

Link for TASKING[®] Release Notes

Summary by Version	1
Version 1.2 (R2007b) Link for TASKING	4
Version 1.1 (R2007a) Link for TASKING	7
Version 1.0.1 (R2006b) Link for TASKING	10
Version 1.0 (R2006a+) Link for TASKING	11
Compatibility Summary for Link for TASKING	14

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "About Release Notes" on page 1.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version V1.2 (R2007b)	Yes Details	Yes Summary	Bug Reports	Printable Release Notes: PDF Current product documentation
V1.1 (R2007a)	Yes Details	Yes Summary	Bug Reports	No
V1.0.1 (R2006b)	No	Yes Summary	Bug Reports	No
V1.0 (R2006a+)	Yes Details	Yes Summary	Bug Reports at Web site	No

About Release Notes

Use release notes when upgrading to a newer version to learn about new features and changes, and the potential impact on your existing files and practices. Release notes are also beneficial if you use or support multiple versions.

If you are not upgrading from the most recent previous version, review release notes for all interim versions, not just for the version you are installing. For example, when upgrading from V1.0 to V1.2, review the New Features and Changes, Version Compatibility Considerations, and Bug Reports for V1.1 and V1.2.

New Features and Changes

These include

- New functionality

- Changes to existing functionality
- Changes to system requirements (complete system requirements for the current version are at the MathWorks Web site)
- Any version compatibility considerations associated with each new feature or change

Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, its description includes a **Compatibility Considerations** subsection that details the impact. For a list of all new features and changes that have reported compatibility impact, see the “Compatibility Summary for Link for TASKING” on page 14.

Compatibility issues that are reported after the product has been released are added to Bug Reports at the MathWorks Web site. Because bug fixes can sometimes result in incompatibilities, also review fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks Bug Reports is a user-searchable database of known problems, workarounds, and fixes. The MathWorks updates the Bug Reports database as new problems and resolutions become known, so check it as needed for the latest information.

Access Bug Reports at the MathWorks Web site using your MathWorks Account. If you are not logged in to your MathWorks Account when you link to Bug Reports, you are prompted to log in or create an account. You then can view bug fixes and known problems for R14SP2 and more recent releases.

Related Documentation at Web Site

Printable Release Notes (PDF). You can print release notes from the PDF version, located at the MathWorks Web site. The PDF version does not support links to other documents or to the Web site, such as to Bug Reports. Use the browser-based version of release notes for access to all information.

Product Documentation. At the MathWorks Web site, you can access complete product documentation for the current version and some previous versions, as noted in the summary table.

Version 1.2 (R2007b) Link for TASKING

This table summarizes what's new in Version 1.2 (R2007b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes — Details labeled as Compatibility Considerations , below. See also Summary.	Bug Reports	Printable Release Notes: PDF Current product documentation

TriCore Optimized Code: Support for Saturated Arithmetic

A new target function library uses TASKING compiler extensions and intrinsic functions optimized for saturated arithmetic. These target optimizations can increase execution speed up to 18 times for saturated arithmetic operations. Using these target optimizations improves the performance of most applications performing saturated arithmetic operations.

When using these target optimizations, the regular Real-Time Workshop implementation for many saturated arithmetic operations is replaced by calls to target-optimized inlined functions. These functions behave identically to the regular Real-Time Workshop implementation and can be verified using processor-in-the-loop cosimulation.

See “Limitations and Tips”.

USB XC164CM Support

This release provides support for compact USB stick evaluation hardware, with a new option set for XC164CM U CAN hardware.

Select the preconfigured target preference setting `xc164cm_hw_u_can` to target the XC164CM U CAN hardware.

New Supported TASKING Toolsets

New toolsets supported include:

- Infineon C166: TASKING Tools for C166/ST10 v8.6 r3
- ARM: TASKING C Compiler for ARM v1.2 r1
- 8051: TASKING Tools for 8051 v7.2 r1
- Infineon TriCore: TASKING VX-toolset for TriCore v2.5 r1

Also, if you regenerate template projects, these additional toolsets are supported:

- TASKING VX-toolset for TriCore and PCP v2.5 r1
- As TASKING VX-toolset for TriCore v2.5 r1 but without on-chip debug support (OCDS)

Limitations Removed

This release removes several limitations:

- Complex, fixed-point data is now supported by PIL.
- With 8051 and ARM, DSP library build failures no longer occur.
- "Save data to workspace" no longer causes error.
- 8051 compiler assertion failure no longer occurs.
- 8051 link-order issue no longer causes PIL application failure.
- Model reference error messages now provide information if any referenced models have different hardware implementations or "TASKING configuration description" settings, or do not have a Link for TASKING component.

See "Limitations and Tips".

Link for TASKING Build Directory and Target Preferences

You must use a clean build directory and the latest values for the target preference fields when setting up your installation.

Compatibility Considerations

To avoid problems when upgrading from a previous version, use either a new build directory, or clean up your existing build directory that you use to build models with Link for TASKING.

A previous installation of Link for TASKING could cause a compatibility issue if the target preferences are not reset. To avoid problems, click **Reset to Default** in the Link for TASKING Target Preferences dialog box before setting up your installation.

Note Resetting your target preferences overwrites any previously saved entries for the current MATLAB release.

Link and Target Products Regrouped in New Start, Help, and Demos Category

A new product category, Links and Targets, now contains all MathWorks products that link, target, or cosimulate code.

Compatibility Considerations

This change impacts you in the following ways:

- Finding and viewing these products through the MATLAB Desktop **Start** button and in the Help browser **Contents** and **Demos** panes.
- Using the demo command to access the product demos.

For more about this new product category, see “Demos and Help Browser Contents Now Include New Category for Links and Targets”, in the *MATLAB Release Notes*.

Version 1.1 (R2007a) Link for TASKING

This table summarizes what's new in Version 1.1 (R2007a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes — Details labeled as Compatibility Considerations , below. See also Summary.	Bug Reports	Printable Release Notes: PDF Current product documentation

Processor-in-the-Loop Verification

New verification workflow demo explains "SIL and PIL for System and Unit Testing", and incorporates hand-written algorithms via the Legacy Code Tool

New verification tool, `target_block_verify` function, automates comparison of simulation and SIL/PIL results.

See "PIL Workflow" for details.

Stack Profiling

Maximum stack usage is reported automatically after PIL cosimulation (command line functions also available for non-PIL use). The report gives you a maximum bound on the stack usage of the algorithm under test.

See "Stack Profiling" for details.

Bidirectional Traceability Between Code and Model

Two-way traceability between generated source code (in TASKING EDE / CrossView Pro) and Simulink blocks (using context menu items and command-line functions).

See "Bidirectional Traceability Between Code and Model" for details.

Read/Write Memory Units

New methods for Link for TASKING objects (`readMemoryUnits` and `writeMemoryUnits`) simplify reading from and writing to target memory units (the smallest addressable unit in the memory of the target). Use them with the MATLAB functions, `typecast` and `swapbytes`, for reading and writing data of different datatypes.

See Read/Write Memory Units for details.

Model Reference Support

Model reference is supported.

Real-Time Workshop GRT support

Real-Time Workshop GRT target is supported for build and download, so Real-Time Workshop Embedded Coder is optional. However Real-Time Workshop Embedded Coder ERT target is required for PIL.

PIL is Supported for the DSP563xx Toolset

PIL is supported for the Freescale DSP563xx (16-bit mode) Toolset.

New Supported TASKING Toolsets

Toolsets supported:

- Infineon TriCore: TASKING C/C++, CrossView Pro SIM for TriCore v2.4r1 patch 1
- Infineon C166: TASKING Tools for C166/ST10 v8.6 r2

Link for TASKING Build Directory and Target Preferences

You must use a clean build directory and the latest values for the target preference fields when setting up your installation.

Compatibility Considerations

To avoid problems when upgrading from a previous version, you should use a new build directory, or clean up your existing build directory that you use to build models with Link for TASKING.

It is possible a previous installation of Link for TASKING could cause a compatibility issue if the target preferences are not reset. To avoid problems, click the **Reset to Default** button in the Link for TASKING Target Preferences dialog box before setting up your installation.

Note Resetting your target preferences overwrites any previously saved entries for the current MATLAB release.

Version 1.0.1 (R2006b) Link for TASKING

This table summarizes what's new in Version 1.0.1 (R2006b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	Yes — Details labeled as Compatibility Considerations , below. See also Summary.	Bug Reports	Printable Release Notes: PDF Current product documentation

Link for TASKING Target Preferences

You must use the latest values for the target preference fields when setting up your installation.

Compatibility Considerations

It is possible a previous installation of Link for TASKING could cause a compatibility issue if the target preferences are not reset. To avoid problems, click the **Reset to Default** button in the Link for TASKING Target Preferences dialog box before setting up your installation.

Note Resetting your target preferences overwrites any previously saved entries.

Version 1.0 (R2006a+) Link for TASKING

This table summarizes what's new in V1.0 (R2006a+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes — Details labeled as Compatibility Considerations , below. See also Summary.	Bug Reports at Web site	No

Version 1.0 of Link for TASKING, which was released in Web-downloadable form after R2006a, includes these features:

- “Automated Project-Based Build Process” on page 11
- “Automated Download and Debugging” on page 11
- “Highly Customized Code Generation” on page 12
- “Processor-in-the-Loop (PIL) Cosimulation ” on page 12
- “MATLAB APIs to Communicate with TASKING” on page 12
- “Link for TASKING Modifies a Real-Time Workshop File” on page 12

Automated Project-Based Build Process

With Link for TASKING, you can automatically create and build TASKING projects for code generated by Real-Time Workshop or Real-Time Workshop Embedded Coder.

Automated Download and Debugging

You can use MATLAB to rapidly and easily debug generated code in the CrossView Pro debugger, using either the instruction set simulator or real hardware.

Highly Customized Code Generation

Support for multiple TASKING toolsets provides a route to a large number of different target hardware platforms. Link for TASKING provides customizable templates for configuring hardware variants, automating MISRA C code checking, and controlling the build process to generate target-specific optimized code. You can use any Real-Time Workshop system target file (STF).

Processor-in-the-Loop (PIL) Cosimulation

You can use cosimulation techniques to verify generated code running in an instruction set simulator or real embedded hardware environment. You can analyze and profile the target-specific code execution behavior using MATLAB and Simulink. During a PIL test, you can use the TASKING debugger to set breakpoints, step through the code, and watch variables. After the test, Link for TASKING returns execution profiling and code coverage reports to MATLAB for your review.

MATLAB APIs to Communicate with TASKING

You can write MATLAB scripts to automate complex tasks in the TASKING EDE and TASKING CrossView Pro debugger, or you can debug and analyze interactively in a live MATLAB session. You can automate project creation and debugging, and exchange data between MATLAB and the target running in CrossView Pro. You can set breakpoints, step through code, set parameters and retrieve profiling reports.

Link for TASKING Modifies a Real-Time Workshop File

When you install Link for TASKING V1.0 on top of R2006a, one Real-Time Workshop file is modified. The file is *matlabroot/rtw/c/libsrc/rt_interpolate.c*. Link for TASKING modifies this file to avoid compilation errors on 24-bit targets. Link for TASKING removes the following line from this file:

```
include "simstruc_types.h"
```


Compatibility Considerations

It is possible a reinstall of a R2006a product could cause a compatibility issue if the `rt_interpolate.c` file is overwritten. If you do not have the correct version of the file, this will cause compiler errors with certain models for 24-bit targets.

Compatibility Summary for Link for TASKING

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version V1.3 (R2007b)	See the Compatibility Considerations subheading for each of these new features or changes: <ul style="list-style-type: none"> • “Link for TASKING Build Directory and Target Preferences” on page 5 • “Link and Target Products Regrouped in New Start, Help, and Demos Category” on page 6
V1.2 (R2007a)	See the Compatibility Considerations subheading for this new feature or change: “Link for TASKING Build Directory and Target Preferences” on page 8
V1.1 (R2007a)	See the Compatibility Considerations subheading for this new feature or change: “Link for TASKING Build Directory and Target Preferences” on page 8
V1.0.1 (R2006b)	See the Compatibility Considerations subheading for this new feature or change: “Link for TASKING Target Preferences” on page 10
V1.0 (R2006a+)	See the Compatibility Considerations subheading for this new feature or change: “Link for TASKING Modifies a Real-Time Workshop File” on page 12