

Using Desktop PCs as RT Targets with the LabVIEW™ Real-Time Module

The LabVIEW Real-Time Module can execute VIs on RT targets running the real-time operating system of Ardence Phar Lap Embedded ToolSuite (ETS). This document contains important information about configuring a desktop PC as an RT target and information about installing software on the desktop PC.

Refer to the *Getting Started with the LabVIEW Real-Time Module* document for exercises you can complete to familiarize yourself with the new features and enhancements to the LabVIEW Real-Time Module.

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System Requirements

Table 1 describes the system requirements to run version 8.0 of the Real-Time Module.

Table 1. System Requirement for Desktop PCs

Platform	Media and System Requirements
Desktop PC with x86-based processor—Refer to the National Instruments Web site at ni.com/info and enter the info code <code>etspc</code> for information about the desktop PC models that National Instruments recommends.	Supported Ethernet card or PC with a supported Ethernet chipset—Refer to the NI Web site at ni.com/info and enter the info code <code>etspc</code> for information about the Ethernet cards that National Instruments recommends. Formatted hard drive on the desktop PC with FAT32 file system. 3.5 inch floppy drive on the desktop PC. A boot or format disk—Create a Desktop PC Boot disk or Format Hard Drive disk using NI Measurement & Automation Explorer (MAX). Select Tools»RT Disk Utilities»Create Desktop PC Boot Disk in MAX to create the Desktop PC Boot disk. Select Tools»RT Disk Utilities»Create Desktop PC Format Hard Drive Disk in MAX to create the Format Hard Drive disk.

Configuring a Desktop PC Using a Boot Disk

Complete the following steps to configure a desktop PC using a boot disk.

1. If the Desktop PC does not include a motherboard with a supported Ethernet chipset, install an Ethernet card in an available PCI slot of the PC.
2. Connect a monitor and keyboard to the desktop PC to display and respond to BIOS configuration utility prompts.



Note National Instruments recommends that you remove from the desktop PC any PCI boards not supported by the LabVIEW Real-Time Module to reduce the possibility of resource conflicts. For example, remove sound cards, SCSI adapters, and modems from the desktop PC.

3. Turn on the desktop PC and access the BIOS configuration utility.



Note BIOS configurations and configuration interfaces for desktop PCs vary among different manufacturers and system models. Consult the motherboard or system manual for information about accessing and configuring the BIOS settings of the desktop PC.

4. Set the boot configuration to use the floppy drive as the first boot device.
5. Disable legacy USB support.
6. Disable any unnecessary integrated peripherals that use an interrupt request line (IRQ). For example, disable unused serial ports or integrated sound on the desktop PC.
7. Save the configuration changes and exit the BIOS configuration utility.
8. Insert the desktop PC boot disk in the floppy drive and reboot the desktop PC to boot into the real-time operating system.

Refer to the *Installing Software* section for information about installing software on the desktop PC.

Configuring a Desktop PC Using a Format Disk

You can use a format disk to permanently install the RT Module software on the hard drive of the desktop PC. A format disk resets a previously formatted and partitioned hard drive and installs files to the desktop PC to allow you to start the PC without a boot disk.



Caution A format disk overwrites the hard drive boot sector and master boot record, erasing all pointers to data on the drive. If you have a dual-boot configuration, the changes to the master boot record remove the ability to boot into the secondary operating system.

Complete the following steps to configure a desktop PC using a format disk.

1. If the Desktop PC does not include a motherboard with a supported Ethernet chipset, install an Ethernet card in an available PCI slot of the PC.
2. Connect a monitor and keyboard to the desktop PC to display and respond to BIOS configuration utility and format prompts.



Note National Instruments recommends that you remove from the desktop PC any PCI boards not supported by the LabVIEW Real-Time Module to reduce the possibility of resource conflicts. For example, remove sound cards, SCSI adapters, and modems from the desktop PC.

3. Turn on the desktop PC and access the BIOS configuration utility.



Note BIOS configurations and configuration interfaces for desktop PCs vary among different manufacturers and system models. Consult the motherboard or system manual for information about accessing and configuring the BIOS settings of the desktop PC.

4. Set the boot configuration to use the floppy drive as the first boot device.
5. Disable legacy USB support.
6. Disable any unnecessary integrated peripherals that use an interrupt request line (IRQ). For example, disable unused serial ports or integrated sound on the desktop PC.
7. Save the configuration changes and exit the BIOS configuration utility.
8. Insert the desktop PC format disk in the floppy drive and reboot the desktop PC.
9. Follow the directions that appear on the screen.
10. Remove the desktop PC format disk from the floppy drive and reboot the desktop PC to boot into the real-time operating system.

Refer to the *Installing Software* section for information about installing software on the desktop PC.

Installing Software

Complete the following steps to install software on the desktop PC.

1. Boot the desktop PC into the real-time operating system. The desktop PC loads with the basic real-time operating system and a null IP address of 0.0.0.0.



Tip You can connect a monitor to the desktop PC to display startup messages.

2. Open MAX on another computer in the same subnet and expand the **Remote Systems** category. MAX lists the desktop PC as 0.0.0.0 in the **Remote Systems** category.
3. Click on the 0.0.0.0 entry to access the **Network Settings** tab.
4. Enter a name for the RT target in the **Name** text box.
5. Set the network configuration options of the RT target in the **IP Settings** section and click the **Apply** button. MAX prompts you to reboot the RT target to allow the changes to take effect.
6. Reboot the RT target. The RT target appears in the **Remote Systems** category with the assigned name.
7. Expand the RT target in the **Remote Systems** category and select the **Software** category.

8. Click the **Add/Remove Software** button in the toolbar to launch the LabVIEW Real-Time Software Wizard.
9. Install the LabVIEW Real-Time software and device drivers that you require on the RT target. Refer to the NI Web site at ni.com/info and enter the info code `etspc` for the latest information about supported software.

Known Issues

Refer to the `readme_RT.html` file on the LabVIEW Real-Time Module 8.0 installation CD for information about known issues with using a desktop PC as an RT target with the LabVIEW Real-Time Module 8.0.

You also can launch the `readme_RT.html` file from Windows after you install the Real-Time Module. Complete the following steps to access the `readme_RT.html` file from Windows.

1. Select **Start»All Programs»National Instruments»LabVIEW 8.0»Readme** to open the `labview\readme` directory.
The `labview\readme` directory contains the HTML readme files for LabVIEW, the LabVIEW modules, and add-ons installed on the computer.
2. Double-click `readme_RT.html` to open the *LabVIEW Real-Time Module Readme*.

Resources

Refer to the NI Web site at ni.com/info and enter the info code `etspc` for the latest information about using desktop PCs as RT targets.

Refer to the *Getting Started with the LabVIEW Real-Time Module* document for exercises you can complete to familiarize yourself with the new features and enhancements to the LabVIEW Real-Time Module.

Refer to the *LabVIEW Help* for more information about the LabVIEW Real-Time Module features. Access the *LabVIEW Help* from LabVIEW by selecting **Help»Search the LabVIEW Help**.

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