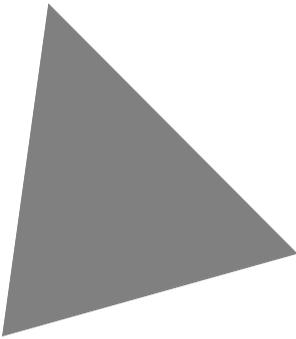




# What's New in Delphi 7

---



Borland®  
**Delphi™ 7**  
for Windows™

Borland Software Corporation  
100 Enterprise Way, Scotts Valley, CA 95066-3249

COPYRIGHT © 2002 Borland Software Corporation. All rights reserved. All Borland brand and product names are trademarks or registered trademarks of Borland Software Corporation in the United States and other countries. All other marks are the property of their respective owners.

D7-WN-0802

# What's New in Delphi 7

---

Delphi 7 includes new features and enhancements in the following areas:

- “IDE changes” on page 1
- “Web technology changes (Professional and Enterprise editions)” on page 3
- “COM changes (Professional and Enterprise editions)” on page 5
- “Database technology changes (Professional and Enterprise editions)” on page 5
- “Component library changes” on page 6
- “Runtime library changes” on page 7
- “Compiler changes” on page 8
- “Rave Reports support (Professional and Enterprise editions)” on page 8
- “ModelMaker support (Professional and Enterprise editions)” on page 8
- “Documentation changes” on page 9

If you are upgrading from a previous version of Delphi, see “Upgrade and compatibility issues” on page 10.

## IDE changes

---

The IDE has new features in the following areas:

### Compiler messages

- The new View | Additional Message Info command displays a Message Hints window from which you can download and view information about compiler messages from Borland's Web site.
- The new Project | Options | Compiler Messages page gives you greater control over which compiler warnings are generated.

### Component palette changes

- There is a new CLX-only version of the System page displayed when you open a CLX application in Delphi. It includes several directory and file components. In previous releases, the System page was displayed only for VCL applications and included components for system-level access.
- The new Indy Intercepts and Indy I/O Handlers pages provide open source Internet protocol components. (Professional and Enterprise editions)
- The new IW Standard, IW Data, IW Client Side, and IW Control pages provide IntraWeb components for developing Web-based applications.
- The new Rave page provides components for adding report generation to your applications.

- If a component page can be scrolled horizontally to display additional icons, a new drop-down menu button can also be used to list the additional icons.

### Code Insight changes

- Code completion is now faster and lets you browse to the declaration of items in the code completion list by using Ctrl+click on any identifier in the list.
- New HTML code completion automatically displays valid HTML elements and attributes in the Code editor. (Professional & Enterprise editions only)
- You can create customized code completion managers by using the OpenTools API. See “Extending the IDE” in the Delphi online help for details.
- The Tools | Editor Options | Code Insight page lets you set colors for the symbols displayed in the Code Insight tools.

### Debugger changes

- The Watch List now has:
  - Multiple tabs, allowing you to organize watches into distinct watch groups for easier debugging. To add a watch group, right-click the Watch List and select Add Group.
  - A Watch Name column and a Value column. To show/hide the column headers, right-click the Watch List and select Show Column Headers.
  - A checkbox to enable or disable individual watches.
- The Tools | Debugger Options | Event Log page has the following new options:
- Use Event Log Colors lets you display different types of event messages in color in the event log.
- Module messages writes a message to the event log each time a module (exe, dll, ocx, etc.) is loaded or unloaded by the process that you are debugging. Previously, the Process messages option controlled whether these events were logged.
- The Run Parameters dialog box has a new option, Working Directory, that lets you specify the name of the directory to use for the debugging process.

### Miscellaneous improvements

- From the Project Manager, you can partially compile projects within a group by right-clicking on any project and choosing Make All from Here or Build All from Here.
- The Message view has multiple tabs for displaying different types of messages (Build, Search, and so on).
- The View | Component List command lets you multiselect components by pressing the Ctrl key.
- The new Tools | Editor Options | Source Options page lets you:
  - Set different editor options for different source types, such as Pascal, C++, C#, HTML, and XML.

- Display tab and space characters in the Code editor.
- Edit code templates.
- Several of the options on the new page were formerly on the General, Display, and Code Insight pages of the Editor Properties dialog box.
- The Tools | Editor Options | Color page has two new options, Foreground Color and Background Color, instead of a color grid, for setting colors in the Code editor.
- Pressing Alt+Page Down and Alt+Page Up cycles through tabbed views such as the Code editor, Watch Window, and Message view. These keyboard shortcuts are included in the Default, IDE Classic, and BRIEF key mappings.
- Delphi now displays a two-tone main menu.

## Web technology changes (Professional and Enterprise editions)

---

- Delphi now includes IntraWeb from AtoZed Software. You can use IntraWeb to develop Web server applications using standard form tools. You can also use IntraWeb to develop pages for Web Broker and WebSnap applications. For more information, see “Creating Web server applications using IntraWeb” in the *Developer's Guide* or online Help. The Enterprise edition of Delphi includes the complete IntraWeb product. The Professional edition of Delphi includes a subset of the IntraWeb product.
- Delphi now supports Apache 2 as a target type for Web Broker, WebSnap and SOAP.
- Borland has deprecated Win-CGI as a target type for Web server applications and Web Services. Borland recommends using regular CGI, ISAPI/NSAPI, or an Apache target type instead. Existing Win-CGI projects can still be modified and compiled in the IDE, however, Borland does not guarantee Win-CGI compatibility for the indefinite future.

## Web Services

---

Web Services includes the following enhancements.

### New UDDI browser

- The WSDL Import Wizard has a new Universal Description, Discovery, and Integration (UDDI) browser lets you search a UDDI registry for a Web Service and import the address of its WSDL document.

### SOAP headers

- New classes and interfaces let you read or insert headers into the SOAP envelopes that transmit messages between clients and servers. For more information, see “Defining and using SOAP headers” and “Processing headers in client applications” in the *Developer's Guide* or online Help.

## Attachments

- Web Services applications (both client and server) can now handle attachments. Attachments (TSOAPAttachment descendants) are sent with SOAP-encoded messages as part of a multipart form. When an application receives the attachment, it saves it to a temporary file, which is then available to your application.

## Type support

- You can now customize the conversion between remotable classes and their SOAP representation by overriding two new virtual methods that were added to TRemotable: ObjectToSOAP and SOAPToObject.
- Exception objects for exceptions that occur when responding to a Web Service request (ERemotableException instances) now contain more information from the SOAP fault packet.
- Type definitions are automatically registered with the remotable type registry when you register an invocable interface.
- TXSDecimal has a new AsBcd property for easier conversion between XML and native types. Similarly, TXSHexBinary has a new AsByteArray property. Remotable classes that represent time values now let you work with fractional seconds rather than milliseconds.

## Other enhancements

- New events on THTTPReqResp let you to intercept the HTTP message before it is sent, and to monitor progress while sending or receiving long messages.
- THTTPSoapPascalInvoker now publish events that let you write code to execute before or after the invoker executes a requested method call.
- You now have more control over the mapping between invocable interfaces and WSDL documents. TWSDLHTMLPublish now publishes several events to let you control the generated WSDL. You can also identify the mapping between function return values and parameter names, the use of namespaces, and default SOAP actions. On the client side, literal encodings are now supported as well as RPC-style encoding.
- A new interface, IRIOAccess lets you access the remote interfaced object that implements an invocable interface.
- The IOPConvert interface has a new property: Encoding. This allows you to specify the character set to use for encoded messages that are passed between the client and Web Service provider.
- There are changes to Web Services that affect DataSnap applications. For more information, see “Database technology changes (Professional and Enterprise editions)” on page 5.
- The TLinkedRIO constructor now automatically generates separate file names for each method you call, making debugging easier.

- TOPToSoapDomConvert now has two new events that you can use when debugging the deserialization of SOAP packets.
- You can now use overloaded methods on invocable interfaces that you define.

## COM changes (Professional and Enterprise editions)

---

You can use the Import Type Library dialog box (Project | Import Type Library) to create a CoClass wrapper for .NET assemblies. You can use the resulting wrapper as you would an ordinary COM server, using the interoperability features of Microsoft's .NET Framework.

## Database technology changes (Professional and Enterprise editions)

---

- The dbExpress drivers have been updated for Informix SE, Oracle 9i, DB2 7.2, InterBase 6.5, and MySQL 3.23.49. A new driver is available for MSSQL 2000.
- There are several new and changed database components. See “Component library changes” on page 6 for details.
- Borland has deprecated SQL Links; no further enhancements will be made to SQL Links and it will not be included with Delphi after 2002. Borland recommends using dbExpress for SQL server database access in Delphi.

## DataSnap (Enterprise edition only)

- In DataSnap applications, the use of IAppServer has been changed to IAppServerSOAP, which avoids some ambiguities in the IAppServer interface. The UseSOAPAdapter property of TSoapConnection can be used to write clients for servers written with earlier versions of Delphi. TSoapConnection also publishes several new events for you to customize your client applications at various points in the process of executing a Web Service request.
- You can now identify a specific SOAP data module in an application server that has multiple data modules. Use the SOAPServerIID property or add the data module's interface to the end of the URL.
- You can now use the SOAP connection component to call extensions to the application server's interface. Use the SOAPServerIID property and the GetSOAPServer method.
- DataSnap no longer supports CORBA connections.

## Component library changes

---

### Windows XP Themes support (Professional and Enterprise editions)

- VCL applications now include components that enable support for Windows common controls version 6. Your application will automatically use the new Windows controls on Windows XP systems if it finds a suitable manifest file. For more information, see “Common controls and XP themes” in the *Developer's Guide* or online Help.

### New unit

- The new DBClientActns unit contains three new action components for working with client datasets: TClientDataSetApply, TClientDataSetUndo, and TClientDataSetRevert.

### New components

- The dbExpress page of the Component palette includes TSimpleDataSet for use with simple, two-tier database applications (TSimpleDataSet replaces TSQLClientDataSet).
- The Dialogs page of the Component palette includes TPageSetupDialog for providing a Windows standard page setup dialog box.
- The Additional page of the Component palette includes TXPColorMap, TStandardColorMap, and TTwilightColorMap for coloring menus and toolbars.
- The new CLX version of the System page of the Component palette includes new directory and file components.
- The new Indy Intercepts and Indy I/O Handlers pages on Component palette provide Internet protocols. (Professional and Enterprise editions)

### Changed components

- The CLX versions of TOpenDialog and TSaveDialog have been expanded to support additional features such as file previewing.
- The VCL version of TCustomForm has two new properties, ScreenSnap and SnapBuffer, which control whether a form snaps to the edge of the screen when the form is moved.
- TCustomComboBoxEx has a new AutoCompleteOptions property that enables a combo box to respond to user keystrokes.
- CLX dialog objects that descend from TOpenDialog and TQtDialog can now use Windows Common Dialogs in place of Qt Dialogs. This behavior is controlled by the UseNativeDialog property, which defaults to true.

### Deprecated components

- Information about deprecated components can be found in the readme.txt file in the Delphi7 directory.

## Runtime library changes

---

### Classes unit

- A new exception class, `EFileStreamError`, has been added. `EFileStreamError` and `EOpenError` descend from this class. This new class may take a `FileName` parameter. As a result, the exception message text now contains the name of the file the error occurred on.
- The `TStrings` class has two new properties, `ValueFromIndex` and `NameValueSeparator`.
- The `TThread.CheckThreadError` methods have been promoted from private to protected visibility.

### Math unit

- The `Math` unit has a new default parameter, `RaisePending`, in the `ClearExceptions` procedure.

### StdConvs unit

- The `StdConvs` unit now includes stones in the supported weight units.

### StrUtils unit

- The `StrUtils` unit contains the following changes related to multi-byte character set (MBCS) support:
  - Previously, `LeftStr`, `RightStr`, and `MidStr` each had an `AnsiString` parameter type and return type, and did not support MBCS strings. Each of these functions has been replaced by a pair of overloaded functions, one that takes and returns `AnsiString`, and one that takes and returns `WideString`. The new functions correctly handle MBCS strings. This change breaks code that uses these functions to store and retrieve byte values in `AnsiStrings`. Such code should be updated to use the new byte-level functions described below.
  - New functions `LeftBStr`, `RightBStr`, and `MidBStr` provide the byte-level manipulation previously provided by `LeftStr`, `RightStr`, and `MidStr`.
  - New functions `AnsiLeftStr`, `AnsiRightStr`, and `AnsiMidStr` are the same as the new `AnsiStr` `LeftStr`, `RightStr`, and `MidStr` functions, except that they are not overloaded with equivalent `WideString` functions.
- The `StrUtils` unit has a new string-searching function called `PosEx`.

### SysUtils unit

- The `SysUtils` unit now includes thread-safe overloads of routines that format and parse numbers, date-time values, and currency. The new routines are thread-safe because they obtain their localization information from a `TFormatSettings` data structure instead of from global variables. This data structure must be populated

before being used; a new function, `GetLocaleFormatSettings`, is provided to populate the data structure from a specified locale.

### **VarCmplx unit**

- The `VarCmplx` unit has new functions: `VarComplexLog2`, `VarComplexLog10`, `VarComplexLogN`, `VarComplexTimesImaginary`, and `VarComplexTimesReal`.

### **Variants unit**

- The `VarIsError` and `VarAsError` functions have been added.
- The `EVariantError` exception is now a base class for finer grained exception classes that are thrown from variants code.
- Several new global Variant control variables have been added: `NullEqualityRule`, `NullMagnitudeRule`, `NullStrictConvert`, `NullAsStringValue`, and `PackVarCreation`.

## **Compiler changes**

---

The Delphi compiler now supports three additional compiler warnings: `Unsafe_Type`, `Unsafe_Code`, and `Unsafe_Cast`. These warnings are disabled by default, but can be enabled with the compiler directive `{SWARN UNSAFE_CODE ON}`, compiler command line switch (`dcc32 -W+UNSAFE_CODE`), and, in the IDE, on the `Project | Options | Compiler Messages` page.

This feature is intended to help you port your code to the managed execution environment of Microsoft's .NET platform. In a managed execution environment, "unsafe" means the operation cannot be verified during the static analysis performed by the Just In Time (JIT) compiler. Such code might pose a security risk, since there is not enough information for the JIT compiler to verify its runtime behavior. Examples of unsafe code include pointer operations and memory overwrites.

## **Rave Reports support (Professional and Enterprise editions)**

---

Delphi now includes Rave Reports from Nevrona. By adding Rave Reports components to your application, you can enable your users to generate reports within your application. For more information see "Creating reports with Rave Reports" in the *Developer's Guide* or online Help.

## **ModelMaker support (Professional and Enterprise editions)**

---

ModelMaker tools can help simplify the design, construction, and maintenance of classes and interfaces. ModelMaker also includes tools for creating UML-style diagrams, which can be used to create and modify your projects' source code. For more information, see "Designing classes and components with ModelMaker" in the *Developer's Guide* or online Help.

The Enterprise edition of Delphi includes ModelMaker from ModelMaker software. The Professional edition of Delphi includes a 30-day trial version of ModelMaker. The ModelMaker functionality is the same in both editions of Delphi.

## Documentation changes

---

- All of the documentation files (PDF, HTML, and INT) are now distributed on the Delphi Companion Tools CD instead of the installation CD. You can access the documentation directly from the CD or copy it to the folder of your choice. The Companion Tools CD includes the following documentation:

For documentation about:	Look in this Companion Tools CD folder:
Using Delphi (the <i>Quick Start</i> , <i>Developer's Guide</i> , <i>Component Writer's Guide</i> , <i>Delphi Language Guide</i> , and object hierarchy posters)	Online+PDF Docs\Borland
Step-by-step instructions on creating Delphi applications	Online+PDF Docs\Borland\Tutorials
IDL2Pas	Online+PDF Docs\Borland\IDL2Pas
Interfaces	Online+PDF Docs\Borland\Interface Docs
IntraWeb	Online+PDF Docs\Intraweb
ModelMaker	Online+PDF Docs\ModelMaker
Rave Reports	Online+PDF Docs\Rave

- Due to size constraints for the printed *Developer's Guide*, Part V, "Creating custom components" has been removed from that book to create the new *Component Writer's Guide*
- The new book is available in the online Help and as a PDF file on the Delphi Companion Tools CD.
- The Object Pascal language is now called the Delphi language. The online Help and documentation have been updated accordingly.
- The *Object Pascal Language Guide* is now the *Delphi Language Guide*.
- To ensure the continued accuracy of the Delphi tutorials, they have been removed from the *Quick Start* and the *Developer's Guide*. The tutorials are available as PDF files on the Delphi Companion Tools CD.
- Some of the Delphi online help topics include C++ syntax and code examples for our Kylix and C++Builder users. For Delphi development, please disregard these examples.

## Upgrade and compatibility issues

---

For late-breaking upgrade and compatibility issues, see the readme.txt file in the Delphi 7 installation directory.

- To upgrade a Delphi (formerly Object Pascal) language project from a previous version of Delphi, open it in the new version. The project is automatically updated to the new release.
- Details in Fault messages are now added to the <detail> node rather than as children of the <detail> node. This brings our handling of SOAP faults into accordance with the SOAP specification, but breaks backward compatibility with older code.
- Changes to the StrUtils unit LeftStr, RightStr, and MidStr functions may require you to update code that uses these functions. See “Runtime library changes” on page 7 for details.
- For Apache 2, the variable "ContentType" has been changed to "handler" in the ApacheApp unit.
- DataSnap no longer supports CORBA connections.