

# VIRTUALBENCH™ RELEASE NOTES

These release notes present system requirements, installation instructions, and updated information to help you begin using VirtualBench.

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## VirtualBench Installation for Windows

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You must install VirtualBench along with a National Instruments data acquisition (DAQ) device.

### Minimum System Requirements

To run VirtualBench you must have the following:

- Windows 98/95 or Windows NT 4.0 or higher
- Personal computer using at least a 33 MHz 486 or higher microprocessor with floating-point capability (National Instruments recommends a 66 MHz 486 or higher microprocessor with floating-point capability.)
- VGA resolution (or higher) video adapter

- Minimum of 16 MB of RAM
- 25 MB free hard disk space
- Microsoft-compatible mouse

You cannot use VirtualBench in the following situations:

- You are using Windows 3.1.x.
- You are using an AT-DSP2200, AT-A2150, or EISA-A200 DAQ device under Windows NT/98/95.

In these cases, you will have to install VirtualBench 2.0 located in the vbench20 folder on the VirtualBench CD. You should use NI-DAQ 4.9 with VirtualBench 2.0.

## Installing VirtualBench



**Note** National Instruments recommends that you close other applications before you install VirtualBench.

To install VirtualBench perform the following steps:

1. Insert your VirtualBench Installation CD into your CD-ROM drive.
2. Wait several seconds. With most PCs, the AutoRun utility on the CD will automatically launch the VirtualBench Installation CD dialog box.
3. If the VirtualBench Installation CD dialog box does not appear, select **Run** from the **Start** menu and type `d:\setup` in the input box, where `d` is your CD-ROM drive. Click on **OK**.
4. Click on **Install VirtualBench** in the VirtualBench Installation CD dialog box.

## What the Setup Program Installs

The VirtualBench setup program installs the following virtual instruments, with online help for each instrument:

- Oscilloscope (Scope)
- Dynamic signal analyzer (DSA)
- Function generator (FG)
- Logger
- Arbitrary waveform generator (Arb)
- Waveform editor (Arb)
- Device calibrator (CAL)



**Note** The front panels of VirtualBench-DSA and VirtualBench-Arb (Waveform Generator) changed so that they are easier to use. An online document included on the VirtualBench CD, *GettingStarted.pdf*, describes these changes. This document is an Adobe Acrobat version of the *Getting Started with VirtualBench* manual.

## Installing on a Network

Contact National Instruments for licensing information if you plan to run VirtualBench on a network.

## Using DAQ Devices That Are Not Plug-and-Play Compliant under Windows 98/95

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National Instruments DAQ devices that are not Plug and Play compatible require special instructions for installation. If you have trouble installing this type of DAQ device, refer to your NI-DAQ documentation for more information.

## Using Plug and Play DAQ Devices under Windows 98/95

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In some cases, Windows 98/95 classifies a National Instruments Plug and Play DAQ device (PCI, PCCard, and PnP ISA) as a generic card and installs it in the Device Manager under Other Devices. NI-DAQ does not recognize the device as a valid DAQ device in this case. This might occur if you installed the card in the computer before you installed NI-DAQ. Refer to your NI-DAQ documentation for more information on correcting this problem.

## Using Plug and Play ISA DAQ Devices under Windows NT

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If you plan to use Plug and Play ISA DAQ devices under Windows NT 4.0, you must install the Windows NT 4.0 Plug and Play ISA driver before you configure your device with the Measurement & Automation Explorer. VirtualBench does not install this driver by default. Refer to your NI-DAQ documentation for more information on installing the Windows NT 4.0 Plug and Play ISA driver.

# VirtualBench Requires Administrator Access under Windows NT

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Under Windows NT 4.0, by default, only someone with administrator access to the system can run VirtualBench. Refer to your NI-DAQ documentation for information on how to allow other users to run VirtualBench from the system.

## Printing in VirtualBench

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By default, you can print the front panels for VirtualBench-DSA, VirtualBench-Logger, and VirtualBench-Scope. If your printer supports postscript or color printing, you can modify lines in .ini files to enable postscript or color printing when you print the VirtualBench front panel. The relevant .ini files exist in your VirtualBench directory: `virtualbench-dsa.ini`, `virtualbench-logger.ini`, and `virtualbench-scope.ini`. After you change information in a .ini file, you must restart VirtualBench for the changes to take effect.

You can edit the .ini files with any word processing or text editing software, such as Notepad. For example, to enable postscript printing in VirtualBench-Scope, you can open `virtualbench-scope.ini` in Notepad and change the postscript printing setting to True, as follows:

```
postScriptPrinting=True
```

If you enable postscript printing and your printer does not support postscript printing, your printer prints a single line of postscript code.

By default, color and grayscale printing are disabled for VirtualBench-DSA, VirtualBench-Logger, and VirtualBench-Scope. To enable color or grayscale printing, change the color/grayscale printing setting in any of the .ini files, as follows:

```
colorPrinting=True
```

If you disable grayscale printing, you conserve toner.



**Note** To affect the printing options described above, you must modify the lines exactly as shown.



**Caution** Do not modify any other lines in the .ini files. Doing so will cause VirtualBench to operate incorrectly.

# Frequently Asked Questions

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## **I can't find anything about a topic in *Getting Started with VirtualBench*.**

*Getting Started with VirtualBench* covers only the basics of how to operate each instrument. Please consult the online help for detailed information on all the VirtualBench instrument features.

## **Can I run VirtualBench without a data acquisition device installed?**

No, VirtualBench does not load if you do not have NI-DAQ installed on your computer. If you have NI-DAQ installed but do not have a device configured, the VirtualBench toolbar loads properly, but the instrument buttons are not enabled.

## **How do I create a data file that can be output with the VirtualBench-FG or VirtualBench-Arb?**

VirtualBench-FG and VirtualBench-Arb can read data from ASCII text files. Any file will work that has delimited data arranged in columns.

## **How do I change the trigger level and position on VirtualBench-Scope?**

VirtualBench-Scope uses a cursor on the graph to select a trigger level and position. Move the green crosshair cursor to select the trigger event location. If the cursor is not visible, click on the **Auto Setup** button at the bottom of the VirtualBench-Scope window to bring the cursor to the center.

## **Why do I only have a few milliseconds of data when I choose Save Waveforms on the VirtualBench-Scope?**

**Save Waveforms** saves only the data currently present on the screen. If you want to stream data to disk, you must use the VirtualBench-Logger.

## **Can I run multiple VirtualBench instruments on the same device?**

You can access two instruments that perform different types of I/O using the same data acquisition device. For example, you can use the VirtualBench-Scope and the VirtualBench-FG with the same hardware because one performs analog input and the other analog output. You cannot load two instruments that perform the same function with the same hardware, such as the VirtualBench-Scope and the VirtualBench-DSA. The instruments might appear to run simultaneously, but the data results are not reliable and you might cause an operating system failure.

### **Can I edit the VirtualBench LabVIEW source code to customize the instruments?**

No, National Instruments does not supply source code for VirtualBench.

### **The VirtualBench-Logger cannot log data at the rate I specified. How can I change the settings to achieve the logging rate I want?**

If you cannot decrease the sample rate or the number of channels you acquire, you can try the following:

- Decrease the display window size.
- Decrease the number of channels displayed on the graph while logging.

### **Why can't the VirtualBench-Logger log data at the maximum rate of my device?**

The VirtualBench-Logger does not log at high speeds for the following reasons:

- The VirtualBench-Logger acquires data, converts the data based upon the transducer settings, and converts the data to ASCII format before writing it to the file. These conversions take away from the time available for logging.
- The VirtualBench-Logger must check each data point to determine whether the point should be logged based upon dead-banding and logging settings. This checking process takes longer as the sample rate and number of channels increase.
- The graphics display maintains a buffer of the display data. Larger sample rates and numbers of channels result in a larger buffer. Therefore, VirtualBench-Logger requires more time to manage the displaying of this data.

### **So, how fast can I expect to log data using the VirtualBench-Logger?**

There is no absolute answer to this question. The rate is system dependent. The following benchmark measurements are estimates of how fast you can log on different systems using a 1 second display window (all using Windows 98/95):

- 80486, Syex, 20 MB of RAM, IDE hard drive
  - 125 Hz on a single channel
  - 60 Hz per channel (16 channels)
- Pentium 90, Dell Dimension XPSP90, 32 MB of RAM, IDE hard drive
  - 250 Hz on a single channel
  - 100 Hz per channel (16 channels)

- Pentium 266 Dell Dimension XPSD266, 64 MB of RAM, IDE hard drive with Ultra DMA
  - 1500 Hz on a single channel
  - 850 Hz per channel (16 channels)

**I set the buffer size on the VirtualBench-Scope to 200 k. While acquiring several channels, my machine became sluggish, and I had to restart. Why?**

For buffer sizes greater than 100 k, National Instruments recommends you have a minimum of 32 MB of RAM. The more channels you acquire, the more pronounced this problem becomes.

**I set the frame size on the VirtualBench-DSA to 2048. My machine then became sluggish, and I had to restart. Why?**

For frame size greater than 1024, National Instruments recommends that you have a minimum of 32 MB of RAM.



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