

Crash Test Setup Quick Guide

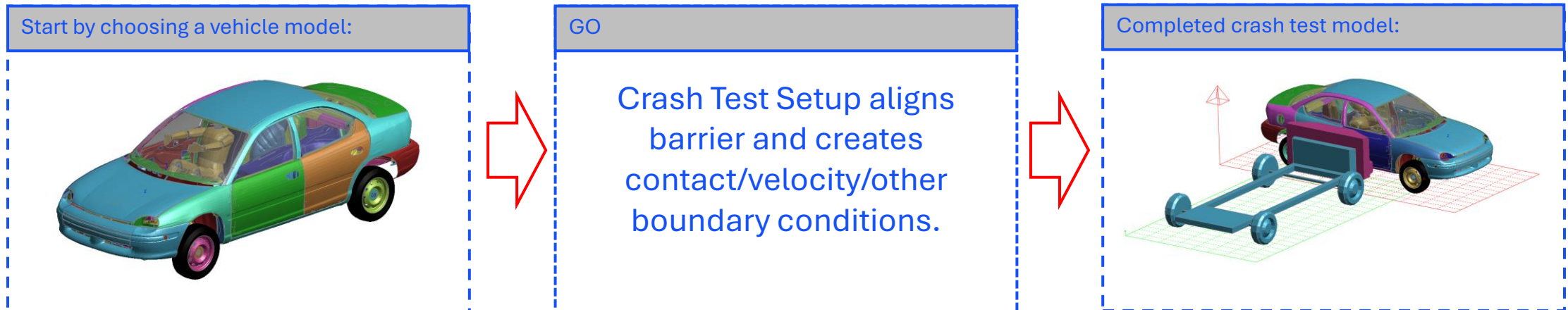


Introduction

Crash Test Setup is a script that helps you set up various crash tests according to different regulations. The script can be used to set up a single crash test relatively quickly but it is also designed to improve the process of preparing multiple crash test models.

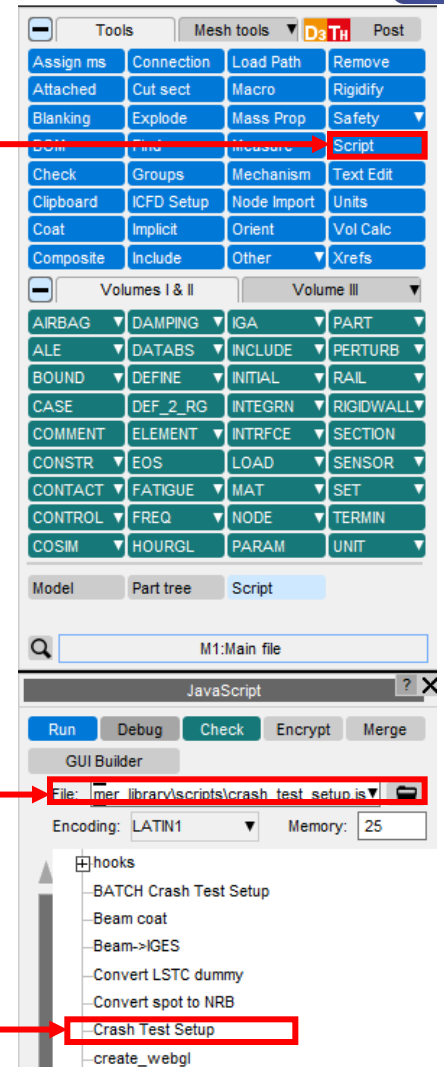
This **Quick Guide** will help you get started. For more detailed information, refer to the **Complete Guide**.

To run Crash Test Setup, select **Tools** → **Script** and run **Crash Test Setup**.



Introduction – Running the Script

- The script can be used with Primer 18.0 and subsequent versions, and is included with the current Primer release. The script can be found in the following area after installing:
 - `$OASYS/primer_library/scripts/crash_test_setup.js`
- To run the script, click on the **Tools** → **Script** button in Primer.
- The script can be selected using the file selector.
- If you are using a standard installation, the script will appear in the list of standard scripts released with Primer.



Main Window

The main Crash Test Setup window has three tabs:

1. Crash Test

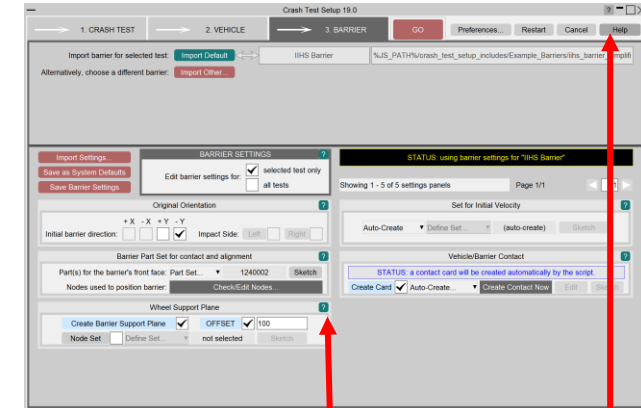
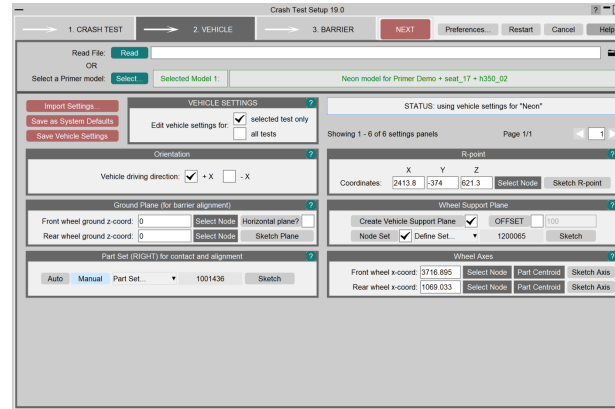
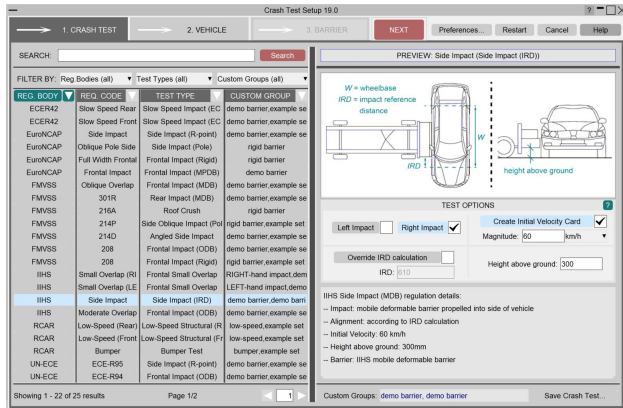
- Select a crash test from the list
- Confirm/Edit the test options

2. Vehicle

- Confirm/Import/Edit/Save vehicle settings

3. Barrier

- Import a barrier model
- Confirm/Import/Edit/Save barrier settings



Navigate between the tabs by clicking on the large tab buttons along the top of the main window, or by clicking **NEXT**. Note that you can go back to a previous tab at any time.

Help can be found via the buttons positioned throughout the graphical interface.



1. Crash Test

Select a crash test from the list:

Each test belongs to a certain **regulatory body** (EuroNCAP, FMVSS, IIHS, etc.), has a **requirement code**, a **test type** and can belong to one or more **custom groups**.

There are thirteen test types:

- Angled Side Impact
- Frontal Impact (ODB)
- Frontal Impact (MDB)
- Frontal Impact (MPDB)
- Frontal Impact (Rigid)
- Frontal Small Overlap
- Side Impact (IRD)
- Side Impact (R-point)
- Side Impact (Pole)
- Side Oblique Impact (Pole)
- Rear Impact (MDB)
- Rear Impact (Rigid)
- Roof Crush

Custom groups can be used to categorise different tests. For example, you could give tests that you use frequently the custom group name “favourites”, or put all of the tests required for a particular project into a custom group.

Crash Test Setup 19.0

1. CRASH TEST → 2. VEHICLE → 3. BARRIER **NEXT** Preferences... Restart Cancel Help

SEARCH: Search

FILTER BY: Reg.Bodies (all) Test Types (all) Custom Groups (all)

REG. BODY	REQ. CODE	TEST TYPE	CUSTOM GROUP
ECER42	Slow Speed Rear	Slow Speed Impact (EC)	demo barrier,example se
ECER42	Slow Speed Front	Slow Speed Impact (EC)	demo barrier,example se
EuroNCAP	Side Impact	Side Impact (R-point)	demo barrier,example se
EuroNCAP	Oblique Pole Side	Side Impact (Pole)	rigid barrier
EuroNCAP	Full Width Frontal	Frontal Impact (Rigid)	rigid barrier
EuroNCAP	Frontal Impact	Frontal Impact (MPDB)	demo barrier
FMVSS	Oblique Overlap	Frontal Impact (MDB)	demo barrier,example se
FMVSS	301R	Rear Impact (MDB)	demo barrier,example se
FMVSS	213A	Roof Crush	rigid barrier
FMVSS	214P	Side Oblique Impact (Pol)	rigid barrier,example set
FMVSS	214D	Angled Side Impact	demo barrier,example se
FMVSS	208	Frontal Impact (ODB)	demo barrier,example se
FMVSS	208	Frontal Impact (Rigid)	rigid barrier,example set
IIHS	Small Overlap (RI)	Frontal Small Overlap	RIGHT-hand impact,dem
IIHS	Small Overlap (LE)	Frontal Small Overlap	LEFT-hand impact,demo
IIHS	Side Impact	Side Impact (IRD)	demo barrier,demo barri
IIHS	Moderate Overlap	Frontal Impact (ODB)	demo barrier,example se
RCAR	Low-Speed (Rear)	Low-Speed Structural (R)	low-speed,example set
RCAR	Low-Speed (Front)	Low-Speed Structural (Fr)	low-speed,example set
RCAR	Bumper	Bumper Test	bumper,example set
UN-ECE	ECE-R95	Side Impact (R-point)	demo barrier,example se
UN-ECE	ECE-R94	Frontal Impact (ODB)	demo barrier,example se

Showing 1 - 22 of 25 results Page 1/2

PREVIEW: Side Impact (Side Impact (IRD))

W = wheelbase
IRD = impact reference distance

height above ground

TEST OPTIONS

Left Impact ☐ Right Impact ☒ Create Initial Velocity Card ☒

Magnitude: 60 km/h

Override IRD calculation ☐ Height above ground: 300

IRD: 610

IIHS Side Impact (MDB) regulation details:

- Impact: mobile deformable barrier propelled into side of vehicle
- Alignment: according to IRD calculation
- Initial Velocity: 60 km/h
- Height above ground: 300mm
- Barrier: IIHS mobile deformable barrier

Custom Groups: demo barrier, demo barrier Save Crash Test...

2. Vehicle

The Vehicle tab displays the **vehicle settings** required to complete Crash Test Setup. Vehicle settings are displayed in individual **panels** on the tab.

Crash Test Setup 19.0

1. CRASH TEST → 2. VEHICLE → 3. BARRIER

Read File:

OR

Select a Primer model: Selected Model 1: Neon model for Primer Demo + seat_17 + h350_02

Import Settings... Save as System Defaults Save Vehicle Settings

VEHICLE SETTINGS ?

Edit vehicle settings for: ☒ selected test only ☐ all tests

Orientation ?

Vehicle driving direction: ☒ + X ☐ - X

Ground Plane (for barrier alignment) ?

Front wheel ground z-coord: Horizontal plane? ☐

Rear wheel ground z-coord: Sketch Plane

Part Set (RIGHT) for contact and alignment ?

Auto Manual Part Set... 1001436 Sketch

STATUS: using vehicle settings for "Neon"

Showing 1 - 6 of 6 settings panels Page 1/1

R-point ?

X Y Z

Coordinates:

Wheel Support Plane ?

Create Vehicle Support Plane ☒ OFFSET 100

Node Set ☒ Define Set... 1200065 Sketch

Wheel Axes ?

Front wheel x-coord: Part Centroid Sketch Axis

Rear wheel x-coord: Part Centroid Sketch Axis

There is no need to read or select a vehicle again – this just displays which vehicle model is currently selected by the script.

If previously, you **linked** the selected vehicle with a **vehicle settings entry**, those vehicle settings will automatically have been imported and will be displayed in the panel. In this case, the vehicle was linked with the settings entry named "Neon" and so those settings are being displayed.

By default, only the vehicle settings required for the selected test are displayed. However, you may wish to tick "all tests" in order to define the settings for every possible test. Then, you can save all of the settings ready to be used in future for any Crash Test Setup involving this vehicle model.

3. Barrier

Once you are happy with the vehicle settings, move on to the Barrier tab and choose a barrier model:

Click **Import Other...** to import an alternative barrier. Three options will appear. Choose one.

(A) Click **Import...** to import a previously saved barrier. This opens the Import Barrier window.

Click **Import Default** to import the default barrier for the selected test.

(B) Import any barrier by browsing for a file and clicking Import. The default barrier settings will be displayed. If the barrier file is stored on a website, you can also enter a web address to download it.

(C) Select a barrier that is already an include file in the vehicle model. This method is not recommended but can be used in cases where you have already imported the barrier and then had to restart Crash Test Setup. The default barrier settings will be displayed.

Select a barrier from the list and click **Apply**. The barrier model will be imported along with its barrier settings.

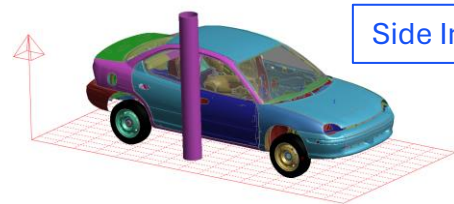
The screenshot shows the 'Crash Test Setup 19.0' window with the '3. BARRIER' tab selected. The 'Import barrier for selected test:' section shows 'Import Default' and 'Import Other...'. The 'Alternatively, choose a different barrier:' section shows 'Import Saved Barrier: Import...', 'Import File as INCLUDE: Import...', and 'Select an INCLUDE: Select...'. The 'Import Barrier' window is open, showing a list of barriers with columns for 'BARRIER NAME' and 'LOCATION'. The 'IHS Barrier' is selected. The 'Apply' button is highlighted.

BARRIER NAME	LOCATION
<default>	(default settings loaded when none previously saved for the mo
Crab Angle Side Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/cra
ECE R32 Rear Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/ece
ECER42 Slow Speed Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/low
European Side Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/eur
FMVSS Front Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/fmv
FMVSS Rear Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/fmv
IHS Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/ihs
Mobile Progressive Deformable Barrie	%JS_PATH%/crash_test_setup_includes/Example_Barriers/eur
Offset Deformable Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/odb
Pole Barrier	%JS_PATH%/crash_test_setup_includes/Example_Barriers/pole
RCAR Bumper	%JS_PATH%/crash_test_setup_includes/Example_Barriers/rcar
RCAR Front	%JS_PATH%/crash_test_setup_includes/Example_Barriers/rcar

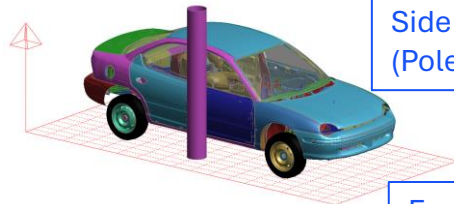
User barrier settings entries shown in black. Page 1/2
System barrier settings entries shown in blue. Showing 1 - 13 of 18 entries

Delete Cancel Apply

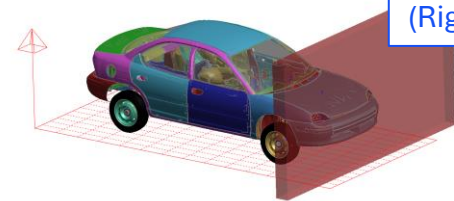
When you click on GO, the Crash Test Setup will complete the barrier alignment:



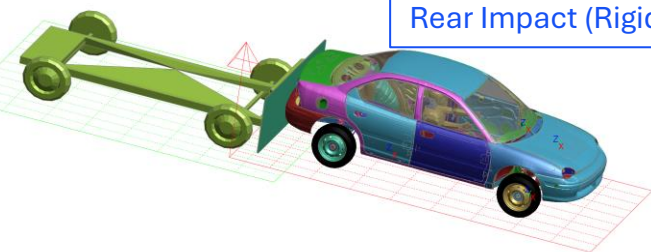
Side Impact (Pole)



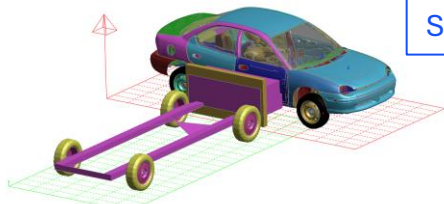
Side Oblique Impact (Pole)



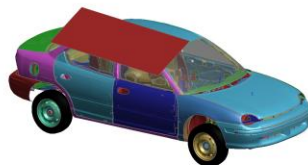
Frontal Impact (Rigid)



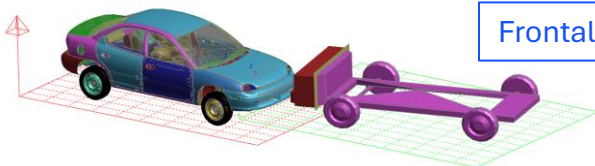
Rear Impact (Rigid)



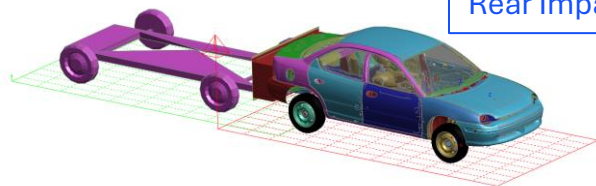
Side Impact (R-Point)



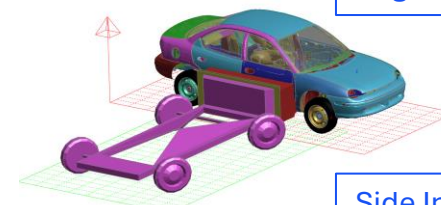
Roof Crush



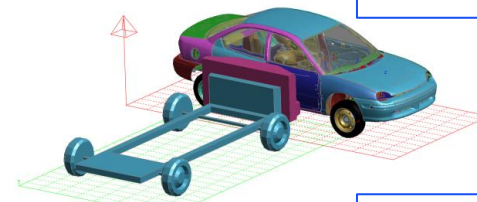
Frontal Impact (MDB)



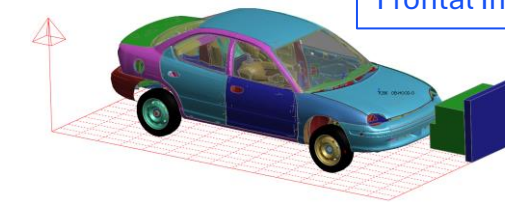
Rear Impact (MDB)



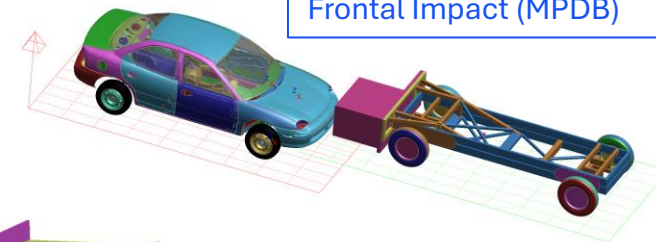
Angled Side Impact



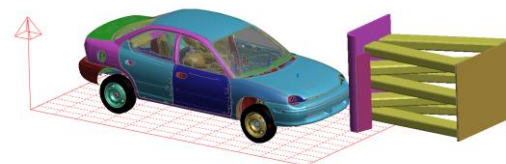
Side Impact (IRD)



Frontal Impact (ODB)



Frontal Impact (MPDB)



Frontal Small Overlap

1. Crash Test

Crash Test Setup is distributed with a set of preconfigured **crash test entries**. If you change the test options, it is worth saving the variant as a new crash test entry. It is a good idea to give your crash test variant a unique name or description in **Custom Groups**.

2. Vehicle

The first time you use each vehicle in Crash Test Setup, do the following:

- Define the vehicle settings for all tests. This may involve creating new node and/or part sets.
- Save the vehicle settings as a new entry. Choose to **Link entry to model file now**.
- Write out the master file with a new name. This master file will contain your newly created sets, as well as a link to the settings entry.
- Now when you want to use Crash Test Setup again to set up a different test for the same vehicle, all the settings will be imported automatically, and all the part and node sets will be present.

3. Barrier

If you intend to use Crash Test Setup on a regular basis:

- Create a **central library** of barrier models.
- Create **one** barrier model to be used for **each** test type. Make sure the barrier settings for each model are correct. Then these **saved default** barriers can be used by everyone in your organisation.



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