

# LABVIEW™

## Version 6.0

These release notes introduce you to LabVIEW, describe the system requirements for the LabVIEW software, and contain installation instructions. The LabVIEW Professional Development System 6.0 includes the LabVIEW Full Development System.

## Contents

---

How to Proceed.....	2
Required System Configuration.....	2
Discontinued Media.....	4
Installation.....	5
Windows Platforms.....	5
Macintosh.....	5
UNIX.....	5
Solaris 2.....	5
HP-UX.....	6
Linux.....	6
Installing LabVIEW on a Network.....	7
Hardware Installation Notes.....	7
Windows.....	8
Macintosh.....	8
GPIB and VXI Installation Notes for Sun.....	8
Where to Go from Here.....	9
Difference among LabVIEW for Windows.....	9
Low-Level Register I/O.....	9
Common LabVIEW Launch Errors on UNIX.....	9
Configuring Window Managers on UNIX.....	10
Configuring LabVIEW with the Tab Window Manager.....	10
Configuring LabVIEW with the HP-VUE Window Manager.....	10
Configuring LabVIEW with the Motif Window Manager.....	10
Notice to Sun SPARCstation 5 Users.....	11
Known Issues with LabVIEW 6.0.....	12
Documentation Clarifications and Additions.....	12

# How to Proceed

---

If you are upgrading from a previous version of LabVIEW, read the *LabVIEW Upgrade Notes* included with your upgrade package before you continue with this installation. You need to consider several issues before you convert VIs to this version of LabVIEW.

Read the *Required System Configuration* section of these release notes and follow the instructions in the [Installation](#) section. After you install LabVIEW, read the [Where to Go from Here](#) section for information about getting started with LabVIEW. Also read the [Documentation Clarifications and Additions](#) section before you use LabVIEW 6.0.

## Required System Configuration

---

The following table describes the minimum system requirements needed to run LabVIEW 6.0.

Platform	Media and System Requirements	Important Notes
All Platforms	Distributed on CD-ROM.	LabVIEW and the <i>LabVIEW Help</i> contain 16-bit color graphics.  LabVIEW requires a minimum color palette setting of 256 colors. 16-bit color is recommended.  The <i>LabVIEW Help</i> requires a minimum color palette setting of 256 colors with a screen resolution of 1024 × 768 pixels. 16-bit color is recommended.
All Windows Versions	Refer to the installation instruction that appear on your screen for information on the size of the LabVIEW system you are installing.  LabVIEW runs on any system that supports Windows.	To use the Measurement & Automation Explorer you must have Microsoft Internet Explorer 5.0 or later installed.  The <i>LabVIEW Tutorial</i> requires a sound card, a video card capable of playing .avi files, and a minimum color palette setting of 256 colors with a screen resolution of 1024 × 768 pixels. 16-bit color is recommended.

<b>Platform</b>	<b>Media and System Requirements</b>	<b>Important Notes</b>
Windows NT	LabVIEW runs on Windows NT 4.0 Service Pack 3 or later.	To take advantage of ActiveX functionality in LabVIEW 6.0, you must have Windows NT 4.0 Service Pack 3 or later and Microsoft Internet Explorer 4.0 or later installed.
Windows ME		For information on using LabVIEW in Windows ME, refer to <a href="http://www.ni.com/windowsme">www.ni.com/windowsme</a>
Power Macintosh	<p>LabVIEW requires System 7.6.1 or later.</p> <p>You need a minimum of 32 MB of RAM and at least 100 MB of disk storage space for the minimal installation of LabVIEW or 250 MB for the full installation.</p>	<p>National Instruments recommends that you have at least 32 MB of RAM. You might need more memory, depending on the size of the application you design in LabVIEW and the amount of data that your application manipulates.</p> <p>For more accurate timing, install the Apple QuickTime extension. When you use QuickTime, timing accuracy should increase from 16.6 ms resolution to approximately 1 ms resolution. System response varies depending on background applications, other extensions, networking activity, and disk caching.</p> <p>The <i>LabVIEW Tutorial</i> requires a sound card, a video card capable of playing .avi files, and a minimum color palette setting of 256 colors with a screen resolution of 1024 × 768 pixels. 16-bit color is recommended.</p>

Platform	Media and System Requirements	Important Notes
All UNIX Versions	<p>LabVIEW requires an X Window System server, such as OpenWindows, HP-VUE, CDE, or X11R6.</p> <p>You need a minimum of 32 MB of RAM with 32 MB of swap space storage.</p> <p>You need between 65 MB to 150 MB of disk storage space depending on the components you install.</p>	<p>LabVIEW uses a directory for storing temporary files. Some of the temporary files are large, so keep several megabytes of disk space available for this temporary directory. The default for the temporary directory is <code>/tmp</code>. You can change the temporary directory by selecting <b>Tools»Options</b>.</p> <p>If LabVIEW aborts unexpectedly, it might leave files behind in the temporary directory. Remove old files occasionally to avoid depleting your disk space.</p> <p>To save space, install only the VIs you plan to use.</p> <p>LabVIEW does not require a specific graphical user interface (GUI) such as Motif or OpenLook, because LabVIEW uses <code>xlib</code> to create its own GUI.</p>
Sun	LabVIEW runs on SPARCstations with Solaris 2.5.1 or later.	
HP-UX	LabVIEW runs on Hewlett-Packard Model 9000 Series 700 computers with HP-UX 10.20 or later.	HP workstations limit the size of a process such as LabVIEW to 64 MB. You may need to increase this setting to accommodate your LabVIEW application. Refer to the <a href="#">HP-UX</a> section in the <a href="#">Installation</a> section for more information about changing this setting.
Linux	LabVIEW runs on Linux for Intel x86 processors with kernel version 2.0.x or later. LabVIEW runs on most major Linux distributions, such as RedHat, Caldera, SuSE, and Debian.	<p>Requires GNU C Library Version 2 (<code>glibc2</code>, also known as <code>libc.so.6</code>).</p> <p>RedHat Linux 5.0 or later includes the <code>glibc2</code> run-time library.</p>

## Discontinued Media

National Instruments ships LabVIEW 6.0 on CD-ROM only.

# Installation

---

## Windows Platforms

**(Windows)** Insert the LabVIEW 6.0 installation CD and follow the instructions that appear on your screen.

**(Windows NT)** Complete the following steps to install LabVIEW for Windows.

1. Log on to Windows NT as an administrator or as a user with administrator privileges.
2. Insert the LabVIEW 6.0 installation CD and follow the instructions that appear on your screen.

If you are a new user, you may want to run the *LabVIEW Tutorial*, which is available on platforms. You can start the *LabVIEW Tutorial* by clicking the **Tutorial** button on the **LabVIEW** dialog box.

## Macintosh

Complete the following steps to install LabVIEW for Macintosh.

1. Insert the LabVIEW installation CD.
2. Run the LV60 PMAC Installer.
3. Follow the instructions that appear on your screen.

If you are a new user, you may want to run the *LabVIEW Tutorial*, which is available on platforms. You can start the *LabVIEW Tutorial* by clicking the **Tutorial** button on the **LabVIEW** dialog box.

## UNIX

### Solaris 2

1. To enable superuser privileges, type `su root` and enter the root password.
2. Insert the LabVIEW installation CD. On Solaris 2.5.1 or later versions, the CD automatically mounts as soon as you insert you insert the CD. If this feature is disabled on your workstation, you must mount the CD by typing the following command:  

```
mount -o ro -F hsfs /dev/dsk/c0t6d0s2 /cdrom
```
3. If your CD was mounted automatically, type the following command:  

```
pkgadd -d /cdrom/cdrom0/solaris2
```

4. If you used the mount command in step 2, type the following command:

```
pkgadd -d /cdrom/solaris2
```



**Note** Refer to the README file in /cdrom/cdrom0/solaris2 or /cdrom/solaris2 for instructions on custom installation and other additional information.

5. Follow the instructions on your screen.

## HP-UX

By default, HP workstations limit the size of a process such as LabVIEW to 64 MB. You can change this setting by adjusting a kernel configuration parameter that limits the amount of data a process can use. To edit this parameter, enable superuser privileges by typing `su root` and entering the root password. Use the system administration (SAM) utility to view the list of kernel configuration parameters. From SAM, select **Kernel Configuration»Configurable Parameters** and change the value of the **maxdsiz** or **Maximum Data Segment Size (bytes)** parameter to a larger value. If you need to rebuild the kernel and reboot for changes to take effect, the SAM utility guides you through this process.

1. To enable superuser privileges, type `su root` and enter the root password.
2. Mount the LabVIEW installation CD on the /cdrom directory with the SAM system administration utility.
3. To change to the installation directory, type the following command:

```
cd /cdrom/HP-UX
```



**Note** Refer to the README file in the directory with installation instructions for instructions on custom installation and other information.

## Linux

1. Log in to your system as `root`.
2. Use `mount /mnt/cdrom` to mount the CD-ROM.
3. To change the current directory to the mounted CD-ROM, type the following command:

```
cd /mnt/cdrom.
```

4. To run the installation script, type the following command:

```
./INSTALL.
```

The `INSTALL` script prompts you to enter the directory where you want to install LabVIEW (typically `/usr/local` or `/opt`). The script uses `rpm` to install on systems that support the `.rpm` format, or extracts the `rpm` archives directly on other systems.



**Note** Refer to the `README` file on the LabVIEW installation CD for instructions on custom installation and other information.

## Installing LabVIEW on a Network

If you have a license for each client, complete the following steps to install LabVIEW on a network.

1. Install the LabVIEW Full or Professional Development System on the server.
2. Each local machine should use its own `labview.ini` file for LabVIEW preferences. If a `labview.ini` file does not already exist on a local machine, you can create this (empty) text document using a text editor, such as Microsoft Notepad. The first line of `labview.ini` must be `[labview]`. Then, modify the command line option of the LabVIEW icon in Program Manager as follows:  

```
W:\LABVIEW\LABVIEW.EXE -pref C:\LVWORK\labview.ini
```

where `W:\LABVIEW\` is the path to `labview.exe` and `C:\LVWORK\` is the path to `labview.ini`.



**Note** `pref` must be lower case. Additionally, each local machine must have its own LabVIEW temporary directory, which you can specify in LabVIEW by choosing **Edit»Preferences**.

3. On each machine that has a NI hardware, you need to install the driver for that board. Either use the drivers that came with the board or complete a custom LabVIEW installation in which you install only the desired drivers on the local machine.

The same procedure for `GPIB.DLL` applies to `NI-DAQ`.

## Hardware Installation Notes

---

All National Instruments devices include the drivers and other software you need to use them. LabVIEW also includes the drivers and other software you need to use National Instruments hardware. Although the drivers are the same the version numbers might differ. Always use the latest available drivers. You can find the version number of an installed driver with the

Measurement & Automation Explorer (**Windows**) or by running the Get Device Information VI (**Other Platforms**).

You should configure your NI hardware before you use LabVIEW.

## Windows

When you install LabVIEW, the installer places the application and most of the related files in a directory you specify. The default name of this directory is `LABVIEW 6.0`.

Use the Measurement & Automation Explorer to configure your devices. Launch the Measurement and Automation Explorer by clicking the **Start** button and choosing **Programs»National Instruments»Measurement & Automation Explorer**, or by double-clicking the **Measurement & Automation Explorer** icon on your desktop.

## Macintosh

When you install LabVIEW, the installer places two control panels and an extension in your system folder. `NI-GPIB` contains the driver code that communicates with your GPIB devices. `NI-DAQ` contains driver code that communicates with your DAQ devices. The `NI-DMA/DSP` extension contains DSP and DMA drivers the DAQ, GPIB, and DSP drivers.

To configure your DAQ hardware, run the NI-DAQ Configuration Utility.

## GPIB and VXI Installation Notes for Sun

---

The LabVIEW installer prompts you to choose the NI-488.2M drivers for the GPIB hardware you are using. The installer then installs that driver for you.



**Note** LabVIEW does not work with the GPIB-1014 series (VME) devices or the original GPIB-SCSI box. It does work with the GPIB-SCSI-A box.

The VXI device drivers for Solaris are included with your VXI controller hardware.



**Note** National Instruments periodically updates device drivers. You can download the latest drivers from the National Instruments Web Site.



# Where to Go from Here

---

Refer to the *LabVIEW Documentation Resources* section of Chapter 1, *Introduction to LabVIEW*, in the *LabVIEW User Manual* for more information about the LabVIEW documentation resources available from National Instruments.

## Differences among LabVIEW for Windows

---

### Low-Level Register I/O

LabVIEW for Windows 98/95 has a set of VIs named In Port and Out Port that you can use to read or write hardware registers. Windows 2000/NT applications cannot manipulate hardware directly. If you need to communicate with a hardware device in Windows NT, you must write a Windows NT driver or refer to the National Instruments Web site for drivers that might provide a solution.

## Common LabVIEW Launch Errors on UNIX

---

The following table lists common errors that might occur when you launch LabVIEW for UNIX. Refer to the [Required System Configuration](#) section earlier in these release notes for more information about solving these and other installation problems.

Error Message/Description	Probable Cause/Solution
Xlib: connection to :0.0 refused by server	<b>Probable Cause</b> — Trying to run LabVIEW as a user who does not have permission to open a window on the display server. Typically seen after running the <code>su</code> command to temporarily become a different user, such as <code>root</code> (superuser). <b>Solution</b> — Exit the <code>su</code> command and launch LabVIEW as the login user.
client is not authorized to connect to server	
internal error during connection authorization check	
"Executable version doesn't match resource file"	<b>Probable Cause</b> — Version of LabVIEW executable does not match version of <code>labview.rsc</code> . <b>Solution</b> — Verify that the <code>appResFilePath</code> parameter in the configuration file correctly sets the path to the <code>labview.rsc</code> file.

# Configuring Window Managers on UNIX

---

This section describes procedures for configuring LabVIEW window managers on UNIX operating systems.

## Configuring LabVIEW with the Tab Window Manager

If you use the Tab Window Manager (`twm`), you can change environment settings so that `twm` interacts better with LabVIEW. With `twm`, you cannot close the floating palette menus in LabVIEW if these windows do not have titlebars. To correct this problem, add the following line to your `.twmrc` file in your home directory:

```
DecorateTransients
```

This line adds titlebars to the floating windows so you can close them.

## Configuring LabVIEW with the HP-VUE Window Manager

If you use the HP-VUE Window Manager (`vuewm`), you can change environment settings so that `vuewm` interacts better with LabVIEW. By default, `vuewm` does not incorporate the window position requests of an application. This behavior causes LabVIEW windows, such as the **Panel**, **Diagram**, **Help**, and file dialog windows, to appear in inconsistent locations on your screen. To change the `vuewm` behavior, use the `xrdb` command to set two `vuewm` settings:

```
Vuewm.clientAutoPlace: False
```

```
Vuewm.positionIsFrame: False
```

To add the two entries, you also can edit the following files manually:

```
$HOME/.vue/sessions/home/vue.resources
```

```
$HOME/.vue/sessions/current/vue.resources
```

## Configuring LabVIEW with the Motif Window Manager

If you use the Motif Window Manager (`mwm`), you can change environment settings so that `mwm` interacts better with LabVIEW. By default, `mwm` does not incorporate the window position requests of an application. This behavior causes LabVIEW windows, such as the **Panel**, **Block Diagram**, **Help**, and file dialog windows, to appear in inconsistent locations on your screen. To change the `mwm` behavior, use the `xrdb` command to set two `mwm` settings:

```
mwm.clientAutoPlace: False
```

```
mwm.positionIsFrame: False
```

To add the two entries, you also can edit the following file manually:

```
$HOME/.Xdefaults
```

# Notice to Sun SPARCstation 5 Users

---

A bug exists in some early revisions of the SPARCstation 5. This bug can cause LabVIEW and other programs to hang the system when executing certain floating-point operations. When this condition occurs, you must physically reset the computer to recover. The problem exists in the firmware of the computer and can occur when running any version of the Solaris operating system.



**Note** This bug has been reported only on early revisions of the 70 MHz and 85 MHz SPARCstation 5.

To determine whether your SPARCstation 5 is affected, perform the following steps.



**Caution** Following these steps temporarily interrupts the operation of your computer, so you should warn anyone who might be using your computer remotely.

1. From your SPARCstation 5 console, hold down the <Stop/L1> key (located near the upper left corner of your keyboard) and press the <A> key to break into the PROM monitor.

2. You see one of the following two prompts:

```
Type b (boot), c (continue), or n (new command mode)>  
Type 'go' to resume ok
```

In the first case, select `n` to go to new command mode, where you see an `ok` prompt. If you already have an `ok` prompt, skip to step 3.

3. At the `ok` prompt, type

```
module-info
```

You then see information similar to the following lines:

```
CPU FMI,MB86904 Rev. 2.5 : 70.0 MHz  
SBus (Divide By 3)      : 23.3 MHz
```

4. Type `go` to exit the monitor and resume operation of your system.

If your CPU Revision number (2.5 in this example) is earlier than 3.2, *and* your CPU clock speed (70.0 MHz in this example) is less than 110 MHz, then your computer has this problem. Contact Sun and ask to have your CPU firmware upgraded to `swift_pg 3.2` or later. (Swift is the code name used by Sun for the SPARCstation 5 firmware.) The Sun Bug ID number for this problem is 1151654.

If you have a SPARCstation 5 with this bug, National Instruments strongly recommends upgrading your firmware.



**Note** This problem can affect programs other than LabVIEW. Notably, the GNU C compiler also can produce code that hangs your system in versions prior to 2.6.0.

## Known Issues with LabVIEW 6.0

---

Refer to the `readme.txt` document for descriptions of known issues with LabVIEW 6.0.

## Documentation Clarifications and Additions

---

Refer to the `readme.txt` document for documentation clarifications and additions.



321778C-01

Ju100