



Disabling a Third-Party PCIe Card Cooling Response with Dell PowerEdge Servers (iDRAC8 based)

Reducing fan speeds when additional card cooling is unnecessary

Dell Product Group | Server Engineering
April 2018

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Revisions

Date	Description
April 2015	Initial release
Nov 2015	Updates with racadm and wsman command support
Apr 2018	Minor update to correct racadm command to turn on/off flag for 3 rd Party Cards definition Updates to WSMAN commands for better usability Example added for IPMI get command for better clarity on interpretation of output byte

Acknowledgements

This paper was produced by the Server Engineering Team.

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Background

Dell PowerEdge servers are designed to use third-party PCIe cards. When a PowerEdge server detects a third-party card, the server automatically provisions additional cooling for the card. For more information on managing PowerEdge server cooling for PCIe cards, see the *PCIe Card Cooling with Dell PowerEdge Servers* white paper on [Dell Tech Center](#).

In some cases the automatic fan response for third-party cards may provide more cooling than the card requires. For example, a card that has its own cooling fan may not need additional cooling or may require less than the automatic response. If this is the case, you can disable the automatic response to reduce fan power consumption and noise levels in the server.

This white paper describes how to configure a PowerEdge server to disable a third-party card fan response through Intelligent Platform Management Interface (IPMI) commands using `ipmitool` or `ipmiutil`, and explains what to expect when the response is disabled. To manually reconfigure the cooling settings for a third-party card in a PowerEdge server, see the following guides for instructions.

- *User Cooling Options for Dell PowerEdge Server Fan Control Best Practices Guide* on [Dell Tech Center](#)
- *iDRAC8 User Guide*

NOTE:

The feature described in this whitepaper is available not just in certain PowerEdge servers but also other systems offering iDRAC systems management.

These commands are applicable to generation of servers with iDRAC8. A separate document exists for commands for servers with iDRAC9.

LC Log message and fan response expectations

Before disabling a third-party PCIe card fan response, check the iDRAC LC Log to see if the server detects the card. Figure 1 is a sample of the message to look for in the LC Log. The message provides information for adjusting the default fan response.

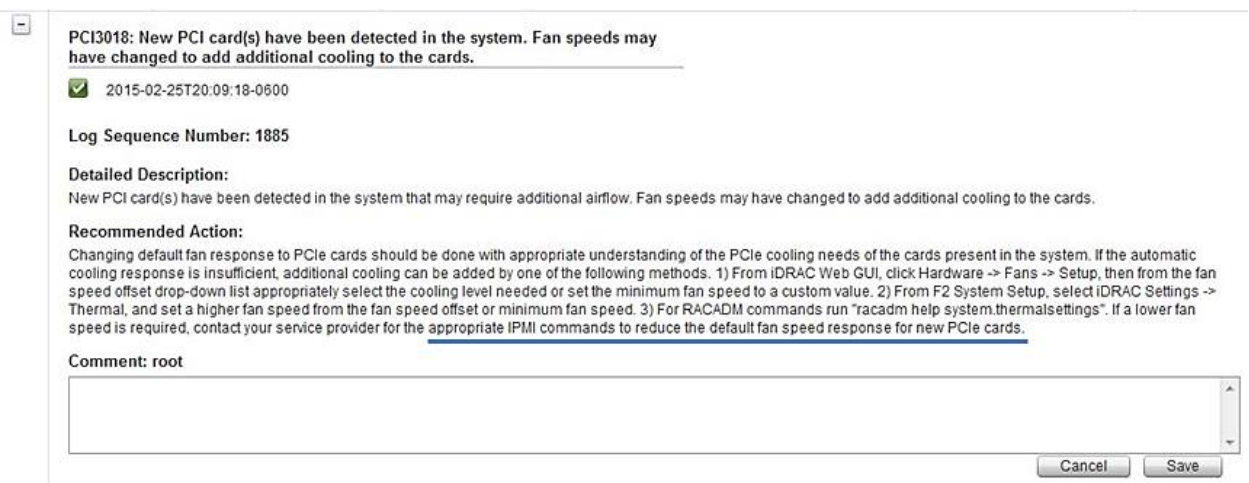


Figure 1 LC Log message as seen in iDRAC WebGUI interface



If fan speeds change and the LC message is displayed, then use the commands described in this white paper to disable the change in baseline fan speed. By disabling the third-party PCIe card response, the PowerEdge thermal control system returns the fan speed to the baseline fan speed as shown in Figure 2. In some cases, disabling the fan response may not change the fan speed. This can occur when one or more of the following occurs:

- The baseline cooling already accommodates the cooling needs of the third-party card.
- Another device or devices require cooling at or above the third-party card response.
- A manual fan speed setting is set at or above the response level.

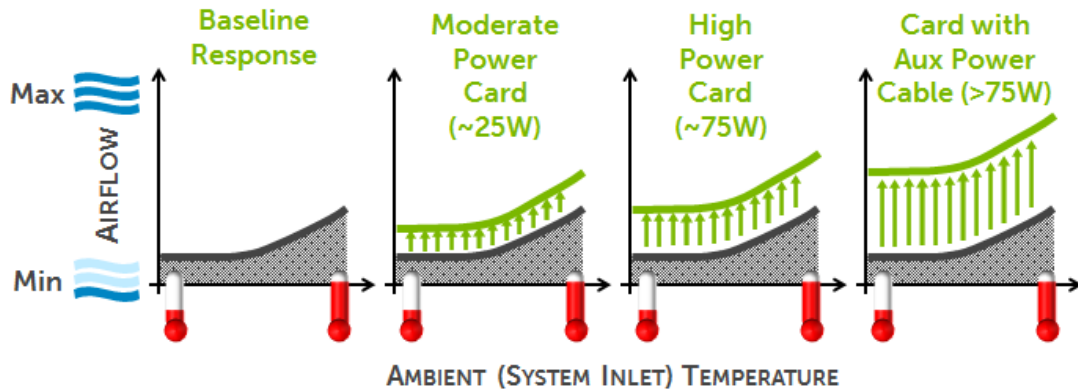


Figure 2 Fan speed response illustration

If the LC Log doesn't show a message like the one in Figure 1, then the server isn't treating the card as a third-party card and applying these commands will have no effect on fan speeds.

Fan speeds should be expected to exceed the baseline even when the message isn't present. This occurs normally based on the thermal needs of other components as determined by the server thermal control algorithm. Such fan speeds are not manually adjustable or disabled since the thermal algorithm has deemed the cooling necessary to maintain safe and reliable operation.

Command details

IPMI based:

Use IPMI set commands to enable or disable a third-party PCIe card response. You can execute these commands either locally from the server that is being configured or remotely (IPMI over LAN) from the server that is being configured. The following sections provide the “get” and “set” IPMI commands for ipmitool and ipmiutil. For more information on how to use ipmitool, see [Using IPMITOOL Raw Commands for Remote Management of Dell PowerEdge Servers](#).

To enable IPMI over LAN, enable it using an iDRAC interface such as iDRAC GUI, RACADM or WSMAN. For example, use the following command in RACADM to configure IPMI:

```
/admin1-> racadm set iDRAC.ipmilan.enable 1

[Key=iDRAC.Embedded.1#IPMILan.1]

Object value modified successfully
```

To learn more iDRAC8 user interface options, see the [iDRAC8 User Guide](#).

IPMITOOL (remote/IPMI over LAN)

Get Cmd: Third Party PCI Card Response Status

```
ipmitool -H <ipaddress> -U <username> -P <password> -I lanplus raw 0x30 0xce
1 0x16 5 0 0 0
```

[An example output could be: 16 05 00 00 00 05 00 **00** 00 00 where, if the highlighted byte is 00 then the 3rd party card response is enabled and 01 if it is disabled.]

Set Cmd: Disable Third Party PCI Card Response

```
ipmitool -H <ipaddress> -U <username> -P <password> -I lanplus raw 0x30 0xce
0 0x16 5 0 0 0 5 0 1 0 0
```

Set Cmd: Enable Third Party PCI Card Response

```
ipmitool -H <ipaddress> -U <username> -P <password> -I lanplus raw 0x30 0xce
0 0x16 5 0 0 0 5 0 0 0 0
```

IPMITOOL (local): (if Windows)

Get Cmd: Third Party PCI Card Response Status

```
ipmitool -I wmi raw 0x30 0xce 1 0x16 5 0 0 0
```

Set Cmd: Disable Third Party PCI Card Response

```
ipmitool -I wmi raw 0x30 0xce 0 0x16 5 0 0 0 5 0 1 0 0
```

Set Cmd: Enable Third Party PCI Card Response



```
ipmitool -I wmi raw 0x30 0xce 0 0x16 5 0 0 0 5 0 0 0 0
```

IPMITOOL (local): (if Linux)

Get Cmd: Third Party PCI Card Response Status

```
ipmitool -I open raw 0x30 0xce 1 0x16 5 0 0 0
```

Set Cmd: Disable Third Party PCI Card Response

```
ipmitool -I open raw 0x30 0xce 0 0x16 5 0 0 0 5 0 1 0 0
```

Set Cmd: Enable Third Party PCI Card Response

```
ipmitool -I open raw 0x30 0xce 0 0x16 5 0 0 0 5 0 0 0 0
```

IPMIUTIL (local)

Get Cmd: Third Party PCI Card Response Status

```
ipmiutil cmd 0 20 c0 ce 1 16 5 0 0 0
```

Set Cmd: Disable Third Party PCI Card Response

```
ipmiutil cmd 0 20 c0 ce 0 16 5 0 0 0 5 0 1 0 0
```

Set Cmd: Enable Third Party PCI Card Response

```
ipmiutil cmd 0 20 c0 ce 0 16 5 0 0 0 5 0 0 0 0
```

Using RACADM Commands:

Use the following racadm command to check current status of third party PCI fan response:

```
racadm get system.thermalsettings.ThirdPartyPCIFanResponse
```

To disable the response: (default is enabled)

```
racadm set system.thermalsettings.ThirdPartyPCIFanResponse 0
```

To enable the response: (if disabled by above command)

```
racadm set system.thermalsettings.ThirdPartyPCIFanResponse 1
```



Using WSMAN Commands:

Use the following wsman command to check the current status of third party PCI fan response:

```
winrm g
cimv2/root/dcim/DCIM_SystemEnumeration?InstanceID=System.Embedded.1#ThermalSettings
.1#ThirdPartyPCIFanResponse -u:<username> -p:<password>
-r:https://<idrac_ip>/wsman -SkipCNcheck -SkipCAcheck -encoding:utf-8 -a:basic
DCIM_SystemEnumeration
    AttributeDisplayName = Fan Speed Response for Third-Party PCI Cards
    AttributeName = ThirdPartyPCIFanResponse
    CurrentValue = Enabled
    DefaultValue = Enabled
    Dependency = null
    DisplayOrder = 1480
    FQDD = System.Embedded.1
    GroupDisplayName = Thermal Settings
    GroupID = ThermalSettings.1
    InstanceID = System.Embedded.1#ThermalSettings.1#ThirdPartyPCIFanResponse
    IsReadOnly = false
    PendingValue = null
    PossibleValues = Disabled, Enabled
```

To disable the response: (default is enabled)

```
winrm i SetAttribute
cimv2/root/dcim/DCIM_SystemManagementService?SystemCreationClassName=DCIM_ComputerS
ystem+SystemName=srv:system+CreationClassName=DCIM_SystemManagementService+Name=DCI
M:SystemManagementService -u:<username> -p:<password> -r:https://<idrac_ip>/wsman -
SkipCNcheck -SkipCAcheck -encoding:utf-8 -a:basic
@{Target="System.Embedded.1";AttributeName="ThermalSettings.1#ThirdPartyPCIFanRespo
nse";AttributeValue="Disabled"}
```

```
winrm i CreateTargetedConfigJob
cimv2/root/dcim/DCIM_SystemManagementService?SystemCreationClassName=DCIM_ComputerS
ystem+SystemName=srv:system+CreationClassName=DCIM_SystemManagementService+Name=DCI
M:SystemManagementService -u:<username> -p:<password> -r:https://<idrac_ip>/wsman -
SkipCNcheck -SkipCAcheck -encoding:utf-8 -a:basic
@{Target="System.Embedded.1";ScheduledStartTime="TIME_NOW"}
```

To enable the response: (if disabled by above command)

```
winrm i SetAttribute http://schemas.dell.com/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_SystemManagementService?__cimnamespac
e=root/dcim+SystemCreationClassName=DCIM_ComputerSystem+SystemName=srv:system+Cr
eationClassName=DCIM_SystemManagementService+Name=DCIM:SystemManagementService -
u:<username> -p:<password> -r:https://<idrac_ip>/wsman -SkipCNcheck -SkipCAcheck -
encoding:utf-8 -a:basic @{Target="System.Embedded.1";AttributeName="ThermalSettings.1
#ThirdPartyPCIFanResponse";AttributeValue="Enabled"}
```



```
winrm i CreateTargetedConfigJob
cimv2/root/dcim/DCIM_SystemManagementService?SystemCreationClassName=DCIM_ComputerS
ystem+SystemName=srv:system+CreationClassName=DCIM_SystemManagementService+Name=DCI
M:SystemManagementService -u:<username> -p:<password> -r:https://<idrac_ip>/wsman -
SkipCNcheck -SkipCAcheck -encoding:utf-8 -a:basic
@{Target="System.Embedded.1";ScheduledStartTime="TIME_NOW"}
```

