APPLICATION NOTE 5916

IBUTTON MISSION DATA RECOVERY: MEMLOG USER GUIDE

By: Wilson Tang, Member of Technical Staff

Abstract: This application note describes using the memlog utility to recover the raw temperature and humidity values from the iButton.This application noteis not for recovering iButtons with CRC or depleted battery issues.

This application note describes how to use the memlog utility to download the raw temperature and humidity values from the iButton® after a new mission is started. This utility does not recover iButtons with CRC or depleted battery issues.

To successfully recover data, you must have:

1. Accidently started a new mission and quickly stopped it, to prevent it from overwriting old data
2. Remember your mission parameters: resolution (low or high), sampling rate, start time
3. For a DS1923, recall if you also took humidity data
4. Know if rollover occurred

The iButton loggers contain mission data, but once you use the OneWireViewer to start a new mission, all previous mission information is lost. The raw data is still accessible, assuming you quickly stop the new mission to prevent it from overwriting the old data.

The memlog utility (memlog.zip) can be downloaded. Unzip the files into a folder. Plugin the DS9490R USB to iButton Adapter and double click on the run.bat file to run the application. It will prompt you to select the iButton based upon serial number.

```
iButton Data Log Dump for DS1921G, DS1922L/T, DS1923

MainMenu 1-Wire Memory Demo
(0) Select Device
(1) Quit

Please enter value: 0
Device Selection
(0) C7 00 00 00 33 1B 08 81
(1) F0 00 00 00 22 F0 B4 41
1
```
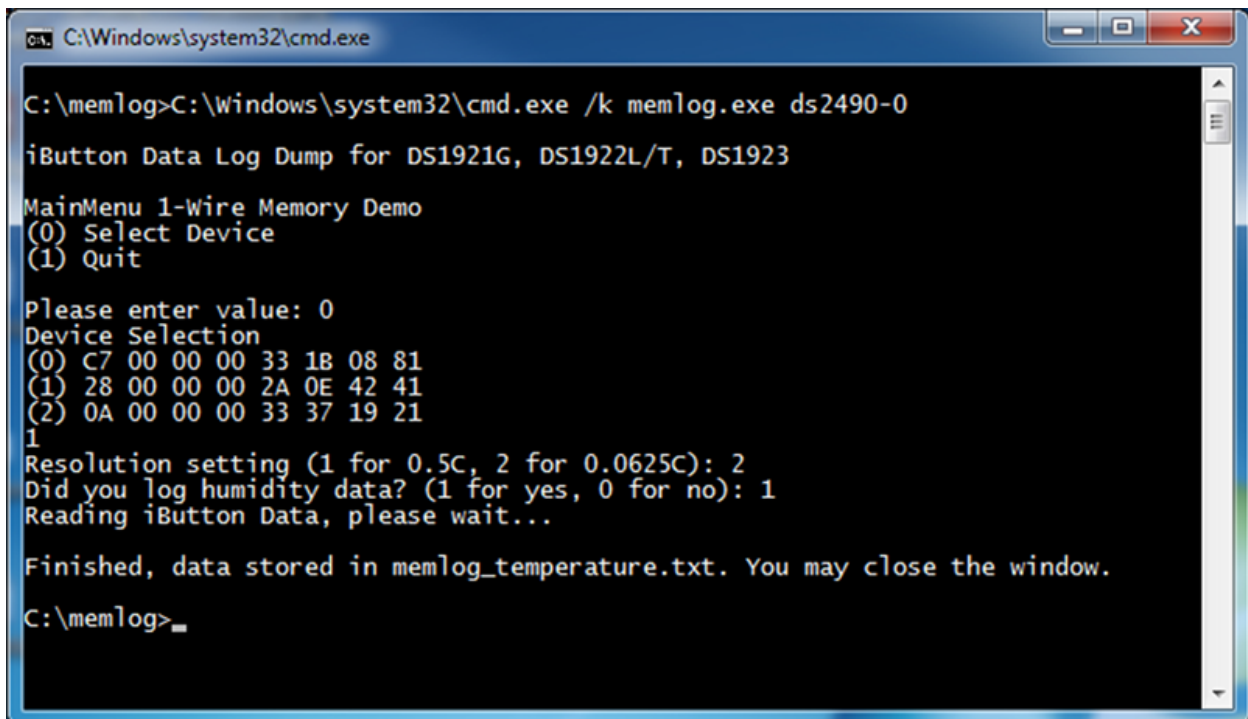
Mission Settings

You can find the serial number information in OneWireViewer. For DS1922 and DS1923, you must select the mission settings for resolution, and for the DS1923 you also must select it if you logged humidity data. This assumes you used low resolution or high resolution for both the temperature and humidity data. If you do not remember the parameters, you can try different combinations, and review the output data between trials.

```
Resolution setting (1 for 0.5C/0.6%RH, 2 for 0.0625C/0.04%RH): 2
Did you log humidity data? (1 for yes, 0 for no): 1
Reading iButton Data, please wait...

Finished, data stored in memlog_temperature.txt. You may close the window.
```

The data log is read and then saved into a file memlog_temperature.txt in the same folder as memlog.exe. You can open the file in Microsoft® Excel® as a tab delimited file. The first column contains the temperature data, and the second column contains the humidity data (if selected). There is no time information available; you will have to manually enter it. Each time memlog is opened, the output is added to the end of the text file. Delete memlog_temperature.txt before re-running memlog.

Figure 1. The output of memlog.

Rollovers

The data also does not account for rollovers. Rollovers occur when the iButton memory is full, then the new data points overwrite the old data points. The number of points the iButton can store is listed in **Table 1**.

Table 1. Maximum Number of Data Points Stored in the iButton

	Low Resolution	High Resolution
DS1921G	2048	N/A
DS1922L/DS1922T	4096	8192
DS1923 Temperature	8192	4096
DS1923 Temperature/Humidity	4096	2048

This application can be used to recover the data log in most cases where you accidentally start a new mission before downloading the old data. Assuming you remember the mission parameters, start time, sampling interval, and how long you left the iButton out in the field to determine if a rollover occurred.

The source code for the application is also available in the download. (The source code is only needed for users who wish to modify the application.) This is designed to compile with the 1-Wire® Public Domain Kit (PDK). The PDK contains sample code for other utilities and also provides a library for accessing 1-Wire masters.

1-Wire is a registered trademark of Maxim Integrated Products, Inc.
Excel is a registered trademark of Microsoft Corporation.
iButton is a registered trademark of Maxim Integrated Products, Inc.
Microsoft is a registered trademark and registered service mark of Microsoft Corporation.

Related Parts	
DS1921G	Thermochron iButton Device
DS1922L	iButton Temperature Loggers with 8KB Data-Log Memory
DS1922T	iButton Temperature Loggers with 8KB Data-Log Memory
DS1923	iButton Hygrochron Temperature/Humidity Logger with 8KB Data-Log Memory
DS9490R	USB to 1-Wire/iButton Adapter

More Information
For Technical Support: http://www.maximintegrated.com/en/support
For Samples: http://www.maximintegrated.com/en/samples
Other Questions and Comments: http://www.maximintegrated.com/en/contact