

**Topic:** Incorrect USB Power Settings Cause C/Ports to Lose Connectivity  
**Component(s) Affected:** R1300, R1350, R3040S, R3080D PC Blades; C/Port; Disk Images  
**Date:** February 21, 2011

## OVERVIEW AND ENVIRONMENT

Certain Windows® operating system USB power management settings can cause devices connected to a C/Port to become unresponsive. Affected environments and devices include Microsoft Windows XP, Windows Vista™, and Windows 7 operating systems on ClearCube R-series blades.

## DETAILED DESCRIPTION

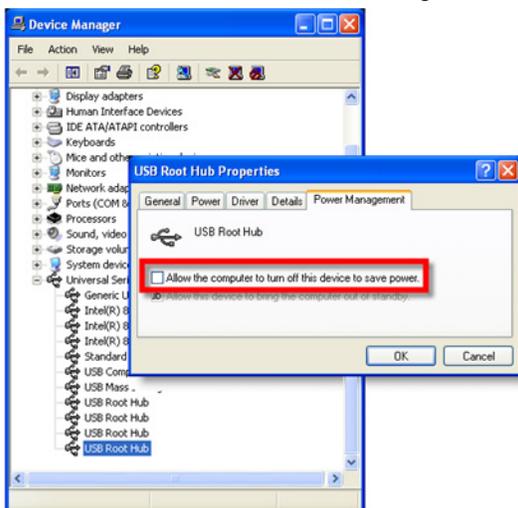
This tech bulletin addresses symptoms with interrelated causes and effects. The most common symptom is that C/Ports lose connectivity in unpredictable ways and connectivity cannot be restored. Troubleshooting attempts are often unsuccessful and users might not be able to consistently recreate the issue.

In most cases, these problem are symptomatic of improper USB power management settings in the operating system Control Panel. This section describes a temporary workaround (note that Control Panel settings are not the root cause of the issue).

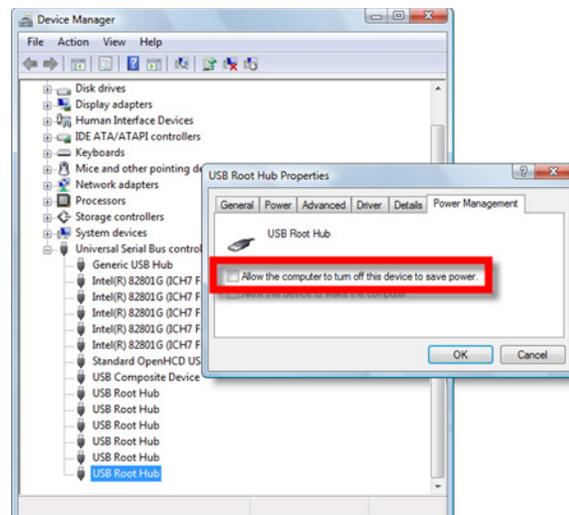
**NOTE** The workaround described here restores USB connectivity, though it is unlikely to resolve the issue's underlying causes. See the following sections for a detailed discussion about the cause of these issues.

### Temporary workaround

1. Restart the blade locally (press the blade's front panel Restart button).
2. From the operating system Device Manager (available from the Control Panel's **System** area), disable all USB root hub power management. Open the root hub properties dialog box and clear the **Allow the computer to turn off this device to save power** option and click **OK**. Perform this step for all USB root hubs listed in the Device Manager.



Windows XP



Windows 7

3. Reboot the blade again.

USB support is now restored at the C/Port until the next hardware reconfiguration or C/Port cable hot-swap. Perform the steps in the next section to address the root cause of this issue.



A number of factors contribute to this issue. C/Port firmware recognizes but does not always accurately report (enumerate) USB devices attached to the blade. When a blade restarts it polls USB ports, identifies the C/Port as a USB device, and configures it appropriately. If other USB devices (such as a keyboard, mouse, or mass storage device) are connected to the C/Port at restart, they are also recognized and enumerated. PS/2 input devices that are connected at startup are recognized as a part of the C/Port and wake up a connected blade.

If users hot-swap cables on the C/Port—including using ClearCube Sentral and a Switching Backpack to reassign the blade or the C/Port—incorrect USB power settings can cause the C/Port to become inaccessible. If USB root hubs in a blade are enabled to automatically turn off devices to save power (as discussed previously), a system can incorrectly identify a momentary disconnection of a USB device as an event in which all USB devices—including the C/Port—are disconnected. In this scenario, the C/Port and any connected devices lose connectivity until the system is rebooted locally.

The third USB root hub (starting from the top of the list) shown in the Device Manager list is the hub that is most likely to have power management option set incorrectly. This list typically contains three or four hubs. The power management option in the third hub must remain clear. The option in this hub can become selected without notice when any of the following situations occur:

- A hyperthreaded drive image is installed on a system with a non-hyperthreaded processor.
- Drive image defaults are set incorrectly for the processor.
- Unknown USB or KVM hardware is hot-swapped at the C/Port after a Windows operating system has started. The operating system does not recognize new KVM hardware until restart, and might not recognize new USB hardware unless the device works with a default USB driver in the operating system.

ClearCube operating system images are specially prepared to prevent these problems or to mitigate their effects. Drive images are configuration-specific, and while many organizations have significant reasons to develop custom configurations and images, changing some settings can cause unpredictable results.

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## RESOLUTION

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Until your operating system image is corrected, perform the procedure on the first page of this technical bulletin to clear the USB power management option each time this issue occurs.

Ensure that you use the correct operating system image for your blade.

- Use images supplied by ClearCube Technology, Inc.
- Use the image specified for the blade you are using.
- If a blade contains a processor that does not support hyperthreading, do not install a hyperthreaded image on the blade.
- If you develop your own images, ensure that you correctly specify hyperthreading (if applicable). Work with your ClearCube Systems Engineer and with ClearCube Technical Support to ensure that your custom configurations use valid, tested settings.

Configure your hardware and system correctly.

- Ensure that the power saving setting for USB root hubs (especially for the third hub) is disabled.
- Ensure that the correct drivers are installed on your system, and test drivers for devices that cannot use the default Windows operating system drivers.
- Be aware that your blade might not reliably recognize a new or previously unknown USB device that is hot-plugged into a C/Port after a Windows operating system starts. If this scenario occurs, the most

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practical resolution is to reboot the blade locally. This issue is documented in Tech Bulletin SE0053CP, *Hot-Plugging the Digital Link after Booting Windows*.

- Do not attach a USB device to the blade to circumvent this behavior. PS/2 mice and keyboards are recognized if they are present at the last restart, but other peripheral USB devices at the C/Port might be disabled. This issue is described in Tech Bulletin SE0052CP, *USB Devices on Blade Front Panel Disables C/Port USB Storage*.

Starting with Windows XP Service Pack 2, operating systems resolve part of this issue by polling hardware at startup to prevent incorrectly assigning hyperthreading status.

**Related Tech Bulletins:**

- CC0004UK, *Setting The Power Management Tab For USB In Windows XP*
- MK0022CP, *Unplugging USB Devices from C/Ports When Using MS Media Player*
- MK0031CP, *PS/2 Keyboard Hot Function Keys*
- SE0041JS, *Universal C/Port (UCP), PS/2 KVM Switches*
- SE0052CP, *USB Devices on Blade Front Panel Disables C/Port USB Storage*
- SE0053CP, *Hot-Plugging Digital Link after Booting Windows*
- SE0072CP, *S1 and S3 Standby Modes on R1200 with Windows XP*

For more information, contact ClearCube Technical Support.

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