

Real-Time Windows Target Release Notes

The “Real-Time Windows Target 2.5 Release Notes” on page 1-1 describe changes introduced in Real-Time Windows Target for Release 14. The release notes include the following sections:

- “New Features” on page 1-2
- “Upgrading from an Earlier Release” on page 1-4
- “Major Bug Fixes” on page 1-5
- “Known Software and Documentation Problems” on page 1-6

The Real-Time Windows Target Release Notes also provide information about recent versions of the product, in case you are upgrading from a version that was released prior to Release 14.

- “Real-Time Windows Target 2.2 Release Notes” on page 2-1
- “Real-Time Windows Target 2.0 Release Notes” on page 3-1

Printing the Release Notes

If you would like to print the Release Notes, you can link to a PDF version.

Real-Time Windows Target 2.5 Release Notes

1

New Features	1-2
Performance and Stability Enhancements	1-2
Updated Compiler Support	1-2
Configuration Sets	1-2
SimMechanics	1-2
Supported I/O Boards	1-2
Microsoft Windows Joystick	1-3
Upgrading from an Earlier Release	1-4
Major Bug Fixes	1-5
Known Software and Documentation Problems	1-6

Real-Time Windows Target 2.2 Release Notes

2

Product and Documentation Update	2-2
Support for Microsoft Visual C/C++ Version 7.0	2-2
Counter Input and Encoder Input Blocks	2-2
Supported I/O Boards	2-2

Real-Time Windows Target 2.0 Release Notes

3

New Features	3-2
I/O Device Driver Architecture	3-2
External Mode Interface	3-3

C Compiler Support	3-3
I/O Device Driver Support	3-3
Upgrading from an Earlier Release	3-5
Reinstall the Real-Time Windows Kernel	3-5
Enter New External Mode Interface Filename	3-5
Remove I/O Adapter Blocks from Your Simulink Model	3-6
Replace I/O Driver Blocks in Your Simulink Model	3-6

Real-Time Windows Target 2.5 Release Notes

New Features	1-2
Performance and Stability Enhancements	1-2
Updated Compiler Support	1-2
Configuration Sets	1-2
SimMechanics	1-2
Supported I/O Boards	1-2
Microsoft Windows Joystick	1-3
Upgrading from an Earlier Release	1-4
Major Bug Fixes	1-5
Known Software and Documentation Problems	1-6

New Features

This section introduces the new features and enhancements added in the Real-Time Windows Target for Release 14.

Performance and Stability Enhancements

This release contains performance and stability enhancements.

Updated Compiler Support

Real-Time Windows Target applications are now compiled with the Open Watcom C/C++ compiler. For your convenience, this compiler is shipped with Real-Time Windows Target. Third-party compilers are no longer necessary.

Configuration Sets

Real-Time Windows Target provides a default configuration set. This configuration set quickly configures a Simulink model for default Real-Time Windows Target behavior. See the Simulink documentation for additional information on configuration sets.

SimMechanics

Real-Time Windows Target now supports SimMechanics.

Supported I/O Boards

The Real-Time Windows Target 2.5 I/O library supports over 200 different I/O boards from major manufacturers. The documentation has been updated to include additional descriptions of these supported boards

- Humusoft AD612
- Humusoft MF614
- Meilhaus Electronic ME-2000
- Meilhaus Electronic ME-2600
- National Instruments DAQCard-6036E
- National Instruments PCI-6013
- National Instruments PCI-6014

- National Instruments PCI-6036E
- National Instruments PCI-6703
- National Instruments PCI-6704
- National Instruments PXI-6704

The Computer Boards category was renamed to Measurement Computing.

Microsoft Windows Joystick

The Microsoft Windows Joystick driver now supports USB joysticks, including force-feedback ones.

Upgrading from an Earlier Release

This section describes the upgrade issue involved in moving to Real-Time Windows Target 2.5 from Version 2.2.

The system target file name was changed from `rtwintmf` to `rtwin.tmf`. Using the Simulink model **Configuration Parameters** dialog box, you should reconfigure existing Real-Time Windows Target models (prior to Release 14, Real-Time Windows Target 2.5) before building them.

Major Bug Fixes

The Real-Time Windows Target 2.5 includes several bug fixes made since Version 2.2. You can see a list of the particularly important Version 2.5 bug fixes.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.

Known Software and Documentation Problems

This section includes a link to a description of known software and documentation problems in Real-Time Windows Target 2.5.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.

Real-Time Windows Target 2.2 Release Notes

Product and Documentation Update	2-2
Support for Microsoft Visual C/C++ Version 7.0	2-2
Counter Input and Encoder Input Blocks	2-2
Supported I/O Boards	2-2

Product and Documentation Update

This section introduces three new features added to the Real-Time Windows Target 2.2.

Support for Microsoft Visual C/C++ Version 7.0

The Real-Time Windows Target 2.2 now supports Microsoft Visual C/C++ Version 7.0.

Counter Input and Encoder Input Blocks

The documentation now includes a description of the Counter Input block and the Encoder Input block. These Real-Time Windows Target blocks allow you to select and connect specific counter and encoder input channels to your Simulink model.

Supported I/O Boards

The Real-Time Windows Target 2.2 I/O library supports over 200 different I/O boards from major manufacturers. The documentation has been updated to include additional descriptions of these supported boards.

Real-Time Windows Target 2.0 Release Notes

New Features	3-2
I/O Device Driver Architecture	3-2
External Mode Interface	3-3
C Compiler Support	3-3
I/O Device Driver Support	3-3
Upgrading from an Earlier Release	3-5
Reinstall the Real-Time Windows Kernel	3-5
Enter New External Mode Interface Filename	3-5
Remove I/O Adapter Blocks from Your Simulink Model	3-6
Replace I/O Driver Blocks in Your Simulink Model	3-6

New Features

Note The Real-Time Windows Target 2.2 that is shipped as part of the Release 13 CD does not have any significant product updates since Version 2.0, as described in these Release Notes.

This section introduces the new features and enhancements added to the Real-Time Windows Target 2.0 since the Real-Time Windows Target 1.0 (Release 11.0).

I/O Device Driver Architecture

The Real-Time Window Target 2.0 includes a new I/O device driver architecture that simplifies the use of I/O blocks in Simulink block diagrams. After installing a new I/O board in your PC, you place a device driver block in your model and specify board-specific settings (e.g., board address) for this board.

Once you have added a new I/O board to your PC and you have used the device driver dialog box to specify board information, the board information is retained for future sessions. When you add additional blocks, you select an I/O board from a list of installed boards. You do not have to re-enter the same board information for each driver block.

You can use multiple I/O boards in your computer. When doing so, the driver blocks show a list of installed boards for you to choose. This reduces the need to search through a growing list of device drivers.

New I/O drivers allow you to use either normalized units for analog inputs and outputs, or allow you to directly specify units as voltage.

I/O driver blocks now provide a separate I/O block for digital inputs, digital outputs, analog inputs, and analog outputs. This avoids any confusing signal indexing required to specify a combination of analog and digital I/O.

The Adapter block has been eliminated. See “Remove I/O Adapter Blocks from Your Simulink Model” on page 3-6 for upgrade issues.

External Mode Interface

Changes have been made to the external mode interface. These include minor changes and bug fixes that ensure data is displayed at the end of a simulation even when the number of points collected differs from the specified buffer size.

C Compiler Support

The Real-Time Windows Target 2.0 supports Microsoft Visual C/C++ version 5.0 and 6.0. This support was initially introduced in the Real-Time Windows Target 1.5, which was available as a download from the Web.

I/O Device Driver Support

New I/O device drivers have been added to the Real-Time Windows Target 2.0 for supporting additional boards.

Counter support - Real-Time Windows Target supports the counter boards CIO-QUAD02 and CIO-QUAD04 from ComputerBoards.

Following is a list of the new supported boards:

- ComputerBoards PCI-DAS1000
- ComputerBoards PCI-DAS1001
- ComputerBoards PCI-DAS1002
- ComputerBoards PCI-DAS1200
- ComputerBoards PCI-DAS1200/JR
- ComputerBoards PCI-DAS1602/12
- ComputerBoards PCI-DAS1602/16
- ComputerBoards PCI-DAS1602/16-JR
- ComputerBoards PCM-DAC08
- ComputerBoards PCM-DAS16S/330
- ComputerBoards PCM-DAS16D/12
- ComputerBoards PCM-DAS16S/12
- ComputerBoards PCM-DAS16D/16
- ComputerBoards PCM-DAS16S/16
- ComputerBoards CIO-QUAD02
- ComputerBoards CIO-QUAD04

- National Instruments Lab-PC-1200
- National Instruments Lab-PC-1200AI
- National Instruments PCI-1200
- National Instruments PXI-6025E
- National Instruments PXI-6031E
- National Instruments PXI-6040E
- National Instruments PXI-6052E
- National Instruments PXI-6070E
- National Instruments PXI-6071E
- Technology 80 5312B

Upgrading from an Earlier Release

This section describes the upgrade issues involved in moving from the Real-Time Windows Target 1.0 and 1.5 to the Real-Time Windows Target 2.0.

Reinstall the Real-Time Windows Kernel

When upgrading from an earlier release, first uninstall the Real-Time Windows Target kernel. In the MATLAB window, type

```
rtwintgt -uninstall
```

After you install MATLAB R12 products, including the Real-Time Windows Target 2.0, install the new Real-Time Windows Target kernel. In the MATLAB window, type

```
rtwintgt -install
```

Depending on which version of Windows you are using on your PC, you may need to reboot your PC before using the Real-Time Windows Target. If a reboot is required, a message appears indicating a reboot is needed.

Enter New External Mode Interface Filename

The name of the external mode interface file was changed from `win_tgt` to `rtwinext`. If you create a new Simulink model, the new filename is entered correctly. If you have Simulink models where you used Real-Time Windows Target 1.0 or 1.5, you need to change the filename using the following procedure:

- 1 In the Simulink window, and from the **Tools** menu, click **External mode control panel**.
- 2 On the External Mode Control Panel dialog box, click the **Target interface** button.
- 3 In the External Target Interface dialog box, and in the **MEX-file for external mode** box, enter

```
rtwinext
```

- 4 Click **OK**.

Remove I/O Adapter Blocks from Your Simulink Model

I/O Adapter blocks have been eliminated from the Real-Time Windows Target 2.0. You need to remove all I/O Adapter blocks from your Simulink model. Before removing these blocks, we recommend that you record board and connectivity information.

You now enter specific board information in the individual driver blocks. However, you only have to do this once. After entering information in the first block, you can select your board from a pull-down list in the following blocks.

Replace I/O Driver Blocks in Your Simulink Model

The Real-Time Windows Target 1.0 and 1.5 had only two driver blocks – RT Input and RT Output. In the Real-Time Windows Target 2.0, the drivers are now divided into Analog Input (A/D), Analog Output (D/A), Digital Input, Digital Output, and others.

You need to remove all the Real-Time Windows Target 1.0 and 1.5 blocks from your Simulink model and replace them with the new Version 2.0 blocks. Remember to replace RT Input with the appropriate Analog Input and Digital Input blocks. And similarly, you must replace RT Output with Analog Output and Digital Output blocks. For example, if you had a block with both analog input and digital input, you must replace this block by adding two new blocks.