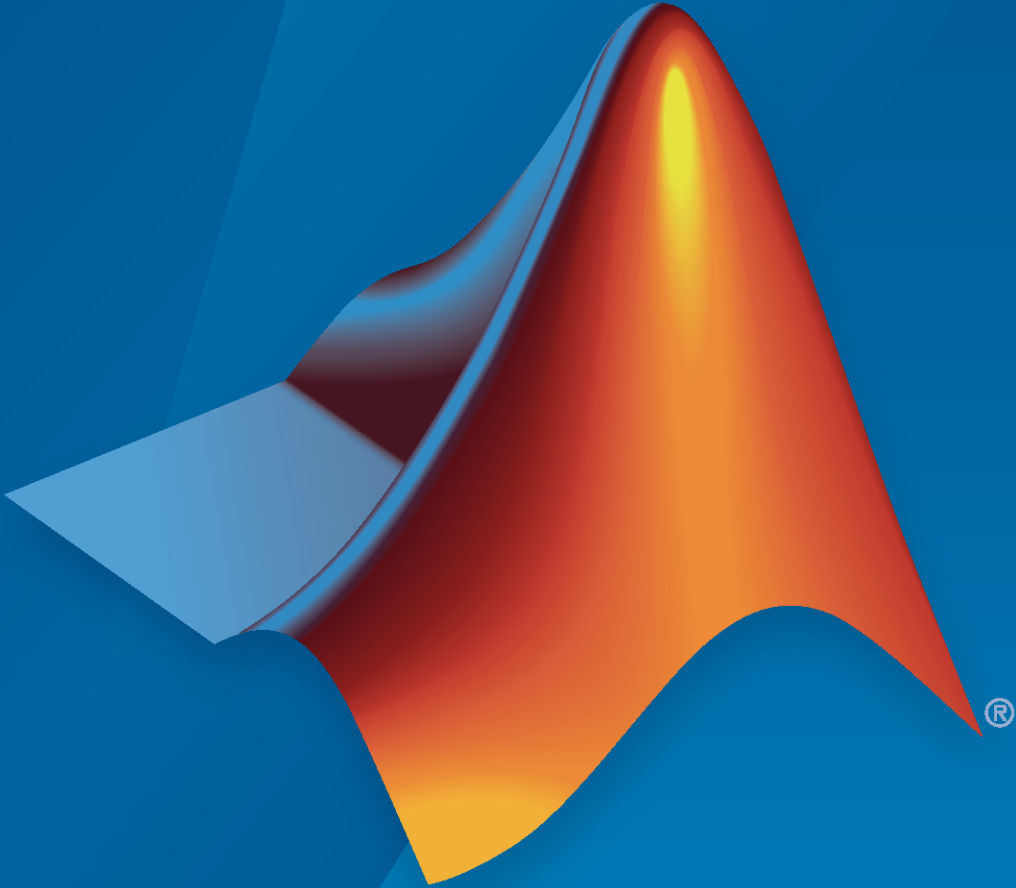


# RoadRunner Release Notes



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### *RoadRunner Release Notes*

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# R2021a

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**Version: 1.2**

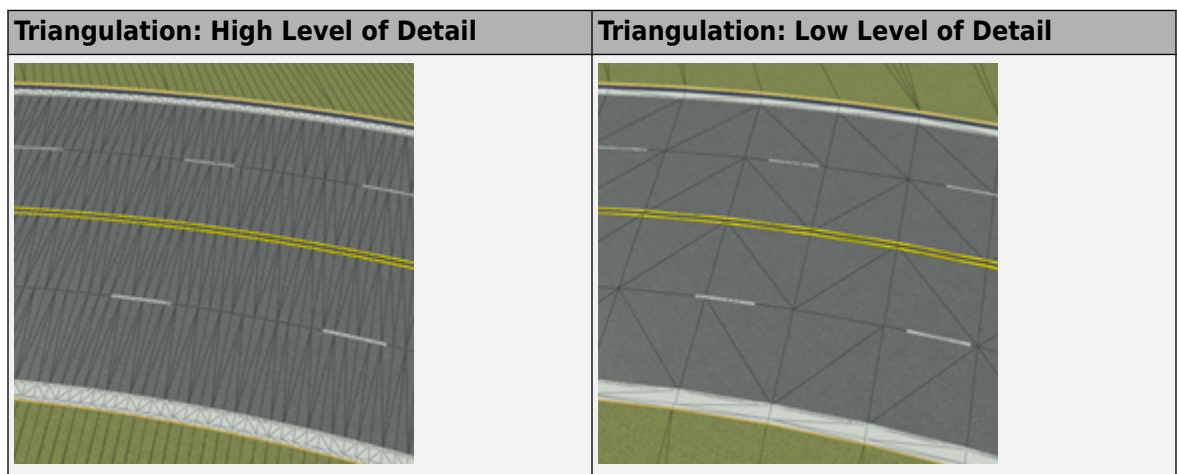
**New Features**

**Bug Fixes**

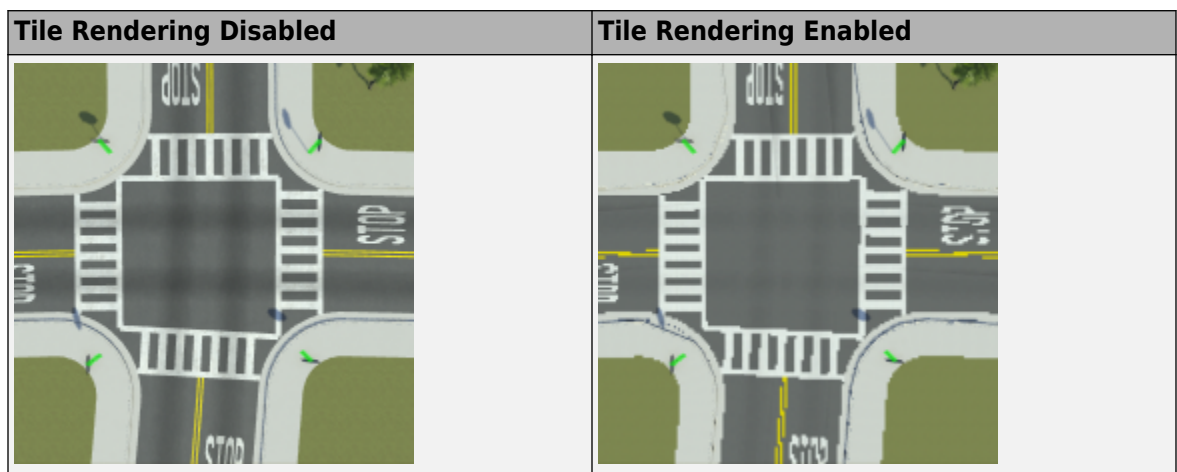
## Custom Level of Detail: Customize level of detail in exported scenes to improve simulation performance

You can now customize the level of detail (LOD) used to render scenes that you export to simulators. To access LOD settings, from the **Tools** menu, select **LOD Settings**. Using these settings, you can reduce the level of detail at distances away from the simulator camera, where the reduction in scene quality is acceptable. These modifications can improve simulation performance substantially. Export of LODs is supported for FBX® files only. For more information on customizing levels of detail, see “Customize Levels of Detail in Exported Scenes”. Examples of the changes you can make at these distances away from the camera include:

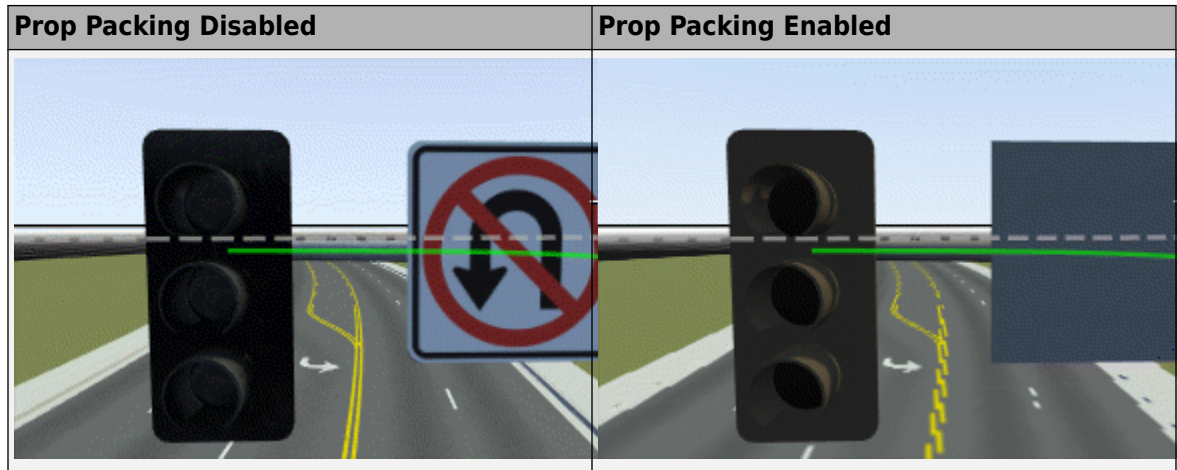
- Reduce the amount of triangulation by modifying settings such as the positional tolerance. These images show varying amounts of triangulation at different LODs.



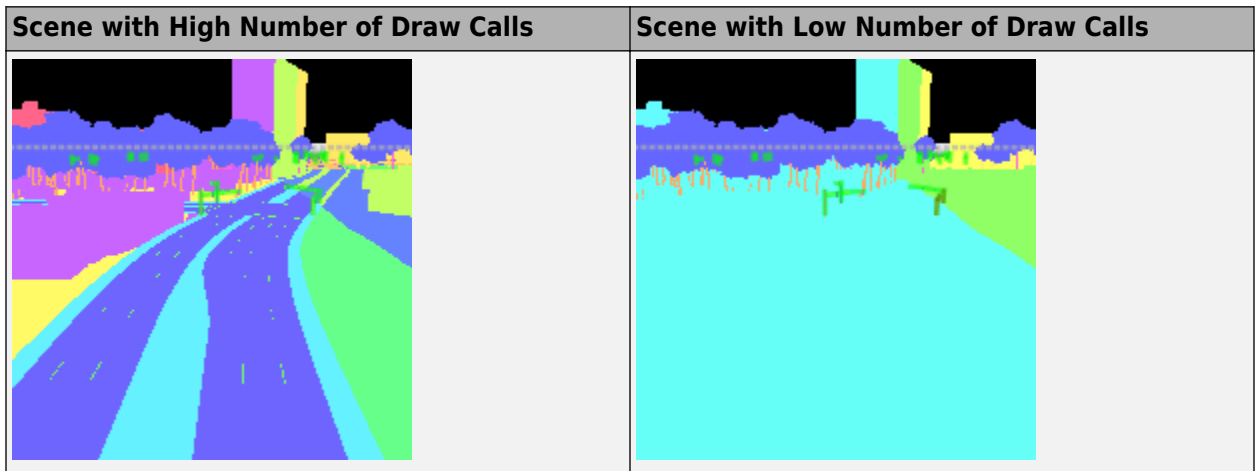
- Flatten tiles containing roads and ground terrain into single texture images by selecting the **Overhead Tile Rendering** option. These images show the difference in tile rendering at varying LODs.



- Combine, or pack, props in a tile into a single prop model by selecting the **Pack Props** option. Prop packing reduces the number of textures needed to render props, at the expense of visual quality.



To verify that scene performance improves as you reduce the level of detail, you can visualize how many draw calls the target simulators need to make to render the props. To view the draw calls, on the **View** menu, select **Draw Calls**. These images show the difference in draw calls for a scene with varying levels of detail. Each color represents a separate draw call.



## Road Superelevation Tool: Manipulate banking angle along roads

Use the **Road Superelevation Tool** to control the superelevation (slope and banking angle) along the entire length of a road.



RoadRunner also supports the import of superelevation data from HERE HD Live Map by using the **Scene Builder Tool** (requires RoadRunner Scene Builder).

### **Custom Export Configurations: Specify customized combinations of file formats and scene data to export**

In RoadRunner projects, you can now specify an XML file that enables the exporting of custom formats. For example, you can specify a combination of file formats not available in the **File** menu, under **Export**. You can also customize the type of data to export for each file format. For more details, see “Export Custom Formats”.

### **Quality Checks: Identify additional issues to fix in your scenes using built-in validation rules (requires RoadRunner Scene Builder)**

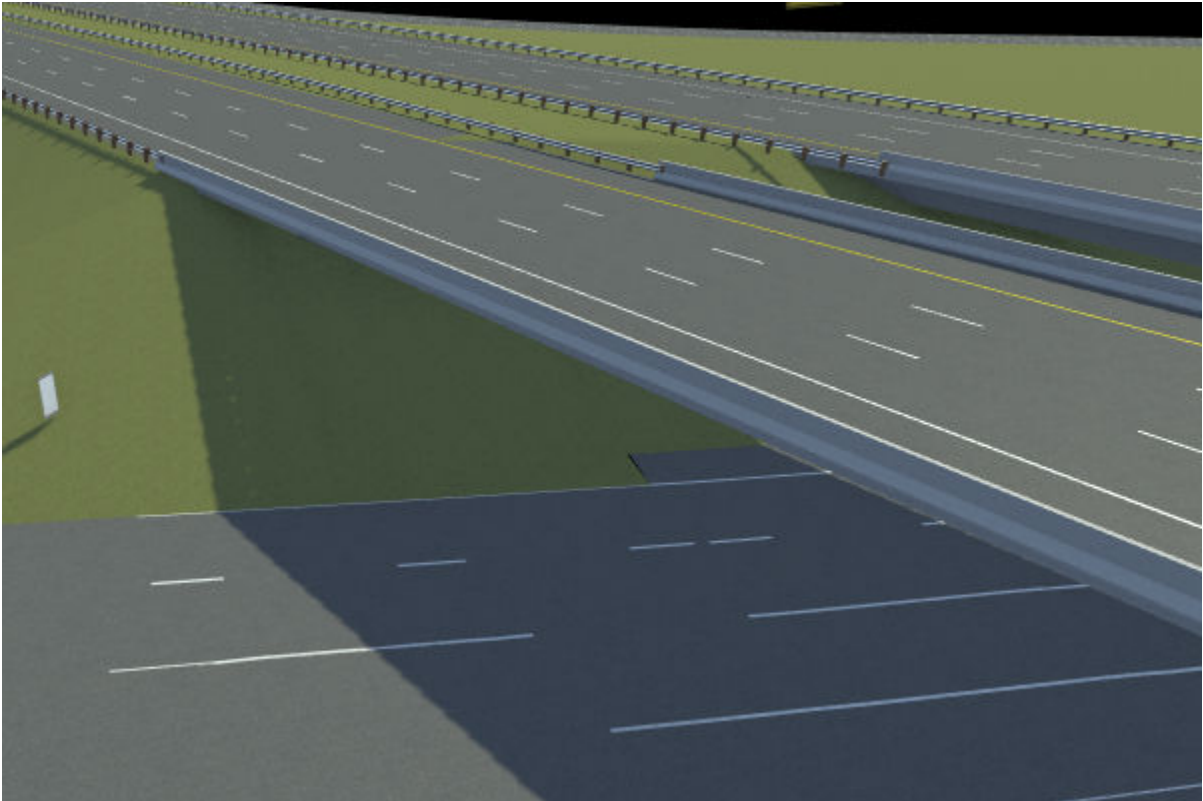
The **Scene Builder Tool** now checks for quality issues in built scenes, including substantial changes in elevation and lane boundaries that intersect with each other. These issues are displayed in the **Output** window after you build the scene. Use these checks to identify whether these issues are present in the source data from which you are importing.

Use of the **Scene Builder Tool** requires a RoadRunner Scene Builder license.

### **HERE Localization Data: Import signs, poles, and barriers from HERE HD Live Map (requires RoadRunner Scene Builder)**

The **Scene Builder Tool** can now import signs, poles, and barriers from the HERE HD Live Map service. Previously, the tool imported only road networks.





You can use this scene data as landmarks when simulating localization algorithms. For an example of building a scene that contains this data, see “Build Scenes by Using HERE HD Live Map Data”.

You can also customize what assets RoadRunner uses to display imported data. For more details, see “Configure Assets to Use for Imported HERE HD Live Map Data”.

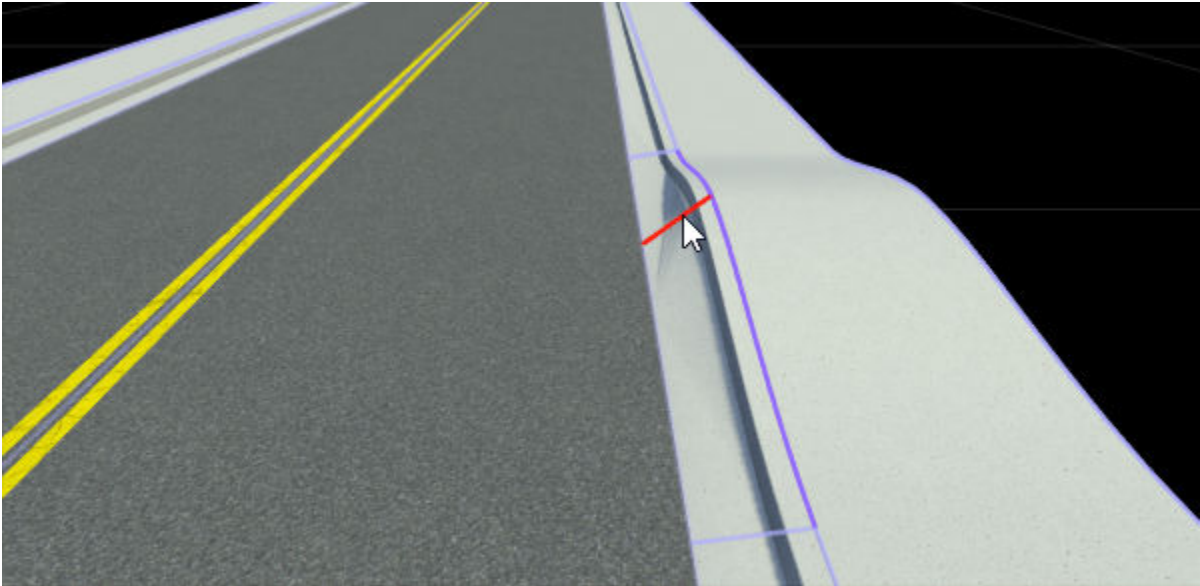
Use of the **Scene Builder Tool** requires a RoadRunner Scene Builder license.

### **Improved Cross-Sections: Create more accurate road cross-sections that are compatible with OpenDRIVE importing and exporting**

RoadRunner now models road cross-sections more accurately. The increased accuracy enables you to import roads with complex cross-sections from OpenDRIVE®. To manipulate these cross-sections, use the **Cross Section Tool**. You can then export these roads back to OpenDRIVE or to another simulator.

### **Sidewalk Height Tool: Modify sidewalk and curb heights**

Use the **Sidewalk Height Tool** to modify the heights of sidewalks and curbs along a road. You can modify sidewalk heights along the entire length of a road or at arbitrary points along a road.



### **Light Source Parameters: Import and export parameters for controlling traffic lights and streetlights**

When you import FBX file assets containing light sources, RoadRunner now imports the parameters that control the lighting effects. RoadRunner also exports this light data, enabling you to control lighting effects such as brightness or color in the exported scenes. For more details on exporting FBX files, see “Export to FBX”.

# R2020b

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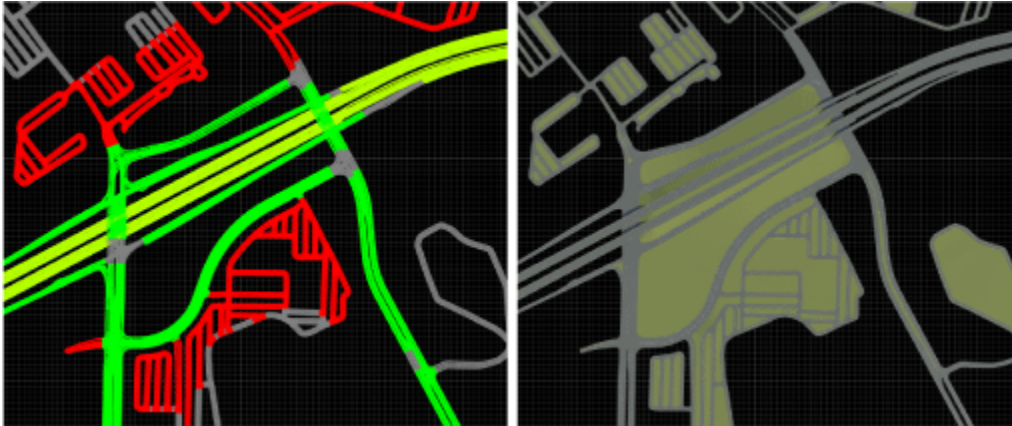
**Version: 1.1**

**New Features**

**Bug Fixes**

## RoadRunner Scene Builder: Automatically generate 3D road models from HD maps

Use RoadRunner Scene Builder to import roads from HERE HD Live Map data.



Edit the imported roads using RoadRunner and export the results to supported simulation and game engine formats.

## Road Speed Limits Tool: Set varying speed limits along roads

Use the Road Speed Limits Tool to set varying speed limits along sections of a road. When you export your scene to a simulator, you can use these values to test whether vehicles drive the set speed limits.

## Bridge Span Creation: Fix bridge spans formed on elevated roads

In the Road Construction Tool, use the **Auto Assign Bridges** button to form bridge spans along elevated roads. Use this tool to fix bridges in scenes where one road is elevated above another road.

## Project Props to Terrain: Align prop curves with the surface terrain

In the Prop Curve Tool, use the **Project to Terrain** option to align props and extrusions with the surface terrain rather than with the curve that you create. When you create prop curves, this option is selected by default.

# R2020a+

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**Version: 1.0**

**New Features**

## **RoadRunner Editor: Interactive editor to model roads and 3D environments**

For details, see User Interface.

## **Intersections: Design complex intersections featuring merges, splits, and traffic circles**

For details, see Road Plan Tool.

## **Surface Damage: Add detailed road surfaces with lane markings, stencils, and custom graphics**

For details, see Surface Tool.

## **RoadRunner Asset Library: Library of prebuilt professionally created assets**

For details, see RoadRunner Asset Library.

## **Customize Road Signs: Combine text and graphics to build custom signs**

For details, see Sign Tool.

## **Traffic Signals: Edit signal phases and timing with the integrated signal timeline and interactive controls**

For details, see Signal Tool.

## **GIS Import: Import aerial imagery, elevation data, lidar point clouds, and road maps to accurately represent physical locations in RoadRunner**

For details, see GIS Data Resources for RoadRunner.

## **OpenDRIVE Import and Export: Import and export road networks using OpenDRIVE format**

For details, see Importing OpenDRIVE Files and Exporting to OpenDRIVE.

## **Export to Apollo**

RoadRunner can export road scenes to Baidu Apollo® formats. You can export to Apollo 3.0 and 5.0 XML formats and Apollo 5.0 binary format.

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For details, see [Exporting to Apollo](#).

## **Export to Universal Scene Description (USD)**

You can now export road scenes to USD. For details, see [Exporting to USD](#).

## **Export for Metamoto simulations**

You can now export road scenes for use in Metamoto<sup>®</sup> simulations. For details, see [Exporting to Metamoto](#).

## **Import from OpenDRIVE improved**

Importing OpenDRIVE files is now faster.

Additionally, you can now import:

- Larger OpenDRIVE files
- Road types
- Speed limits
- Multiple road segments as one continuous lane
- Nonnumeric IDs
- Object types

For details, see [Importing OpenDRIVE Files](#).

## **Export to OpenDRIVE improved**

When exporting to OpenDRIVE, you can now export:

- Speed limits
- `laneSection` entries for the same RoadRunner road
- Object types
- U-turns

For details, see [Exporting to OpenDRIVE](#).

## **Improved support for GIS assets**

RoadRunner can now import geographic information system (GIS) data with earth-centric projection information.

For GIS import information, see [Importing GIS Data in RoadRunner](#).

## **Vector-type scaling**

Dragging the **Scale** label on vector types scales all axes uniformly.

