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TUTORIAL 4373

ONEWIREVIEWER AND IBUTTON QUICK START GUIDE

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Abstract: This application note is a Quick Start Guide. It enumerates the steps for quick setup of hardware and software to evaluate iButton[®] devices with a personal computer and Microsoft[®] Windows[®]. The guide identifies all the necessary hardware and gives step-by-step instructions for connecting the hardware and installing the software, which includes the OneWireViewer demonstration program.

Introduction

Maxim's iButton[®] products are designed so that a personal computer (PC) can easily read from or write to an iButton device. The OneWireViewer is a convenient demonstration software program that allows users to easily read from and write to iButtons with a Windows-based PC that has a USB port. (The Getting started section discusses limitations when writing to EPROM-based iButtons.) The PC must have Java[®] JRE installed. We suggest obtaining the JRE from [Oracle[®]](#), [AdoptOpenJDK](#), or another preferred vendor.

The OneWireViewer requires additional software drivers to allow the PC to communicate with the adapter. Both OneWireViewer and the required 1-Wire[®] drivers are bundled together and available for free download.

The OneWireViewer and 1-Wire drivers work with Windows[®] 10, Windows 7, and older Windows versions,. This application note gives detailed installation instructions for PCs using Windows 10, Windows 7, Windows Vista, or Windows XP operating systems.

Getting started

To communicate with your iButton, you need all of the items shown in **Figure 1**.



Figure 1. Required setup components.

Maxim provides two iButton kits that include the adapter, reader, and iButtons for evaluation:
DS1921K#—iButton Temperature Logger Starter Kit
DS9092K#—iButton Starter Kit

All the components required for iButton evaluation are included in the kits. However, if the end application requires production quantities, then the adapters and reader/probes can be purchased separately by their individual part numbers. The DS9490R# adapter plugs into your PC's USB port. Most users find the adapter and the reader/probe in the starter kits useful for their evaluation and end use. Maxim sells other adapters separately for applications that require a serial -port interface instead of USB. To view other available adapters, go to our [Adapters page](#).

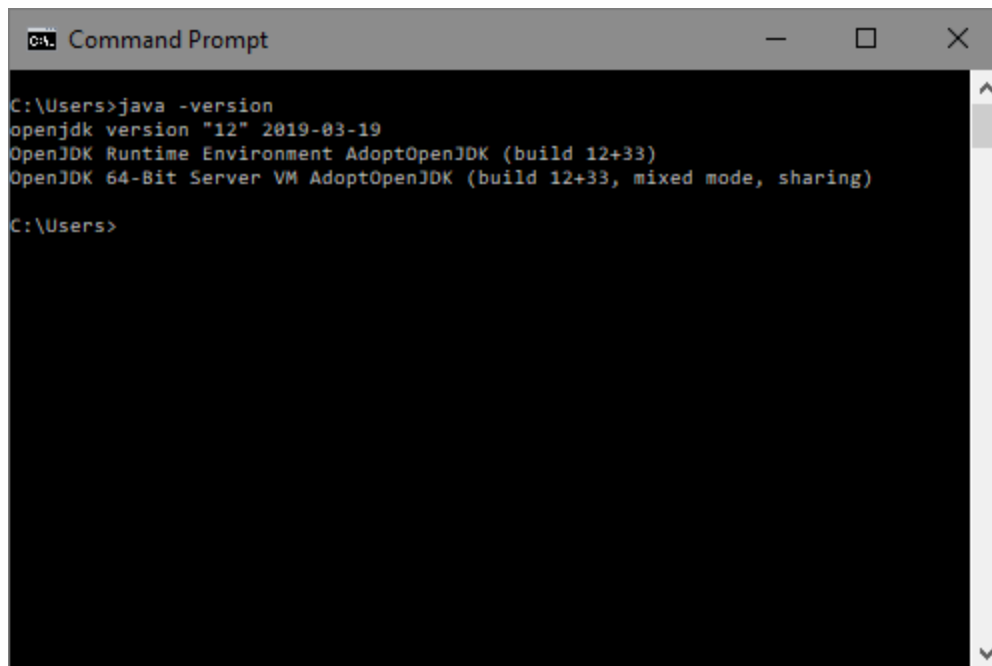
Important note: if you intend to program EPROM-based iButtons (**DS1982**, **DS1985**, or **DS1986**), you must use a serial -port adapter, the DS9097U-E25 with an external 12V power supply. This adapter has a 25-pin serial connector and requires a 9-pin to 25-pin serial converter to work with most PCs. The USB adapter can read these EPROM devices, but not program them.

The reader/probe has an RJ-11 modular connector that plugs into the adapter. Most users find the DS1402D-DR8# network cable useful for evaluation purposes. Maxim offers other alternate versions [here](#).

All iButton devices communicate using the 1-Wire protocol. For designers doing printed circuit board design, 1-Wire devices in plastic packages may be more suitable than the iButton form factor. To evaluate 1-Wire plastic packaged devices, use the DS9090K 1-Wire Device Evaluation (EV) Kit.

Step 1. Java installation

Many PCs have Java software installed at the factory. The OneWireViewer requires Java 6 or higher. To check if you have Java installed or which version you have, open the command prompt and type “java –version”, as shown in **Figure 2**



```
C:\Users>java -version
openjdk version "12" 2019-03-19
OpenJDK Runtime Environment AdoptOpenJDK (build 12+33)
OpenJDK 64-Bit Server VM AdoptOpenJDK (build 12+33, mixed mode, sharing)

C:\Users>
```

Figure 2. Checking the Java version.

If you need to install Java, we recommend visiting the [Oracle](#) website, [AdoptOpenJDK](#), or any other JER distributor.

Step 2. Download bundled OneWireViewer and 1-Wire drivers

NOTE: DO NOT INSERT THE DS9490R# USB ADAPTER INTO THE PC YET. THIS SHOULD NOT BE DONE UNTIL STEP 4, AND WILL USUALLY CAUSE INSTALLATION PROBLEMS IF DONE BEFORE STEP 4.

Download the bundled OneWireViewer and 1-Wire drivers [here](#) . These pages have pulldown menus to help select the correct file for the operating system that you are running. Microsoft operating systems come in 32-bit and 64-bit versions. If you are not certain which version you have, go to the start menu and type “control panel”. Select **System and Security** and then select **System** to display your operating system version, as shown in **Figure 3**

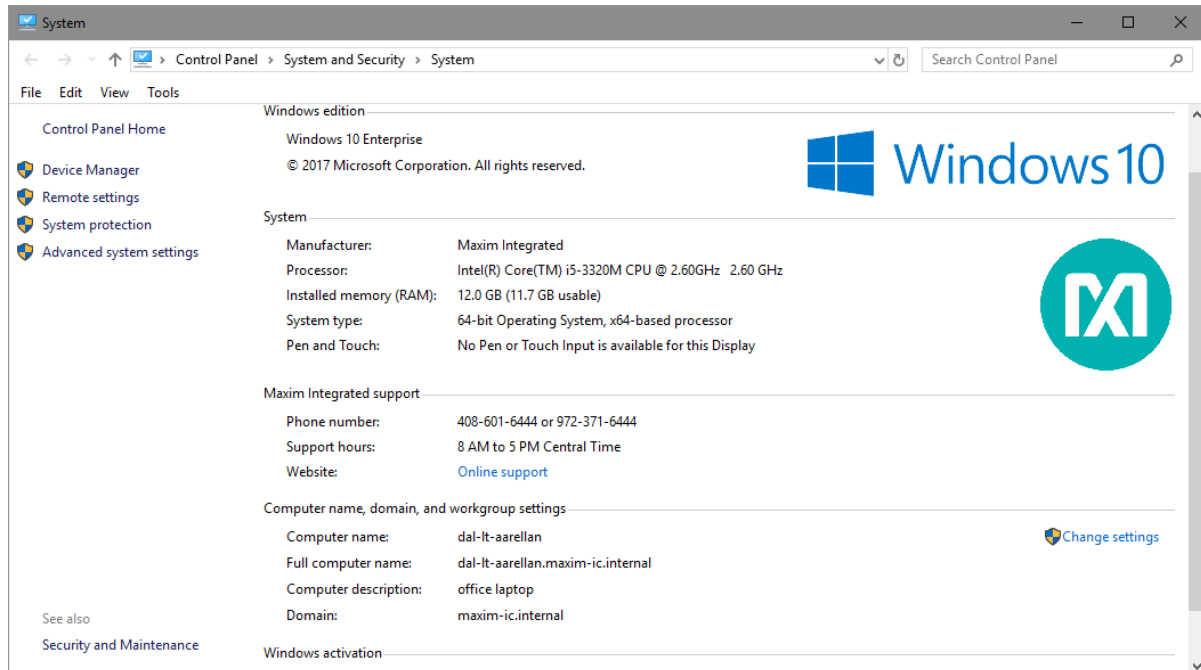


Figure 3. Checking the operating system version.

Step 3. Install bundled OneWireViewer and 1-Wire drivers

After clicking on the download button, run the ,msi file to start the installation.

The window in Figure 4 appears. If you want to install this software, click Next.

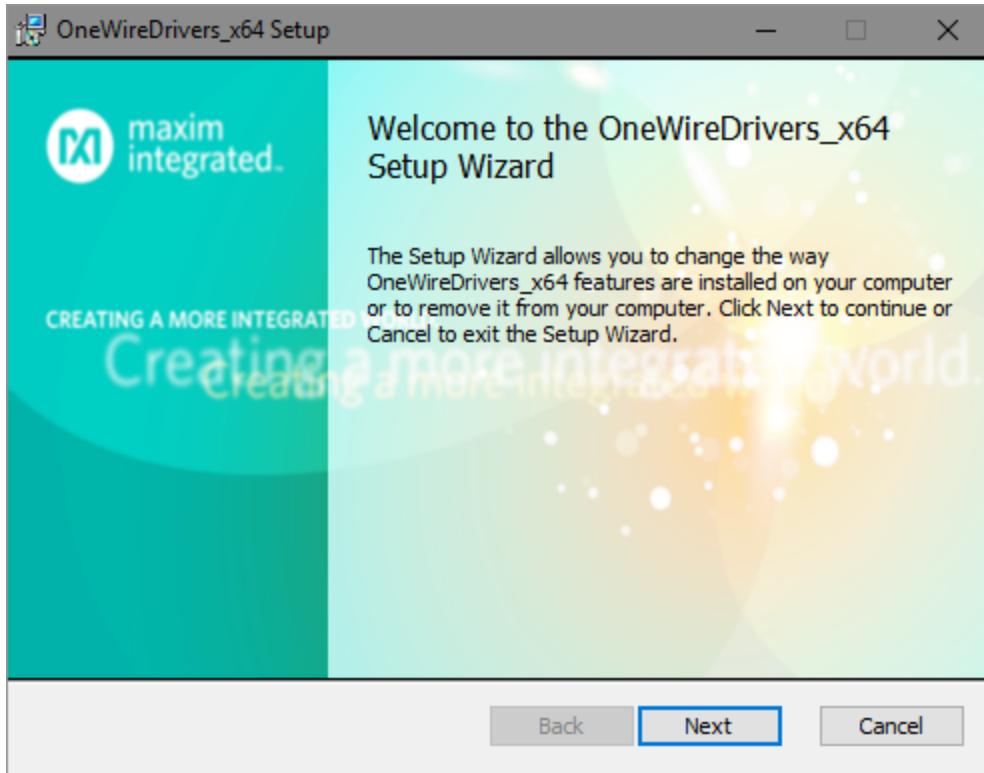


Figure 4. Window to start installation software.

After this, you are prompted to accept the license agreement if you choose to use the 1-Wire drivers and the OneWireViewer software (Figure 5).

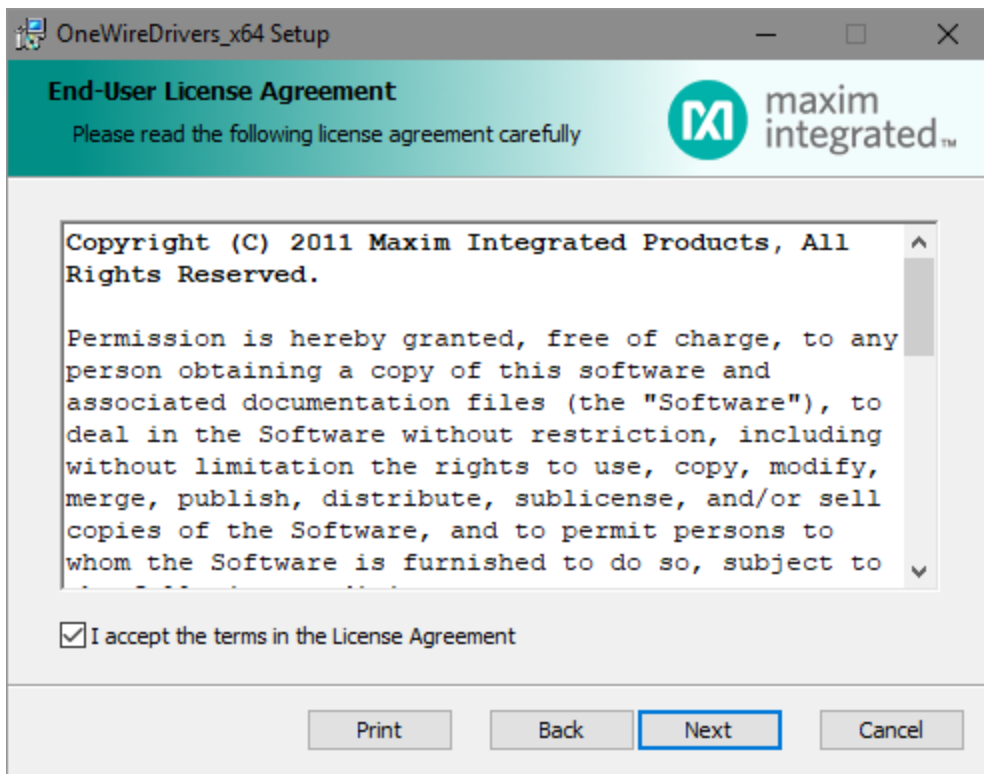


Figure 5. End-user license agreement.

Next, select the destination folder and confirm the installation. After installation completes, click the Finish button to complete the installation (Figure 6). At this point, if you are using a 1-Wire adapter other than a USB adapter (e.g., a serial- or parallel-port adapter), then skip ahead to Step 5. If you are using a parallel-port adapter, you must reboot before continuing to Step 4.

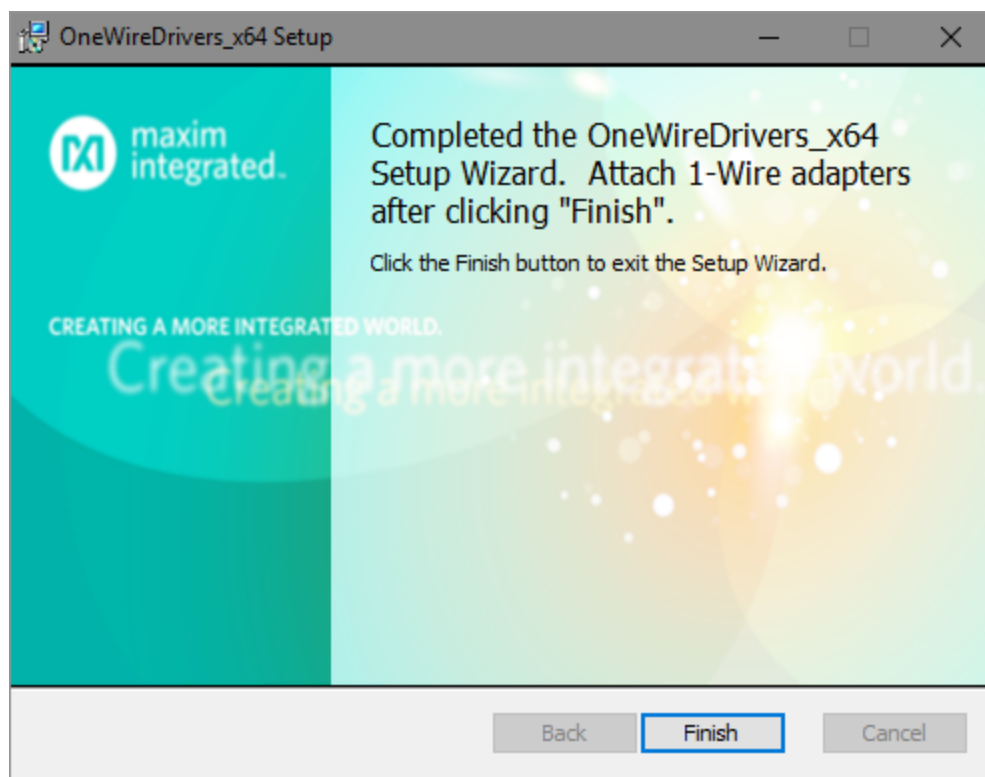


Figure 6. Finish installation.

Step 4. Complete USB installation

Now plug the DS9490R# USB adapter into your PC, as shown in Figure 7. Follow the Microsoft new-hardware wizard instructions to complete the plug-and-play portion of the installation.



Figure 7. Plugging the USB adapter into the PC.

This phase of the installation uses a Microsoft driver called WinUSB that allows the 1-Wire drivers to communicate through the USB port. Plugging in the USB adapter triggers a Microsoft plug-and-play event that links WinUSB properly to the 1-Wire drivers. **Remember:** if you try to plug in the USB adapter before Step 3 is complete, the plug-and-play action will not be able to link WinUSB to the 1-Wire drivers correctly.

In Windows 7 and Windows Vista, the plug-and-play installation window (**Figures 8 and 9**) appears. (See **Figures 10 and 11** for the installation with Windows XP.):

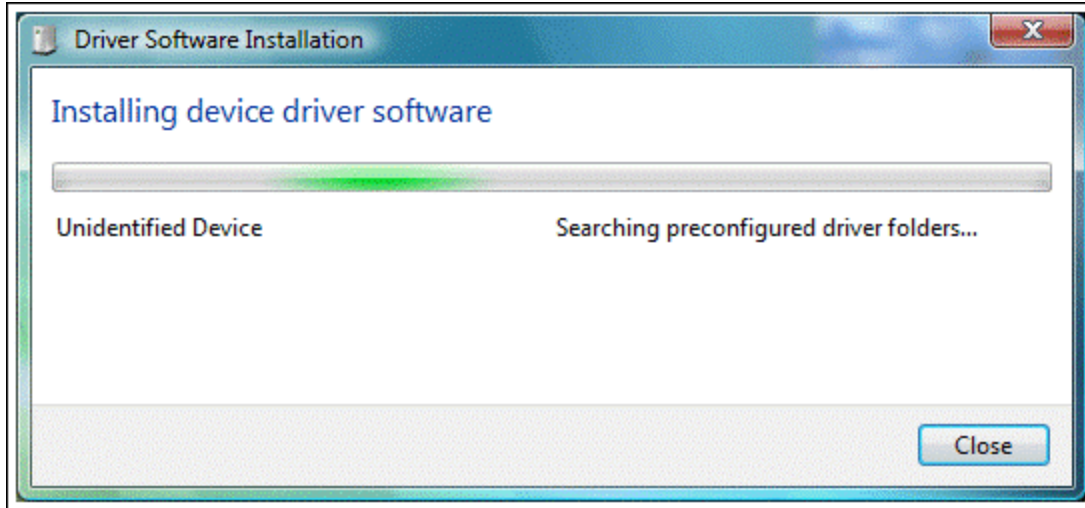


Figure 8. Windows 7 and Windows Vista plug-and-play installation window.

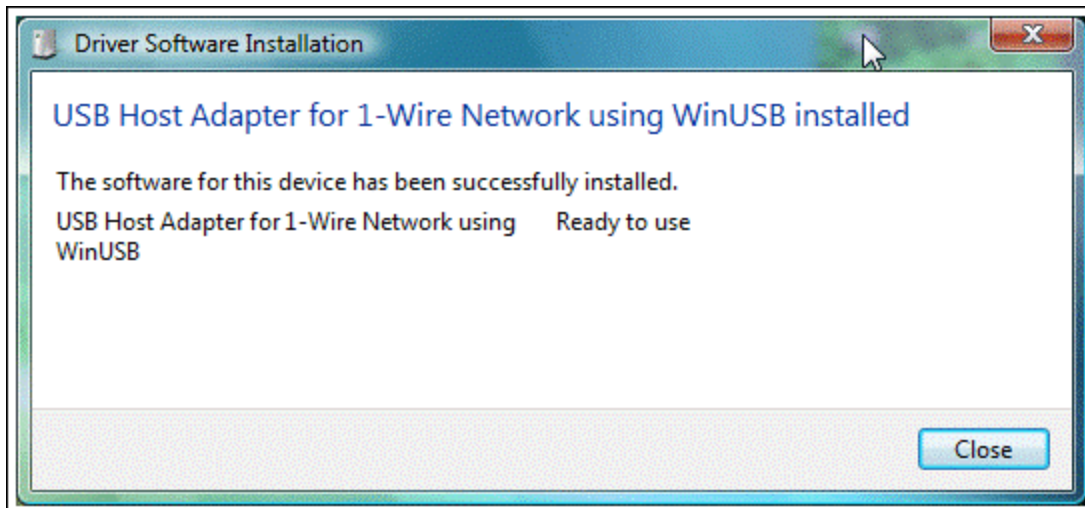


Figure 9. Windows 7 and Windows Vista completion of plug-and-play installation.

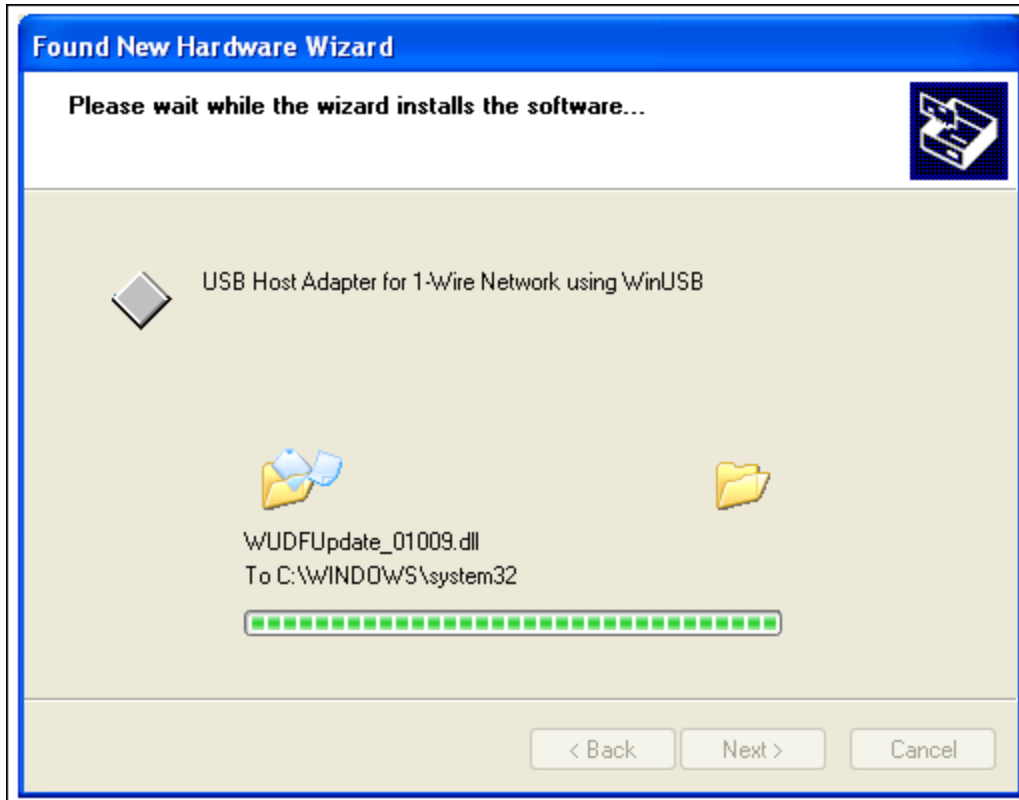


Figure 10. Windows XP plug-and-play installation window.

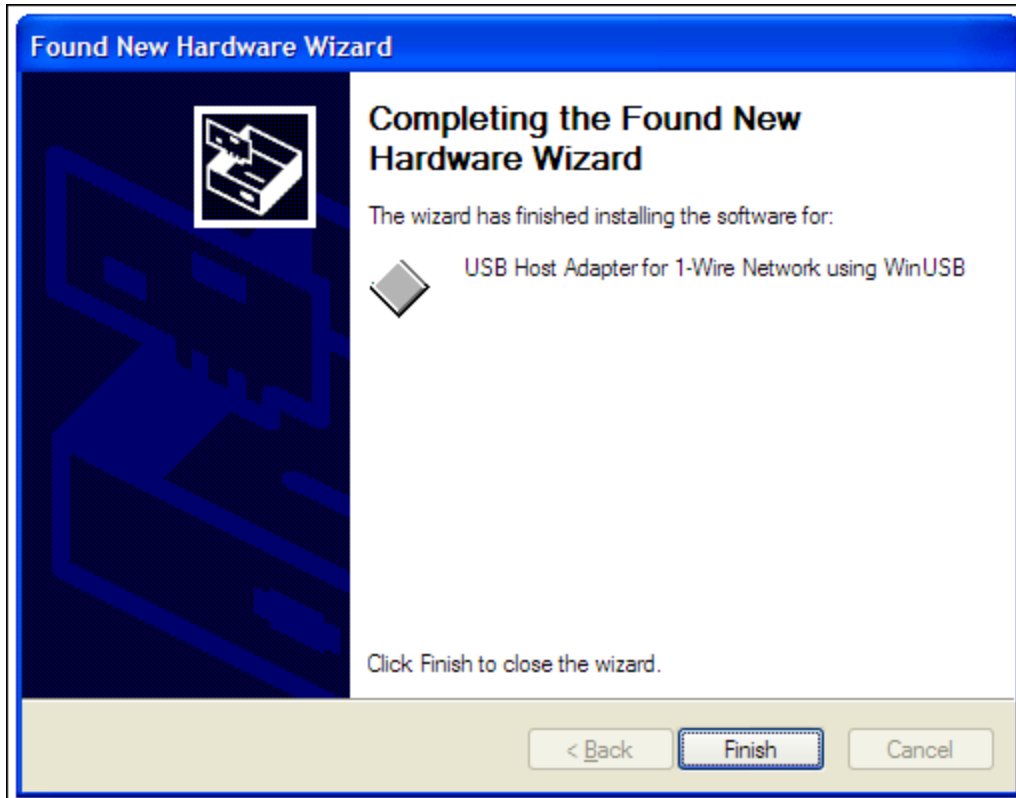


Figure 11. Windows XP completion of plug-and-play installation.

Step 5. Start the OneWireViewer program

Follow these steps to launch the OneWireViewer from Windows 10, Windows 7, Windows Vista, or Windows XP:

1. Click on the Windows Start button (usually at the lower left corner of the screen). For Windows 10, click the windows icon (usually lower left corner of the screen).
2. Select All Programs.(Skip step for Windows 10).
3. Click on the "1-Wire Drivers x86" folder.
4. Click on OneWireViewer.jar.

Step 6. Connect the iButton and the reader

Next, snap the iButton into one of the blue dots on the reader (**Figure 12**) and plug the reader into the adapter (**Figure 13**). The 1-Wire communication protocol can read multiple devices on the network at the same time. So if you have two iButtons, you can plug them into both blue dots on the reader. The unique 64-bit ID appears in the OneWireViewer window for each iButton as it is snapped into the blue dot.

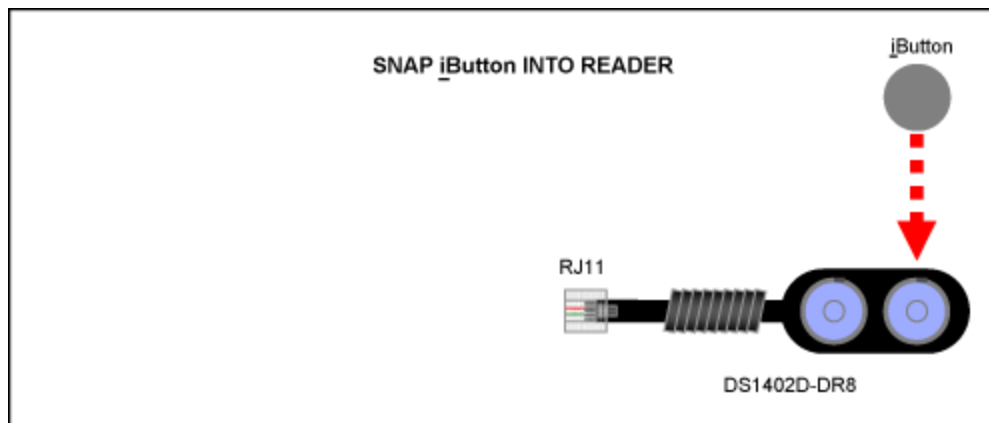


Figure 12. Connect an iButton to the reader by snapping it into place.

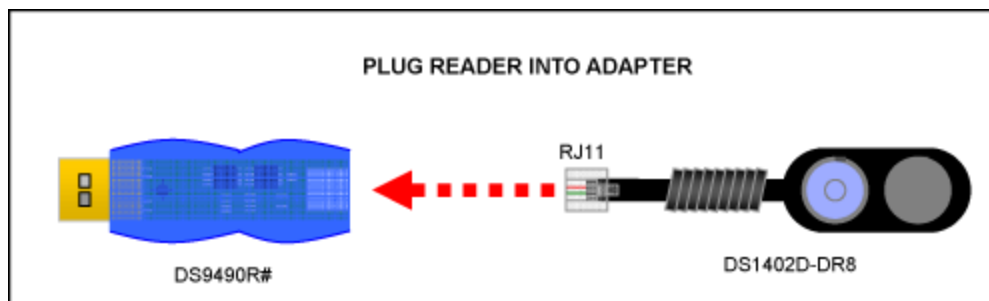


Figure 13. Connect the reader to the adapter.

Step 7. Run the OneWireViewer

The OneWireViewer can communicate with all versions of iButtons, including Hygrochron™ and ThermoChron® temperature loggers, memory iButtons, and simple identification iButtons. Each iButton type serves a different purpose, so for detailed information on how to use OneWireViewer for each application, see Application Note 3358: [OneWireViewer User's Guide](#).

The OneWireViewer program is open source, so software developers can use this as a foundation to develop their own applications. See our page with [Software Development Kits](#) for information on our open source -code examples.

Additionally, Maxim has many partners who have written software tailored for specific iButton applications. To search for partners who offer iButton software and system solutions, see our [Solutions Search](#) database.

Problem Solving

If you encounter problems getting the OneWireViewer to work, please file a support request using our [Tech Support](#) form. An Application Engineer will attempt to address your problem within one business day.

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Related Parts

DS1402D-DR8	1-Wire Network Cables
DS1921K	Thermochron iButton Starter Kit
DS9092K	iButton Starter Kit

More Information

For Technical Support: <https://www.maximintegrated.com/en/support>

For Samples: <https://www.maximintegrated.com/en/samples>

Other Questions and Comments: <https://www.maximintegrated.com/en/contact>

Application Note 4373: <https://www.maximintegrated.com/en/an4373>

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