Embedded IDE Link™ VS Release Notes

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Embedded IDE Link™ VS Release Notes

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Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using 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 V2.2 (R2009a)	Yes Details	Yes Summary	Bug Reports	Printable Release Notes: PDF Current product documentation
V2.1 (R2008b)	Yes Details	Yes Summary	Bug Reports	Printable Release Notes: PDF
V2.0 (R2008a)	Yes Details	No	Bug Reports	No
V1.1 (R2007b)	Yes Details	Yes Summary	Bug Reports	No
V1.0 (R2007a+)	Yes Details	No	Bug Reports	No

Using Release Notes

Use release notes when upgrading to a newer version to learn about:

- New features
- Changes
- Potential impact on your existing files and practices

Review the release notes for other MathWorks™ products required for this product (for example, MATLAB® or Simulink®) for enhancements, bugs, and compatibility considerations that also might impact you.

If you are upgrading from a software version other than the most recent one, review the 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 release notes for V1.1 and V1.2.

What's in the Release Notes

New Features and Changes

- New functionality
- Changes to existing functionality

Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product is released appear under Bug Reports at the MathWorks Web site. Bug fixes can sometimes result in incompatibilities, so you should also review the fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

The MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release time and as more information becomes available. This includes provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

Version 2.2 (R2009a) Embedded IDE Link VS Software

This table summarizes what's new in V2.2 (R2009a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes. "Compatibility Summary for Embedded IDE Link VS Software" on page 18	Bug Reports	Printable Release Notes: PDF V2.1 product documentation

The following feature is introduced in this version:

- "Ability to Replace any Generated File in a Project with a Custom File" on page 3
- "Source File Replacement Diagnostic Option" on page 4
- "Fixed-Point Fuel System with PIL Demo for Blackfin Processors" on page 4
- "PIL Block Behavior with Goto and From Blocks" on page 4
- "Arguments Being Removed" on page 4

Ability to Replace any Generated File in a Project with a Custom File

When you generate a project, you can replace any generated file with another file that you provide. You can specify a custom file with the same name as a generated file in the **Board custom code** options in the Target Preferences block. When you generate code, the build process replaces the generated file with your custom file. For more information about replacing files, refer to Target Preferences in the Embedded IDE Link™ VS documentation in the online Help system.

Source File Replacement Diagnostic Option

To support the custom file replacement capability, a new option in the Embedded IDE Link MU configuration parameters, **Source file replacement**, lets you control the messages you see when you replace a generated file with another custom file.

Fixed-Point Fuel System with PIL Demo for Blackfin Processors

This application demo shows how to use Processor-in-the-Loop (PIL) testing to verify object code running non real-time on processors supported by the software. The example model demonstrates a fault-tolerant fuel control system using Simulink and Stateflow. Access the demo Verifying the Fixed-Point Fuel Control System in the Embedded IDE Link VS Control Applications demos on the **Demos** tab in the online Help.

PIL Block Behavior with Goto and From Blocks

Currently, it is possible but not recommended to use Goto and From blocks for I/O data that crosses the boundary of the PIL block component. For nonatomic subsystems, the right-click PIL build transforms boundary-crossing Goto blocks into outports and From blocks into inports. The resulting PIL block has extra I/O ports and you must rework the model to connect the PIL block. Starting in the next release, you will see an error if your PIL component includes any Goto or From blocks that cross the boundary of the PIL component. For more information on PIL support, refer to"PIL Feature Support and Limitations" in the Real-Time Workshop® Embedded Coder™ documentation.

Arguments Being Removed

The following table lists arguments that will be removed from the product in a future version and not replaced.

Argument Name	What Happens Now When You Use the Argument	Use This Instead
`close( ,'text')`	Errors	None

Argument Name	What Happens Now When You Use the Argument	Use This Instead
`new( ,'text')`	Errors	None
`open( ,'text')`	Errors	None
`save( ,'text')`	Errors	None

Version 2.1 (R2008b) Embedded IDE Link VS Software

This table summarizes what's new in V2.1 (R2008b):

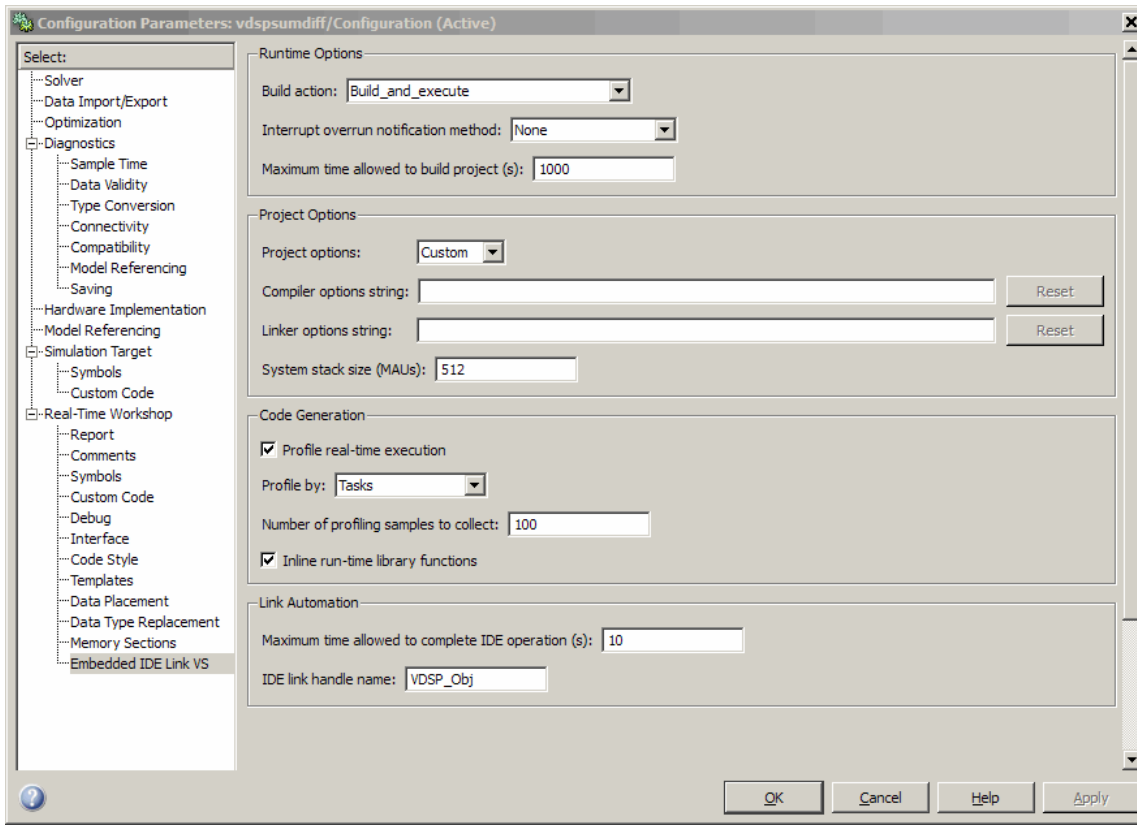
New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes. "Compatibility Summary for Embedded IDE Link VS Software" on page 18	Bug Reports	Printable Release Notes: PDF

The following feature is introduced in this version:

- "Real-Time Execution Profiling Extended to Atomic Subsystems" on page 6
- "Functions, Properties, and Arguments Being Removed" on page 7

Real-Time Execution Profiling Extended to Atomic Subsystems

If your models use atomic subsystems, you can use the real-time execution profiling feature to investigate how your subsystems perform when you execute your program on a processor. A new option on the Embedded IDE Link VS pane in Configuration Parameters, **Profile by**, lets you select whether to profile by task or by atomic subsystem. The following figure shows the new option:



For more information, refer to “Real-Time Execution Profiling”.

Functions, Properties, and Arguments Being Removed

The following table lists functions and arguments that will be removed from the product in a future version.

Feature, Function, or Argument Name	What Happens When You Use Feature, Function, or Argument	Use This Instead
`close( ,'text')`	Warns	None
`new( ,'text')`	Warns	None
`open( ,'text')`	Warns	None
`save( ,'text')`	Warns	None

Version 2.0 (R2008a) Embedded IDE Link VS Software

This table summarizes what's new in V2 (R2008a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Bug Reports	Printable Release Notes: PDF

Features introduced in this version are described here:

Supporting Additional Processors

The software supports the following added processors:

Processor Family	Supported Processors
Blackfin®	BF538 BF539
SHARC®	ADSP-21367, ADSP-21368, ADSP-21369
TigerSHARC®	TS-202, 203

"What's This?" Context-Sensitive Help Available for Simulink Configuration Parameters Dialog

R2008a introduces "What's This?" context-sensitive help for parameters that appear in the Simulink Configuration Parameters dialog. This feature provides quick access to a detailed description of the parameters, saving you the time it would take to find the information in the Help browser.

To use the "What's This?" help, do the following:

1. Place your cursor over the label of a parameter.
2. Right-click. A **What's This?** context menu appears.

For example, the following figure shows the **What's This?** context menu appearing after a right-click on the **Start time** parameter in the **Solver** pane.

3 Click **What's This?** A context-sensitive help window appears showing a description of the parameter.

Profiling Stack Usage

The `profile` method now provides CPU stack profiling as well as real-time task execution profiling. Additional syntax options help you configure the stack for profiling and access the results. For more information, refer to `profile` and System Stack Profiling.

Support for Analog Devices VisualDSP++ Version 5.0

Embedded IDE Link VS software works with Analog Devices™ VisualDSP++® software version 5.0 only. The new release does not support development with VisualDSP++® software version 4.5 or earlier versions.

Version 1.1 (R2007b) Embedded IDE Link VS

This table summarizes what's new in V1.1 (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

Features introduced in this version are described here:

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

A new product category, Links and Targets, now contains all MathWorks software 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*.

Blocks for Accessing Memory in Generated Projects

Two blocks let you access memory from models. The blocks apply to all ADI processors. Find the blocks in the Core Support (`vdsplinklib_coresupport`) in Embedded IDE Link VS block library (`vdsplinklib`).

Memory Allocate and Memory Copy let you configure memory, initialize memory, and move data to and from memory on a processor or board.

Support for Real-Time Workshop Target Function Library Technology

If you are using `vdsplink_ert.tlc` as your system target file, Embedded IDE Link VS software now supports generating code that is optimized for the processor by using compiler intrinsics and assembly code to replace certain mathematical operator functions. Embedded IDE Link VS accomplishes this optimization through the Target Function Library (TFL) replacement mechanism that Real-Time Workshop® software provides.

TFL replacement requires Real-Time Workshop Embedded Coder software and the embedded real-time target—`vdsplink_ert.tlc`.

For more general information about TFL, look for TFL in the Interface options in "Configuring Real-Time Workshop Code Generation Parameters". For information about using TFL in Embedded IDE Link VS, refer to "Optimizing Embedded Code with Target Function Libraries".

set and get Methods With Updated Syntax

`set` and `get` now require both an object variable and property name input arguments to work. In earlier releases, you could use `set` and `get` with only the object variable name input to see a list of all of the properties for an object.

The following command syntaxes are no longer supported by `set` and `get`. In the examples, `vd` is an `adivdsp` object created by `adivdsp`:

- `get(vd)`
- `value = get(vd)`
- `set(vd)`
- `set(vd,'propertyname1',propertyvalue1,'propertyname2',propertyvalue2,...)`
- `value = set(vd)`

The following syntax options work as before:

- `get(vd,'propertyname')`
- `value = get(vd,'propertyname')`
- `set(vd,'propertyname',propertyvalue)`

Compatibility Consideration

The syntax changes to `set` and `get` affect any scripts you might have that use `set` and `get` to return lists of object properties.

Refactored PIL Project Options in Model Configuration Parameters

The existing PIL block option—**Configure model to build PIL algorithm object code**—has been replaced by a new option `Create_Processor_in_the_Loop_project` on the **Build action** list and a new parameter called **PIL block action**.

To build the PIL block with the new options, select `Create_Processor_in_the_Loop_project` for the **Build action**, and then select an option from the **PIL block action** list. For more information about the new configuration parameters and using PIL blocks, refer to Processor-in-the-Loop Overview.

Version 1 (R2007a+) Embedded IDE Link VS

This table summarizes what's new in V1 (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

Features introduced in this version are described here:

Automation Interface Component

You use the objects, functions, and methods provided by the automation interface component to interact with the Analog Devices VisualDSP++ development environment from the MATLAB command prompt. You can load, add to, and build projects, read and write to processor memory, and manipulate directories and project configurations.

The Automation Interface component of Embedded IDE Link VS software supports all Analog Devices™ processors supported by Analog Devices VisualDSP++ software. To use Embedded IDE Link VS software, you must have Analog Devices VisualDSP++ software, version 4.5. For more details, refer to "Supported Version of Analog Devices™ VisualDSP++ Software" on page 17

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Project Generator Component

The project generator component enables you to generate code from Simulink software models into the IDDE as VisualDSP++ software projects. When you add a target preferences block to your model and set your model Configuration Parameters for the code generation process, your model becomes the source for code for an IDDE project and for supported Analog Devices processors

Embedded IDE Link VS supports the following processors:

Processor Family	Supported Processors
Blackfin	BF531, BF532, BF533, BF534, BF536, BF537
SHARC	ADSP-21362, ADSP-21363, ADSP-21364, ADSP-21365, ADSP-21366
TigerSHARC	TS-201

Blackfin, SHARC, or TigerSHARC processors that are being discontinued may not be supported.

To support the Project Generator component for creating VisualDSP++ IDDE projects, Embedded IDE Link VS software provides a block library, `vdsplinklib`, that contains the block libraries shown in the following table to enable you to configure Simulink software models to generate projects and code for Analog Devices processors.

Block Libraries in vdsplinklib	Contents
Blackfin DSP Support (`vdsplinklib_blackfin`)	Blackfin Hardware Interrupt block
Core Support (`vdsplinklib_coresupport`)	Idle Task block
SHARC DSP Support (`vdsplinklib_sharc`)	SHARC Hardware Interrupt block
Target Preferences (`vdsplinklib_tgtpref`)	Target Preferences block
TigerSHARC DSP Support (`vdsplinklib_tigersharc`)	TigerSHARC Hardware Interrupt block

Constructor Name Changed for V1 Release

In the beta version of Embedded IDE Link VS software, the constructor for the `visualdsp` object was `visualdsp`. For this V1 release, the object constructor is changed to

```
adivdsp
```

The object that the constructor `adivdsp` creates is called an `adivdsp` object in the documentation. The `visualdsp` constructor no longer works to construct objects.

Getting Additional Information About Embedded IDE Link VS Software

For information about the objects and methods available for you to use, refer to the online Help system, or enter the following command at the MATLAB prompt:

```
help vdsplink
```

MATLAB command window displays a list of the functions and methods in Embedded IDE Link VS command window, details about how to access help for those methods, and links to the product demos.

Use the following link—Embedded IDE Link VS—to access the demos. You will find demos that introduce the components of Embedded IDE Link VS:

- Automation Interface Tutorial (`vdspautointtutorial`)
- Project Generator Tutorial (`vdspprjgentutorial`)
- A Code Generation Workflow (`vdspworkflow12007ap`)

Using an Analog Devices VisualDSP++ Demo License

If you are using a temporary license for VisualDSP++ software while you work with Embedded IDE Link VS software, you may receive a warning message when your VisualDSP++ software license is about to expire.

Starting about seven days before your VisualDSP++ software temporary license expires, VisualDSP++ software opens a dialog box each time you start

the IDDE. The dialog box warns you that your license is about to expire. This dialog box interferes with the ability of Embedded IDE Link VS software to register two required components with the IDDE. As a result, Embedded IDE Link VS software cannot connect to the IDDE and MATLAB software hangs.

To prevent this problem from occurring, either upgrade and validate your Analog Devices VisualDSP++ software to a permanent license, or get a new temporary license.

Supported Version of Analog Devices VisualDSP++ Software

Embedded IDE Link VS Software works with Analog Devices VisualDSP++ software version 4.5 only.

Compatibility Consideration

To use this product with VisualDSP++ software V4.5, you must apply the following VisualDSP++ software update patch. The patch file is available from the Analog Devices Web site.

```
VisualDSP++4.5_November_2006_update.vdu
```

Compatibility Summary for Embedded IDE Link VS Software

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 V2.2 (R2009a)	See the heading for this change: • "Arguments Being Removed" on page 4
V2.1 (R2008b)	See the heading for this change: • "Functions, Properties, and Arguments Being Removed" on page 7
V2.0 (R2008a)	No
V1.1 (R2007b)	See the **Compatibility Considerations** for these changes: • "Link and Target Products Regrouped in New Start, Help, and Demos Category" on page 11 • "set and get Methods With Updated Syntax" on page 12
V1 (R2007a+)	See the **Compatibility Considerations** for these changes: • "Supported Version of Analog Devices™ VisualDSP++ Software" on page 17 • "Constructor Name Changed for V1 Release" on page 16