

Fixed-Income Toolbox™

Release Notes

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Fixed-Income Toolbox™ Release Notes

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Summary by Version

This table provides quick access to new features in each version. For clarification, see “Using Release Notes” on page 2.

| Version (Release) | New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---|---------------------------------|---|--------------------------------------|
| Latest Version V2.2 (R2011b) | Yes Details | Yes Summary | Bug Reports Includes fixes |
| V2.1 (R2011a) | Yes Details | No | Bug Reports Includes fixes |
| V2.0 (R2010b) | Yes Details | No | Bug Reports Includes fixes |
| V1.9 (R2010a) | Yes Details | No | Bug Reports Includes fixes |
| V1.8 (R2009b) | Yes Details | No | Bug Reports Includes fixes |
| V1.7 (R2009a) | No | No | Bug Reports Includes fixes |
| V1.6 (R2008b) | Yes Details | No | Bug Reports Includes fixes |
| V1.5 (R2008a) | Yes Details | No | Bug Reports Includes fixes |
| V1.4 (R2007b) | Yes Details | No | Bug Reports |
| V1.3 (R2007a) | Yes Details | No | Bug Reports |
| V1.2 (R2006b) | No | No | Bug Reports |
| V1.1.2 (R2006a) | No | No | Bug Reports |
| V1.0 (R13) | Yes Details | No | No bug fixes |

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

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.

Documentation on the MathWorks Web Site

Related documentation is available on mathworks.com for the latest release and for previous releases:

- Latest product documentation
- Archived documentation

Version 2.2 (R2011b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 2.2 (R2011b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | Yes Summary | Bug Reports Includes fixes |

New features and changes introduced in this version are:

- “New Demo for the Diebold Li Yield Curve Model for Forecasting the Yield Curve” on page 4
- “New Demo for Prepayment Modeling for Mortgage-Backed Securities” on page 4
- “Warning and Error ID Changes” on page 4

New Demo for the Diebold Li Yield Curve Model for Forecasting the Yield Curve

A new demo shows how to estimate parameters of a Diebold Li yield curve model and use the fitted model to forecast the yield curve. Run the demo at the MATLAB command line by entering:

```
showdemo Demo_DieboldLi
```

New Demo for Prepayment Modeling for Mortgage-Backed Securities

A new demo shows how to model the prepayment behavior for mortgage-backed securities using the SDE objects from the Econometrics Toolbox™. Run the demo at the MATLAB command line by entering:

```
showdemo Demo_Prepayment
```

Warning and Error ID Changes

Many warning and error IDs have changed from their previous versions. These warnings or errors typically appear during a function call.

Compatibility Considerations

If you use warning or error IDs, you might need to change the strings you use. For example, if you turned off a warning for a certain ID, the warning might now appear under a different ID. If you use a try/catch statement in your code, replace the old identifier with the new identifier. There is no definitive list of the differences, or of the IDs that changed.

Version 2.1 (R2011a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 2.1 (R2011a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New feature and changes introduced in this version are:

- “Additional Support for Convertible Bonds Using `cbprice`” on page 6
- “Support for Single Name CDS Options” on page 6

Additional Support for Convertible Bonds Using `cbprice`

`cbprice` is updated to support:

- Put options using the new arguments `PutType` and `PutInfo`.
- Continuous dividend yield using `DividendType` to specify the dividend yield of a convertible bond instead of discrete dividend payments.
- Variable coupon support to specify different coupons for a bond at different times using `CouponRate`.
- Support for a new argument `ConvInfo` to specify a no exercise period when the bond is not convertible.

Support for Single Name CDS Options

Support for `cdsoptprice` to compute the price of payer and receiver credit default swaptions.

Version 2.0 (R2010b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 2.0 (R2010b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New feature and changes introduced in this version are:

- “Support for Agency Option Adjusted Spread and Effective Duration Calculations” on page 7
- “Support for Credit Default Swaps” on page 7
- “Enhanced Support for Bootstrapping Swap Curves Using IRDataCurve” on page 8

Support for Agency Option Adjusted Spread and Effective Duration Calculations

Expanded support for Agency Option Adjusted Spread (AOAS) and effective duration (for all security types):

| Function | Purpose |
|-------------|--|
| agencyoas | Compute the OAS of a callable bond using the Agency OAS model. |
| agencyprice | Price a callable bond OAS using the Agency OAS model. |

For more information, see “Agency Option-Adjusted Spreads”.

Support for Credit Default Swaps

Support for credit default swap (CDS) pricing, marking to market, and default probability term structure estimation:

| Function | Purpose |
|-----------------|---|
| cdsbootstrap | Bootstrap the default probability curve from CDS market quotes. |
| cdsspread | Compute the spread for a CDS contract. |
| cdsprice | Compute the price for a CDS contract. |

For more information, see “Credit Derivatives”.

Enhanced Support for Bootstrapping Swap Curves Using IRDataCurve

Enhanced support for bootstrapping swap curves, including new options for input instruments. The `bootstrap` method of `IRDataCurve` now allows a discount curve to be used, in addition to a forward or zero curve.

Version 1.9 (R2010a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.9 (R2010a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New feature and changes introduced in this version are:

New Demo for Pricing and Analysis of Inflation-Indexed Instruments

A new demo shows how to price and analyze inflation-indexed instruments. Run the demo at the MATLAB command line by entering:

```
showdemo inflationdemo
```

Version 1.8 (R2009b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.8 (R2009b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New features and changes introduced in this version are:

- “Support for Bond Futures” on page 10
- “Support for the BUS/252 Day-Count Convention” on page 11

Support for Bond Futures

Support for the following types of bond futures:

- U.S. Treasury bonds and notes
- German Bobl, Bund, Buxl, and Schatz
- U.K. Gilts
- Japanese government bonds (JGBs)

The functions for bond futures are:

| Function | Purpose |
|---------------|---|
| convfactor | Additional support for new Convention values for German Bobl, Bund, Buxl, and Schatz, U.K. Gilts, and JGBs. |
| bndfutprice | Price of a bond future given repo rates. |
| bndfutimprepo | Implied repo rates for a bond future given price. |

For more information, see “Bond Futures” in Fixed-Income Toolbox™ User’s Guide documentation.

Support for the BUS/252 Day-Count Convention

Support for the Basis day-count convention for BUS/252. BUS/252 is the number of business days between the previous coupon payment and the settlement data divided by 252. BUS/252 business days are non-weekend, non-holiday days. The `holidays.m` file defines holidays.

Version 1.7 (R2009a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.7 (R2009a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---------------------------------|---|--------------------------------------|
| No | No | Bug Reports Includes fixes |

There are no new features or changes in this version.

Version 1.6 (R2008b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.6 (R2008b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New features and changes introduced in this version are

Support for Interest-Rate Curve Objects

Support for analyzing the term structure of interest rates, including bootstrapping and fitting the term structure to market data using parametric models (e.g., Nelson Siegel and Svensson), spline-based models, and user-defined functions. Fixed-Income Toolbox supports three class objects:

- “@IRCurve”

Base abstract class supports creating interest-rate curves and includes methods for extracting forward, zero, and discount factors curves.

Supports a method to convert to a `RateSpec` structure, an acceptable input format for the Financial Derivatives Toolbox™ function `intenvset`.

- “@IRDataCurve”

Represents interest-rate curves based on vectors of dates and data. This class supports bootstrapping an interest-rate curve from market instruments with a range of interpolation methods.

- “@IRFunctionCurve”

Represents an interest-rate curve with a function; the function can be specified directly, or a form of the function can be specified and then the parameters are fit to available market data. In addition, you can determine which type of interest-rate curve (zero, forward, or discount curve) fits the market data, as well as, any custom functions.

For more information, see “Interest-Rate Curve Objects”.

Version 1.5 (R2008a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.5 (R2008a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports Includes fixes |

New features and changes introduced in this version are

Support for Actual/365 (ISDA)

The following functions now support day count conventions for the basis argument based on ISDA (International Swap Dealers Association) actual/365:

- bkcall
- bkput
- bkcaplet
- bkfloorlet
- cbprice
- cdai
- cdprice
- cdyield
- cfamounts
- stepcpncfamounts
- stepcpnprice
- stepcpnyield
- zeroprice
- zeroyield

Version 1.4 (R2007b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.4 (R2007b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports |

New features and changes introduced in this version are

ISMA Support for 30/360 Basis as a Variant of 30/360E with Annual Compounding

The following functions now support day count conventions for the basis argument to support 30/360 International Securities Market Association (ISMA) convention as a variant of 30/360E with annual compounding:

- bkcall
- bkput
- bkcaplet
- bkfloorlet
- cbprice
- cdai
- cdprice
- cdyield
- cfamounts
- stepcpncfamounts
- stepcpnprice
- stepcpnyield
- zeroprice
- zeroyield

Version 1.3 (R2007a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.3 (R2007a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | Bug Reports |

New features and changes introduced in this version are

ISMA Support

The following functions now support the International Securities Market Association (ISMA) convention for the basis argument:

- `bkcall`
- `bkput`
- `bkcaplet`
- `bkfloorlet`
- `cbprice`
- `cdai`
- `cdprice`
- `cdyield`
- `cfamounts`
- `stepcpncfamounts`
- `stepcpnprice`
- `stepcpnyield`
- `zeroprice`
- `zeroyield`

Version 1.2 (R2006b) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.2 (R2006b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---------------------------------|---|--------------------------------------|
| No | No | Bug Reports |

Version 1.1.2 (R2006a) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.1.2 (R2006a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---------------------------------|---|--------------------------------------|
| No | No | Bug Reports |

Version 1.0 (R13) Fixed-Income Toolbox Software

This table summarizes what's new in Version 1.0 (R13):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|--------------------------|--------------------------------------|-------------------------------|
| Yes Details below | No | No bug fixes |

Introduction to Fixed-Income Toolbox Software

Fixed-Income Toolbox software or MATLAB software is a collection of tools for evaluating mortgage-backed securities, short-term securities such as Treasury bills and certificates of deposit, and coupon-paying bond instruments. Other functions support fixed-rate mortgage pool construction and analysis, bond futures and conversion factors, convertible bond analysis, and LIBOR-based swap agreements.

You can compile and deploy applications you develop with this toolbox using MATLAB® Builder for Excel® or MATLAB Builder for .NET software. Also, if you have installed Datafeed Toolbox™ software, you can use Fixed-Income Toolbox functions to analyze data from Bloomberg® and several other data servers.

Compatibility Summary for Fixed-Income 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.

| Version (Release) | New Features and Changes with Version Compatibility Impact |
|---|---|
| Latest Version V2.2 (R2011b) | See the Compatibility Considerations subheading for each of these new features and changes: <ul style="list-style-type: none"> • “Warning and Error ID Changes” on page 4 |
| V2.1 (R2011a) | None |
| V2.0 (R2010b) | None |
| V1.9 (R2010a) | None |
| V1.8 (R2009b) | None |
| V1.7 (R2009a) | None |
| V1.6 (R2008b) | None |
| V1.5 (R2008a) | None |
| V1.4 (R2007b) | None |
| V1.3 (R2007a) | None |
| V1.2 (R2006b) | None |
| V1.1.2 (R2006a) | None |
| V1.0 (R13) | None |