

# **Curve Fitting Toolbox™**

## **Release Notes**

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*Curve Fitting Toolbox™ Release Notes*

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## Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using Release Notes" on page 2.

| <b>Version (Release)</b>            | <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b>                          |
|-------------------------------------|---------------------------------|---|--------------------------------------|---|
| <b>Latest Version V2.2 (R2010a)</b> | Yes<br>Details                  | Yes<br>Summary                              | Bug Reports<br>Includes fixes        | Printable Release Notes: PDF<br><br>Current product documentation |
| <b>Latest Version V2.1 (R2009b)</b> | Yes<br>Details                  | No  | Bug Reports<br>Includes fixes        | No  |
| V2.0 (R2009a)                       | Yes<br>Details                  | No  | Bug Reports<br>Includes fixes        | No  |
| V1.2.2 (R2008b)                     | No                              | No  | Bug Reports<br>Includes fixes        | No  |
| V1.2 (R2007b)                       | Yes<br>Details                  | No  | Bug Reports<br>Includes fixes        | No  |
| V1.1.7 (R2007a)                     | No                              | No  | Bug Reports<br>Includes fixes        | No  |
| V1.1.6 (R2006b)                     | No                              | No  | Bug Reports<br>Includes fixes        | No  |
| V1.1.5 (R2006a)                     | No                              | No  | No                                   | No  |
| V1.1.4 (R14SP3)                     | No                              | No  | No                                   | No  |
| V1.1.3 (R14SP2)                     | Yes<br>Details                  | No  | No                                   | No  |
| V1.1.2 (R14SP1)                     | No                              | No  | No                                   | No  |
| V1.1.1 (R14)                        | No                              | No  | No                                   | No  |
| V1.1 (R13)                          | Yes<br>Details                  | No  | No                                   | No  |

## Using Release Notes

Use release notes when upgrading to a newer version to learn about:

- New features
- Changes
- Potential impact on your existing files and practices

Review the release notes for other MathWorks™ products required for this product (for example, MATLAB® or Simulink®). Determine if enhancements, bugs, or compatibility considerations in other products impact you.

If you are upgrading from a software version other than the most recent one, review the current release notes and all interim versions. For example, when you upgrade from V1.0 to V1.2, review the release notes for V1.1 and V1.2.

## What Is in the Release Notes

### New Features and Changes

- New functionality
- Changes to existing functionality

### Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product release appear under Bug Reports at The MathWorks™ Web site. Bug fixes can sometimes result in incompatibilities, so review the fixed bugs in Bug Reports for any compatibility impact.

### Fixed Bugs and Known Problems

The MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release

time and as more information becomes available. Bug Reports include provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

## Version 2.2 (R2010a) Curve Fitting Toolbox Software

This table summarizes what's new in Version 2.2 (R2010a):

| New Features and Changes | Version Compatibility Considerations  | Fixed Bugs and Known Problems | Related Documentation at Web Site                                 |
|--------------------------|---|-------------------------------|---|
| Yes<br>Details below     | Yes—Details labeled as <b>Compatibility Considerations</b> , below. See also Summary. | Bug Reports<br>Includes fixes | Printable Release Notes: PDF<br><br>Current product documentation |

- “New Toolbar in Surface Fitting Tool” on page 4
- “Usability Improvements for Surface Fitting Workflow” on page 4
- “Improved Gaussian Library Model” on page 5
- “Functions and Function Elements Being Removed” on page 5

### New Toolbar in Surface Fitting Tool

A new toolbar in Surface Fitting Tool makes it easier to discover and control plotting options. You can use the toolbar to:

- Toggle plot mode between Rotate 3D, Data Cursor, and Exclude Outliers
- Control which plots are displayed of Surface, Residuals and Contour plots
- Control the Legend, Grid and Axis Limits

See “Exploring and Customizing Plots” in the Surface Fitting Tool documentation.

### Usability Improvements for Surface Fitting Workflow

In Surface Fitting Tool, plot mode now defaults to Rotate 3D. A common surface fitting workflow is to manipulate and view the surface plot from various angles. You no longer have to select plot rotate mode initially, because it is now on by default. You can use the toolbar to switch to data cursor or



exclude outliers mode. When you turn off data cursor or exclude outliers mode, your cursor mode is automatically set back to Rotate.

See “Using Rotation, Data Cursor, and Outlier Exclusion” in the Surface Fitting Tool documentation.

The initial surface fit for polynomials is now a linear plane in  $\mathbf{x}$  and  $\mathbf{y}$  (poly11). Previously the default fit was a quadratic polynomial in  $\mathbf{x}$  and  $\mathbf{y}$  (poly22).

If you are going to use a polynomial to fit a model, it can be helpful to start by looking at a reference plane.

See “Selecting Fit Settings” in the Surface Fitting Tool documentation.

## Improved Gaussian Library Model

The gaussian library model has been updated to use improved starting value defaults. You may see different answers to previous releases because of the improved starting values.

See “Library Models” in the Interactive Curve Fitting documentation.

## Functions and Function Elements Being Removed

| Function Element Name  | What Happens When You Use This Function Element | Use This Instead  | Compatibility Considerations                                  |
|--|---|---|---|
| 'Algorithm', 'Gauss-Newton' property name/value pair as input to fitoptions method | Warns when you call the fit method              | 'Algorithm', 'Levenberg-Marquardt' property name/value pair as input to fitoptions method | Use 'Levenberg-Marquardt' as the value for Algorithm instead. |

## Version 2.1 (R2009b) Curve Fitting Toolbox Software

This table summarizes what's new in Version 2.1 (R2009b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems | Related Documentation at Web Site  |
|--------------------------|--------------------------------------|-------------------------------|--|
| Yes<br>Details below     | No                                   | Bug Reports<br>Includes fixes | Printable<br>Release Notes:<br>PDF<br><br>Current product<br>documentation |

New features introduced in this version:

- New function to compute the first and second derivatives of a fitted surface. See differentiate in the User's Guide.
- New function to compute the volume under a fitted surface. See quad2d in the User's Guide.
- New surface fitting examples:
  - "Franke Data Interactive Surface Fitting Example"
  - "Biopharmaceutical Interactive Surface Fitting Example"
  - "Automotive Fuel Efficiency Programmatic Surface Fitting Example"
  - "Biopharmaceutical Drug Interaction Programmatic Surface Fitting Example"

## Version 2.0 (R2009a) Curve Fitting Toolbox Software

This table summarizes what's new in Version 2.0 (R2009a):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| Yes<br>Details below            | No  | Bug Reports<br>Includes fixes        | No                                       |

New features introduced in this version:

### Interactive Surface Fitting

You can interactively fit surfaces to data and view plots with the new flexible and intuitive Surface Fitting Tool GUI.

- Create, plot, and compare multiple surface fits
- Use linear or nonlinear regression, interpolation, local smoothing regression, or custom equations
- View goodness-of-fit statistics, display confidence intervals and residuals, remove outliers and assess fits with validation data
- Automatically generate M-code for fitting and plotting surfaces, or export fits to workspace for further analysis

For more information, see “Interactive Surface Fitting”.

### Programmatic Surface Fitting

New surface fit objects store the results from a fitting operation, making it easy to plot and analyze fits at the command line.

For more information, see “Surface Fitting Objects and Methods”.

## Version 1.2.2 (R2008b) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.2.2 (R2008b):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | Bug Reports<br>Includes fixes        | No                                       |

There were no new features or changes in this version.

## Version 1.2.1 (R2008a) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.2.1 (R2008a):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | Bug Reports<br>Includes fixes        | No                                       |

There were no new features or changes in this version.

## Version 1.2 (R2007b) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.2 (R2007b):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| Yes<br>Details below            | No  | Bug Reports<br>Includes fixes        | No                                       |

New feature introduced in this version:

### **Edit Custom Equations in Curve Fitting Tool**

When using Curve Fitting Tool, you can now edit your custom equations without copying them. Buttons to **Edit** and **Copy and Edit** appear with the list of custom equations in the Fitting GUI.

## Version 1.1.7 (R2007a) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.7 (R2007a):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | Bug Reports<br>Includes fixes        | No                                       |

There were no new features or changes in this version.

## Version 1.1.6 (R2006b) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.6 (R2006b):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | Bug Reports<br>Includes fixes        | No                                       |

There were no new features or changes in this version.



## Version 1.1.5 (R2006a) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.5 (R2006a):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | No                                   | No                                       |

There were no new features or changes in this version.

## Version 1.1.4 (R14SP3) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.4 (R14SP3):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | No                                   | No                                       |

There were no new features or changes in this version.

## Version 1.1.3 (R14SP2) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.3 (R14SP2):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| Yes<br>Details below            | No  | No                                   | No                                       |

New feature introduced in this version:

### Prompt to Save Session

The `cftool` graphical user interface now prompts you to save your session when you quit only if you have changed something (created data sets, created fits, etc.) since your last save. Prior to this release `cftool` would unconditionally prompt you to save every time you quit.

## Version 1.1.2 (R14SP1) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.2 (R14SP1):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | No                                   | No                                       |

There were no new features or changes in this version.

## Version 1.1.1 (R14) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1.1 (R14):

| <b>New Features and Changes</b> | <b>Version Compatibility Considerations</b> | <b>Fixed Bugs and Known Problems</b> | <b>Related Documentation at Web Site</b> |
|---------------------------------|---|--------------------------------------|--|
| No                              | No  | No                                   | No                                       |

There were no new features or changes in this version.

## Version 1.1 (R13) Curve Fitting Toolbox Software

This table summarizes what's new in Version 1.1 (R13):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems | Related Documentation at Web Site |
|--------------------------|--------------------------------------|-------------------------------|-----------------------------------|
| Yes<br>Details below     | No                                   | No                            | No                                |

New features and changes introduced in this version are organized by these topics:

- “Exclude GUI” on page 18
- “Viewing Data Numerically” on page 18

### Exclude GUI

The Exclude pane of the Data GUI has been removed. To exclude and section data, a separate Exclude GUI is now available. You can open this GUI by selecting the **Exclude** button on the Curve Fitting Tool.

### Viewing Data Numerically

The View pane of the Data GUI has been removed. To view data numerically, you can use:

- The Data Sets pane of the Data GUI to view imported data
- The Smooth pane of the Data GUI to view a smoothed data set
- The Exclude GUI to view existing exclusion rules.

## Compatibility Summary for Curve Fitting Toolbox Software

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided with the description of the new feature or change.

| <b>Version (Release)</b>                | <b>New Features and Changes with Version Compatibility Impact</b> |
|---|---|
| <b>Latest Version<br/>V2.2 (R2010a)</b> | See “Functions and Function Elements Being Removed” on page 5.    |
| V2.1 (R2009b)                           | None  |
| V2.0 (R2009a)                           | None  |
| V1.2.2 (R2008b)                         | None  |
| V1.2.1 (R2008a)                         | None  |
| V1.2 (R2007b)                           | None  |
| V1.1.7 (R2007a)                         | None  |
| V1.1.6 (R2006b)                         | None  |
| V1.1.5 (R2006a)                         | None  |
| V1.1.4 (R14SP3)                         | None  |
| V1.1.3 (R14SP2)                         | None  |
| V1.1.2 (R14SP1)                         | None  |
| V1.1.1 (R14)                            | None  |
| V1.1 (R13)                              | None  |