# Controller disconnects during long tests - check Windows power management

## Symptoms

- The Spider connection drops during a long test, often overnight or after the PC has been left alone for a while.
- EDM shows the front-end as disconnected, and the test stops or aborts.
- The connection comes back after you reconnect the cable, restart EDM, or wake the PC.
- It happens most often when the Spider is connected through a USB-to-Ethernet adapter, a USB-C dongle, or a docking station.

## Cause

Windows saves power by turning off devices it thinks are idle. A USB-to-Ethernet adapter can be suspended, put into a low-power link state, or lose power when the PC goes to sleep. When that happens, the network link to the Spider is lost and EDM cannot reach the controller.

These are Windows and adapter driver settings. The fix is to turn off power saving for the adapter that connects to the Spider, and for the PC while tests are running.

## Step 1: Collect a diagnostic report

If you contact Crystal Instruments support about this problem, run this first and send us the report.

1. Click **Start**, type **PowerShell**, and open **Windows PowerShell**. You do not need to run it as administrator.
2. Copy the whole block below, paste it into the PowerShell window, and press **Enter**.
3. A file named **CI-Network-Power-Report.txt** is saved to your Desktop.
4. Attach this file to your email to support.

```
$out = Join-Path ([Environment]::GetFolderPath('Desktop')) 'CI-Network-Power-Report.txt'
& {
  "== Computer =="
  $cs = Get-CimInstance Win32_ComputerSystem; $os = Get-CimInstance Win32_OperatingSystem
  "$($cs.Manufacturer) $($cs.Model) | $($os.Caption) $($os.Version) | Last boot: $($os.LastBootUpTime)"
  "== Network adapters =="
  $pm = @{}; Get-CimInstance -Namespace root\wmi -ClassName MSPower_DeviceEnable -ErrorAction SilentlyContinue | ForEach-Object { $pm[($_.InstanceName -replace '_0$','')] = $_.Enable }
```

```
  Get-NetAdapter -Physical | Sort-Object Name | Select-Object Name,
InterfaceDescription, Status, LinkSpeed, DriverVersion,
    @{n='Bus';e={($_.PnPDeviceID -split '\\')[0]}},
    @{n='AllowTurnOff';e={ if ($pm.ContainsKey($_.PnPDeviceID)) {
$pm[$_.PnPDeviceID] } else { 'n/a' } }} | Format-Table -AutoSize
  Get-NetIPAddress -AddressFamily IPv4 | Where-Object InterfaceAlias -
notmatch 'Loopback' | Sort-Object InterfaceAlias | Format-Table -AutoSize
InterfaceAlias, IPAddress, PrefixLength
  "== Adapter power-saving properties =="
  Get-NetAdapter -Physical | Get-NetAdapterAdvancedProperty | Where-Object
DisplayName -match 'Energy|EEE|Green|Power|Idle|Sleep|Suspend' | Sort-Object
Name | Format-Table -AutoSize Name, DisplayName, DisplayValue
  "== Power plan (0x0 = off/never; AC = plugged in, DC = battery) =="
  powercfg /getactivescheme
  powercfg /query SCHEME_CURRENT 2a737441-1930-4402-8d77-b2bebba308a3
48e6b7a6-50f5-4782-a5d4-53bb8f07e226 | Select-String 'Power Setting
GUID|Current'
  powercfg /query SCHEME_CURRENT SUB_SLEEP STANDBYIDLE | Select-String
'Power Setting GUID|Current'
  powercfg /a
  "== Sleep/wake events, last 7 days =="
  $ev = Get-WinEvent -FilterHashtable @{LogName='System';
ProviderName='Microsoft-Windows-Kernel-Power'; Id=42,107,506,507;
StartTime=(Get-Date).AddDays(-7)} -ErrorAction SilentlyContinue
  if ($ev) { $ev | Select-Object -First 50 | Format-Table -AutoSize
TimeCreated, Id, @{n='Event';e={($_.Message -split "`r?`n")[0]}} } else {
'None found' }
} *>&1 | Out-File -FilePath $out -Encoding utf8 -Width 250
Write-Host "Report saved to $out"
```

The script only reads settings. It does not change anything on the PC.

## Step 2: Find the adapter that connects to the Spider

1. Press **Windows + R**, type **ncpa.cpl**, and press **Enter**.
2. Find the adapter that has the Spider subnet IP address (for example **172.0.0.x** or **169.254.x.x**). USB adapters usually have “USB” in the device name, for example **Realtek USB GbE Family Controller** or **ASIX AX88179 USB 3.0 to Gigabit Ethernet Adapter**.
3. Write down the device name. You need it in the next steps.

## Step 3: Turn off power saving on the adapter (Advanced tab)

1. Right-click **Start** and click **Device Manager**.
2. Expand **Network adapters**.
3. Right-click the adapter from Step 2 and click **Properties**.
4. Click the **Advanced** tab.

5. For each property in the table below that is in the list, select it and set **Value** to **Disabled** (or **Off**).
6. Click **OK**.

| Property (names vary by driver) | Set to |
|---|---|
| **Energy-Efficient Ethernet** / **EEE** | Disabled |
| **Advanced EEE** | Disabled |
| **Green Ethernet** | Disabled |
| **Idle Power Saving** | Disabled |
| **Selective Suspend** | Disabled |
| **Power Saving Mode** | Disabled |

Not every adapter has all of these properties. Change the ones that are there and leave the others.

The adapter may disconnect for a few seconds when you click **OK**. This is normal.

## Step 4: Do not let Windows turn off the adapter (Power Management tab)

1. In **Device Manager**, open the adapter **Properties** again.
2. Click the **Power Management** tab.
3. Clear the **Allow the computer to turn off this device to save power** check box.
4. Click **OK**.

Some PCs do not show the **Power Management** tab for some adapters. If the tab is not there, go to the next step.

If the adapter is in a USB-C dock or hub, also do this for the hub:

1. In **Device Manager**, expand **Universal Serial Bus controllers**.
2. For each **USB Root Hub** and **Generic USB Hub**, open **Properties** and clear the same check box on the **Power Management** tab.

## Step 5: Turn off USB selective suspend

1. Press **Windows + R**, type **powercfg.cpl**, and press **Enter**.
2. Next to the selected power plan, click **Change plan settings**.
3. Click **Change advanced power settings**.
4. Expand **USB settings** > **USB selective suspend setting**.
5. Set **Plugged in** to **Disabled**. On a laptop, also set **On battery** to **Disabled**.
6. Click **OK**.

If **USB settings** is not in the list, run these commands in PowerShell instead:

```
powercfg /setacvalueindex SCHEME_CURRENT 2a737441-1930-4402-8d77-
b2bebba308a3 48e6b7a6-50f5-4782-a5d4-53bb8f07e226 0
powercfg /setdcvalueindex SCHEME_CURRENT 2a737441-1930-4402-8d77-
b2bebba308a3 48e6b7a6-50f5-4782-a5d4-53bb8f07e226 0
```

```
powercfg /setactive SCHEME_CURRENT
```

## Step 6: Set sleep to Never

Windows 11:

1. Click **Start** > **Settings** > **System** > **Power & battery**.
2. Expand **Screen, sleep, & hibernate timeouts** (on some versions: **Screen and sleep**).
3. Set the sleep setting for **Plugged in** to **Never**.

Windows 10:

1. Click **Start** > **Settings** > **System** > **Power & sleep**.
2. Under **Sleep**, set **When plugged in, PC goes to sleep after** to **Never**.

The screen can still turn off. Only sleep must be **Never**.

On a laptop that runs with the lid closed, also set the lid action:

1. Press **Windows + R**, type **powercfg.cpl**, and press **Enter**.
2. Click **Choose what closing the lid does**.
3. Set **When I close the lid** > **Plugged in** to **Do nothing**.
4. Click **Save changes**.

## Step 7: Check that the fix worked

1. Restart the PC.
2. Run the diagnostic block from Step 1 again and open the new report. Check that:
   - The Spider adapter shows **AllowTurnOff** as **False** or **n/a**.
   - The power-saving properties of the Spider adapter show **Disabled** or **Off**.
   - **USB selective suspend setting** shows **Current AC Power Setting Index: 0x00000000**.
   - **Sleep after** shows **Current AC Power Setting Index: 0x00000000** (never).
3. Run a test that is as long as the one that failed before, or leave a test running overnight.
4. Do not use the PC for other work during this test.
5. Confirm that the test finished without a disconnect.

If the Spider still disconnects, run the diagnostic block again right after the disconnect and send the report to Crystal Instruments support. Tell us the date and time of the disconnect. If you can, also try a different USB-to-Ethernet adapter or the PC's built-in Ethernet port.

From:
https://help.go-ci.com/ - **Crystal Instruments Help**

Permanent link:
**https://help.go-ci.com/vcs:controller-disconnects?rev=1793039025**

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