Microsoft RemoteFX Error Code 43 Identification and Workaround for the PowerEdge C410x

Subject: Workaround, if Windows 2008 R2 SP1 Device Management identifies a code 43 device error.

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Document History

| item | version | description | date |
|------|---------|--|-----------|
| 1 | 0.1 | First release for RemoteFX workaround | 2011.4.15 |
| 2 | 1.0 | Add description: how to install and use ipmi utility for control each GPGPU power on/off under Linux & Windows | 2011.4.28 |
| 3 | 1.1 | Wording of some sentences correction | 2011.8.2 |
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• **RemoteFX Setup:** Refer to the following website links to obtain information on how to setup Windows 2008R2 SP1 RmoteFX service.

- (1) Install RemoteFX service <u>http://technet.microsoft.com/en-us/library/ff817596(v=WS.10).aspx</u>
- (2) Hardware Considerations for RemoteFX <u>http://technet.microsoft.com/en-us/library/ff817602(v=ws.10).aspx#BKMK_VHserver</u>

• Device Error Code 43 Workaround

Issue Description

If the host system connected to a C410x with a M2070Q is rebooted, it is possible for the M2070Q to have a device error code 43 in Device Manager. (See example below)





Steps to duplicate issue

- 1. Turn on C410x.
- 2. Turn on the host.
- 3. Check Device Manager. All the devices should be normal.
- 4. Reboot the host, C410x still keep power on status.
- 5. Check M2070Q in Device Manager. A Yellow Bang indicates a device error code 43.

Steps to clear "code 43" error

NOTE: An ipmi-utility loaded on a remote client is required to clear the "code43" error.

• IPMIUTIL Installation and Execution Under Windows OS

IPMIUTIL Download

IPMIUTIL Installation

Use IPMIUTIL To Control C410x

-Topology

-Set Client LAN IP Address

-Set C410x BMC IP Address

Verify IPMIUTIL C410x Control

Power GPGPU Slots On/Off To Clear Device Error "code 43"



IPMIUTIL Download

1. Go to IPMIUTIL website.

http://ipmiutil.sourceforge.net/

| IPMIUTIL DOCUMENTS Users Guide IPMI SW comparison | IPMI Management Utilities | SOURCEFORGE.NET* |
|---|--|--|
| Design Doc License TODO | ipmiutil - Project Overview | (formerly known as panicsel) |
| ChangeLog bmclanpet.mib Man Pages | An easy-to-use IPMI server management utilit | Ŋ |
| IPMIUTIL FILES ipmiutil-2.7.5.tar.gz | IPMIUTIL performs a series of common IPMI server managerel learning curve. It can gather FRU inventory data, SEL firmware can write sensor thresholds, FRU asset tags, and supports a | nent functions to allow administrators to perfor e log, sensors, watchdog, power control, healt full IPMI configuration save/restore. Ease-of-u: |
| iprniutil-2.7.5-1.src.rpm iprniutil-2.7.5- 1_rhel6.x86_64.rpm inrniutil-2.7.5- | Configuring the IPMI LAN requires just a single commar IPMIUTIL can detect and use various existing IPMI drive The decoding of IPMI events includes a severity | nd rrs, or run in driverless mode, which is useful fo |
| 1_sles11.x86_64.rpm ipmiutil_2.7.5_ubuntu10_amd ipmiutil_2.7.5_win32.zip | Any IPMI events not recognized at least return the data, SEL management is automated via checksel. Watchdog management is automated via ipmiutil wdt. | rather than just Unknown. |
| Other rpm/deb/gz FILES | A soft-reboot can be easily performed instead of a hard The IPMI Specification provides a standard way to do both si | J reboot by using ipmiutil_asy. mple and complex server management function |
| Project Summary Browse SVN Kernel Patch | off to sending an SNMP alert from a sensor event even if the (BMC) firmware allows OS-independent management. What code to perform these functions within their enterprise management | OS is down. Being able to perform these tasks many administrators and integrators need, hor gement subsystem without a learning curve. |
| Home Developers mailing list News archive Bugs | The IPMI Management Utilities project provides a series of ut firmware log (ipmiutil sel), or configuring the BMC LAN & PEI require intimate knowledge of how to build IPMI commands. E configuration can be easily obtained. More detailed ontions a | ilities that perform common IPMI server mana; F features (ipmiutil lan). The utilities are design Each of the utilities detects or reasonably assigned with the service of the second service of the service of the second service of the service of the second service of the service of t |

- 2. Click "Download ipmiutil-2.7.5-win32.zip (889 KB)" to download.
- 3. Copy the installation package to USB flash.



IPMIUTIL Installation

- 1. Boot into Windows 2008 R2 SP1 x86_64.
- 2. Insert USB FLASH and open file manager.



3. Double click on ipmiutil-2.7.5-win32.zip and press "Extract all files".

| ⊖ - Computer | Removable Disk (D:) → ipmiutil-2 | 2.7.5-win32 👻 🙀 | Search ipmiutil-2.7.5-win32 | |
|----------------------------|--|------------------------|-----------------------------|------------|
| ganize 👻 Extract all files | | | Ē | = - 🔟 (|
| Favorites | Name * | Туре | Compressed size | Password p |
| 🧮 Desktop | ChangeLog | Text Document | 36 KB | No |
| 〕 Downloads | 🚳 checksel | Windows Command Script | 1 KB | No |
| 📃 Recent Places | ialarms | Windows Command Script | 1 KB | No |
| - Marchaeler | icmd | Windows Command Script | 1 KB | No |
| Libraries | iconfig | Windows Command Script | 1 KB | No |
| Documents Music | 🚳 idiscover | Windows Command Script | 1 KB | No |
| Pictures | ievents | Application | 56 KB | No |
| Videos | 🚳 ifru | Windows Command Script | 1 KB | No |
| | igetevent | Windows Command Script | 1 KB | No |
| Computer | 🚳 ihealth | Windows Command Script | 1 KB | No |
| 🚢 Local Disk (C:) | 🚳 ilan | Windows Command Script | 1 KB | No |
| Removable Disk (D:) | install | Windows Command Script | 1 KB | No |
| | 🗾 ipmi_sample | Application | 86 KB | No |
| Network | 💷 ipmiutil | Application | 208 KB | No |
| | 🚳 ipmiutil_wdt | Windows Command Script | 1 KB | No |
| | 🚳 ireset | Windows Command Script | 1 KB | No |
| | ical | Mindows Command Script | 1 KB | No |
| | | | | |



4. Provide the path name where you want to extract the files and click the Extract button.

| 📕 Extra | ct Compressed (Zipped) Folders | | × |
|-----------|---------------------------------------|----------------|---|
| 0 | Extract Compressed (Zipped) Folders | | |
| Se Fil | elect a Destination and Extract Files | | |
| c | :\ipmiutil | Browse | |
| ঘ | Show extracted files when complete | | |
| | | Extract Cancel | |



Use IPMITOOL to Control C410x

TOPOLOGY



Server LAN port 0 connect to switch LAN port 0 IP:192.168.0.1



Set Client LAN IP Address

- 1. Log in W2K8R2SP1.
- 2. Start \rightarrow Control Panel \rightarrow

| Command Prompt | |
|---|---|
| Active Directory Users and Computers | Administrator Documents Computer Network Control Panel Devices and Printers Administrative Tools Help and Support Run |
| All Programs | |
| Search programs and files | Log off |
| 🎢 Start 🐰 🗾 🧱 | |

3. Choose "View network status and tasks" under Network and Internet.





4. Click Change adapter settings.



5. Right-click LAN Area Connection → Properties.





6. Double-click Internet Protocol Version 4 (TCP/IPv4).

| Intel(R) 82576 | Gigabit Dual Port Netwo | rk Connection |
|---|--|---|
| | | Configure |
| Client for Mic | crosoft Networks | |
| 🗹 📕 QoS Packet | Scheduler | |
| File and Print | ter Sharing for Microsoft | Networks |
| - Microsoft Vin | tual Network Switch Pro | tocol |
| | | |
| Internet Prot | ocol Version 6 (TCP/IPv | (6) |
| Internet Prot Internet Prot Internet Prot | ocol Version 6 (TCP/IPv ocol Version 4 (TCP/IPv opology Discovery Man | (4) |
| | ocol Version 6 (TCP/IPv ocol Version 4 (TCP/IPv opology Discovery Map opology Discovery Resp | 6) (4) per VO Driver ponder |
| Internet Prot Internet Prot Internet Prot Internet Prot Internet Prot Internet Prot Install | ocol Version 6 (TCP/IPv ocol Version 4 (TCP/IPv opology Discovery Map opology Discovery Resp Uninstall | 6) 4) per VO Driver ponder Properties |
| Internet Prot Internet Prot Internet Prot Internet Prot Internet Prot Install Description | ocol Version 6 (TCP/IPv ocol Version 4 (TCP/IPv opology Discovery Map opology Discovery Res Uninstall | 6) (4) boer VO Driver bonder Properties |
| | ocol Version 6 (TCP/IPv ocol Version 4 (TCP/IPv opology Discovery Map opology Discovery Resp Uninstall | 6) 4) ber VO Driver bonder Properties |

7. Fill IP address 192.168.0.1 and Subnet mask 255.255.255.0 and then press **OK**.

| neral | | | | | |
|---|-------------------------------|------------------|----------------|-------------------|--------------------|
| ou can get IP settings assigned a his capability. Otherwise, you ne or the appropriate IP settings. | automatically ed to ask yo | if you ur net | ır net work | work s admini: | upports strator |
| C Obtain an IP address autom | atically | | | | |
| • Use the following IP address | s: | | | | |
| IP address: | 192 | 168 | . 0 | . 1 | 16 |
| Subnet mask: | 255 | 255 | , 255 | . 0 | |
| Default gateway: | | (| • | •5 | |
| C Obtain DNS server address . | automatically | ; | | | |
| • Use the following DNS serve | r addresses: | | | | |
| Preferred DNS server: | | | e - 1 | 1 | |
| Alternate DNS server: | | | | | |
| Validate settings upon exit | - | | | Adva | nced |
| | | | | - 455 - | |



Set C410x BMC IP Address (Front Panel Button)

Change BMC IP address using front panel buttons.
 Front System LEDs



- 2. Hold down the ID button for 5 seconds.
- 3. While pressing the ID button, press and hold the power button for 5 seconds.
- 4. Release the power button, and then the ID button.
- 5. It will take \sim 30 seconds to change the configuration.
- 6. The ID light indicates which mode has been selected:
 - Solid for 5 seconds indicates static IP
 - Flashing for 5 seconds indicates DHCP
- 7. The static mode default IP address is 192.168.0.120.



Verify IPMIUTIL C410x Control

On HOST server end:

- 1. Log in W2K8R2SP1.
- 2. Press $\mathbb{H}+R$ to call Run and type cmd and then press **OK**.



3. Switch folder to ipmiutil which you extracted before.



4. Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 18 01"

Verify whether BMC feedback is "respData [len=15]: 20 01 01 21 02 ff a2 02 00 00 00 00 00 00 00 00". See example below.

Power GPGPU Slots On/Off To Clear Device Error "code 43"

The following table lists the IPMIUTIL raw command to switch on/off each GPGPU.

| Port Map Configure Command | | Ne | tFn | CMD | |
|--------------------------------|---|----|--------|-------------|------------|
| Slot power control OEM command | | c(| 0h | F0h | |
| Slot power control OEM command | | te | | | Data Field |
| Request Data | 1 |] | Bit7: | Slot 8 | |
| | | I | Bit6 : | Slot 7 | |
| | | I | Bit5 : | Slot 6 | |
| | | I | Bit4 : | Slot 5 | |
| | | I | Bit3 : | Slot 4 | |
| | | I | Bit2 : | Slot 3 | |
| | | I | Bit1 : | Slot 2 | |
| | | J | Bit0 : | Slot 1 | |
| | 2 | I | Bit7 : | Slot 16 | |
| | | ł | Bit6 : | Slot 15 | |
| | | ł | Bit5 : | Slot 14 | |
| | | ł | Bit4 : | Slot 13 | |
| | | I | Bit3 : | Slot 12 | |
| | | I | Bit2 : | Slot 11 | |
| | | ł | Bit1: | Slot 10 | |
| | | I | Bit0: | Slot 9 | |
| Response Data | 1 | (| Compl | letion code | |

Example1. If GPGPU slot1 get "code 43" error

GPGPU SLOT 01 to switch on/off

1. Power off GPGPU cards by ipmiutil command.

Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 01 00"

2. Power on GPGPU cards by ipmiutil command ,type the same command again will switch current status.

Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 01 00"

- Reboot the HOST by ipmitool command or other method of Remote control.
 #./ipmitool -I lanplus -H''HOST IP address'' -U''root'' -P''root'' chassis power reset.
- 4. The "code 43" error will be disappeared after HOST reboot.

Example2. If GPGPU slot9 get "code 43" error

GPGPU SLOT 09 to switch on/off

- 1. Power off GPGPU cards by ipmiutil command.
 - # Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 00 01"
- 2. Power on GPGPU cards by ipmiutil command, type the same command again will switch current status.
 - # Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 00 01"
- 3. Reboot the HOST by ipmitool command.

#./ipmitool -I lanplus -H"HOST IP address" -U"root" -P"root" chassis power reset.

4. The "code 43" error will disappear after HOST reboot.

Example3. If GPGPU slot16 get "code 43" error

GPGPU SLOT 16 to switch on/off

1. Power off GPGPU cards by ipmiutil command.

Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 00 80"

2. Power on GPGPU cards by ipmiutil command, type the same command again to switch current status.

Type "ipmiutil cmd -N 192.168.0.120 -U root -P root 00 20 c0 F0 00 80"

- Reboot the HOST by ipmitool command or other method of Remote control.
 #./ipmitool -I lanplus -H"HOST IP address" -U"root" -P"root" chassis power reset.
- 4. The "code 43" error disappears after HOST reboot

• IPMITOOL Installation and Execution Under Linux OS

IPMIUTIL Download IPMIUTIL Installation Start IPMITOOL Service Use IPMIUTIL To Control C410x -Topology -Set Client LAN IP Address -Set C410x BMC IP Address -Verify IPMIUTIL C410x Control Power GPGPU Slots On/Off To Clear Device Error "code 43"

IPMITOOL Download

1. Go to IPMITOOL website.

http://sourceforge.net/projects/ipmitool/files/

| | | Ads by Goo | gle |
|------------------------------|---|---|--|
| | Monitor & b | Download M lock user downloads inreal www.gfi.com/wel | onitor time. Download Risk-Free |
| sourceforge | Find Open Source Software | | |
| IPMItool by audetjm, c | arolh, iceblink, pere | | |
| Summary Files Rev | views Support Develop | Tracker Mailing Lists | Code |
| Looking for the latest versi | on? <mark>Download ipmitool-1.8.11</mark> | .tar.gz (770.0 KB) | 11/ipmitool-1.8.11.tar.oz: |
| Name + | | Modified 2009-02-25 22 | 2:06:17 UTC |
| ipmitool | | 2009-02-25 | |
| Totals: 1 Item | | | |

2. Click "Download ipmitool-1.8.11.tar.gz (770.0 KB)" to download.

Download will start automatically, if not you need to press "direct link" to download it.

3. Copy the installation file to USB flash.

IPMITOOL Installation

4. Boot into RHEL 5u3 later version.

- Mount USB flash (ex device sdb1) for using. #mount /dev/sdb1 /mnt
- Copy ipmitool installation package to the system from mounted folder. #cp /mnt/ipmitool-1.8.11.tar.gz /
- Uncompress the ipmitool package #tar –zxvf /ipmitool-1.8.11.tar.gz
- Swich folder to ipmitool installation where we extracted.
 #cd /ipmitool-1.8.11
- 9. Configure config file at first, if complete you can see interface information.
 - #./configure

10. Compile ipmitool file.

#make && make install

Start IPMITOOL Service

1. Start the ipmitool service. #service ipmi start

2. Check ipmitool installation correct, IPMITOOL will show you installation version #ipmitool –V

[root@localhost ipmitool-1.8.11]# ipmitool -V ipmitool version 1.8.11

Use IPMITOOL To Control C410x

TOPOLOGY

Server LAN port 0 connect to switch LAN port 0 IP:192.168.0.1

Set Client LAN IP Address

- 1. Log in RHEL5.
- 2. Check your LAN hardware device, eth0 and eth1 would show in list.
 - #ifconfig –a

| P root@loc | alhost:~ |
|------------|--|
| [root@loc | alhost ~]# ifconfig -a ^ |
| eth0 | Link encap:Ethernet HWaddr 00:A0:D1:EC:CB:A8 inet addr:192.168.0.48 Bcast:192.168.0.255 Mask:255.255.255.0 inet6 addr: fe80::2a0:d1ff:feec:cba8/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:1022 errors:0 dropped:0 overruns:0 frame:0 TX packets:1172 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:92830 (90.6 KiB) TX bytes:176024 (171.8 KiB) Memory:fb8e0000-fb900000 |
| eth1 | Link encap:Ethernet HWaddr 00:A0:D1:EC:CB:A9 BROADCAST MULTICAST MTU:1500 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:0 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:0 (0.0 b) TX bytes:0 (0.0 b) Memory:fb860000-fb880000 |

3. Set LAN IP address.

#ifconfig eth0 192.168.0.1 netmask 255.255.255.0 up

4. Check if IP is set on eth0, IP and mask will be set and enabled.

#ifconfig

| Proot@localhost:~ |
|---|
| login as: root |
| root@192.168.0.1's password: |
| Last login: Wed Apr 27 14:09:26 2011 from 192.168.0.99 |
| [root@localhost ~]# ifconfig |
| eth0 Link encap:Ethernet HWaddr 00:A0:D1:EC:CB:A8 |
| inet addr:192.168.0.1 Bcast:192.168.0.255 Mask:255.255.255.0 |
| <pre>inet6 addr: fe80::2a0:d1ff:feec:cba8/64 Scope:Link</pre> |
| UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 |
| RX packets:1072 errors:0 dropped:0 overruns:0 frame:0 |
| TX packets:1221 errors:0 dropped:0 overruns:0 carrier:0 |
| collisions:0 txqueuelen:1000 |
| RX bytes:98701 (96.3 KiB) TX bytes:186694 (182.3 KiB) |
| Memory:fb8e0000-fb900000 |

Set C410x BMC IP Address (Front Panel Button)

1. Change BMC IP address using front panel buttons.

Front System LEDs

- 2. Hold down the ID button for 5 seconds.
- 3. While pressing the ID button, press and hold the power button for 5 seconds.
- 4. Release the power button, and then the ID button.
- 5. It will take \sim 30 seconds to change the configuration.
- 6. The ID light indicates which mode has been selected:
 - Solid for 5 seconds indicates static IP
 - Flashing for 5 seconds indicates DHCP
- 7. The static mode default IP address is 192.168.0.120.

Verify IPMITOOL C410x Control

On HOST server end:

- 1. Log in RHEL.
- 2. Execute ipmitool to check if C410x information is displayed.

ipmitool I -lanplus -U"root" -P"root" -H"192.168.0.120" fru

| ₽ root@localhost:~ | | J |
|-------------------------|--|---|
| [root@localhost ~]# ipr | itool -I lanplus -U"root" -P"root" -H"192.168.0.120" fru 🖌 | • |
| FRU Device Description | : Builtin FRU Device (ID 0) | |
| Chassis Type | : Unspecified | |
| Board Mfg Date | : Sun Jan 9 04:52:00 2011 | |
| Board Mfg | : Dell Inc. | |
| Board Product | : PowerEdge | |
| Product Manufacturer | : Dell Inc. | |
| Product Name | : PowerEdge C410X | |
| Product Serial | : 1234567 | |
| Product Asset Tag | : pqrstuvwxy | |
| | | |
| [root@localhost ~]# | | |

Power GPGPU Slots On/Off To Clear Device Error "code 43"

The following table lists the IPMIUTIL raw command to switch on/off each GPGPU.

| Power control each slot comma | and⊬ | | -121 | | |
|---------------------------------|-------|--|---|-----------------|-------------|
| Port Map Configure Command@ | | letFn₽ | CMD₽ | 4 | |
| Slot power control OEM command® | | 30h₽ | F0h¢ ² | T. | |
| Detail information+ | | | | | |
| Slot power control OEM command | Byte₽ | | | | Data Field# |
| Request Data* | 1+2 | Bit7 : Bit6 : Bit5 : Bit4 : Bit3 : Bit2 : Bit1 : Bit0 : | Slot 84 Slot 74 Slot 64 Slot 54 Slot 44 Slot 34 Slot 24 Slot 24 Slot 14 | | |
| | 2+2 | Bit7 : Bit6 : Bit5 : Bit4 : Bit3 : Bit2 : Bit1 : Bit0 : | Slot 164 Slot 154 Slot 144 Slot 134 Slot 124 Slot 114 Slot 104 Slot 94 | | |
| Response Data≠ ² | 1+2 | Comp | letion code | 84 ² | |

Example1. If GPGPU slot1 gets "code 43" error

GPGPU SLOT 01 to switch on/off

1. Power off GPGPU cards by ipmiutil command.

Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 01 00"

2. Power on GPGPU cards by ipmiutil command, typing the same command again will switch current status.

Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 01 00"

- 3. Reboot the HOST by ipmitool command or other method of Remote control.
 - #./ipmitool -I lanplus -H"HOST IP address" -U"root" -P"root" chassis power reset.
- 4. The "code 43" error disappears after HOST reboot.

Example2. If GPGPU slot9 gets "code 43" error

GPGPU SLOT 09 to switch on/off

1. Power off GPGPU cards by ipmiutil command.

Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 00 01"

2. Power on GPGPU cards by ipmiutil command, typing the same command again switchs current status.

Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 00 01"

3. Reboot the HOST by ipmitool command.

#./ipmitool -I lanplus -H"HOST IP address" -U"root" -P"root" chassis power reset.

4. The "code 43" error disappears after HOST reboot.

Example3. If GPGPU slot16 gets "code 43" error

GPGPU SLOT 16 to switch on/off

- 1. Power off GPGPU cards by ipmiutil command.
 - # Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 00 80"
- 2. Power on GPGPU cards by ipmiutil command, typing the same command again switchs current status.

Type "ipmitool -I lanplus -H" 192.168.0.120" -U"root" -P"root" raw 0x30 0xf0 00 80"

- Reboot the HOST by ipmitool command or other method of Remote control.
 #./ipmitool -I lanplus -H"HOST IP address" -U"root" -P"root" chassis power reset.
- 4. The "code 43" error will be disappeared after HOST reboot.

