

# **Database Toolbox™ Release Notes**

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*Database 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>Latest Version V3.11 (R2012a)</b>	Yes Details	No	Bug Reports Includes fixes
V3.10 (R2011b)	Yes Details	Yes Summary	Bug Reports Includes fixes
V3.9 (R2011a)	Yes Details	No	Bug Reports Includes fixes
V3.8 (R2010b)	Yes Details	No	Bug Reports Includes fixes
V3.7 (R2010a)	Yes Details	No	Bug Reports Includes fixes
V3.6 (R2009b)	No	No	Bug Reports Includes fixes
V3.5.1 (R2009a)	No	No	Bug Reports Includes fixes
V3.5 (R2008b)	No	No	Bug Reports Includes fixes
V3.4.1 (R2008a)	No	No	Bug Reports Includes fixes
V3.4 (R2007b)	No	No	Bug Reports Includes fixes
V3.3 (R2007a)	Yes Details	No	Bug Reports Includes fixes
V3.2 (R2006b)	Yes Details	Yes Summary	Bug Reports Includes fixes
V3.1.1 (R2006a)	No	No	Bug Reports Includes fixes

<b>Version (Release)</b>	<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
V3.1 (R14SP3)	Yes Details	No	Bug Reports Includes fixes
V3.0.2 (R14SP2)	No	No	Bug Reports Includes fixes
V3.0.1 (R14SP1)	No	No	Fixed Bugs
V3.0 (R14)	Yes Details	Yes Summary	Fixed Bugs

## 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](http://mathworks.com) for the latest release and for previous releases:

- Latest product documentation
- Archived documentation

## Version 3.11 (R2012a) Database Toolbox Software

This table summarizes new features in Version 3.11 (R2012a).

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

New features and changes follow.

- “Execute .SQL Files” on page 4
- “Improvements to the Database Constructor” on page 4

### Execute .SQL Files

The new `runsqlscript` function lets you execute SQL commands from a .SQL file on a connected database, and store the results in a cursor array. You can input the results from executing `runsqlscript` to functions that accept cursor array inputs.

### Improvements to the Database Constructor

When using a JDBC driver, you can input individual connection properties to the database constructor, `database`.



## Version 3.10 (R2011b) Database Toolbox Software

This table summarizes new features in Version 3.10 (R2011b).

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	Yes — Details labeled as Compatibility Considerations in descriptions of new features and changes. See also Summary.	Bug Reports Includes fixes

New features and changes follow.

- “Preferences Now Persistent Across MATLAB Sessions” on page 5
- “Change in Behavior for the update Function” on page 5
- “Warning and Error ID Changes” on page 5

### Preferences Now Persistent Across MATLAB Sessions

The preferences you set using the Preference dialog box or the `setdbprefs` function now persist across MATLAB sessions.

### Compatibility Considerations

In releases before R2011b, if you changed your preferences during a MATLAB session, these preferences would not remain in the next MATLAB session.

### Change in Behavior for the update Function

`update` lets you update images, Booleans, doubles, and strings in a manner consistent with `fastinsert`.

### 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 using 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 3.9 (R2011a) Database Toolbox Software

This table summarizes new features in Version 3.9 (R2011a).

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

New features and changes follow.

### **New datainsert Function Exports MATLAB Cell Array Data into a Database Table**

The new `datainsert` function inserts data from the MATLAB workspace into a database table, much like the `fastinsert` function. The new `datainsert` function is faster.

## Version 3.8 (R2010b) Database Toolbox Software

This table summarizes new features in Version 3.8 (R2010b).

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

New features and changes follow.

### Now Possible to Import Data into MATLAB Dataset Object

If you have Statistics Toolbox™ installed, you can now return a `dataset` object rather than a cell array. Use the `setdbprefs` command to set the database preference for the `DataReturnFormat` property to `'dataset'`.

## Version 3.7 (R2010a) Database Toolbox Software

This table summarizes new features in Version 3.7 (R2010a).

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

New features and changes follow.

### New Connection Object Methods

Several new connection object methods provide database-specific information. The new methods are:

- `database.catalogs`
- `database.columns`
- `database.schemas`
- `database.tables`

See the individual reference pages for more information on how to use these methods.

### Enhanced Error Messages

New enhanced error messages provide more information about the error. For example, the 2009b error message `Drivers not Found/Loaded` is now `Drivers not Found/Loaded. Please verify that login information and database url are valid in 2010b`. This error will appear when the driver input is valid but the database URL is invalid.

### Improved Write Performance

New bulk insert code templates provide significant performance upgrades.

## Version 3.6 (R2009b) Database Toolbox Software

This table summarizes new features in Version 3.6 (R2009b).

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 3.5.1 (R2009a) Database Toolbox Software

This table summarizes what's new in Version 3.5.1 (R2009a):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 3.5 (R2008b) Database Toolbox Software

This table summarizes what's new in Version 3.5 (R2008b):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes



## Version 3.4.1 (R2008a) Database Toolbox Software

This table summarizes what's new in Version 3.4.1 (R2008a):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 3.4 (R2007b) Database Toolbox Software

This table summarizes what's new in Version 3.4 (R2007b):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 3.3 (R2007a) Database Toolbox Software

This table summarizes what's new in Version 3.3 (R2007a):

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

New features and changes follow.

- “setdbprefs Accepts Structure Input” on page 15
- “Visual Query Builder Generated M-File Includes Placeholder for Password and Assigns Preferences to Structure” on page 15
- “Preference Added for Temporary Registry Output; Ensures Full Output for getdatasources” on page 16

### setdbprefs Accepts Structure Input

The `setdbprefs` function now accepts a structure as input. For example, you can run the following commands to assign values to `s`:

```
s.DataReturnFormat = 'numeric';
s.ErrorHandling = 'report';
```

You can also do this for other `setdbprefs` properties whose values you want to change. Then set the preferences using the values in `s` by running the command:

```
setdbprefs(s)
```

For more information, see the `setdbprefs` reference page.

### Visual Query Builder Generated M-File Includes Placeholder for Password and Assigns Preferences to Structure

When you run a query in the Visual Query Builder and select **File > Generate M-File**, the resulting M-file now includes a placeholder string `password` in

the database statement. If a password is required for the connection, such as for connections established via JDBC drivers, substitute the password for the password string. If no password is required, the M-file will run as is. For more information, see “About Generated Files”.

The generated M-file assigns values for the preferences to the structure `s`. For more information, see the `setdbprefs` reference page.

### **Preference Added for Temporary Registry Output; Ensures Full Output for `getdatasources`**

When you use `getdatasources` to view the data sources for your system, ensure that you view all data sources by specifying a temporary, writable, output directory using the new preference, `TempDirForRegistryOutput`. This is useful when you add data sources and do not have write access for the MATLAB current directory, where the toolbox temporarily writes ODBC registry settings. Without write access, `getdatasources` does not always return data sources you added. In that event, run `setdbprefs` to specify a value for the `TempDirForRegistryOutput` preference, where the value is the full path name to a directory for which you have write access.

## Version 3.2 (R2006b) Database Toolbox Software

This table summarizes what's new in Version 3.2 (R2006b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	Yes — Details labeled as <b>Compatibility Considerations</b> in descriptions of new features and changes. See also Summary.	Bug Reports Includes fixes

New features and changes follow.

- “Enhanced fetch Combines exec with Existing fetch” on page 17
- “Import Data from Multiple Resultsets” on page 18
- “Run Stored Procedures to Return Output Parameters” on page 18
- “Specify Catalog and Schema Using Visual Query Builder” on page 18
- “Preferences Option to Find Additional Data Sources” on page 18
- “MATLAB Change to Assignment of Nonscalar Structure Array Fields Might Impact Database Toolbox Users” on page 18

### Enhanced fetch Combines exec with Existing fetch

The new function, `database.fetch`, executes the specified SQL query and imports results into the MATLAB workspace, given the connection handle `conn`. It is provided for convenience, to combine capabilities of the existing `exec` and `cursor.fetch` functions. In statements and code, do not specify `database.fetch` or `cursor.fetch` but rather, just specify `fetch` with the appropriate objects provided as arguments; the toolbox runs `database.fetch` or `cursor.fetch` as appropriate based on the arguments.

Unlike `cursor.fetch`, `database.fetch` does not return a cursor object on which you can run subsequent Database Toolbox™ functions, but rather returns all data to a MATLAB variable. For more information about `database.fetch` and how it differs from `cursor.fetch`, see the `fetch`

reference page, as well as the `database.fetch` and `cursor.fetch` reference pages.

## **Import Data from Multiple Resultsets**

The new function, `fetchmulti`, imports data into the MATLAB workspace from multiple resultsets, which you retrieve via an `exec` call to a stored procedure that contains two or more `select` statements.

## **Run Stored Procedures to Return Output Parameters**

The new function, `runstoredprocedure`, executes a stored procedure using input parameters specified in a cell array to return output parameters. This allows you to retrieve the value of a variable into a MATLAB variable. `runstoredprocedure` overcomes a limitation of `exec`; when you run a stored procedure via `exec`, you can only retrieve resultsets.

## **Specify Catalog and Schema Using Visual Query Builder**

You can now specify the catalog and schema for a data source using the Visual Query Builder. The `default` is `none`, meaning you do not need to select values for them.

## **Preferences Option to Find Additional Data Sources**

The new `setdbprefs` option, `UseRegistryForSources`, instructs the Visual Query Builder to search the Microsoft® Windows® registry to find any ODBC data sources not uncovered using the system `ODBC.INI`.

## **MATLAB Change to Assignment of Nonscalar Structure Array Fields Might Impact Database Toolbox Users**

In Version 7.3 (R2006b) of the MATLAB software, a change was made to how a nonscalar structure array field is assigned to a single MATLAB variable. For more information, see “Assigning Nonscalar Structure Array Fields to a Single Variable” in the MATLAB Release Notes.

## **Compatibility Considerations**

As a result of this change in the MATLAB software, you may need to modify your Database Toolbox M-files.

## Version 3.1.1 (R2006a) Database Toolbox Software

This table summarizes what's new in Version 3.1.1 (R2006a):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes



## Version 3.1 (R14SP3) Database Toolbox Software

This table summarizes what's new in Version 3.1 (R14SP3):

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

New features and changes follow.

- “fastinsert Function Added” on page 21
- “JDBC Drivers Now Supported for Visual Query Builder on Microsoft Windows Systems” on page 22
- “Define Data Sources from Within the Visual Query Builder” on page 22
- “setdbprefs Function Enhanced” on page 22
- “Dynamically Add JDBC Drivers File” on page 23
- “64-Bit FLOAT for Microsoft™ SQL Server™ Software Is Fully Supported” on page 23
- “Generate M-File from VQB” on page 23
- “update Function Enhanced to Export Multiple Records” on page 23
- “logintimeout Function Now Supported on Linux Platforms” on page 23

### fastinsert Function Added

There is a new function, `fastinsert`, that you can use instead of the `insert` function to export data about three times more quickly than `insert`. It also allows exporting for all object types, so that any data you can retrieve from a database you now can export to the database, including binary objects.

While there are no known problems with `fastinsert`, if you receive unexpected results, return to using `insert` and report the problem with `fastinsert` via Technical Support.

Note that the Visual Query Builder insert feature uses the `insert` function instead of `fastinsert`.

## **JDBC Drivers Now Supported for Visual Query Builder on Microsoft Windows Systems**

You now can use the Visual Query Builder (VQB) with JDBC drivers on Windows platforms. Previously, only ODBC drivers were supported.

The `confds` function now displays an enhanced dialog box you use to define JDBC data sources. With it, you save and load data source information via MATLAB MAT-files.

For details, see “Setting Up JDBC Data Sources” in the Database Toolbox documentation.

## **Define Data Sources from Within the Visual Query Builder**

The Visual Query Builder now includes two new items under the **Query** menu:

- **Define ODBC Data Source**—Directly access your Windows ODBC Data Source Administrator dialog box where you define ODBC data sources.
- **Define JDBC Data Source**—Access the Define JDBC Data Source dialog box for defining JDBC data sources to use with the VQB. The function equivalent is `confds`. When you define a JDBC data source, the information is saved in a MAT-file so you can use it again in a later session. Later, open the MAT-file using the Define JDBC Data Source dialog box, or using `setdbprefs('JDBCDataSourceFile','fullpathtomatfile')`.

For details, see “Configuring Your Environment” in the Database Toolbox documentation.

## **setdbprefs Function Enhanced**

New arguments are supported for defining the JDBC data source MAT-file. For details, see the `setdbprefs` reference page.

## **Dynamically Add JDBC Drivers File**

You can dynamically add a JDBC drivers file to the MATLAB Java™ classpath using the MATLAB `javaaddpath` function. You can use this method instead of adding a pointer to the JDBC drivers file in your `classpath.txt` file. The advantage of using `javaaddpath` is that you do not have to restart the MATLAB software session after running the `javaaddpath` statement. The disadvantage is that this only applies to the current session and so you need to run the `javaaddpath` statement in each new session. For details, see “Setting Up JDBC Data Sources” in the Database Toolbox documentation.

## **64-Bit FLOAT for Microsoft SQL Server Software Is Fully Supported**

You now can retrieve 64-bit FLOAT data using Microsoft SQL Server™ software.

## **Generate M-File from VQB**

After running a query using the Visual Query Builder, you can generate an M-file consisting of Database Toolbox functions that perform the query. This is useful if you know how to run queries with the VQB and want to determine the equivalent functions, particularly the SQL statements in `exec` and `insert`.

## **update Function Enhanced to Export Multiple Records**

The `update` function has been enhanced so that you can export multiple records based on different `where` clauses. The number of `where` clauses must equal the number of records in the array of data you are exporting. For details, see the reference page for `update`.

## **logintimeout Function Now Supported on Linux Platforms**

The `logintimeout` function is now supported on Linux® platforms.

## Version 3.0.2 (R14SP2) Database Toolbox Software

This table summarizes what's new in Version 3.0.2 (R14SP2):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 3.0.1 (R14SP1) Database Toolbox Software

This table summarizes what's new in Version 3.0.1 (R14SP1):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Fixed bugs

## Version 3.0 (R14) Database Toolbox Software

This table summarizes what's new in Version 3.0 (R14):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	Yes—Details labeled as <b>Compatibility Considerations</b> , below. See also Summary.	Fixed Bugs

New features and changes follow.

- “New Data Types Supported” on page 26
- “Export Using Visual Query Builder (VQB)” on page 27
- “Display Menu in VQB Now Works for Structure and Numeric Formats” on page 27
- “Spaces in VQB Tables and Fields Now Allowed” on page 27
- “Open Data from VQB into Array Editor” on page 27
- “VQB Query Execute Updates Statement” on page 27
- “Database Toolbox Functions Compilable” on page 28
- “logintimeout not Supported on Linux Platforms” on page 28
- “BOOLEAN Data Types Now Represented as 1’s and 0’s” on page 28

### New Data Types Supported

This toolbox now supports Sun™ Java BINARY (BLOB or Binary Large Objects) and OTHER data types, such as bitmap images and MAT-files. For more information about using these data types in the Visual Query Builder or with functions, see “Retrieving BINARY or OTHER Sun Java SQL Data Types” in the Database Toolbox documentation.

## Export Using Visual Query Builder (VQB)

You now can use the VQB to export data from the MATLAB workspace, and insert it into new rows in a database. For more information, see “Exporting Data from the MATLAB Workspace to a New Record in a Database” in the Database Toolbox documentation.

## Display Menu in VQB Now Works for Structure and Numeric Formats

You now can use **Display** menu items in the VQB with structure and numeric formats for retrieved data as specified in **Preferences** or with `setdbprefs`. In previous releases, you could use **Display** menu items only for the cell array format.

## Spaces in VQB Tables and Fields Now Allowed

You now can use the VQB for tables and fields that contain spaces in their names. They appear inside quotation marks in the VQB lists.

## Open Data from VQB into Array Editor

When you double-click a variable in the **Data** field of the VQB, it now opens in the Array Editor. In previous versions, the contents displayed in the Command Window. You still can display the contents in the Command Window by typing the variable name in the Command Window.

## VQB Query Execute Updates Statement

In the VQB, when you edit the **SQL statement** field, the query represented by the other fields does not match what is in the **SQL statement** field. When you then select **Query > Save**, it saves exactly that mismatch. When you then load that saved query, you again see the mismatch. When you execute it, it updates, the **SQL statement** field to match the values in the other fields for that query.

## Compatibility Considerations

This represents a change from previous versions in which the **SQL statement** field updated to reflect the values in the other fields when you loaded the query, rather than when you executed it.

## **Database Toolbox Functions Compilable**

Because of changes made to the MATLAB Compiler, you can compile Database Toolbox functions to create stand-alone applications that do not require the MATLAB software.

## **logintimeout not Supported on Linux Platforms**

On Linux platforms, `logintimeout` is not supported.

## **BOOLEAN Data Types Now Represented as 1's and 0's**

Previously, if you retrieved a `BOOLEAN` field from a database using `fetch`, the values were returned as `true` or `false` strings. Now they are returned as 1's and 0's, and are of the MATLAB `logical` data type. For more information, see “Importing `BOOLEAN` Data from Databases to the MATLAB Workspace” in the Database Toolbox documentation, and the `fetch` and `insert` function reference pages.

## **Compatibility Considerations**

If you have M-files that rely upon the string values for data being `true` or `false`, you need to modify your code to use 1 and 0 instead.



## Compatibility Summary for Database 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 in 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 V3.11 (R2012a)</b>	None
V3.10 (R2011b)	See the <b>Compatibility Considerations</b> subheading for these changes: <ul style="list-style-type: none"> <li>• “Preferences Now Persistent Across MATLAB Sessions” on page 5</li> <li>• “Warning and Error ID Changes” on page 5</li> </ul>
V3.9 (R2011a)	None
V3.8 (R2010b)	None
V3.7 (R2010a)	None
V3.6 (R2009b)	None
V3.5.1 (R2009a)	None
V3.5 (R2008b)	None
V3.4.1 (R2008a)	None
V3.4 (R2007b)	None
V3.3 (R2007a)	None

<b>Version (Release)</b>	<b>New Features and Changes with Version Compatibility Impact</b>
V3.2 (R2006b)	See the <b>Compatibility Considerations</b> subheading for this change: <ul style="list-style-type: none"><li>• “MATLAB Change to Assignment of Nonscalar Structure Array Fields Might Impact Database Toolbox Users” on page 18</li></ul>
V3.1.1 (R2006a)	None
V3.1 (R14SP3)	None
V3.0.2 (R14SP2)	None
V3.0.1 (R14SP1)	None
V3.0 (R14)	See the <b>Compatibility Considerations</b> subheading for this change: <ul style="list-style-type: none"><li>• “VQB Query Execute Updates Statement” on page 27</li><li>• “BOOLEAN Data Types Now Represented as 1’s and 0’s” on page 28</li></ul>