

# **WINDMILL**

# **Real Time Data**

# **Server**

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**Windmill Software Limited**

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# Table of Contents

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1	Introduction	1
2	Installing Windmill Real Time Data Server	1
3	Using With Excel	4
4	Fault Finding	5

# 1 Introduction

Windmill Real Time Data Server shows live data from your data acquisition device in an Excel spreadsheet. It also lets you use Excel to control instruments and output channels.

Supplied as part of the Enhanced Windmill package, or as an update to the standard Windmill software suite, Real Time Data (RTD) Server can transfer data over USB, Internet, Ethernet, Modbus, RS-232, RS-422, RS-485 and TCP/IP.

You can choose

- How often to read data from Windmill (the sampling interval)
- How often Excel updates its cells (the update rate)
- Which channels you wish to read and control (from the \*.ims setup file)
- Which channel to switch if an alarm occurs
- What value to send to that channel

# 2 Installing Windmill Real Time Data Server

1. First install your Standard or Enhanced Windmill Software. The software is normally installed into the:

`c:\windmill\`

folder (where `c:` is the drive on which Windows is running). Two other folders are created,

`c:\windmill\setups\`

for details of the program settings and

`c:\windmill\data\`

for your data files.

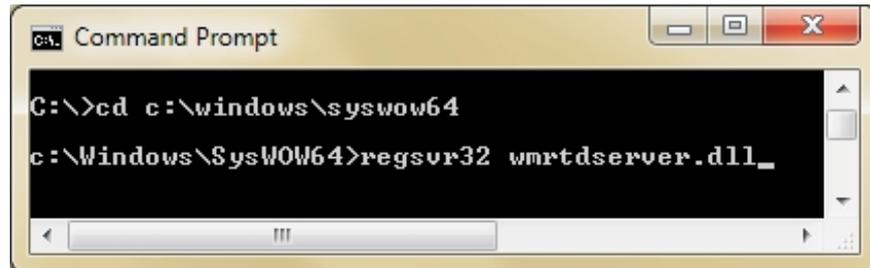
If you have bought Windmill Real Time Data Server as part of the Enhanced Windmill package, it will automatically be installed in the `c:\windmill` folder.

2. If you have bought Real Time Data Server as an add on, copy `wmRTDserver.dll` to the `c:\windmill` folder. If Windmill is not in the `c:\windmill` folder, please contact Windmill Technical Support: telephone +44 (0)161 833 2782 or e-mail [techsupport@windmill.co.uk](mailto:techsupport@windmill.co.uk)

3. You can now **register the wmRTDserver.dll**, so Excel knows where it is.

In **Windows 7 or 8**, run command prompt as an administrator (select Start menu > All Programs > Accessories and right click Command Prompt). Type the following, pressing Return at the end of a line.

```
cd c:\windows\syswow64
regsvr32 c:\windmillwmrtdserver.dll
```



For **Windows XP**, select Start menu.Run... and enter:  
regsvr32 c:\windmill\wmrtdserver.dll

4. Before trying to use Windmill Real Time Data, use ConfIML and SetupIML to enter details of your hardware. Run Windmill Logger just to check that Windmill is receiving data correctly. Select the Help menu in each of the programs for more details. You may also find our web site useful at <http://www.windmill.co.uk/techsupp.html>
5. Choose channels and update rates by editing the wmRTDserver.ini file in a text editor like Notepad.

## 2.1 Choosing Channels and Update Rate

Windmill Real Time Data Server reads the hardware setup file (\*.ims) that you created with the SetupIML program. You need to tell Windmill Real Time Data Server:

- which setup file to use (\*.ims)
- the interval between updates on the Excel worksheet in seconds (update rate)
- the interval between reading channels in seconds (sampling rate)
- if you wish to switch a digital output channel when an alarm occurs

You do this by editing the wmRTDserver.ini file

1. Open `wmRTDserver.ini` in, for example, Notepad. It looks like this  
[RTD]  
IMSfile=c:\windmill\setups\testrtd.ims  
update=20  
sample=2  
alarm response=chan6 1
2. Edit the `IMSfile` line to refer to the setup file containing your **data channels**.
3. Change the **update** line to specify how often you want Excel to update its data. In the file shown above, Excel would update every 20 seconds.
4. Change the **sample** line to specify how often RTD Server is to grab data from the Windmill hardware drivers. A smaller interval than Excel's update rate is useful for calculating averages etc. So if you are sampling data every 2 seconds, and updating Excel every 20 seconds, then entering an average in Excel would show the average of the last ten readings.
5. If you have set **alarms** with SetupIML, you can tell RTD Server to send a value to a channel when an alarm occurs. Edit the alarm response line to show the name of the channel and the value to send to it. In the example above, on alarm the RTD Server would send a value of 1 to a channel called `chan6`. The software checks for alarms according to the sample rate, so in our example every 2 seconds.

The alarm channel depends on what hardware you have connected. For example, it may be a digital output channel which enables you to sound an alarm or switch equipment on or off. Alternatively you could send an RS232 instrument a message.

Note: Channel names are case sensitive.

## 3 Using With Excel

Windmill Real Time Data Server makes it very easy for you to get data from your instrument into Excel. Just enter one of these formulae into a cell.

**To show an updating reading from an input data channel, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "chan0")
```

Where chan0 is the name of the channel from which you want to obtain data. This is case sensitive and must exactly match the channel's name in the \*.ims file you specified.

**To show the time of the reading as hh:mm:ss, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "time")
```

**To show the time of the reading in milliseconds, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "msecs")
```

	A	B	=RTD("Windmill_RTD_server.IMLRTD", "", "time")			
4						
5	Time	Temperat	Humidity	Windspee	Gustspee	Direction
6		oC	%	mph	mph	o
7	11:56:52	6.1	63	7	8	3
8	11:57:00	6.1	63	6	7	4
9	11:57:08	6.1	63	6	7	357
10	11:57:16	6.1	63	6	9	348
11	11:57:24	6.1	63	6	9	351
12	11:57:32	6.1	63	7	7	342
13	11:57:40	6.1	63	6	8	336
14	11:57:48	6.2	63	6	9	343
15	11:57:56	6.2	63	7	9	342
16	11:58:04	6.2	63	6	9	331
17	11:58:12	6.2	63	7	8	334
18	11:58:20	6.2	63	6	5	322
19	11:58:28	6.2	63	6	5	324

**To set an output, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "write(chan6  
1) ")
```

Where chan6 is the output channel name and 1 is the output value to send to the channel

**To set an output and read a list of input channels, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "write(chan6  
1) list(chan0,chan1,chan2) ")
```

**To set an output and read a single input channels, use:**

```
=RTD("Windmill_RTD_server.IMLRTD", "", "write(chan6  
1) chan0")
```

## **3.1 Using with a Macro or VBA Program in Excel**

You can use the Real Time Data Server from a macro or VBA program in Excel in this way.

```
sValue =  
Application.Worksheet.RTD("Windmill_RTD_Server.IMLRTD","", "chan0")
```

The above should be all on one line.

## **3.2 Using the RTD server on a different computer on the local network**

If you want to run the Windmill\_RTD\_Server on a PC which is networked to the one running the Excel spreadsheet, then you need to enter the computer name, or IP address in the second parameter of the RTD function. e.g if the PC running the Windmill\_RTD\_Server has the IP address: 192.168.1.100 then use the call:

```
=RTD("Windmill_RTD_Server.IMLRTD","192.168.1.100","chan0")
```

## 4 Fault Finding

The Windmill\_RTD\_Server creates a log file for each run. This log file is called: C:\windmill\wmrtdserver\_log.txt

You can use this to locate and fix any problems you may have. If you need more help see our web site at <http://www.windmill.co.uk/> or contact [techsupport@windmill.co.uk](mailto:techsupport@windmill.co.uk).

### 4.1 #N/A

If you see #N/A, check that:

- You've successfully registered the wmRTDserver.dll file (page 2 refers)
- You've typed the formula correctly (page 4 refers)
- Your security level is not set to high. On the Tools menu in Excel, point to Macro, select Security and choose the Security Level tab.