

# **SB2SL Release Notes**

## How to Contact MathWorks



[www.mathworks.com](http://www.mathworks.com)  
[comp.soft-sys.matlab](mailto:comp.soft-sys.matlab@mathworks.com)  
[www.mathworks.com/contact\\_TS.html](http://www.mathworks.com/contact_TS.html)

Web  
Newsgroup  
Technical Support



[suggest@mathworks.com](mailto:suggest@mathworks.com)  
[bugs@mathworks.com](mailto:bugs@mathworks.com)  
[doc@mathworks.com](mailto:doc@mathworks.com)  
[service@mathworks.com](mailto:service@mathworks.com)  
[info@mathworks.com](mailto:info@mathworks.com)

Product enhancement suggestions  
Bug reports  
Documentation error reports  
Order status, license renewals, passcodes  
Sales, pricing, and general information



508-647-7000 (Phone)



508-647-7001 (Fax)



The MathWorks, Inc.  
3 Apple Hill Drive  
Natick, MA 01760-2098

For contact information about worldwide offices, see the MathWorks Web site.

*SB2SL Release Notes*

© COPYRIGHT 2007–2012 by The MathWorks, Inc.

The software described in this document is furnished under a license agreement. The software may be used or copied only under the terms of the license agreement. No part of this manual may be photocopied or reproduced in any form without prior written consent from The MathWorks, Inc.

FEDERAL ACQUISITION: This provision applies to all acquisitions of the Program and Documentation by, for, or through the federal government of the United States. By accepting delivery of the Program or Documentation, the government hereby agrees that this software or documentation qualifies as commercial computer software or commercial computer software documentation as such terms are used or defined in FAR 12.212, DFARS Part 227.72, and DFARS 252.227-7014. Accordingly, the terms and conditions of this Agreement and only those rights specified in this Agreement, shall pertain to and govern the use, modification, reproduction, release, performance, display, and disclosure of the Program and Documentation by the federal government (or other entity acquiring for or through the federal government) and shall supersede any conflicting contractual terms or conditions. If this License fails to meet the government's needs or is inconsistent in any respect with federal procurement law, the government agrees to return the Program and Documentation, unused, to The MathWorks, Inc.

### Trademarks

MATLAB and Simulink are registered trademarks of The MathWorks, Inc. See [www.mathworks.com/trademarks](http://www.mathworks.com/trademarks) for a list of additional trademarks. Other product or brand names may be trademarks or registered trademarks of their respective holders.

### Patents

MathWorks products are protected by one or more U.S. patents. Please see [www.mathworks.com/patents](http://www.mathworks.com/patents) for more information.

<b>Summary by Version</b> .....	<b>1</b>
<b>Version 2.7.9 (R2012a+) SB2SL Software</b> .....	<b>3</b>
<b>Version 2.7.8 (R2011b+) SB2SL Software</b> .....	<b>4</b>
<b>Version 2.7.7 (R2011a+) SB2SL Software</b> .....	<b>5</b>
<b>Version 2.7.6 (R2010b+) SB2SL Software</b> .....	<b>6</b>
<b>Version 2.7.5 (R2010a+) SB2SL Software</b> .....	<b>7</b>
<b>Version 2.7.4 (R2009b+) SB2SL Software</b> .....	<b>9</b>
<b>Version 2.7.3 (R2009a+) SB2SL Software</b> .....	<b>10</b>
<b>Version 2.7.2 (R2008b+) SB2SL Software</b> .....	<b>12</b>
<b>Version 2.7.1 (R2008a+) SB2SL Software</b> .....	<b>13</b>
<b>Version 2.7 (R2007b+) SB2SL Software</b> .....	<b>15</b>
<b>Compatibility Summary for SB2SL Software</b> .....	<b>19</b>



## Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using Release Notes" on page 2.

<b>Version (Release)</b>	<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
V2.7.9 (R2012a+)	No	No	No
V2.7.8 (R2011b+)	Yes Details	No	No
V2.7.7 (R2011a+)	No	No	No
V2.7.6 (R2010b+)	Yes Details	No	No
V2.7.5 (R2010a+)	Yes Details	No	No
V2.7.4 (R2009b+)	Yes Details	No	No
V2.7.3 (R2009a+)	Yes Details	No	No
V2.7.2 (R2008b+)	No	No	No
V2.7.1 (R2008a+)	Yes Details	No	"Fixed Bugs" on page 14
V2.7 (R2007b+)	Yes Details	No	"Fixed Bugs" on page 18

## 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 software (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.

## Documentation on the MathWorks Web Site

Product documentation for the latest release is available on [mathworks.com](http://mathworks.com).

## Version 2.7.9 (R2012a+) SB2SL Software

This table summarizes what's new in V2.7.9 (R2012a+):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	No

## Version 2.7.8 (R2011b+) SB2SL Software

This table summarizes what's new in V2.7.8 (R2011b+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes	No	No

New features and changes introduced in this version are organized by these topics:

- “Trigonometric Blocks Now Converted to Algebraic Equivalents” on page 4
- “Translator Options Tab” on page 4

### Trigonometric Blocks Now Converted to Algebraic Equivalents

The SB2SL translator now converts SystemBuild model trigonometric blocks to the algebraic equivalent of their compound trigonometric functions. This change improves efficiency of generated code and performance. In previous releases, the translator converted these SystemBuild model blocks to combinations of native Simulink trigonometric functions.

### Translator Options Tab

The **View report after report creation** check box on the SB2SL: Translator Options > Report Format tab is now enabled only when the **Format** parameter is set to **Web (HTML)**. In previous releases, this check box was always enabled.



## Version 2.7.7 (R2011a+) SB2SL Software

This table summarizes what's new in V2.7.7 (R2011a+):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	No

## Version 2.7.6 (R2010b+) SB2SL Software

This table summarizes what's new in V2.7.6 (R2010b+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes	No	No

- “Support for the Simulink For Each Subsystem Block” on page 6
- “Saving and Restoring the Complete SimState” on page 6

### Support for the Simulink For Each Subsystem Block

The SB2SL translator now supports the Simulink For Each Subsystem within the limitations of that subsystem.

### Saving and Restoring the Complete SimState

Use the SimState feature to save the complete simulation state. Unlike the final states stored in earlier versions of Simulink, the SimState contains the complete simulation state of the model (including block states that are logged). You can then restore the state at a later time and continue simulation from the exact instant at which you stopped the simulation. See “Saving and Restoring the Simulation State as the SimState” in the *Simulink User's Guide*.

## Version 2.7.5 (R2010a+) SB2SL Software

This table summarizes what's new in V2.7.5 (R2010a+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes	No	No

- “ConstantAlgebraicExpression and ConstantLogicalExpression Blocks Now Converted to Simulink Constant Block” on page 7
- “Translator Options Dialog Box Change for Report Format Tab” on page 7
- “Multiple Procedure Blocks with Same Name are Now Converted” on page 8
- “Printing from Tree View Behavior Changed” on page 8

### ConstantAlgebraicExpression and ConstantLogicalExpression Blocks Now Converted to Simulink Constant Block

The SB2SL translator now converts SystemBuild model ConstantAlgebraicExpression and ConstantLogicalExpression blocks to the native Simulink Constant block. In previous releases, the translator converted these SystemBuild model blocks to the Simulink S-functions.

### Translator Options Dialog Box Change for Report Format Tab

The SB2SL **File > Preferences > Report Format** tab **View report after conversion** check box has changed:

- The new name is **View report after report creation**.
- Select this check box to display the report after it is created.

## **Multiple Procedure Blocks with Same Name are Now Converted**

The SB2SL translator now converts multiple procedure blocks with the same name. In previous releases, the translator was unable to convert multiple procedure blocks with the same name.

## **Printing from Tree View Behavior Changed**

The SB2SL translator now prints the requested tree view for your model as selected in the **Window > Tree** menu. In previous releases, the translator reverted the view to **Normal** before printing.

## Version 2.7.4 (R2009b+) SB2SL Software

This table summarizes what's new in V2.7.4 (R2009b+):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
Yes	No	No

### Translation Improvements

A number of translation improvements have been made to improve block conversion results.

## Version 2.7.3 (R2009a+) SB2SL Software

This table summarizes what's new in V2.7.3 (R2009a+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes	No	No

- “Translations Use Simulink Switch Block” on page 10
- “Translations Use Simulink Integer Delay Block Where Appropriate” on page 10
- “Translations Use Simulink Native Logic Blocks When Requested” on page 11

### Translations Use Simulink Switch Block

The SB2SL translator now converts SystemBuild model switch blocks to the native Simulink Switch block. In previous releases, the translator converted SystemBuild model switch blocks to the SB2SL library Switch block.

The difference between the Simulink Switch block and its SystemBuild counterpart is the order of the input ports. During translation, the SB2SL translator converts to the Simulink Switch block port order.

The SB2SL library Switch block continues to exist for SystemBuild models translated in previous releases.

### Translations Use Simulink Integer Delay Block Where Appropriate

The SB2SL translator now converts SystemBuild model integer delay blocks to the native Simulink Integer Delay block where appropriate. This substitution occurs only if the SystemBuild model delays are integer values of the sample time. If the SystemBuild model delays are noninteger values of the sample time, the translator continues to use the SB2SL library DTimeDelay block.

## **Translations Use Simulink Native Logic Blocks When Requested**

Upon request, the SB2SL translator now converts SystemBuild model logic blocks to the native Simulink logic blocks where appropriate. This substitution occurs only if you select SB2SL **Preferences > Build** and then select the **Logic blocks** check box. See “Translation Build Options” in the *SB2SL User’s Guide*.

## Version 2.7.2 (R2008b+) SB2SL Software

This table summarizes what's new in V2.7.2 (R2008b+):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	No



## Version 2.7.1 (R2008a+) SB2SL Software

This table summarizes what's new in V2.7.1 (R2008a+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	“Fixed Bugs” on page 14

New features and changes introduced in this version are organized by these topics:

- “Unified Translator Options and Windows Preferences Dialog Boxes” on page 13
- “New Save Button for User Preferences” on page 13
- “New Translation Build Options Check Box” on page 14
- “Fixed Bugs” on page 14

### Unified Translator Options and Windows Preferences Dialog Boxes

The SB2SL translator options and windows preferences dialog boxes are now consolidated on SB2SL **File > Preferences**. For further details, see “Setting Translation Options” in the *SB2SL User’s Guide*.

In previous releases, the SB2SL translator options were located in **Build > Options** and the windows preferences were located in **Windows > Preferences**.

### New Save Button for User Preferences

The SB2SL Translator Options dialog box now has a **Save** button. Clicking this button saves and applies your selections. The next time you restart SB2SL, it loads the saved settings. In previous releases, you were not able to save preferences. For further details, see “Generating a Report” in the *SB2SL User’s Guide*.

## **New Translation Build Options Check Box**

The SB2SL **File > Preferences > Translation Build Options** tab contains a new check box, **Use round sum block**. When you select this check box, SB2SL uses a round summing junction instead of a square one in the Simulink model. This is only a visual change. For further details, see “Translation Build Options” in the *SB2SL User’s Guide*.

## **Fixed Bugs**

This section lists fixes to bugs that occurred in the previous version of SB2SL.

### **Translation of Some Block IDs to Annotations Failed**

In the previous release, there was an issue in the way that SB2SL handled the translation of some block IDs to annotations. This is no longer an issue. SB2SL can now translate all expected blocks.

## Version 2.7 (R2007b+) SB2SL Software

This table summarizes what's new in V2.7 (R2007b+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	"Fixed Bugs" on page 18

New features and changes introduced in this version are organized by these topics:

- "Block Wiring Alignment Changes for Inports and Outports" on page 15
- "Naming Changes" on page 16
- "General Translation Changes" on page 16
- "Visual Changes" on page 18
- "Fixed Bugs" on page 18

### Block Wiring Alignment Changes for Inports and Outports

When SB2SL converts a National Instruments® SystemBuild™ model to a Simulink model, it organizes the model blocks and the connections between them using a predefined algorithm. In this release, SB2SL now converts the models with the following conventions to improve block layout:

- Aligns inport blocks at the same height as the signal port that they drive
- Places inport blocks near the block port they connect to
- Staggers input blocks horizontally to prevent overlapping
- Aligns output blocks at the same height as and within a fixed distance of the signal port that drives them
- Staggers output blocks horizontally to prevent overlapping

- Uses duplicate inport blocks for multirouted inport signals instead of routing multiple wires from a single port

## Naming Changes

SB2SL now converts the names in SystemBuild models in the following way:

- SB2SL now names the top-level model for its corresponding SuperBlock. This helps with component-based modeling. In previous releases, SB2SL named the top-level model untitled.
- SB2SL now names converted subsystems for their SuperBlocks without including the block ID in the block name. SB2SL now includes the block ID in the 'AttributesFormatString' property of the Subsystem block (see “Default Conversion Results” in the *SB2SL User’s Guide*).
- All inport blocks now follow the standard Simulink naming pattern In*NN* instead of the previous input-*NN* pattern.
- Inport and Output block names no longer appear under the block by default. To display the block name, select **Format > Show Name** for the block. In previous releases, Inport and Output block names were displayed under the blocks.
- All outport blocks now follow the standard Simulink naming pattern Out*NN* instead of the previous output-*NN* pattern.
- SB2SL blocks now insert the block ID in the 'AttributesFormatString' property of the block by default. The ID is still visible just below the block name, but it is not part of the block name. See the **Put IDs in annotations** build option in “Translation Build Options” of the *SB2SL User’s Guide*.
- For unnamed SystemBuild blocks, SB2SL provides a unique canonical name in the Simulink environment (such as Sum, Product, and so forth) and hides the name. To display the block name, select **Format > Show Name** for the block.

## General Translation Changes

SB2SL has the following general translation changes:

- SB2SL now recognizes both the .sbd and .xmd file extensions. You can open these as long as they are in the textual format. In previous releases, SB2SL recognized only .xmd file extensions.

- SB2SL now enables the following:
  - Code reuse (to support the `Reusable` function option of the **Real-Time Workshop system code** parameter for subsystem blocks (see “Nonvirtual Subsystem Code Generation Options” in the Real-Time Workshop® User’s Guide.)
  - Variable-step solvers in referenced models
  - Improved performance with accelerated models
  - Simulink Normal mode for model reference

These changes are for the following blocks in the SB2SL library:

1VarPoly  
 ConditionBlock  
 DAxisRotation  
 Decoder  
 Encoder  
 IAxisRotation  
 LogExpression  
 ZILogExpression  
 General  
 General0

- SB2SL now optionally converts the Condition block using native Simulink if-else blocks and action subsystems for the Condition block **Mode** parameter set to `With Default` and `No Default`. This change allows the Simulink software to provide additional optimization and configuration ability in simulation and code generation. See the **Use native blocks if possible** build option in “Translation Build Options” of the *SB2SL User’s Guide*.
- The following SB2SL Build menu translation options have been added:
  - **Create SuperBlock libraries**
  - **Use native blocks if possible**
  - **Put IDs in annotations**
- The SB2SL Build menu **Avoid block crossing** translation option has been renamed to **Route wires around blocks**.
- SB2SL now converts procedure SuperBlocks to atomic subsystems.

- BlockScripts now support code generation, with the following limitations:
  - BlockScripts that contain scalar parameters cannot generate embedded real-time (ERT) target code.
  - BlockScripts cannot be used in referenced models.

## Visual Changes

SB2SL has the following visual changes:

- If a SystemBuild blocks has its border option enabled, SB2SL no longer converts that block with a drop shadow.
- SB2SL dialog boxes for error, query, and options now have improved fonts, colors, layout, and interactivity.

## Fixed Bugs

This section lists fixes to bugs that occurred in the previous version of SB2SL.

### **Selecting SuperBlocks for Conversion of Smaller SystemBuild Models Was Not Possible**

In a previous release, you could not select a SuperBlock in SB2SL and convert just that block to a smaller SystemBuild model. This is no longer a problem.

### **SB2SL Cannot Convert SystemBuild Models that Contain Limiter Functions with Particular Limits**

SB2SL cannot convert SystemBuild models that contain limiter functions with an upper limit parameter value that is less than the lower limit parameter value. (The larger value is used for the upper limit parameter and the smaller value is used for the lower limit parameter.) This is no longer a problem.

## Compatibility Summary for SB2SL 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.

<b>Version (Release)</b>	<b>New Features and Changes with Version Compatibility Impact</b>
<b>Latest Version V2.7.9 (R2012a+)</b>	None
V2.7.8 (R2011b+)	None
V2.7.7 (R2011a+)	None
V2.7.6 (R2010b+)	None
V2.7.5 (R2010a+)	None
V2.7.4 (R2009b+)	None
V2.7.3 (R2009a+)	None
V2.7.2 (R2008b+)	None
V2.7.1 (R2008a+)	None
V2.7 (R2007b+)	None