iDRAC9 Virtual Power Cycle:
Remotely power cycle Dell EMC PowerEdge Servers

Tech Note by

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Summary

Dell EMC PowerEdge servers stand out for offering the ability to remotely invoke an A/C power cycle to the Baseboard Management Controller.

With distributed and scaled-out IT environments, the means of restoring or resetting power states in as little time as possible takes on added importance.

Introduction

On those occasions when it's necessary for an IT admin to reboot a server, whether due to a faulty hardware component or an operating system 'stuck' in an unresponsive state, it may be necessary to drain all power to the server. This step is rare but could be the essential means to drain auxiliary power from capacitors to recover a device in a hung state and reboot the physical device's firmware stack.

Since it is increasingly unlikely that a server room is located 'down the hall', and more likely across town within a 'lights out' co-location datacenter, the means of restoring or resetting power states in as little time as possible takes on added importance.

iDRAC9 enables remote power cycles

With the integrated Dell Remote Access Controller (iDRAC), standard on all Dell EMC PowerEdge servers, IT administrators can mimic a power cycle and restore the system without having to go to the datacenter, find the server in the hot aisle, and pull the plug.

The following solutions will work for either AC or DC power supplies.
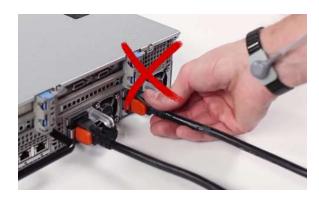
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Invoking Virtual A/C Power Cycle

Dell EMC PowerEdge servers with iDRAC9 offer 2 options for invoking a virtual A/C (vAC) power cycle:

- Use of iDRAC9 out-of-band capabilities
- Use of an iDRAC Service Module (iSM) installed on Windows, Linux, or ESXi

Both options eliminate the need for physical presence, to locate the correct server in a hot aisle, and pull out the power cord before plugging it back in.

The path chosen is likely predicated on situation particulars:

- Using iDRAC, assuming no operating system dependencies:
    - Set "Full Power Cycle" using GUI/Redfish/RACADM
    - 'Power Cycle' – perform a power cycle of the server via iDRAC
    - To note, the virtual A/C power cycle is always available and can be performed regardless of the host state; indeed, it may be required if the host operating system is not responding properly
    - Of further note, this process applies to rack/tower systems, whereas for modular systems, it's best to use the "virtual reseat" of the server option.

- iSM – sending commands to an agent through the operating system or hypervisor:
    - Two commands are issued, one to activate the vAC, and one to perform a graceful power-down of the host
    - May be necessary whenever the iDRAC is in an unresponsive state
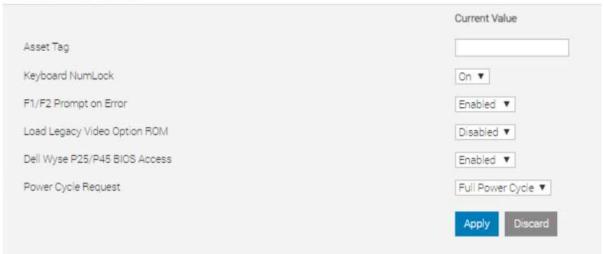   - Requires PowerEdge servers with iDRAC9

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Invoking a remote virtual A/C power cycle

With iDRAC, via the:

- **GUI** – navigate to Configuration > BIOS Settings > Miscellaneous Settings > Power Cycle Request

- **RACADM**
  - racadm *set BIOS.MiscSettings.PowerCycleRequest FullPowerCycle*
  - racadm jobqueue create BIOS.Setup.1-1
  - reboot host when ready.

- **Redfish**
  - PATCH / redfish/v1/Systems/System.Embedded.1/Bios/Settings with
    ```
    {
    "Attributes": {
    "PowerCycleRequest": "FullPowerCycle:
    },
    "@Redfish.SettingsApplyTime": {
    "@odata.type": "#Settings.v1_1_0.PreferredApplyTime",
    "ApplyTime": "OnReset"
    }
    }
    ```
    When the patch command has successfully completed, a 202 "Accepted" status message will be returned along with the Task URI for newly created job.

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- POST /redfish/v1/Systems/System.Embedded.1/Actions/ComputerSystem.Reset
  {
  "ResetType":"On" /// If Powered Off
  }
  or
  {
  "ResetType":"GracefulRestart" /// If already Powered On
  }
  This will restart the Host and start the Task/Job, wait for it to complete.

- iSM
  - For Windows operating system –
    Shortcut menus are available for the FullPowerCycle Activate (request),
    FullPowerCycle Cancel and FullPowerCycle get status operations.
    - To request FullPowerCycle on your system, type
      Invoke-FullPowerCycle –status request cmdlets in power shell console
    - To get the status of the Full Power Cycle on your system, type
      Invoke-FullPowerCycle –status Get cmdlets in power shell console
    - To cancel the Full Power Cycle on your system, type
      Invoke-FullPowerCycle –status cancel cmdlets in power shell console

  - For Linux operating system –
    - To request Full Power Cycle on your system, type
      /opt/dell/svradmin/iSM/bin/Invoke-FullPowerCycle request
    - To get the status of the Full Power Cycle on your system, type
      /opt/dell/svradmin/iSM/bin/Invoke-FullPowerCycle get-status
    - To cancel the Full Power Cycle on your system, type
      /opt/dell/svradmin/iSM/bin/Invoke-FullPowerCycle cancel

***Note: After running the command, a host power cycle (cold boot) is necessary for
FullPowerCycle to take effect.***

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Conclusion

With servers increasingly managed remotely, a means of performing the virtual equivalent of pulling out the power cord and pushing it back in is a necessary capability in order to occasionally 'unstick' the operating system. With the Dell EMC PowerEdge iDRAC9 virtual power cycle feature, IT admins have access to console or agent-based routines to restore or reset power states in minutes rather than hours. This remote capability is essential to keeping distributed and scaled-out IT environments running smoothly.

Resources

iDRAC9 whitepapers and videos
www.dell.com/support/idrac

iDRAC Manuals and User Guides
www.dell.com/idracmanuals

iDRAC Service Module
www.dell.com/idracmanuals (*select iDRAC Service Module*)

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