remote location and download requested file e.g. connect ftp.dell.com and download catalog file for firmware update, the catalog file is downloaded to a location mentioned in URI as query Parameters, all parameters are required for operation, this API is not needed if you have already downloaded this file or any other file needed.

GET http://localhost:46010/api/1.0/server/firmware/downloader?fileName=Catalog.xml.gz&fileUrl=ftp.dell.com&targetLocation=c:/fwRepo/

**Response Body**

{

"id": "0",

"name": "Catalog.xml.gz",

"desctioption": "Firmware update on Dell PowerEdge Server required a catalog file",

"status": "Download completed successfully "

}

**Step 4**

**Comparer**

This WebMethod returns all applicable updates for a requested server system, this operation will determine if a component needs firmware update or not, each component is marked with respective criticality if update is required, the result or return value of this method you will feed to method in step 5 as input for the custom repository to be created .

POST http://localhost.:46010/api/1.0/server/firmware/comparer

{

"serverAddress": "100.68.124.121",

"userName": "root",

"password": "calvin",

"catalogPath": "c://fwRepo/Catalog.xml",

"type": "wsman",

"updateableComponentInventory": "string"

}

**Response Body**

[

{

"deviceId": "GY9TC42",

"updates": [

{

"version": "1.40.200.201608133205",

"path": "FOLDER03871790M/1/Chassis-System-Management\_Firmware\_90KKC\_WN32\_1.40.200.201608133205\_A00.EXE",

"name": "PowerEdge FX2/FX2s Administrator",

"criticality": "Recommended",

"uniqueIdentifier": "e5ef2eee-79d4-4584-8589-df1b8d61bac1",

"updateAction": "UPGRADE",

"targetIdentifier": "101688",

"packageInformationPath": "FOLDER03871790M/1/Chassis-System-Management\_Firmware\_90KKC\_WN32\_1.40.200.201608133205\_A00.EXE",

"sourceName": "DCIM:INSTALLED#801\_\_CMC.Integrated.1",

"category": "Chassis System Management"

},

{

"version": "2.41.40.40",

"path": "FOLDER04019740M/1/iDRAC-with-Lifecycle-Controller\_Firmware\_4950Y\_WN32\_2.41.40.40\_A00.EXE",

"name": "iDRAC with Lifecycle Controller",

"criticality": "Optional",

"uniqueIdentifier": "b245ba4f-63df-455c-a237-8e98915e63d0",

"updateAction": "UPGRADE",

"targetIdentifier": "25227",

"packageInformationPath": "FOLDER04019740M/1/iDRAC-with-Lifecycle-Controller\_Firmware\_4950Y\_WN32\_2.41.40.40\_A00.EXE",

"sourceName": "DCIM:INSTALLED#iDRAC.Embedded.1-1#IDRACinfo",

"category": "iDRAC with Lifecycle Controller"

},

{

"version": "4239A33",

"path": "FOLDER03688966M/1/Diagnostics\_Application\_54KCN\_WN32\_4239A33\_4239.41.EXE",

"name": "Enterprise UEFI Diagnostics",

"criticality": "Recommended",

"uniqueIdentifier": "54KCNLWXP",

"updateAction": "EQUAL",

"targetIdentifier": "25806",

"packageInformationPath": "FOLDER03688966M/1/Diagnostics\_Application\_54KCN\_WN32\_4239A33\_4239.41.EXE",

"sourceName": "DCIM:INSTALLED#802\_\_Diagnostics.Embedded.1:LC.Embedded.1",

"category": "Diagnostics"

},

{

"version": "2.2.5",

"path": "FOLDER03919038M/1/BIOS\_T4FMH\_WN32\_2.2.5.EXE",

"name": "PowerEdge M630/FC630/M630-VRTX BIOS",

"criticality": "Recommended",

"uniqueIdentifier": "4d31689c-1368-401d-92e2-59722381b07c",

"updateAction": "UPGRADE",

"targetIdentifier": "159",

"packageInformationPath": "FOLDER03919038M/1/BIOS\_T4FMH\_WN32\_2.2.5.EXE",

"sourceName": "DCIM:INSTALLED#741\_\_BIOS.Setup.1-1",

"category": "BIOS"

},

{

"version": "16.08.21",

"path": "FOLDER03884927M/2/Drivers-for-OS-Deployment\_Application\_3G38R\_WN32\_16.08.21\_A00\_01.EXE",

"name": "OS Drivers Pack",

"criticality": "Optional",

"uniqueIdentifier": "46aa0146-71db-410e-9fd0-9a287a9c8daf",

"updateAction": "EQUAL",

"targetIdentifier": "18981",

"packageInformationPath": "FOLDER03884927M/2/Drivers-for-OS-Deployment\_Application\_3G38R\_WN32\_16.08.21\_A00\_01.EXE",

"sourceName": "DCIM:INSTALLED#802\_\_DriverPack.Embedded.1:LC.Embedded.1",

"category": "Drivers for OS Deployment"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-4-1",

"category": "Network"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-3-1",

"category": "Network"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-1-1",

"category": "Network"

},

{

"version": "25.5.0.0019",

"path": "FOLDER03982606M/1/SAS-RAID\_Firmware\_3X0XK\_WN32\_25.5.0.0019\_A06.EXE",

"name": "PERC H330 Mini Blade",

"criticality": "Urgent",

"uniqueIdentifier": "f3bba06e-cac7-45e5-a3ea-db0d3879f3c6",

"updateAction": "UPGRADE",

"targetIdentifier": "1000005F10281F4C",

"packageInformationPath": "FOLDER03982606M/1/SAS-RAID\_Firmware\_3X0XK\_WN32\_25.5.0.0019\_A06.EXE",

"sourceName": "DCIM:INSTALLED#301\_C\_RAID.Integrated.1-1",

"category": "SAS RAID"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-2-1",

"category": "Network"

},

{

"version": "2.23",

"path": "FOLDER02909018M/6/Firmware\_635G9\_WN32\_2.23\_A00-00.EXE",

"name": "13G SEP Firmware",

"criticality": "Recommended",

"uniqueIdentifier": "635G9LWXP",

"updateAction": "UPGRADE",

"targetIdentifier": "101434",

"packageInformationPath": "FOLDER02909018M/6/Firmware\_635G9\_WN32\_2.23\_A00-00.EXE",

"sourceName": "DCIM:INSTALLED#308\_C\_Enclosure.Internal.0-1:RAID.Integrated.1-1",

"category": "Firmware"

}

]

}

]

**Steps 5**

**Custom Repository**

This WebMethod creates a custom catalog & repository for firmware images, user pass in a list of all applicable updates in the request body, empty list in request will result a firmware repo with no image, micro service contacts ftp.dell.com and downloads DUPS to a network share to update server components by firmware job

Request

POST http://localhost.:46010/api/1.0/server/firmware/comparer/custom

{

“catalogFilePath":"c:/fwRepo/Catalog.xml",

"targetFilePath":"c:/fwRepo/dups/",

"updates": [

{

"version": "16.08.21",

"path": "FOLDER03884927M/2/Drivers-for-OS- Deployment\_Application\_3G38R\_WN32\_16.08.21\_A00\_01.EXE",

"name": "OS Drivers Pack",

"criticality": "Optional",

"uniqueIdentifier": "46aa0146-71db-410e-9fd0-9a287a9c8daf",

"updateAction": "EQUAL",

"targetIdentifier": "18981",

"packageInformationPath": "FOLDER03884927M/2/Drivers-for-OS-Deployment\_Application\_3G38R\_WN32\_16.08.21\_A00\_01.EXE",

"sourceName": "DCIM:INSTALLED#802\_\_DriverPack.Embedded.1:LC.Embedded.1",

"category": "Drivers for OS Deployment"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-4-1",

"category": "Network"

},

{

"version": "1.40.200.201608133205",

"path": "FOLDER03871790M/1/Chassis-System-Management\_Firmware\_90KKC\_WN32\_1.40.200.201608133205\_A00.EXE",

"name": "PowerEdge FX2/FX2s Administrator",

"criticality": "Recommended",

"uniqueIdentifier": "e5ef2eee-79d4-4584-8589-df1b8d61bac1",

"updateAction": "UPGRADE",

"targetIdentifier": "101688",

"packageInformationPath": "FOLDER03871790M/1/Chassis-System-Management\_Firmware\_90KKC\_WN32\_1.40.200.201608133205\_A00.EXE",

"sourceName": "DCIM:INSTALLED#801\_\_CMC.Integrated.1",

"category": "Chassis System Management"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-1-1",

"category": "Network"

},

{

"version": "2.23",

"path": "FOLDER02909018M/6/Firmware\_635G9\_WN32\_2.23\_A00-00.EXE",

"name": "13G SEP Firmware",

"criticality": "Recommended",

"uniqueIdentifier": "635G9LWXP",

"updateAction": "UPGRADE",

"targetIdentifier": "101434",

"packageInformationPath": "FOLDER02909018M/6/Firmware\_635G9\_WN32\_2.23\_A00-00.EXE",

"sourceName": "DCIM:INSTALLED#308\_C\_Enclosure.Internal.0-1:RAID.Integrated.1-1",

"category": "Firmware"

},

{

"version": "2.41.40.40",

"path": "FOLDER04019740M/1/iDRAC-with-Lifecycle-Controller\_Firmware\_4950Y\_WN32\_2.41.40.40\_A00.EXE",

"name": "iDRAC with Lifecycle Controller",

"criticality": "Optional",

"uniqueIdentifier": "b245ba4f-63df-455c-a237-8e98915e63d0",

"updateAction": "UPGRADE",

"targetIdentifier": "25227",

"packageInformationPath": "FOLDER04019740M/1/iDRAC-with-Lifecycle-Controller\_Firmware\_4950Y\_WN32\_2.41.40.40\_A00.EXE",

"sourceName": "DCIM:INSTALLED#iDRAC.Embedded.1-1#IDRACinfo",

"category": "iDRAC with Lifecycle Controller"

},

{

"version": "4239A33",

"path": "FOLDER03688966M/1/Diagnostics\_Application\_54KCN\_WN32\_4239A33\_4239.41.EXE",

"name": "Enterprise UEFI Diagnostics",

"criticality": "Recommended",

"uniqueIdentifier": "54KCNLWXP",

"updateAction": "EQUAL",

"targetIdentifier": "25806",

"packageInformationPath": "FOLDER03688966M/1/Diagnostics\_Application\_54KCN\_WN32\_4239A33\_4239.41.EXE",

"sourceName": "DCIM:INSTALLED#802\_\_Diagnostics.Embedded.1:LC.Embedded.1",

"category": "Diagnostics"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-3-1",

"category": "Network"

},

{

"version": "25.5.0.0019",

"path": "FOLDER03982606M/1/SAS-RAID\_Firmware\_3X0XK\_WN32\_25.5.0.0019\_A06.EXE",

"name": "PERC H330 Mini Blade",

"criticality": "Urgent",

"uniqueIdentifier": "f3bba06e-cac7-45e5-a3ea-db0d3879f3c6",

"updateAction": "UPGRADE",

"targetIdentifier": "1000005F10281F4C",

"packageInformationPath": "FOLDER03982606M/1/SAS-RAID\_Firmware\_3X0XK\_WN32\_25.5.0.0019\_A06.EXE",

"sourceName": "DCIM:INSTALLED#301\_C\_RAID.Integrated.1-1",

"category": "SAS RAID"

},

{

"version": "08.07.25",

"path": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"name": "QLogic 57840S-K Quad Port 10Gb bNDC KR CNA",

"criticality": "Recommended",

"uniqueIdentifier": "ac921d3b-37b4-4971-9cf0-63a1ba34e159",

"updateAction": "UPGRADE",

"targetIdentifier": "14E416A110281F7A",

"packageInformationPath": "FOLDER03659330M/4/Network\_Firmware\_WR5R5\_WN32\_08.07.25\_A00-00\_01.EXE",

"sourceName": "DCIM:INSTALLED#701\_\_NIC.Integrated.1-2-1",

"category": "Network"

},

{

"version": "2.2.5",

"path": "FOLDER03919038M/1/BIOS\_T4FMH\_WN32\_2.2.5.EXE",

"name": "PowerEdge M630/FC630/M630-VRTX BIOS",

"criticality": "Recommended",

"uniqueIdentifier": "4d31689c-1368-401d-92e2-59722381b07c",

"updateAction": "UPGRADE",

"targetIdentifier": "159",

"packageInformationPath": "FOLDER03919038M/1/BIOS\_T4FMH\_WN32\_2.2.5.EXE",

"sourceName": "DCIM:INSTALLED#741\_\_BIOS.Setup.1-1",

"category": "BIOS"

}

]

}

**Steps 6**

**Updater**

This Webmethod kickoff firmware update job on server provided in the request body, micro service will determine and find the firmware images needed for each component required firmware update, method returns list of jobs created for each component after iDRAC server initiate LC jobs.

POST http://localhost.:46010/api/1.0/server/firmware/updater

{

"serverAddress": "100.68.124.121",

"password": "root",

"userName": "calvin",

"shareAddress": "100.64.23.35",

"shareUserName": "rahman.muhammad",

"sharePassword": "\*\*\*\*\*",

"shareName": "/fwRepo/dups",

"shareType": 2, [ use 0 for NFS and 2 for CIFS]

"mountPoint": "",

"catalogFileName": "Catalog.xml",

"rebootNeeded": "YES",

“applyUpdate": 1

}

**Response Body**

[

{

"description": "string",

"jobId": "string",

"message": "string",

"serverAddress": "string",

"status": "string"

}

]

**Steps 7**

**Job Status**

This WebMethod retrieves recent firmware update job status for all JobIDs in request body, micro service will determine and find firmware job status on hardware device. This method returns list of jobs created on iDRAC server.

POST http://localhost.:46010/api/1.0/server/firmware/updater/status

{

"serverAddress": "100.68.124.121",

"userName": "root",

"password": "calvin",

"jobs": [

"JID\_944461040445"

]

}

**Response Body**

[

{

"serverAddress": "100.68.124.121",

"jobId": "JID\_944461040445",

"status": "Completed",

"message": "firmware update job status mentioned",

"description": "Frimware update job "

}

]