

WINDEV. WEBDEV. WINDEV.
NEW VERSION
Mobile

996

NEW FEATURES

- New controls*
- Software factory*
- Windows Phone 7*
- New code editor*
- 64-bit*
- Composite reports*
- Linux EXE*
- HTML 5*
- CMS*
- Test hosting*
- 216 New features*
- 68 New WLanguage functions*
- 156 New Windows Phone 7 functions*
- 24 New Java functions*
- 58 New PHP functions*
- 247 New Linux functions*
- 116 New Android functions*



www.windev.com

DEVELOP 10 TIMES FASTER

DEVELOP 10 TIMES FASTER

996
NEW FEATURES

THE FUTURE IS BEING WRITTEN NOW

The changes in this **new version 16** are geared toward **100% practical** aspects, to prepare the future.

Deduced from tens of thousands of contacts with you, CIOs and developers, the new features and evolutions found in this version 16 are the **answer to your wait**. All the new features are practical, directly and instantly useful, and cost efficient.

Each of the **996 new features** (including **216 new functionalities**) immediately saves you time and improves your applications and your sites.

This version 16 is built under the banner of **instant efficiency**.

Because tomorrow is being written today... in WLanguage, of course!

Version 16 of WINDEV, WEBDEV and WINDEV Mobile gains in daily efficiency, rigor and **quality**.

Version 16 shows **great maturity**, and reaches an unmatched **performances** level.

By switching to version 16, your teams are instantly more efficient, your applications and your sites become richer and **faster**.

16

**TECHNOLOGY DOESN'T WAIT:
ORDER YOUR VERSION 16 TODAY.**



New Features Documentation. This document is intended for readers that are already familiar with version 15 of WINDEV, WEBDEV and WINDEV Mobile. If you are not familiar with them, do 'not hesitate to request these products' (free) full documentation.



Legend

In the yellow background boxes our experts point out some functionalities.

WD WB WM: the legend indicates in which product the new feature is available

Reminder: each upgrade to version 16 includes free technical support access (email or phone, 15 requests*)

COMMON NEW FEATURES WINDEV, WEBDEV, WINDEV MOBILE



NEW CONTROLS

001 new feature WD WB WM

NEW SCHEDULER CONTROL

A "Scheduler" control has been introduced in version 16. A lot of you requested it. An advanced scheduler control is therefore introduced in version 16. A scheduler control is very useful to manage the display of multiple resources and finds its way in a large number of applications or sites. Programming a schedule could take weeks. Thanks to version 16, you now only need a couple of hours for your applications to benefit from an advanced and fully configurable scheduler control. The scheduler control is available both in WINDEV 16 and in WEBDEV 16.



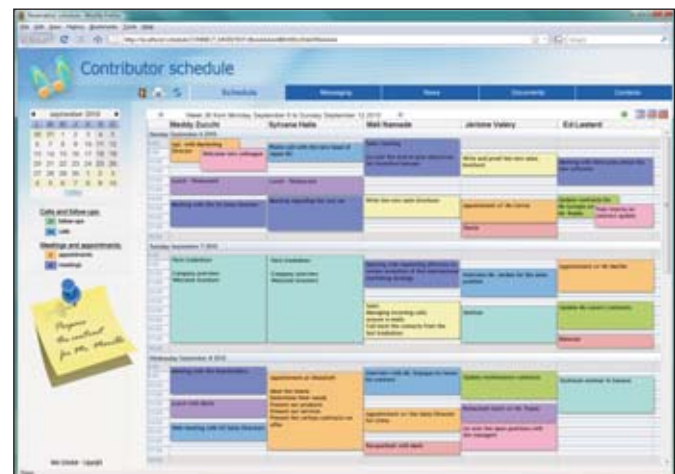
A vertical schedule

The Expert's advice

“ The main difference between a Scheduler control and an Organizer control? An Organizer concerns one resource (a person, a room, etc.), a Scheduler concerns several resources. ”



The same schedule presented horizontally



The same schedule, vertical, on the Internet (with WEBDEV 16)
Benefits provided by this version 16 new feature:
Weeks of programming saved!



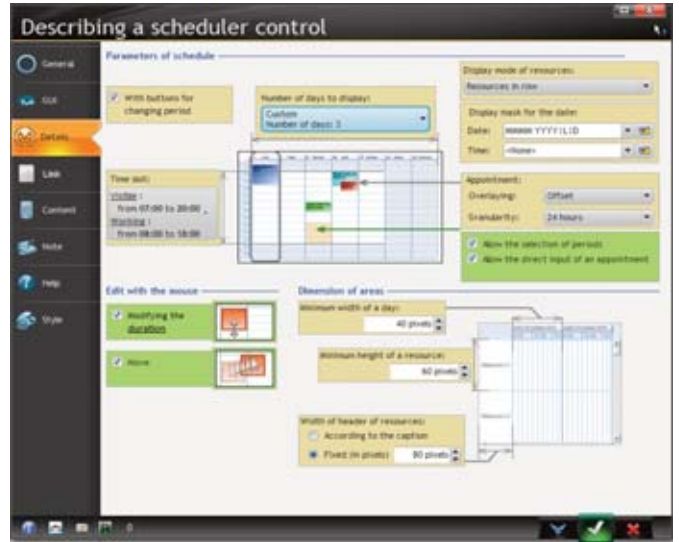
SCHEDULER CONTROL OPTIONS

The display of information is managed by default and can be customized. The display can be organized by day, week, month, or unlimited mode.



Here schedule in "month" mode

The "unlimited" mode allows you for instance to display a schedule over several months; a scroll bar comes up then allowing you to move within the schedule. You can configure work days and work times as well as displayed days and times. The width of the columns and rows can be set or can adapt to the content.



Schedule general options: business hours,...

Benefits provided by this version 16 new feature: A custom look, easy to configure.

CUSTOMIZING APPOINTMENTS

The display of each appointment can be fully configured. You can display several controls in the same appointment: image control (to display a star, or a distinctive symbol, labels of any size, frames...).

Easily manage schedules

Configurable width

Load the display module

Overlap management

AAF (Automatic Application Features)

Background image

Customizable look

Background color for holidays

Movement + change of resource

Resizing

Add: in edit mode



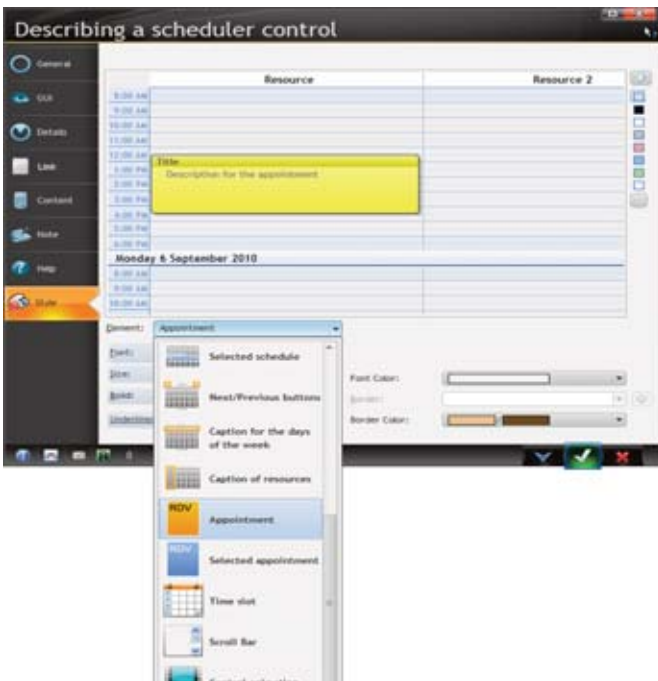


An appointment including a label

Benefits provided by this version 16 new feature:
Complete customization.

004 new feature W D W B W M

LOOK OF THE SCHEDULER CONTROL



Definition of the scheduler look

The look of the scheduler control is very granular and easily defined through the "7 tabs". The look can be modified by programming. Among the parameters for defining the look, you can take advantage of:

- outside frame
- row
- work time
- Saturday, Sunday
- holidays
- closed time
- today
- selected time
- previous/next buttons
- name of the day of the week
- appointment
- selected appointment
- time interval
- scroll bars
- animation when changing period
- etc...

Benefits provided by this version 16 new feature:
A custom look easy to configure and share

005 new feature W D W B W M

POSSIBILITIES OFFERED TO THE END USER BY THE SCHEDULER CONTROL

The end user has access to a lot of automatic features in a scheduler.

There's nothing to code in order for the end user to have access to these features.

Via these automatic features, the scheduler control in version 16 offers:

- adding an appointment
- editing the title of an appointment
- moving an appointment from one time slot to another
- moving an appointment from one resource to another
- modifying the duration of an appointment
- deleting an appointment
- moving inside the calendar

Benefits provided by this version 16 new feature:
No coding needed.

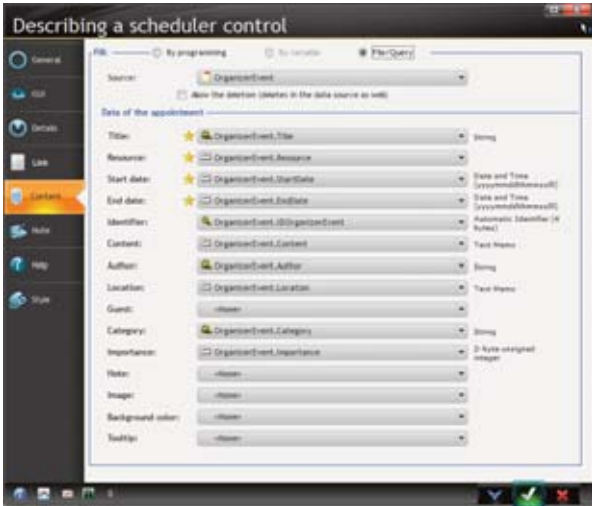
006 new feature W D W B W M

FILLING THE SCHEDULER CONTROL

The scheduler control can be filled by programming (functions in the **Scheduler** family, such as **SchedulerAddAppointment**, **SchedulerAddResource**, **SchedulerTimeDisplayed**, **SchedulerListAppointment**, **SchedulerPosition**, **SchedulerSelectMinus**, **SchedulerSelectPlus**, **SchedulerDeleteAppointment**, **SchedulerDeleteResource**, **SchedulerDeleteAll**), or automatically by data binding.

Imagine: your schedules are automatically filled with information coming from your tables or files (HyperFileSQL, Oracle, MySQL ...), object instances (OOP) or even advanced WLanguage data types (Outlook appointment, Google appointment)... These operations can be done in read and write mode.





Defining by data binding the links of a schedule in the "7 tabs"

Benefits provided by this version 16 new feature:
Choose to fill without any programming or through granular coding.

007 new feature W D W B W M

EVENTS OF THE SCHEDULER CONTROL

In your code, a large number of events are available to manage in a very granular way the programming of schedules:

- before creation of an appointment
- enter input
- exit input
- selection
- movement
- resize
- delete
- move an appointment between resources
- ...

In WEBDEV 16, these functions are available both in browser code, in server code and in Ajax code.

These events allow you to manage by programming, in a very granular way, the behavior of the scheduler control, by forbidding for example some operations (such as deleting an appointment, or assigning an appointment to a person at a certain time, etc.).

Benefits provided by this version 16 new feature:
The behavior of the scheduler control can be completely driven by programming.

CHARTS

008 new feature W D W B W M

CHART CONTROL: BUBBLES



Bubble chart

A new type of chart is introduced in version 16: the bubble chart. This type of chart is useful when 3 types of data must be represented at the same time.

In the example above, the X axis represents the number of inhabitants in the country, the Y axis represents the GDP of the country and the bubble represents the number of points scored during the soccer world cup.

This way it is easier to view the correlation between these three parameters.

Benefits provided by this version 16 new feature:
A new type of chart, easy to implement thanks to version 16.

BAR CODES

009 new feature W D W B W M

SUPPORT FOR NEW QR STANDARD

The Expert's advice

“ The QR barcode goes much farther than a simple barcode: it can run actions, such as opening an Internet site, which is very useful on a mobile. The barcode is read with the mobile's camera, and the site comes up ... No more typing long, cumbersome Internet addresses. ”

In wide use in Japan, in newspapers or in advertisements, this two-dimensional bar code contains multimedia information. To decode it you just need a mobile phone with a camera and Internet connection, on which the relevant application has been loaded beforehand.

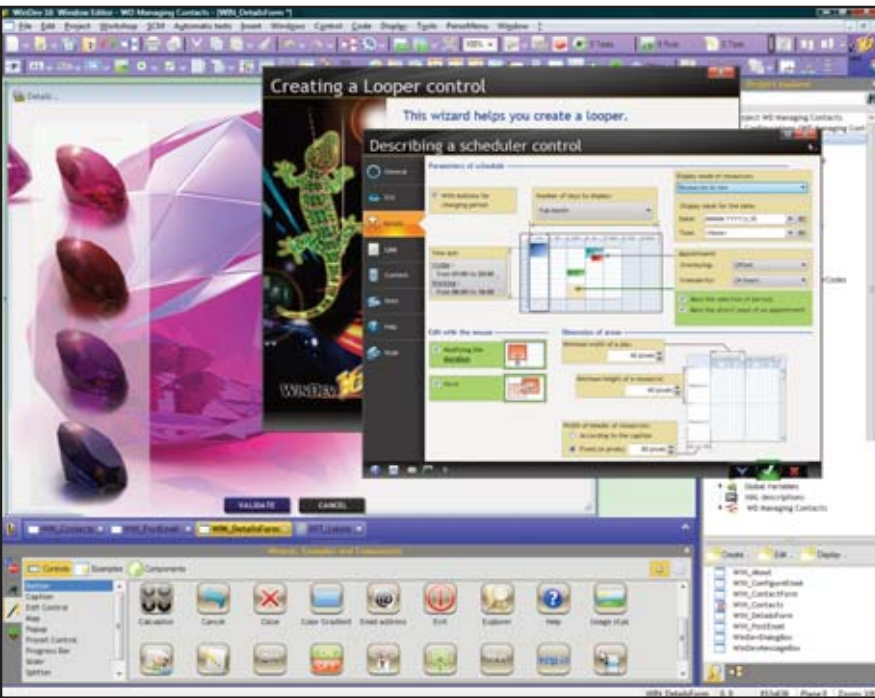
ENVIRONMENT

010 **W Q W feature W D W B**

ENVIRONMENT

The development environment sports better user friendliness. The look is more polished and adopts a cleaner style. Space devoted to useful information is increased while the size of presentation bands is reduced. The way you work is not altered, but the visual impact decreases for better everyday comfort.

Benefits provided by this version 16 new feature:
Space available for information is increased. Better visual comfort.



011 **new feature W D W B W M**

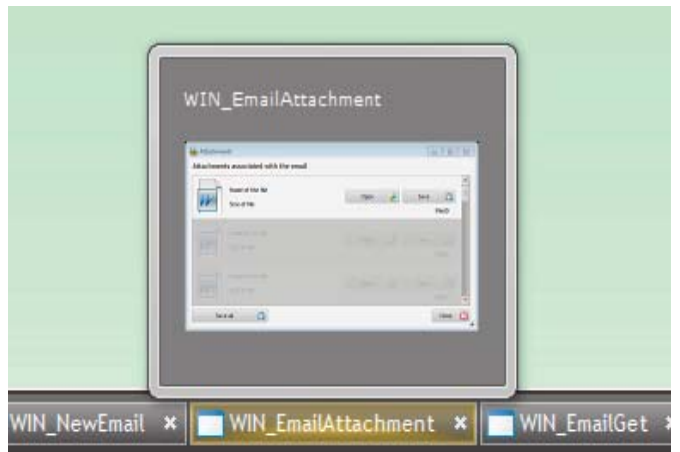
NEW DOCUMENT BAR

The environment document bar has been revamped in version 16. The main new aspect is that the code and the UI are grouped into the bar. Going from one to the other is more comfortable.

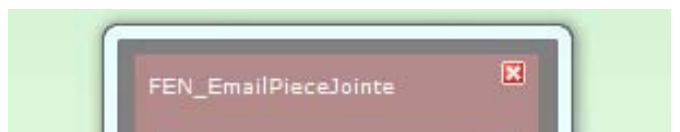


UI and code grouped in the bar: the yellow background indicates the active window

Rolling over a button displays a preview thumbnail: UI window, report, query, code...



Each document can be closed using an [x] inside the icon, which is faster.



The popup menu of each button in this bar evolves; the "close everything except myself" option will soon become your favorite!

BAR CODES (CONTINUES)

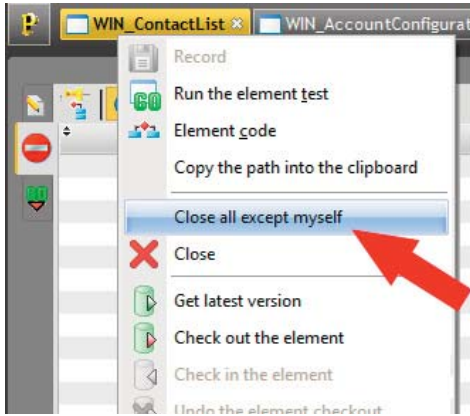


Once read, the bar code triggers the programmed action: load a site, open a documentation, display a set of advertising images, display updated data,...

On one hand, you can print this bar code, generate it in image format (to use it in a Web site for instance).

On the other hand, you can also decode this bar code; a URL for instance, text a phone number or a SMS!

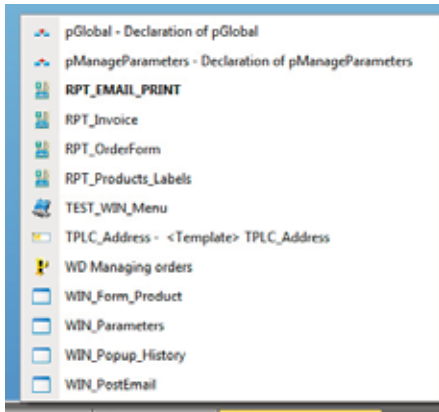
Benefits provided by this version 16 new feature:
A new easy type of communication with consumers in version 16.



The best menu choice to clean up the environment!

If the number of choices is greater than the amount of space available to display it, the bar becomes scrollable.

You can also display in a menu the list of all open elements.



List of all open elements (active element in bold)

Benefits provided by this version 16 new feature:

Much easier navigation among open documents.

012

new feature W D W B W M

WIDE TOOLBARS

Wide monitors are more common, toolbars take advantage of all the space available to optimize their display.

A larger number of options can be displayed this way.

Benefits provided by this version 16 new feature:

Better support for wide monitors.

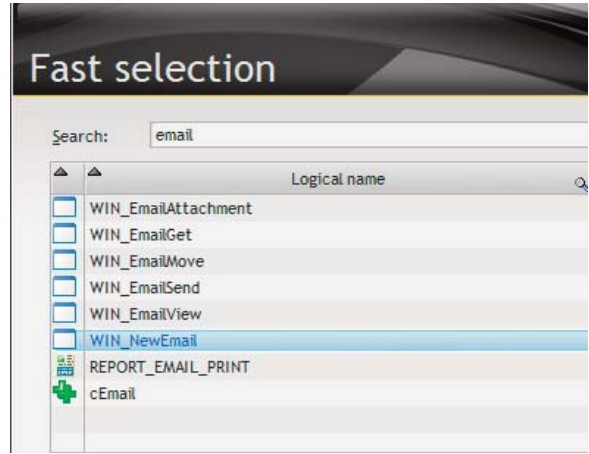
013

new feature W D W B W M

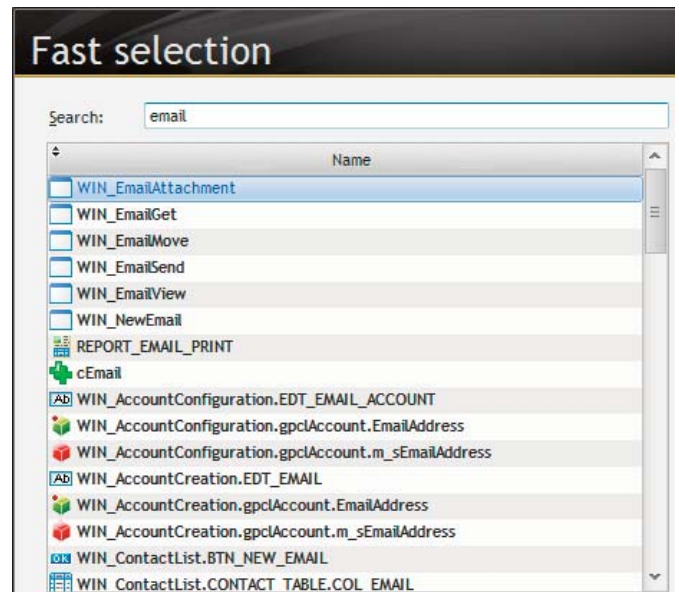
CTRL E: SEARCH EVERYWHERE

Searching via the Ctrl E key combination (available until now with windows, pages, reports and queries) allows you to find and open an element quickly.

In version 16 this feature evolves and becomes available also for all the procedures, methods, controls, etc...



Pressing Ctrl E in version 15...



The same Ctrl E in version 16: the search is performed on all the project's elements; you get more results

Benefits provided by this version 16 new feature:

Quick element opening.

014

new feature W D W B W M

CLIPBOARD WITH HISTORY (CTRL SHIFT V)

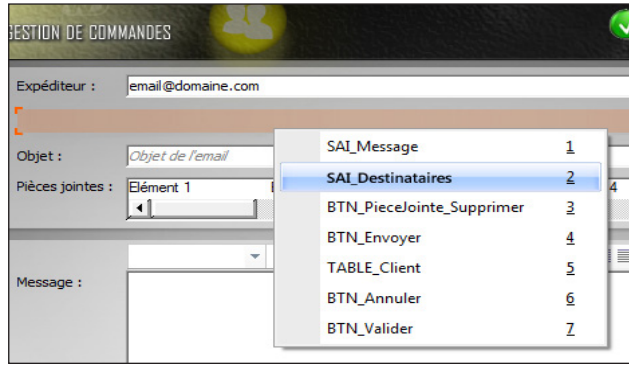
In version 16, the clipboard stores the last 10 pieces of content that were cut or copied.

The Ctrl Shift V key combination (instead of Ctrl V) brings up a popup menu that displays the last 10 copied or cut values: simply choose the element to copy.

Interesting sophistication, the paste operation adapts to the editor.

A control copied from the window editor can be pasted into the code: it is its name that will be pasted.

Over time, you will find this copy with history indispensable in the code editor (see new feature 037).



Benefits provided by this version 16 new feature:
 Save time and concentration: don't hesitate to copy because you fear losing the content of the clipboard!

015 new feature W D W B W M

LOCKING THE ENVIRONMENT

Sometime an unfortunate action "breaks" the development environment: toolbars are scattered, windows docked in the wrong location.

Resetting everything right can be time consuming. In version 16, a "Lock environment" button is introduced and allows you to lock the toolbars and docked windows. This way no involuntary movement is possible.

Benefits provided by this version 16 new feature:
 No time lost reconfiguring the environment.

AUDIT

016 new feature W D W B W M

STATIC AUDIT

The static audit evolves in version 16. Among the main new features, you can take advantage of:

- locate the missing elements directly from the static audit.
- list of dissociated styles
- list the elements that have several versions
- compilation error list (code and UI)
- list of unused elements in the project directory.

Benefits provided by this version 16 new feature:
 The audit is more polished.

017 new feature W D W B W M

DYNAMIC AUDIT

The dynamic audit can be activated during the execution of an unit test.

Benefits provided by this version 16 new feature:
 The audit is faster.

WINDOW, PAGE AND REPORT EDITOR

The Expert's advice

“ One tends to forget since this feature is so obvious and buried so deep in the 'DNA' of WINDEV, WEBDEV and WINDEV Mobile: the page and window editors let you easily build multi-platform UIs. ”

018 new feature W D W B W M

64 LANGUAGES PER PROJECT

The number of languages supported per project goes up to 64. The UI for editing the list of languages and the parameters of these languages (thousand separator, currency, dates, etc.) has also been revised and notably improved.



Benefits provided by this version 16 new feature:
 You can develop applications using all the languages of the European Community, plus Chinese and Russian for example (non western languages).

019 new feature W D W B W M

A DIRECTORY PER CONFIGURATION

Reminder: a configuration allows you to structure a project when it is the base for several generations.

For example, a project lets you create an application, a web service and a component at the same time. Creating a configuration per type of generation avoids having multiple projects and makes



it easier to share elements and therefore simplifies the maintenance and evolutions phases.

In version 16, in the "EXE" directory of the development machine, a directory is created for each configuration. For example, you can create a directory for an application in 32-bit mode and another one for an application in 64-bit mode. Also, you can create a directory for the Java configuration and another one for the Windows configuration of the same application.

The former generation mode is still available of course.

Benefits provided by this version 16 new feature:
Better organization of the generated elements.

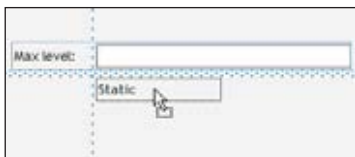
020 new feature W D W B W M

ANCHORS AND MAGNETISM: 4 NEW FEATURES

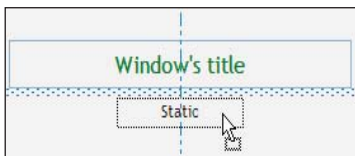
The already present anchor and magnetism options make it easy to create and modify windows, reports and pages. The user friendliness of your UIs is automatically insured. The evolutions in this version 16 come on top of the already large number of available features.

These new features are:

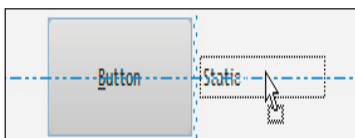
- magnetism on internal frame
- magnetism with the control centers
- magnetism with the reduced window
- magnetism for text alignment



Magnetism on internal frame



Magnetism on center



Magnetism on text

Benefits provided by this version 16 new feature:
Create user-friendly UI faster

021 new feature W D W B W M

ASSISTED TABLE CONTROL CREATION

When creating or modifying a table control, if the data to display in this table can be accessed by the environment ("live data" display), the characteristics of the data are used to initialize the default parameters of the created table.

For example, the width suggested for a column is based on the

data that will be found in this column.

Benefits provided by this version 16 new feature:
Better adaptation of the column width.

022 new feature W D W B W M

UI COMPILATION ERRORS

The notion of "UI compilation error", already found in WINDEV and WEBDEV allows for great UI quality (windows, pages, ...) With the first delivery of your application, the quality and the precision of your UI is noticeable to your end users, which makes your teams look better.

Label longer than the control, text not translated, window without any title, and so on, are noted in the environment with the first compilation. This way it is easy to correct one's mistakes.

In version 16, new errors are detected:

- button caption too long, regardless of the language
- 2 identical data binding links
- errors are now noted for reports.

Also see new feature 107 for specific errors in the report editor. The display of the UI errors has also been improved in version 16.

Benefits provided by this version 16 new feature:
Tighter interfaces the first time around.

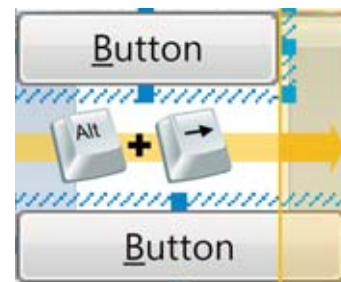
023 new feature W D W B W M

HANDLING CONTROLS WITH THE KEYBOARD

In version 16, you can resize (enlarge, shrink ...) controls directly with the keyboard, without the mouse, using the following shortcuts:

- Alt Right Arrow: enlarges the control on the right
- Alt Left Arrow: enlarges the control on the left
- Alt Up Arrow: enlarges the control by the top
- Alt Down Arrow: enlarges the control by the bottom.

Convenient: these key combinations are enabled as soon as the control is selected (don't need to select the control's side).



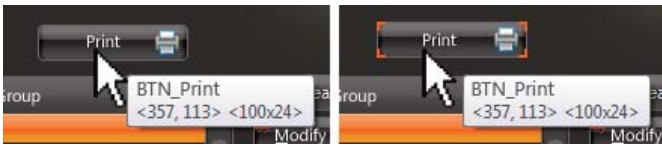
Benefits provided by this version 16 new feature:
Easier pixel level operations.

024 new feature W D W B W M

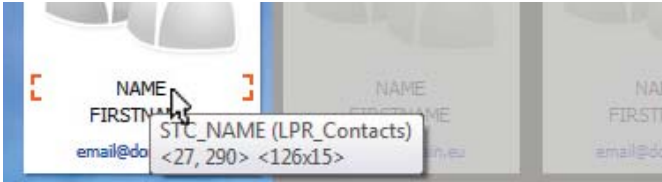
HIGHLIGHT THE ROLLOVER CONTROL

When the mouse cursor rolls over a control, it is shown with a small border.

This makes the control more visible and you can be sure of which control you are selecting when clicking.



Here on the right, the rollover control (Print button) is highlighted (red corners)



This example illustrates another benefit of this feature: the case of control without a frame or a background. Their size is immediately visible.

Benefits provided by this version 16 new feature:

This feature is very useful in the case of overlapping controls; you don't lose time trying to select controls

CODE EDITOR: 22 NEW FEATURES



The code editor is certainly the editor where developers spend most of their time!

The code editor changes noticeably and offers 22 new features in version 16.

Of course all the automatic operations of the previous versions have been kept.

The new features in version 16 allow for a better ease of development and allow you to save even more time in the coding and maintenance phases.

The sum of all the code editor's new features in version 16 brings added comfort, which makes the developer more efficient.

The Expert's advice

“ The code editor is certainly the editor where developers spend most of their time. I've played with the new features in version 16, it's "fantastic". I'm very unhappy when I go back to version 15. ”

025

new feature W D W B W M

AUTOMATICALLY HIGHLIGHT SOME ELEMENTS

Who hasn't look for all the uses of a variable (or identifier) in the entire code where it's found?

When you have a lot of code, this search may be painful: you need to use the editor's "search" feature.

In version 16, in the current event (the code), each time the cursor is placed on an identifier (variable, procedure, data file, etc.) all the uses of this identifier are highlighted. This feature can be turned off.

Useful practical detail, the highlight color of the declaration is different from the other highlights.

ENTIRELY COMPATIBLE WITH PREVIOUS VERSIONS

WINDEV 16 respects your existing code.

No migration step is required between WINDEV 7.5, 8, 9, 10, 11, 12, 14 or 15 and WINDEV 16: simply recompile the application and it will work in version 16.

It is the same for going from WEBDEV 7, 9, 10, 11, 12, 14 or 15 to WEBDEV 16. Just recompile.

Existing components (version 8, 9, 10, 11, 12, 14 or 15) work directly (without needing to be recompiled) with applications built using version 16.

Version 16 can directly open a project in version 7.5, 8, 9, 10, 11, 12, 14 or 15. Older projects (version 5.5, 4.1, etc.) can be migrated.

And of course, several different versions of your environment can coexist on your PC; a version 16 license also runs older versions (15, 14, 12, 11, 10, 9, 8, 7.5, 5.5, etc.)

Version 16 is of course compatible with Windows 7.





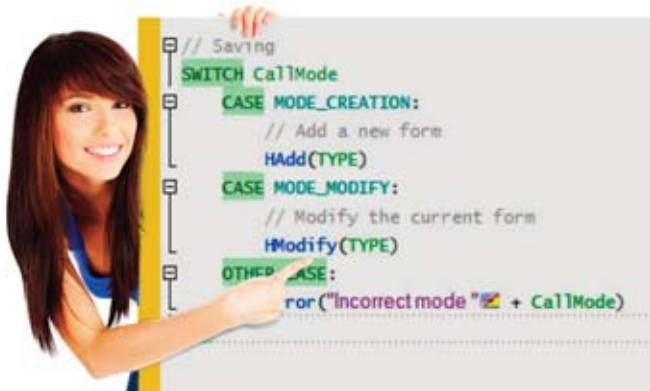
The cursor is located on the "TABLE_RECIPIENT". All the uses of this variable can be seen in one glance

Benefits provided by this version 16 new feature:
All the uses of the element can be viewed at a glance; debugging is easier

026 new feature W D W B W M

AUTOMATIC HIGHLIGHT OF BLOCK INSTRUCTIONS

This version 16 new feature increases the user friendliness of the code editor based on the same principle used for the automatic highlight of elements.
Here, the highlight feature allows you to visualize the flow of a conditional instruction (IF THEN ELSE, FOR TO END, LOOP, WHEN EXCEPTION IN,...).
This highlight feature allows you to understand the code better, especially when there are a lot of nested statements.



Benefits provided by this version 16 new feature:
Better view of the code flow; you remain focused on the code architecture.

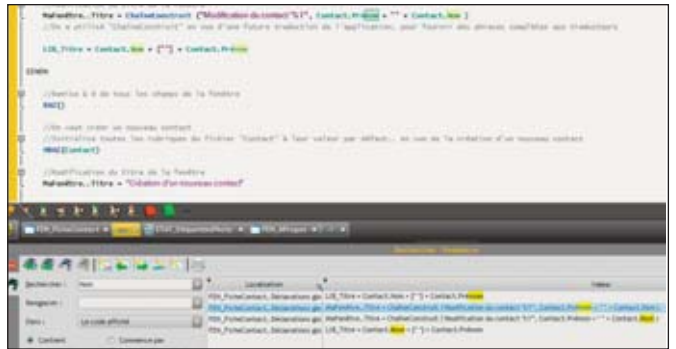
027 new feature W D W B W M

CTRL+F3 : SEARCH AUTOMATION

The Ctrl F3 key combination automates the search:

- it fills the search field with the word on which the cursor is located
- then it starts the search
- it highlights all the occurrences found in the code.

F3 and Shift F3 let you navigate from occurrence to occurrence, without leaving the keyboard.



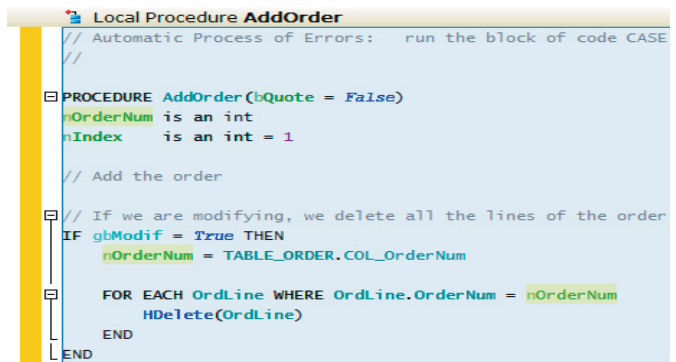
A much faster search

Benefits provided by this version 16 new feature:
The number of actions to perform for a search is limited to a minimum.

028 new feature W D W B W M

SEARCH IN THE CURRENT SELECTION

Searching inside your code evolves even more with this very useful new feature.
You can now perform a search (and replace) in a selection.
If a selection of more than one line is active, the search is performed automatically in the selection.
In a search, the sought name appears underlined, in bold.
In any case, the sought name appears underlined in the code (F3 lets you jump to the next occurrence).



Here, nOrderNum is only sought in the current selection

Benefits provided by this version 16 new feature:
Faster searches.

NAVIGATION HISTORY

In version 16, navigating inside your code becomes similar to navigating in a browser.

The code editor stores all the accessed events.

You have the ability to automatically go back to previously accessed elements, using the Next and Previous buttons of the toolbar like in a browser, or using the Alt Left Arrow and Alt Right Arrow key combinations.

Alt Home and Alt End point to the beginning and the end of the history.



Browse through your code like if you were on a web site (green buttons)

Benefits provided by this version 16 new feature:

Much faster moves inside previously accessed pieces of code.

STRONGER VISUALIZATION OF THE SELECTION

The user friendliness of the code selection frame is improved. A border is present, the code color is preserved.

This additional comfort frees up developers and make them more efficient.



BEFORE: selection of a block of code; the code is hard to read (white on blue background)



AFTER: in version 16, the selected code is still visible, the syntax coloring is kept

Benefits provided by this version 16 new feature:

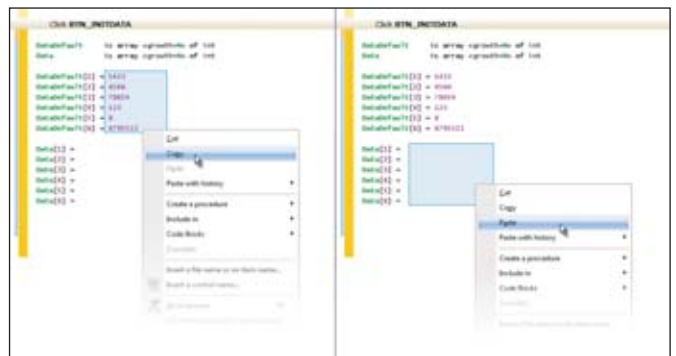
Visualizing a selection is more pleasant.



RECTANGULAR SELECTION (COLUMN MODE)

In version 16, you can select a rectangular text area, horizontal or vertical, then paste it.

Ctrl Alt Click enables this mode.



On the left: selection of the rectangular area; on the right, landing area for the paste

This is very useful for example to select code for assigning an array.

When it is pasted, the text copied via this method is also inserted in "rectangle".

Benefits provided by this version 16 new feature:

More granular text and code selection as soon as the code is aligned.

HIGHLIGHT EVENT WHERE THE CURSOR IS LOCATED

In a very busy page of code (especially on a large screen), developers may have a hard time seeing the cursor.

This little problem, which may happen many times in the course of a day work, creates unneeded stress that is counterproductive. Version 16 highlights the event where the cursor is located by changing the color of the left vertical bar.

Events from the same parents are also highlighted.

This is a comfort element that developers appreciate day-in and day-out.



The orange band on the left shows the event where the cursor is located

Benefits provided by this version 16 new feature:
More pleasant and efficient code navigation.

033 new feature WD WB WM

UNDERLINE THE CURRENT LINE

The line of code where the cursor is located is highlighted by dotted lines to be easily seen (feature can be disabled).



The current line is instantly visible (character not provided)

Benefits provided by this version 16 new feature:
Easily locate the cursor.

034 new feature WD WB WM

MOVE A LINE OF CODE WITH ALT + UP ARROW OR DOWN ARROW

A selected area (single-line or multi-line) can be moved using the keyboard directly with the Alt (up or down) Arrow key combination).

Benefits provided by this version 16 new feature:
Move lines of code around faster.

035 new feature WD WB WM

DUPLICATE SEVERAL LINES

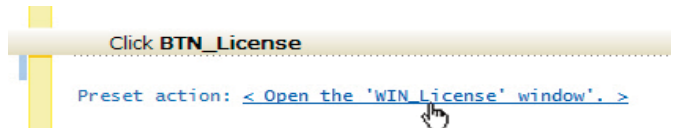
Line duplication (Ctrl D) now works on selection of several lines.

Benefits provided by this version 16 new feature:
Easier code duplication.

036 new feature WD WB WM

QUICK MODIFICATION OF AN ACTION ON A CONTROL

From the "7 tabs", you can define an action on a control (for example open a window, load an Internet site, start explorer, etc.) In order not to forget that this action is defined when you're coding, or when you have to maintain code written by somebody else, the code editor displays an information message (the name of the action) in the corresponding event. To edit this action, simply click the label displayed in the code editor.



Benefits provided by this version 16 new feature:
Faster modification.

037 new feature WD WB WM

CLIPBOARD WITH HISTORY

Like in the other version 16 editors, the code editor stores the last 10 elements copied.

During the paste, simply use the Ctrl Shift V key combination to display the list of the last 10 elements copied; simply select the element to copy.

This feature is shared among editors: what has been copied or pasted in another editor shows up in this list.

```

Initialization of BTN_Print_Contact
ContactID is int
// Retrieve the current contact
ContactID = COL_Contact

// FOR EACH Contact <RC> 1
// HReadSeekFirst(Contact,ContactID,ContactSelect... 2
// Print current contact form <RC> 3
// Contact check IF HFound(Contact) = True <RC> 4
BTN_Print_Contact <RC> 5
ContactID is int <RC> 6

```

The list of the last copy or paste operations (here 6 operations) lets you choose which element to copy

Benefits provided by this version 16 new feature:
Copying is propagated.

039 new feature WD WB WM

AUTOMATIC ADDITION OF QUOTES, BRACKETS ON SELECTION

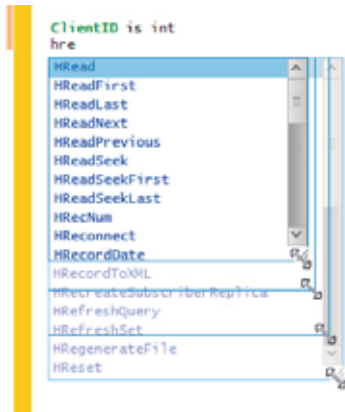
A new feature useful every day: select one or more words, press the "quote", "bracket" or "parenthesis" key, and automatically, the selected text is framed with 2 quote signs or an opening and closing bracket, or an opening and closing parenthesis...

Benefits provided by this version 16 new feature:
Faster code entry.

038 new feature WD WB WM

USER-FRIENDLY ASSISTED CODE ENTRY

The drop-down list displayed when entering code has been improved. Its layout is less intrusive, it can be resized. The other tooltips are also more unobtrusive...



Benefits provided by this version 16 new feature:
Ease of code entry, the list does not cover the code to modify anymore...

040 new feature WD WB WM

NUMBER OF COMPILATION ERRORS DISPLAYED IN THE PANE

The number of current compilation errors is now directly displayed at the top of the compilation error pane.



Here, 3 compilation errors

Benefits provided by this version 16 new feature:
Save room on the screen: no need to activate the pane.



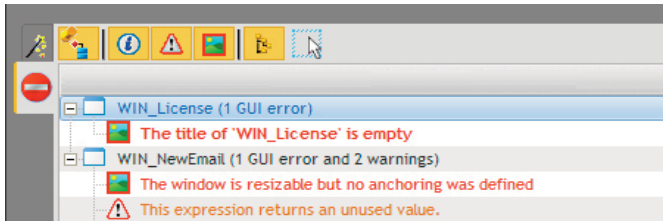
COMPILATION ERRORS OF AN ELEMENT

The compilation error display pane lets you limit this display to the current element.

Benefits provided by this version 16 new feature:
Better readability.

COMPILATION ERRORS : DISPLAY IN TREEVIEW TABLE

A new compilation error visualization mode is introduced in version 16: the treeview mode. The errors are grouped by element, which makes it easier to follow.



Benefits provided by this version 16 new feature:
Structured displayed.

DIFFERENTIATE AMONG UNDERLINED ERRORS

Before version 16, compilation errors and spelling mistakes were shown the same way: a red underline. In version 16, these two types of errors are differentiated: red word or underline: you know the error's type.

Benefits provided by this version 16 new feature:
Better errors differentiation.

GROUPED GLOSSARY AND CODE BRICKS

Glossary and code bricks are now grouped into code bricks. This allows you to take advantage of the glossary shortcut mechanism. The code bricks become accessible the same way the glossary was, directly with the Enter key.

Benefits provided by this version 16 new feature:
Simplified environment.

OOP: SCOPE SHOWN BY THE COLOR OF THE EVENT'S BAND

A class method can be public, private or protected. The color of the beginning of the event's band changes depending on the method's scope:

- red band beginning = private method
- orange band beginning = protected method
- regular band = public method.



Benefits provided by this version 16 new feature:
On a code page, a simple glance lets you differentiate between the method scopes!

MISCELLANEOUS

- Deleting a method or a procedure is possible thanks to a new popup menu option (right click the event's band).
- Get rid of the blinking effects that could happen in some special cases when scrolling or moving.
- A triple click selects the line, a quadruple click selects the entire text (reminder: a simple click positions the cursor, a double click selects the word).

Benefits provided by this version 16 new feature:
Notable improvements.



DEBUGGER



047 new feature WD WB WM

64-BIT

The local or remote debugger is now available in 64-bit mode (in addition to the 32-bit mode).

All the features (breakpoints, step by step, define next instruction, watch, etc.) are available.

Therefore, in version 16, it is possible to perform a "GO" of a 64-bit application directly from the editor (if the test machine comes with a 64-bit system).

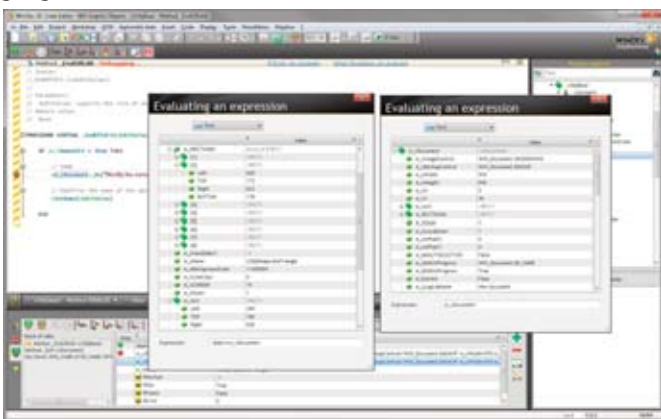
Benefits provided by this version 16 new feature:

Useful in 64-bit, and for example when using the SDK in 64-bit.

048 new feature WD WB WM

NON MODAL WATCH EDITING WINDOW

A "Watch" window allows you to view the content of structured variables: array, multiline RTF string, structured type of the language, class, etc...



Two simultaneous Watch windows

In version 16, the watch edit window becomes non modal: You don't need to close the window to move step by step during debugging.

Another benefit of this feature is that now you can have several watch windows (on different variables) open at the same time. All the open watch windows are updated of course for each executed instruction.

Benefits provided by this version 16 new feature:

Larger number of details displayed

049 new feature WD WB WM

LOCAL VISUALIZATION IN HEXADECIMAL MODE

The hexadecimal visualization mode can be limited to a watch window.

Benefits provided by this version 16 new feature:

Top-of-the-line debugging.

050 new feature WD WB WM

SAVE A VARIABLE'S CONTENT TO A DISK

During a debugging phase from the watch window, the content of a variable can be in RTF, HTML format, or be an image ...

This content can be saved to disk in one click, from the watch window, to be checked later or with another tool for example.

Benefits provided by this version 16 new feature:

Time savings.

051 new feature WD WB WM

IMAGES DISPLAY

The watch window can directly display an image found in a variable or in a memo control (blob).

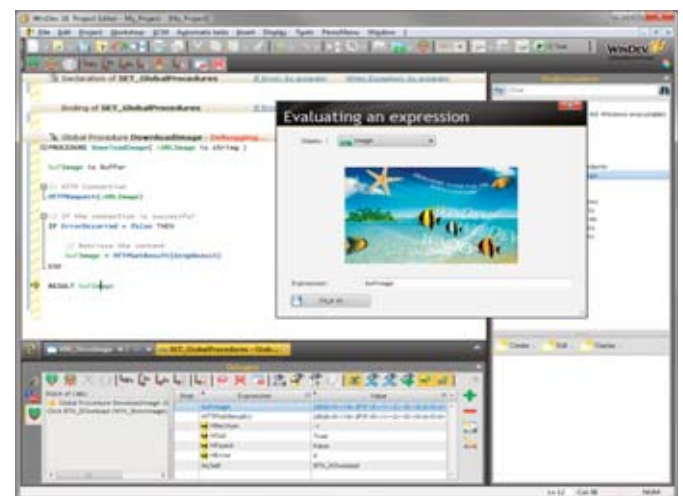


Image directly visualized during debugging

Benefits provided by this version 16 new feature:

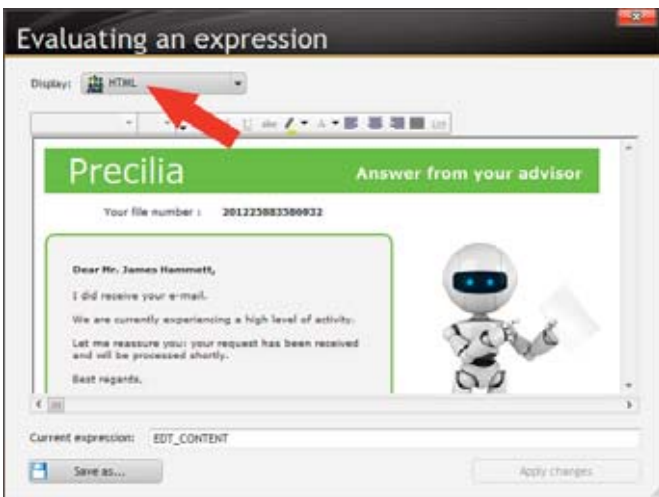
Faster debugging.



052 new feature WD WB WM

FORMATTED DISPLAY OF HTML DATA

The HTML content of a variable can be displayed raw or formatted. This feature is also available for the RTF format.



Here, the mail displayed is an HTML text with an illustration (robot)

Benefits provided by this version 16 new feature: Simpler debugging.

053 new feature WD WB WM

COPY THE CONTENT OF A VARIABLE

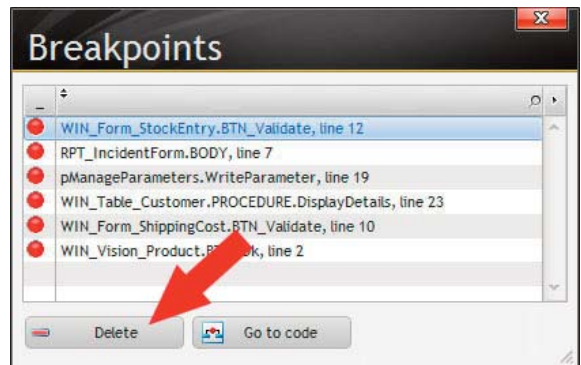
The popup menu in the variable's content visualization column in the debugging pane ("Kouglof") lets you directly copy the content of this variable for a later use.

Benefits provided by this version 16 new feature: Less operations.

054 new feature WD WB WM

BREAKPOINT LIST

In version 16, you can view the list of all the breakpoints that have been set. You can delete some, or all of them, in a single operation.

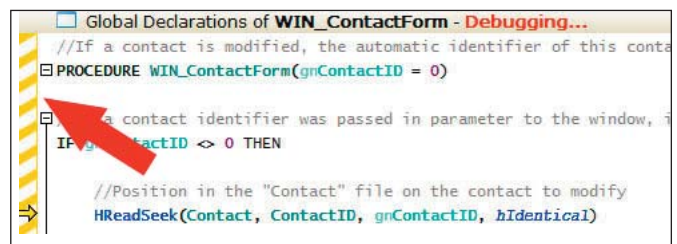


Benefits provided by this version 16 new feature: Centralization of information.

055 new feature WD WB WM

CHANGE COLOR IN DEBUG MODE

The vertical band in the left margin displays a hashed yellow color when the editor is in debug mode: can't forget you're in this mode!



Benefits provided by this version 16 new feature: Development comfort.





FILE SIGNATURE

Signing a file allows you to insure that the file hasn't been modified or altered since it was signed.

The signature also enables you to make sure of the publisher's identity.

Date and time information is automatically added to a signed file. There are two types of certificates: the "qualified" certificates and the "non qualified" certificates.

A "qualified" certificate is issued by a trusted authority (Verisign, Thawre, etc.) and must usually be purchased.

A "non qualified" certificate can be created directly by a user from Windows.

A "qualified" certificate will often be used when the files are distributed outside of the company or organization, for example for files offered as download.

A "non qualified" certificate can be enough for use within a company or organization.

Windows offers a "certificate store" where the user's certificates are installed.

A new set of WLanguage functions (**Certificat** family) lets you list and open the properties of a certificate, sign a file with a given certificate and also check whether a file's signature is genuine.

A new advanced type (**Certificate**) is introduced in WLanguage.

This type enables you to find out:

- the certificate's name
- the issuer's name
- the expiration date
- the qualification level of the certificate
- etc...

The signature standard used is PKCS7.



Benefits provided by this version 16 new feature:

Easy data protection management for any information type.

The Expert's advice

“ Some reminder about the WLanguage 5GL. WLanguage offers both static and dynamic type casting.

It comes with a flexible type management system that allows you to quickly develop using dynamic type casting while benefiting from static type casting.

Its virtual machine has its own memory management system.

Advanced data types are available, as well as high precision numeric types (38 significant digits).

It supports a large number of programming paradigms: object oriented, procedural, imperative programming. ”



EMAIL SIGNATURE

Signing an email and all its attachment insures that these elements won't be modified or altered after they've been signed, and also allows one to make sure of the sender's identity. Thanks to this new version 16 feature, all the elements making up an outgoing email are signed in a single line of code. Checking an incoming email against its signature is also accomplished with a single line of code. The signature standard used is PKCS7.

Benefits provided by this version 16 new feature:
Simplified programming, increased security.

SIGNED EXE

In version 16, the signature of a WINDEV EXE can be requested when generating the EXE. The EXE creation wizard offers a list of installed certificates: simply select the certificate to use.



Signing an EXE is easy in version 16

This signature allows you to make sure at any time that the EXE has not been modified since its creation. This signature also enables you to display the name of the publisher in the MS Windows download window.



The publisher's name is displayed during a download

The signature standard used is PKCS7.

Benefits provided by this version 16 new feature:
Easy application signing, with free or paid certificate.

REFLECTION

Reflection is the mechanism by which the structure of the application can be accessed during execution: procedure list, variable list, structure definition, classes and container types (array, associative array, queue, stack, list, etc.)

Reflection was already present in WLanguage for its internal processing as well as for some functionalities such as indirection or the `ExecuteProcess`, `EnumElement`, ...functions.

New syntax and functions as well as advanced types, Definition, Variable, Procedure and Property (see new features 060, 061, 064, 065, 074 and 079) allow you to handle the various aspects of reflection.

The Expert's advice

“ Reflection is a language feature allowing you to dynamically check at run time the description of the elements handled.

A reflection mechanism is useful in WLanguage for various reasons:

- list the members of a class to perform generic operations on classes (specific serialization, trace, log, display, etc.)
- access class members known by their name
- check the presence of a procedure or variable in a window passed as parameter to some generic code. ”

Benefits provided by this version 16 new feature:

Major new evolution of the virtual machine and dynamic programming.

GENERAL INDIRECTION

Indirection works with any expression: an object, access to a member, an array, a table control, a property, ...

Indirection now allows you to access elements known through a complex expression as a member of a class or a nested class, a control belonging to several nested control templates, an array or control element, a property, ...

Example:

```
{ "mysupercontrol.table(5) .. BrushColor" }
{ "TemplateControl.DisplayTable["+Row+"] .. BrushColor" } = Color
{ "ObjectVariable.ObjectMember.ArraySubMember[5] .. Property" } = 0
```

Benefits provided by this version 16 new feature:

Instant and simplified access to an element or sub-element known through its complex name; avoid dynamic compilation.

INDIRECTION ON MEMBER

A new indirection syntax lets you specify the object from which we perform the indirection access.

```
{Instance, "Member"} = True
```

Benefits provided by this version 16 new feature:

Improved indirection performance by avoiding a search on the fixed part of the indirection.

EXECUTEPROCESS ON METHOD

A new syntax for the `ExecuteProcess` function allows you to specify the object on which the method must be called.

```
ExecuteProcess(Instance, "Method", "Parameter")
```

Benefits provided by this version 16 new feature:

Allows you to directly call a method known by its name on a given object.

SEEKPROCEDURE

The new `SeekProcedure` function allows you to search for then call a procedure known by its name using the new `Procedure` type (see new feature 074) or simply to check the existence of a procedure.

```
p is Procedure = SeekProcedure(ProcedureName)
```

```
IF p = Null THEN RETURN
```

```
p(«Parameter»)
```

This mechanism optimizes the calls to procedures known by their name by performing the search only once.

It is a simple mechanism that verify the existence of the procedure before a call, avoiding complex syntax based on exception processing.

Benefits provided by this version 16 new feature:

Powerful programming.

ALLOCATE INSTANCE BY THE CLASS NAME

Now you can allocate an instance of a class known by its name. The factory pattern design is now possible.

```
ClassName is string = ...
```

```
o is dynamic object = new ClassName
```

Benefits provided by this version 16 new feature:

Set up generic architectures and object factory.

TYPE DEFINITION

The advanced types, `Definition`, `Procedure description`, `Variable description`, `Property description`, allow you to access by programming the description of the WLanguage types as well as the structures and classes of the project.

These descriptions allow you to access the members and properties thanks to a new indirection syntax or to call the methods thanks to a new syntax for the `ExecuteProcess` function.

Descriptions allow you to easily program transversal features:

- information log
- trace and debug
- serialization to specific formats
- generic display (generic modifier, ...) ...

Benefits provided by this version 16 new feature:

Simplified implementation of transversal feature.

[~ AND [~~ OPERATOR

The `[` operator (starts with) offers two additional, more permissive, syntax.

`[~` is case insensitive

`[~~` is case and punctuation insensitive.

Benefits provided by this version 16 new feature:

Simplified programming.

“RETURN” KEYWORD: ABILITY TO READ THE ASSIGNED VALUE

In a procedure, to return a value, we usually use the `Result` keyword followed by the value to return.

No procedure code is executed after this call.

To store the return value without exiting the procedure, you need to use the `Return` keyword with a value assigned to it.

This allows you to specify the return value of the procedure and to keep running its code.

In version 16 this value can also be read from the procedure's code.

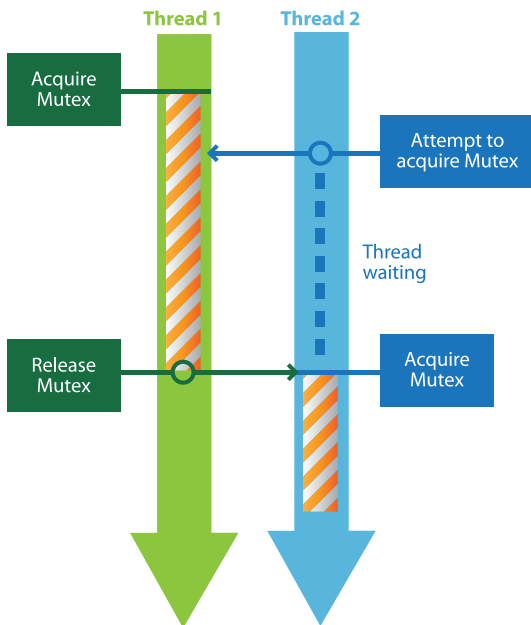
Benefits provided by this version 16 new feature:

More flexible management of the values returned by procedures; remove the need for temporary variables.



MUTEX: SHARED CRITICAL SECTION

Mutex (from Mutual Exclusion) is a critical section that can be internal to an application or shared among several applications. The new Mutex functions ([MutexCreate](#), [MutexStart](#), [MutexEnd](#), [MutexDestroy](#)) allow you to restrict the access to a shared resource (shared memory zone for instance) in order to be used by only one thread from one application.



Benefits provided by this version 16 new feature:
Synchronization of a resource's uses among several applications.

PROXY: USING FTP FUNCTIONS

The **FTP** WLanguage functions are now compatible with proxies that accept this type of commands: site, user or open, in other words most proxies.

Benefits provided by this version 16 new feature:
Better compatibility with existing architectures.

FUNCTIONS FOR CONVERTING DATES TO RFC FORMAT (EMAIL,...)

The RFC-5322 standard sets the formats that dates must respect when encrypting an email, a RSS stream, ...

The [maskEmailDate](#) parameter of the [DateToString](#) and [StringToDate](#) functions lets you handle the various date formats without having to chop them off or build their content.

Example of date in RFC format:

- Sat, 02 Oct 2010 15:00:00 +0200
- Sat, 02 Oct 2010 08:00:00 EST
- Sat, 02 Oct 2010 13:00:00 GMT



The date format change is done automatically

Benefits provided by this version 16 new feature:
No more hair pulling, bugs eliminated from the get go.

NATIVE API CALL

In WLanguage, the **API** function, as its name implies, allows you to call an API from a DLL (either from the system or from a SDK for instance).

The new native call feature allows you to manage APIs that return variables other than integer types: value structure, float, ... With this new syntax, the call is "native".

Before version 16:

API ("DllName", "FunctionName", param1, param2)

Since version 16:

FunctionName (param1, param2)

A new advanced WLanguage type, "API description", lets you declare all the properties of the function to call.

Multithread priority is supported.

Restoration of system parameters is possible.

The loaded DLL can be unloaded.

Benefits provided by this version 16 new feature:

Simpler API call; better support of returned values; better source code readability.

MULTI-SYNTAX PROCEDURES (PROTOTYPE OVERLOAD)

In version 16, procedures and class methods can now have more than one syntax.

For example, a procedure can have one syntax that accepts a string and another that accepts an integer.

You can have several syntax with different parameters and diffe-

rent code.

If the distinction between the two syntax is not clear at compilation time, the proper syntax is automatically determined at run time based on the actual parameters passed to the procedure.

```
// first syntax of the Display procedure
PROCEDURE Display(p is int)
...

// second syntax of the Display procedure
PROCEDURE Display(p is string)
...
```

```
// call the first syntax
Display(2)
// call the second syntax
Display("text")
```

Benefits provided by this version 16 new feature:

Avoid laborious tests on a procedure's parameter types to decide how to process them; allows you to write several constructors for a class.

073 new feature WD WB WM

DYNAMIC DISPATCH

In the case of a procedures with several syntax whose parameters expect class instances, the runtime engine uses the "dynamic dispatch" technique to determine the syntax to use. In the following example that uses a BaseClass and a DerivedClass which derives from BaseClass, the runtime engine automatically calls the right syntax.

```
// first syntax of the Operation procedure
PROCEDURE Operation(p is dynamic BaseClass)
...
```

```
// second syntax of the Operation procedure
PROCEDURE Operation(p is dynamic DerivedClass)
...
```

```
o is dynamic BaseClass
// the o variable references a BaseClass type object
o = new BaseClass
// call the first syntax that is expecting a BaseClass
Operation(o)
// the o variable references a DerivedClass type object
o = new DerivedClass
// call the second syntax that is expecting a DerivedClass
Operation(o)
```

Benefits provided by this version 16 new feature:

Implement advanced object architectures; simplified implementation of the "guest" design pattern.

074

new feature WD WB WM

PROCEDURE TYPE

A **procedure** type variable is used to reference one or more global procedures, window procedures or class methods. The variable allows you to later call the referenced procedures and methods and pass them the given parameters.

Example:

```
// the p variable references the "MyProcedure" procedure
p is Procedure = MyProcedure
...
// call MyProcedure and pass the "value" string as parameter
p("value")
```

The **procedure** type enables you to set the runtime default for a procedure by using its name (**ExecuteProcess**) :

- ambiguities are resolved at compilation time
- class instances and component contexts are supported
- speed is increased because the procedure to execute is not determined for each run

The **procedure** type allows you to set up:

- callback procedures with the same syntax as the WLanguage functions, that is without " "
- easily usable custom events
- notification mechanism and "observer" design pattern without any special coding

Benefits provided by this version 16 new feature:

Easily manage "callback" type architecture

075

new feature WD WB WM

OUTLOOK

Version 16 supports additional properties for Outlook appointments.

The **mAppointment** WLanguage type is enriched with new properties:

- **FullDay** : Boolean
- **CreationDate** : DateTime
- **LastModificationDate** : DateTime
- **Availability** : Integer (constant)

Benefits provided by this version 16 new feature:

Expanded Outlook support and optimizations.

076

new feature WD WB WM

MISCELLANEOUS NEW FEATURES

- **VariableReset** works with all advanced types



- Support for Unicode strings as key types for associative arrays
- The `MatchRegularExpression` function accepts arrays of variables

Benefits provided by this version 16 new feature:
Convenience

077 new feature W D W B W M

OOP: MISCELLANEOUS NEW FEATURES

- The constructor of a class can now be private or protected, which allows for better support of abstract classes, interfaces and classes with a "factory" design pattern.
- The new syntax `IF o is BaseClass THEN` lets you check whether the actual instance's class is indeed derived from BaseClass.
- The reference operators (`<-` and `<=` on dynamic objects) allow you to get a reference on any base class and do not trigger a fatal error but instead return Null if the reference is invalid. You can write the following code for instance:

```
pInterface1 is Interface1 <- ...
pInterface2 is Interface2 <- pInterface1
SI pInterface2 = Null THEN
    // the actual class is indeed derived from
    Interface1 but not from Interface2
ELSE
    // the actual class is indeed derived from
    Interface1 and Interface2
END
```

- The simplified syntax for freeing a reference (`o = Null`) is available now for non-dynamic objects.
- New advanced mechanisms allow a more granular management for automatically freeing class instances (low reference, forced destructor).

Benefits provided by this version 16 new feature:
Convenience.

078 new feature W D W B W M

NEW "BYTE" TYPE

The "Byte" type is being introduced in WLanguage. It lets you simplify the declarations, especially for arrays.

Benefits provided by this version 16 new feature:
Useful for handling low level information.

079 new feature W D W B W M

6 NEW ADVANCED TYPES

6 new advanced types are being introduced:

- Certificate
- Definition
- Procedure
- Property
- Resource
- Variable

Benefits provided by this version 16 new feature:
Programming is even easier and more powerful.

WEBSERVICES



080 new feature W D W B W M

SUPPORT FOR THE "CLASS" TYPE, ARRAY OF STRUCTURES

Web services now let you return classes, structures or array of structures.

Structures and nested classes are supported.

Inheritance is supported.

Benefits provided by this version 16 new feature:
Ability to return structured values.

081 new feature W D W B W M

LOCAL CONTEXT SUPPORT

The `DeclareWebServiceContext` function allows you to define a context (a set of variables) whose values are stored from one call to another for the same Web service.

If this context is made of data coming from a database, this context avoids having to read the data for each call, and therefore speeds up the response time: performances are improved.

Benefits provided by this version 16 new feature:
Increase the speed of the call to a Web service by keeping the context.

082 new feature W D W B W M

DEFINE PUBLIC ELEMENTS

Version 16 offers an additional plane in the Web service management wizard for selecting the accessible elements.

The existing sets of procedures from version 15 projects are all migrated as "accessible".

The existing classes from version 15 projects are all migrated as "Not-accessible".

The new elements (classes or sets) of version 16 projects are created as "Not-accessible".

Everything can be modified, of course!

Benefits provided by this version 16 new feature:
Finer access to exposed elements.

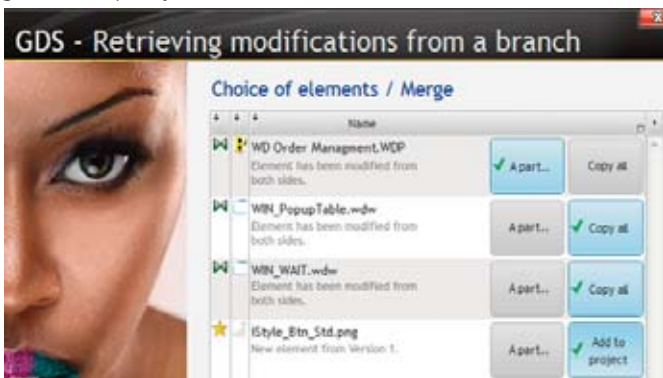
SCM (SOURCE CODE MANAGER)



083 new feature WD WB WM

EASY BRANCH COPY

Branch copy allows you to copy in a single operation a set of changes or corrections (code and/or UI) from one branch to another, or from one branch to the main trunk. The user-friendliness of the branch copy has been revised for greater simplicity.



Choosing the element to copy

Benefits provided by this version 16 new feature:
Easier to perform branch copy.

084 new feature WD WB WM

DIRECT ACCESS TO SHARES IN SCM EXPLORER

SCM lets you share the same element between several projects. SCM automatically manages links with this element. In the "Share" tab of the element's properties, you can view all the paths where this element is used. Double click one of these paths to directly position the SCM explorer in the directory.

Benefits provided by this version 16 new feature:
Easier navigation.

SOFTWARE FACTORY & CONTINUOUS INTEGRATION

The "software factory" concept lets you automate the application creation process. The "software factory" concept enables you for instance to set up a "continuous integration" methodology.

085 new feature WD WB WM

SOFTWARE FACTORY

The Expert's advice

“ The software factory paradigm saves man-weeks of coding each year. Without mentioning the number of eliminated errors, the speed of change and the rigor imparted to the code. Software industrialization's road is through software factory, and it's very easy with version 16. ”

With the software factory feature, application creation is automated.

The source compilation task is imparted to an automated process on a build machine.

The report automatically created by the automated process allows the project manager to find out the stability status of the project, and the developers to correct the possible compilation errors in a very short period of time.

This automated process can also run automated audits and tests. As you know, the sooner a bug is detected, the lower the cost of fixing it is: software factory is also relevant in terms of budget.

One purpose of the software factory is to also automate all the (major or minor) manual tasks required up to the creation and installation of the application.

Finally, once the product is done, software factory lets you automate the cleanup phase, and the backup of all the applications elements.

Benefits provided by this version 16 new feature:
Strengthening the build phase: no more errors, wasted time, complete integration with the environment.

CONTINUOUS INTEGRATION

Continuous integration is a new feature of version 16 provided by the software factory.

Continuous integration is a set of practices that consist, among other things, to check for every code change that the result of the change does not trigger a regression in the application being developed.

This check is performed almost in real time; usually every night. At the end of the day, all the developers check in all the changes they made during the day.

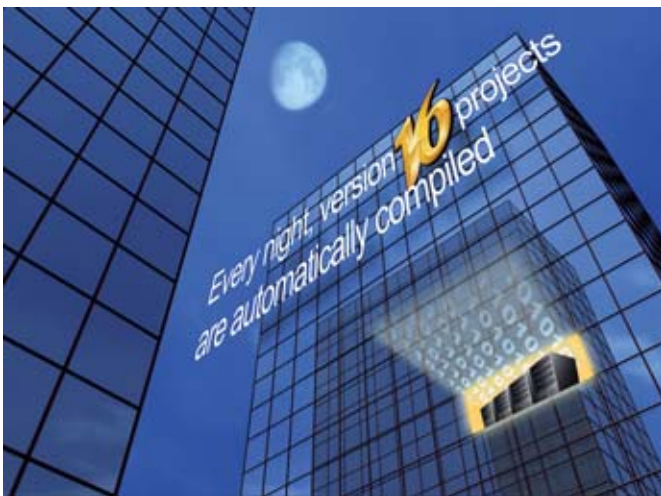
An action plan is defined and programmed to start every night on all the projects:

- check in all the SCM elements
- check in all the external components
- generate all the executables, components, etc.
- start the tests, etc.

The automated process returns status-reports describing the state of the generated product's version.

Benefits provided by this version 16 new feature:
Responsiveness, time saver, ease of use.

ILLUSTRATED USE #1 : AUTOMATED NIGHTLY COMPILATION



Each night, automatically, all the projects are compiled

In a development team, compiling all the projects every night has a large number of benefits.

If, for example, a developer modifies a procedure's prototype in a set of procedures shared among multiple projects, he may not have checked that each project using the procedure still compiles properly.

The automated nightly compilation, via the software factory, of all the projects that make up a product, insures the stability of the product.

Benefits provided by this version 16 new feature:
Error detection in real time, responsiveness, stability. Testers spend a maximum of 1 day to counter-test fixes.

ILLUSTRATED USE #2 : SEVERAL MACHINES FOR COMPILING



The compilation of the various project elements is done in parallel, on all the available machines

The coordination process of the software factory will distribute all the action plans to run on all the machines dedicated to compilation. If the number of projects is important, dedicating some machines to compilation allow for noticeable time saving.

The compilations and all the necessary update phases are done in parallel.

Benefits provided by this version 16 new feature:
Reduced wait time, shorten time to project completion.

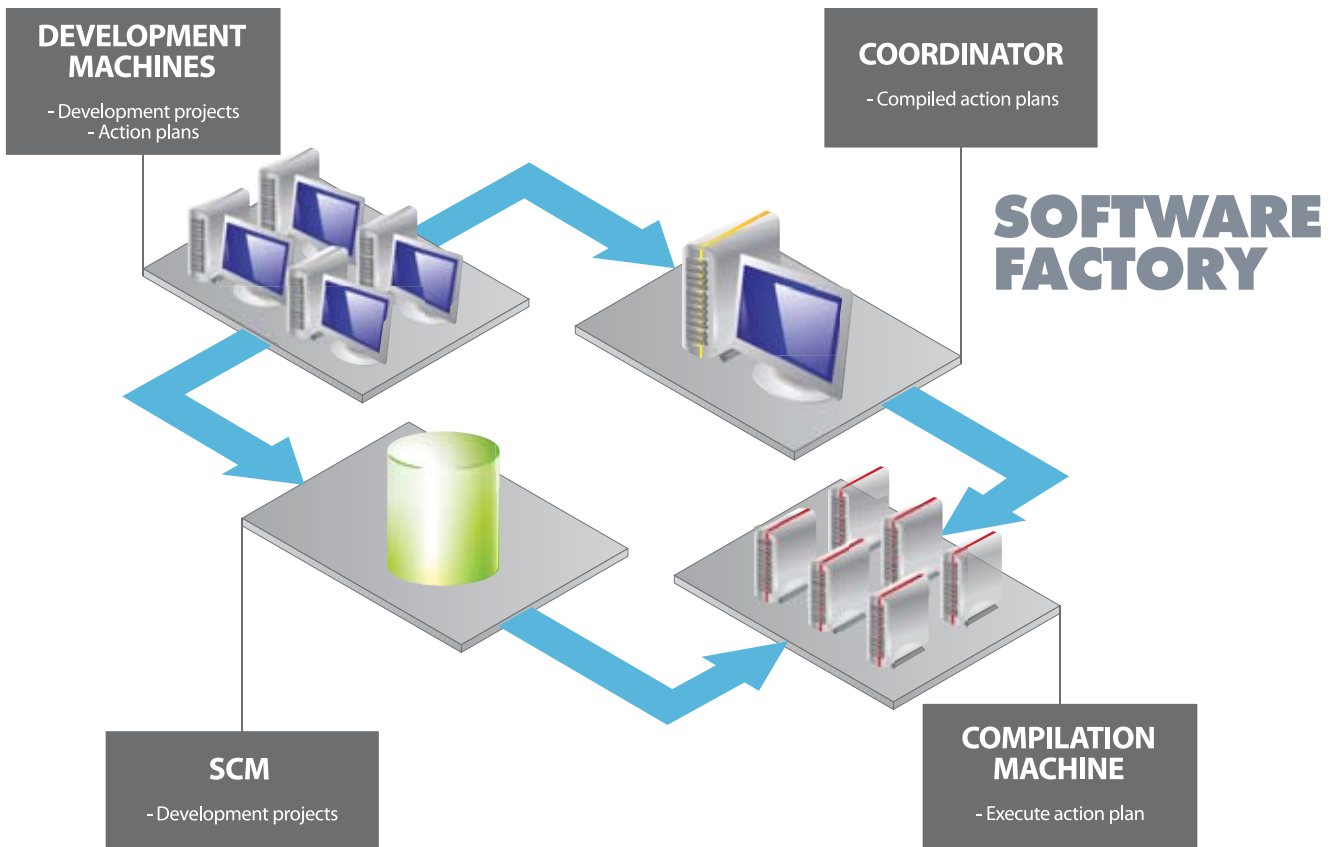
ILLUSTRATED USE #3 : GUARANTEE OF IDENTICAL COMPILATIONS



A same application (illustrated), compiled 5 times on a developer's machine at a month interval



The same application compiled 5 times on the build machine at a month interval



In an application deployed at a customer site 6 months ago, you may need to perform a single modification (branch) and redeploy this application, or some of its modules.

You need to be able to insure the reproducibility of the production process.

You need to be able to recompile the same application 6 months later, and produce the exact same "binary" (except for the modification).

Using a developer's machine for this task is risky because the machine's configuration may have evolved within these 6 months. Different WINDEV versions, change of OS, installation of a beta, a driver, device change, change anti-virus software, or even change of physical machine ...

Dedicating one or more software factory machines to these tasks is an important security.

Benefits provided by this version 16 new feature:

Assurance of being able to identically recreate an application at any time.

090 new feature W D W B W M

ILLUSTRATED USE #4 : PROJECT MANAGER, AUTOMATE MANUAL OPERATIONS



Often it is the project manager who is responsible for all the operations to perform to assemble the actual product. These time consuming tasks often take half a day to a full day.

To replace all these manual operations the project manager will create an action plan using the software factory feature; this action will simply create the finished product when run.

Everything is automated, no risk of error, and the final product can be built even when not present!

Benefits provided by this version 16 new feature:

Time saved, risk of errors removed.

ILLUSTRATED USE #5 : SINGLE DEVELOPER

The software factory can also be very useful to the single developer who develops several projects.

The developer has finished a feature in the project.

He checks in all the elements (a set of procedures, some window templates, a component, etc.) corresponding to the feature then requests the execution of his action plans to create the following tasks for all his projects:

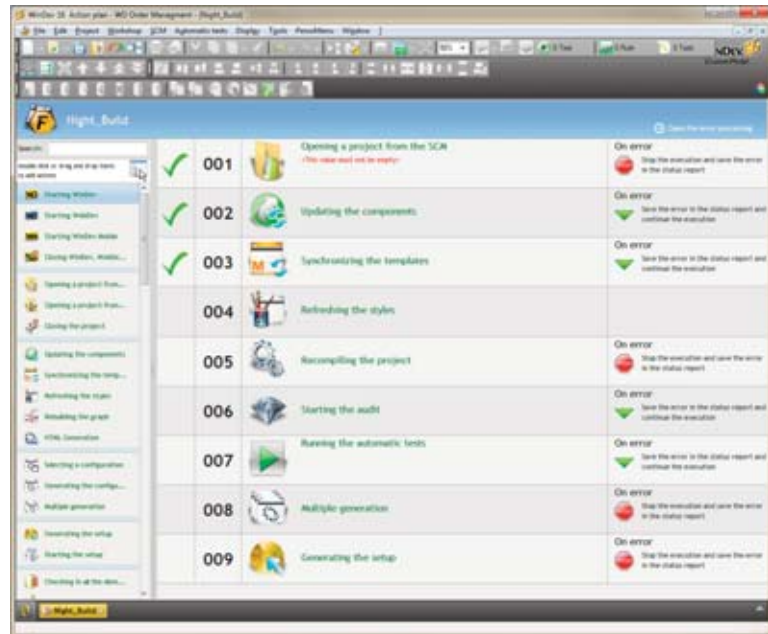
- open of the projects
- update of the shared elements
- compilation of each project
- verification of the compilation and audit errors
- generation of the executable
- copy the executable on the server
- back up the source code ...

Independently of the time saved, even more important for a single developer, this process removes sources for errors and oversights.

The quality is automatically improved.

Benefits provided by this version 16 new feature:

Secure operations, no time loss, derived quality, no oversights.



Action plan editor

- Templates update
- Components update
- Refresh styles
- Clean up project directory
- Delete automated tests data
- Clean up _WEB directory
- Clean up of the project's system files
- Delete the records of a HyperFileSQL file
- Compilation
- Rebuild the graph
- Start the tests
- Generate the component's documentation
- Add a user manifest in Windows Vista or 7
- Select a configuration (#configuration)
- Generate a configuration (#version, #label, #copyright)
- HTML generation
- Create the setup program
- Setup
- Copy the files (#source, #destination directory)
- Execution of a .bat, .exe, etc.
- Run a script
- Check out/Check in translations (multilingual applications, requires the WDMsg tool)
- Run the WLanguage code
- Send a status report email
- Wait
- Etc...

Some actions may trigger errors (for example a hard drive may be full, or some SCM elements may already be checked-out)

In case of an error, you can stop the execution of the action plan, or start an error process defined in the action plan editor, or even continue running the action plan (in this case, only a status error message will be generated).

Actions can be configured (see new feature 094), or even defined in WLanguage (see new feature 095).

Benefits provided by this version 16 new feature:

Power; No need to learn a scripting language.

SOFTWARE FACTORY IMPLEMENTATION

Thanks to version 16, implementing the software factory is very easy.

Using the various editor modules, simply:

- 1- define the "generic" action plans containing the actions to perform (with the action plan editor)
- 2- deploy the action plan on the coordinator (from the environment)
- 3- immediately trigger some action plans, or program their execution (at night) with the factory administrator
- 4- view execution status reports

Benefits provided by this version 16 new feature:

Everything is integrated, without the need for any additional module, and is defined with the legendary ease of use of WINDEV.

ACTION PLAN EDITOR

The first step is defining the action plan.

A new editor, the action plan editor, is introduced in version 16.

This action plan editor lets you define the sequence of actions to perform automatically.

Each action plan can be viewed, edited, modified, printed or exported.

Among the actions offered, you'll find:

- Opening of the project (full project name on the network or in SCM)
- SCM update

CONFIGURATION

Actions accept parameters.

For example, the action for checking in the translations can have the reference language, the translation file, and the diff file as parameters.

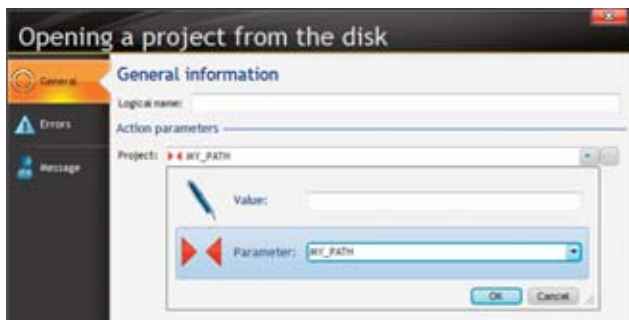
These parameters are marked with a #. There are passed when starting the action plan: either directly, or they are read from a file.

Example of a configurable action plan, "network update", with 4 actions:

- 1- Open project (#full project name)
- 2- Generate executable (#version, #copyright)
- 3- Copy files (#source, #destination directory)
- 4- Back up source (#backup directory)

The configuration of the actions lets you create generic action plans than can be easily re-used.

An action plan can also call another action plan.



Benefits provided by this version 16 new feature:
Souplesse et puissance.

ACTION DEFINED IN WLANGUAGE (ADVANCED MODE)

Among the actions offered, there is the "WLanguage code to execute".

This action insures you are able to carry out any type of operation: you'll never be stuck!

You can for example create loops (to execute several times the same actions with different parameters), or use the file management functions (copy, rename, delete, etc.), or read or write databases, update a list in Excel, send an email to a given developer, reinitialize a configuration file, remove a "read-only" flag from a file, delete a test window, set a date for all the files included in the install, check the case of the file names, etc.

All the features offered by WLanguage can be used!

Preset variables allow you to access the action plan's information, among them:

- \$OutputFile
- \$OutputDirectory
- \$ProjectDirectory
- \$ProjectName

- \$ProjectCompleteName

Benefits provided by this version 16 new feature:
The assurance of never being stuck.

ACTION PLAN DEPLOYMENT

Action plans are stored on the coordinator.

Action plans can be stored along with their parameters.

An interface allows you to view and organize action plans, edit potential parameters, program execution schedule, etc.

Benefits provided by this version 16 new feature:
Organization and centralization.



ACTION PLAN EXECUTION

Action plans are started by the "coordinator". The coordinator is the server application that distributes the execution of the action plans on dedicated machines, starts the execution (instant or programmed) and stores status reports. The build machines, where the action plans will run, can host several versions of WINDEV, WEBDEV or WINDEV Mobile. The coordinator specifies which version to use to execute the action plan. The coordinator lets you view the progress of the action plans in real time.



Benefits provided by this version 16 new feature: Easy action plan management

BENEFITS	Single developer	Small team	Large team
Automation of manual tasks	★★★★	★★★★★	★★★★★
Be certain of not forgetting anything	★★★★	★★★★★	★★★★★
Time spent updating the shared elements	★★★	★★★★★	★★★★★
Easier developer collaboration	★	★★★★★	★★★★★
Compilation time	★★★★	★★★★★	★★★★★
Ability to compile in parallel	★★	★★★★★	★★★★★
Earlier bug detection	★★★★★	★★★★★	★★★★★
Productivity gain	★★★	★★★★★	★★★★★
Improved quality	★★★★★	★★★★★	★★★★★
Acceleration of the delivery process	★★★★	★★★★★	★★★★★
Guaranteed software duplication	★★★★★	★★★★★	★★★★★

STATUS REPORTS, REPORTS, METRICS

All the runtime status reports are stored on the coordinator. The time they were run, possible errors are stored. Statistics can be printed. The history of all the builds is kept.

Benefits provided by this version 16 new feature: Traceability

INSTANT GAINS

The gains obtained thanks to the software factory are enormous, both for a single developer as well as for a team:

- the quality of the projects improves because errors are automatically detected and therefore corrected earlier.
- the development cost of projects decreases.
- the development's team mood is automatically uplifted.
- the time to finish an application decreases because tensions decrease.
- repetitive and time intensive operations vanish, which allows the project manager to spend time on more productive and more interesting tasks.

Adopting the software factory feature of version 16 brings success to your project faster.

WORKFLOW EDITOR

The "Flexible modeling editor" evolves to become a workflow editor. The representation of the information streams becomes simpler.



Benefits provided by this version 16 new feature: Better definition of document and decision workflows

REPORT EDITOR

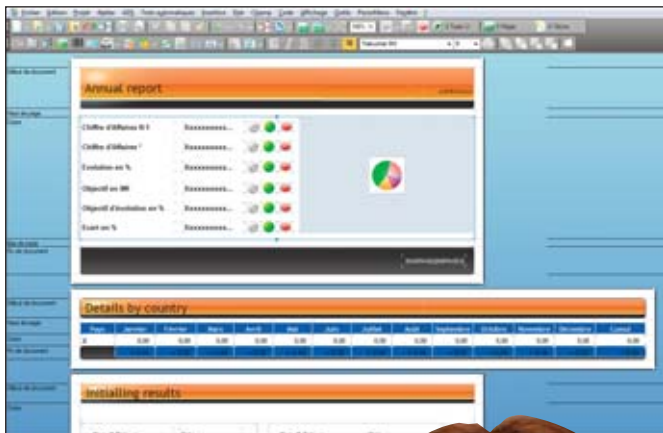
101 new feature WD WB WM

COMPOSITE REPORT PRINT SEVERAL PAGES AT THE SAME TIME

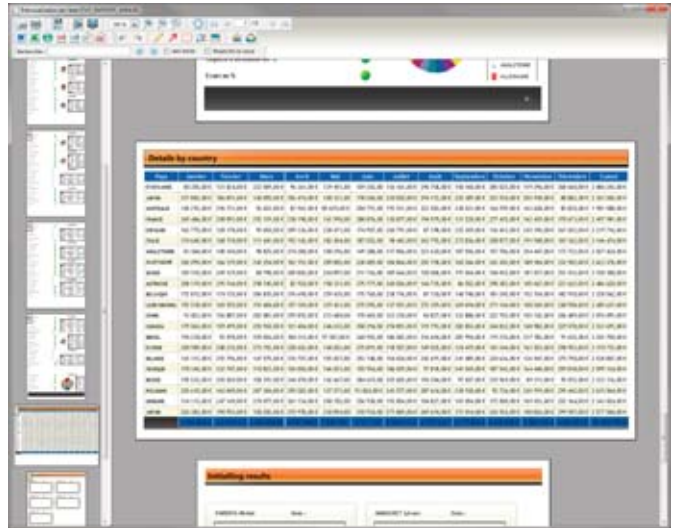
Thanks to this version 16 report editor new feature, you can print several pages with different looks in the same report. For example, you can now create in the same report both an invoice page and the general sales terms and conditions page. You can define a specific data source for each page of the report. The global variables of the report are accessible from each of the pages.

Each page can be based on a different report template. A page can also be based on an existing project report. A composite report lets you avoid having to create nested reports and having to manage page numbering or manage page headers and footers in different reports.

You can alternate pages in portrait and landscape mode. Thanks to composite reports, it becomes easy to create reports whose pages have different structures!



Creation of a composite report



Preview the composite report: note the pages in portrait format, and the page in landscape format

Benefits provided by this version 16 new feature:
This print mode revolutionizes the creation of documents whose layout is different based on the page

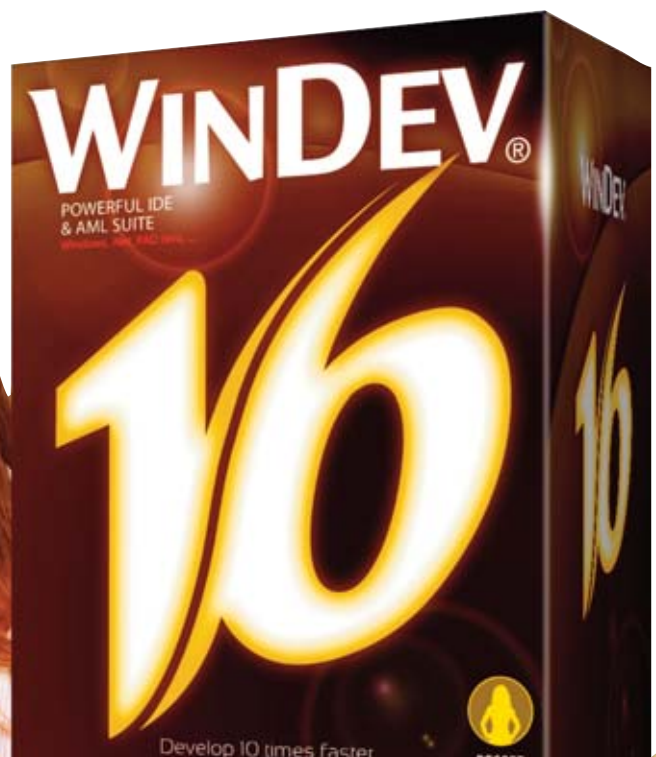
102 new feature WD WB WM

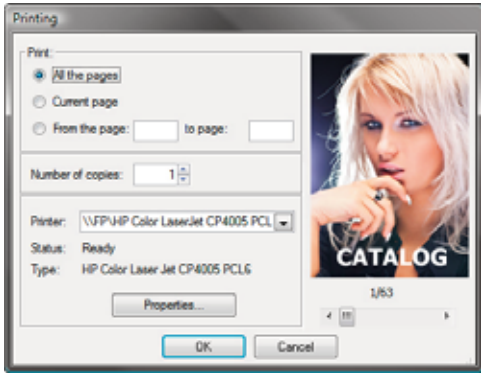
PRINTER CONFIGURATION FROM THE PRINT PREVIEW WINDOW (AAF)

A window allowing you to change and configure the printer is introduced in print preview.

It allows the user to modify the properties of the selected printer:

- tray selection (dual trays)
- print type: draft, high-quality, etc.
- double-sided
- ...





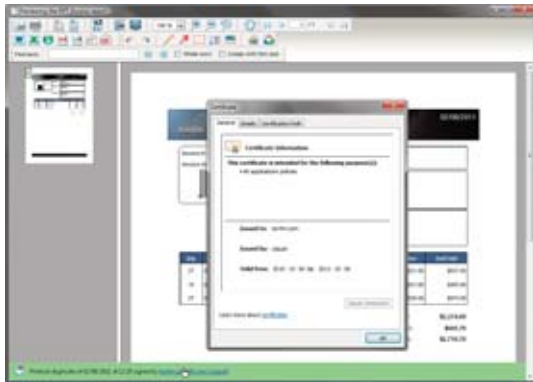
The end user can configure the print job

Benefits provided by this version 16 new feature:
Ability for the end user to change all the print parameters. Useful with sophisticated printer

103 new feature W D W B W M

DUPLICATE COPY: SIGNATURE

Duplicate copies can be signed with a certificate. This insures the integrity of stored reports. (See also new feature 056)
Since this signature also dates and times the document, it can become useful for some legal uses.
The signature standard used is PKCS7.
When a duplicate copy is viewed again (re-executed) in print preview, a new band comes up. It displays information about the signature (name of the signee, signature date, etc.) and specified the confidence level of the certificate.



Green band: Valid certificate



Red band: Expired certificate

Benefits provided by this version 16 new feature:
Better security

104 new feature W D W B W M

MULTI-COLUMN REPORTS

The creation of multi-column reports becomes even simpler. You can now, for instance, specify column breaks in the editor, without any programming.

Benefits provided by this version 16 new feature:
Even less code

105 new feature W D W B W M

DIRECT MODIFICATION OF CONTROL CAPTION

In version 16, you can modify a control's caption just by clicking it, like in the window editor. This simplifies operations.

Benefits provided by this version 16 new feature:
Operating mode similar to the window editor's one

106 new feature W D W B W M

LIGHTER PREVIEW

The virtual box showing the controls can be replaced by just showing the controls' corners. The F7 key toggles between preview modes: area marked, corners shown, nothing shown. Choose according to the type of controls!



Area marked



Control corners shown



No marking of the area shown

Benefits provided by this version 16 new feature:
Reports with a lot of controls becomes more readable.

UI COMPILATION ERRORS IN REPORTS

In a report, it may happen that controls overlap by mistake, or data may be truncated because of a wrongly sized print area. In version 16, when compiling a report, these errors are signaled as "UI errors" (concept already existing for windows and pages). This mechanism tracks the potential errors at the source and avoids customer bug reports, future bug fixes, etc. Your reports are perfect the first time around.

Benefits provided by this version 16 new feature:

The potential errors found in a report are noted when the report is compiled.

MISCELLANEOUS CHANGES

- When right clicking an internal report the editor offers to open it
- Copying a "link" control also pastes the tag (as well as the text and control) into the clipboard, this allows you to directly paste the link into a browser
- In the preview, the wheel is active in the "thumbnail" section.

Benefits provided by this version 16 new feature:

An even more useful report editor!

HYPERFILESQL

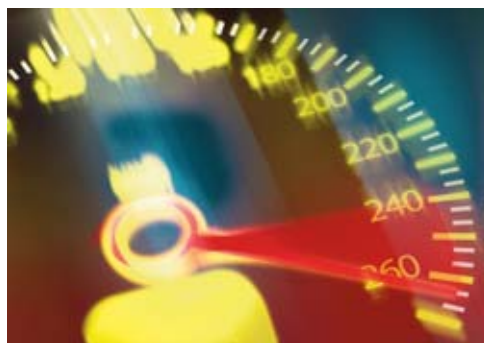
HYPERFILESQL

HACCELERATESPEED: IMPROVE THE DATABASE'S SPEED

Derived from the `HStatsCalculate` function, the `HAccelerateSpeed` function reorganizes the internal structure of indexes in order to optimize the access speed.

This function can be used as often as you want, but should mainly be used after a set of additions (usually after a set of additions corresponding to at least 1 per thousand of the number of records in the database).

Once it has run, the performance is improved, without any side effects.



Benefits provided by this version 16 new feature:

Allows you to be sure the organization of indexes is optimized based on the keys defined and increases the speed

MANAGING THE NULL VALUE IN KEYS

You can forbid the assignment of the Null value to a key ("Not null").

Benefits provided by this version 16 new feature:

Allows you to make sure that an item is always filled

PRIMARY KEY

The Expert's advice

“ In a relational database, a primary key has both a uniqueness and not-null constraint, which allows for unique identification of a record in a table. ”

"A primary key" is a unique key (no duplicate) that can't take the value Null, without you having to define a uniqueness constraint. A primary key is used for identifying a record (a table row) in a unique way.

The "automatic identifier" offered by the data model editor is a primary key.

You can now define a primary key other than the automatic identifier.

Benefits provided by this version 16 new feature:

Allows you to identify a record univocally.

HFREEQUERY

`HFreeQuery` is derived from `HCancelDeclaration` function.

This `HFreeQuery` function allows you to free the memory space used by a query.

This function can be used when no process needs any result from a query.

The use of this function is recommended for queries that return a large number of rows (from a dozen to several thousands) in order to free memory space.

Benefits provided by this version 16 new feature:
Optimize the memory consumption of the machine.

113 new feature W D W B W M

64-BIT LINUX

A 64-bit version of the HyperFileSQL server is provided on Linux now. This version can also be distributed for free with your WINDEV and WEBDEV applications.

The 64-bit mode lets you address over 4 GB of memory, which makes for impressive peak loads.

Benefits provided by this version 16 new feature:
Better Linux support.

114 new feature W D W B W M

SQL: EVOLUTIONS

In version 16, **Select * evolves** and now allows you to select from a multifile query all the columns of a file using the syntax: **Select Row_orders.* , Orders.NumOrders, ... FROM Orders, Row_Orders .**

This syntax is especially useful for joins, and avoids having to enter the name of each item.

Benefits provided by this version 16 new feature:
Code plus clair.

115 to 130 new feature W D W B

SQL: 16 NEW COMMANDS

16 new SQL commands are introduced in version 16.

ExtractValue()	Takes two string type arguments, an XML fragment xml_frag and an XPath expression xpath_expr, and returns the text (CDATA) of the first text node that is a child of the element corresponding to the XPath expression. If several correspondences are found, the content of the first child text node of each node corresponding to the XPath expression is returned in the form of space delimited string.
xor	logical XOR (exclusive OR). Returns NULL if one of the operands is NULL. For not-NULL operands, returns 1 if an even number of operands are not-null, otherwise returns 0.
unhex	The opposite of HEX(string). Each pair of hexadecimal numbers is interpreted as numbers, and is converted into a character represented by the number. The result is returned as a binary string.
ucase	Returns the str string in uppercase, based on the current character set.
lcase	Returns the str string with all the characters in lowercase, based on the current character set
space	Returns a string made of N spaces
reverse	Returns a string whose character order is the reverse of the str string
repeat	Returns a character string made of the repetition of count times the str string. If count <= 0, returns an empty string. Returns NULL if str or count are NULL
field	Returns the index of the str string in the list str1, str2, str3, ... Returns 0 if str is not found.

md5	Calculates the MD5 checksum of the string named string. The returned value is a 32 character hexadecimal integer that can be used, for instance, as a hash key.
sha et sha1	Calculates the 160-bit SHA1 checksum, as described in RFC 3174 (Secure Hash Algorithm). The returned value is a 40-character hexadecimal string, or NULL in the case where the argument is NULL. One potential use for this function is key hashing.
atan2	Returns the arc tangent of variables X and Y. This is equivalent to calculating the arc tangent of Y/X, except that the sign of both arguments determine the result's quadrant.
least	With two or more arguments, returns the smallest value.
greatest	With two or more arguments, returns the largest value.
Elt	Returns the nth string of a list of strings.
split_part	Cuts the string based on a separator and returns the nth part

Benefits provided by this version 16 new feature:
Better SQL support.

THIRD-PARTY DATABASE

WINDEV 16, WEBDEV 16 and WINDEV Mobile 16 are open environments.

They respect all the market standards.

This makes them compatible with all the databases on the market.

131 new feature W D W B W M

NATIVE SQLITE ACCESS



SQLite is an indexed file management system.

Version 16 of WINDEV and WEBDEV allows native access to this file management system.

This native access allows you, like all the native accesses offered by PC SOFT, to: import in the data model, the known description in WLanguage (which allows for statements such as **file.item**), benefit from code completion, detect compilation errors, link files, use RAD, etc.

Native access to SQLite is available in 32-bit or 64-bit for Windows and Linux.

Native SQLite access is provided with the product.

Benefits provided by this version 16 new feature:
Handling SQLite files becomes extremely easy.

NATIVE SQL SERVER AND ORACLE ACCESS

Some parameters of an Oracle or SQL Server connection could need to be written in a .INI file. In version 16, these parameters can be directly specified in the extended information of the connection. Furthermore, you can call the **HExecuteSQLQuery** function with a Unicode string.

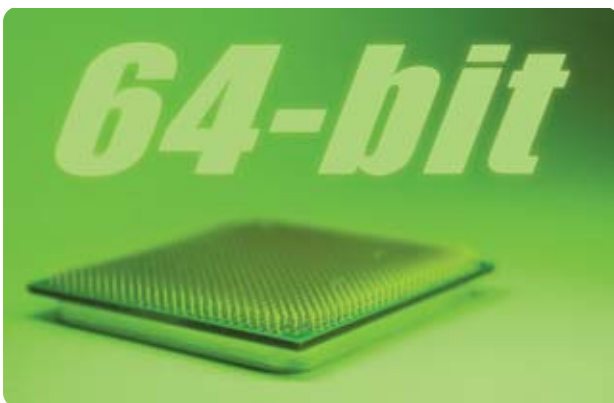
Benefits provided by this version 16 new feature:
Simpler configuration.

CLOUD: SQL AZURE

The native SQL Server access of WinDev 16 allows you to easily access SQL Azure databases. The data model editor imports the description of the database from the cloud. All the structures of these databases (**file.item**) are recognized in the language this way and offered in the wizard. All the **hxxx** commands are available, as well as query execution. You can easily define file links at the control level (7 tabs), use the **FileToScreen** and **ScreenToFile**, commands, create linked file tables directly on your data in the cloud. RAD (window or application RAD) is available.

Benefits provided by this version 16 new feature:
Open to the cloud

64-BIT



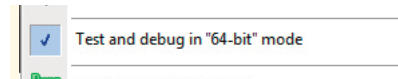
Machines with a 64-bit processor and operating system are more and more common. Therefore it is only natural that we added some new 64-bit features to version 16.

The Expert's advice

“The 64-bit mode lets you go over the 4GB memory limit per application imposed by 32-bit addressing. Applications benefit from almost limitless memory resources.”

64-BIT GO

You can now perform a "GO" operation on a 64-bit application. Testing a 64-bit application is therefore easier. The debugger, as well as remote debugging, is active in 64-bit mode (see new feature 047). You can now debug stored procedures on a HyperFileSQL 64-bit server.



Benefits provided by this version 16 new feature:
Testing 64-bit applications has never been easier!

NATIVE HYPERFILESQL LINUX IN 64-BIT

HYPERFILESQL

HyperFileSQL Linux is now available natively in 64-bit mode. (See new feature 113)

Benefits provided by this version 16 new feature:
Better use of available memory

NATIVE SQL SERVER ACCESS IN 64-BIT



Native access to SQL Server databases is available in 64 bits. Native SQL Server access is an additional module purchased separately.

Benefits provided by this version 16 new feature:
Better memory management



137

new feature W D W B W M

NATIVE ORACLE ACCESS IN 64-BIT



Native access to Oracle databases is available in 64-bit. Native Oracle Server access is an additional module purchased separately.

Benefits provided by this version 16 new feature:
Better memory management

138

new feature W D W B W M

WEBDEV 64-BIT LINUX APPLICATION SERVER

The WEBDEV MS Windows application server has been supporting 64 bits since version 11!
In version 16, the WEBDEV Linux application server also supports the 64-bit mode (see new feature 020).

Benefits provided by this version 16 new feature:
Extended addressing, larger number of simultaneous connections

139

new feature W D W B W M

64-BIT INSTALLER

The installer supports the 64-bit mode.
(See new feature 155)

Benefits provided by this version 16 new feature:
Native support for the 64-bit mode.

.NET

140

new feature W D W B W M

FASTER LISTING OF .NET ASSEMBLIES

The display of the list of .Net assemblies found on the machine has been improved noticeably: a list that could take 2 minutes to display, now comes up in version 16 in ... 4 seconds!

Benefits provided by this version 16 new feature:
No wait

141

new feature W D W B W M

STOP LOCKING THE ASSEMBLIES

The .Net assemblies opened in the WINDEV 16 environment are not locked anymore.

They can be updated in parallel.

Benefits provided by this version 16 new feature:
Comfort.

142

new feature W D W B W M

POSSIBLE USE FOR .NET 4 ASSEMBLIES

Version 4 of .Net is supported.

Benefits provided by this version 16 new feature:
Openness

143

new feature W D W B W M

DECLARATION

The declaration of objects containing . (dots) can be done without quotes.

Benefits provided by this version 16 new feature:
Clearer code

144

new feature W D W B W M

DELEGATE MANAGEMENT IMPROVEMENT

Delegate management changes in version 16:

- management of delegates coming from a thread
- management of delegates on WLanguage object methods.

Benefits provided by this version 16 new feature:
New .Net features

145

new feature W D W B W M

.NET STRUCTURE MANAGEMENT

You can now instantiate .Net structures in WLanguage.

Benefits provided by this version 16 new feature:
New .Net features.

146

new feature W D W B W M

ENUM MANAGEMENT : SUPPORT FOR BINARY OPERATORS

You can combine Enum coming from .Net assemblies using the &, |, ||, ~ operators.

You can convert Enums to Integers, or build them from Integers.

Benefits provided by this version 16 new feature:
Simplified programming.

WINDEV



COMMON NEW FEATURES

147 new feature WD WB WM

146 NEW COMMON FEATURES

WINDEV 16 benefits from the 146 common new features (see page 3 to 36).
Read about these important new features for WINDEV 16!

NOUVEAUX CHAMPS

148 new feature WD WB WM

TABLE: CELL AND COLUMN SELECTION

In version 16, the table control lets you select a single cell, a set of cells (joined or disjoined), or a column, or still a row.
In the "7 tabs", simply define the type of selection authorized.

	Spain	France	Greece	Italy
Sauna	\$ 481,850	\$ 625,480	\$ 648,690	\$ 832,140
Hammam	\$ 852,420	\$ 987,215	\$ 587,245	\$ 756,545
Jacuzzi	\$ 928,710	\$ 1,235,690	\$ 835,690	\$ 927,650
Tanning	\$ 381,850	\$ 981,850	\$ 512,230	\$ 421,550
Body scrub	\$ 1,182,370		\$ 921,470	\$ 823,980
Body wrap	\$ 932,870		\$ 1,214,658	\$ 1,123,540
Water therapy	\$ 541,850		\$ 414,625	\$ 1,059,100
Facial	\$ 1,379,570		\$ 1,120,320	\$ 965,210
Manicure pedicure	\$ 1,481,850	\$ 2,680,260	\$ 1,032,655	\$ 930,120

Here: 4 cells selected (blue background), ready to be copied

The `TableColumnSelect`, `TableSelect` and `TableCellSelect` WLanguage functions let you retrieve :

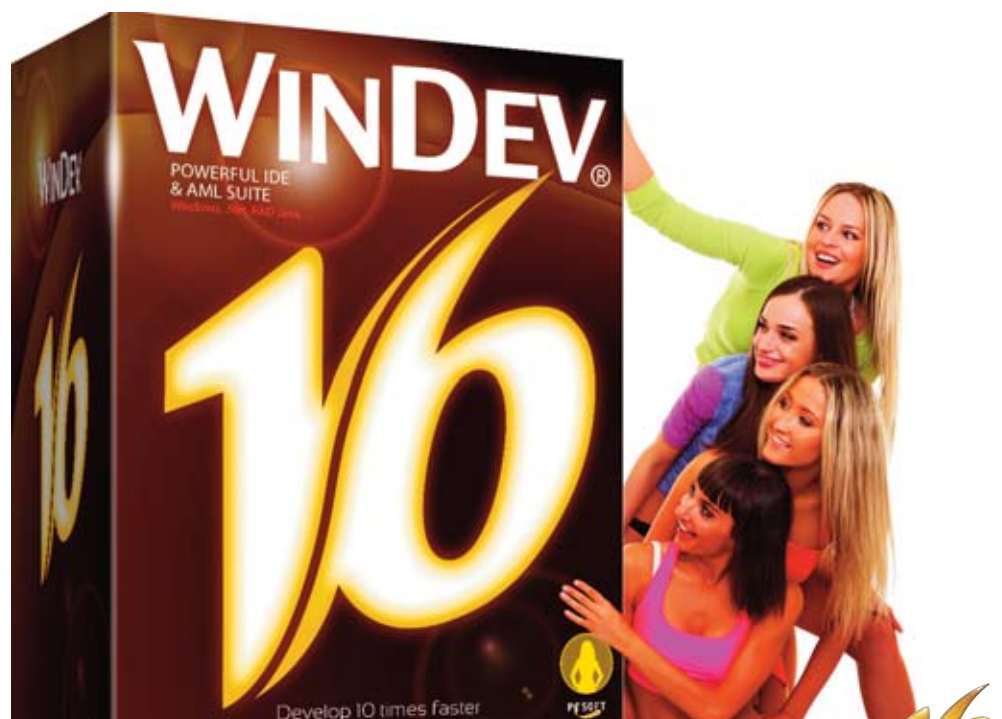
- the selected columns
- the selected rows
- the selected cells
- or a combination of these 3 selections

Benefits provided by this version 16 new feature:
Better selection customization in tables.

149 new feature WD WB WM

TABLE CONTROL: 4 OTHER CHANGES

The table control also improves on other aspects:



- ability to define automatic totals, counts and averages in breaks

Company	Name	City	Total FOT
77 - Seine-et-Marne			
DELEPROJKTEN	GUGLIOMI	ST PATHUS	1,764.60
ESMER SUDRIA	PEULTIER	CHARTROGES	1,955.95
INGENICOR	REBIFFE	COINGS SUR THEROUANNE	898.95
HEREMEN LUTZ	PEHIN	AVON	8,886.10
NEXIAS SYSTEME	TERMINHE	CHOISY EN BRIE	1,974.32
Total Seine-et-Marne :			15,865.02
78 - Yvelines			
CERH CONSULTANTS	LAFFEAUX	MOISSON	8,298.23
COMPAGNIES DES SOFTWARES/TOUR	NESMIN	BULLION	1,820.69
GARCEYNKIN & TRAFLOOR	MORNAV	LES MUREAUX	1,704.95
Total Yvelines :			11,823.87
Total for Paris and suburbs :			27,688.89

- The new `..OrientationTitle` property allows you to create slanted column titles.

```
TABLE_Table1..OrientationTitle = 45.0
```

Company and contact (call & name)	Complete address (street - postal code - city)	Phone number	Fax number
CIASER Mrs DALMOSO Keylin	171 ST CROSS Street, 59494 PETITE FORET FRANCE	(+33)5662424763 (+33)5662424768	dalmoso.keylin@yahoo.com
EPICES Mrs SARTINA Estel	152 PROVENCIA A, 14370 ARGENCES FRANCE	(33)56206413955 (33)56206413955	santina.estel@orange.fr
ASSOCIATIONEN INFANESTH	81 COLD FOUNTAIN ST, 2472 NEW DELHI	(107)912-585380 (107)912-585389	ntay@goit.in

Private	Working	Address	Contact
	Miss Tiffany EDEN	3332 Las Vegas Blvd South, Las Vegas 89102, NEVADA USA	tiffany.eden@usa.com (877) 321-4302 (877) 321-7654 Fax : (888) 320-1234

2 tables with slanted column titles

- In container tables (and in looper controls), you can now assign different content in tables, charts, combo boxes, internal windows found in the cells.

VEHICLE	ECO NOTE (l/100)	OPTIONS & ACCESSORIES												
Active Hybrid 750		<table border="1"> <thead> <tr> <th>Electrical</th> <th>Ref</th> </tr> </thead> <tbody> <tr> <td>Automatic movement headlights</td> <td>16 647 598</td> </tr> <tr> <td>Front and side airbags</td> <td>18 304 264</td> </tr> <tr> <td>Emergency brake assist</td> <td>01 586 330</td> </tr> <tr> <td>ESP</td> <td>05 254 125</td> </tr> <tr> <td>Automatic orientation headlights</td> <td>02 157 365</td> </tr> </tbody> </table>	Electrical	Ref	Automatic movement headlights	16 647 598	Front and side airbags	18 304 264	Emergency brake assist	01 586 330	ESP	05 254 125	Automatic orientation headlights	02 157 365
Electrical	Ref													
Automatic movement headlights	16 647 598													
Front and side airbags	18 304 264													
Emergency brake assist	01 586 330													
ESP	05 254 125													
Automatic orientation headlights	02 157 365													
Active Hybrid 900m		<table border="1"> <thead> <tr> <th>Electrical</th> <th>Ref</th> </tr> </thead> <tbody> <tr> <td>Autoradio, USB connector</td> <td>29 547 523</td> </tr> <tr> <td>DVD combo</td> <td>31 254 785</td> </tr> <tr> <td>GPS, with voice recognition</td> <td>02 365 478</td> </tr> <tr> <td>Bluetooth telephone</td> <td>04 125 634</td> </tr> <tr> <td>4th connection kit</td> <td>05 254 361</td> </tr> </tbody> </table>	Electrical	Ref	Autoradio, USB connector	29 547 523	DVD combo	31 254 785	GPS, with voice recognition	02 365 478	Bluetooth telephone	04 125 634	4th connection kit	05 254 361
Electrical	Ref													
Autoradio, USB connector	29 547 523													
DVD combo	31 254 785													
GPS, with voice recognition	02 365 478													
Bluetooth telephone	04 125 634													
4th connection kit	05 254 361													
Active Elec 800e		<table border="1"> <thead> <tr> <th>Electrical</th> <th>Ref</th> </tr> </thead> <tbody> <tr> <td>Silk scarf</td> <td>05 120 347</td> </tr> <tr> <td>Deflector</td> <td>05 910 247</td> </tr> <tr> <td>Eye ring</td> <td>03 012 899</td> </tr> </tbody> </table>	Electrical	Ref	Silk scarf	05 120 347	Deflector	05 910 247	Eye ring	03 012 899				
Electrical	Ref													
Silk scarf	05 120 347													
Deflector	05 910 247													
Eye ring	03 012 899													

Each piece of content is different

- Ctrl "hand" lets you scroll a table without having to use scroll-bars (inertia effect supported).

Benefits provided by this version 16 new feature:
Better table customization

ORGANIZER CONTROL DATA BINDING

Data binding on the Organizer control (not to be confused with the Scheduler control) allows you to link with a HyperFileSQL file, advanced WLanguage types such as a Google Calendar, or with XML, or a class ...

The Organizer control is updated automatically this way.

Programming is noticeably simplified:

For example, adding an appointment by a user can be accomplished via the automatic popup menu (or with a direct input in the time slot), and the addition of data to the database (or in the data source) doesn't require any programming.



The "7 tabs" for defining the data binding for an Organizer control

Benefits provided by this version 16 new feature:
Assign data without any programming

LISTVIEW CONTROL: PANORAMIC MODE

A new visualization mode for the `ListView` type controls is introduced in version 16: the `panoramic` mode.

In this panoramic mode, the images appear as if they were on a curved wall, which creates fantastic effects.

This mode allows you to view up to 12 or 20 images at the same time (a larger number is possible but impairs the readability and therefore cancels the intended effect of the panoramic mode).



Images presented in panoramic mode

Benefits provided by this version 16 new feature:
New image visualization mode.

152 new feature W D W B W M

USING .NET CONTROLS

WINDEV 16 lets you include .Net controls directly in your windows.
Simply create a .Net type control and select the assembly class to instantiate. Then simply define the delegates that must be called on the events you want.
Winform (format recommended by .Net 2.0 then abandoned) and WPF (format recommended for .Net 3.0, 3.5 and 4) are supported by WINDEV 16.



A .Net control in a WINDEV window

Benefits provided by this version 16 new feature:
Complete integration

153 new feature W D W B W M

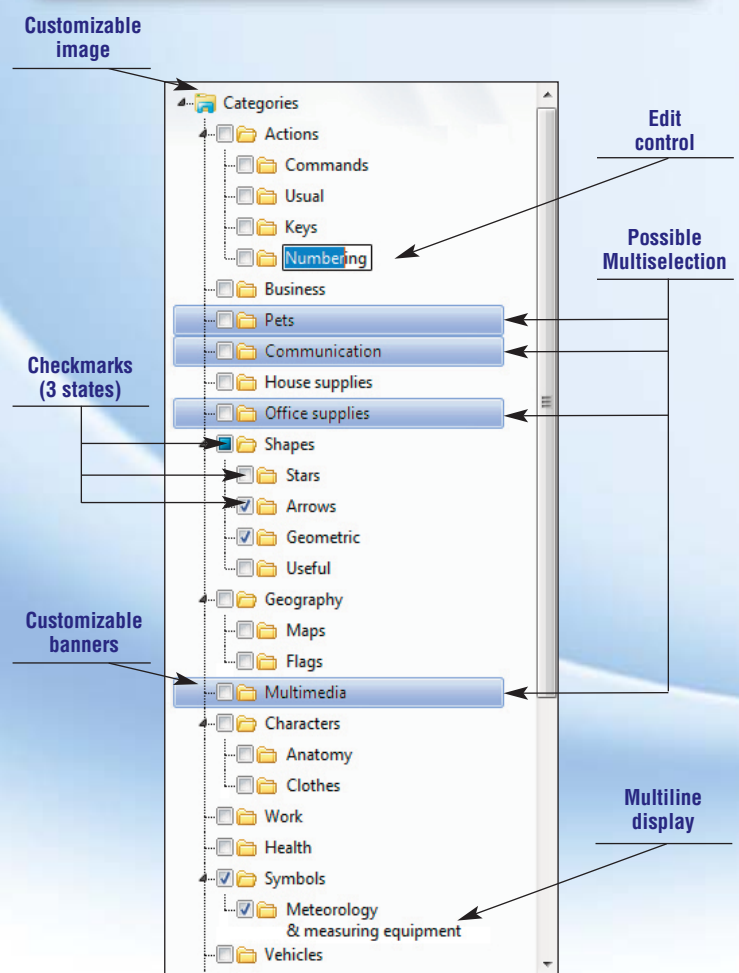
NEW TREEVIEW

In version 16, the "Treeview" control has been revamped. The existing characteristics are enriched. Some new functions are introduced:

- possible input
- the end user can perform a multiselection
- presence of checkmarks

- elements displayed can be multiline
- data binding is available for Treeview
- drag and drop operations are automatically managed between 2 treeviews
- the 32,767 element limit is removed
- the background color can be configured
- an information tooltip can be automatically displayed when rolling over a row (content configurable per row)
- an information tooltip can be present on scrollbars
- an AAF (Automatic Application Features) menu, offering a "copy/paste" feature among others has been introduced. Short-cut keys corresponding to menu choices are supported.
- it becomes possible to change the image of the expand button
- ability to alternate colors on Treeview rows now available
- the rollover/select image is configurable (like for a treeview table)
- the row height is configurable.
- Etc.

New in version 16



These new features come in addition to the already powerful treeview features

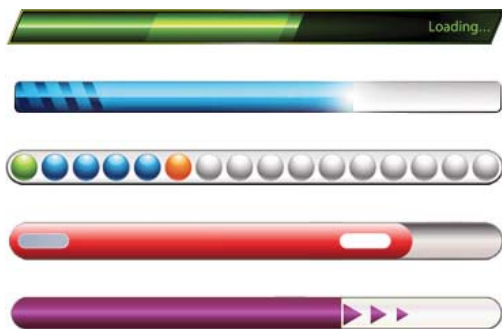
Benefits provided by this version 16 new feature:
Allows for better representation of tree style data.



MISCELLANEOUS

In version 16, you can:

- switch an edit control from RTF to not RTF or vice versa through programming (. .RichEdit property)
- find out the number of options with the . .Occurrence property
- find out whether a menu option exists with the MenuExist function
- change a window's icon by programming using the . .Icon property; you can assign an image created by programming (display a number of messages for instance, or an enable/disable status,...).
- modify the spacing between the title and the subtitle in Vista type radio buttons
- position buttons outside the window with the . .VisibleOutsideWindow property
- on menu options or on the menu, the Color and BrushColor properties are supported. You can now write:
OPT_Help. .Color = LightMagenta
OPT_Help. .BrushColor = 0xFF3456
- new events are being introduced: start and end rollover!
- progress bars accept the "9-image" mode, which creates hair-rising effects!



Benefits provided by this version 16 new feature:
New possibilities

**DEVELOPING
10 TIMES FASTER,
IS GREEN
DEVELOPING!**

INSTALLER

32 & 64 BIT INSTALLER

The install program manages applications in 64-bit mode.

An application install program can contain:

- the 32-bit application
- the 64-bit application
- the 32 and 64-bit application

If the application is present both in 32-bit and 64-bit, the installed version will depend on the Windows version found on the target computer.

If the target computer comes with a 32-bit version of Windows, the application will be installed in 32-bit.

If the target computer comes with a 64-bit version of Windows, the application will be installed in 64-bit.

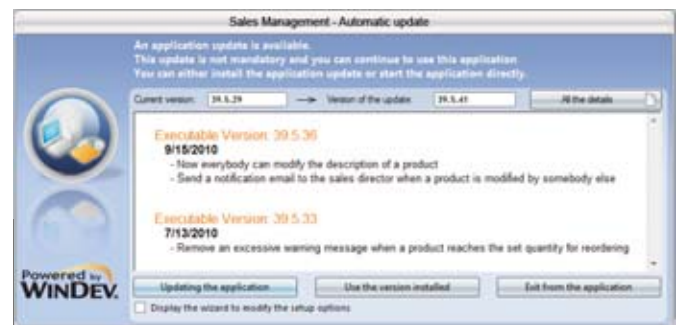
Benefits provided by this version 16 new feature:

The install program automatically installs the version corresponding to the OS

CHANGE WINDOWS

The new feature window displayed automatically during an update of the application has changed.

The information space has been optimized to display more information.



The window's display space is optimized

Benefits provided by this version 16 new feature:

Information is easier to read

ENVIRONMENTAL POLICY

When PC SOFT prints paper documents, PC SOFT, the paper provider or the printer (which is FSC – Forest Stewardship Council – and PEFC – Program for the Endorsement of Forest Certification Schemes - certified) replant as many trees as used for printing. The FSC label was created by the FSC NGO, which gathers Greenpeace, Friends of the Earth and WWF, among others. For example, printing 100,000 68-page documents on glossy paper consumes 10 trees: PC SOFT or

the printer immediately has 10 trees replanted. Also, we favor paper pulp made primarily from recycled wood products (such as wood coming from furniture mills) and forest maintenance clearing cuts. Also the products are available without any packaging nor paper documentation upon request. For instance, a 10 developer license can be provided with only 2 sets of documentation upon request.

LINUX: CREATE NATIVE EXES, WITH UI

Skin templates (not clipped) are supported.
Benefits provided by this version 16 new feature:
 Interface creation ease

158

new feature WD WB WM

AAF IN LINUX

The following AAF (automatic application features) are available in Linux:

Regarding windows

- Resize a window
- Store the size and position of the window

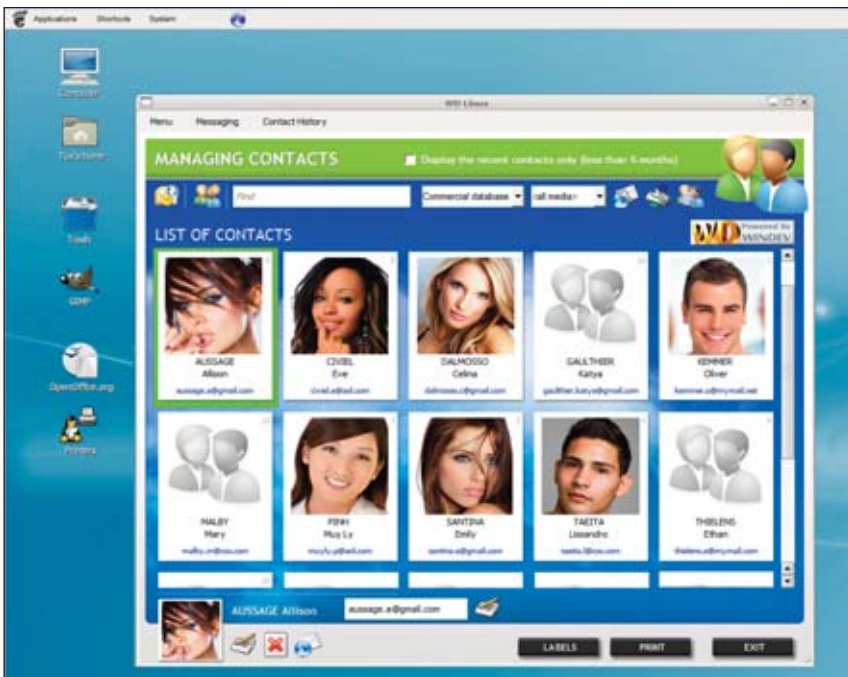
Regarding tables

- Copy elements selected in the table
- Display the total, average, and so on, of the information displayed in a table column
- Scrollbar tooltip
- Modify the height of a table rows
- Modify the column size
- Change the column order

- Sort the columns
- Search inside columns
- Immediately find the last formatting of a table

Regarding the edit controls

- Cancel: cancel the last performed action. This operation can also be done using the CTRL + Z key combination



A Linux application written with WINDEV 16

WINDEV 16 lets you create native Linux EXEs (you don't need to generate Java code to create a Linux EXE).

WINDEV 16 lets you create their UI directly in the window editor.

The windows, classes, procedures, reports, and so on, created by WINDEV 16 are multi-platforms.

157

new feature WD WB WM

LIST OF CONTROLS SUPPORTED IN LINUX

The most frequently used WINDEV controls are supported in Linux:

- Static
- Button
- Image control
- Edit control
- Chart
- Check box
- Radio button
- Tab
- List box
- Combo box
- Table
- Looper control
- Menu

Almost all the properties are available.

The window editor grays out the few properties not supported in Linux.



WINDEV 16 likes Linux, or is it the other way?

- Cut: retrieve the content of the control to put it in the clipboard. The control is emptied. The CTRL + X key combination is active.
- Copy: retrieve the content of the control to put it in the clipboard. The control is not emptied. The CTRL + C key combination is active.
- Paste: fill the control with the clipboard content. The CTRL + V key combination is active.
- Delete: empty the control. This operation can also be performed with the Del key.
- Complete selection of the control's content.

Regarding the Combo box controls

- Modify the size of an expanded combo box

Benefits provided by this version 16 new feature:

In Linux also, end users benefit from a powerful interface and a lot of automatic features.

159

new feature W D W B W M

BENEFIT FROM ALL THE POSSIBILITIES

The development of a Linux EXE takes advantage of all the features:

- Dynamic audit
- API function (allows you to call .so libraries)
- File links and data binding
- Multilingual support
- Debugging
- Debug dump
- ...

Benefits provided by this version 16 new feature:

Powerful and comfortable development.

160

new feature W D W B W M

PDF REPORTS IN LINUX

Reports, created with the report editor or by programming (**iPrint**) are executed in Linux.

The report is systematically generated as a PDF file.

Benefits provided by this version 16 new feature:

Ability to create beautiful reports in Linux.

161

new feature W D W B W M

COMPONENTS

You can create multiplatform components.

Starting with version 16, the same "binary" component can be used in a Windows and/or Linux application.

The same .WDK component can be used in a Windows application and in a Linux application without having to recompile.

Benefits provided by this version 16 new feature:

Component portability

162

new feature W D W B W M

HYPERFILESQL LINUX

HyperFileSQL is available in Client/Server mode for Linux (Client and server).

A Linux application can access a Linux or Windows server, in 32 or 64-bit mode.

HyperFileSQL is also available in Classic mode for Linux.

Benefits provided by this version 16 new feature:

Manage your databases in Linux

163

to 408

new feature W D W B

LINUX; 1.400 WLANGUAGE FUNCTIONS 246 NEW FUNCTIONS

Linux programming can take advantage of more than 1,400 WLanguage functions. Version 16 is enriched by 246 new functions, mainly control handling functions (non exhaustive list).

Cancel	Warning	Beep
FieldAlias	CurrentField	FieldError
FieldExistWindow	ControlGrayed	ControllInvisible
PreviousField	FieldFirst	NextField
ControlVisible	LoadImage	CurrentColumn
ComboClose	ComboOpen	Confirm
SelectionColor	dArc	dCircle
dChord	dStartDrawing	dEndDrawing
dBackGround	dLine	GetColor
SetFocus	GetIdentifier	dPixelColor
dPixelOpacity	dPoint	dFont
dPolygon	dSlice	dRectangle
dRectangleGradient	dSaveImage	dSaveImageBMP
dSaveImageJPEG	dSaveImagePNG	dPen
dText	ScreenFirst	ScreenToFile
ScreenToSource	EnumControlWindow	EnumMenuu
Error	ErrorBuild	Event
WinAdaptSize	CurrentWin	WinInput
WinStatus	WinOutHeight	WinOutWidth
WinOutXPos	WinOutYPos	WinBackgroundImage
WinIntialized	WinInHeight	WinInWidth
WinInXPos	WinInYPos	PreviousWin
WinScreenRectangle	WinRedraw	WinSize
WinUsefulSize	Close	FileToScreen
FileToMemoryList	FileToMemoryTable	grAddData
grStockAddData	grTooltip	grLoadParameter
grColor	grSeriesColor	grCreate
grCreateFont	grGradient	grDraw
grDestinationBMP	grDonutHolePercentage	grClearPict
grLineThickness	grCategoryLabel	grSeriesLabel
rExist	grGraduate	grColumnSpacing
grPrint	grIncreaseData	grInfoPoint
grInfoX	grInfoXY	grLegend
grLabel	grSmoothing	grMask
grMenu	grScatterAddDataXY	grScatterSeriesColor
grScatterSeriesLabel	grScatterLinkPoint	grScatterPointSize
grOrientation	grOrigin	grParameter
grLabelFont	grLegendFont	grTitleFont
grAxisTitleFont	grGridLines	grRaised
grSaveBMP	grSaveParameter	grPieStartAngle

grPiePullOut
grOverlayChart
grTitle
Iconize
Info
InitWindow
ListSeek
ListInsert
ListPosition
ListSelectCount
ListDeleteAll
MenuAdd
MenuAddSeparator
MenuExist
MenuInsertSeparator
WindowCount
ControlTab
OpenChild
ParentObject
HourGlass
MouseXPos
TableDisplay
TableAddLine
TableColumnSelectOccurrence
TableMoveLine
TableEnumColumn
TableFixColumn
TableInsert
TableMode
TableModifyLine
TablePosition
TableSelectMinus
TableDelete
TableSort
CurrentTitle
LooperAdd
LooperMoveLine
LooperInfoXY
LooperModify
LooperCount
LooperSelectMinus
LooperDelete

grSourceCategoryLabel
grDeleteSeries
grAxisTitle
CurrentSubscript
BitmapInfo
ListDisplay
ListMoveLine
ListModify
ListSelect
ListSelectPlus
ListSort
MenuAddMenu
MenuUnMark
MenuInsertMenu
MenuLabel
Occurrence
YesNo
OpenPopupMenu
Reset
Input
MouseYPos
TableAdd
TableSeek
TableSortedColumn
TableDisableFilter
TableItemStatus
TableColumnSubscript
TableInsertColumn
TableModify
TableRecNum
TableInputInProgress
TableSelectCount
TableDeleteAll
TableTypeItem
NextTitle
LooperAddLine
LooperSave
LooperInsert
LooperModifyLine
LooperPosition
LooperSelectCount
LooperDeleteAll

grSourceSeries
grDeleteAll
grType
NextSubscript
InfoBuild
ListAdd
ListInfoXY
List
ListSelectMinus
ListDelete
Maximize
MenuAddOption
MenuState
MenuInsertOption
MenuDelete
OKCancel
Open
OpenSister
Restore
SourceToScreen
TableEnableFilter
TableAddColumn
TableColumnSelect
TableMoveColumn
Table
TableEnd
TableInfoXY
TableInsertLine
TableModifyColumn
TableCount
TableSelect
TableSelectPlus
TableSort_55
Delay
LooperDisplay
LooperSeek
LooperBreakSubscript
LooperInsertLine
LooperRecNum
LooperSelect
LooperSelectPlus

409

new feature WD WB WM

SERIAL PORT MANAGEMENT

Version 16 of WINDEV lets you manage serial ports in Java applications.

The «s» family of functions is available.

Benefits provided by this version 16 new feature:

Easier connection with industrial devices

410

new feature WD WB WM

SUPPORT FOR HEXECUTESQLQUERY

The **HExecuteSQLQuery** is now available in Java.

Remember that this function lets you send a string (built by programming for instance) containing an SQL query to the database.

Benefits provided by this version 16 new feature:

Build the query in the format expected by the database

411

new feature WD WB WM

BETTER LIBRARY ORGANIZATION

Java generation benefits from improvements in the organization of the application libraries generated in version 16.

All the elements needed by the Java application are now split into subdirectories specific to the runtime platform.

Benefits provided by this version 16 new feature:

Better organization of the elements on the disk

412

new feature WD WB

JAVA: 24 NEW FUNCTIONS

The number of WLanguage functions supported with Java generation is increased by the functions below (non-exhaustive list, 24 new functions).

Add	AnsiToUnicode	RoundDown
RoundUp	CharactUnicode	Seek
SeekProcedure	GetColor	InWindowsPhoneEmulatorMode
InWindowsPhoneSimulatorMode	InWebserviceMode	InWindowsPhoneMode
HExecuteSQLQuery	Insert	NoCharacter
sWrite	sClose	sRead
sOpen	Delete	ArrayDeleteDuplicate
ThreadCurrent	Sort	UnicodeToAnsi

JAVA



WLANGUAGE 66 NEW FUNCTIONS

436 to 501 new feature W D W B

NEW FUNCTIONS AVAILABLE IN WINDEV

66 new WLanguage functions are introduced in WINDEV 16, for your benefit:

OrganizerDisplay	Reinitializes the content of an Organizer control using its data source
CurrentYear	Returns the current year as an integer.
TreeSelectOccurrence	Returns the number of elements selected in an treeview.
RoundDown	Rounds a decimal number to the closest lower integer.
RoundUp	Rounds a decimal number to the closest higher integer.
CharactUnicode	Returns the Unicode character corresponding to the specified code.
CertificateExtract	Extracts a certificate from a signature buffer or from a print duplicate copy.
CertificateList	Returns the list of available certificates on the machine.
CertificateProperties	Opens the MS Windows certificate property window.
CertificateSelect	Opens a certificate selection window.
CertificateSignString	Signs a character string.
CertificateSignFile	Retrieves a signature buffer corresponding to the content of a file.
CertificateCheckString	Checks the correspondence between the signature and the string.
CertificateCheckDuplicate	Checks a duplicate copy's signature.
CertificateCheckFile	Checks the validity of a file signature.
SeekProcedure	Looks for a procedure known by its name.
SysDateTime	Returns the system date and time as a DateTime type.
LastDayOfMonth	Returns the last day of the month (28, 29, 30, or 31).
DNSAddAddress	Adds an IP/Name relationship to the DNS.
DNSListAddress	Lists the IP addresses associated with a name in the DNS.
DNSDeleteAddress	Deletes a Name/IP relationship from the DNS.
InWindowsPhoneEmulatorMode	Identifies whether the test is performed using the Windows Phone emulator.
InWindowsPhoneSimulatorMode	Identifies whether the execution is performed in Windows Phone simulator mode.
InWebserviceMode	Identifies whether the execution is run in the AWWW engine.
InWindowsPhoneMode	Indicates whether the code is executed in Windows Phone mode.
ExceptionDisplay	Displays the standard exception window.
Factorial	Returns the factorial of an integer.



fLoadBuffer	Loads and returns the content of a file in the form of a buffer type variable.
fIsImage	Enables you to find out whether a disk file is a known image format.
fSaveBuffer	Directly saves the content of a buffer type variable in a file.
FTPProxy	Specifies whether the communication functions using the FTP protocol must use a proxy or not to execute requests.
HAccelerateSpeed	Calculates statistics on the keys of the data file.
HexaToNum	Returns the numeric value of a hexadecimal string.
HFreeQuery	Deletes a declaration performed with HDeclare, HDeclareExternal, or HDescribeFile.
HTMLToRGB	Returns the color (rgb values) from the HTML attribute.
MenuExist	Allows you to find out whether a menu option exists in a menu.
CurrentMonth	Returns the current month.
MutexCreate	Creates a mutex
MutexStart	Blocks the current thread while waiting for the mutex to be free.
MutexDestroy	Destroys a mutex.
MutexEnd	Signals that the thread frees the mutex.
NumToHexa	Returns the hexadecimal string of a numeric value.
OutlookListProfile	Lists the available Outlook profiles.
OutlookDefaultProfile	Retrieves the default profile defined in Outlook.
SchedulerDisplay	Reinitializes the content of a scheduler control using its data source (HF file for ex)
SchedulerAddAppointment	Adds a new appointment into a scheduler control.
SchedulerAddResource	Adds a new scheduler resource.
SchedulerTimeDisplayed	Defines the time slot displayed in the Organizer control in Day or Week mode.
SchedulerListAppointment	Lists the appointments in a scheduler control.
SchedulerPosition	Displays a Scheduler control starting from a specified date or returns the date of the first day (or last day) displayed in a Scheduler control.
SchedulerSelectMinus	Deselects an appointment from a scheduler control.
SchedulerSelectPlus	Selects an appointment from a scheduler control.
SchedulerDeleteAppointment	Deletes an appointment from a scheduler control.
SchedulerDeleteResource	Deletes all the resources from a scheduler control.
SchedulerDeleteAll	Deletes all the appointments and all the resources of a Scheduler control.
FirstDayOfMonth	Returns a date type variable containing the first day of the month.
GetDefinition	Retrieves the definition of the element type
RegistryCopyKey	Copies the content of a registry key and all its subkeys.
RegisterRename	Renames a registry key.
RGBToHTML	Returns the HTML attribute of a color.
NoCharacter	Deletes the specified characters from the beginning and end of a string.
SysScreenRectangle	Returns the absolute position of a screen in respect to Windows origin.
ArrayDeleteDuplicate	Deletes duplicates from an array.
TableCellSelect	Returns the coordinates of a selected table cell (selection at the cell's level).
TableCellSelectOccurrence	Returns the number of selected cells in a table with selection at the cell's level
TableColumnSelect	Returns the index of the selected table columns (tables with "column selection" option)
TableColumnSelectOccurrence	Returns the column number for the selected column in a table (table with "column selection" option)
ThreadCurrent	Returns the name of the current thread.



WINDEV® Mobile



Mobility is increasingly becoming more important in today's world.

Developing professional applications for mobile devices, telephones and smartphones is more than ever a requirement.

WINDEV Mobile 16 lets you develop applications for:

- Windows Phone 7
- Windows CE and Mobile
- Android.

(WEBDEV 16 is the product that enables you to develop applications for iPhone and iPad).



You develop as usual in WLanguage, you create interfaces as usual in the window editor. You can reuse your existing code.

With WINDEV Mobile 16, your existing code lives longer. You've made the winning choice: the compatibility choice!

COMMON NEW FEATURES

502

new feature WD WB WM

COMMON NEW FEATURES

WINDEV Mobile benefits from the 146 common new features (see page 3 to 36).

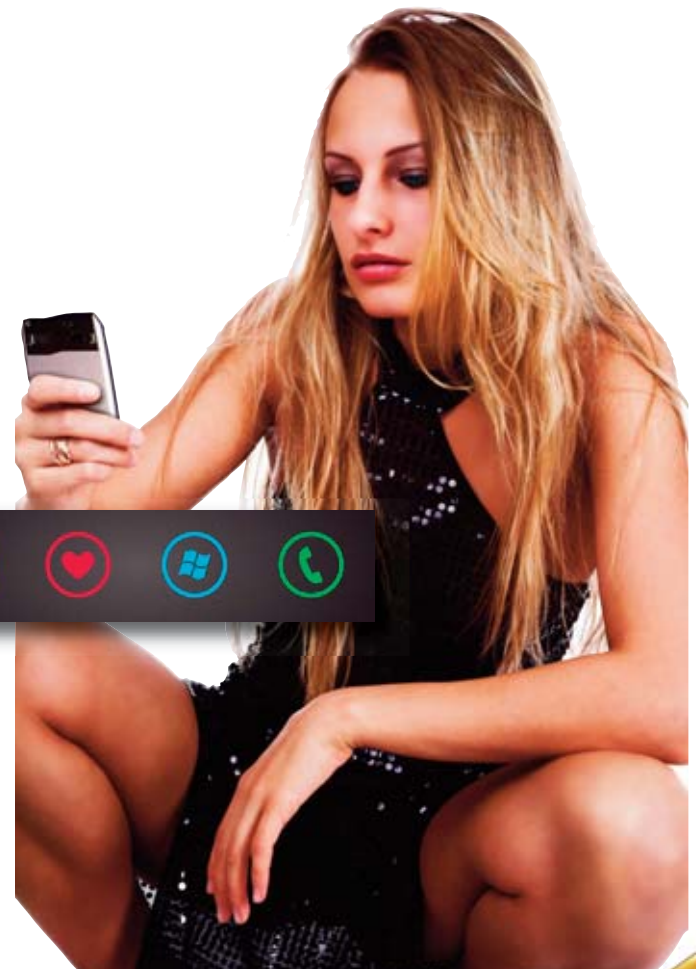
Read about these important new features for WINDEV Mobile 16!

SUPPORT FOR WINDOWS PHONE 7



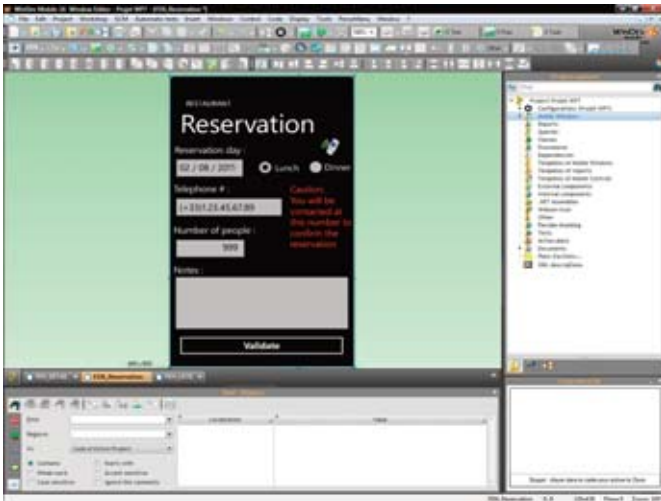
Windows Phone 7 lets you develop new types of applications for smartphones.

WINDEV Mobile 16 enables you to take advantage of your know-how for building Windows phone 7 applications.



The Expert's advice

“Windows Phone 7, Windows Mobile, Android: WINDEV Mobile 16 supports all the professional mobile systems in 2011. With a single language (WLanguage), with a single environment (WINDEV Mobile 16), you control the market.”



In the WINDEV Mobile 16 environment, development of a Windows Phone 7 application

503 new feature W D W B W M

SUPPORTED CONTROLS

The following controls are supported by WINDEV Mobile 16 on Windows Phone 7:

- Static control
- Image control
- Button control
- Edit control
- Looper control
- Check box/Radio button



504 to 659 new feature W D W B

156 WLANGUAGE FUNCTIONS

156 WLanguage functions are already supported in Windows Phone 7 (non exhaustive list).

Abs	Age	ArcCos
ArcSin	ArcTan	Round
Asc	Charact	StringCompare
StringBuild	StringFormat	StringCount
StringToDate	StringToArray	StringToUTF8
CurrentField	FieldExist	LoadParameter
Complete	CompleteDir	MakeInteger
Cos	CoTan	ColorLightness
ColorSaturation	ColorHue	CSVToArray
DateDifference	Today	DatelsValide
DateTimeDifference	DateTimeLocalToUTC	DateTimeByDefault
DateTimeUTCToLocal	DateSys	DateValid
DateToString	DateToInteger	DateToDay
DateToDayInAlpha	DateToMonthInAlpha	DateToWeekNumber
dbgInfo	UncompleteDir	Dimension
GetIdentifier	Right	DurationToString
InAJAXMode	InAndroidMode	InAWPMode
InComponentMode	InAndroidEmulatorMode	InWindowsPhoneEmulatorMode
InReportsAndQueriesMode	InJavaMode	InMCUMode
InPHPMode	InPocketMode	InStoredProcedureMode
InSimulatorMode	InAndroidSimulatorMode	InPHPSimulatorMode
InPocketSimulatorMode	InWindowsPhoneSimulatorMode	InServiceMode
OnTestMode	InAutomaticTestMode	InWebMode
InWindowsPhoneMode	IntegerToDate	IntegerToTime
IntegerToDay	IntegerToDayInAlpha	IntegerToMonthInAlpha
IntegerToWeekNumber	IsOdd	IsNumeric
IsEven	BinaryAND	ExelInfo
Exp	ExtractString	fAttribute
fAttributeReadOnly	fChangeSize	fLoadText
fCompare	fCopyFile	fCreate
fDate	fDateTime	fMoveFile
fWrite	fWriteLine	CurrentWin
WinInput	Close	fExtractPath
fClose	fFileExist	fGraphicFilter
fTime	EndProgram	EndTimerSys
fListFile	fListDirectory	fRead
fReadLine	fNameOfFile	fOpen
fSeek	fRename	fDir
fDirAttribute	fMakeDir	fCurrentDir
fDirectoryExist	fExeDir	fParentDir
fRemoveDir	fDirSize	fSaveText
fDelete	fSize	Left
Random	TimeDifference	TimelsValid
TimeSys	TimeValid	TimeToString
TimeToInteger	HTTPGetResult	HTTPRequest
INIWrite	INIRead	InitRandom
Reverse	BankHoliday	BankHolidayAdd
BankHolidayDeleteAll	LanguageToNation	LanguageToName
Ln	Log	Now
Upper	Max	Middle
Min	Lower	Nation
NationToLanguage	WindowCount	BinaryNOT
NumToString	WeekNumber	Occurrence
BinaryOR	BinaryXOR	Easter
DecimalPart	IntegerPart	LoWord
HiWord	Position	PositionOccurrence

ProjectInfo	Power	Root
Reset	Replace	RepeatString
ReturnToCapture	RGB	RGBBlue
RGBRed	RGBGreen	NoAccent
NoSpace	SaveParameter	Sin
SMSSend	SMSNbMessage	SMSFirst
SMSReset	SMSNext	SMSDelete
SocketAccept	SocketWaitForConnection	SocketChangeTransmissionMode
SocketClientInfo	SocketConnect	SocketCreate
SocketCreateUDP	SocketWrite	SocketExist
SocketClose	SocketRead	SocketDeny
DeleteParameter	SysWindowsVersion	SysXRes
SysYRes	ArrayAdd	ArraySeek
ArrayCopy	ArrayInfo	ArrayInsert
ArrayCount	ArrayDelete	ArrayDeleteAll
ArraySort	ArrayToString	ArrayToCSV
Length	CommonLength	LengthToString
Tangent	tapiDialerDisplay	tapiDialerCall
TextToXML	TimerSys	CurrentTitle
NextTitle	ToastDisplay	HSL
TypeVar	DataType	URLDecode
URLEncode	UTF8ToString	Val
VariableReset	WinDevVersion	XMLToText
LooperDisplay	LooperAdd	LooperAddLine
LooperSeek	LooperMoveLine	LooperInfoXY
LooperInsert	LooperInsertLine	LooperModify
LooperModifyLine	LooperCount	LooperPosition
LooperDelete	LooperDeleteAll	LooperSort
LooperSort		

ANDROID



With version 16, Android development gains maturity. There are a large number of evolutions, useful and fully integrated with the environment. Android development has never been this powerful while remaining this easy!

661

new feature W D W B W M

COMPASS AND ACCELEROMETER MANAGEMENT

Android applications can be driven by phone movements! For example, a movement to the right switches to the next form, a movement to the left goes back to the previous form, an up movement points to the beginning of the file and a down movement points to the end of the file.

Programming this type of interface is made very easy with WINDEV Mobile 16.

The new **Captor** family of functions lets you offer this type of interface.

Among the supported actions:

- sshaking (sharp movement) (start and end)
- change of acceleration
- change of orientation
- orientation (compass).

This type of interface can be combined or co-exist with a standard (buttons, etc.) interface.



Benefits provided by this version 16 new feature:
Easy creation of interfaces linked to movements

WINDOWS CE & MOBILE

660

new feature W D W B W M

32 NEW WLANGUAGE FUNCTIONS

Windows CE and Windows Mobile development benefit of course of all the common new features of version 16. WLanguage is enriched with 32 new functions.

CurrentYear	TreeSelectOccurrence	RoundDown
RoundUp	CharactUnicode	SeekProcedure
SysDateTime	InWindowsPhoneEmulatorMode	InWindowsPhoneSimulatorMode
InWebserviceMode	InWindowsPhoneMode	ExceptionDisplay
FTPProxy	Factorial	HAccelerateSpeed
HFreeQuery	HTMLToRGB	HexaToNum
MenuExist	CurrentMonth	NumToHexa
FirstDayOfMonth	RGBToHTML	RegistryCopyKey
RegisterRename	NoCharacter	ArrayDeleteDuplicate
ThreadCurrent	fLoadBuffer	fIsImage
fSaveBuffer		

Benefits provided by this version 16 new feature:
Even more powerful language

Wi-Fi



Wi-Fi management with WINDEV Mobile 16 is very complete. La nouvelle famille de fonctionThe new **wifi** family of functions offers a large number of functionalities, including:

- access point detection
- connection to an access point
- add/delete to/from the list of available networks
- connection status
- information about the connection
- WEP, WPA, WPA2, WPA EAP, IEEE8021X and more encryption management...
- ...

Benefits provided by this version 16 new feature:
Easy management of Wi-Fi capabilities

BLUETOOTH



Bluetooth management with WINDEV Mobile 16 is very complete.

The **BTxxx** family of functions offers a large number of functionalities, including:

- list of Bluetooth devices
- change the phone visibility
- accept connections
- get information about a device
- ...

Benefits provided by this version 16 new feature:
Easy management of Bluetooth capabilities

NOTIFICATION



A notification, top left, (here sales figures)



The expanded notification

The icons found on top of the Android welcome screen are "notification" icons.

You can "expand" them to view details.

Thanks to the **Notify** family of WINDEV Mobile 16 functions, it is

easy to add and delete icons (and their details) to and from the notification bar, perform sound notifications, vibration or turn the LED on.

For example: the application received a message, information has been sent, the application is properly (or not) connected, you have an appointment...

There are 4 types of notifications, all managed by WINDEV Mobile 16:

- notification on home banner
- sound notification
- notification by vibration
- notification by lighting (in the chosen color) the LED of the phone's face.



Turn on the phone's led in the color of your choice

Benefits provided by this version 16 new feature:
Get the user's attention

TOAST



A Toast is a rollover message that comes up in the middle or at the bottom of the screen and provides information to the user without the need to validate.

Simply specify the text to display, the location where to display it and the amount of time (short or long) you want it displayed using the **ToastDisplay** function.



Display of a toast type message

Benefits provided by this version 16 new feature:
Easy display of toasts

666 new feature W D W B W M

HAPTIC FEEDBACK : MAKE YOUR PHONE VIBRATE!



Thanks to the `..HapticFeedback` property you can make a phone vibrate when entering information.

Benefits provided by this version 16 new feature:
More user friendly input

667 new feature W D W B W M

FASTER GO IN EMULATOR MODE

Testing an application is of course extremely important! In order to make this testing phase better, the speed of the GO operation in emulator mode has been noticeably increased. It is now about three times faster.

Benefits provided by this version 16 new feature:
Faster GO

668 new feature W D W B W M

ACCESS THE CONTACT LIST

Browsing, searching, creating, modifying and deleting contacts found on the phone is managed with WLanguage using the `Contact` family of functions.



Benefits provided by this version 16 new feature:
The integration with the phone's data is complete

669 new feature W D W B W M

CAMERA/PHOTO CONTROL

The Camera control is introduced in Android. This control directly displays the images captured by the phone's camera.

Photos and videos are supported.

What is visualized can be saved (photos in JPG and PNG format, videos in mpg, 3gp format).

The control also allows display.

For example, an expert can take photos and include them directly in his report, or the application can send them automatically to headquarters and include them automatically in the relevant report (in WINDEV or Word format for instance).

The `Video` functions allow you to control this type of control.



Visualization in Android

Benefits provided by this version 16 new feature:
Easy multimedia

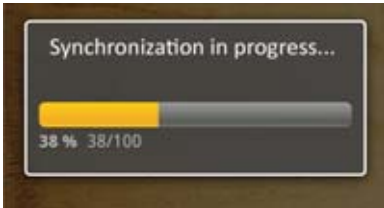
670 new feature W D W B W M

6 NEW ANDROID CONTROLS

The following controls are added to the list of controls available under Android:



- Progress bar control
- Formatted static control
- Control template
- Internal window control
- Supercontrol control
- HTML control



Benefits provided by this version 16 new feature:
Richer interfaces

671

new feature W D W B W M

7 OTHER NEW ANDROID FEATURES

- Internet: Display of a Web page (trigger the opening of a browser on a given page), of an HTML control, of clickable links.
- Option to prevent the rotation of the application
- Customization of the back and search buttons, wheel, wheel click, etc....
- Drawing functions: **dStartDrawing**, **dLine**, **dRectangle**, **dCopyBlt**, etc...
- The 9-image mode is supported in Android.
- Evolutions of the control styles: you can use styles in Android, you're not required to use the default skin template anymore.
- Install: ability to add files to the application during the generation, such as a database

Benefits provided by this version 16 new feature:
Richer interfaces

672

new feature W D W B W M

SQLITE: NATIVE ACCESS

Native SQLite access lets you natively access the data files found on Android devices using the regular WLanguage commands. You can also access these files from a PC to synchronize data for instance.

Benefits provided by this version 16 new feature:
Native access provided with the product

673 to 788

new feature W D W B

116 NEW WLANGUAGE FUNCTIONS FOR ANDROID (616 FUNCTIONS)

WLanguage for Android was born with 257 functions. Through all version 15 updates, the number of supported functions has increased to more than 500. In version 16, 116 new functions are being introduced.

Add	AnsiToUnicode	BTAcceptConnection
BTActivate	BTChangeVisibility	BTIsVisible
BTStatus	BTInfoDevice	BTListDevice
BTStatus	BTInfoDevice	BTListDevice
CaptorDetectChangeAcceleration	CaptorDetectChangeOrientation	CaptorDetectBeginningBumps
CaptorDetectEndBumps	SensorGetOrientation	ControlClone
ChangeSourceWindow	Seek	SeekProcedure
SIPVisible	ContactAdd	ContactSearch
ContactLast	ContactRead	ContactModify
ContactPrevious	ContactReset	ContactNext
ContactDelete	dArc	dCircle
dChangeMode	dCopyBlt	dChord
dStartDrawing	dEndDrawing	dBackGround
dLine	dModifyLightness	dModifySaturation
dModifyHue	dModifyHSL	GetColor
dPixelColor	dPixelOpacity	dPoint
dFont	dPolygon	dSlice
dRectangle	dRectangleGradient	dResize
dFill	dRotation	dSaveImageJPEG
dSaveImagePNG	dPen	dHorizontalSymmetry
dVerticalSymmetry	dText	EmailRunApp
InWindowsPhoneEmulatorMode	InWindowsPhoneSimulatorMode	InWindowsPhoneMode
WinStatus	HChangeDir	Insert
HExecuteSQLQuery	HtmlNavigate	NotifAdd
BrowserRunApp	CommandLine	NotifSound
NotifDelete	LEDSwitchOn	SocketCreateBluetooth
VibrationTrigger	SocketConnectBluetooth	MouseYPos
Sound	MouseXPos	SysSerialNum
Delete	SysSpace	ToastDisplay
SysScreenOrientation	SysDirStorageCard	Use
Sort	UnicodeToAnsi	VideoStatus
VideoDisplay	VideoStop	WiFiAddNetwork
VideoStartApp	WiFiActivate	WiFiStatus
WiFiConnect	WiFiDetectAccessPoint	WiFiDeleteNetwork
WiFiConnectionInfo	WiFiListNetwork	



Develop applications for Android tablets



With WINDEV Mobile 16 program any industrial device

WEBDEV®



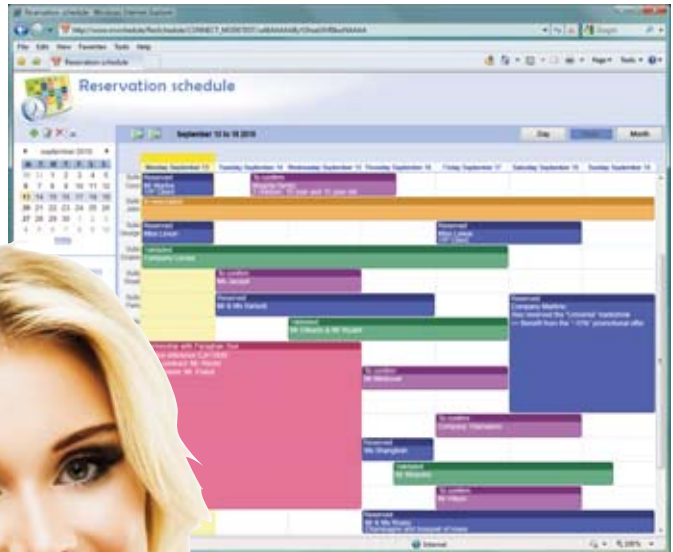
COMMON NEW FEATURES

789 new feature WD WB WM

COMMON NEW FEATURES

WEBDEV 16 benefits from the 146 common new features (see page 3 to 36).

Read about these new important features for WEBDEV 16!



A schedule built using the Scheduler control of WEBDEV 16

NEW CONTROLS

790 new feature

SCHEDULER CONTROL

The Scheduler control of WEBDEV 16 offers the same set of features as the Scheduler control of WINDEV 16.

The code is compatible between WINDEV 16 and WEBDEV 16.

The Scheduler control uses Ajax technology. The entire page is not refresh every time a piece of Scheduler data is modified, only the relevant section is updated, which allows for faster display.

It provides a comfortable interface to the end user, since it can be handled with the mouse for creation, sizing, moving and deleting tasks, and this regardless of the browser.

The amount of time you'll save thanks to this control is incredible: the WEBDEV 16 scheduler control lets you save weeks of programming.

It offers sophisticated results in just a few hours.

The link with the data is done by programming, or still simply by data binding (see new feature 001 to 007).





Benefits provided by this version 16 new feature:
Extremely powerful control, handled with the mouse by the user

791 new feature W D W B W M

CAPTCHA CODE CONTROL



"Captcha" are distorted texts that a web user must read and enter into a site control before validating a form. The intent of these "captcha" is to prevent bots from automatically entering information in a site. By implementing this type of security in an input form, you can be assured that a human is actually entering the information! Thanks to WEBDEV version 16, "captcha" management is all automated. The captcha control automatically calculates and displays a distorted image corresponding to a text. This text can be generated automatically by the control, or defined by the application. You can reset the control if the captcha is truly unreadable, using the **CaptchaDisplay** function. You can also customize the font's color. The **CaptchaVerify** function allows you to check the user's input, with some flexibility on some ambiguous characters. Note that the algorithm used to build the captcha changes at each display, which offers added security. The distortion changes with every display.



An automatically displayed captcha

Benefits provided by this version 16 new feature:
Protection of your sites against evil bots

792 new feature W D W B W M

AUTOMATIC SCROLLING IMAGE CONTROL

The automatic scrolling image control allows you to view a set of images found in one or more directories of the site. Directory browsing is performed automatically. The change of image can be automated or manual, using the **ImageNext**, **ImagePrevious**, **ImageStartScrolling**, **ImageStopScrolling** browser functions. Some transition effects can be applied. This control enables you to create ad banners or a slide show. The directories of the images to list can be stored in a database. No programming is required to display the images, no specific driver (Flash, etc.) is required. Clicking an image returns the name of the clicked image to the site.



Ad banner examples



Banner in action

Benefits provided by this version 16 new feature:
A series of banner ads without any programming, or a slide show. Add images without redeploying the site or feeding a database

PROGRESS BAR CONTROL (AJAX)

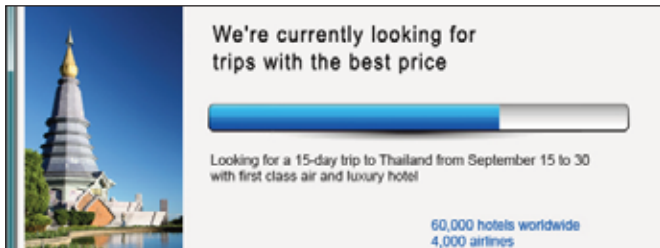
On the Web (without WEBDEV) it is quite complicated to create progress bars that show the status of a process.

In server processing, the Browser is not informed of the process status on the server.

In browser processing, since the browser processes are sequential and synchronous, the browser doesn't refresh the display during the process.

Thanks to the WEBDEV 16 progress bar control, you can now display bars that progress proportionally to the level of completion of a process

This control is based on the Ajax technology.



Benefits provided by this version 16 new feature:

An automated progress bar control, in both server code and browser code.

THUMBNAIL CONTROL: POPUP DISPLAY

In version 16, it is now possible to specify the display target of the image corresponding to a thumbnail:

- new browser
- new tab
- image or popup control.

DDW (dim disabled windows) is automatically managed.

You can customize the (popup) cell that displays the thumbnail.



Benefits provided by this version 16 new feature:

Fashionable image visualization.

CALENDAR CONTROL: EVOLUTIONS

A new event is introduced for programming calendars: the "month change click" process.

It is also now possible to customize the images of the "next month", "previous month" arrows.

Benefits provided by this version 16 new feature:

Better interaction and customization of the calendar control

HTML 5



The Expert's advice

“HTML 5 represents an important evolution of the Internet standard. The elaborate representation of Internet pages is standardized and new features are introduced.”

HTML 5 features are available on recent browsers.

HTML 5 : LOCAL APPLICATIONS

One of the strong features of HTML 5 is the ability to create Web sites that work without being connected to the Internet.

WEBDEV 16 offers a lot of new features based on HTML 5 allowing you to easily create Web applications that work in offline mode.

This new mode lets you use a site without being connected to the Internet

This is particularly useful for mobiles applications.

USING OFFLINE SITES

WEBDEV 16 lets you specify that a site or a set of given pages can work in offline mode (without Internet connection).

In this case, all the resources (pages, images, .js file, .css file, etc.) used by the site or the pages are automatically cached on the user's computer by the browser.

This way the site can be used without being connected to the Internet.

The `BrowserIsConnected` browser function allows you to find out whether the browser is in online or offline mode and to adapt to the site's behavior.



Your web sites work offline, on a computer or smartphone: even in a tunnel!

Benefits provided by this version 16 new feature:

Use sites offline, like applications

LOCAL STORAGE (WEB STORAGE)

WEBDEV 16 allows a site to store some information on the user's machine.

This information is stored into a context specific to the browser. This information can be persistent (kept from one session to another) or temporary (kept only until the current browser window is closed).

The stored information can be any values or the content of controls.

The following browser functions let you handle these local data:

- `LocalStorageAdd`
- `LocalStorageAvailable`
- `LocalStorageGet`
- `LocalStorageDelete`
- `LocalStorageDeleteAll`
- `LocalStorageOccurrence`
- `LocalStorageValueName`

For example, we can imagine entering text: the text input can be interrupted, the text is stored and reoffered to the user the next time he connects.

What is the difference between local storage and cookies? In a local storage, the size is not limited, and the content is not sent to the server with each request, therefore the bandwidth consumption is reduced.

Benefits provided by this version 16 new feature:

You can now store information on the user's computer.

ACCESS IN LOCAL MODE TO A DATABASE (SQLITE)

WEBDEV 16 lets a site create and access a database created by the browser, from the user's computer in browser code.

The `SQLConnect` browser function lets you create or connect to a local database.

The database is created on the user's machine.

A maximum size is specified when it is created.

Then the database is accessed in SQL via the `SQLExec` functions of WLanguage.

The database access is asynchronous; transactions are possible thanks to the `SQLTransaction` function.

This feature allows you for example to enter data in offline mode, and automatically send them to the server as soon as an Internet connection is established.

Benefits provided by this version 16 new feature:

Ability to store structured data on the user's computer.

HTML 5 : GEOLOCALIZATION BY GPS

GEOLOCALIZATION



WEBDEV 16 offers you a set of browser functions that let you interact with a device's GPS features if the device has any (usually mobile device).

The `GPSGetPosition` function lets you find out the current GPS position.

You can also follow a movement via the [GPSFollowMovement](#) function.
 These new functions let you program location and positioning features in a site.

Benefits provided by this version 16 new feature:
Easy GPS, also useful in augmented reality.

HTML 5 : DRAWING IN BROWSER MODE

800 new feature W D W B W M

BROWSER MODE DRAWING FUNCTIONS

WEBDEV 16 offers drawing functions, based on the HTML 5 standard.

For experts, these functions rely on the "canvas" tag of HTML 5. Draw inside an image control using the [dPoint](#), [dLine](#), ... functions and many other ones.

The famous family of WLanguage drawing functions now becomes available in browser code with WebDev 16.

The drawing is done without going back to the server.

This is very useful when you want to annotate an interactive map or in the augmented reality field.



Here a map displayed via an image control: the directions have been drawn with the Browser drawing functions

Benefits provided by this version 16 new feature:
Easily draw directly in the browser!

HTML 5 : VIDEO WITHOUT PLAYER

801 new feature W D W B W M

VIDEO WITHOUT PLUG-IN



A site built with WEBDEV 16 and used in a browser supporting the HTML 5 standard doesn't require any special plug-in (Windows Media Player, QuickTime or Flash) to play videos. The advantage of this HTML 5 tag is that it allows the display of video on any modern operating system and browser from a single source code.

Indeed, some plug-ins don't work on all the systems, some others must be downloaded and installed.

This also allows for interaction with the video through the WLanguage and for customization of the display.

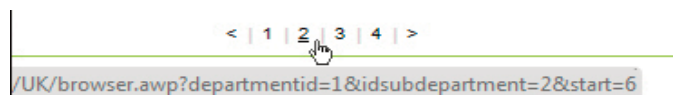
For older browsers, note that WEBDEV offers a video control that automatically uses an external player adapted to the image format.

Benefits provided by this version 16 new feature:
Universal video.

AWP

802 new feature W D W B W M

AWP PAGER



In version 16, in AWP mode, the pager automatically manages the passing of parameters, without any programming.

This type of ruler allows for the referencing of any linked page and avoids having to use cookies to store the current search.

Benefits provided by this version 16 new feature:
Better referencing of pages with parameters



APPLICATION RAD: CREATE A CUSTOMIZABLE SITE IN JUST A FEW CLICKS

The Application RAD lets you create a site in just a few clicks: forum, CMS, rental, real estate, travel agency, ...
The created site is then easily customized, at the code level as well as the presentation level.

Regarding the graphic look, when generating the site or at any time later, you can define:

- the skin
- the color palette.

Regarding the analysis, we can modify or enrich the analysis at any time, even on an already deployed site.

If some items are added, the corresponding controls are automatically added to the pages.

Regarding the page content and their formatting, you can edit each page of the site at any time: you're never stuck.

You can enrich the site by adding pages of your choice.

Each generated site is fully configurable and customizable.

The application RAD lets you save important amount of times when developing a site. It generates for you in a few clicks the "base" of your site that you can fully customize afterwards.
In version 16, new types of sites are added to an already rich set: Travel agency, Real estate, DVD rental, e-commerce, customer service, etc...

803 new feature W D W B W M

BLOG RAD

This type of site offers the standard features for a blog, or news service in the Internet.

The site can be consulted by anybody and everybody can add comments to it.

The blog's author edits and publishes his entries directly online in a rich HTML control; it can include images.

The site is based on the AWP mode which allows for referencing

of each page by search engines (Google, etc.)

This site is available both in AWP and PHP.

A special mobile access is supported for this site (page size adapted to mobile format).

An RSS stream is also included automatically.



*Blog desktop version
... and "mobile" version*

Benefits provided by this version 16 new feature:

Easily create a custom blog

804 new feature W D W B W M

CMS RAD

CMS consists in dissociating the UI operations from the content management operations for a site.

Since WEBDEV creates dynamic site, it is CMS by nature: a lot of displayed information comes automatically from the database.

But CMS goes further, by dissociating the text of the static pages from their presentation.

It is now possible to modify the text of a static page without editing the page!

The CMS site generated by the application RAD of WEBDEV 16 lets you edit text online, directly from the browser. These articles

are organized by category. These articles become, once published, actual pages on the site. The validation of articles can be restricted to a moderator. The CMS site automatically offers a mobile version of the pages corresponding to the articles. This site is available in AWP mode, which means that each page can be referenced by search engines.



Benefits provided by this version 16 new feature:
Very easy creation of a managed CMS site



Benefits provided by this version 16 new feature:
Easy creation of a discussion forum site

805 new feature W D W B W M

ASSOCIATIVE SITE RAD

This type of site is made of:

- a presentation part referenceable and accessible by everybody
- a secured space reserved to member of the association.

You can consult the news and comment on them, publish articles, feed a photo gallery, contact the other members. An administration section is used to manage the accounts of the association's members. This site works in AWP mode for the presentation part and in classic mode for the member space. It is also fully available in PHP mode. A special mobile access is supported for this site (page size adapted to mobile format).

Benefits provided by this version 16 new feature:
Creation of an association management site in just a few clicks.

806 new feature W D W B W M

FORUM RAD

This type of Forum site offers the main features of a user forum: creation of a forum, topic creation, message (or post) creation in HTML, moderation of the posted messages by an administrator and "fulltext" searches among the messages. This site is available in Classic mode, AWP and PHP. A special mobile access is supported for this site (page size adapted to mobile format).



807 new feature W D W B W M

MOBILE EDITING MODE

Some mobile devices let you view Internet sites. Some sites are created (or adapted) specifically to work on generic mobiles, or on a specific model (iPhone in particular, see later). Version 16 of WEBDEV lets you specify when creating the project that it is destined to work on mobile. The various choices offered by the environment during the project's development (preset skins and templates offered, GO mode, etc.) will be adapted to mobiles.

Benefits provided by this version 16 new feature:
Useful for developing a site adapted to some specific hardware.



GO IN A PRESET FORMAT

The format of the screens on these mobile devices (iPhone, Archos tablet, iPad, smartphone, etc.) is important when developing sites specific to these devices

Version 16 of WEBDEV lets you perform a test of the site (Go of the site) by choosing a specific display size, in order to check the behavior of the site on these devices.

Switching between portrait or landscape display is supported.

Benefits provided by this version 16 new feature:

Indispensable for developing a site adapted to some specific hardware

TARGETING THE SITE'S RUNTIME PLATFORM

Finding out in real-time the platform and the browser family allows the application to dynamically adapt the format and content of the pages.

The **BrowserPlatform** function enables you to detect the mobile platform used by the end user (iPhone, iPad, Android, Windows Mobile, BlackBerry, etc....).

The **BrowserType** function enables you to find out the type of browser used by the end user (Internet Explorer, Firefox, Chrome, Safari, etc.,...).

The **BrowserVersion** function enables you to find out the browser version used by the end user, and take advantage of the advanced features (HTML 5) of the latest versions in this way.

Benefits provided by this version 16 new feature:

Adaptation of the sites to the specificity of the platform in real time

IPHONE AND IPAD MODE

IPHONE AND IPAD PUBLISHING MODE

A specific "iPhone" publishing mode has been introduced. iPhone 2, 3 and 4 are supported (screen definition 960 x 640 and 480 x 320).

An iPad mode is also offered (1024 x 768).

In the WEBDEV 16 environment, you can test applications in horizontal or vertical mode.



Benefits provided by this version 16 new feature:

Easy development of sites for iPhone

PARAMETERS DEDICATED TO IPHONE AND IPAD

These parameters allow you to specify whether the site should be displayed full screen, what default level of zoom to use at opening, etc.

Parameters dedicated to iPhone and iPad are expanded.

New browser events are introduced for managing multi-touch and gesture:

- **jsEventGestureStart**
- **jsEventGestureChange**
- **jsEventGestureEnd**
- **jsEventTouchStart**
- **jsEventTouchMove**
- **jsEventTouchEnd**
- **jsEventTouchCancel**
- **jsEventOrientationChange**

Other new feature, an option lets you hide the browser address bar as soon as the first page is displayed, which is useful when creating sites that behave like applications.

Benefits provided by this version 16 new feature:

Easy creation of sites dedicated to the iPhone or iPad

PRESET TEMPLATES, ADAPTED SKINS

Preset templates for each model of iPhone and for the iPad are offered by WEBDEV 16.



Benefits provided by this version 16 new feature:
Easy conception of sites for iPhone and iPad



The same site (showing its upper left corner) using different combinations of skins and palettes: you can choose your look!

813 new feature W D W B W M

BENEFITS OF HTML 5 ON IPHONE

The new HTML 5 features (see new features 796 to 801) are also very useful for the iPhone, especially for creating applications that can be used in offline mode.

These features are of course available to create sites intended for the iPhone and iPad.

Benefits provided by this version 16 new feature:
Easy creation of sites for the iPhone

EASIER PAGE EDITING AND FORMATING

814 new feature W D W B W M

NEW SKINS, NEW PALETTES

New skins, new color palettes and new preset templates are provided in version 16.

This increases the number of possible presentation combinations to more than 6,000!

Thanks to these new skins and palettes, it is easier than ever to customize your sites and this even if you're not a graphic artist, just by simply clicking.

All you have to do is select the look you want, start the site, and check that the result is the intended one: You've created a sophisticated looking site without any effort!



Choose the color palette to apply to the skin

Benefits provided by this version 16 new feature:
Stronger customization of your sites.

815 new feature W D W B W M

STYLE OF CELL CONTROL, IFRAME, SUPERCONTROL, CONTROL TEMPLATE...

In version 16, you can define styles for the following controls:

- cell
- iframe
- supercontrol
- control template.

Benefits provided by this version 16 new feature:
Better customization, easy to share.

“BORDER- BACKGROUND”: INCLUDED IN THE STYLES

The settings of the border-background tab are now included in the style settings of the control, and not directly in the control settings.

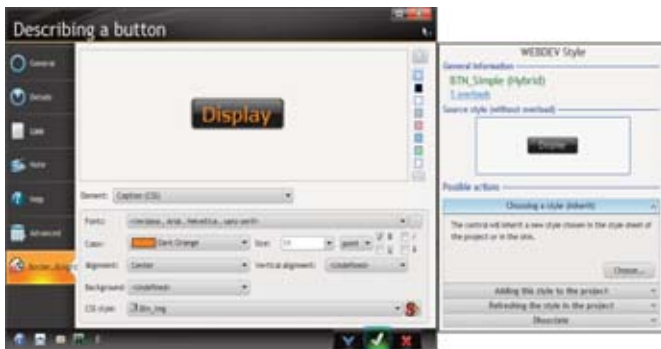
This makes re-using controls, applying modifications easier, and creates richer skins.

Benefits provided by this version 16 new feature:
Saves time and makes applying styles easier.

HANDLING STYLES : SIMPLIFIED OPERATIONS

The richness of the WEBDEV styles has made a revamping of the style user interface a necessity.

Using and creating styles has been simplified a lot in version 16.



Benefits provided by this version 16 new feature:
Better visibility of the choices: in modification phase, the better suited action is offered.

STYLE OVERLOAD

A style can be overloaded.

On a given control, you can customize a given characteristic of the style while remaining tie to the base style.

Benefits provided by this version 16 new feature:
Very useful with skin use to locally customize a look.

COLOR PALETTE EDITING

In version 16, you can create a custom color palette.

When a color attached to a palette is modified, all the controls that use this palette are also modified.

A palette can be saved as a skin palette.

Benefits provided by this version 16 new feature:
Better control of a site's colors

HTML IMPORT: TAKING THE DREAMWEAVER SETTINGS INTO ACCOUNT

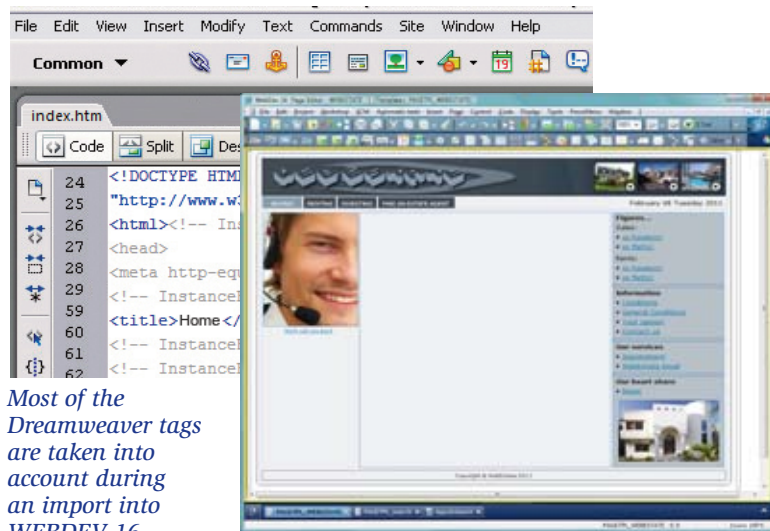
Page import enables you to import HTML pages built using a third-party tool, to, for example, rework them or include a dynamic section (linked to a database).

When importing in WEBDEV 16 an HTML page created with Dreamweaver, if a Dreamweaver template is detected, it is automatically converted into a WEBDEV page template.

If this template is also detected in another imported page, it will be automatically substituted for the previously created "page template".

You can import Dreamweaver pages, templates and libraries.

The import can also be performed directly by drag and drop between the two environments.



Most of the Dreamweaver tags are taken into account during an import into WEBDEV 16

Benefits provided by this version 16 new feature:
Importing a site from Dreamweaver preserves the site's architecture

GO: 64-BIT

You can now test a site directly from a 64-bit development machine.

Benefits provided by this version 16 new feature:
Instant testing in 64 bit mode

GO: LOCAL WEB SERVICES

You can now deploy web services directly from the development application server, without having to deploy the web service on a production server.

Benefits provided by this version 16 new feature:
Elimination of work-intensive operations.

SAAS

823 new feature WD WB WM

TEST ON THE DEVELOPMENT MACHINE

You can test a SaaS site directly from a development computer, with a SaaS test server also installed on the development machine. This avoids having to deploy the SaaS site on the exploitation server.

Benefits provided by this version 16 new feature:
Elimination of work-intensive operations.

824 new feature WD WB WM

CHANGING USER PASSWORD

In version 16, the end user can change his password himself. **Benefits provided by this version 16 new feature:**
This avoids having to make a request from the account manager, providing better password security

825 new feature WD WB WM

API FOR MANAGING THE CLIENT ACCOUNT

In version 15, the account management API was restricted to the SaaS administrator, for all the accounts. In version 16, each client account manager can administer his account directly. **Benefits provided by this version 16 new feature:**
Only information linked to the client account is displayed; no need to go through the SaaS administrator to perform authorized modifications.

PHP



826 new feature WD WB WM

GENERAL NEW FEATURES

The WEBDEV 16 new features such as the HTML 5 features, Application RAD, styles and skins changes are also available in PHP mode.

Benefits provided by this version 16 new feature:
Even more powerful PHP generation

827 new feature WD WB WM

NEW PHP CONTROLS IN VERSION 16

The following new controls are available in PHP:

- Scheduler control (see new feature 790)
- Captcha control (see new feature 791)
- Image control with automatic scroll (see new feature 792)
- Changes to the thumbnail control (see new feature 794)

Benefits provided by this version 16 new feature:
Create richer PHP pages

828 new feature WD WB WM

SITEMAPPATH CONTROL (NAVIGATION PATH)

In version 16 the "site map path" control is introduced in PHP mode.

The "SiteMapPath" control corresponds to a set of links allowing the user to go back in the a site's navigation tree from the displayed page.

The content of this control is built dynamically as the user navigates down the site.

Benefits provided by this version 16 new feature:
Easier navigation for the end use

829 new feature WD WB WM

DYNAMIC MENUS

In version 16, you can add a menu option dynamically. It is now easy to build a menu from a database, for example create a menu offering family and sub-family of products.

Benefits provided by this version 16 new feature:
Menus fully adaptable to the context

830 new feature WD WB WM

NEW EVENT

In version 16 a new event has been introduced for PHP pages with context: the "for each display" of a page event. This event allows you to run some code each time the server re-displays a page unlike the "page initialization" existing event which is only executed once, the first time the page is displayed, to initialize the context.

This "for each display" process is very useful for instance to secure a page with context by checking the required authorizations

for each display.

Benefits provided by this version 16 new feature:
Security of each page display

831 new feature W D W B W M

NEW PHP PROPERTIES

The following properties are supported by the PHP generation:

- ..NoteTitle
- ..Selected
- ..Note
- ..x and ..y on controls
- ..Nom on items.

Benefits provided by this version 16 new feature:
More powerful programming

832 new feature W D W B W M

NEW PHP OPERATORS

The following operators have been introduced in PHP for processing strings:

- [~ Flexible starts with (ignore case and accent)
- [~~ Very flexible starts with (ignore case, accent and punctuation).

Benefits provided by this version 16 new feature:
Faster programming

833 to 888 new feature W D W B

PHP: 56 NEW FUNCTIONS SUPPORTED

PHP gains 56 new WLanguage functions:

Add	RoundDown	RoundUp
CaptchaDisplay	CaptchaVerify	StringStartsWith
StringEndsWith	SiteMapPathAddLink	SiteMapPathInsertLink
SiteMapPathModifyLink	SiteMapPathDeleteLink	SiteMapPathDeleteAll
Seek	Crypt	DateTimeLocalToUTC
DateTimeByDefault	DateTimeUTCToLocal	Uncrypt
Move	InWebserviceMode	FileToArray
FrameSetRefresh	FrameSetDisplay	FramesetUse
gARetrieve	gLink	gLinkActivate
HTTPAddFile	HTTPAddParameter	HTTPCancelForm
HTTPCreateForm	HTTPDestination	HTTPSendForm
HTTPResetForm	Insert	InsertLine
MenuAddMenu	MenuAddOption	MenuAddURLOption
MenuAddSeparator	MenuDelete	Occurrence
PageActivateDDW	PageRateDDW	SchedulerAddAppointment
SchedulerAddResource	SchedulerTimeDisplayed	SchedulerListAppointment
SchedulerPosition	SchedulerSelectMinus	SchedulerSelectPlus
SchedulerDeleteAppointment	SchedulerDeleteAll	Delete
DeleteLine	DeleteAll	Sort
LooperBreakSubscript		

LINUX

889 new feature W D W B W M

WEBDEV 64-BIT LINUX APPLICATION SERVER



In version 16, the WEBDEV Linux application server also supports the 64-bit mode in addition to the 32-bit mode.

The data flow is faster and the application's memory capacity is no longer limited to 4 GB.

Benefits provided by this version 16 new feature:
Extended addressing, larger number of simultaneous connections.

LINUX: 34 NEW FUNCTIONS

890 to 923 new feature W D W B

34 NEW FUNCTIONS FOR LINUX

Linux development now benefits from 34 new functions:

RoundDown	RoundUp	CaptchaDisplay
CaptchaVerify	CharactUnicode	CertificateClientInfo
SeekProcedure	InWindowsPhoneEmulatorMode	InWindowsPhoneSimulatorMode
InWebserviceMode	InWindowsPhoneMode	ExceptionDisplay
Factorial	HAccelerateSpeed	HFreeQuery
ImageStopScrolling	ImageLast	ImageStartScrolling
ImageOccurrence	ImageScrollingPosition	ImagePrevious
ImageFirst	ImageNext	SchedulerAddAppointment
SchedulerAddResource	SchedulerTimeDisplayed	SchedulerListAppointment
PlanningPosition	SchedulerSelectMinus	SchedulerSelectPlus
SchedulerDeleteAppointment	SchedulerDeleteAll	NoCharacter
ArrayDeleteDuplicate		

WLANGAGE

924

new feature W D W B W M

WLANGAGE: 56 NEW SERVER FUNCTIONS

RoundDown	Rounds a decimal number to the closest lower integer.
RoundUp	Rounds a decimal number to the closest higher integer.
CaptchaDisplay	Displays a new CAPTCHA in a Captcha control.
CaptchaVerify	Checks that the value entered by the user corresponds to the string displayed in a Captcha control.
CharactUnicode	Return the Unicode specified code.
CertificateClientInfo	Enables you to find out information about the certificate used by the client computer.
CerificateExtract	Extracts a certificate from a signature buffer or a print duplicate copy.
CertificateList	Returns the list of available certificates on the machine.
CertificateProperties	Opens the MS Windows certificate property window.
CertificateSelect	Opens a certificate selection window.
CertificateSignString	Signs a character string.
CertificateSignFile	Retrieves a signature buffer corresponding the content a file
CertificateCheckString	Checks the correspondence between a signature and a string
CertificateCheckDuplicate	Checks a duplicate copy's signature.
CertificateCheckFile	Checks the validity of a file signature.
SeekProcedure	Looks for a procedure known by its name.
DNSAddAddress	Adds an IP/Name relationship to the DNS.
DNSListAddress	Lists the IP addresses associated with a name in the DNS.
DNSDeleteAddress	Deletes a Name/IP relationship from the DNS.
InWindowsPhoneEmulatorMode	Indicates whether the code is executed in Windows Phone emulator mode
InWindowsPhoneSimulatorMode	Identifies whether the execution is performed in Windows Phone simulator mode.
InWebserviceMode	Identifies whether the execution is running in the AWWWS engine.
InWindowsPhoneMode	Indicates whether the code is executed in Windows Phone mode.
ExceptionDisplay	Displays the standard exception window.
Factorial	Returns the factorial of an integer
FTPProxy	Specifies whether the communication functions using the FTP protocol must use a proxy or not to execute requests.
HAccelerateSpeed	Calculates statistics on the keys of the data file.
HFreeQuery	Deletes a declaration performed with HDeclare, HDeclareExternal, or HDescribeFile.
ImageStopScrolling	Stops the automatic image scrolling.
ImageLast	Displays the last image.
ImageStartScrolling	Stops the automatic image scrolling.
ImageOccurrence	Total number of images.
ImageScrollingPosition	Returns the displayed image.
ImagePrevious	Displays the previous image.
ImageFirst	Displays the first image.
ImageNext	Displays the next image.
MutexCreate	Creates a mutex.
MutexStart	Blocks the current thread while waiting for the mutex to be free.
MutexDestroy	Destroys a mutex.
MutexEnd	Signals that the thread frees the mutex.
OutlookListProfile	Lists the available Outlook profiles.
OutlookDefaultProfile	Retrieves the default profile defined in Outlook.
SchedulerAddAppointment	Adds a new appointment into a scheduler control.
SchedulerAddResource	Adds a new scheduler resource.
SchedulerTimeDisplayed	Defines the time slot displayed in the Organizer control in Day or Week mode.
SchedulerListAppointment	Lists the appointments in a scheduler control.
SchedulerPosition	Displays a Scheduler control starting from a specified date or returns the date of the first day (or last day) displayed.
SchedulerSelectMinus	Deselects an appointment from a scheduler control.
SchedulerSelectPlus	Selects an appointment from a scheduler control.
SchedulerDeleteAppointment	Deletes an appointment from a scheduler control.
SchedulerDeleteAll	Deletes all the appointments and all the resources of a Scheduler control.

GetDefinition
NoCharacter

ArrayDeleteDuplicate
ThreadCurrent

Retrieves the definition of the element type.
Deletes the specified characters from the beginning and end of a string.
Deletes the duplicates from an array.
Returns the name of the current thread.

925 to

990

new feature W D W B

WLANGAGE: 66 NEW BROWSER FUNCTIONS

CaptchaDisplay	Displays a new CAPTCHA in a Captcha control.
CaptchaVerify	Checks that the value entered by the user corresponds to the string displayed in a Captcha control.
ColorLightness	Calculates the lightness of a color.
ColorSaturation	Calculates the saturation of a color.
ColorHue	Calculates the hue of a color.
dArc	Draws the arc of a circle or the arc of an ellipse in an image control.
dCircle	Draws a circle or an ellipse in an image control.
dChangeMode	Changes the drawing mode used by the drawing functions (dLine, dRectangle, etc.).
dChord	Draws the chord of a circle (intersection between an ellipse and a straight line) in an image control.
dStartDrawing	Indicates that the drawing functions that are going to be used are intended for the specified image control.
dEndDrawing	Destroys the drawing in the image control and frees the image from memory
dBackGround	Declares the background color of rectangles, circles, etc.
dInvertColor	Inverses the color of an image control.
dLine	Draws a line in an image control.
dModifyLightness	Modifies the lightness of an image found in an image control.
dModifySaturation	Modifies the saturation of an image found in an image control
dModifyHue	Modifies the hue of an image found in an image control.
dModifyHSL	Modifies the hue, saturation and lightness of an image (found in an image control).
dPixelColor	Identifies the color of a pixel in an image control.
dPixelOpacity	Identifies the opacity of a pixel in an image that supports the Alpha layer.
dPoint	Draws a point in an image control.
dFont	Declares the font that will be used by dText.
dPolygon	Draws a polygon in an image control
dSlice	Draws part of a circle or part of an ellipse in an image control
dRectangle	Draws a rectangle in an image control.
dRectangleGradient	Draws a rectangle in an image control.
dResize	Resizes the content of an image control.
dFill	Colors an area in an image control.
dRotation	Rotates an image control.
dSavelImage	The dSavelImage function is only kept for backward compatibility.
dSavelImageBMP	Saves an image either into BMP format or into memory.
dSavelImageGIF	Saves an image either into GIF format or into memory.
dSavelImageJPEG	Saves an image either into JPEG format or into memory.
dSavelImagePNG	Saves an image either into PNG format or into memory.
dPen	Declares the default color and style for drawing lines, rectangles, circles, etc.
dHorizontalSymmetry	Performs an horizontal symmetry operation on an image control.
dVerticalSymmetry	Performs a vertical symmetry operation on an image control.
dText	Draws a text in an image control.
ArrowStart	Indicates the starting position of the arrow in an arrow type "Shape" control.
ArrowEnd	Indicates the ending position of the arrow in an arrow type "Shape" control.
GPSLastPosition	Retrieves the information about the last known position of the device.
GPSStatus	Retrieves the activation status of the geolocalization provider or requests to be notified when changing status.
GPSGetPosition	Retrieves the information about the device's current position.
GPSFollowMovement	Requests to be notified periodically of the device's current position
ImageStopScrolling	Stops the automatic image scrolling.



ImageLast	Displays the last image.
ImageStartScrolling	Starts the automatic image scrolling.
ImageOccurrence	Total number of images.
ImageScrollingPosition	Returns the displayed image.
ImagePrevious	Displays the previous image.
ImageFirst	Displays the first image.
ImageNext	Displays the next image.
BitmapInfo	Retrieves the characteristics of an image file or a PDF file: format, width and height, number of bits per pixel
BrowsersConnected	Indicates whether the browser is connected to the network
RGBBlue	Returns the blue component of an RGB color.
RGBRed	Returns the red component of an RGB color.
RGBGreen	Returns the green component of an RGB color.
LocalStorageAdd	Adds a value to the local storage.
LocalStorageAvailable	Indicates whether local storage is available.
LocalStorageValueName	Gives the name of a local storage value.
LocalStorageOccurrence	Gives the number of values in the local storage.
LocalStorageDelete	Deletes a value from the local storage.
LocalStorageDeleteAll	Deletes all the values from the local storage.
HSL	Builds a color using its hue, saturation and lightness attributes.

TEST HOSTING AT PC SOFT IN 1 CLICK

991

new feature WD WB WM

HOST (FOR FREE) AND TEST YOUR SITES FOR REAL IN 1 CLICK



PC SOFT offers to host your test sites. The installation is easily done, in 1 click from the environment. Once your site is done, deploy it in 1 click and test it "for real" instantly. You simply need to have or to create a developer account on the PC SOFT site. The number of sites you can install as well as the bandwidth are of course limited to test volumes. Note that subscribers of PC SOFT newsletter (LST) benefit from number and volume privileges. All the details are on PC SOFT's site, don't hesitate to check it out!

Benefits provided by this version 16 new feature:
Instant and free deployment of your sites for testing, sandbox or customer presentation.

DEPLOYMENT



992

new feature WD WB WM

WDSTATISTICS: PDF PRINTED REPORT

Version 16 of WDStatistics lets you print or save in PDF format a set of statistics for one or more sites.

Benefits provided by this version 16 new feature:
Reports can be distributed easily.

993

new feature WD WB WM

WDSTATISTICS: GRANULARITY

Version 16 of WDStatistics includes an automated filter mechanism that allows you to not count search engine indexing bots in the connection statistics.

Benefits provided by this version 16 new feature:
Statistics are more relevant.

994

new feature WD WB WM

WDSTATISTICS ON THE WEB: YOUR CUSTOMERS CONSULT THEIR OWN STATS ONLINE



WDStatistics online!

WDStatistics exists also in "Web" version. Therefore it can be consulted from a browser.

It is accessible from the remote administrator of the WEBDEV 16 Application Server.
The developer or the site's host (the administrator) can now provide his customers with authorization to consult their own statistics directly online.

Benefits provided by this version 16 new feature:
The statistics service is directly accessible to the customers.

995 new feature WD WB WM

SECURE DEPLOYMENT ON HTTPS

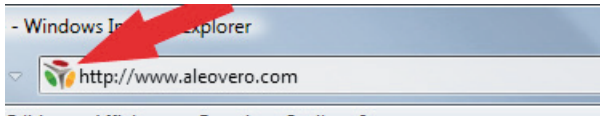
Remote deployment in HTTPS mode is also possible. This brings added security. For sites secured by HTTPS (SSL) it is not necessary to open a non secure port to deploy the site on the server.

Benefits provided by this version 16 new feature:
Increased security

996 new feature WD WB WM

SITE ICON (FAVICON)

WEBDEV 16 lets you easily define the site's icon. This icon is displayed on the desktop, in the lists of browser favorites, in the address bar's header, etc...



Benefits provided by this version 16 new feature:
Better identifiable site

APPLICATION SERVER

997 new feature WD WB WM

"CLIENT CERTIFICATE" USER AUTHENTICATION



The certificate authentication of a user allows you to make sure of the identity of the user who is connecting, without having to request a login and password.

The `CertificateClientInfo` function lets you retrieve informa-

tion about the client certificate found on the end user's computer in the case of a certificate authenticated connection.



Benefits provided by this version 16 new feature:
Security, access to authentication information

998 new feature WD WB WM

REMOTE UPDATE OF A SITE ON SEVERAL SERVERS AT A TIME

Some high traffic sites are hosted on several servers. Version 16 lets you update all the servers in a single operation.



Benefits provided by this version 16 new feature:
No risk of oversight! Eliminate repetitive operations

999 new feature WD WB WM

AND MANY OTHER NEW FEATURES

...And many other features, that we let you discover when you receive your version 16.



WEBDEV 16: your sites are successful

TECHNOLOGY CAN'T WAIT: ORDER YOUR VERSION 16 TODAY



Version 16 of our products has been announced. New versions are announced now so you can plan on them when developing, and so you don't spend time developing features that will be included in the product. Some functions may not be available right away when the version is shipping, but will be offered later as downloads. Also note that additional improvements and new features other than the ones described in this document may be available in the new version. WINDEV, WEBDEV and WINDEV Mobile are professional software. Despite the care taken in creating this document, it is not contractual. Screen shots and lists are for information purposes only. Do not hesitate to contact us for any additional information or to get a confirmation about a feature. All the trademarks used are registered trademarks of their respective owners.

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