Part Replacement in Lifecycle Controller

This Dell Technical White Paper provides information about Part Replacement and the various settings using Lifecycle Controller on the 12th generation servers of Dell.

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Learn more

For more information about Lifecycle Controller, go to dell.com/support/manuals.

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Executive Summary

This whitepaper provides information about the Part Replacement feature in Lifecycle Controller on the 12th generation servers of Dell.

Contents

Glossary

Term	Meaning
iDRAC	Integrated Dell Remote Access Controller
LC	Lifecycle controller
CSIOR	Collect System Inventory on Restart
FC/FCoE	Fiber Channel/Fiber Channel over Ethernet
NIC	Network Interface Controller
SNA	Select Network Adapter

Introduction

There are occasions when an IT administrator needs to replace a non-functional hardware component in the server and reconfigure the same firmware and/or configuration settings on the replaced part. Replacing the card is simple and straight-forward; however, restoring the configuration settings and firmware can be a tedious process if done manually. The Part Replacement feature in Lifecycle Controller will restore firmware and configuration setting from the non-functional part to the replaced part in the same slot. The Lifecycle Controller detects the new replaced part in the system and applies changes according to user defined settings.

In this white paper, you will learn about:

- Pre-requisites
- Overview of part replacement
- Update and configuration settings in LC

Pre-requisite

1. CSIOR and LC should be enabled.
2. Express or Enterprise-level license.

Overview About Part Replacement

Part Replacement feature is used for restoring configuration settings and/or firmware. This feature is a licensed feature and requires at least an Express license. The actions defined in Lifecycle Controller are applied on the replaced components and the corresponding events are logged in Lifecycle Log. Part replacement is currently supported on the following components:

- PERC storage controller
- Network devices (NIC)
- Fiber channel (FC) HBA cards
- PSUs

Replaceable components in the system are targets for part replacement actions. These actions include flashing the new part with the firmware version and/or configuring the new part with the settings and configuration of the original part. Performing **Lifecycle Controller Reset to Defaults** (LC Wipe) has no impact to Part Replacement feature. If **Lifecycle Controller Reset to Defaults** action is performed, LC settings for Part Replacement settings will be reset to defaults. For more information about default settings, read through the section later in this white paper.

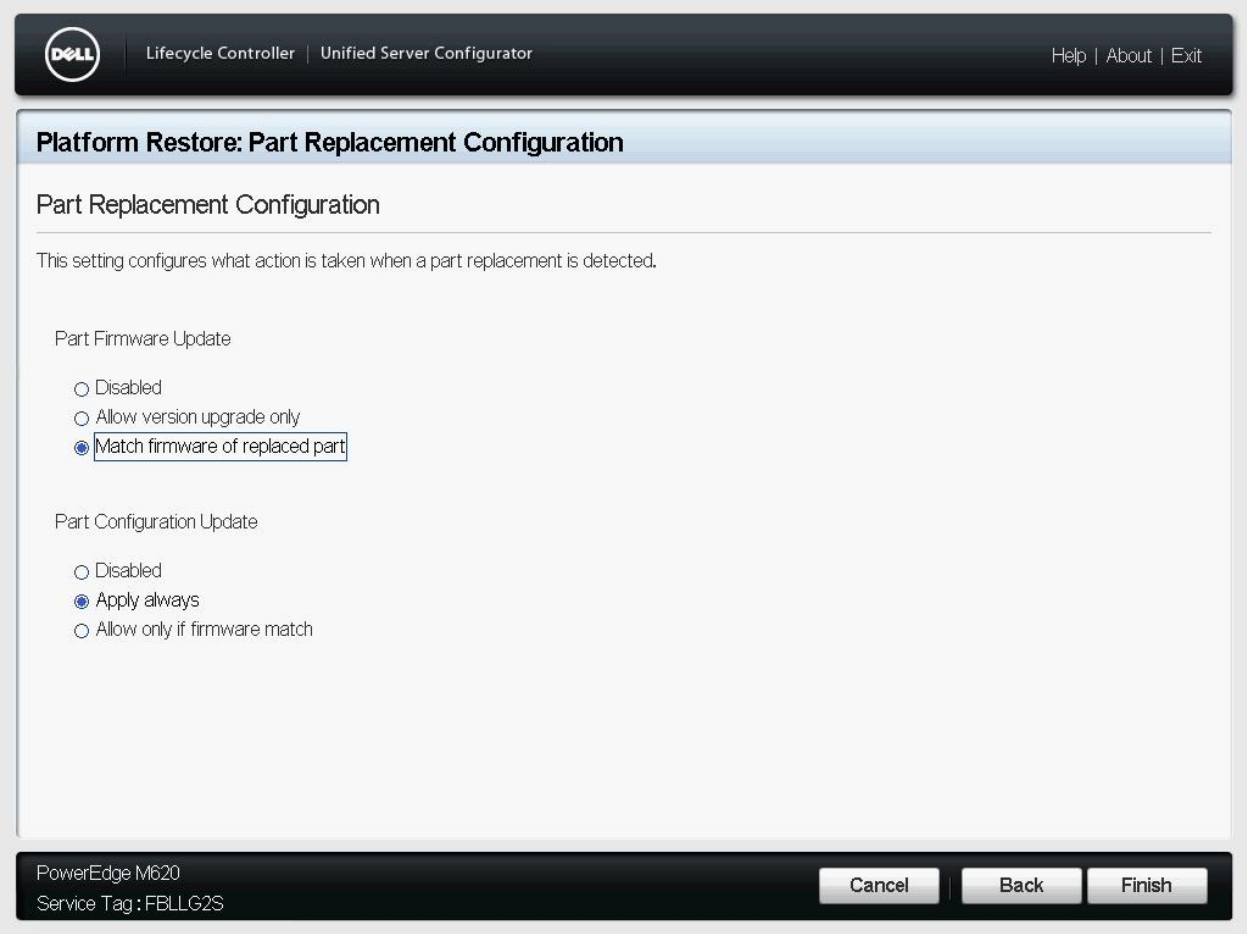
Before using Part Replacement feature, make sure that the replaced part is:

1) In the same PCI slot where the non-functional part was placed.

2) Of the same model and type as of the un-functional part. Part Replacement feature will not work if a different type or model card is replaced in the same PCI slot.

The Part Replacement feature is managed by configuring primarily by three settings:

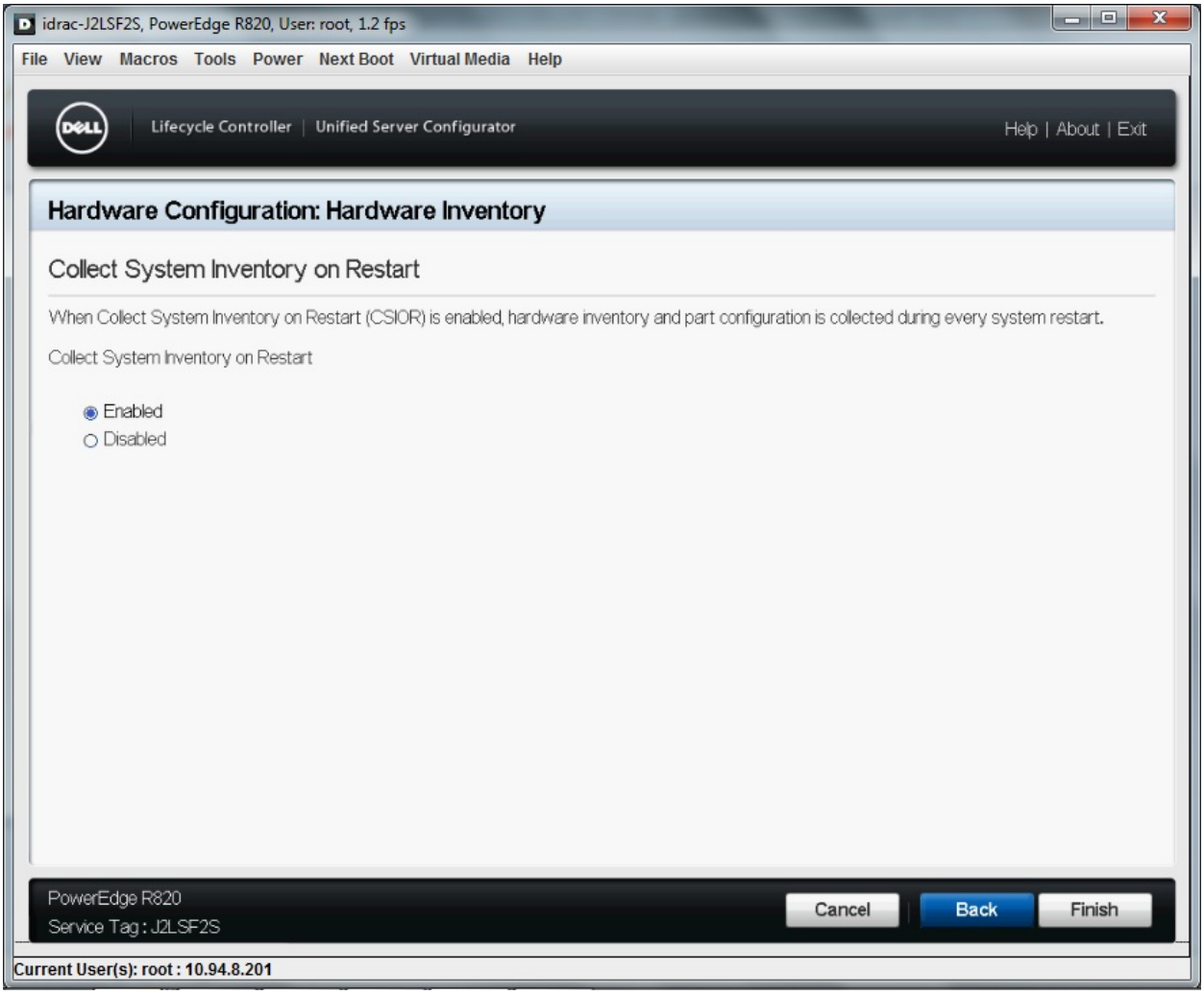
- Collect System Inventory On Restart (CSIOR) – Enabling CSIOR option available under **Hardware Configuration** -> **Hardware Inventory**
- **Part Firmware Update**
- **Part Configuration Update**



Note that the Part Replacement attributes and settings are applied to all the devices that support Part Replacement functionality, and are not selective per device or device class. The Part Replacement attributes can be independently set in all combinations.

The attributes which are manageable for Part Replacement in LC are:

Collect System Inventory on Restart (CSIOR): CSIOR is a Lifecycle Controller feature which allows collecting system inventory and stores in common storage space. Enabling CSIOR is the prerequisite for Part Replacement action to occur automatically. CSIOR can be enabled by clicking **Hardware Configuration → Hardware Inventory** in Lifecycle Controller.



Possible values for CSIOR setting are:

- **Enable (default)**
- **Disable**

Value	Description
Enable	Hardware inventory and configuration information is collected during every system-restart. Collecting system inventory may affect start-time depending on hardware present.
Disable	Hardware inventory and configuration information will not be collected during every system restart. If CSIOR is disabled, Lifecycle controller will not detect the replaced part, firmware and configuration setting will not be restored.

CSIOR operation detects new replaced part as shown here.

NOTE: If Collect System Inventory on Restart (CSIOR) is disabled, the system will not automatically enter UEFI on every start to perform inventory discovery, and the Part Replacement will not be invoked automatically. Inventory discovery can be manually initiated by entering Lifecycle Controller by pressing <F10> during start. Part Replacement will occur if either **Update Firmware**, or **Update Configuration**, or both are enabled.

- **Update Firmware**: Indicates whether or not and how Lifecycle Controller will apply the earlier-stored firmware to the replaced part. Possible values are:
    - Disable
    - Allow version upgrade only
    - Match firmware of replaced part (default)

Value	Description
Disable	Firmware update for the replaced part is disabled.
Allow version Upgrade only	Firmware update for the replaced part is enabled, but only upgrade from the version that was installed is allowed.
Match Firmware of Replaced Part	Firmware update for replaced part is enabled, and firmware installed on the replaced part will be updated to with the previously stored version that is applicable to the replaced part, even if the version is older than or equal to the version that was installed on the original part.

- **Update Configuration**: Indicates whether or not and how Lifecycle Controller will apply the earlier-stored configuration to the replaced part. Possible values are:
  - **Disable**
  - **Allow only if firmware match**
  - **Apply Always (default)**

Value	Description
Disable	Configuration Update for the replaced part is disabled.
Allow only if firmware match	Configuration Update for the replaced part is enabled and previously stored configuration settings are updated only if the replaced part has same firmware version as the earlier component.
Apply Always	Configuration Update for the replaced part will be updated always irrespective of the inserted part firmware.

Table 1: PART REPLACEMENT & REPLACED PART CONFIGURATION OPTIONS

Part Firmware Update	Part Configuration Update	Component Configuration Change	Firmware Update
Disabled	Disabled	No	A firmware operation will not take place for the replaced part during the system start
	Apply Always	Yes	
	Allow only if firmware match	Yes, If replaced part has same firmware version as the earlier	
Allow version upgrade only	Disabled	No	Yes, If replaced part has an earlier-version firmware
	Apply Always	Yes	
	Allow only if firmware match	Yes, If replaced part has same firmware version as Previous	
Match Firmware of replaced part	Disabled	No	Yes. A firmware operation will be successful, irrespective of the firmware version of a replaced part
	Apply Always	Yes	
	Allow only if firmware match	Yes, If replaced part has same firmware version as Previous	

NOTE:

1. Action defined in Part Firmware update and Part Configuration Update is independent of each other.
2. Changing part replacement configuration attributes can also be achieved from setting Lifecycle Controller attributes using the WS-Man features.

More Information

http://www.delltechcenter.com/lc

http://www.delltechcenter.com/USC