

# Model-Based Calibration Toolbox Release Notes

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These Release Notes introduce the new Model-Based Calibration Toolbox. See “Introduction to the Model-Based Calibration Toolbox” on page 1-2 for an overview of this new product.

These Release Notes also discuss:

- “New Features for Release 13” on page 1-3
- “Major Bug Fixes” on page 1-4
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## **Printing the Release Notes**

If you would like to print the Release Notes, you can link to a PDF version.



## Model-Based Calibration Toolbox 1.1 Release Notes

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# Model-Based Calibration Toolbox 1.1 Release Notes

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## Introduction to the Model-Based Calibration Toolbox

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**Note** The Model-Based Calibration Toolbox 1.1 is the first release of this toolbox as part of a MathWorks release CD. The Model-Based Calibration Toolbox 1.0 was initially released in Web-downloadable form after Release 12.1, but before Release 13. These notes describe any changes introduced after Version 1.0 (see “New Features for Release 13” on page 1-3).

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### Feature Summary

The Model-Based Calibration Toolbox contains tools for design of experiments, statistical modeling, and calibration of complex systems. You can use these tools to systematically find optimal calibrations for increasingly complex powertrain systems. The toolbox can significantly reduce dynamometer testing time, increase engineering productivity, save calibration time, and improve performance and reliability.

There are two main user interfaces:

- Model Browser for design of experimental and statistical modeling
- CAGE Browser for analytical calibration

### Model Browser

The Model Browser is a flexible, powerful, intuitive graphical interface for building and evaluating experimental designs and statistical models. The Model Browser enables you to:

- Design experiment tools that can drastically reduce expensive data collection time
- Create and evaluate optimal, space filling, and classical designs, and constraints can be designed or imported
- Use hierarchical statistical models to capture the variability inherent in engine data, accounting for variation both within and between tests
- Build, compare, and evaluate statistical models and experimental designs.
- Build user-defined models using an extensive library of prebuilt model types
- Export models to MATLAB, Simulink, or CAGE.

## **CAGE Browser**

CAGE (CALibration GEneration) is an easy-to-use graphical interface for calibrating lookup tables for your Electronic Control Unit (ECU).

As engines get more complicated, and models of engine behavior more intricate, it is increasingly difficult to rely on intuition alone to calibrate lookup tables. CAGE provides analytical methods for calibrating lookup tables.

CAGE uses models of the engine control subsystems to calibrate lookup tables. With CAGE you fill and optimize lookup tables in existing ECU software using Model Browser models. From these models, CAGE builds steady-state ECU calibrations.

CAGE also compares lookup tables directly to experimental data for validation.

## **New Features for Release 13**

The Model-Based Calibration Toolbox Version 1.0 was released in Web-downloadable form after Release 12.1 was released, but before Release 13.

Here are the enhancements for Version 1.1.

- You can now create two new classical design styles in the Design Editor - Plackett-Burman and Regular Simplex designs.
- You can now save detailed user information to help you trace the history of project files in the Model Browser.
- You can use a new context menu to copy, delete, and rename models.
- There is a new zoom facility on data plots, in addition to the existing zoom on all model plots.
- Many processes have been made significantly faster.

## **Major Bug Fixes**

The Model-Based Calibration Toolbox 1.1 includes several bug fixes made since Version 1.0. This section describes the particularly important Version 1.1 bug fixes.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.



## Upgrading from an Earlier Release

This section describes an upgrade issue involved in moving from the Model-Based Calibration Toolbox 1.0 to Version 1.1.

### **You Cannot Load Version 1.1 Files Into Version 1.0**

Files from Version 1.0 of the toolbox are fully supported in Version 1.1.

However, files saved with this new version will not load into previous versions.

## **Known Software and Documentation Problems**

This section includes a link to a description of known software and documentation problems in Version 1.1.

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