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Introduction

This document provides information to update the Model 2110 5½ Digit Multimeter (DMM) firmware.

Getting started

The firmware update requires the following hardware, software, and firmware:

Hardware requirements

- A computer with the Microsoft® Windows® operating system.
- The USB cable shipped with the Model 2110. If this cable is not available, use a cable with a USB Type B connector on one end and a USB Type A on the other end.

NOTE

You must use a USB cable to update the firmware. You cannot use a GPIB cable.

Software requirements

The computer that you use to install the firmware update must have the Model 2110 device driver installed. The USB device driver may be obtained by installing NI-VISA™, which is included in the the Keithley I/O layer. The Keithley I/O layer may be obtained from the product CD or the Keithley Website.

If you are not sure if the USB driver has been installed on the computer, connect the Model 2110 with the USB cable. If the operating system displays an error message indicating that no driver has been found, the USB driver is not installed and you will have to install NI-VISA.

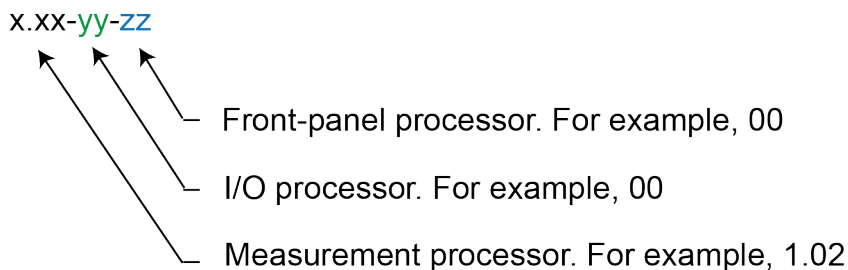
Firmware requirements

For the latest drivers, Keithley I/O layer, and firmware, see the [Keithley Instruments website](http://www.keithley.com) (<http://www.keithley.com>).

Viewing the system version

The following figure shows how the system version indicates the firmware version for each one of the three processors on the Model 2110.

Figure 1: System version



Use one of the methods described in the following paragraphs to see which version of firmware is on the instrument you are planning to update.

To use the front panel:

1. Press the **SHIFT** and **CONFIG (MENU)** keys to display the MENU options.
2. Use the **▶** and **◀** keys to display SYSTEM, and then press the **ENTER** key.
3. Use the **▶** and **◀** keys to display SYSTEM VER, and then press the **ENTER** key. The instrument displays the firmware version.

For example, if the measurement panel-processor firmware is at version 1.01, the I/O processor firmware at version 00, and the front-panel processor firmware at version 00, the display will show:

```
SYSTEM VER  
1.01-00-00
```

To use SCPI commands:

Use the following command to send an identification query to the Model 2110.

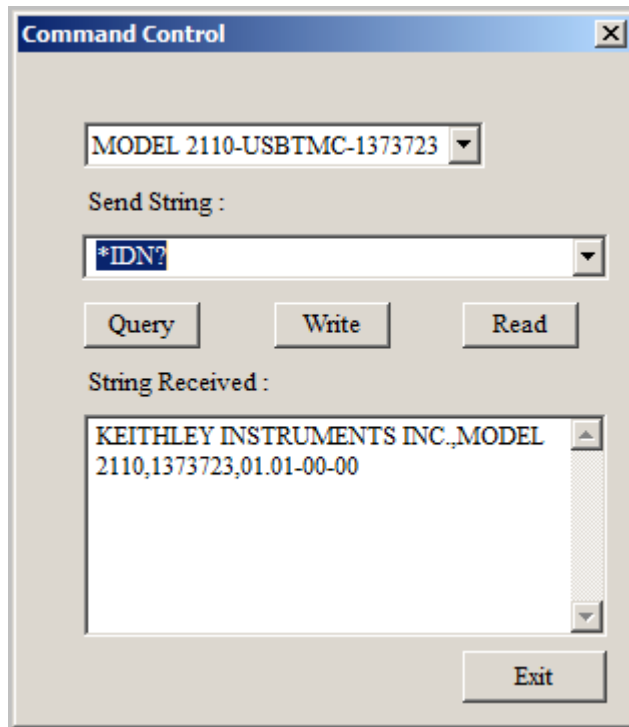
```
*IDN?
```

If you want more information about this query, refer to the Model 2110 Reference manual. The following figure shows the results of an identification query indicating that the firmware version is 1.01-00-00.

NOTE

The exact format of query results display is dependent on the tool you use to send the *IDN? query.

Figure 2: Command Control



Establishing communication

To establish communications:

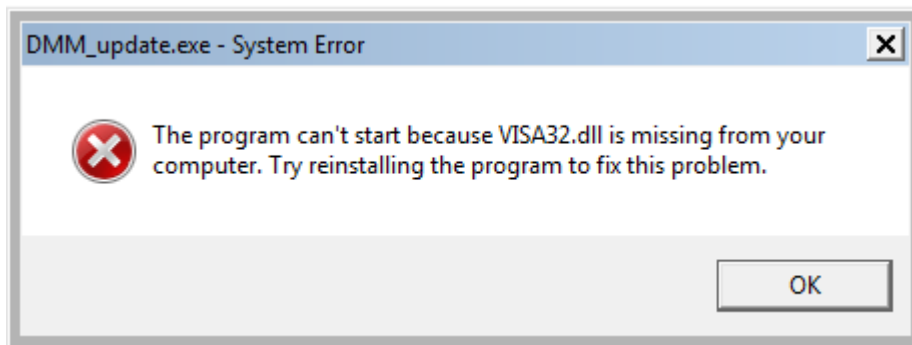
1. Turn the Model 2110 off.
2. Connect the USB cable between a USB port on the computer and the USB connector on the Model 2110.
3. Turn the Model 2110 on.

NOTE

If more than one Model 2110 is connected to the computer, the software updates the first Model 2110 it finds. The best practice is to turn off all Model 2110 instruments connected to the computer except the one you want to update.

If you see the following error message or a similar message, it indicates that you are trying to update the firmware without installing USB drivers. Refer to [Getting started](#) (on page 1) in this document for information about getting a copy of NI-VISA™. Make sure NI-VISA is installed before you continue with step 4.

Figure 3: DMM_update.exe - System Error dialog box



4. Close any programs, such as KI-Tool, that communicate with the Model 2110.

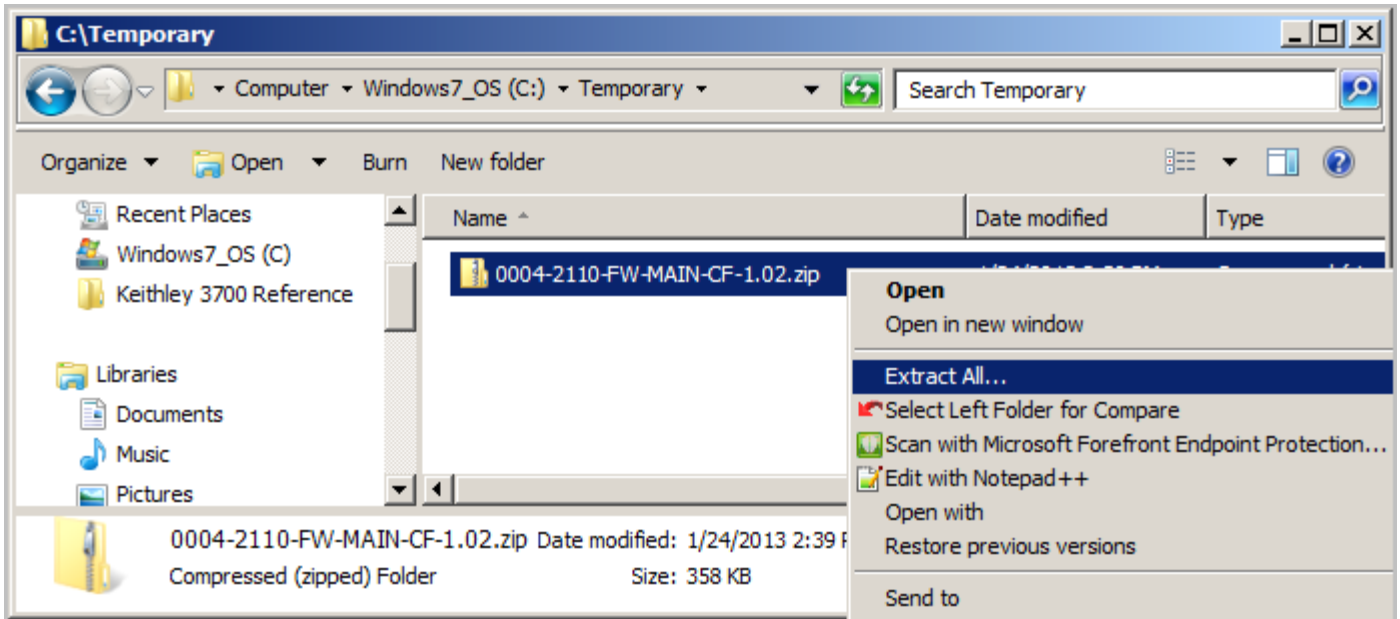
Now you are ready to install the firmware update.

Installing the firmware update

To install the firmware update:

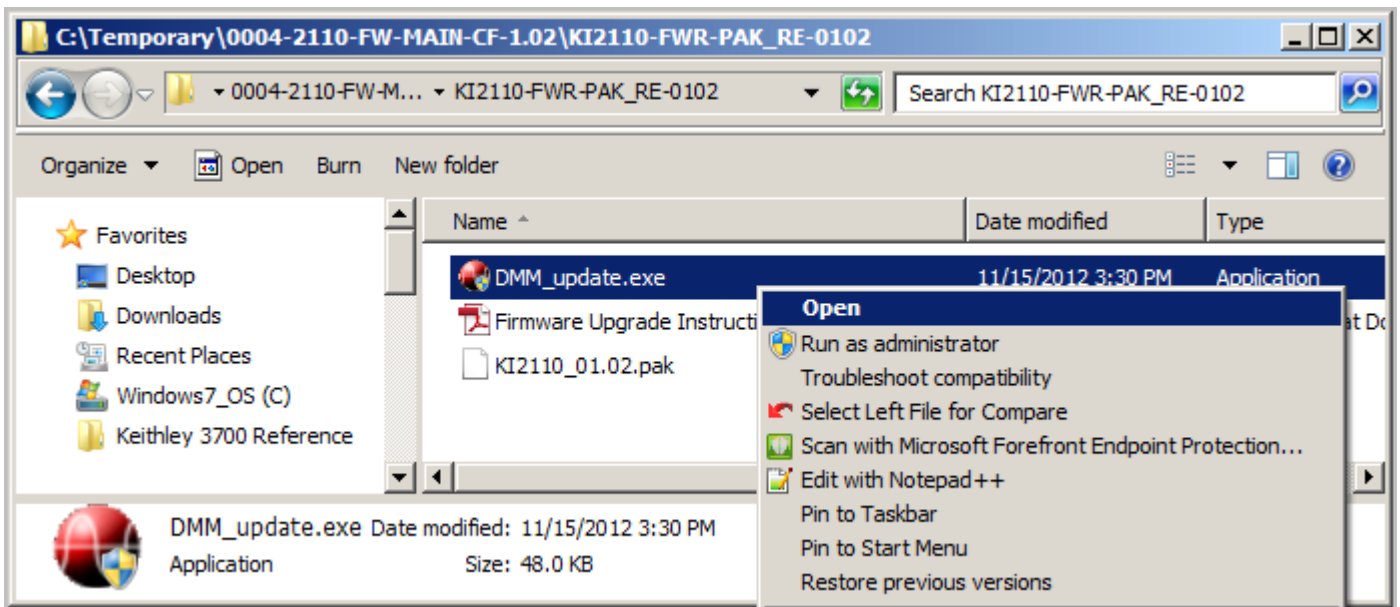
1. If you do not have a copy of the firmware update, download it from the [Keithley Instruments website](http://www.keithley.com) (<http://www.keithley.com>).
2. Browse to the `DMM_update.exe` file on your computer. If the file is zipped, extract it as shown in the following figure. If you are extracting the file, follow the prompts before proceeding with step 3.

Figure 4: Extract All



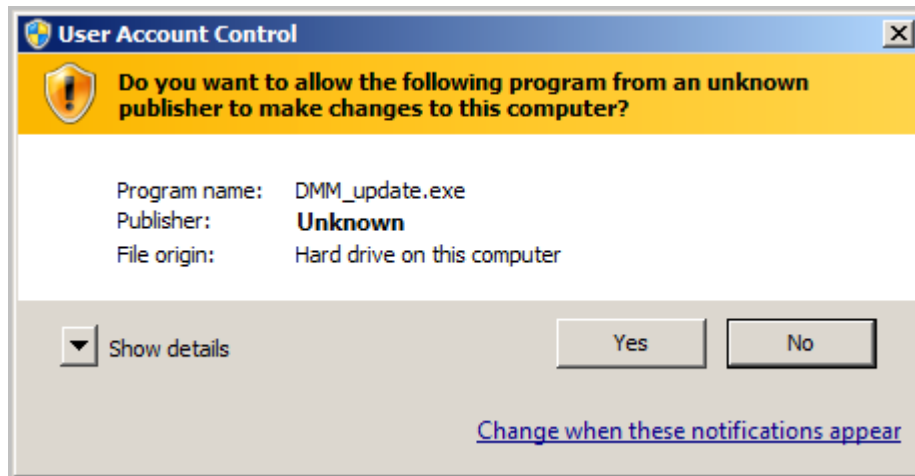
3. When the following window appears, select the executable file (for example, `DMM_update.exe`), right-click, and then click **Open**.

Figure 5: Open



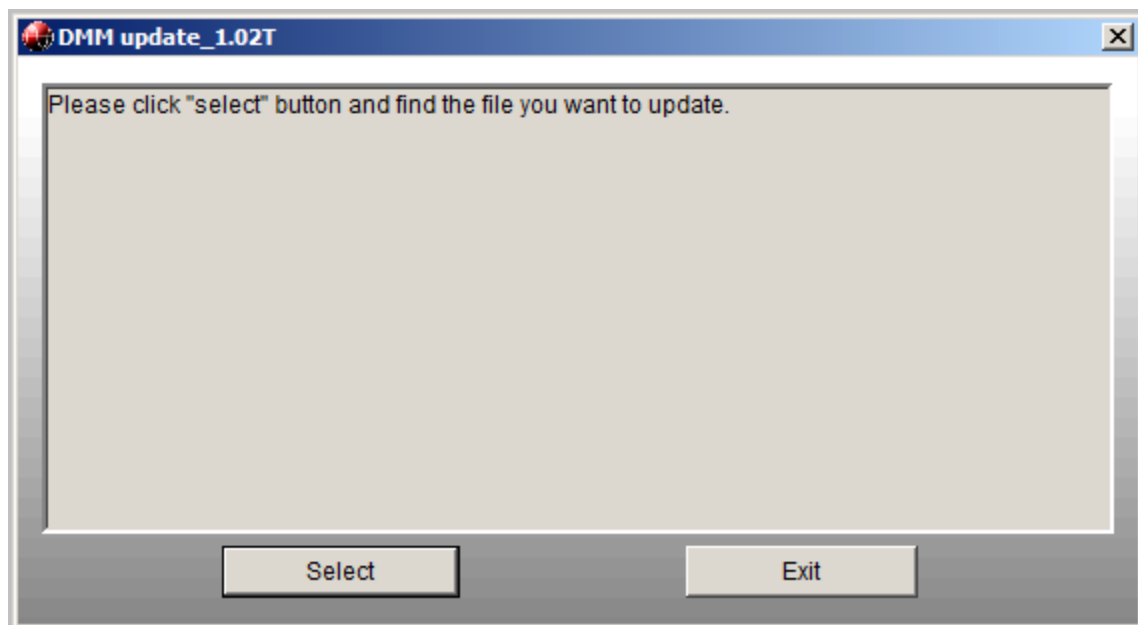
4. If the following dialog box appears, click **Yes**.

Figure 6: User Account Control dialog box



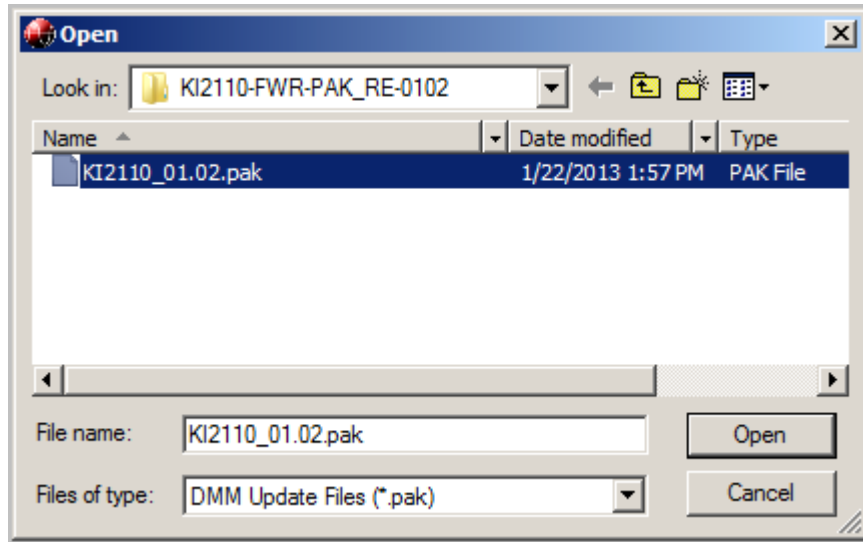
5. When the DMM update_x.xx dialog box appears, click **Select**.

Figure 7: DMM update_x.xx dialog box



- When the Open dialog box appears, select the firmware update file and click **Open**.

Figure 8: Open dialog box

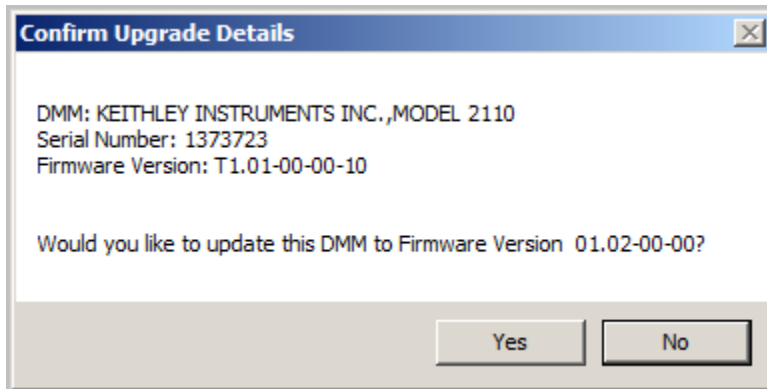


- When the Confirm Upgrade Details dialog box appears, click **Yes**.

NOTE

Wait for the Confirm Update Details dialog to display. Do not click buttons on windows that may be visible behind this dialog box.

Figure 9: Confirm Upgrade Details dialog box



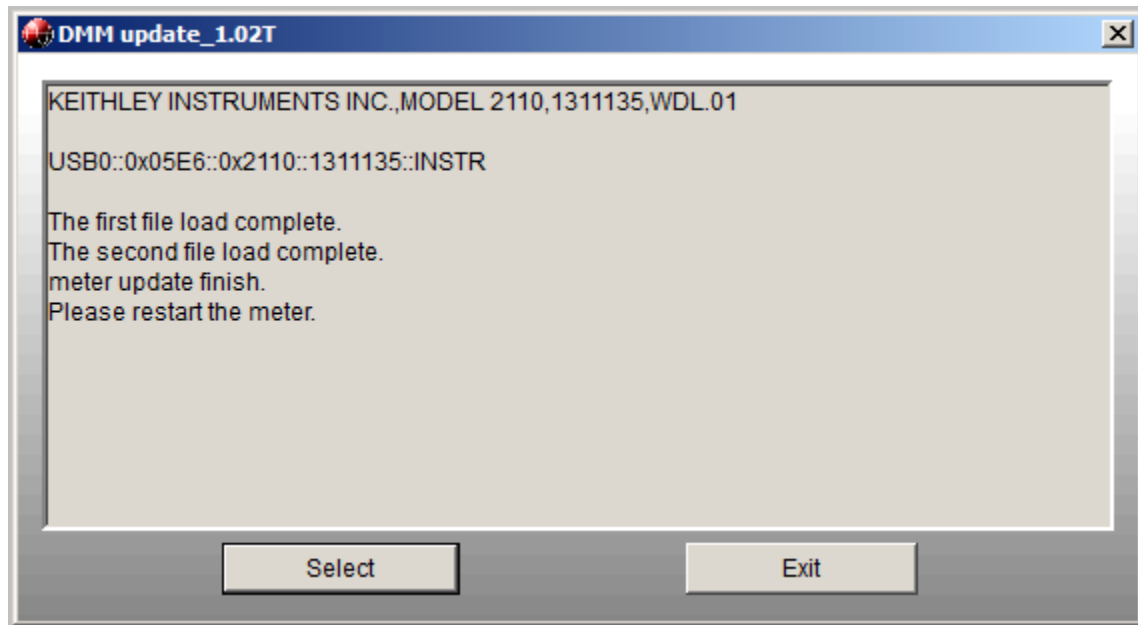
After you click **Yes**, the Model 2110 front-panel display will show information about the update: The information will be similar to the following information:

UPDATE MODE

WDL - 01

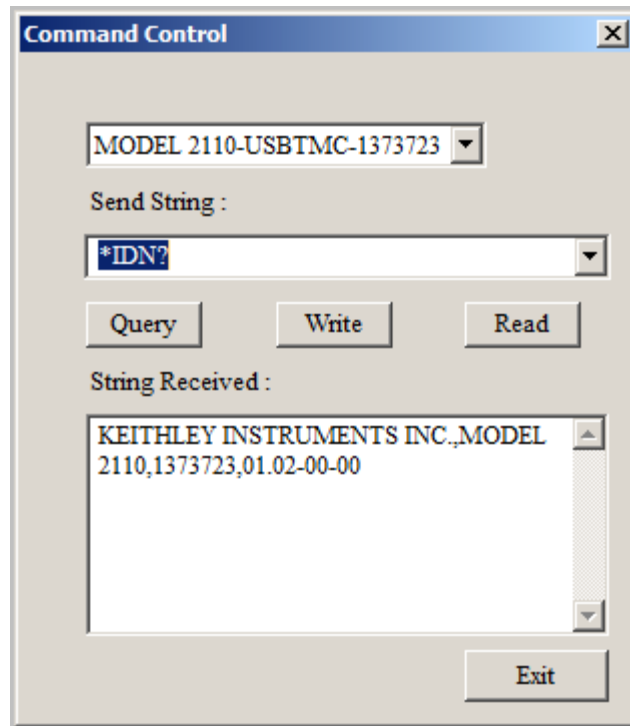
8. When the following dialog box appears, the update is complete. Click **Exit**.

Figure 10: DMM update_x.xx dialog box



9. Turn off the instrument, and then turn it on again.
10. Use one of the methods described in [Viewing the system version](#) (on page 1) to verify that the system version has increased. For example, send an *IDN? query, as shown in the following figure.

Figure 11: *IDN? query



This completes the firmware update for one Model 2110. If you have multiple instruments, restart the procedure at step 3.