

## **Monitor - ISSN 1472-0221**

The Newsletter for PC-Based Data Acquisition and Control  
Issue 186, January 2014

Welcome to January's Monitor - I hope it finds you well. Thanks very much for subscribing, and if you wish to download our free data acquisition software you may do so from <http://www.windmill.co.uk/jsarpsrr.htm>

We hope you find Monitor useful, but should you wish to remove yourself from our mailing list you can do so at [http://www.windmillsoft.com/daqshop/Monitor\\_Newsletter.html](http://www.windmillsoft.com/daqshop/Monitor_Newsletter.html)



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### **Solving USB Problems**

Web link: <http://www.windmill.co.uk/usb.html>

This month a Windmill customer was having problems with a data acquisition device that was suddenly stopping, seemingly at random.

The cause of the problem was the USB connection. Under Windows 7, occasionally the USB connection drops. USB has no mechanism for recovery when this happens. The only thing you can do is unplug the cable and then plug it back in again, which re-initialises the Windows USB drivers.

For long-term monitoring and control this is obviously not ideal. In these cases we would recommend connecting devices to the PC using Ethernet rather than USB. Unlike USB, Ethernet can self-correct after an error. Our [Ethernet](#) data acquisition devices are listed at <http://www.windmillsoft.com/daqshop/ethernet.html>.

If you are already using USB hardware under Windows 7, and don't want to swap to using Ethernet, try these remedies.

1. Disable "Allow the computer to turn off this device to save power" in USB Root Hub
2. Disable Selective Suspend settings in Advanced Power Options

## **1. Stopping the Computer Turning off USB Devices**

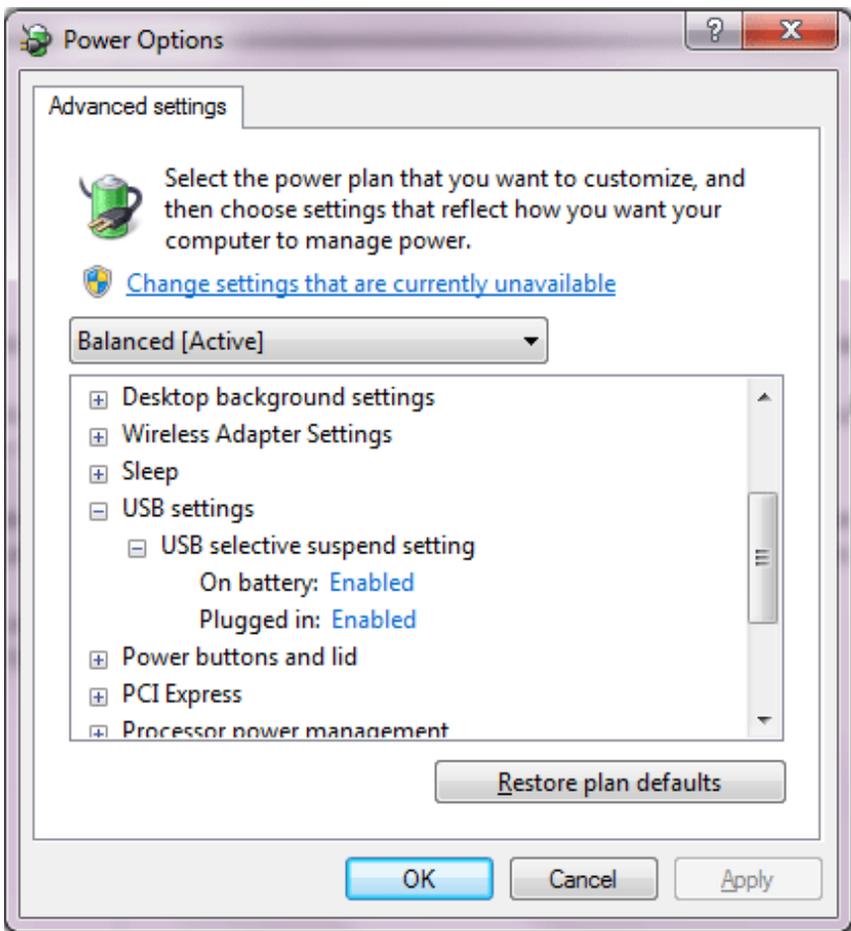
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- a. Open Windows Control Panel.
- b. Go to: Hardware and Sound, Device Manager.
- c. Expand the Universal Serial Bus controllers entry.
- d. Right-click the USB Root Hub and choose Properties.
- e. A dialogue box appears: click its Power Management tab.
- f. Un-check the "Allow the computer to turn off this device to save power" box.

## **2. Disabling Selective Suspend Settings in Advanced Power Options**

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- a. Open Windows Control Panel.
- b. Go to: Hardware and Sound, Power Options.
- c. Select "Change plan settings" for your selected power plan.
- d. Select "Change advanced power settings".
- e. Find the entry "USB settings" and under this the "USB selective suspend setting"



f. Click "Enabled" and change it to "Disabled".

Hope this helps - any questions e-mail [monitor@windmillsoft.com](mailto:monitor@windmillsoft.com).

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## The Internet of Things - Is it Everything You're Hoping For?

### What is It?

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The Internet of Things, or IoT, comprises all devices that don't need direct intervention and can communicate via the internet - from home automation products to industrial machinery.

## What can the IoT do for You?

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It promises much - savings in fuel, energy and money; better performing and longer-lived machines; greater knowledge; increased safety; major efficiencies; productivity gains...the list goes on.

## How does it Work?

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To connect something to the Internet of Things you start by embedding sensors to collect data. One example I like is of Lydia, the Great White Shark. Researchers have tagged her, and every time she visits the surface she pings back her position. You can see Lydia's massive 6000 mile track at <http://www.ocearch.org/?profile=lydia>.



All IoT sensors need to send data to the outside world, eg through Wi-Fi, Bluetooth, Zigbee or Ethernet. Software is also needed to process the data.

## Is it a Flash in the Pan?

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Not according to researchers. Cisco, a networking equipment company, predicts that by 2020 there will be 50 billion things connected. Another forecast, this time by IDate, estimates the number as 80 billion. Higher yet is market research company IDC's projection of 200 billion things by 2020.

Also in the news this month was the announcement that Google had paid \$3.2bn for Nest in its largest acquisition of a private company. Nest produce stylish smoke alarms and thermostats which rely on a smartphone app for remote control. Its turnover is around \$300 million. Google is betting on the

Internet of Things being a huge opportunity.

## Any Drawbacks?

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Of course. Proofpoint, a data protection company, reported just last week that a fridge had sent thousands of malicious emails.<sup>(1)</sup> While IT experts have long predicted security risks associated with the Internet of Things, this is the first time actual proof of such a cyber attack involving common appliances.



## Give me some Examples

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Equipment that can predict its own failure before it occurs, letting maintenance engineers replace parts when they are needed rather than after a set time. Imagine that each part in a train had its own sensor and was monitored individually. Maintenance would become much easier and more efficient as each part would report on its condition - the brakes, the air conditioning, thermostats. The same is true for manufacturing machines and process plant.

Some insurance companies are issuing devices which monitor the amount of miles drivers do, their speed, braking and accelerating habits, and so on. Tailoring insurance to individuals.

Pill bottles which tell you when you've forgotten to take your medication. A whole new meaning to baby monitors.

Buildings that send reports about their structural health.

Oh, and fridges that can tell you when the milk's gone off. If they are not too busy sending spam emails.

## Further Reading

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(1) Proofpoint Uncovers Internet of Things (IoT) Cyberattack

<http://www.proofpoint.com/about-us/press-releases/01162014.php>

Thingful Map of Internet of Things - Search for what's connected near you

<http://thingful.net/>

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## Questions on Using Windmill: Excel

### Question:

In Excel, I can successfully paste the link "Windmill|Data!AllChannels" and obtain all data in a horizontal row but cannot produce data in a vertical column. Is this possible?

### Answer

Yes. To do this set up a [macro in Excel](#). An example is at <http://www.windmill.co.uk/excel/#Excel>

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## Exhibitions

The quarterly update of data acquisition and control exhibitions around the world.

### Integrated Systems Europe

4-6 February

Amsterdam Netherlands

Trade show for the electronic systems industry.

<http://www.pittcon.org/>

### PITTCON

2-6 March

Chicago USA

Exhibition for scientists using analytical instrumentation. With lectures from leading scientists.

<http://www.iseurope.org/>

## **AIMEX - Automation World**

4-7 March

Seoul South Korea

International automation, instrumentation and control exhibition.

<http://automationworld.biz/>

## **ARABLAB**

17-20 March

Dubai

Showcases the latest laboratory and instrumentation equipment

<http://www.arablab.com/>

## **Date**

24-28 March

Dresden Germany

Design, automation and test in Europe.

<http://www.date-conference.com/>

## **AUTOMATICON**

25-28 March

Poland

Trade fair for automation, control, measurement and robotics

<http://www.automaticon.pl/english/>

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## **DAQ News Round-up**

Welcome to our round-up of the data acquisition and control news. If you would like to receive more timely DAQ news updates then follow us on

[Twitter](#) - [@DataAcquisition](#) or [Google+](#) -

<https://plus.google.com/107072683025496630222/>

Welcome to our round-up of the data acquisition and control news.

### **Human Arm Sensors Make Robot Smarter**

Using arm sensors that can "read" a person's muscle movements, researchers have created a control system that makes robots more intelligent. The sensors send information to the robot, allowing it to anticipate a human's movements and correct its own. The system is intended to improve time, safety and efficiency in manufacturing plants.

Source: Georgia Tech

<http://www.news.gatech.edu/2014/01/14/human-arm-sensors-make-robot-smarter>

### **Portable sensor detects Greenhouse Gases**

A new highly sensitive portable sensor can test the air for the most damaging greenhouse gases. The device uses a thumbnail-sized quantum cascade laser (QCL) and tuning forks to detect very small amounts of nitrous oxide and methane.

Source: Eureka Alert

[http://www.eurekaalert.org/pub\\_releases/2014-01/ru-rul012214.php](http://www.eurekaalert.org/pub_releases/2014-01/ru-rul012214.php)

### **Fieldbus Foundation releases final specification for Wireless Devices**

The Fieldbus Foundation has released the final specification for integration of ISA100.11a wireless field devices into its Foundation for Remote Operations Management technology.

Source: Fieldbus Foundation

<http://tinyurl.com/fieldbus>

### **Bee sensors take flight to help farmers**

Thousands of honey bees in Australia are being fitted with tiny sensors as part of a research program to monitor the insects and their environment using a technique known as 'swarm sensing'.

Source: CSIRO

<http://www.csiro.au/>

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For previous issues by subject see

<http://www.windmill.co.uk/monitorindex.html>

### **FREE DATA ACQUISITION SOFTWARE**

As a thank you for subscribing we offer you the ComDebug data logging and Com port trouble-shooting software for free. Log data over RS232, RS422, RS485 or Modbus. Also included is a free month's trial of the Windmill 7 logging, charting and control programs. To download the software go to

<http://www.windmillsoft.com/jsarrpsr.htm>

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