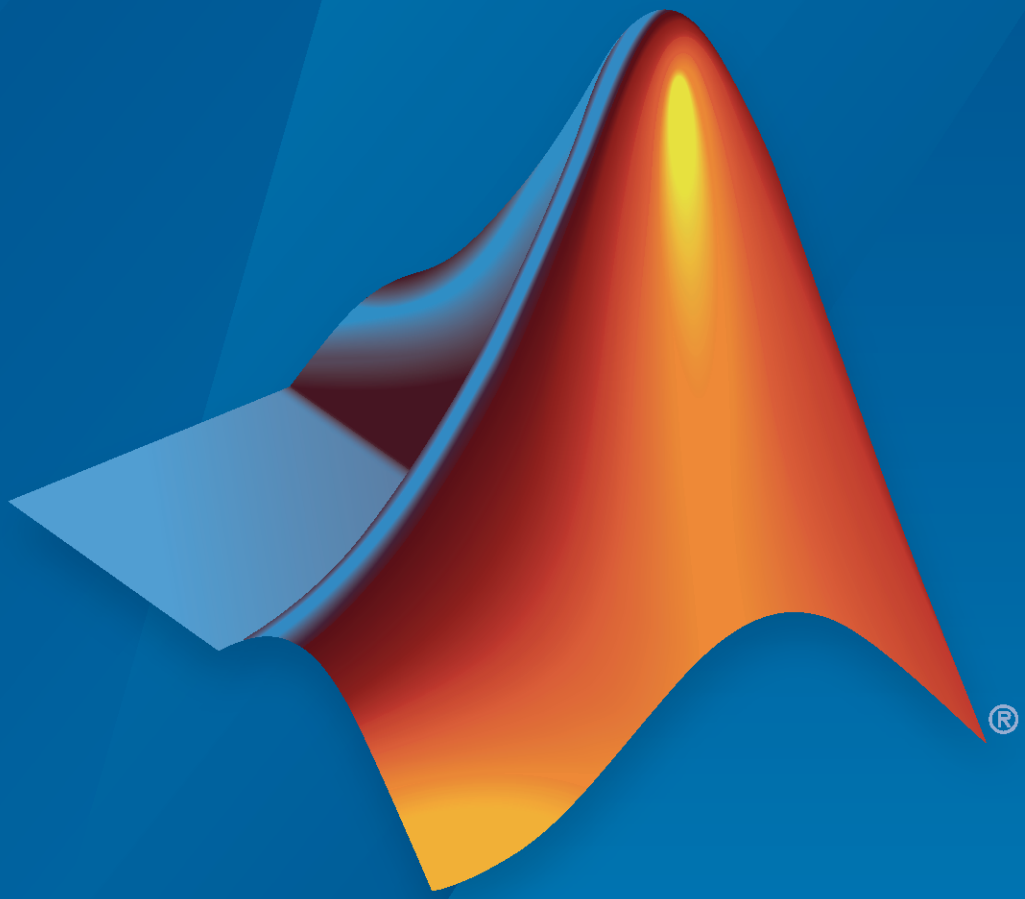
Simulink® Real-Time™

R2020b Upgrade User's Guide



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R2020b

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Simulink® Real-Time™ R2020b Upgrade User's Guide

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Revision History

September 2020	Online only	New for Version 7.0 (Release 2020b)

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Upgrade Systems and Models for Release R2020b

- “Check model for upgradable Simulink Real-Time features” on page 1-2
- “Troubleshoot Model Upgrade for R2020b” on page 1-3
- “Troubleshoot System Upgrade for R2020b” on page 1-5

Check model for upgradable Simulink Real-Time features

Check ID: `mathworks.design.slrealtimeUpgrades`

Check the model for Simulink Real-Time features from a previous release that require an upgrade for compatibility with the current release.

Description

This check identifies upgradable Simulink Real-Time features and upgrades the features where possible and recommends manual upgrades when needed. Block forwarding in the `slrealtimelib` library and the Speedgoat driver library eases the upgrade process.

Results and Recommended Actions

Condition	Recommended Action
System Target File upgrade	Change the System Target File to `slrealtime.tlc`.
Simulink Real-Time block upgrades	Upgrades blocks when possible. Identifies blocks for manual upgrade when needed.
Signal Upgrades	Upgrades signals for Instrument object compatibility.
Simulink Real-Time configuration parameter upgrades	Upgrades configuration parameters for toolchain build and real-time application options.

Capabilities and Limitations

You can:

- Run this check on your Simulink Real-Time models from release R2020a and previous releases.

See Also

- “Troubleshoot Model Upgrade for R2020b” on page 1-3
- “Troubleshoot System Upgrade for R2020b” on page 1-5

Troubleshoot Model Upgrade for R2020b

When I build my pre-R2020b Simulink Real-Time models in R2020b, I get build errors. Some of the blocks in my model have the label **Obsolete Simulink Real-Time Block**.

What This Issue Means

For R2020b, you must upgrade the Simulink Real-Time model. A model Upgrade Advisor check is available to support this upgrade.

Try This Workaround

To upgrade your model for Simulink Real-Time R2020b features, use this software upgrade process:

1. Install Simulink Real-Time and other required products.
2. Install the Simulink Real-Time Target Support Package by using the MATLAB **Add-Ons** menu.
3. Install the Speedgoat Driver Library. Go to the Speedgoat website.
4. Upgrade the target machine software. See “Troubleshoot System Upgrade for R2020b” on page 1-5.
5. Open a R2020b or earlier Simulink Real-Time model.
6. Run the **Upgrade Advisor**. On the **Modeling** tab, select **Model Advisor > Upgrade Advisor**.
7. In the Upgrade Advisor dialog box, select **Check model for upgradable Simulink Real-Time features**. Click the **Run This Check** button. The advisor lists the upgrades that it can apply and the upgrades that require manual changes.
8. After the check, click the **Upgrade** button. The advisor upgrades the model by applying all nonmanual changes.

Apply Manual Changes

When the Upgrade Advisor encounters model issues that it cannot resolve by using automated changes, the Upgrade Advisor reports these as **Warning: Some of the features require manual changes**. It is a good practice to copy the text of these warnings and save it for reference as you apply changes to your model.

Apply Speedgoat Utilities

In R2020b, Speedgoat software provides support for configuring interrupts and Ethernet communications.

To configure model interrupts, use a single block from the Speedgoat Library. You can use this block for asynchronous subsystems or for triggering the base rate of the model. The list of available interrupt sources reflects the Speedgoat driver blocks configured in the model. For more information see the block documentation in `speedgoatlib_utilities`.

To configure additional Ethernet ports on the target machine, the Speedgoat Library provides a tool to configure these Ethernet ports. The configuration is specific to the target machine and reflects the labeling on the front plates of the target machine. For more information, in the MATLAB Command Window, type:

```
speedgoat.configureEthernet
```

See Also

“Troubleshoot System Upgrade for R2020b” on page 1-5

Troubleshoot System Upgrade for R2020b

I have upgraded my Simulink Real-Time software for R2020b and have installed the Simulink Real-Time Target Support Package. Now, I cannot download real-time applications to my target computer.

What This Issue Means

The upgrade for release R2020b requires software upgrades to the Simulink Real-Time software and the Speedgoat Target Machine software.

Try This Workaround

In R2020b, the change to a 64-bit POSIX compliant real-time operating system on the target computer requires a software upgrade for your Speedgoat real-time target machine. For this upgrade, the Speedgoat Library provides an interactive tool. To retain compatibility with previous versions of MATLAB, you can choose to upgrade the target machine to a dual-boot system where you can select the operating system at startup. Or, you can upgrade the target machine to use only the new operating system. For the upgrade, you need a USB drive (minimum 8 GB) and the target machine needs a USB keyboard and a monitor.

To upgrade your software:

1. Install Simulink Real-Time and other required products.
2. Install the Simulink Real-Time Target Support Package by using the MATLAB **Add-Ons** menu.
3. Install the Speedgoat Driver Library. Go to the Speedgoat website.
4. To start the target machine upgrade, in the MATLAB Command Window, type:

   ```
   speedgoat.migrateTarget
   ```

For more information, go to the Speedgoat website.

See Also

More About

- “Troubleshoot Model Upgrade for R2020b” on page 1-3