MATLAB EXPO
2021

Developing realistic scenes to enable virtual automated driving testing

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MathWorks®

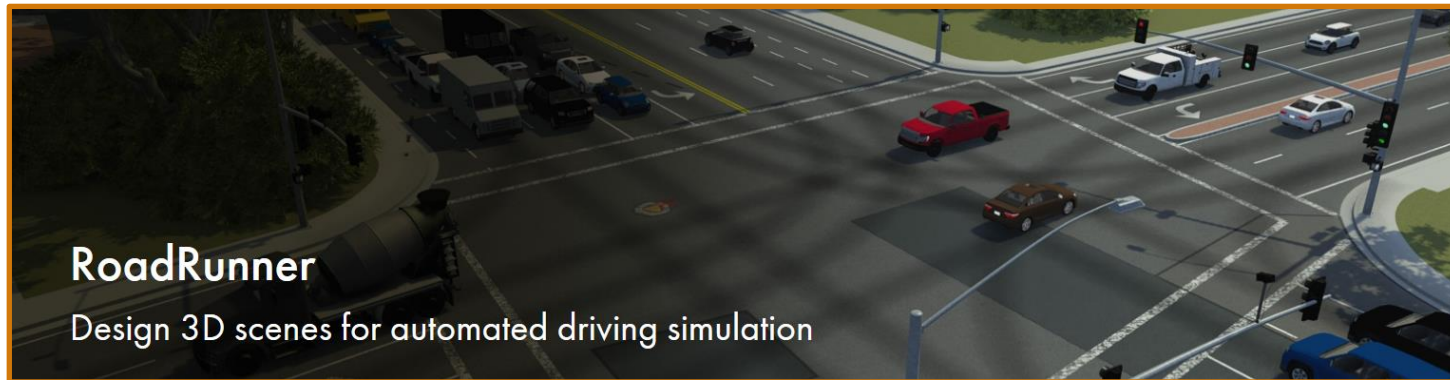# Real world roads are complicated

Quickly create accurate road models

Photo

RoadRunner

RoadRunner Product Family in R2021a

R2020a

RoadRunner Asset Library
Populate RoadRunner scenes with a library of 3D models

R2020b

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

RoadRunner
Design 3D scenes for automated driving simulation
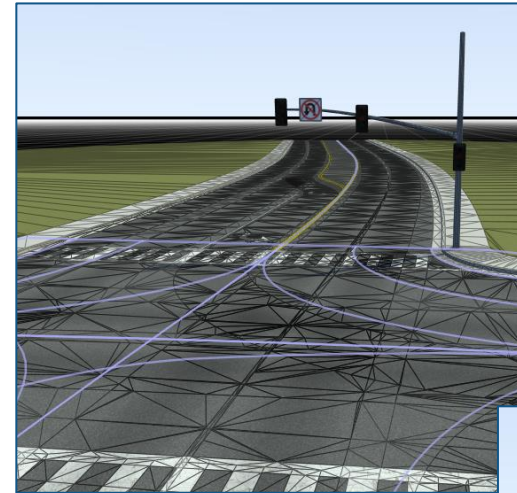
R2020a

Export scenes to driving simulators and graphics engines

- Export to common file formats for use in third-party applications
  - Filmbox (.fbx), OpenDRIVE (.xodr)
  - Unreal Engine®, CARLA
  - Unity®, SVL
  - VIRES Virtual Test Drive, Monodrive
  - IPG Carmaker, Cognata, Baidu Apollo
  - rfPro, aiSim
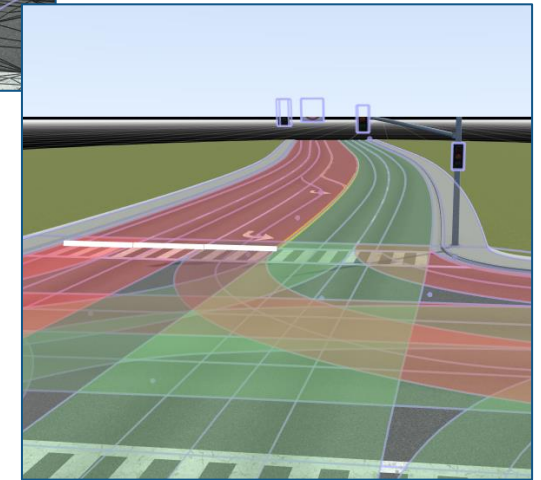 - Tesis Dynaware, TaSS PreScan
  - NVIDIA DRIVE Sim

  Exporting

  RoadRunner
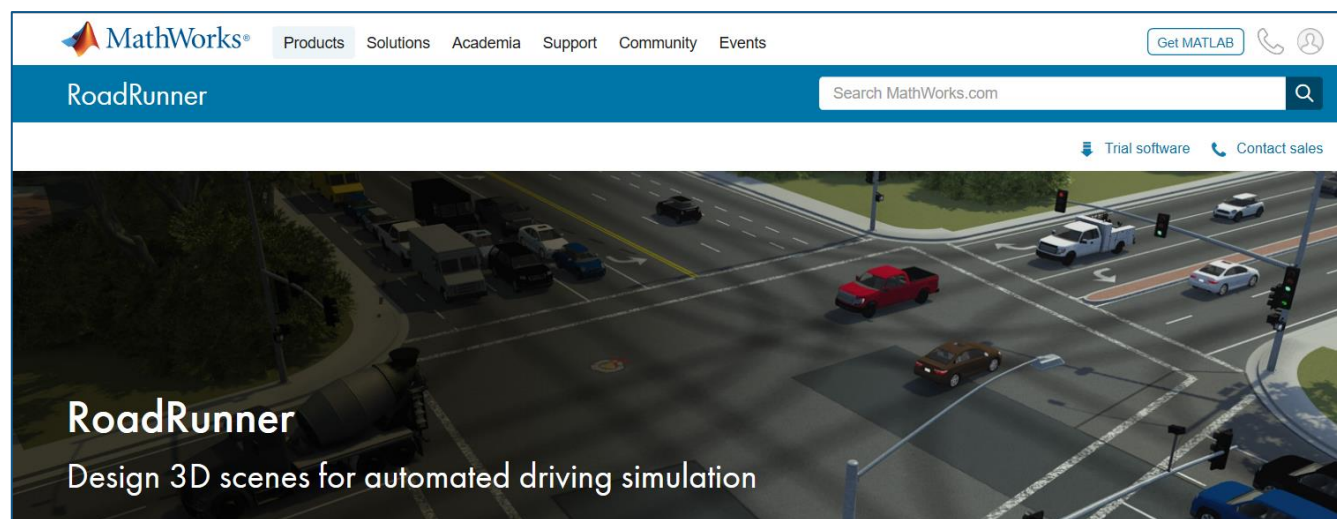
R2020**a**

Filmbox
(meshes)

OpenDRIVE
(semantics)

Poll Question

- **Which simulators are most important to you and your colleagues?**
  - a.   CARLA
  - b.   IPG Carmaker
  - c.   MathWorks ADT
  - d.   Unreal
  - e.   VIRES VTD
  - f.   Other

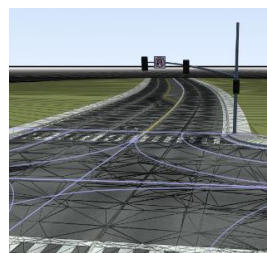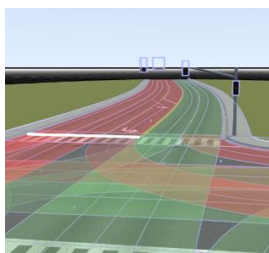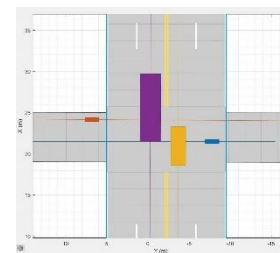# Design 3D scenes for automated driving simulation
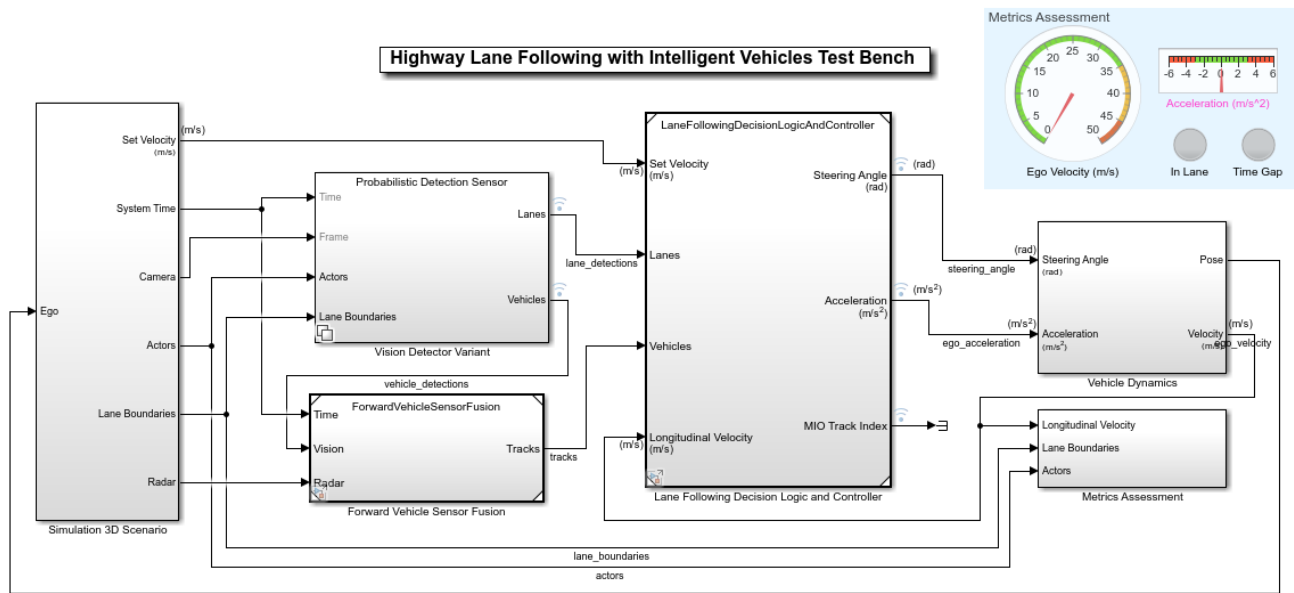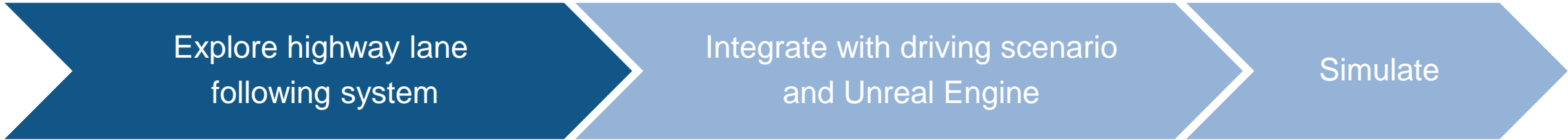

R2020**a**
Update 1

New base product
Does not require MATLAB

External Simulators

MATLAB & Simulink

Integrate RoadRunner scene with lane following scenario

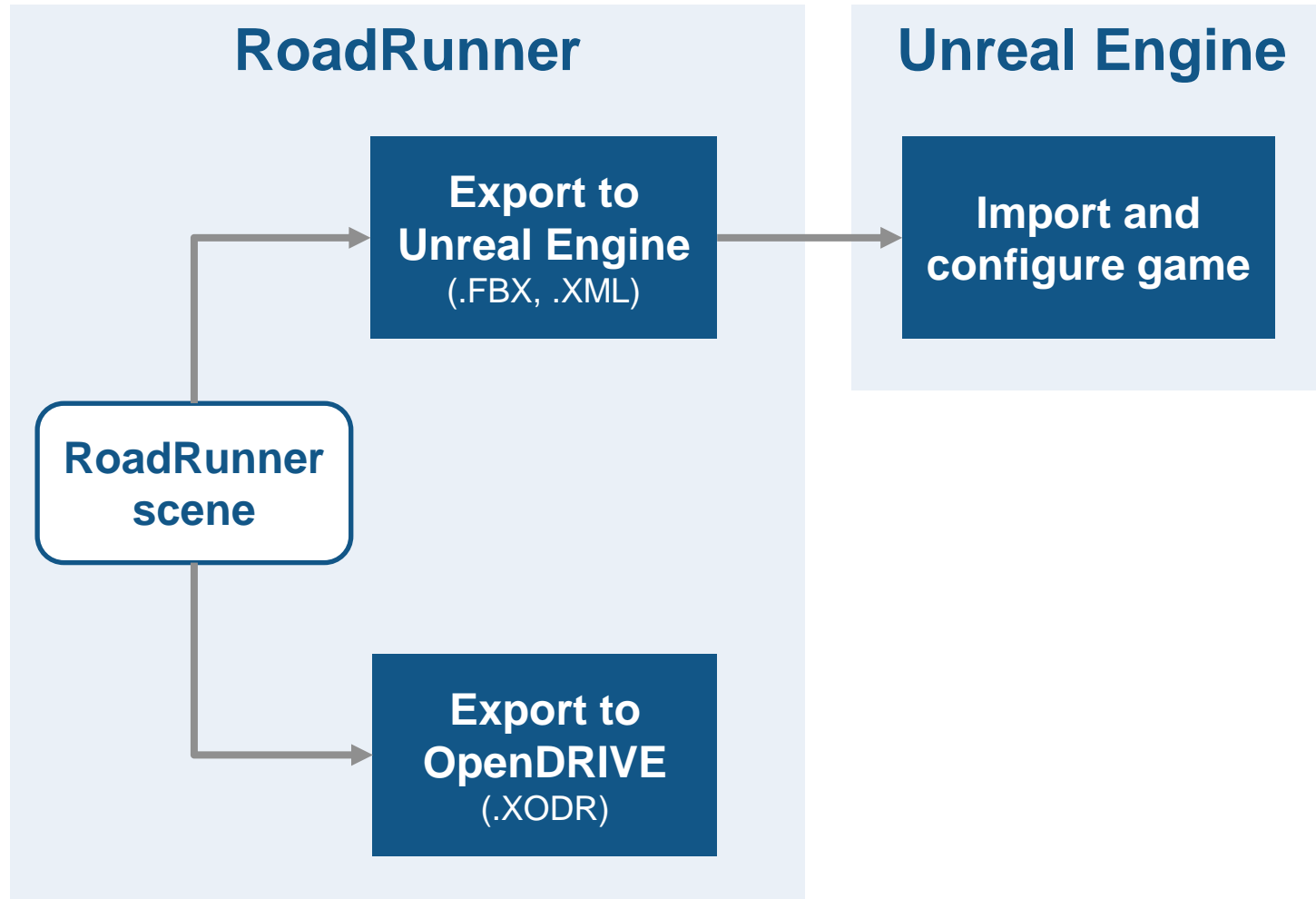| Explore highway lane following system | Integrate with driving scenario and Unreal Engine | Simulate |

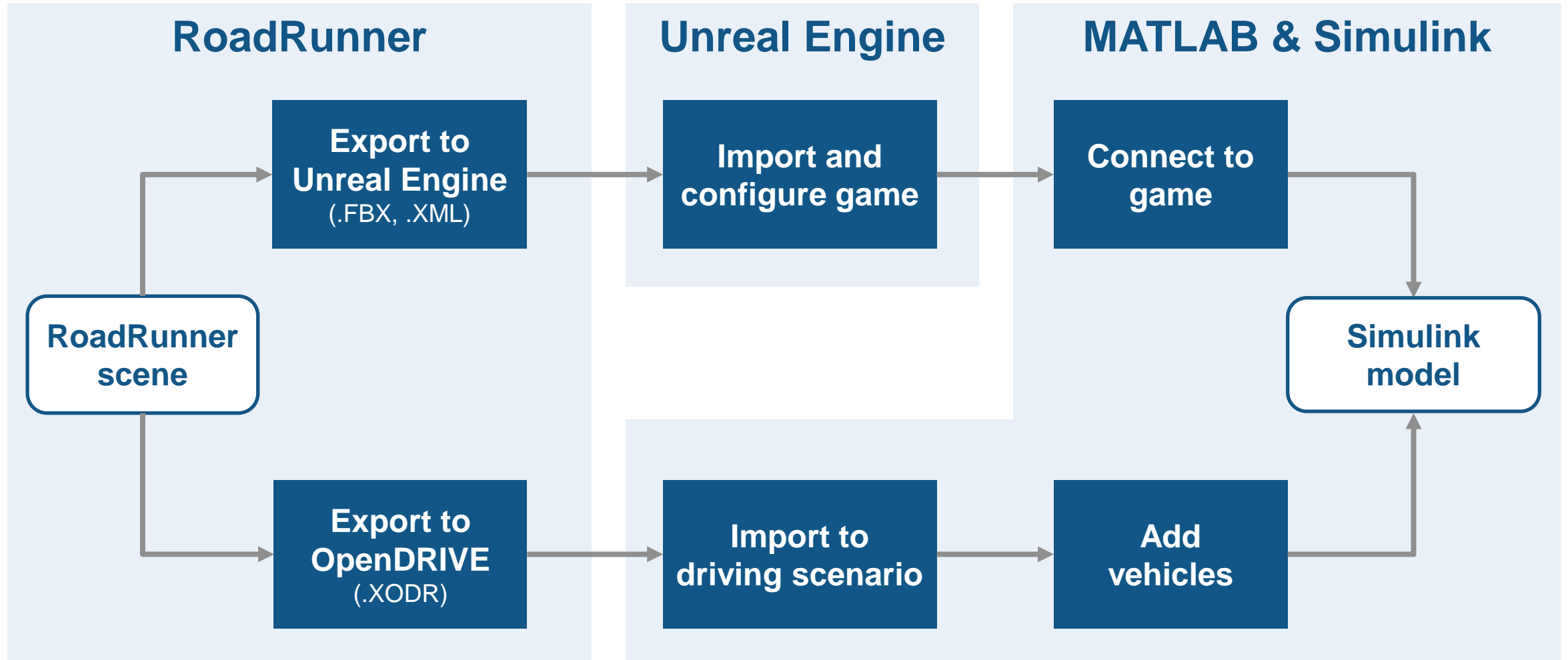Copyright 2019 The MathWorks, Inc.

- Integrate algorithms
  - Vision detection
  - Sensor fusion
  - Decision logic and controls

[Highway Lane Following with RoadRunner Scene](#)
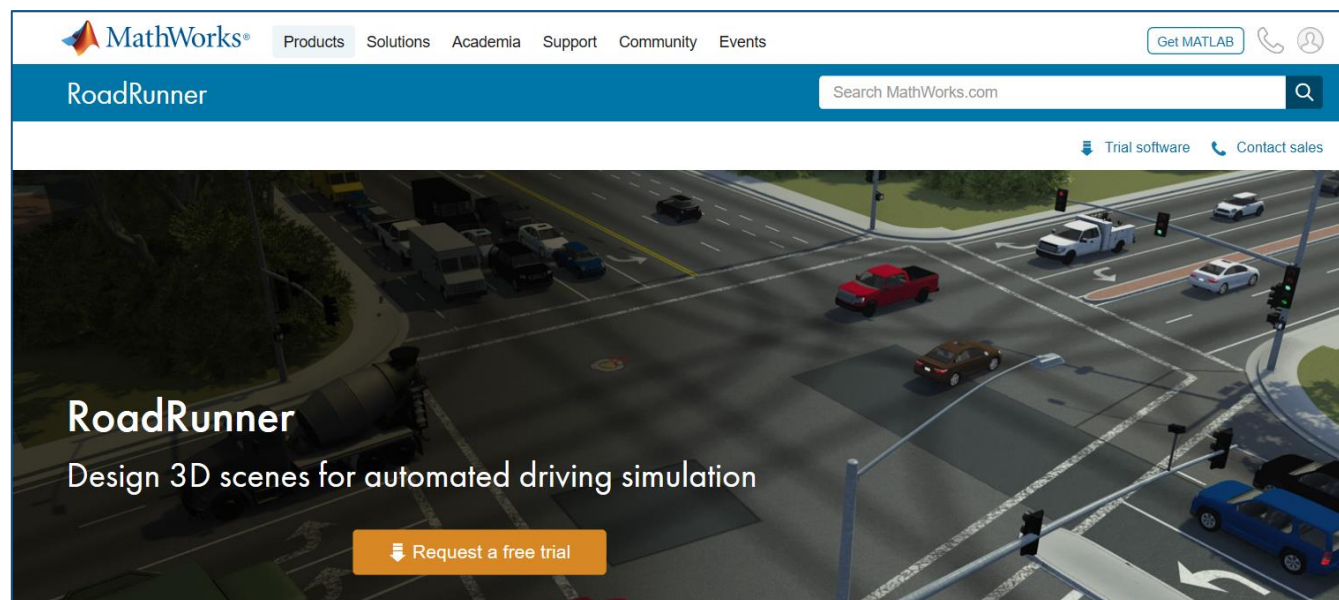*Automated Driving Toolbox[TM]*

Integrate RoadRunner with MATLAB and Simulink workflows

Integrate RoadRunner with MATLAB and Simulink workflows

Design 3D scenes for automated driving simulation

Poll Questions

- **What import formats are most important to you?**
  - a. HERE HD Live Map
  - b. In-house or Proprietary format
  - c. NDS files
  - d. OpenDRIVE
  - e. Tom Tom HD map
  - f. Zenrin SD Map

- **Are you interested in more information?**
  - a. Yes, I have some questions and would like to talk
  - b. Yes, I would like to schedule follow up session on this topic with my team
  - c. Not at this time

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Thank you

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