





# 22

The new version 22 brings you an unbelievable amount of ready-to-use innovations.

Since they'll enjoy developing a lot more, your teams will be even more productive!

This new version 22 brings your teams 922 new features that are instantly useful.

New controls, image editor, accelerated queries, REST web services, simultaneous configuration compiling, better interoperability are among some of the 922 new features in version 22.

Build on your existing experience while taking advantage of new technologies: this is the benefit provided by version 22

By recompiling your applications in version 22, your applications **automatically gain** new features, speed and quality, and support recent technology evolutions.

**WINDEV 22**, **WEBDEV 22** and **WINDEV Mobile 22** are your work tools. The overriding objective for our teams is your **satisfaction** and your **success**, on all the environments and hardware platforms.

This version 22 will soon become your favorite one!



## ORDER YOUR COPY OF VERSION 22 TODAY!

**Traveltames**  
custom luxury travel

Destination

Departure date: 12 Nov. Saturday 2017  
Date de retour: 22 Nov. Tuesday 2017

Type of travel

Bedrooms	Adults	Children
1	2	2

Find

Recent searches

LON - PUN	12 - 22 Nov. 2017
LON - PUN	12 - 22 Nov. 2017
ROM - BUL	15 - 31 NOV. 2018
ROM - ROM	15 - 31 NOV. 2018




#### Legend

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

THE EXPERT'S ADVICE provides additional light on some new features



## NEW CONTROLS

001 new feature W D W B W M

### NEW CONTROL: WORD PROCESSING (WP)

The “word processing” control is being introduced in version 22.

It's a very powerful control.

Thanks to this new control, the end user doesn't have to leave his or her application to create common documents.

No additional software needs to be installed on the machine.

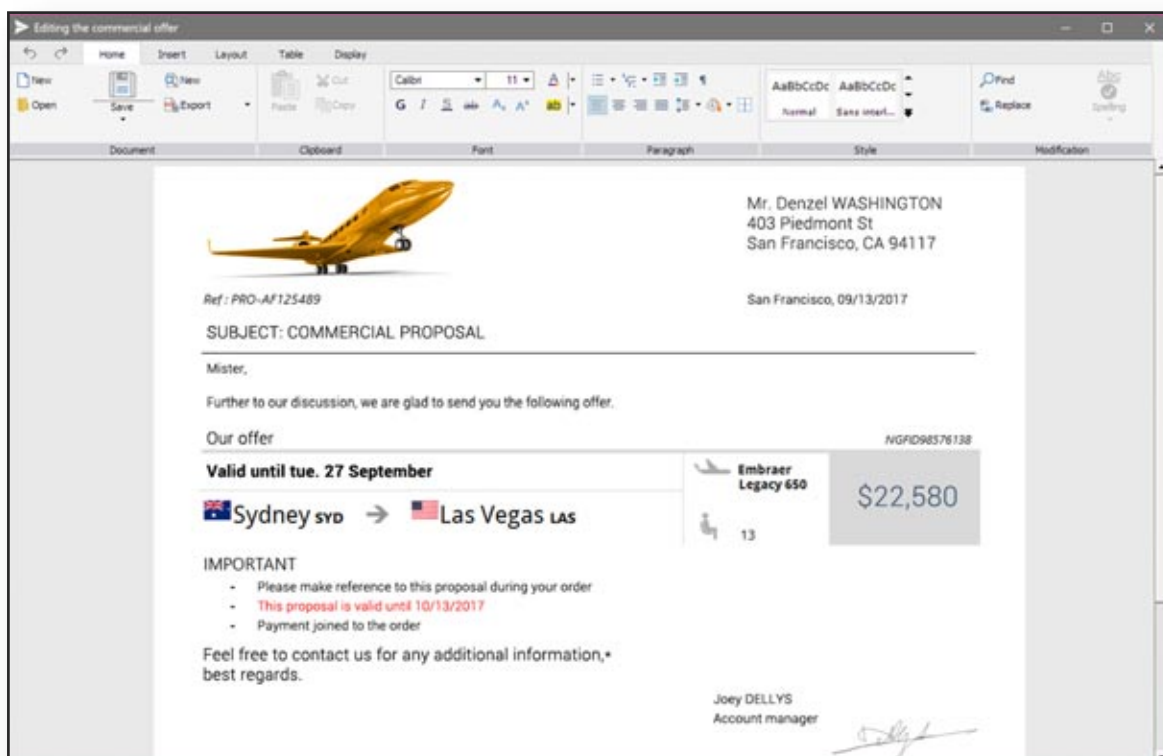
This new control is handled by programming using WLanguage, which offers a lot of potential for configuration and automation. The WP control is of course WYSIWYG.

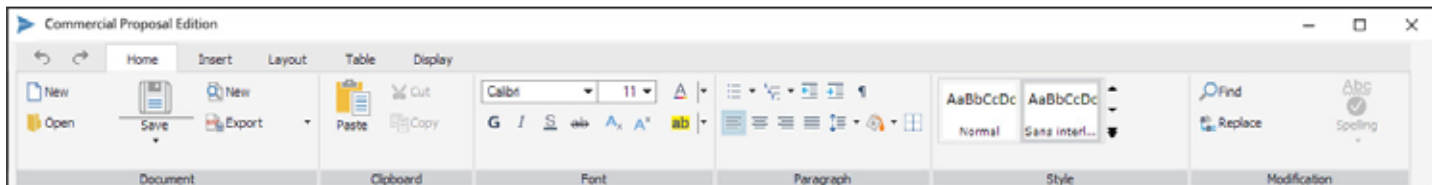
### THE EXPERT'S ADVICE

Reading and writing .DOCX  
 Creating PDF, creating emails  
 Creating sales proposal  
 Managing images and tables  
 Saving and loading your texts  
 Ability to save in HFSQL  
 Spell checker  
 Print

For common text management tasks, your users don't need to leave their application: time savings, consistent interface, no other software to install/ drive/ manage

*Benefit provided by this new feature of version 22:  
 End users stay in their application to enter documents.*





**002** new feature W D W B W M

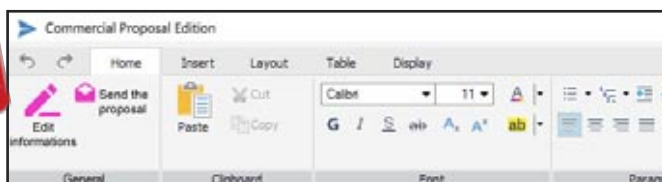
**WP CONTROL: STANDARD FORMATTING RIBBON**

The WP control uses a ribbon “standard” by default. This ribbon offers the standard word processing features: open, save, format, edit, ect. This ribbon can be hidden. The ribbon displayed in the WP control can be customized (see next new feature).

**Benefit provided by this new feature of version 22:**  
End users are already familiar with the word processing ribbon

**003** new feature W D W B W M

**WP CONTROL: CUSTOM FORMATTING RIBBON**



Here, a custom ribbon with 2 “business” buttons: “Edit “CGV” and “Send proposal”

The WP ribbon is provided with its “source” (internal window). Therefore it is completely customizable. For instance, it is easy to create a “Send proposal” button directly in the WP control ribbon! You can also create a button that will fetch contextual data in your ERP system!

**Benefit provided by this new feature of version 22:**  
A ribbon can easily be customized

**004** new feature W D W B W M

**WP CONTROL: READ AND SAVE STANDARD .DOCX**



The WP control reads and saves documents in standard Docx format. Documents created by the WP control can therefore be opened with word processors that support this format: MS Word, OpenOffice, iWork,...

Similarly, documents created with these word processors can be opened using the WP control.

**Benefit provided by this new feature of version 22:**  
Standard format.

**005** new feature W D W B W M

**WP CONTROL: READ AND SAVE IN HFSQL**

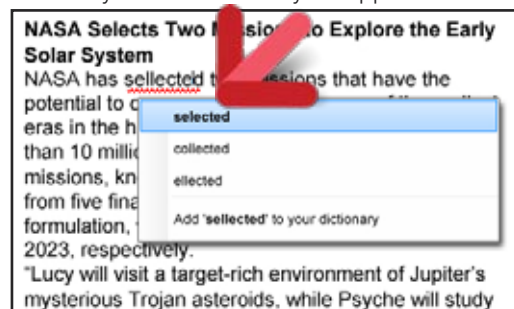
A .Docx file created with the WP control can be saved in a HFSQL data file (HFSQL classic, client/server, cloud, embedded, cluster, ...). This saving method lets you manage documents as easily as the rest of your data: history, archiving, search, indexing, ...

**Benefit provided by this new feature of version 22:**  
Directly save documents in HFSQL if you want.

**006** new feature W D W B W M

**WP CONTROL: SPELL CHECKER**

A spell checker is provided. You can also load dictionaries in many languages. This spell checker is integrated with the WP control, and therefore can be freely distributed with your application.



**Benefit provided by this new feature of version 22:**  
Avoid typos.

**007** new feature W D W B W M

**WP CONTROL: USEFUL FEATURES**

The Word Processing control in version 22 offers end users efficient features:

- font choice, size, bold, color, case mode, exponent, subscript ...
- layout: paper size, page orientation, margins, borders, document background color ...
- paragraph formatting: line spacing, offset, space before/after, first line offset, alignment, justification, borders, ...
- rulers
- tabs, stops, next
- bullets, numbered list
- styles
- hypertext links (Internet)
- advanced underlining (single line, double line, ...)
- headers and footers
- insert date
- management of arrays

# New control Word processing (WP)



- copy/paste
- insert images
- zoom
- page numbers
- export to PDF
- display control characters
- undo/redo
- print

**Benefit provided by this new feature of version 22:**  
*All the useful features are available*

## 008 new feature WD WB WM

### WP CONTROL: TRANSFORMING THE DOCUMENT TO HTML

A document created and edited with the WP control can be saved in HTML format. This allows you to use it in an email for instance.

**Benefit provided by this new feature of version 22:**  
*Create emails*

## 009 new feature WD WB WM

### WP CONTROL: CREATING PDF

The WP control lets you save its content in PDF format. The PDF file can be encrypted and signed.

**Benefit provided by this new feature of version 22:**  
*Also create PDF*

## 010 new feature WD WB WM

### WP CONTROL: PREVIEWING AND PRINTING

The WP control displays its content in WYSIWYG. Before printing the content of a WP control, you can launch the print preview (like with a report). Printing is done via the `PrintDoc` function.

**Benefit provided by this new feature of version 22:**  
*End users can of course print their documents.*

## 011 new feature WD WB WM

### WP CONTROL: LINK WITH THE REPORT EDITOR

A document created with the WD control can be combined with a report (for example, the general sales conditions).

**Benefit provided by this new feature of version 22:**  
*Interoperability*

## WP CONTROL: USE BY PROGRAMMING: COMPLETE INTERACTION WITH YOUR APPLICATIONS

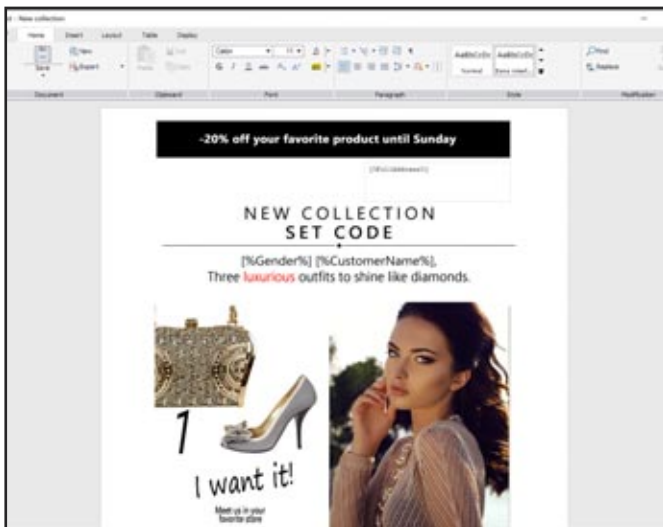
One of the benefits of the WP control is that you can handle it via programming, using WLanguage, like any other control. The `document`, `paragraph`, `fragment` advanced types and their numerous properties let you create, modify and retrieve texts via programming.

All the customization and configuration capabilities are open to you; you have total control!

You can also use programming to check content entered by the end user before printing, such as amounts entered, to warn him in case of inconsistencies.

The code below customizes a document with the name of the customer and creates the PDF:

```
//Loading the docx file
ProposalDoc is Document = "C:\Sales\Template.docx"
//Replacing the name of the customers in the document
tabFragments is array of Fragments = FindDoc(ProposalDoc, "%CustomerName%")
FOR EACH fragment OF tabFragments
    fragment..Text = Customer.Name
END
//Export to PDF
DocToPDF(ProposalDoc, "C:\Export\Proposal_"+Customer.Name+... ".pdf")
```



Example of a sophisticated WP document

**Benefit provided by this new feature of version 22:**  
Ability to generate very sophisticated documents

### THE EXPERT'S ADVICE

- Use examples:
- Generate a sales proposal based on data stored in a file
- Insert images using programming
- Modify the formatting
- Prepare a text to customize
- Find text in archived .DOCX
- Prepare fully customized mailings

## TABLE CONTROL: 22 NEW FEATURES

Tables are often used in applications' interfaces. The table control is a key control. In version 22, the table control is evolving based on your demands.

You will find the new features you were expecting for your tables on the following list!

### A WINDOW INSIDE A TABLE ROW!

In version 22 of WINDEV you can define an internal window for each table row.

This window will be displayed when clicking the row, or when hovering (option), or by programming.

Clicking the row moves the row below and displays the window.

The content of this internal window is totally up to you. (See opposite).

**Benefit provided by this new feature of version 22:**

Very detailed tables.

### THE EXPERT'S ADVICE

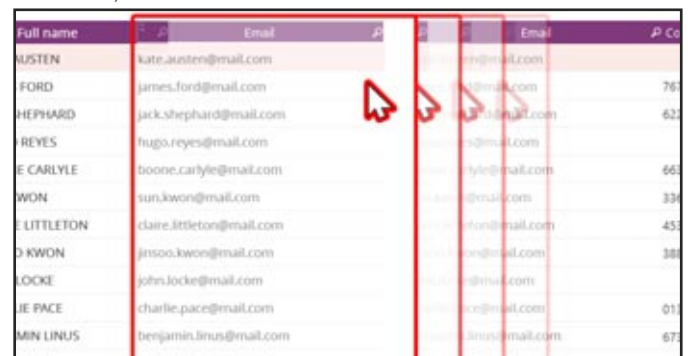
The detail window can contain: Other table (linked to the clicked row), customer orders, order items, sales history ...

### VISUAL: COLUMN MOVEMENT SHOWN

In version 22, column movement, row resizing, etc. by the end user adopt a fluid visual rendering. For example, the columns moved are visualized during the move.

This small graphic "addition" delights end users!

Canceling a move by the end user is supported (Ctrl+Z over several levels).

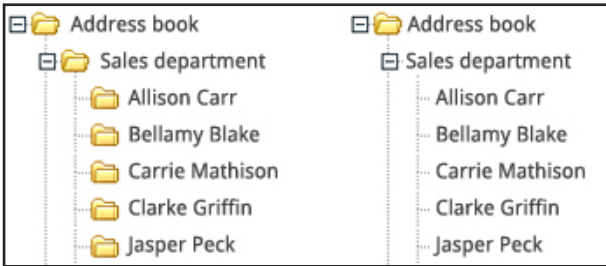


**Benefit provided by this new feature of version 22:**

The visual effect allows the end user to better visualize his action.

### TREEVIEW TABLES CUSTOMIZATION

The look of treeview table can be even more customized. Specifically, the start of row icon display is optional, with automatic repositioning of the text. The tables displayed are less dense. When the icons are kept, you can set their image, and specify a display size, to manage alignment on a custom basis.



**Benefit provided by this new feature of version 22:**  
With or without icon, you decide

### MARK AN ENTIRE CHECK BOX IN ONE CLICK

End users will love this small new feature: in version 22, you can mark an entire column of check boxes as selected in a single click (all/none)! This behavior is also offered for radio button columns. There's nothing to code, it is part of AAF.

**Benefit provided by this new feature of version 22:**  
One click!

### FILTERING A CHECK BOX COLUMN

This feature enables you to only display the rows whose check box is selected or the ones that are not selected. This is useful to improve the reading of large tables.

**Benefit provided by this new feature of version 22:**  
Even more choices

## TABLE CONTROL

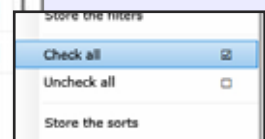
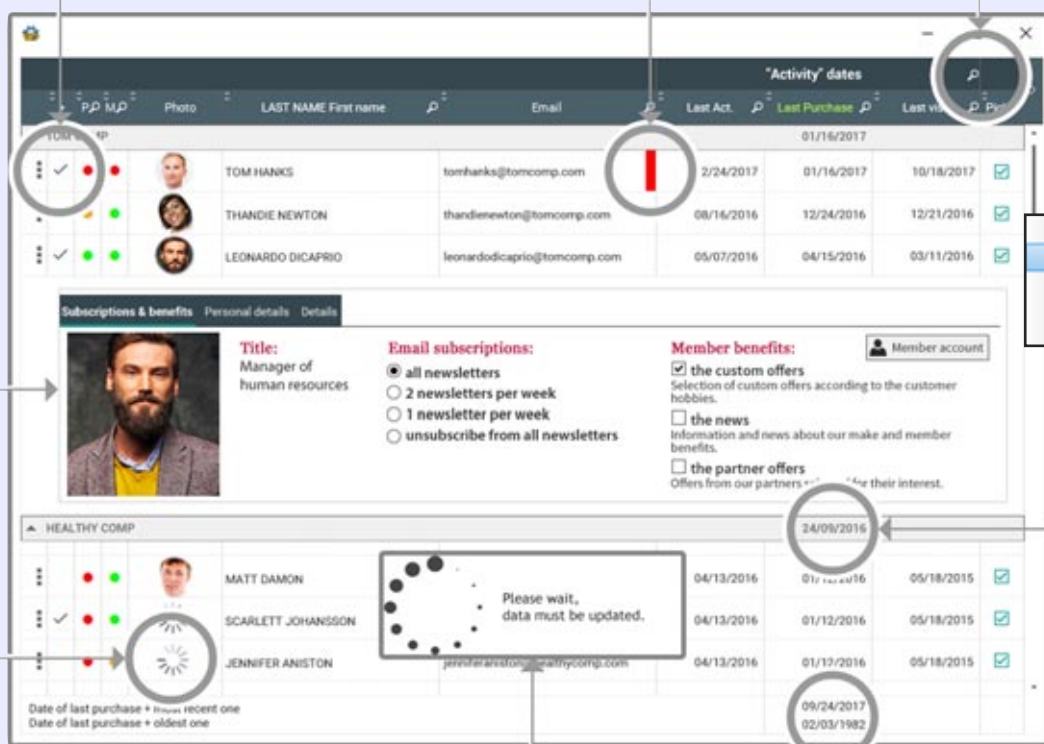
034 unchecked check box not visualized

028 Special border

034 Magnifier on header

013 A window in a table row

016 Check an entire column in one click



022 Anchoring controls in breaks

018 Loading memo doesn't block the display

019 Custom progress bar

021 Custom formula



### IMAGES INSIDE THE TABLE CONTROL? A TABLE CONTROL IS FASTER IN 22!

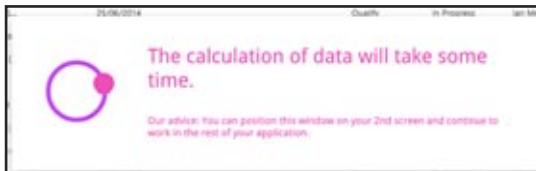
A table control can display data coming from a "memo" item. If these memos contain large amounts of data, there could be a noticeable loading time for the end user: each row needed to be fully loaded before the loading of the next row could start. In version 22, displaying table control with memo is instant: the memo content is loaded asynchronously, and doesn't slow down the display of the rows.

**Benefit provided by this new feature of version 22:**  
Always faster

### CUSTOM PROGRESS BARS

In some cases, a table must display complex data sets, which may take some time to be calculated and you would like the display to be sequential.

In version 22, it is now possible to define custom progress bars (for loading in our case), via an internal window.



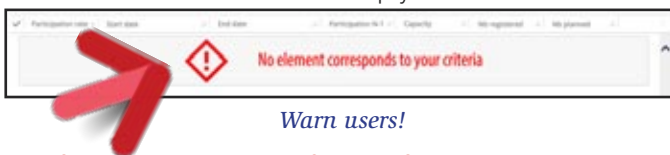
Display a progress bar!

**Benefit provided by this new feature of version 22:**  
Ease the wait.

### EMPTY TABLE? A WARNING WINDOW COMES UP

When a table is empty, (it doesn't show any records, or rows), an internal window lets you display a custom message. For example: no elements were selected, no elements corresponded to the search criteria...

It is more informational than an empty table!



Warn users!

**Benefit provided by this new feature of version 22:**  
The end user is notified

### TOTALS AND AVERAGES? AND NOW, CUSTOM MIN, MAX AND FORMULA!

As you know, end users can add totals and averages themselves on table columns.

It's a very useful AAF which is very appreciated.

In version 22, end users can also display minimum and/or maximum values for one or more columns.

And end users can even use custom formula that have been previously created by developers.

Name		Present P
Mr. Joseph COOPER		<input type="checkbox"/>
Mrs Amelia BRAND		<input type="checkbox"/>
Mrs Murphy COOPER		<input type="checkbox"/>
Mr. Mickel MAN		<input checked="" type="checkbox"/>
Mrs Murphy COOPER		<input type="checkbox"/>
Mr William HANLEY		<input checked="" type="checkbox"/>
Number Women	3,876	
Number Men	3,214	



**Benefit provided by this new feature of version 22:**  
End users have even more possibilities.

### ANCHORING CONTROLS IN THE BREAKS

Another interesting new feature in version 22: Controls in breaks can be anchored starting from a column.

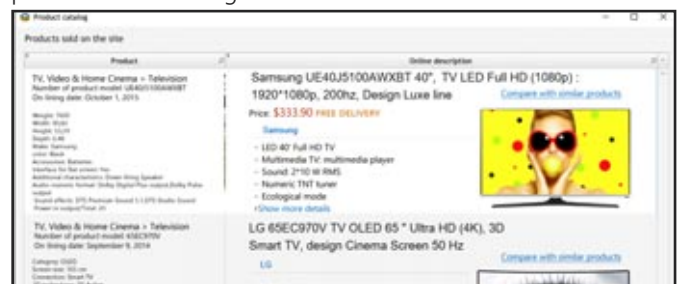
When the column is resized or moved by the end user, the break control remains aligned with the column.

**Benefit provided by this new feature of version 22:**  
Better presentation.

### I WANT SOME HTML IN MY TABLES!

Version 22 of WINDEV lets you directly include HTML code inside the table's cells (you don't need to plan for a container column).

The HTML attributes are interpreted of course: this allows you to create sophisticated presentations, by retrieving for instance presentations coming from the Internet.



**Benefit provided by this new feature of version 22:**  
HTML is used more and more.

## 024 to 028 new feature W D W B W M

### POLISH YOUR TABLES' LOOK

Version 22 of WINDEV lets you pay even closer attention to the look of your tables:

- it is now possible to modify by programming the color of the column titles
- you now can define specific styles for column headers
- the sub-header labels can be modified by programming
- you can specify a margin for titles
- now you can specify the thickness and the color to apply to each of the 4 sides of one or more table cells.

**Benefit provided by this new feature of version 22:**  
*Always more!*

## 029 new feature W D W B W M

### TABLES: INSERTION ANIMATION

An (optional) animation lets you visualize the insertion of rows in a table, by animating the movement of the rows below.

**Benefit provided by this new feature of version 22:**  
*Improve the user experience.*

## 030 to 033 new feature W D W B W M

### PROGRAMMING TABLES: 5 USEFUL NEW FEATURES

- Two new events for programming tables are introduced in version 22.
- The `Break Initialization` new element lets you easily define the initialization process.
- The `Expand/collapse break` code allows for an even more granular programming.

- It is now possible to create or redefine breaks on the table by programming.
- The new WLanguage function, `TableSetFocus`, simulates clicking on a table row by programming!
- The `Col.VisibleInPrint` property lets you specify that one or more columns will not be printed.

**Benefit provided by this new feature of version 22:**  
*Always more powerful programming.*

## 034 new feature W D W B W M

### TABLES: OTHER EVOLUTIONS

- Positioning a table row in the visible (displayed) part of the table. The new `taVisible` constant for the `TablePosition` function, makes a table row visible in an intelligent way: if the row is already visible nothing moves; if the row is not visible, the table automatically scrolls to make the row visible.
- A table without selection offers a magnifier on headers.
- Tables with sub-headers offer a magnifier on the headers.
- For tables in "Display" mode, you have the ability to not show the unchecked check boxes (prevent the user from trying to click the check boxes when in display mode)

**Benefit provided by this new feature of version 22:**  
*It is the small things that make a difference!*

## COMPATIBILITY WITH PREVIOUS VERSIONS

WINDEV 22 respects your existing assets.

No migration phase is required between WINDEV 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20 ou 21 and WINDEV 22: all you have to do is recompile the application for it to work in version 22. Switching from WEBDEV 7, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20 or 21 to WEBDEV 22 is also extremely easy.

Existing components (version 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20 or 21) directly work (without needing to be recompiled) with applications in version 22.

Version 22 can directly open a project in version 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20 or 21.

And of course, different versions of your environments can coexist on your PC; a version 22 license can also launch older versions 21, 20, 19, 18, 17, 16, 15, 14, 12, 11, 10, 9, 8, 7.5, 5.5,...).

# 22

# SCHEDULER & ORGANIZER CONTROLS: 11 NEW FEATURES

**035** new feature W D W B W M

## MORE GRANULARITY!

In version 22, schedules and organizers get free! You can define a specific granularity: by day, week, two weeks, month, year and even a custom granularity. Everything becomes possible (and easy).

**Benefit provided by this new feature of version 22:**  
*All the organizational styles are supported.*

**036** new feature W D W B W M

## BUSINESS HOURS SPECIFIC TO EACH RESOURCE

In the same schedule, you can specify different business hours for each resource!

For example, a physician works from 8:00 AM to 6:00 PM, while another from 9:30 AM to 9:00 PM.

It is also now possible to add busy periods, such as a lunch break for instance.

See infographic page 11.

**Benefit provided by this new feature of version 22:**  
*Everybody can have different daily hours*

**037** new feature W D W B W M

## BUSINESS HOURS THAT ARE EVEN MORE SPECIFIC!

In version 22, you can also specify business hours specific to a given week day. For example, the Monday's business hours are different from Tuesday's. See infographic page 11.

**Benefit provided by this new feature of version 22:**  
*Everybody can have a day with custom hours.*

**038** new feature W D W B W M

## AN EVEN MORE CUSTOMIZED DISPLAY RANGE

The display can hide some days (such as weekends for instance), or remove specific days, like holidays. A given date can be hidden.

**Benefit provided by this new feature of version 22:**  
*Complete display customization.*

**039** new feature W D W B W M

## AN EVEN MORE SOPHISTICATED DISPLAY

When an appointment runs over several days, it can now be displayed as a single block, without break between the days: it looks better and it's easier to understand.

The width of the scrollbar can now be customized.

A custom border (based on a style) can frame the selected appointment.

**Benefit provided by this new feature of version 22:**  
*A more pleasant view.*

**040** new feature W D W B W M

## IMPROVED APPOINTMENT DISPLAY

An appointment is made of a title and a detailed description. When one of these areas is empty, the other area now takes over the free space: this avoids truncating text when there's still some room.

If the two areas are filled, their size can adapt with the content. The border can be customized.

**Benefit provided by this new feature of version 22:**  
*The entire space is used and optimized.*

**041** new feature W D W B W M

## SCHEDULER AND ORGANIZER PROGRAMMING: 3 NEW FEATURES

There is no limit to the processes you can program!

- The `MoveResource` event lets you granularly prevent the end user from moving an appointment.
- The `SchedulerSelectedRange` and `OrganizerSelectedRange` WLanguage functions allow you to retrieve the time range selected by the end user.
- You can modify the background color, the font, size, ... of a resource via programming.

**Benefit provided by this new feature of version 22:**  
*Always more granular programming.*

**042** new feature W D W B W M

## ORDER IN OVERLAPPING APPOINTMENTS!

When several appointments overlap within the same time range, you can now specify in which order these appointments are displayed with the `APT.Zorder` property.

**Benefit provided by this new feature of version 22:**  
*Organized appointments.*

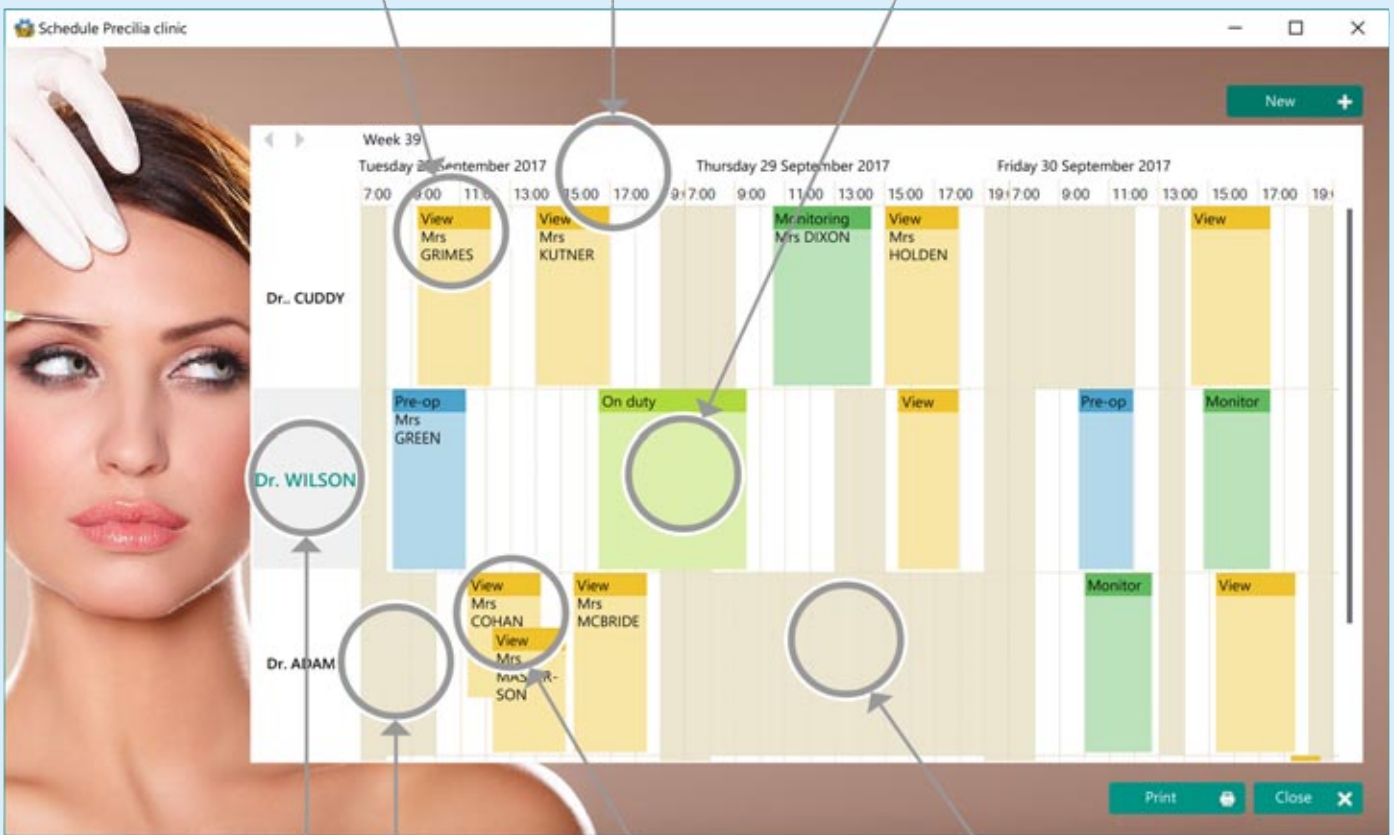


# SCHEDULER CONTROL

**040**  
Titles occupy the available space

**038**  
Wednesday disappeared (it was a holiday...)

**039**  
Appointment over several days



**041**  
Modification of the look by programming

**036**  
Working hours specific to each resource

**042**  
Order of appointments that overlap

**037**  
APT: Specific working hours based on the day

## 043 new feature W D W B W M

### A MORE POWERFUL FEATURE FOR THE END USERS.

- The Ctrl+Z key combination allows the user to cancel the last operation performed, such as moving a task for instance.
- Moving an appointment into a non-visible area of the scheduler or organizer is made easier by automatic scrolling.
- You can modify the title and content of an appointment.

*Benefit provided by this new feature of version 22:  
Better user friendliness.*

## 044 new feature W D W B W M

### THE "MONTH" MODE BECOMES RICHER

You can name perform input directly in the "Month" mode.

In "Month" mode, you can now use the preset appointment viewing window.

The buttons for changing time ranges can be displayed in "Month" mode as in the other modes.

*Benefit provided by this new feature of version 22:  
Easier month management.*

## 045 new feature W D W B W M

### THE RANGE DISPLAYED IS ADAPTED BASED ON THE AVAILABLE SPACE...

The new "automatic range" mode automatically chooses the displayed range (month, week, day, etc.) based on the period defined and the size available for the control.

This new mode allows you for instance to offer a display optimized for a phone or a tablet without having anything to code.

*Benefit provided by this new feature of version 22:  
An efficient display*

# EVOLUTIONS ON CONTROLS

046 new feature WD WB WM

## CONTROLS: INTERNAL MARGINS

In version 22, all the types of controls can have a customized margin (also called, “white space”, gutter, ...) 4 different margins can be specified (one by side). This allows you to customize each control style.

### Related commands

The top, bottom, left and right margins are all different here!

**Benefit provided by this new feature of version 22:**  
You've got space

047 new feature WD WB WM

## SPREADSHEET CONTROL: 5 NEW FEATURES

The Spreadsheet control is changing in version 22. It offers 5 new features:

- ability to name cells
- ability to pin panes (fix the row and column header area)
- new `Cell modification` process which is triggered when a cell is modified by the end user.
- 2 new WLanguage functions to delete rows and/or columns: `SpreadsheetDeleteLine`, `SpreadsheetDeleteColumn`
- 2 new properties to modify the row height and the column width: `..Height`, `..Width`

**Benefit provided by this new feature of version 22:**  
The spreadsheet control has become even more powerful.

048 new feature WD WB WM

## REPOSITIONABLE NOTES: WLANGUAGE FAMILY OF FUNCTIONS

In version 22, the new `Note` WLanguage family of functions lets you create by programming actions similar to what an end user can execute: create a note, save it, position it ...

**Benefit provided by this new feature of version 22:**  
Program notes.

049 new feature WD WB WM

## CONTROL TOOLTIP: AVOID SPILLAGE!

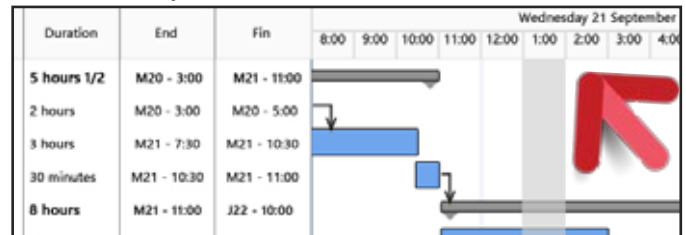
By default, the size of the tooltip adapts to the text to display. If the text is long, the tooltip size can be disproportionate to the control. In version 22, you can set a maximum size for a tooltip (in pixels).

**Benefit provided by this new feature of version 22:**  
Tooltips of a reasonable size!

050 new feature WD WB WM

## GANTT: TIMELY!

The Gantt control offers a granular display by “month” or “week” or “day” or “hour”.



Granularity to the hour is offered

**Benefit provided by this new feature of version 22:**  
Gantt by the hour

051 new feature WD WB WM

## CONTROL ID: WINDOWS IDENTIFIER

Each control of a WINDEV window has a unique internal Windows identifier.

This unique identifier is persistent between two executions. This identifier allows for compatibility with tools based on these identifiers, such as Jaws for the automated interface reading aimed at vision-impaired users.

**Benefit provided by this new feature of version 22:**  
Interaction with third-party processes

052 new feature WD WB WM

## ICONS: VARIOUS NEW FEATURES

- Icons: support for HQ (high-quality) display
- Icons: support of sheets in transparent BMP format (32 bits).

**Benefit provided by this new feature of version 22:**  
Small features that can be very useful.

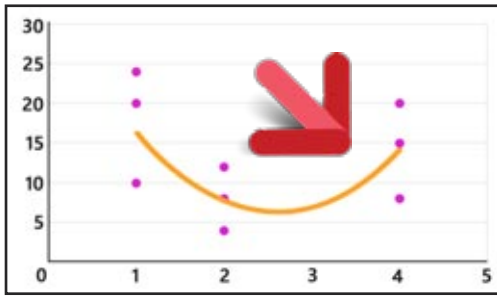
Discover the new WINDEV, WEBDEV and WINDEV Mobile controls in their respective chapters

# CHARTS

053 new feature WD WB WM

## NEW TYPES OF SERIES: TENDENCY LINE

WINDEV 22 lets you add trending curves on existing charts. The new `grSeriesType` WLanguage function lets you define the type of trend: constant, mean, linear regression.



A trending curve

**Benefit provided by this new feature of version 22:**  
Be trendy!

## 054 new feature W D W B W M

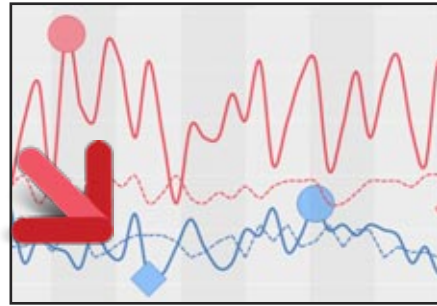
### ADVANCED CUSTOMIZATION OF THE LINE TYPE CHARTS

In version 22, the customization of the Line type charts has become more sophisticated.

You could already customize the thickness and color of the line. In version 22, you can now customize:

- the type of line by series (dotted, dash, ..)
- The type of points of a series (shape, size, color, ...)

- The type of a specific point can also be defined.



Thickness, type of line, custom points for each line

**Benefit provided by this new feature of version 22:**  
Give some character to your charts!

## 055 new feature W D W B W M

### CHART: THE AXES MOVE

In version 22, axes are moving!

The axis is not necessarily set at zero.

The position of the horizontal axis (X axis) can be specified: "at the top" or "at the bottom".

The vertical axis (Y axis) can be positioned to the right of the

# COMPOSITE CHART

## 056 W D W B W M

### NEW TYPE OF CHART: COMPOSITE

WINDEV offers a very large number of chart types.

A new type of chart is being introduced in WINDEV 22.

It is the "Composite" chart.

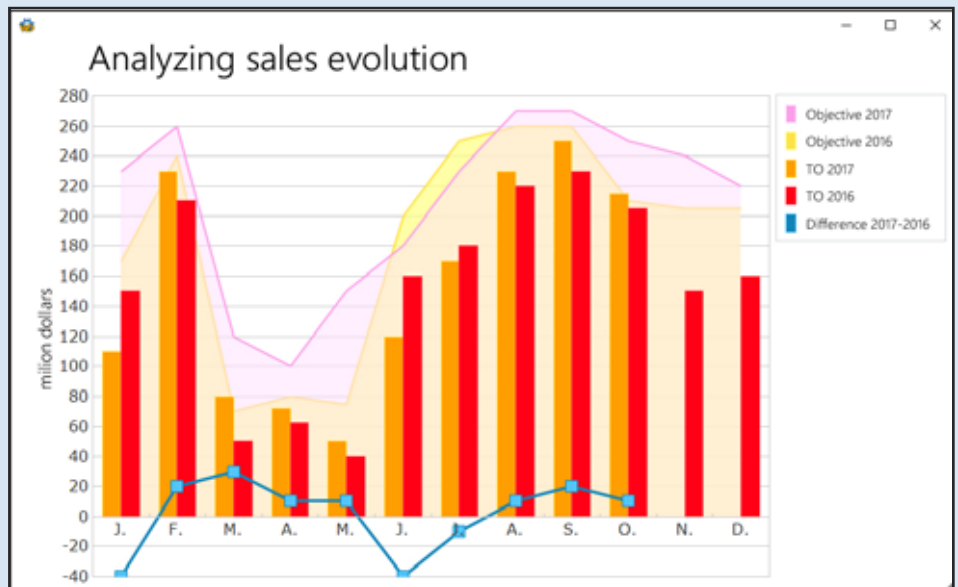
This type of chart makes it possible to group several types of charts into one.

For example:

- a bar chart with a line chart
- several line charts with a bar chart
- candlestick with area...
- ...

**Benefit provided by this new feature of version 22:**

Visually represent complex data



A composite chart that mixes histograms, an area, curves ...

## 057 W D W B W M

### NEW COMPOSITE CHART TYPE: HOW TO DEFINE IT?

The new Composite chart is defined either by the "7-tab" technology or by programming.

The type of a series displayed can be changed by programming.

The new WLanguage function `grSeriesType` allows you to define or modify the type of the series.

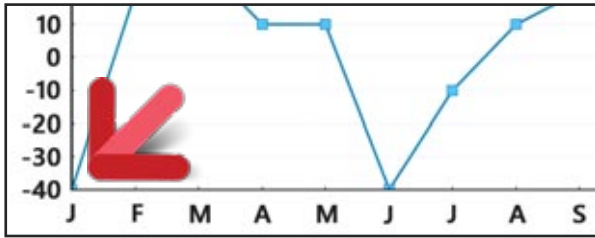
You can specify colors, opacity, thickness, size, etc ... of the elements.

**Benefit provided by this new feature of version 22:**

Mixing in charts.

chart.

In version 22, the axis marks can also be orthonormal (the scale is identical for the 2 axes).



Here the axis is set to -40

**Benefit provided by this new feature of version 22:**  
The axis no longer moves in the middle of the chart

## 058 new feature WD WB WM

### CHART: VARIOUS NEW FEATURES

- The zoom may or may not have a maximum limit
- The zoom wheel works by hovering over the control, even if the control does not have focus.
- The new constants, `grXCoordinate`, `grYCoordinate`, `grSecondaryYCoordinate`, of the `grInfoXY` WLanguage function let you retrieve the value of the X and Y axis for the X Y position (in pixels) in the chart
- In the tooltip of a "Stack bar chart", in addition to the details of each series, the total of the stack is also displayed!

**Benefit provided by this new feature of version 22:**  
Even richer charts!

## CLOUD

## 059 new feature WD WB WM

### SCM DRIVE: YOUR SCM IN THE CLOUD IN 3 CLICKS. SHARE & SAVE YOUR PROJECTS

With version 22, putting your SCM in the cloud has never been easier! 3 clicks, and voilà, you're sharing your projects across the globe, and this for a price you can't even fathom. 2 euros\* per month per developer!  
See new features 095 to 097

**Benefit provided by this new feature of version 22:**  
SCM in the cloud even easier.

## ENVIRONMENT & EDITORS

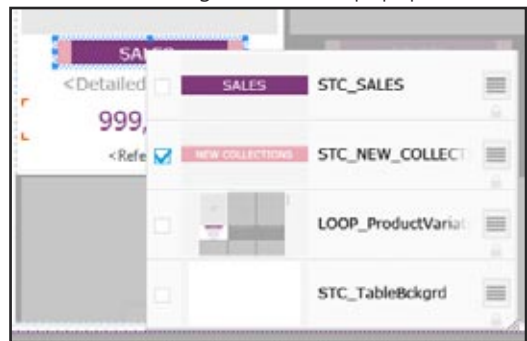
## 060 new feature WD WB WM

### DEPTH OF SUPERIMPOSED CONTROLS IN THE EDITOR

In version 22 a "depth" menu is being introduced. This menu enables you to easily manage superimposed controls in the editor.

It opens by pressing the Shift key and clicking superimposed controls at the same time.

The menu displays a thumbnail for each control, and lets you select these controls, using the control's popup menu.



Everything located under the "Sales" control: a caption, a looper, and the background

**Benefit provided by this new feature of version 22:**  
No need to go digging anymore...

## 061 new feature WD WB WM

### A NEW MODIFIER

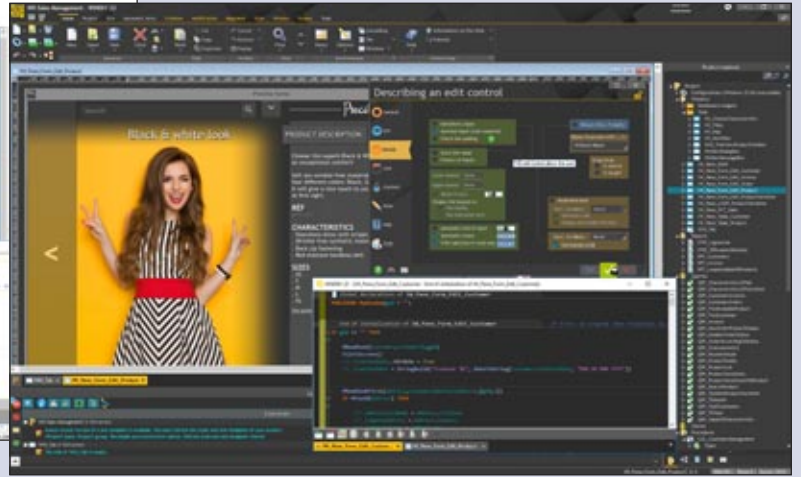
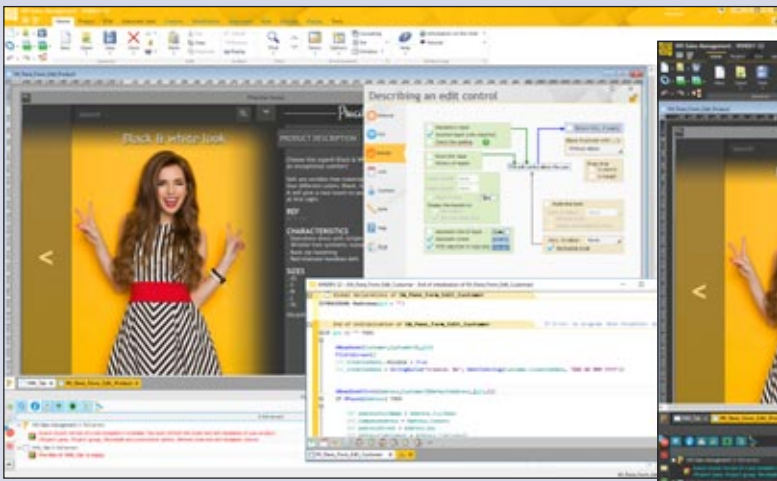
The modifier is useful to access and quickly modify the characteristics of one or more controls. It is kind of a shortcut for the "7-tabs"! In version 22, the modifier has been revised and thoroughly improved.

**Benefit provided by this new feature of version 22:**  
Shortcut for modifying properties

## 062 new feature WD WB WM

### MODIFIER: MULTIPLE SELECTION

One of the anticipated new feature is the ability to modify in one operation the characteristics (anchor, opacity, animation, size, etc.) of a group of controls. When several controls are selected, each characteristic is displayed for all the controls: if the value is the same, it is displayed, if the values are different, they are displayed in a combo box. Selecting one of these values assigns it to all the controls.



## 063 W D W B W M

### THESIS

In version 22, 2 different environment themes are offered:

A light theme, a dark theme. Depending on the type of screen used, its contrast and brightness settings, depending on the brightness of the room, and according to the

taste of each, each member of your team will be able to choose the theme that is best suited!  
Note: It is possible to choose the theme "light and to pass

only the code editor into "black" theme.  
**Benefit provided by this new feature of version 22:**  
Choose according to your taste



The modifications will apply to all the selected controls, or just the specified control

When the property of the selected controls has the same value for all the controls, the branch is collapsed. If the property has different values, the branch is automatically expanded. You can enter an identical value for all the controls at once.

**Benefit provided by this new feature of version 22:**  
Faster operations

## 064 new feature W D W B W M

### MODIFIER: 5 NEW FEATURES

- In version 22 the modifier benefits from search and filter functionalities.
- A scrollbar replaces the movement buttons.
- The mouse wheel allows you to move.
- The display of the modifier on a 4K screen or large font is adapted to the screen resolution.
- The modifier can act on a group of controls

**Benefit provided by this new feature of version 22:**  
An always more powerful modifier

## 065 new feature W D W B W M

### MY OWN MODIFIER

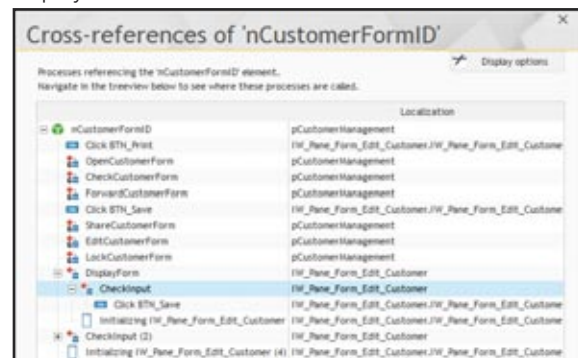
In version 22, you can now create your own modifier by selecting the functionalities to leave visible. Each functionality of the modifier can be pinned to the environment.

**Benefit provided by this new feature of version 22:**  
Customize the modifier

## 066 new feature W D W B W M

### CROSS REFERENCES

In version 22, cross references get a dusting! The interface has been completely overhauled, and becomes much clearer and intuitive. Anticipating the impact of a modification is now much easier.. For example, a single right click in the explorer on an element displays the list of its uses.



The tree lets you see where the variable is used

**Benefit provided by this new feature of version 22:**  
You know everything!

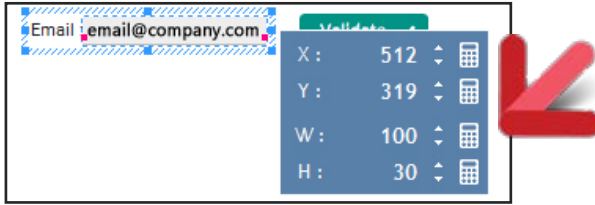
## 067 new feature W D W B W M

### SIZING: DIRECT INPUT

The creation of a control in the editor is performed graphically directly with the mouse. In some cases, it may be useful to directly enter the height and width of the control in pixels: no it's possible with a simple right click on the corresponding control handle.



Reminder: it was already possible to specify these values in the "7-tab window" (which needed to be open) and in the "status bar" (which is too far down).  
 Let's also remember the F4 magical key that allows you to re-execute the last operation (for example, apply the same width to several controls), as well as the "same height" and "same width" options in the alignment pane of the ribbon.  
 All these possibilities are offered for your comfort and ease of use.



Directly on the edit control: position or size to the pixel

**Benefit provided by this new feature of version 22:**  
 A sizable new feature

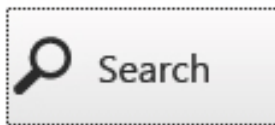
## 068 new feature W D W B W M

### ROLLOVER TOOLTIP

The size and position tooltip of a control evolves in version 22. It becomes more sober, displays more information, and stays in its place (It is not in the way anymore).



533 , 466  
 Δ: +318 , +2

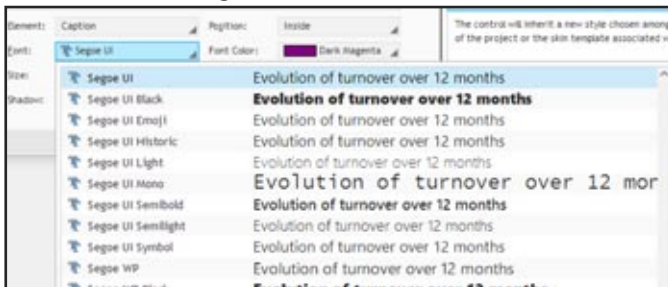


**Benefit provided by this new feature of version 22:**  
 A nice tooltip

## 069 new feature W D W B W M

### WHAT'S UP WITH THE FONTS? THEY SHOW UP!

A small new feature in version 22 that is very useful daily: the interface for selecting the font is now visual.



**Benefit provided by this new feature of version 22:**  
 Visual font selection

## 070 new feature W D W B W M

### CREATE IT: IT'S SAVED!

In version 22 as soon as a window (or a page or report) is created, it is saved.  
 This automated behavior lets you benefit from all the environment's automations when creating a window: automatic completion, ...  
 A little comfort.

**Benefit provided by this new feature of version 22:**  
 One less click

## 071 new feature W D W B W M

### AN INTEGRATED IMAGE EDITOR

We all had to retouch an image, an icon... Of course you can use a third-party tool, but you'll have to install it on your computer.

And as far as "Paint" is concerned, it comes with Windows and can be useful but it doesn't support transparency...

Version 22 thus gains a mini image editor integrated with the environment.

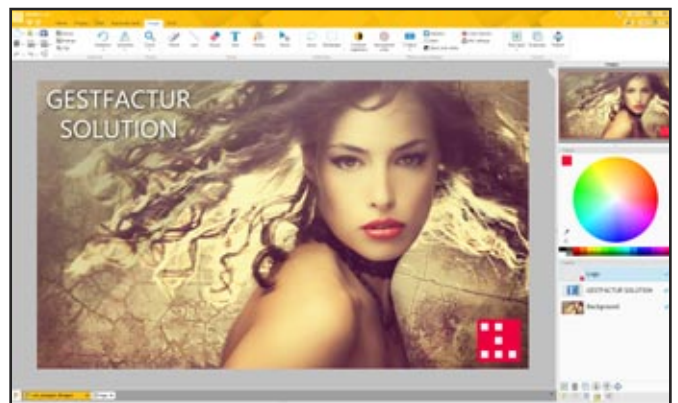
Without exiting the project, it is now possible to edit your images and icons.

The main features are:

- Cropping, Resizing
- Symmetry, Rotation
- Text
- Layers, order, merge, move, visibility
- Access clipart icons (image catalog provided)
- Managing formats: jpg, png, bmp, gif, tiff, ico, ...
- Preserving transparency
- For the buttons, frames: Generation of 5-state images (at rest, hover, pressed, grayed, focus)
- Zoom + preview thumbnail
- ...

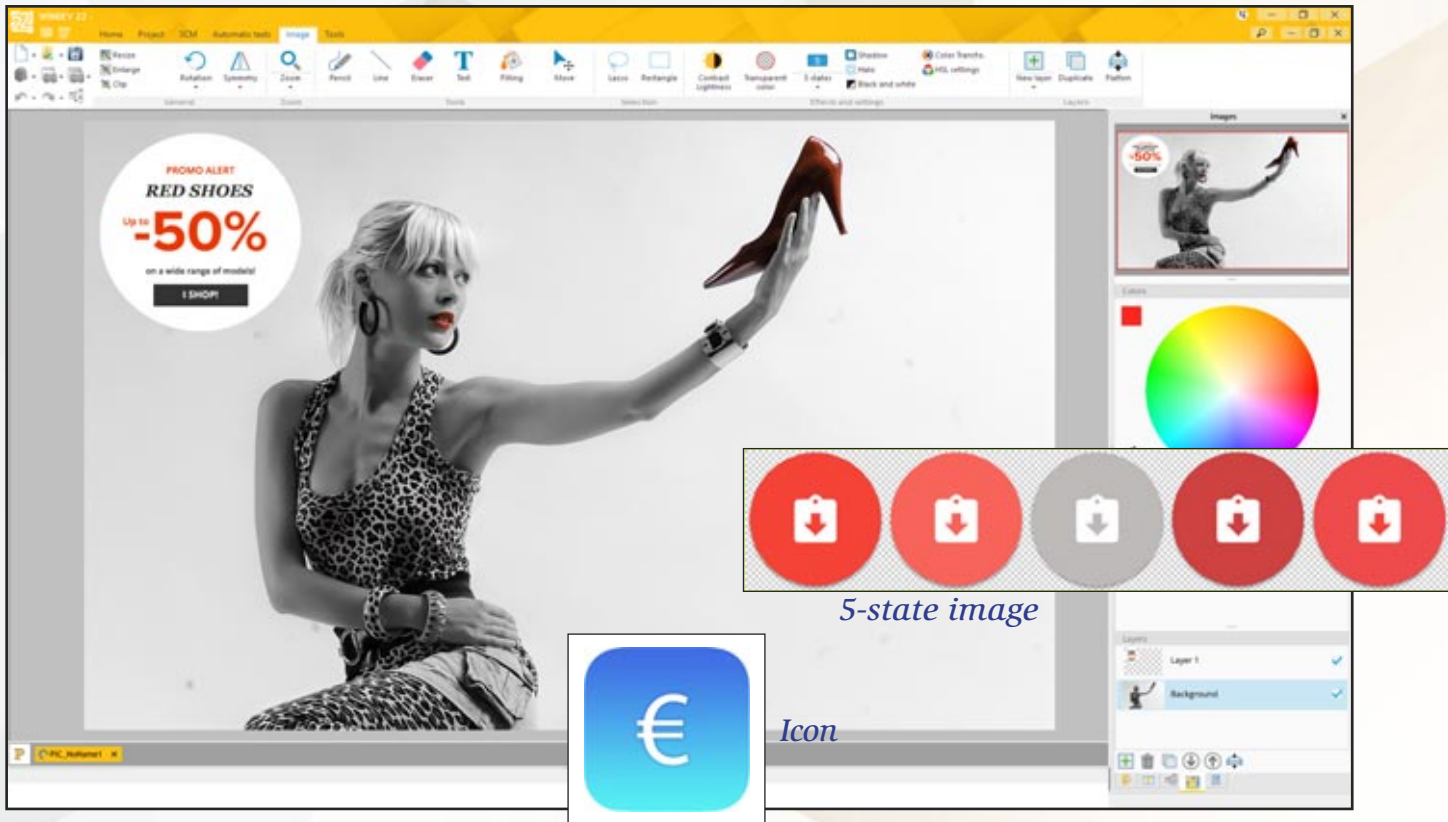
### THE EXPERT'S ADVICE

A real editor completely integrated and always ready to help  
 Handles almost all image formats  
 Retains and manages transparency  
 The easy generation of "5-state" images will be of great service!



The image editor of version 22

# INTEGRATED IMAGE EDITOR



**072** W D W B W M

## NEW: AN INTEGRATED IMAGE EDITOR

When you develop, you always need an image editor. With version 22, you do not need to use a third-party application: The image editor is integrated into your environment. Ribbon and panes provide access to functionality. The image editor is connected to the SCM.

**Benefit provided by this new feature of version 22:**  
Everything is integrated

**073** W D W B W M

## A DEVELOPER-ORIENTED EDITOR: "5 STATES", ICONS, TRANSPARENCY...

This image editor is oriented "developer", that is to say that it privileges the functionalities useful in development.

For example, transparency management makes it possible to superimpose different images. Or the support for the `ico` format lets you create icons for your applications!

Layers allow you to superimpose pictures or texts easily. The generation of "5-state" images will also be of great service!

**Benefit provided by this new feature of version 22:**  
Support for "developer" images

**074** W D W B W M

## UNPRECEDENTED COMFORT

An image to modify? Right click on the image in the window editor, the image editor opens, you make the changes, you save and here you are, the image is updated in the project. Multiple images can be edited simultaneously.

**Benefit provided by this new feature of version 22:**  
Very pleasant

## MAIN FEATURES OF THE IMAGE EDITOR:

- Resizing
- Centering
- Rotation
- Symmetry
- Zoom
- Pencil
- Eraser
- Lasso
- Text, RTF text
- Fill
- Management of transparency (alpha layer)
- Selection in rectangle or with lasso
- Copy/Cut/Paste
- Generation of a 5-state image from the current image
- Settings of contrasts and lightness
- Transforming a color into transparent
- Transforming a color into another one
- Conversion to black and white
- Modifying the saturation
- Modification of hues
- Automatic halo addition
- Automatic addition of drop shadow
- Backup in source image format (png, jpg, ...)
- Backup in .wdpic format with storage of layers
- Manage the layers
- Layer creation:
  - blank
  - from a catalog image
  - from a disk image
  - from the clipboard content
  - from another layer (duplication)
- Moving the layer content
- Flattening layers
- Merging layers
- Moving the order of layers (order of layers = z-order)
- Pipette
- Zoom window with move
- "Right click ..edit" directivity from an image control inside a window
- ...

**Benefit provided by this new feature of version 22:**  
*Edit your images from the environment*

**075** new feature WD WB WM

**WINDEV 22 IS SIGNED**

In version 22, all the modules that comprise it are signed. This better respects the security policy of some companies and ensures that no virus get installed...

**Benefit provided by this new feature of version 22:**  
*Guaranteed security*

**“GO” FROM WINDEV MOBILE IN THE WINDEV EDITOR**

**076** new feature WD WB WM

**A COMMON ENVIRONMENT FOR WINDEV AND WINDEV MOBILE**



In version 22, it becomes possible to open WINDEV Mobile projects in WINDEV (you'll need the appropriate license). It also becomes possible to create a project that has some WINDEV and WINDEV Mobile configurations. To edit a WINDEV Mobile project or a configuration, you don't need to exit WINDEV and start WINDEV Mobile anymore. Reusing existing project is made easier. The operations to performed are reduced.

**Benefit provided by this new feature of version 22:**  
*Limit operations*

**077** new feature WD WB WM

**COMMON WINDOWS**

Before version 22, to edit a WINDEV window in WINDEV Mobile, you had to import it into WINDEV Mobile. Then you would have two versions of the window. In version 22, it becomes easy to directly share a window (or in-

ternal window) between a WINDEV project and a WINDEV Mobile project, or between two configurations of a same project. It's mainly useful for applications meant to work on a PC and a tablet (Windows, iOS, Android, UWP). The new "Adaptive Design" feature of WINDEV 22 windows is very useful here (see new feature 205).

**Benefit provided by this new feature of version 22:**  
*Directly share windows.*

**078** new feature WD WB WM

**CODE, CLASS, QUERY, ANALYSIS, REPORT... IN SIMULTANEOUS ACCESS**

With older versions, it was (of course) possible to share project elements between WINDEV and WINDEV Mobile. But you needed to switch editor all the time, close the project, and re-open it in the other environment.

It was still very restrictive ... In version 22, this all belongs to the past, we edit windows, code, classes, queries, reports, etc. from the same environment, regardless of the version we're working on the Windows, Linux, iOS, Android, UWP ... Writing multi-platform applications is much more pleasant.

**Benefit provided by this new feature of version 22:**  
*Simultaneous and shared access*

**079** new feature WD WB WM

**MULTI-CONFIGURATION COMPILE**

In version 22, a new option lets you specify that all the project configurations must be systematically compiled: the WINDEV and WINDEV Mobile ones (iOS, Android, ...) all at the same time. Reminder: The project is compiled at each line break in the code editor, with each backup (Ctrl + S), ... Thus any compilation errors in a given configuration appear immediately.

**Benefit provided by this new feature of version 22:**  
*All configurations compiled in one time.*



# PROJECT MONITORING CENTER

**080** new feature W D W B W M

## TIME-TRACKER: NEW LOOK



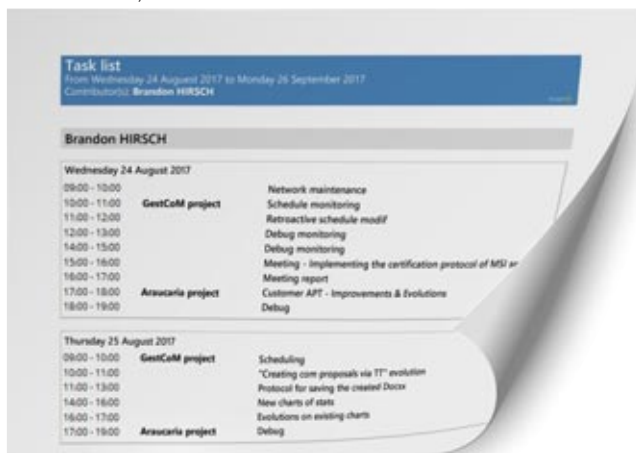
As you know, editors allow you to accurately track the time spent on each project, on each task. A time tracker is integrated in the editors. In version 22 the user friendliness of the time tracker improves.

**Benefit provided by this new feature of version 22:**  
A refreshed interface.

**081** new feature W D W B W M

## FOLLOW-UP OF PAST TASKS: PRINT

For providers who invoice for the time spent, version 22 of the Project Monitoring Control Center prints the list of tasks already carried out, per project and per team member. (For future tasks, use the Gantt chart, which indicates the links between tasks)



Accounting of spent time

**Benefit provided by this new feature of version 22:**  
You know where you've spent your time!

**082** new feature W D W B W M

## INCLUDED MESSAGING

A secure messaging system is integrated into the development environment. In version 22 this messaging system is directly accessible from a tab of the Project Monitoring Center.

**Benefit provided by this new feature of version 22:**  
Easier communications.

# REPORT EDITOR

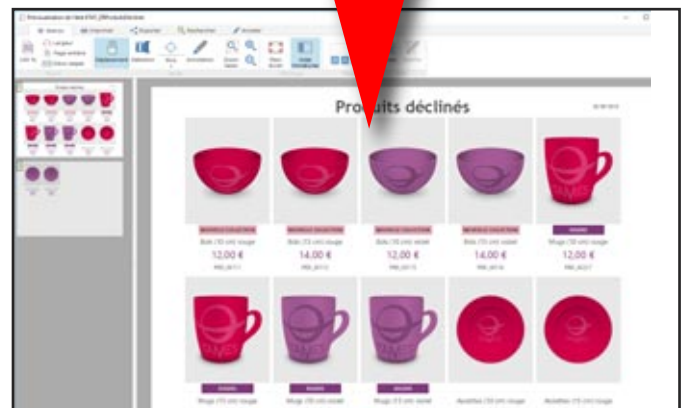
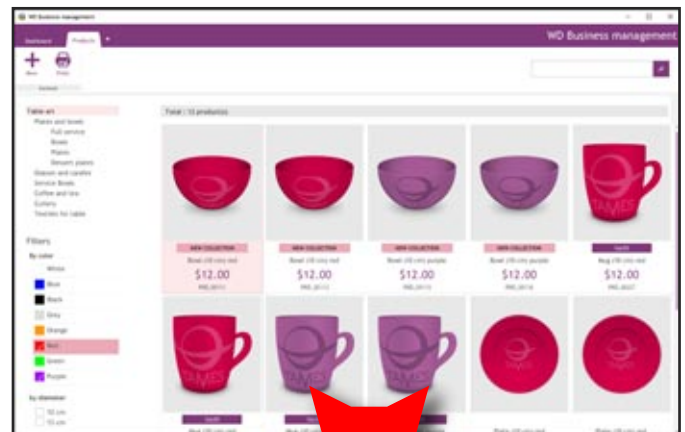
**083** new feature W D W B W M

## CREATING REPORT ON "LOOPER CONTROLS"

In version 22, it becomes automatic to create reports based on a Looper control.

Once positioned on the Looper, just create the report. A report is generated using all the controls in the Looper. Everything is then editable and customizable.

At runtime, the report is automatically filled with the Looper data.



Create reports in one click

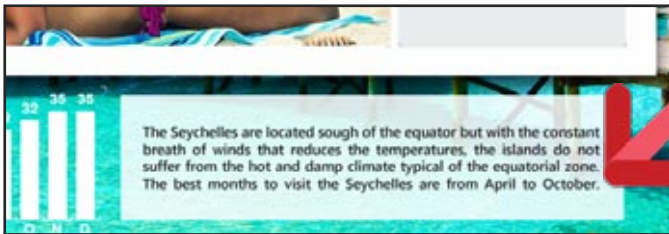
**Benefit provided by this new feature of version 22:**  
Create reports on Looper automatically.

**084** new feature W D W B W M

## JUSTIFIED STATIC CONTROL

The "static" type controls can now be justified. This was an often requested feature!





**Benefit provided by this new feature of version 22:**  
Sometimes you feel justified...

## 085 new feature WD WB WM

### RTF CONTROL: PRINT TABLES AND IMAGES

A check mark in the "7 tabs" makes it possible to request the printing of the tables and / or images present in an RTF document.

By default these elements are not printed.

**Benefit provided by this new feature of version 22:**  
You choose!

## 086 new feature WD WB WM

### PRINT IN COLOR VIA THE MASK ("7 TABS")

In version 22, the definition of a display/print mask is enriched. You can now specify a print color.

For example a positive number can be printed in blue, and a negative number printed in red. Convenient!



*Display mask: I decide blue if positive number, red if negative number ...*

June	+10.1%
July	-2.5%
August	+8.6%
September	+6.3%
October	-1.2%

*... and the result in a table: negative numbers are easily identifiable!*

**Benefit provided by this new feature of version 22:**  
Easier to read printouts

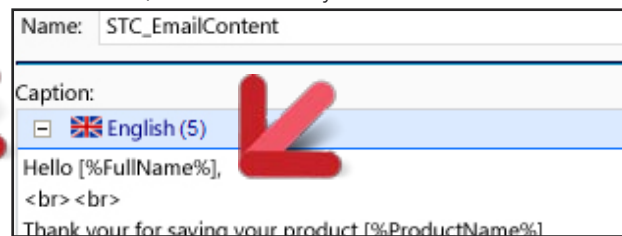
## 087 new feature WD WB WM

### REPLACING A CONTROL'S NAME BY ITS VALUE IN A CAPTION. AND NOW IN HTML

In a label, the report editor allows you to enter the name of a control so that it is replaced by its value. Simply specify the name of the control (or item ...) in square brackets and %.

Hello Mr. [%LASTNAME%]

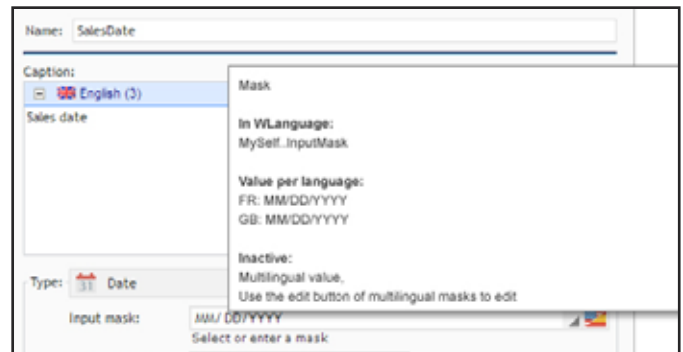
In version 22, this functionality is extended to HTML controls ...



**Benefit provided by this new feature of version 22:**  
Customize HTML text automatically

## 088 new feature WD WB WM

### EDITOR TOOLTIPS



*Tooltip in the report editor*

The tooltips in the report editor improved.

The tooltip displays additional information for the reports:

- Corresponding WLanguage property
- availability on the platform (Windows, Linux, iOS...)
- multilingual values
- ...

**Benefit provided by this new feature of version 22:**  
Tooltips that deliver.

## 089 new feature WD WB WM

### THE STATIC CONTROL: INCLUSIVE

The "Static" control in the report editor becomes more homogeneous.

It now includes the "item", "RTF" and "HTML" controls of the report editor. The existing controls are transformed into "Static with link" controls.

The execution of the report is not impacted, it is simply a more logical presentation of the source report.

**Benefit provided by this new feature of version 22:**  
Handle all static controls in the same way

## 090 new feature WD WB WM

### REPORT: MISCELLANEOUS

In the "7 tabs" window: Features not available in a configuration are grayed out, and a tooltip is displayed.

**Benefit provided by this new feature of version 22:**  
You are notified immediately

# DATA MODEL EDITOR (DATA SCHEMA)

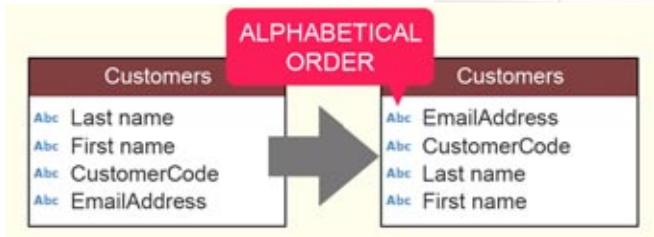
091 New feature WD WB WM

## ITEM DISPLAY

In version 22, the items of a data file (table column) can be displayed according to the following criteria:

- logical order
- physical order in the data file
- alphabetical order.

A search magnifier is available.



**Benefit provided by this new feature of version 22:**  
Easier search

# QUERY EDITOR

092 new feature WD WB WM

## ASSISTANCE IN ENTERING TABLES WHOSE NAME IS A RESERVED WORD

When the name of a table (data file) is a reserved word of the SQL language (for example `USER`), the query editor automatically adds "quotation" marks around the name to avoid syntax errors.

For example: `from 'USER'`

**Benefit provided by this new feature of version 22:**  
Assistance even in special cases

093 new feature WD WB WM

## VISUAL EDITION OF EXPRESSIONS IN JOINS

Version 22 of the visual query editor allows you to visually define expressions in joins.

This type of query could of course be entered directly in SQL code.

In version 22 everything becomes simpler for these sophisticated queries.

**Benefit provided by this new feature of version 22:**  
Visual creation of sophisticated joins

094 new feature WD WB WM

## VISUAL DEFINITION OF PARAMETERS IN THE "GROUP BY"

Version 22 of the Query editor allows you to visually set parameters for the 'GROUP BY' SQL statement.

There is no need to enter the SQL code to define these parameters.

**Benefit provided by this new feature of version 22:**  
Always more visual

**WINDEV 22:  
extreme  
sophistication**



# SCM (TEAMWORK): 10 STRONG NEW FEATURES



\*: price list modifiable without notice. Please check availability

## 095 new feature W D W B W M

### YOUR SCM IN THE CLOUD IN ONE CLICK: SCM DRIVE

In version 22, installing your SCM in the cloud is extremely simple. Directly from the environment, just click on the "SCM Drive" choice, enter its credentials, enter the payment information and you're done!

#### THE EXPERT'S ADVICE

- Work at the office or at home
- Automatically backup projects
- Sharing projects between developers

**Benefit provided by this new feature of version 22:**  
Your SCM can be accessed anywhere in the world.

## 096 new feature W D W B W M

### SCM IN THE CLOUD, BUT PROJECT SOURCES WHERE YOU WANT THEM: ON YOUR MACHINES AND IN THE CLOUD

The sources of your projects are always on your machines. The SCM allows you to store all versions of your projects in the cloud, but you remain the guardian of your sources. The best of both worlds!

**Benefit provided by this new feature of version 22:**  
Your project source is doubly secure.

## 097 new feature W D W B W M

### SCM: OPTIMIZED FOR THE CLOUD

The integration and extraction speed as well as the manipulations to be carried out have been optimized for greater comfort when using SCM remotely.

**Benefit provided by this new feature of version 22:**  
Higher speed, easier handling.

## 098 new feature W D W B W M

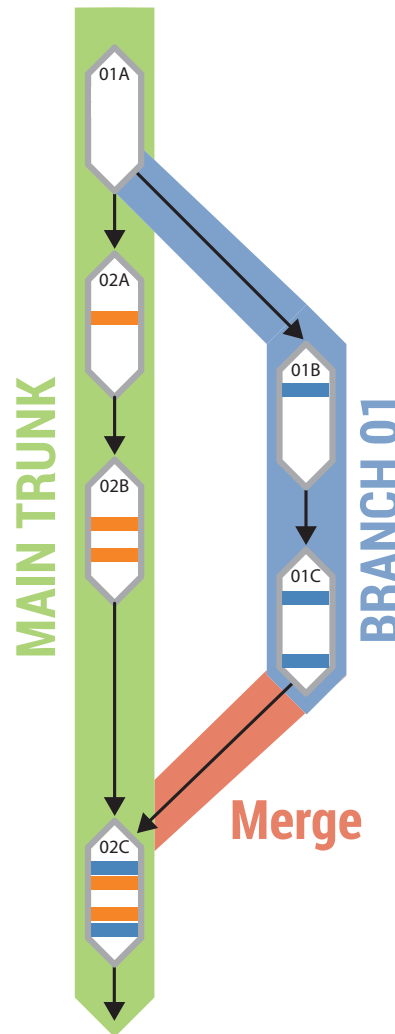
### SCM: DIFF IS LESS SHY...

In version 22, Diff displays additional information. For example, When a procedure has been added, in addition to reporting it, Diff displays the procedure's code. It is the same for the images, it displays them.

**Benefit provided by this new feature of version 22:**  
Useful information when comparing.

## 099 new feature W D W B W M

### SCM: CARRYOVER IN 1 CLICK (MERGE)



With a single click, changes made to a branch can be viewed and integrated into the trunk. SCM automatically compares the starting version (01A here) with the version to be merged (01C) to report these differences in version 02B. It is no longer necessary to manually compare version 02B and version 01C to find the differences made in branch 01 in order to carryover these differences.

**Benefit provided by this new feature of version 22:**  
Easier handling.

# SCM: VISUAL BRANCH MANAGEMENT

100 W D W B W M

## SCM: VERY VISIBLE BRANCHES!

In version 22, graphical editing of branches is being introduced. A color can be set for each branch. This visualization provides a

synthetic vision of the life of the project. A display mode makes it possible not to display the intermediate re-integrations for an even more synthetic vision of

the branches! This novelty brings a comfort of use which one can not do without. **Benefit provided:** Visible branches!

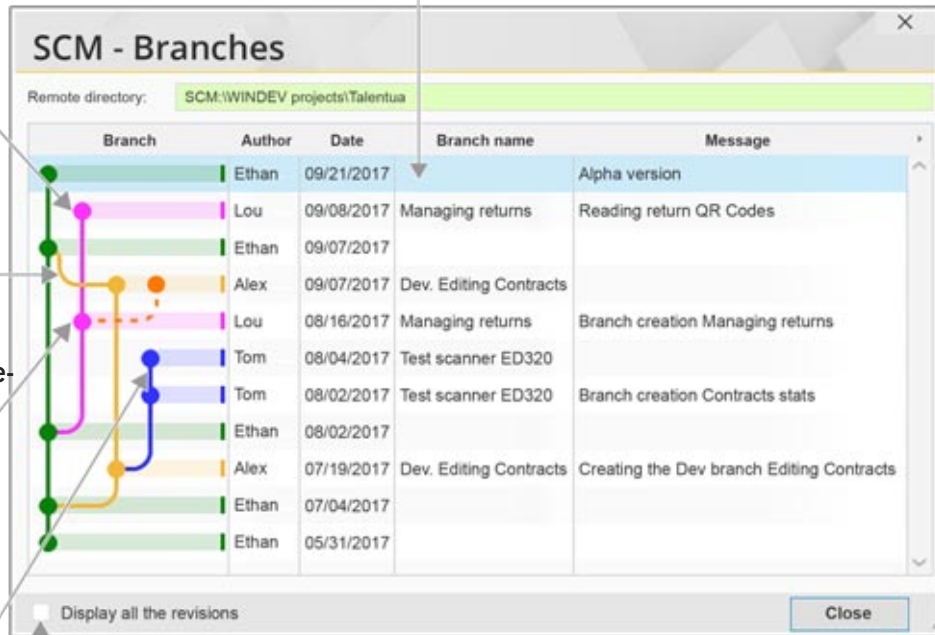
## 103 a branch can become the trunk

104 each branch has its own color

099 merge

101 Each re-integration can become a branch

102 Prune the dead branches



100 Do not show intermediate re-integrations

101 new feature W D W B W M

## EACH REINTEGRATION CAN BECOME A BRANCH (CREATE BRANCHES AT POSTERIORI)

You want to create a branch from a re-integration that has already been done? It's easy, just click on the circle!

**Benefit provided by this new feature of version 22:** Easily create branches.

102 new feature W D W B W M

## PRUNE THE DEAD BRANCHES

Before version 22, removing a branch could be tedious ... In version 22, when a branch becomes useless, it is enough to right click (and a confirmation ...) to remove this branch.

**Benefit provided by this new feature of version 22:** And all this without the help of a gardener!

103 new feature W D W B W M

## A BRANCH CAN BECOME THE TRUNK

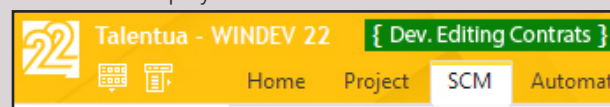
It may happen that a branch has to become the trunk of development. Version 22 allows you to perform this operation in one click.

**Benefit provided by this new feature of version 22:** And the trunk will turn into a leaf perhaps?

104 new feature W D W B W M

## REMINDER OF THE BRANCH'S COLOR

You work at the same time on several branches, you open several editors in parallel. How not to pick the wrong branch? Version 22 provides the solution: The name of the branch and its color are displayed in the same color.



**Benefit provided by this new feature of version 22:** Risk of error avoided.



# CONTINUOUS INTEGRATION (BUILT FACTORY)



Continuous integration allows you to automate all the tasks that are often painful and costly in term of creation time of a version: Compilation, testing, installation creation, file cleanup, deployment ...

## 105 new feature WD WB WM

### ABILITY TO PAUSE THE AUTOMATIONS

In version 22, the automations can be paused. This allows the current action plan to finish running so that there is no error. And then, during the actual pause, be able to stop the automations: change of machine, update, etc....

**Benefit provided by this new feature of version 22:**  
*Coffee break for automatons ???*

# WDMMSG (AUTOMATED TRANSLATION SOFTWARE)



Reminder: WDMMSG is an optional tool of WINDEV, WEBDEV and WINDEV Mobile used to industrialize the translation of projects. Dictionaries are automatically enriched based on the translations you've already done.

## 106 new feature WD WB WM

### DO YOU WANT MY PICTURE? WELL, YES!

The extraction of the labels to translate now displays the possible image of the window that includes the label. The translator can thus see the context in which the text is located, by displaying a screen copy of the window.



**Benefit provided by this new feature of version 22:**  
*No risk of misinterpretation.*

## 107 new feature WD WB WM

### EXTRACTING MULTIPLE LANGUAGES IN ONE OPERATION

In version 22, WDMMSG makes it possible to extract all the languages of the project (or a subset) in a single operation

**Benefit provided by this new feature of version 22:**  
*Fewer operations.*

## 108 new feature WD WB WM

### SELECTION OF PROJECT ELEMENTS: NEW INTERFACE

The project elements selection interface becomes even more user friendly.

The proposed tree is identical to that of the project explorer, with the elements in the same order.

A little more convenient.

All the manipulations are also optimized.

**Benefit provided by this new feature of version 22:**  
*Everything becomes simpler.*



# WLANGUAGE



## 109 new feature W D W B W M

### AUTOMATIC LOGIN TO GOOGLE, FACEBOOK, DROPBOX, TWITTER, INSTAGRAM ... (OAUTH 2)



The new `AuthIdentify` WLanguage function lets you, in one line of code, connect and identify yourself to a large number of applications that support the OAuth2 protocol:

- Google
- Facebook
- Dropbox
- Twitter
- Instagram
- Microsoft OneDrive
- Office 365
- Pinterest
- Spotify
- ...

Code example:

```
MyAuthentication is OAuth2Parameters
// Information provided by the service when registering the application
MyAuthentication.CustomerID = "0123456789"
MyAuthentication.CustomerSecret = "9876543210"
MyAuthentication.URLAuth = ""
MyAuthentication.URLToken = ""
// Authentication request: opens the login window..
MyToken is AuthToken = AuthIdentify(MyAuthentication)
```

Depending on the services offered by each application, it is possible to transmit elements to these applications.

For example: automatically post a Tweet, retrieve a file from DropBox, send a photo to Instagram, ...

**Benefit provided by this new feature of version 22:**

*One identifier for all sites: the end user is happy.*

## 110 new feature W D W B W M

### PUT UNDO/REDO IN YOUR APPLICATIONS

In version 22, it becomes possible to manage the "UNDO" (and the REDO) in your applications.

The new WLanguage functions `WinEdDeclareUndo` , `WinEdDo` , `WinEdRedo` and `WinEdUndo` allow you to manage UNDOs (and REDOs) in cascade.

Code example:

```
// Undo declaration
WinEdDeclareUndo(CancelOperation, Customer.IDCustomer)
// Management of Undo
PROCEDURE INTERNAL CancelOperation(nIDCustomer)
  IF HReadSeekFirst(Customer, IDCustomer, nIDCustomer) THEN
    SourceToScreen()
  END
END
```

**Benefit provided by this new feature of version 22:**

*Provide convenient functionality to your end users*

## 111 new feature W D W B W M

### ASSIGNMENT TUPLE = ARRAY

In version 22, it becomes possible to assign several variables from an array.

```
OrderNumber, ProposalNumber, InvoiceNumber are int
// Retrieving values from the array
(ProposalNumber, OrderNumber, InvoiceNumber)=tabDailyStats
```

**Benefit provided by this new feature of version 22:**

*Simplify your code.*

## 112 new feature W D W B W M

### "FOR EACH" ON AN ARRAY

In version 22, it is now possible to perform a `FOR EACH` on a static array.

Code example:

```
ProductCode is string
// Read the product code array
FOR EACH ProductCode OF ["RF354373", "RF874257", "RF143287"]
  // process
  ...
END
```

**Benefit provided by this new feature of version 22:**

*Even more flexibility in how you manage arrays.*

## 113 new feature W D W B W M

### PROCEDURE PARAMETER: STATIC ARRAY

In version 22, you can directly handle an array of values passed as a parameter to a procedure.

```
ProcessProduct([124545, 2487425, 5454721])
PROCEDURE ProcessProduct(ProductCode)
// Access the second code
IF ProductCode[2] = 2487425 THEN
  // Special case to manage
END
```

**Benefit provided by this new feature of version 22:**

*Even more flexibility for procedures.*

## 114 new feature W D W B W M

### WLANGUAGE FUNCTIONS: A DYNAMIC ARRAY AS PARAMETER

Functionalities that expect an array of values (functions such as `HReadSeek` and derivatives: `HFilter`, ...) now authorize the use of a dynamic array. You can fill this dynamic array before calling



the function.  
It's always easier to prepare parameters ahead!

**Benefit provided by this new feature of version 22:**  
*Even more flexibility*

## 115 new feature WD WB WM

### THE ARRAYSEEK AND ARRAYSORT FUNCTIONS ACCEPT ARRAYS OF RECORDS

In version 22, the `ArraySeek` and `ArraySort` functions accept arrays of records.

**Benefit provided by this new feature of version 22:**  
*Easier array handling.*

## 116 new feature WD WB WM

### STRINGS: EASIER BUILDING OF STRINGS VIA PROGRAMMING

In an application's code, it often happens that you have to build the content of a string. For instance "Dear Mr. Doe"  
In version 22, to insert the name ("Doe"), simply enter `[%VariableName%]` directly in the string.

You don't need to concatenate the string or use the `StringBuild` function (for multilingual support).

Code example:

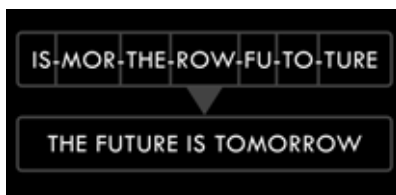
```
// Request customer confirmation
IF YesNo(Yes, "Do you confirm the creation of the
customer [%sCustomerName%]") = No THEN
    RETURN
END
```

**Benefit provided by this new feature of version 22:**  
*A more readable syntax.*

## 117 new feature WD WB WM

### EASY STRING SLICING

The new `StringSplit` function lets you easily cut a string based on various separators, and retrieve the pieces in a single instruction.



**Benefit provided by this new feature of version 22:**  
*Brake your chains.*

## 118 new feature WD WB WM

### STRING HASHING

WLanguage was already supporting the ND5, SHA, TIGER and WHIRLPOOL hash standards.

In version 22, the Bernstein standard is also supported.

**Benefit provided by this new feature of version 22:**  
*Be safer...*

## 119 new feature WD WB WM

### INSERT AN IMAGE DIRECTLY IN THE HTML CODE: ENCODING BASE 64, BASE 64 URL, BASE 85

The new WLanguage functions `Encode` and `Decode`, let you encode (and decode) strings, buffers, images (and anything else!) in a large number of formats.

For example, it is now possible to transform a `jpeg` image into a "text" string that can be included into HTML code! In this example there is no more external file for the image!

This method also allows you to pass binary parameters to a URL.

And can be used a lot of other ways...



*The lion is not an image, but part of the source code!*

**Benefit provided by this new feature of version 22:**  
*The text is transformed into an image (and vice versa).*

## 120 new feature WD WB WM

### ASSOCIATIVE ARRAYS: ACCESS TO PROPERTIES

Version 22 of WLanguage lets you directly access (without using local variables) the properties of the stored elements (objects, structures, controls ...) of an associative array.

**Benefit provided by this new feature of version 22:**  
*Eliminate lines of code.*

## 121 new feature WD WB WM

### JSON NAIVELY SUPPORTS ASSOCIATIVE ARRAYS

In version 22, the management of the associative arrays when serializing and/or deserializing strings in JSON format in WLanguage classes is supported.

This avoid having to process the associative arrays case yourself.

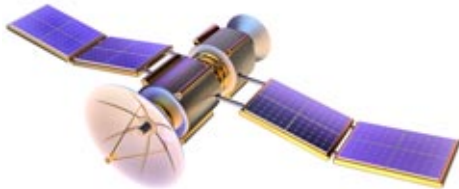
**Benefit provided by this new feature of version 22:**  
*Also reduces the amount of code.*

**SIGNATURE OF EXISTING PDF**

The new WLanguage function `PDFSign` lets you sign an existing PDF document, created with WINDEV or a third-party program. The signature is an approval type signature (each reader approves). You can insert some text or an image corre-

sponding to the certificate.

**Benefit provided by this new feature of version 22:**  
*Sign PDF via programming.*

**GPS FUNCTIONS**

The WLanguage functions from the `GPS` family are now available in WINDEV 22.

**Benefit provided by this new feature of version 22:**  
*Especially useful for WINDEV applications on a tablet.*

**REPOSITIONABLE NOTES:  
WLANGUAGE FAMILY OF FUNCTIONS**

In version 22, the new WLanguage family of functions `Note` lets you execute via programming actions of the type an end user can run: create a note, save it, position it ...

**Benefit provided by this new feature of version 22:**  
*Position the movable notes.*

**DATA SOURCE: AUTOMATIC NAMING**

A "data source" type variable is identified by its name. In the case of class members, WLanguage generates a different internal name in order to avoid conflicts.

**Benefit provided by this new feature of version 22:**  
*A nice little touch.*

**OOP: NEW SYNTAX FOR CALLING THE  
BASE CLASS CONSTRUCTOR AND  
MEMBERS**

In order to simplify the reading of the code (and no longer confuse it with a manufacturer declaration), the call syntax evolves in version 22:

`base:constructor(p1, p2)`  
can be used instead of the historical syntax  
`base constructor(p1, p2)`  
The existing code is always recognized.

**Benefit provided by this new feature of version 22:**  
*A more usual syntax for some.*

**OOP: CALLING ANOTHER SYNTAX OF  
A CONSTRUCTOR**

A constructor can have several syntaxes.

For example, a constructor can have a syntax with no parameters and a syntax with parameters.

In version 22 it is possible to call a constructor's syntax from another syntax.

**Benefit provided by this new feature of version 22:**  
*Hello?*

**OOP: SINGLETON**

A singleton is a class instantiated once and globally.

The declaration of a singleton in the declaration code of a class becomes much simpler.

**Benefit provided by this new feature of version 22:**  
*An easy Design Pattern.*

**WLANGUAGE: VARIOUS NEW  
FEATURES**

- In version 22 it is possible to retrieve the options of an AFF's popup menu of a control thanks to the new function `AAFPop-upMenuToString`.
- The homonymic copy on structures is available.
- Conditional compilation is available to distinguish between ANSI mode and UNICODE mode.
- The new `DeleteAllHourglass` constant lets you delete all the hourglasses activated in a single command!

**Benefit provided by this new feature of version 22:**  
*Additional new features.*

## NEW AUTOMATED TEST EDITOR



### THE EXPERT'S ADVICE

Replaying automatic tests before each deployment ensures that there are no edge effects ... It's a reflex that improves the quality of your software, and saves an unprecedented amount of maintenance time!

## 130 new feature WD WB WM

### A BRAND NEW EDITOR, SHINNY NEW

In version 22 the automated test editor is revamped! The interface changes for both ease of use and more power.

Your teams will no longer have excuses for not creating automated tests!

Test creation is carried out visually by recording the manipulations.

The test tool is integrated and the language to be used (if necessary) to edit the tests is directly WLanguage... which your teams already know.

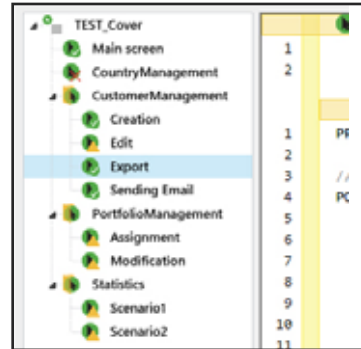
**Benefit provided by this new feature of version 22:**

*More powerful new test editor*



## 131 new feature WD WB WM

### TEST EDITOR: SIMPLIFYING THE INTERFACE



In version 22, the automated test editor's interface is rejuvenated!

The interface becomes more intuitive, and more powerful at the same time: For example, the tree is used to group the tests.

**Benefit provided by this new feature of version 22:**  
*Easier test creation*

## 132 new feature WD WB WM

### TEST WHATEVER YOU WANT!

In version 22 it becomes possible to create a test on what you want! You no longer need to associate a test with an object.

**Benefit provided by this new feature of version 22:**

*Real freedom...*

## 133 new feature WD WB WM

### AN ERROR IN A TEST? IT APPEARS WITH THE COMPILATION ERRORS. THANKS

Your teams stay in a known operating mode. Everything is integrated.

**Benefit provided by this new feature of version 22:**

*More consistent interface*

## WINDEV, my support

### RESULT HISTORY

In version 22, the history of passing tests is retained.

You can consult all the reports, and find all the errors that could have taken place during previous executions.

**Benefit provided by this new feature of version 22:**

*Follow the evolution of the tests*

## AUTOMATIC SCREEN COPY ON TEST FAILURE

A screenshot is systematically recorded when an error occurs during a test.



This screenshot shows the progress of the test when triggering the error, as well as the contents of the interface. The screenshot is kept in the test history (see previous new feature).

**Benefit provided by this new feature of version 22:**  
if you want to see what's going on ...

# CODE COVERAGE

## WHAT PERCENTAGE OF MY CODE IS TESTED?

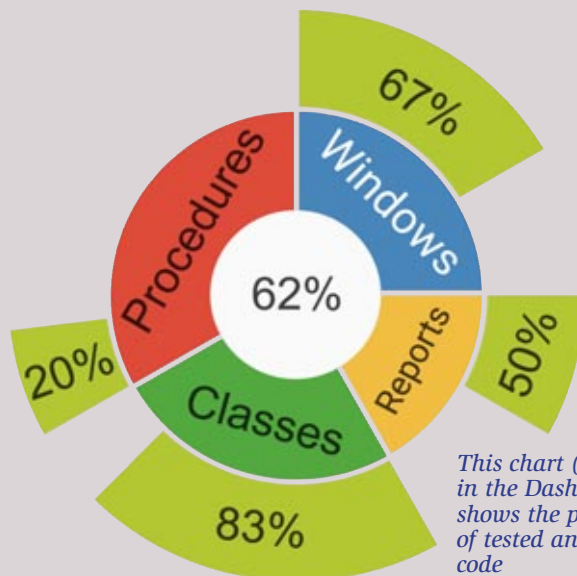
### WHAT IS CODE COVERAGE?

Code coverage is the measure of the coverage of tests performed on an application. Each line of code that has been executed is considered "tested". (Which does not mean that the test is successful, it only means that the line has been executed). These are both "manual" tests (execution of lines of code during a GO for example), and automated tests. Code coverage is used to detect code lines of an application that have never been executed. These lines of code are found in all objects:

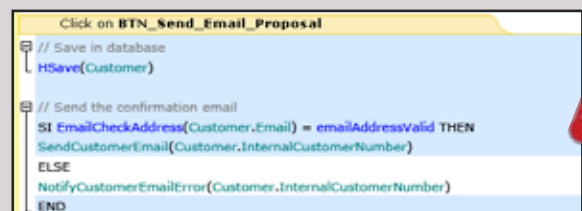
- window
- control
- procedure
- method
- "piece of code"
- ...

Code coverage gives a good idea of the test level of the code of an application.

**Benefit provided by this new feature of version 22:**  
You know what hasn't been tested.



This chart (displayed in the Dashboard) shows the percentages of tested and untested code



Lines on blue background are executed (they are considered tested)

**Benefit provided by this new feature of version 22:**  
The visualization is graphical

### VISUALIZATION OF CODE COVERAGE

The coverage rate is displayed in several places:

- project dashboard
- Project explorer, at the level of each element.
- directly under the code editor: a color indicates the executed lines.

### TEAMWORK

The code coverage is aggregated between all members of the team through the Control Centers database. Team member statistics are also stored.

**Benefit provided by this new feature of version 22:**  
Data is aggregated

# SOAP & REST WEB SERVICES

**139** new feature [WD](#) [WB](#) [WM](#)

## CONSUMING AND/OR CREATING WEB SERVICES

A WINDEV application allows you to consume SOAP Web services and REST Web services.

It is also easy to create Web services.

SOAP web services are created using WINDEV or WEBDEV.

REST web services are created with WINDEV and WEBDEV (see also new feature 898).

**Benefit provided by this new feature of version 22:**

*Easy creation of Web services.*

# CODE EDITOR

**140** new feature [WD](#) [WB](#) [WM](#)

## MOVING PROCEDURES AND METHODS

Before, the procedures and methods were displayed in their order of creation, which could be annoying for the logical organization of the code ...

In version 22, it becomes (finally) possible to move a procedure!

**Benefit provided by this new feature of version 22:**

*Get organized the way you want*

**141** new feature [WD](#) [WB](#) [WM](#)

## CREATING A KEYBOARD PROCEDURE

With the old versions, to create a procedure, you had to position the cursor with the mouse on the "right" line in the project explorer. This could be tedious on large projects.

In version 22, it is enough to position the cursor at the end of a procedure, and to type the prototype of the procedure to be

created.

The new procedure is automatically created after the current procedure.

**Benefit provided by this new feature of version 22:**

*Don't let go of your keyboard!*

**142** new feature [WD](#) [WB](#) [WM](#)

## LAST LINE OF CODE? EDIT IN FULL PAGE!

Small innovation that will make the entry of code at the bottom of the page much more comfortable: When entering code at the bottom line of the screen, at the bottom, the line can go up to the top of the screen (Down Arrow key).

This create an empty entry area below the line, which is more pleasant.

This is useful, for example, when adding a procedure to a set or method to a class.

**Benefit provided by this new feature of version 22:**

*A much smoother entry*

**143** new feature [WD](#) [WB](#) [WM](#)

## CUSTOMIZE THE EDITOR

In version 22, customizing the code editor is easier.

The customization parameters are saved in a (.sco) file, which allows you to pass these parameters to another computer.

```
18 MyPosition = GPSGetPosition()
19 MarkerPosition.Position = MyPosition
20 // Add a marker
21 MapAddMarker(MAP_Positions,MarkerPosition)
22 // Add the Itinerary
23 MapAddItinerary(MAP_Positions,[MyPosition, StorePosition], ItineraryCar)
```

```
18 MyPosition = GPSGetPosition()
19 MarkerPosition.Position = MyPosition
20 // Add a marker
21 MapAddMarker(MAP_Positions,MarkerPosition)
22 // Add the Itinerary
23 MapAddItinerary(MAP_Positions,[MyPosition, StorePosition], ItineraryCar)
```

*Fixed font, proportional font, and keyword color change*

**Benefit provided by this new feature of version 22:**

*You have choices!*

# ENVIRONMENTAL POLICIES

When PC SOFT prints "paper" documents, PC SOFT, the paper supplier or the printer, (FSC - Forest Stewardship Council - certified and PEFC - Program for the Endorsement of Forest Certification - certified) replants as many trees as used for the printing. The FSC label was created by the FSC NGO, which includes among others

Greenpeace, Friends of the Earth and the WWF. For example print 100,000 documentations of 92 pages on glossy paper consumes 50 trees with trunk of 15 cm of diameters: PC SOFT or the printer has 50 trees replanted immediately. Also, we favor pulp coming mainly from recycled wood (from furniture mills for instance) and

from controlled forest clearing. Also our products are available without packaging or paper documentation on request. A license for 10 developers can be supplied upon request with only 2 sets of paper documentation for instance.



### BLACK BACKGROUND CODE EDITOR

Regardless of the theme chosen for the environment, it is possible to choose to display your code on black background.

```

17 // Try to position on today's record end to lock it
18 WHILE HReadSeekFirst(InvoiceNum,InvoiceDate,DateSys(),hLockWrite)=False
19 // Add the record if it was not found
20 IF HFound()=False THEN
21 InvoiceNum,InvoiceDate = DateSys()
22 InvoiceNum,Number = 0
23 HAdd(InvoiceNum)
24 ELSE
25 // Record found but it cannot be locked
26 IF HErrorLock() THEN
27 CONTINUE
28 ELSE
29 // Other error
30 RESULT ""
31 END
32 END
33 END
34 END
35 // Reads the sequence number, increments it and updates the file
36 .SequenceNum is Int = InvoiceNum.Number + 1
37

```

**Benefit provided by this new feature of version 22:**  
Black or White?

### F2 (METHOD DEFINITION): IMPROVEMENTS

Call to Method: which inheritance class to select? In version 22 the new class selection window is much more practical.

**Benefit provided by this new feature of version 22:**  
Do not ask any more questions!

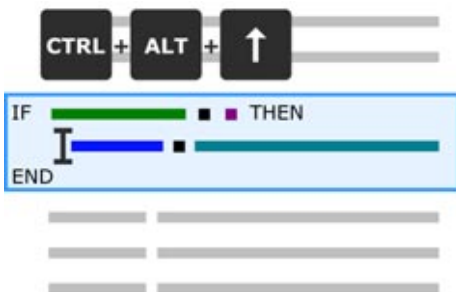
### AUTOMATIC CODE SELECTION BY BLOCK LEVEL

The code editor in version 22 allows the automatic selection of code blocks.

The key combination Ctrl + Alt + Up Arrow selects the block above the cursor, as many times as required.

The key combination Ctrl + Alt + Down Arrow de-selects the block in the same way.

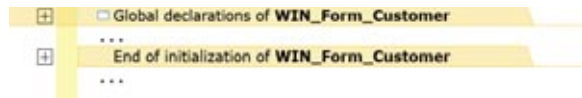
It becomes much easier to move a block of code (a IF .. Then... Else for example)



**Benefit provided by this new feature of version 22:**  
Select blocks in a single operation

### EXPAND AND COLLAPSE THE CODE

In version 22, it becomes possible to expand and collapse the process of your choice.



**Benefit provided by this new feature of version 22:**  
New keyboard shortcuts available!

### THE COLOR: 1 CLICK OR RGB 255 0 0 = RED?

Under the code editor, entering an RGB code displays a square in the defined color.

This allows you to correct typing errors ...

A click on the color square opens a color picker to change the color in the code.



The square displays the color

**Benefit provided by this new feature of version 22:**  
Show your colors!

### VISUAL SCROLLBAR

The visual scrollbar now reports compilation errors and search results.

Lines containing a compilation error are marked with a red highlight.

Lines containing a searched item are marked with an orange highlight.



The red line identifies a compilation error

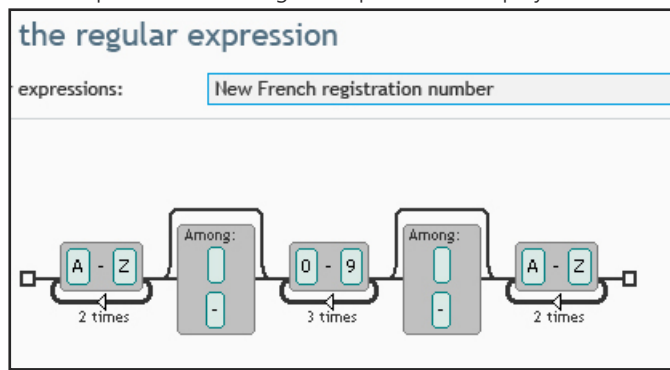
**Benefit provided by this new feature of version 22:**  
It's visual!

### ENTERING REGULAR EXPRESSIONS + EASY

In version 22 it becomes possible to save your own regular expressions directly in the wizard for later reuse.



A visual preview of the regular expression is displayed.



*Memorize your regular expressions graphical definitions*

**Benefit provided by this new feature of version 22:**  
*It's visual, it's clearer!*

## 151 new feature WD WB WM

### AUTOMATIC SYNCHRONIZATION OF THE EXPLORER

In version 22, it becomes possible to ask the project explorer to follow the code ...

**Benefit provided by this new feature of version 22:**  
*You've got followers ...*

## DEBUGGER

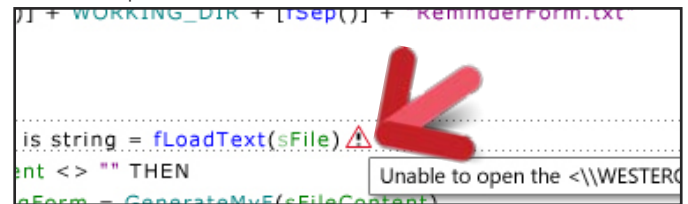
## 152 new feature WD WB WM

### WHEN EXECUTING CODE IN "STEP-BY-STEP" MODE, AUTOMATIC DISPLAY OF DYNAMIC AUDIT WARNINGS

To improve the quality of the product code, version 22 of the debugger automatically displays the warnings of the dynamic audit.

This indicates potential code risks.

The developer then chooses to take them into account or not.



*Invisible errors become visible*

**Benefit provided by this new feature of version 22:**  
*You are notified directly in your code.*

# WINDEV 22 gives you super powers



## 153 new feature WD WB WM

### JSON DISPLAYED FORMATTED

When debugging a variable containing JSON, the debugger displays the JSON content with an indentation.

**Benefit provided by this new feature of version 22:**  
*Readable information.*

## 154 new feature WD WB WM

### XML DISPLAYED FORMATTED

When debugging a variable containing XML, the debugger displays the XML content with a logical indentation.

**Benefit provided by this new feature of version 22:**  
*Readable information*

## 155 new feature WD WB WM

### BREAK POINT IN A TEMPLATE? STOP IN ALL DERIVATIVES OF THE TEMPLATE

In version 22, when a breakpoint is positioned in the code of a template (window or control), the debugger will stop in all windows or all controls that derive from this template.

**Benefit provided by this new feature of version 22:**  
*Easy debugging*

## XML



## 156 new feature WD WB WM

### BACKUP WITH FORMATTING

In version 22, it becomes possible to create an XML file with a presentation:

- indent
- carriage return.

“Human” reading is enormously facilitated!

**Benefit provided by this new feature of version 22:**  
*With or without indentation*

## AUDIT TO OPTIMIZE YOUR PROJECTS



## 157 new feature WD WB WM

### CUSTOM STATIC AUDITING

In version 22, it becomes possible to select the elements on which to launch an audit.

This is useful on large projects, in order to reduce audit execution time, as well as the advice generated.

This is also useful when part of the application is still not finalized, so as not to audit this part.

**Benefit provided by this new feature of version 22:**  
*The static audit also improves your performance in the editor.*

## 158 new feature WD WB WM

### OLD ANALYZES

Static audit now identifies analyzes created with an older version, the internal formats of which are not optimized.

The audit then offers to pass the “Analyzes” in the current format, which significantly improves the performance in the SCM.

**Benefit provided by this new feature of version 22:**  
*Your analyzes are good*

## 159 new feature WD WB WM

### DYNAMIC AUDIT: BANNED PROCESSES IN THREADS REPORTED

Dynamic auditing reports forbidden access to the UI from threads.

Reminder: For synchronization reasons, a thread should not access the window interface. You have to go back to the main thread (with the `ExecuteMainThread WLanguage` function) to access the UI.

**Benefit provided by this new feature of version 22:**  
*Improved reliability of applications that use threads.*

## 160 new feature WD WB WM

### AN "APPLICATION TRIGGER": DATA FILE CHANGE NOTIFICATION

Version 22 of HFSQL makes it possible to call a client procedure when one of these 2 events occurs on a server:

- data file changes
- editing a record of the data file (one table row).

This functionality allows you to trigger a process (a verification, an alert message, ...) with each data modification, including between applications.

**Benefit provided by this new feature of version 22:**  
*Sharp programming.*

## 161 new feature WD WB WM

### QUERY: FORCE THE KEY USED FOR READING

The browsing keys of a query are determined and optimized by HFSQL.

In some particular cases, you may want to use a specific browsing key.

Version 22 of HFSQL allows you to define these keys.

Caution: in this mode, the query speed is no longer automatically optimized. This mode should only be used in special cases!

**Benefit provided by this new feature of version 22:**  
*Searches that always perform well.*

## 162 new feature WD WB WM

### AUTOMATIC UPDATE (OR NOT) OF THE HFSQL SERVER

The HFSQL server changes regularly: either in the case of a major version change (such as the new version 22) or in intermediate versions (update 1, update 2, ...).

In version 22 it becomes possible to automate the update of the HFSQL servers:

- Check at regular intervals whether an update is available, and install it.
- Update automatically if the version number changes (e.g. 21 to 22).
- ...

**Benefit provided by this new feature of version 22:**  
*Fewer operating tasks.*

## 163 new feature WD WB WM

### CUSTOMIZED UPDATE OF A SET OF HFSQL SERVERS

When managing a set of HFSQL servers, after validating a specific version, you usually want to update all the servers in operation.

Version 22 allows this operation automatically.

Each server checks according to the frequency parameter whether or not it needs an update according to the settings of the infrastructure manager.

If the installed server version is different from the proposed server version, the server will update.

**Benefit provided by this new feature of version 22:**

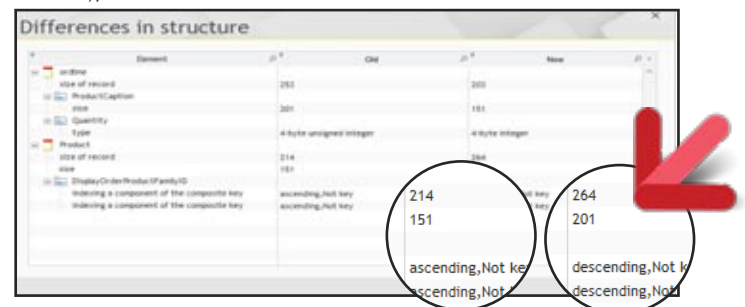
*Same as new feature 162, except that here you get to pick the date!*

## 164 new feature WD WB WM

### "AUTO MODIF" (SDD): KNOW WHAT WILL HAPPEN IN THE AUTO CHANGE BEFORE RUNNING IT

The functionality that automatically maintains the database structure ("Auto Modif.") displays more information in version 22!

Before executing, the "Auto Modif" displays an information window indicating the structural changes that will be made. If several successive updates are to be applied (updating an old version), the window indicates this.



**Benefit provided by this new feature of version 22:**

*The end of suspense: You know what will happen before you start the auto change*

## 165 new feature WD WB WM

### DATABASE DUPLICATION EASY WITH 22

In version 22, an HFSQL database can be duplicated by the new WLanguage function `HDuplicateDatabase`.

Users' rights are also duplicated.

**Benefit provided by this new feature of version 22:**

*New possibility by programming*

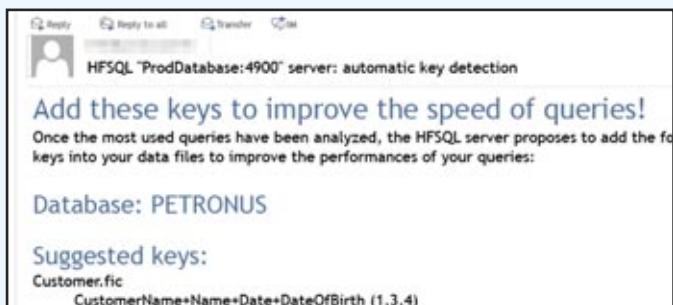
# HFSQL

IMPROVES  
THE SPEED  
OF YOUR QUERIES

**166** new feature WD WB WM

## QUERY SPEED DETECTION OF NECESSARY KEYS ON RUNNING DATABASES

Version 22 of HFSQL knows how to optimize the speed of the queries according to their actual use. For queries executed often, or that consume a lot of resources, the engine of HFSQL version 22 performs optimization processes in the background. The HFSQL engine determines which keys and compound keys to add to optimize query performance. The keys to be added are reported to the DBA, the project leader and any designated person. The addition of the key must be validated before being performed. HFSQL doesn't force any addition. The performance gain can be dramatic. Indeed, performance depends on the actual content of the databases (and indexes) of the operating site. Note: This feature is available in 64-bit mode, which is the most common mode.



*The suggestions are sent directly to you by mail*

**Benefit provided by this new feature of version 22:**  
Optimization per user site.

**167** new feature WD WB WM

## BETTER QUERY SPEED: THE EXPERT'S ADVICE

Before considering the optimizations, wait until the databases are sufficiently powered. These optimizations should not be performed on test databases or databases that are being filled. Indeed, the actual data in the database greatly influences performance optimizations. It is therefore necessary to use databases "at cruising speed", with real data in sufficient quantity. If you are editing a software package, note that the optimizations (the additional keys to define) may vary from one operating site to another.

**Benefit provided by this new feature of version 22:**  
*Please follow these advices!*

**168** new feature WD WB WM

## BETTER QUERY SPEED: IMPLEMENTATION

When implementing the optimization process, care must be taken to ensure that the contact information of the persons who will receive the optimization reports are accurately recorded.

We recommend that you specify the following recipients:

- project manager
- DBA
- a customer representative.

**Benefit provided by this new feature of version 22:**  
*The server notifies you directly.*

## EASY INSTALLATION IN LINUX: DOCKER



In the Linux world, Docker is an application packaging system. A 'Docker image' contains all the files needed to run an application: An HFSQL server, a Web server, a big data database, or a classic application.

An image of the HFSQL Client/Server version 22 server is available in the "docker hub" (the official site that references the images).

To create the image, a script (a docker file) is defined. This script is also provided.

For example, this Docker container allows you to deploy the HFSQL server in Amazon EC2, Microsoft Azure, and any Linux server...



**Benefit provided by this new feature of version 22:**

*Installing an HFSQL server on Linux is easy*

## EASY INSTALLATION IN LINUX: APT-GET

Another method for easily installing applications on Linux is the ability to use the `apt-get` script command (Shell).

In version 22, the HFSQL server can be installed automatically using this command.

**Benefit provided by this new feature of version 22:**

*Installing an HFSQL server on Linux is easy.*

## HFSQL CLUSTER

As you know, HFSQL has a "Cluster" version.

This Cluster version can also be distributed free of charge with your applications developed in WINDEV, WEBDEV and WINDEV Mobile.

The advantage of the cluster is to automatically distribute the storage and access to the data on several servers, and this way benefit from better response times, and better security. (For more information, please consult the documentation dedicated to HFSQL).

## NEW SUPPORTED FUNCTIONS

In version 22, the HFSQL Cluster supports the new functions: `hLoadParameter`, `hSaveParameter`, `hDeleteParameter`.

These functions allow you to manage personal settings such as configuring triggers or stored procedures: recipient email, statistics to calculate ...

**Benefit provided by this new feature of version 22:**

*An increasingly powerful cluster.*

## SQL FUNCTIONS OF HFSQL



## NEW FUNCTIONS IN SQL

Version 22 of HFSQL supports 5 new SQL commands:

- `SYSTEM_USER`
- `USER_NAME()`
- `CURRENT_TIMESTAMP()`
- `GETDATE()`
- `GETUTCDATE()`

Thanks to these new commands, compatibility with third-party databases is even better ensured.

**Benefit provided by this new feature of version 22:**

*New SQL commands.*

## GROUP BY: ACCEPTED PARAMETER

Now, the `GROUP BY` SQL command accepts parameters.

This is useful when an expression containing a parameter is used in the `Select`.

**Benefit provided by this new feature of version 22:**

*Stay in groups!*

## ORDER BY OF ITEMS THAT ARE NOT IN THE SELECT

It becomes possible to sort an SQL query using an item that is not present in the `Select` (item that will not be displayed).

**Benefit provided by this new feature of version 22:**

*Item freedom*

# HFSQL CONTROL CENTER, DASHBOARD

175 W D W B W M

## NEW: DASHBOARD

The new HFSQL server dashboard provides a synthetic view of the contents of a server.

The dashboard also makes it possible to act on the server parameters.

**Benefit provided by this new feature of version 22:**

*Instant vision of an HFSQL server.*

176 W D W B W M

## WHAT IS RUNNING NOW ON THE SERVER?

In version 22, the HFSQL server dashboard shows the processes that are running on the server: backups, scheduled tasks...

This information is useful for analyzing the server load at a given time.

**Benefit provided by this new feature of version 22:**

*And yet they run...*

177 W D W B W M

## IMPROVED CC ERGONOMICS

The HFSQL Control Center is getting better with age!

In addition to the many features available in version 22, the CC becomes even easier to use:

- Multi-selection
- ...

**Benefit provided by this new feature of version 22:**

*More intuitive use.*

179 W D W B W M

## RETRIEVING A REMOTE BACKUP

In version 22 it becomes possible to recover the backup of a HFSQL server remotely.

**Benefit provided by this new feature of version 22:**

*Simplified operations.*

180 W D W B W M

## ACTION!

From the HFSQL Dashboard it is also possible to:

- Encrypt a database without launching Auto Modify
- Enable and disable integrity rules
- Duplicate a database and its rights.

**Benefit provided by this new feature of version 22:**

*Really cool dashboard!*

The screenshot shows the HFSQL Control Center dashboard with several key metrics and annotations:

- 175 info about the server:** Points to the server status section showing 'asclepios:4900' with 'Etat Started' and 'Server Time 14:42:05'.
- 175 server notifications:** Points to the 'Notifications' widget showing 3 notifications.
- 175 number of users and groups:** Points to the 'Users & groups' widget showing 89 users and 20 groups.
- 175 server notifications:** Points to the 'Notifications' widget showing 3 notifications.
- 175 number of users and groups:** Points to the 'Users & groups' widget showing 89 users and 20 groups.
- 176 current tasks:** Points to the 'Server Activity' widget showing 4 tasks in background.
- 178 activated log:** Points to the 'Logs' widget showing 'Logs enabled'.
- 175 backup done:** Points to the 'Last backups' widget showing a backup of 'Stock\_prood' database (partial) 4 days ago.
- 175 number of connections per database:** Points to the 'Connections' pie chart showing 'Stock\_prood' with 320 connections (14%).
- 175 disk usage:** Points to the 'Volumetry of databases' pie chart showing 'Stock\_prood' with 136.17 Go (53%).



**181** new feature WD WB WM

### SUPPORT FOR WLANGUAGE CONSTANTS IN SQL QUERIES

SQL queries can contain WLanguage functions. In version 22, WLanguage constants are also supported in queries.

**Benefit provided by this new feature of version 22:**  
*Always more power in queries*

## BIG DATA

Version 22 of WINDEV allows you to use the mongoDB database easily, directly in WLanguage.

**182** new feature WD WB WM

### MONGODB



MongoDB is a document oriented NoSQL database. MongoDB stores JSON files in "collections". A collection is a set of documents. MongoDB offers advanced methods for searching these documents. MongoDB offers "map reduce".

**Benefit provided by this new feature of version 22:**  
*MongoDB for your applications!*

**183** new feature WD WB WM

### MONGODB: NATIVE CONNECTOR

A new family of advanced functions and advanced WLanguage types make it easy to manage mongoDB databases. Connection, list of connections, information on connections, search, sorting, adding, etc. Programming is easy in WLanguage.

**Benefit provided by this new feature of version 22:**  
*Native MongoDB*

**184** new feature WD WB WM

### MONGODB: LIST OF FUNCTIONS

The new **Mongo** family of functions lets you manage MongoDB databases natively in WLanguage.

**Benefit provided by this new feature of version 22:**  
*MongoDB for your applications!*

**185** new feature WD WB WM

### MONGODB: LIST OF TYPES

The new **Mongo** family of types lets you refine the programming of the MongoDB database natively in WLanguage.

**Benefit provided by this new feature of version 22:**  
*MongoDB for your applications!*

**186** new feature WD WB WM

### MONGODB: GRIDFS

GridFS is a distributed file system managed by MongoDB. The new **MongoGridFS** functions allow you to read, write and delete files in GridFS.

**Benefit provided by this new feature of version 22:**  
*MongoDB again and again to serve your applications!*

## EXTERNAL DATABASES, NATIVE CONNECTORS

**187** new feature WD WB WM

### NATIVE CONNECTOR (NATIVE ACCESS) TO SQL SERVER

In addition to the historically supported versions, the SQL Server native connector also works with the latest "SQL Server Native Client 11.0 and 13" client layers (from SQL Server 2014 and 2016).

**Benefit provided by this new feature of version 22:**  
*Extension of the native SQL Server support.*

(during the commercial availability of the version; cost of the call at your charge).

Each update to version 22 entitles you to 15 inquiries with the free PC SOFT Technical Support. In version 22, your teams benefit from the free technical support\*!

**YOU'RE SAFE...**

A SPECIAL SERVICE

**FREE SUPPORT**





## WINDEV 22

**188** new feature WD WB WM

### BENEFIT FROM THE 180 NEW FEATURES OF VERSION 22

Almost all the new features presented in the previous pages are available in WINDEV 22.

In addition to this already impressive list of new features, WINDEV 22 also offers the new features detailed in this chapter.

This version 22 of WINDEV is very rich!



**Benefit provided by this new feature of version 22:**  
Hundreds of new features for WINDEV in version 22.

external module (nothing to install, nothing to control). The programming is much simpler and the operating more relaxing ...

See new features 001 to 012.

**Benefit provided by this new feature of version 22:**

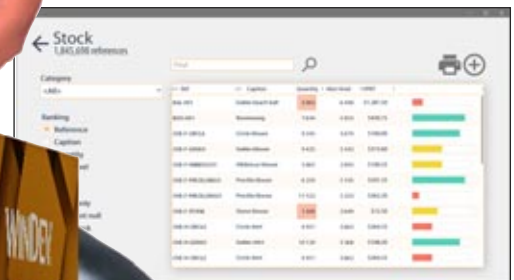
*Freedom for your end users.*

**190** WD WB WM

### TABLE CONTROL: 22 NEW FEATURES

The table control of WINDEV 22 benefits from 22 useful new features (see news features 013 to 034).

Your applications will further enhance the user experience!



*Benefit from 22 useful new features*

**Benefit provided by this new feature of version 22:**

*The table control becomes more powerful*

## NEW CONTROLS

**189** WD WM

### WORD PROCESSING

The text-processing control available in version 22 makes it possible to manage documents directly in your applications, without an



### SCHEDULER CONTROL: 11 NEW FEATURES

In version 22, the Scheduler control improves. 11 new features (see new features 035 to 045) allow you to create schedules that are even more intuitive and enjoyable.



*The Scheduler control is also evolving*

**Benefit provided by this new feature of version 22:**  
Even more precise schedules

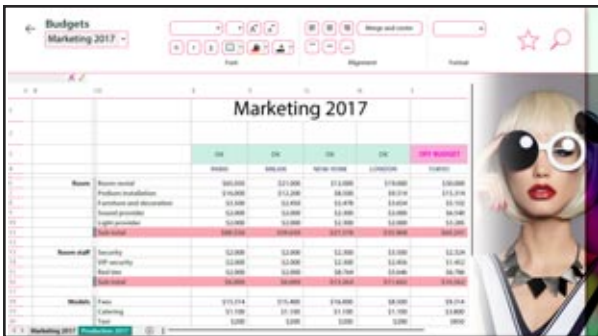


*More possibilities*

**Benefit provided by this new feature of version 22:**  
Charts are even more customizable

### SPREADSHEET CONTROL

The spreadsheet control is used a lot. In version 22 it benefits from 5 useful new features. (see new feature 047)



*The spreadsheet control is very useful*

**Benefit provided by this new feature of version 22:**  
Spreadsheet, Word processing: your end users don't have to leave their application

### CHART CONTROL

Beautiful charts are always appreciated by end users. The new type of "composite" chart is added to the already long list of available types. Many new features are also available on other types of charts. See new features 053 to 058.

### CONTROL ID

The control ID generated in version 22 allows third-party applications that access Windows internal information to communicate with WINDEV applications.

**Benefit provided by this new feature of version 22:**  
Write sharp programs.

### PROGRAMMING NOTES

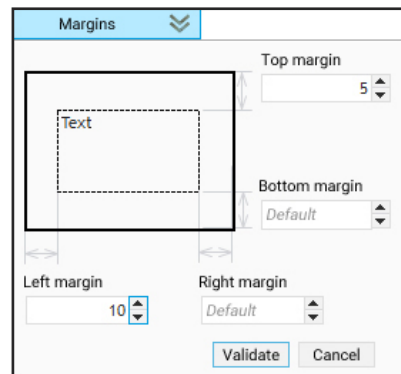
In version 22 it becomes possible to manipulate repositionable notes by programming: creating, filling, deleting, moving ...

**Benefit provided by this new feature of version 22:**  
Repositionable notes are also programmed ...

### MARGINS IN CONTROLS

In version 22, it becomes possible to independently define the 4 margins (top, bottom, right, left) of all the labels of all the controls.

Personalization is even more advanced. The margins are defined using the 7-tab technology and by programming.



*The margin settings window in the "7 tabs"*

**Benefit provided by this new feature of version 22:**  
Margins in controls are good for health ...

## 197 new feature WD WB WM

### MANAGE LARGE FONT FACTOR BY SCREEN

Moving an application window from one screen to another takes into account the "large font" factor per screen to automatically adapt the display (for example, an HD screen and a 4K display to the same PC).

**Benefit provided by this new feature of version 22:**

*Large and small font*

## 198 new feature WD WB WM

### VARIOUS NEW FEATURES FOR THE CONTROLS

Other new features are also available in version 22, see news items 013 to 058.

**Benefit provided by this new feature of version 22:**

*Useful new features for the controls.*

## ENVIRONMENT

## 199 new feature WD WB WM

### WINDEV MOBILE IN WINDEV!

In version 22, it becomes possible to use a WINDEV Mobile project in the WINDEV editor. (Note: you just need to have the appropriate licenses)

This operating mode saves considerable manipulation time (no need to change editor), and allows easy sharing of project elements or configurations.

A project can also contain both Windows, iOS, Android, UWP,

...

See new features 357 and 258

**Benefit provided by this new feature of version 22:**

*One source, one editor.*

## 200 new feature WD WB WM

### PARTIALLY MULTILINGUAL APPLICATION: RELEVANT UI ERRORS

A foreign language can be used occasionally in an application for example to edit an invoice in the language of the recipient, or to generate an email in another language.

It becomes possible to disable UI errors for a given language, thus avoiding the multiplication of inconsistent errors.

**Benefit provided by this new feature of version 22:**

*No more pollution ... unwarranted errors*

## 201 new feature WD WB WM

### 7-TAB INTERFACE OF THE "LOOPER" CONTROL

The edition of the Looper controls by the "7-tab" technology is made easier.

The space generated by resizing the "7-tab" window is used to edit more attributes.

The possibilities on the attributes are increased:

- search
- duplication
- insertion
- dragging/moving.

**Benefit provided by this new feature of version 22:**

*Easy operations*

## 202 new feature WD WB WM

### DUPLICATE A MULTI-LINE ZONE LINE

Very useful small innovation: in multiline controls, it becomes possible to duplicate a line from the "7 tabs".

**Benefit provided by this new feature of version 22:**

*Easy handling*

## ADAPTIVE DESIGN

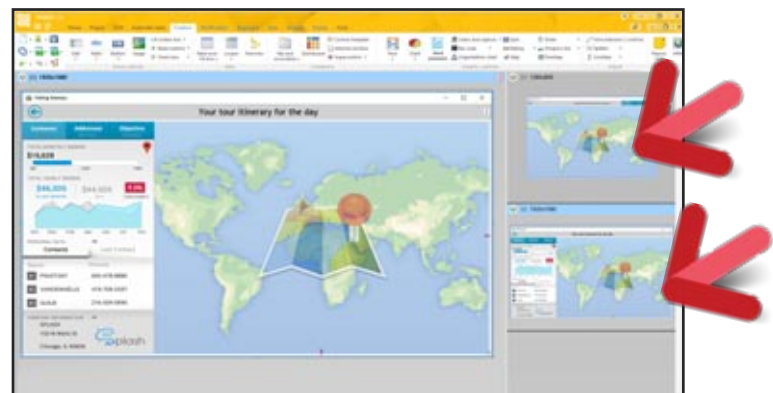
## 203 new feature WD WB WM

### ADAPTIVE DESIGN IN WINDEV 22: ONE WINDOW, SEVERAL PRESENTATIONS

In version 22 a window can store several different types of presentations.

The typical case is an application that will run on both PC and Tablet, whose screen sizes are quite different.

One can imagine the interface on PC with additional display areas.



*On the right, we see the 2 different presentations of this same window*

**Benefit provided by this new feature of version 22:**

*One window, one code to maintain*

## ADAPTIVE DESIGN ON AN INTERNAL WINDOW

The internal windows also benefit from Adaptive Design. This allows you to prepare different Widget presentations for a dashboard, depending on the sizing of the Widget by the end user, or the screen size of the device used to run the application.



A dashboard widget...



When the end user expands it, additional information appears

**Benefit provided by this new feature of version 22:**  
Develop a single window with different layouts

## AUTOMATIC ANIMATION TO CHANGE LAYOUT

In order to improve the user experience, the transition from one presentation to another takes place with fluidity and speed...

**Benefit provided by this new feature of version 22:**  
The window comes alive

## WINDEV/WINDEV MOBILE

Adaptive Design is fundamental to writing common PC/Mobile applications. Adaptive Design allows you to maintain only one interface, only one code.

**Benefit provided by this new feature of version 22:**  
Common window

# CTRL + F2: SEE ALL THE CODES OF A WINDOW AND ITS CONTROLS AT A GLANCE

## CTRL+F2



Only processes with code are displayed

The key combination Ctrl+F2 under the window editor allows you to edit the code of all the controls in a window. In version 22, it is now possible to collapse or expand the processes of your choice.

**Benefit provided by this new feature of version 22:**  
A global view of the processing of controls in a window.

# COMPILATION

## SIMULTANEOUS COMPILATION OF ALL CONFIGURATIONS

Version 22 of WINDEV allows you to automatically compile all the configurations of a project.

For example:

- An executable and a component
- a Windows executable and a Linux executable
- A 32-bit executable and a 64-bit
- ...

Compilation errors that may differ depending on the configuration appear immediately.

The errors of the current configuration are highlighted, to differentiate them.

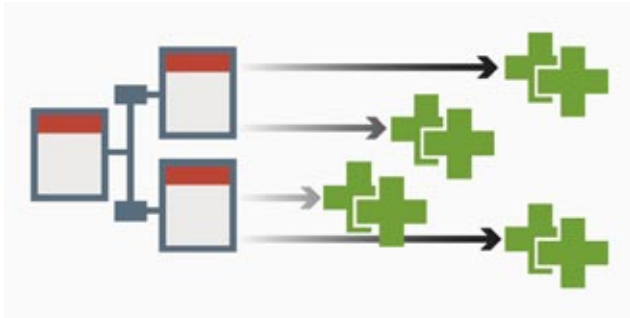
**Benefit provided by this new feature of version 22:**  
Avoid traps!

### EXE CREATED CERTIFIED

Applications created with WINDEV 22 can be certified by Microsoft's "Windows App Certification Kit".

**Benefit provided by this new feature of version 22:**  
Useful for stores

## GENERATE CLASSES FROM THE ANALYSIS



### AUTOMATIC GENERATION OF CLASSES ACCORDING TO THE DATA MODEL

From the analysis, it is now possible to automatically generate the classes (models) corresponding to the description of the data file.

The attributes corresponding to the items are generated, with the type corresponding to that of the item (of the column). It is thus easier to create binded interfaces (linked) to the model, thus decoupled from the description of the database.

**Benefit provided by this new feature of version 22:**  
Just the "M" in MVP or MVC...

## WEB SERVICES

### MULTITHREAD

In version 22 it becomes possible to call as many Web services from as many threads as desired. This makes it easy to parallelize calls.

**Benefit provided by this new feature of version 22:**  
Parallelize Web service calls!

## SCM (SOURCE CODE MANAGER)

### SCM IN THE CLOUD: "SCM DRIVE"

In version 22, SCM can easily be hosted in the cloud. See new feature 059.

**Benefit provided by this new feature of version 22:**  
Work from everywhere, with everyone

### SCM: BRANCH MANAGEMENT

The management of branches in SCM becomes visual in version 22.

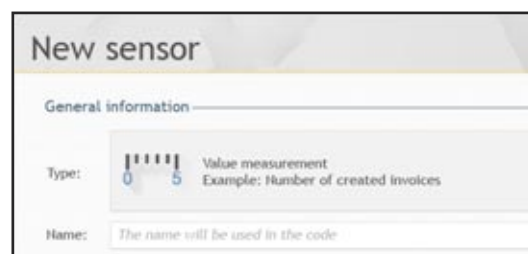
The operations are much simpler. See new features 099 to 104.

**Benefit provided by this new feature of version 22:**  
Visual manipulations

## TELEMETRY



### CUSTOM TELEMETRY: THE USER GOES INTO WHAT FEATURES, WHICH FILE DOES HE OPEN?



*Measure a specific process*

Customized telemetry makes it possible to position "sensors" anywhere in the application.

Each time the code is executed, information is sent to the telemetry server which aggregates this sensor.

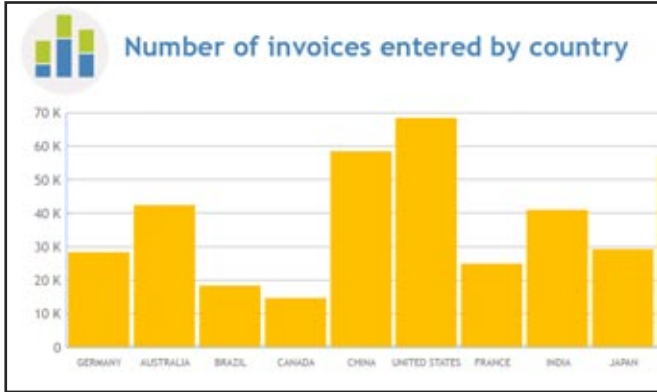
Version 22 allows you to retrieve additional parameters, such as

the name of a file used, the type of command created ...  
Version 22 of the telemetry feature automatically provides very accurate information on the actual use of your applications. You can make an informed decision.

**Benefit provided by this new feature of version 22:**  
*You will know everything about the use of your applications.*

**215** new feature WD WB WM

**CUSTOMIZED 2-DIMENSIONAL TELEMETRY**



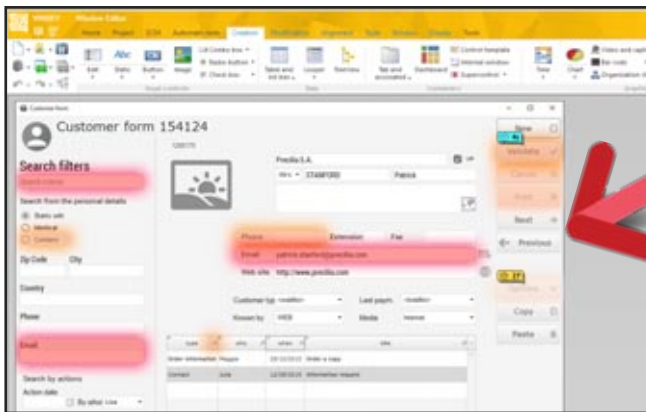
*Number of invoices entered by country*

In version 22, telemetry with 2 dimensions makes its appearance. This mode of telemetry makes it possible to aggregate information according to 2 "dimensions". For example: The number of invoices entered by country (without access to invoices!).

**Benefit provided by this new feature of version 22:**  
*Even more information.*

**216** new feature WD WB WM

**HEAT MAP OF CONTROL USE IN THE EDITOR**



*A default display mode in the window editor*

The control use halo makes it possible to identify at a glance the most used controls. In version 22 this halo is displayed by default in the editor.

**Benefit provided by this new feature of version 22:**  
*Hello?*

**217** new feature WD WB WM

**ARE SOME APPLICATIONS UNUSED? (DATE OF LAST ACTIVITY)**

In any information system (IS) of a company, there are applications that are no longer used by anyone!  
Version 22 of the telemetry feature reports these applications. Telemetry automatically reports unused applications after 1 year and 1 week. It's up to you to decide their fate!  
Information is reported by application version: This allows for example to delete the old versions that nobody uses anymore.

**Benefit provided by this new feature of version 22:**  
*Remove unneeded applications.*

**218** new feature WD WB WM

**QUICKER DISPLAY OF TELEMETRY RESULTS**

In version 22, the results of the telemetry are faster to consult. This gain is very appreciable on applications used on a large scale (several tens of thousands of customers) for example.

**Benefit provided by this new feature of version 22:**  
*Faster display.*

**219** new feature WD WB WM

**WHICH USER IS USING (OR NOT) THIS APPLICATION ELEMENT?**

In version 22, it is possible to visualize the list of end users of a given element (window, state, query ...). The list is sorted by decreasing number of shares.

**Benefit provided by this new feature of version 22:**  
*Granularity of the analysis.*

**220** new feature WD WB WM

**TELEMETRY: NOW ALSO ON MOBILE!**

In version 22 telemetry is also available for mobile applications (Android, iOS, UWP).

**Benefit provided by this new feature of version 22:**  
*You'll know it all...*

**THE EXPERT'S ADVICE**  
Users of mobile applications are sometimes unpredictable in their manipulations! Telemetry lets you know which windows and features are used.



## AAF (USER ACTION)



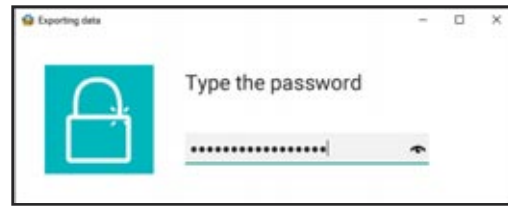
The AAF are automatic application features offered to your applications' end users, without your team having to code anything. Everything is standard and automatic!

### 221 new feature W D W B W M

#### AAF: PASSWORD REQUIRED TO LAUNCH AAF

In order to secure the use of AAF, you can request a password from the end user.

This password is set by programming. Exporting data or sending mail is thus mastered.



**Benefit provided by this new feature of version 22:** Security.

### 222 new feature W D W B W M

#### AAF: PVT (ROLAP CUBE): COMPARISON WITH A REFERENCE YEAR

In version 22 the end user may ask to compare a given period to the same period for previous years. For example, compare sales from September 2016 to September 2015 to 2010. Or compare the first few quarters only.

## IOT: CONNECTED OBJECTS

### 223 W D W B W M

#### THE MQTT STANDARD: AMAZON IOT, AZURE IOT

The MQTT standard allows machines to communicate. This standard is supported by major market brokers: Amazon, Microsoft Azure, IBM Websphere, ActiveMQ, JoramMQ, Mosquitto, RabbitMQ... Version 22 supports the MQTT standard. Your applications in version 22 can connect to a broker, subscribe, publish data ...

**Benefit provided by this new feature of version 22:** Easy M2M.

### 224 W D W B W M

#### THE MQTT STANDARD: THE OPERATING PRINCIPLE

MQTT is a standard, lightweight protocol based on TCP/IP. The architecture is based on publication/subscription operation, widely used in M2M (Machine to Machine). Generally remote sensors (machines, vehicles, ...) publish, and applications subscribe! For example, a temperature sensor publishes the temperature at regular intervals, and subscriber applications read this information as needed. The opposite is also possible.

**Benefit provided by this new feature of version 22:** Follow the standard.

### 225 W D W B W M

#### MQTT : HOW TO PROGRAM IT IN WLANGUAGE

In version 22, a new family of functions is being introduced: the `MQTT` family. The functions allow you to connect/disconnect to a broker, to publish, to subscribe, to unsubscribe ... It is possible to connect via SSL, manage the automatic reconnection, manage the "KeepAlive", etc.

**Benefit provided by this new feature of version 22:** In WLanguage!





Comparison of October 2016 with October 2015? 1 click!

**Benefit provided by this new feature of version 22:**  
The ability to compare only periods

## 226 new feature WD WB WM

### AAF: TABLE

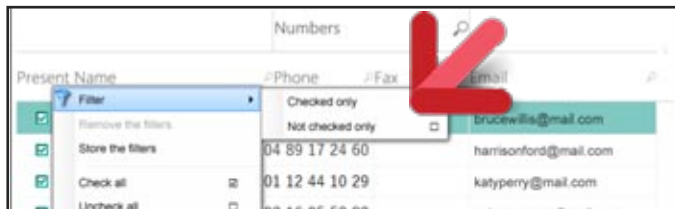
The AFF on the tables are getting richer:

- Check a column with a click
- Filter a column of check boxes
- Search magnifier on headers.

(see new features 016 to 025)

A nice detail: Animations have been added on some operations (such as moving columns).

These animations are automatically deleted in TSE remote access mode.



Check or clear all lines in 1 click

**Benefit provided by this new feature of version 22:**  
Still more possibilities on the tables.

## END USER FEEDBACK

### 227 new feature WD WB WM

#### SENDING THE DETAIL OF A WLANGUAGE ERROR BY EMAIL

Programming errors may occur in an application. Even the best developer makes mistakes from time to time! When these errors occur at the end user's, the user usually rushes the restart the application. The designers of the application are thus not aware of these errors, often due to special cases that it would be useful to know. A very interesting new feature of version 22 makes it easy to share this useful information. When an error occurs at the end user's, the error window proposes sending the detail of the error (with the stack, etc.) to a specified email address. The user only has to validate the pre-filled message in his mailbox.

**Benefit provided by this new feature of version 22:**  
You are informed!



WINDEV, WEBDEV and WINDEV Mobile are used in more than 100 countries!



# CHARTERS | MATERIAL DESIGN



228 W D W B W M

## 5 NEW SKIN TEMPLATES

A skin template defines the graphic style of an application.

The taste and habits of end users evolve with time and trends.

Therefore it is important to have access to new application skin templates.

**Benefit provided by this new feature of version 22:**

*New ways of customizing your applications.*

## HELP EDITOR

229 new feature W D W B W M

### GENERATING THE HELP IN HTML FORMAT



The help editor integrated with WINDEV 22 now allows you to save the generated helps in HTML format.

**Benefit provided by this new feature of version 22:**

*The HTML format has become standard.*

230 new feature W D W B W M

### GENERATING HELP IN PDF FORMAT



In version 22, the help editor is also used to generate help in PDF format.

The generated PDF can be considered as a documentation of the application! Built-in links allow easy navigation.

**Benefit provided by this new feature of version 22:**

*Both help and documentation!*

231 new feature W D W B W M

### HELP EDITOR: BETTER USER FRIENDLINESS

The user friendliness of the Help editor have been improved in version 22.

**Benefit provided by this new feature of version 22:**

*Evolutions.*



## INSTALLER



**232** new feature WD WB WM

### LIGHTER INSTALL: LESS THAN 10MB



In version 22, the installs you create for your applications are reduced by about 10 megabytes.

The installation is therefore a little faster to run.

**Benefit provided by this new feature of version 22:**

*Reduced installation weight*

**233** new feature WD WB WM

### INSTALL: FONTS AS WELL



Version 22 of the installer now allows to install (if necessary) fonts in Windows.

This is useful, for example, for customized templates that use specific fonts.

Please check that you have the right to distribute these fonts.

**Benefit provided by this new feature of version 22:**

*More flexibility in the use of your custom fonts.*

**234** new feature WD WB WM

### MSI INSTALL: CERTIFIED

In version 22, the installs in MSI format evolve:

- It is possible to certify the MSI install (Windows App Certification Kit)
- It is possible to sign the MSI install
- The MSI install is recognized by the Microsoft SCCM.

**Benefit provided by this new feature of version 22:**

*Compliance with standards.*

**235** new feature WD WB WM

### INSTALL: VARIOUS IMPROVEMENTS

The installer allows you to install 32-bit and 64-bit applications. The installer itself is available in 32-bit and 64-bit versions.

Live Update: the reference network install (found on the install server) can be updated without constraints: while installation are in process, ...

**Benefit provided by this new feature of version 22:**

*Very useful with TSE.*

## UWP



**236** new feature WD WB WM

### NEW CONTROLS AVAILABLE

Here are the new types of controls available for UWP:

- action bar (with hamburger buttons and sliding menus)
- Multiline area
- map
- popup menu
- tab
- calendar

**Benefit provided by this new feature of version 22:**

*Even richer applications...*

**237** new feature WD WB WM

### NEW FEATURES FOR WLANGUAGE UWP

The following new WLanguage functions are available in version 22 for UWP:

- Functions `Album`
- Functions for `Vocal synthesis`
- Functions `XML`
- Functions `Dialog`, `PhotoRunApp`, `EmailRunApp`, `StartShare`, `tapiDial` (Dialing phone numbers)

**Benefit provided by this new feature of version 22:**

*Even more powerful...*

**238** new feature W D W B W M

### DYNAMIC COMPILATION

Dynamic compilation is a very powerful concept that allows you to create or parameterize your code by programming. Dynamic compilation is also available under UWP.

*Benefit provided by this new feature of version 22:*  
Create code programmatically.

**239** new feature W D W B W M

### DYNAMIC CHECK BOXES AND RADIO BUTTONS

In version 22, the WLanguage functions from the **Check Box** and **Radio Button** family allow to add, delete, list ... dynamically the options of the Check Box and Radio Button controls.

*Benefit provided by this new feature of version 22:*  
Add or delete options dynamically.

**240** new feature W D W B W M

### NEW TYPE FOR UWP

The **Font** type is supported in UWP.

*Benefit provided by this new feature of version 22:*  
Formatting by programming.

**241** new feature W D W B W M

### VARIOUS NEW FEATURES

- Image management via DPI
- Open the application's store form
- Call to WinRT API
- Support for the WLanguage family of functions on memory areas (**Mem**)
- Ability to trigger the execution of a menu option: **Exe-**

```
cuteProcess(OPT_XXX, trtMenuOption)
```

*Benefit provided by this new feature of version 22:*  
More powerful programming.

**242** new feature W D W B W M

### 322 NEW WLANGUAGE FUNCTIONS FOR UWP

Among the 1400 WLanguage functions supported by WINDEV 22 under UWP, we now find the functions of the **Contact** family and the **Network** family as well as the **fiList** family

*Benefit provided by this new feature of version 22:*  
Always more!

## JAVA



**243** new feature W D W B W M

### JAVA: MEMORY BINDING

Version 22 of WINDEV allows you to bind controls to structures or classes.

*Benefit provided by this new feature of version 22:*  
Look after your relationships.

**244** new feature W D W B W M

### JAVA: "PROCEDURE" TYPE



The **Procedure** type is supported by Java. This is useful, for example, in handling CallBack.

**Benefit provided by this new feature of version 22:**  
An additional type.

## 245 new feature WD WB WM

### JAVA: CLASS PROPERTY

It is possible to define class properties, that is, a Setter and a Getter on a class attribute.

**Benefit provided by this new feature of version 22:**  
OOP evolutions.

## 246 new feature WD WB WM

### NEW WLANGUAGE FUNCTIONS FOR JAVA

WLanguage gains 156 new functions for Java. See the complete list in the online help.

**Benefit provided by this new feature of version 22:**  
Enhanced development for Java.

## MAC

## 247 new feature WD WB WM

### NEW MACOS FEATURES

WLanguage gains 156 new functions for Mac. See the complete list in the online help.

**Benefit provided by this new feature of version 22:**  
Improvement of the Mac development.

## .NET

## 248 new feature WD WB WM

### NAMESPACE CONFIGURING

WINDEV lets you generate .Net assemblies. It is now possible to customize the naming of the **namespace** of the generated assemblies. This makes it easy to manage plug-ins.

**Benefit provided by this new feature of version 22:**  
Granular configuration.

## 249 new feature WD WB WM

### .NET: AUTOMATIC BUFFER CONVERSION TO BYTE ARRAY

In version 22, buffers are automatically converted to byte arrays.

**Benefit provided by this new feature of version 22:**  
Better interoperability with existing assemblies.



**Never without  
my WINDEV!**



**250** new feature W D W B W M

**.NET: OPTIMIZING THE PASSAGE OF PARAMETERS OF "ARRAY" TYPE**

In Version 22, the speed for passing Array-like parameters to a .Net assembly is much faster. Recovery of return values is also faster.

*Benefit provided by this new feature of version 22: Best speed with .Net assemblies.*

**LINUX**



**251** new feature W D W B W M

**LINUX: SECURE EMAIL FUNCTIONS**

Connecting to secure email servers (Gmail, ...) is now easy with WINDEV on Linux.

*Benefit provided by this new feature of version 22: Better security.*

**252** new feature W D W B W M

**LINUX: SOAP FUNCTIONS**

The functions from the soap family are supported on Linux. These functions are used to manage special cases of Web service calls.

*Benefit provided by this new feature of version 22: Time for Soap!*

**253** new feature W D W B

**LINUX: SERVICE FUNCTIONS**

The systemd service type is now supported.

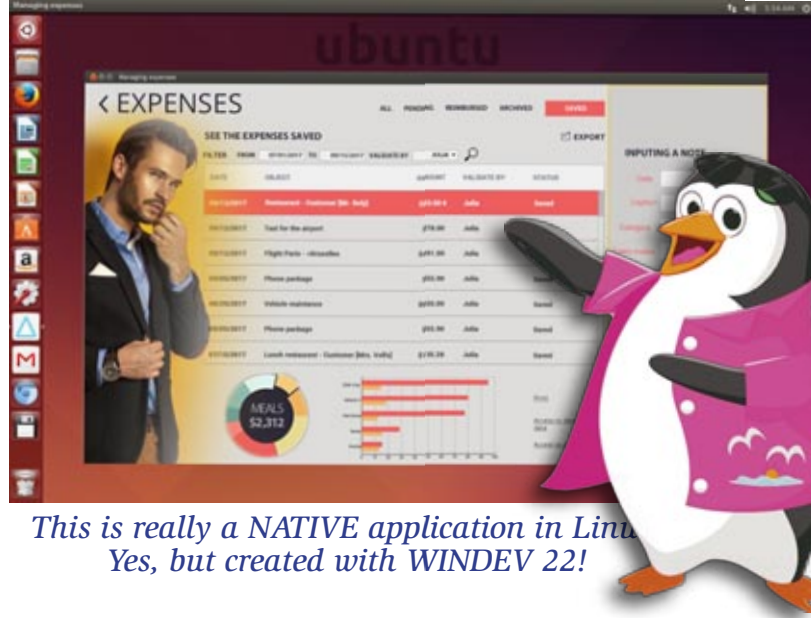
*Benefit provided by this new feature of version 22: On Linux too System D has its place ...*

**254** new feature W D W B W M

**THE NEW LINUX FUNCTIONS FOR WINDEV**

WLanguage offers 89 new constants for Linux. WLanguage gains 53 new functions for Linux:

StringSplit	Decode	EmailSeekFirst	Encode
SystemIntegerToInteger	grAxisPosition	grSeriesOpacity	grPointType
grSeriesPointType	grSeriesType	HCreateSubscriberReplica	HCreateMasterReplica
HCreateMoveableReplica	HDuplicateDatabase	HSetReplication	HServerMaintenance
HRecreateSubscriberReplica	HRetrieveBackup	HRplManageFile	HRplManageItem
HRplPass	HRplFilterProcedure	HTrack	HTrackStop
HSynchronizeReplica	MongoAdd	MongoFind	MongoCreate
MongoCreateCollection	MongoExecuteCommand	MongoGridFSSendFile	MongoGridFSFileInfo
MongoGridFSListFile	MongoGridFSGetFile	MongoGridFSDeleteFile	MongoInfo
MongoModifyAll	MongoModifyOne	MongoDeleteDatabase	MongoDeleteAll



*This is really a NATIVE application in Linux. Yes, but created with WINDEV 22!*

MongoDeleteOne	ReplicInfo	ReplicInitialize	ReplicOpen
ReplicDeleteSubscription	RéplicSynchronise	SOAPAddHeader	SOAPGetResult
SOAPEncodeResult	SOAPErreur	SOAPExécute	SOAPRunXML
SOAPPrépare			

**WLANGUAGE**

**255** new feature W D W B W M

**COMMON NEW FEATURES**

In version 22, the WLanguage under WINDEV is enriched substantially. It takes advantage of the common new features and many evolutions.

*Benefit provided by this new feature of version 22: Always more powerful WLanguage*

**256** new feature W D W B W M

**EVOLUTIONS OF OOP**

In version 22, OOP evolve: constructor call syntax, singleton,...

*Benefit provided by this new feature of version 22: Always more powerful object-oriented programming*

**257** new feature W D W B W M

**NEW CONSTANTS**

97 new constants are available in WLanguage in version 22: see the entire list in the online help.

*Benefit provided by this new feature of version 22: Increased ease of programming*

**258** new feature W D W B W M

**NEW TYPES**

17 new types of variables are available in WLanguage:



AuthToken	Document	Fragment	MongoBase
MongoInfoDatabase	MongoFindOption	MongoCollection	MongoCollectionOption
MongoConnection	MongoGridFS	MongoGridFSFileInfo	OAuth2Parameters
Paragraph	pdfSignature	restRequest	wsParameter
wsReturn			

## 259 new feature W D W B W M

### NEW PROPERTIES

WLanguage gains 9 new properties for WINDEV.

VerticalSwipe	Indicates the orientation of the scan in an internal scan window
TitleColor	Specifies the text color for the column header of a Table control.
WinLineDetails	Returns the name of the internal window used to display the detail of a row in a Table control
FolderModelImage	Sets how the folder image is displayed in a Tree or Hierarchical Table control.
FolderImageWidth	Sets the width of the folder image in a Tree or Hierarchical Table control
RTFWithImagesAndTables	Allows you to manage image and table support in an RTF static control of a report.
IndentLineDetails	Sets the left indent of the internal window used to display the detail of a row in the Table control.
RichEdit	Allows you to manage the Rich Text Format (RTF) type of a report static control.
VisibleInExportAndPrint	Indicates whether a table column is exported or printed.

## 260 to 354 new feature W D W B W M

### 95 NEW WLANGUAGE FUNCTIONS AVAILABLE IN WINDEV

95 new WLanguage functions are available for WINDEV:

OrganizerSelectedRange	Retrieves or modifies the selected time range in a Organizer control.	WinChangeLayout	Applies a specific layout to a window.
AuthIdentify	Performs an authentication using the OAuth 2.0 protocol	WinEdCreateNote	Creates a Repositionable Note control
TooltipMaxWidth	Modifies the maximum width of tooltips.	GPSStopDetection	Stops the position tracking.
CameraDisplay	Displays in a Camera control the video sequence currently transmitted by a "web camera" or by the camera of the mobile device.	GPSLastPosition	Retrieves information about the last known position
CameraStop	Stops playing or recording a video sequence.	GPSDetectPosition	Asks to be notified when the device gets close to a given position.
CameraCapture	Saves the video currently transmitted by a "camera"	GPSStatus	Retrieves the activation status of the geo-localization provider or asks to be notified when the status changes.
CameraChangeDriver	Connects the "Camera" control to a specific driver for video capture.	GPSInfo	Returns the information about the localization provider used by the application for the geo-localization functions
CameraConfigure	Used to configure the driver for video capture.	GPSInitParameter	Initializes the parameters of the WLanguage functions for geo-localization and finds a localization provider.
CameraStatus	Returns the status of a Camera control.	GPSGetPosition	Retrieves information about the current position of the device.
CameraListDriver	Lists the drivers for video capture installed on the current computer.	GPSFollowMovement	Asks to be regularly notified about the current position of the device.
StringSplit	Extracts a sub-string from a character string according to a separator in an array.	GPSEnd	Indicates the end of the use of the geo-localization functions
Decode	Decodes a character string.	grAxisPosition	Indicates the position where a graph axis will be drawn
DocLoadDictionary	Loads a dictionary into a Word Processing control	grSeriesOpacity	Sets the opacity factor of a series
DocDeselectAll	Deletes the selection in a Word Processing document	grPointType	Adjusts the point type of a particular category or value
DocStartModification	Starts saving changes to a Word Processing document.	grSeriesPointType	Modifies the type of points in a series of a graph
DocEndModification	Ends saving changes on a Word Processing document.	grSeriesType	Sets the type of a series used in a composite chart
DocSeek	Performs a search in a Word Processing document	grSeriesLineType	Modifies the line type of a series of a chart
DocRedo	Reverts to a previously undone change on a Word Processing document.	HDuplicateDatabase	Duplicates a database on an HFSQL server.
DocRedoOccurrence	Returns the number of changes that can be undone to a Word Processing document.	HServerMaintenance	Repairs the system tables of an HFSQL server.
DocSave	Save a Word processing document in docx format.	HRetrieveBackup	Locally retrieves a compressed backup from an HFSQL server.
DocSelect	Changes the selection in a Word Processing document	HTrack	Requests to be notified when a change occurs on a file on an HFSQL server.
DocSelectDictionary	Selects the dictionary to use for spelling correction in a Word Processing control.	HTrackStop	Stops sending notifications when a change occurs on a file on an HFSQL server.
DocUndo	Cancel a saved change on a Word Processing document.	iPrintDoc	Starts printing a Word Processing document.
DocUndoOccurrence	Gives the number of changes that can be undone on a Word Processing document.	LinkColor	Changes the color of links in edit and static controls.
DocToHTML	Exports a Word Processing document in HTML format	MongoAdd	Adds a document to a collection.
DocToText	Extracts text content from a Word Processing document	MongoFind	Searches for documents based on a filter.
EmailConfigure	Configures the Email functions	MongoCreate	Creates a connection.
Encode	Encodes a character string or a buffer.	MongoCreateCollection	Creates a collection
InVGAMode	Indicates whether the application is run in VGA mode on a mobile device	MongoExecuteCommand	Executes a specific command on a database or a collection.
SystemIntegerToInteger	Converts a system integer into an integer	MongoGridFSSendFile	Sends a file to a Mongo GridFS.
AAFPopupMenuToString	Returns the list of popup menu options actually displayed by the control.	MongoGridFSFileInfo	Returns information about a file in a Mongo GridFS.
WinCurrentLayout	Returns the index of the current layout in the window	MongoGridFSListFile	Lists the files in a Mongo GridFS.
		MongoGridFSGetFile	Recovers a file in a Mongo GridFS.
		MongoGridFSDeleteFile	Deletes a file in a Mongo GridFS.
		MongoInfo	Returns information about a Mongo database.
		MongoModifyAll	Modifies all Mongo documents in the specified filter.
		MongoModifyOne	Modifies one of the Mongo documents of the specified filter.
		MongoDeleteDatabase	Deletes the Mongo database.
		MongoDeleteAll	Removes all Mongo documents from the specified filter.
		MongoDeleteOne	Removes one of the Mongo documents from the specified filter.
		NoteLoad	Loads repositionable notes saved with the NoteSave function.
		NoteCreate	Creates a repositionable Note control in the window.
		NoteSave	Save repositionable notes from a window or application
		PDFSign	Prints a signature inside a rectangular area.
		SchedulerWorkingHour	Specifies the working hours
		SchedulerWorkingHourResource	Specifies the specific business hours for a resource and a possible lunch break.
		SchedulerSelectedRange	Retrieves or modifies the selected time range in a Scheduler control.
		ReplicDeleteSubscription	Deletes a replication on the replication server.
		InputCursor	Modifies the standard rollover cursor for all the edit controls
		TableAddLineWithAnimation	Adds a row into a Table control with an animation.
		TableStartFilling	Specifies that the filling of a memory table begins.
		TableSetFocus	Switches to input mode in a given row or column of a Table control.
		TableEnumBreak	Enumerates the breaks found in a Table control.
		TableEndFilling	Indicates that the filling of a memory table is done.
		TableFormulaAdd	Adds a calculated row to a table by providing custom calculation procedures.
		TableFormulaDeleteAll	Deletes all rows added with the TableAddFormula function.
		TableInsertLineWithAnimation	Inserts a row into a Table control with an animation
		TableDeleteWithAnimation	Removes a row from a Table control with an animation.
		SpreadsheetDeleteColumn	Deletes a column in a Spreadsheet control.
		SpreadsheetDeleteLine	Deletes a row in a Spreadsheet control.
		DashGetWidgetPosition	Returns the position of a Widget found in a Dashboard control.
		LooperStartFilling	Indicates that the filling of a memory Looper begins.
		LooperEndFilling	Indicates that the filling of a memory Looper is done





# WINDEV MOBILE

355 W D W B W M

## BENEFIT FROM THE 180 NEW FEATURES OF VERSION 22



WINDEV Mobile 22 includes the majority of the common new features presented at the beginning of this documentation. New controls, evolutions on existing controls, new editors, integrated image editor, new features of WLanguage, HFSQL: your teams are instantly more efficient.

356 W D W B W M

## REMINDER: PORT EXISTING WINDEV APPLICATIONS ON MOBILE IN A FEW HOURS

You already have WINDEV applications? Even if these applications have been developed years ago, they are compatible with mobile devices! Your existing applications move over to

mobile in a few hours or a few days.

Are your teams efficient in WLanguage? Then they're comfortable developing for mobile.

Creating applications for Android, iOS or UWP is real child's play. Your existing applications are compatible: code of course, but also windows (though they need to be resized as you probably guessed), analysis, queries, data, ...

The HFSQL database (as well as the HyperFileSQL database) is natively compatible with mobiles: you can embed the data (and the indexes) instantly ....

You've made the right choice with WINDEV and WINDEV Mobile!

### *Benefit provided by this new feature of version 22:*

*The portability of your existing code is ensured.*

357 W D W M

## WINDEV MOBILE GO IN WINDEV

In version 22 it is no longer necessary to leave the WINDEV environment to go to WINDEV Mobile.

The WINDEV environment activates the functionality of WINDEV Mobile (you need to have a WINDEV license and a WINDEV Mobile license).

The saving of time in manipulations is appreciable.

### *Benefit provided by this new feature of version 22:*

*Significant time savings*



## WINDEV MOBILE AND WINDEV CONFIGURATIONS

In version 22, in addition to the shared environment, it is possible to create a WINDEV Mobile project as a configuration of a WINDEV project.

This allows a better sharing of the elements, and a parallel evolution of the code, the windows, the reports, the queries ...

The multi-configuration compilation compiles the different configurations simultaneously, which makes it possible to immediately check the cross-platform aspects

**Benefit provided by this new feature of version 22:**  
Complete integration

## TELEMETRY ON MOBILE



## TELEMETRY ON MOBILE: ANALYZE YOUR APPLICATIONS' USAGE

In version 22, WINDEV Mobile makes it possible to install Telemetry on your applications.



The use of Telemetry is free on your servers. If you want to get away from server maintenance, PCSCLOUD offers telemetry servers accessible in the Cloud.

**Benefit provided by this new feature of version 22:**  
You know what is used in your applications.

## WHAT DO YOUR END USERS DO WITH YOUR MOBILE APPS?

## WHICH WINDOWS ARE VISITED? WHICH BUTTONS CLICKED? PROCESSES STARTED? THE TELEMETRY TELLS IT ALL!

Want to know what users are doing with your mobile app? When they're using them? Which process they launch, which windows they use, on which hardware the application runs, what is the size of the screen, whether it is a tablet or a phone, etc ...



**My fuel is  
22.**

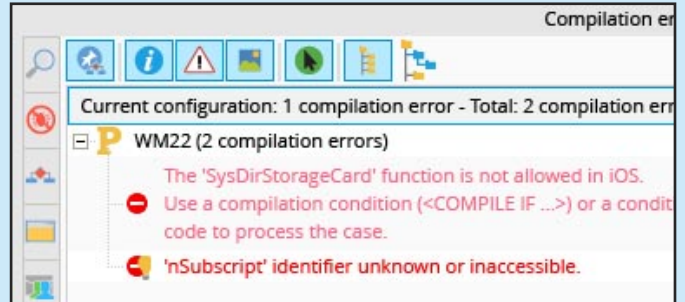
# INSTANTANEOUS & SIMULTANEOUS DETECTION OF COMPILATION ERRORS **ANDROID - IOS- UWP**

**362** new features WD WB WM

## COMPILATION ANDROID - IOS- UWP SIMULTANEOUS IF THERE ARE DIFFERENCES, YOU SEE THEM RIGHT AWAY!

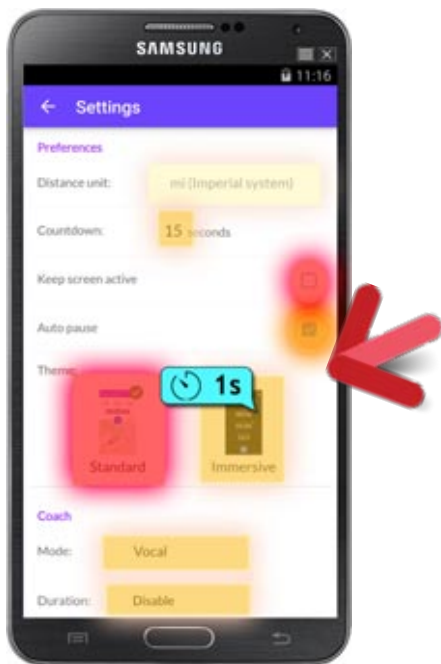
WINDEV Mobile 22 simultaneously compiles all the configurations of a mobile project. Typically you want to compile the Android, iOS and/or UWP versions of a project at the same time. Reminder: Under WINDEV Mobile the compilation is carried out automatically each time you press the Enter key, each time you change the line, each time you save ... Any differences between the platforms are immediately signaled. You do not enter code for 30 minutes and then realize that it is platform specific ... only when you change configuration!

For example: management of the MicroSD card that doesn't exist on iPhone.



*If there are differences between the systems, you are immediately notified*

**Benefit provided by this new feature of version 22:**  
You're instantly notified.



*The halos indicate the most clicked controls, the bubbles the time spent on the control or the presence of bugs*

The telemetry of WINDEV Mobile 22 makes all this possible and easy.

List of main features offered in mobile telemetry:

- most active applications
- list of users
- activity per user
- nb users/day
- total nb of errors
- nb of users affected by the errors
- Frequency of occurrence of an error
- most frequently run actions
- longest processes
- most used windows
- unused windows
- unused reports (iOS)
- less active applications
- Nb of users over time
- nb of users
- nb of application launches
- nb of distinct errors
- nb of errors over time
- nb of actions
- longest user actions
- unused elements
- least used windows
- most used reports (iOS)
- most used queries

- unused queries
- distribution by languages of the OS
- distribution by equipment
- by screen size
- by processor (arm, x86, x64)
- phone connection available or not
- distribution of the nb of versions
- distribution by language
- by OS
- by DPI of the equipment
- presence of NFC or not (Android)

**Benefit provided by this new feature of version 22:**  
A high-level view.

**361** new feature WD WB WM

## CUSTOM TELEMETRY

In addition to all standard data collection, it is possible to send and aggregate customized statistics: number of invoices created, number of scans performed...

**Benefit provided by this new feature of version 22:**  
What you ever wanted to know

*The number 362 is positioned at the top of the page*

## ANIMATE YOUR MOBILE WINDOWS

**363** new feature WD WB WM

## MOBILE INTERFACES ARE BECOMING MORE AND MORE SOPHISTICATED. WINDEV MOBILE 22 HELPS YOU!

Today, mobile applications offer sophisticated interfaces. Animations make the user experience more enjoyable. Version 22 of WINDEV Mobile allows you to easily set up sophisticated animations in your applications.

**Benefit provided by this new feature of version 22:**  
Powerful features without any programming.



**CAPTION FLIP: A SOMERSAULT WITH EVERY MODIFICATION!**



A “flip” corresponds to a rotation along the horizontal axis of a text. For example, when the value of the text (or number) changes, a flip materializes this change. By default, the flip is executed when a value is changed. To see the animation, read this QR Code with your phone (if you are reading the PDF version of this document, click the link).

To see the effect, read the code or visit [www.WINDEV.com/22364](http://www.WINDEV.com/22364)

**Benefit provided by this new feature of version 22:**  
Effects that impress!

**INTERNAL WINDOW ANIMATION: UNCOVERING**



WINDEV Mobile 22 offers a new horizontal effect: At the change of window (sweep), the current window moves laterally and reveals the new window.

To see the effect, read the code or visit [www.WINDEV.com/22365](http://www.WINDEV.com/22365)

**Benefit provided by this new feature of version 22:**  
Fashionable animation

**INTERNAL WINDOW ANIMATION: NEW HORIZONTAL ANIMATION: FLIP**

WINDEV Mobile 22 offers another new horizontal effect: At the change of window (sweep), the window pivots along a vertical axis to reveal the new window. This simulates a paper sheet flip (front/back).



To see the effect, read the code or visit [www.WINDEV.com/22366](http://www.WINDEV.com/22366)

**Benefit provided by this new feature of version 22:**  
There's animation in your applications

**INTERNAL WINDOW ANIMATION: 7 NEW VERTICAL ANIMATIONS**

In version 22, the horizontal animations are now also available in vertical.

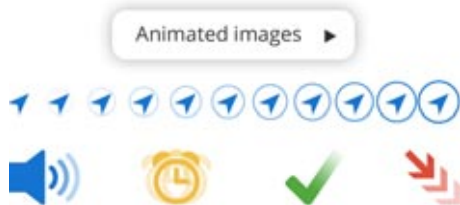
- Disappearance/appearance
- cube in rotation
- Zoom out and in
- scrolling panel
- sweep according to the direction
- uncovering
- flip

**Benefit provided by this new feature of version 22:**  
Create special effects.

**368** new feature W D W B W M

### 100 ANIMATED IMAGES PROVIDED (FREELY DISTRIBUTABLE WITH YOUR APPS)

To enhance your mobile apps, WINDEV Mobile 22 comes with more than 100 animated images that can be freely broadcasted with your applications: don't forget to use them!



100 animated images provided in 22

**Benefit provided by this new feature of version 22:**  
Trendy animations...

## MOBILE CONTROLS

**369** new feature W D W B W M

### NEW DASHBOARD CONTROL

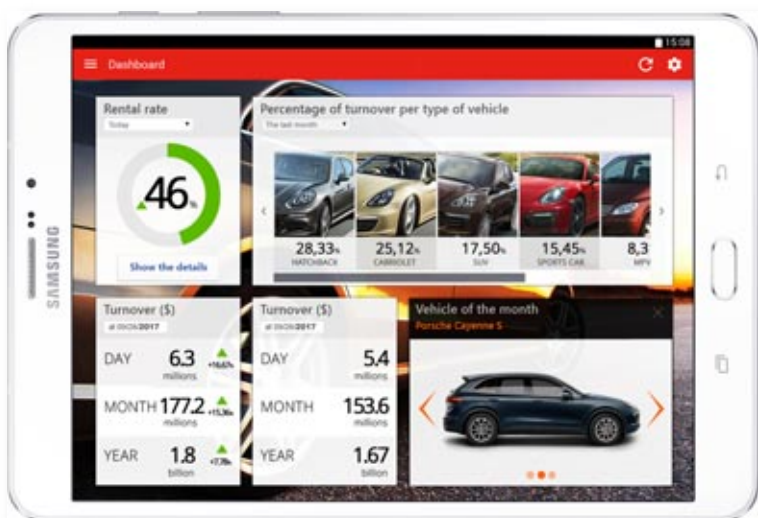
In version 22 the Dashboard control is available for Android and iOS applications.

When you retrieve WINDEV applications that use the Dashboard control, the existing code is compatible.

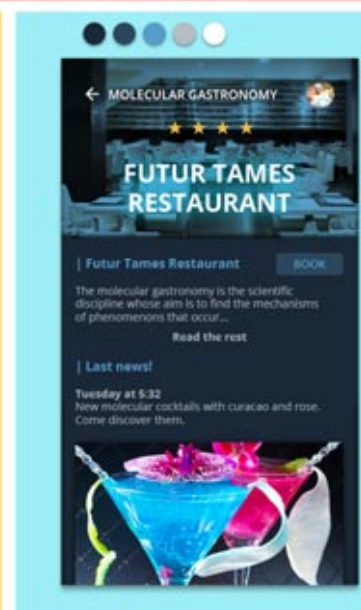
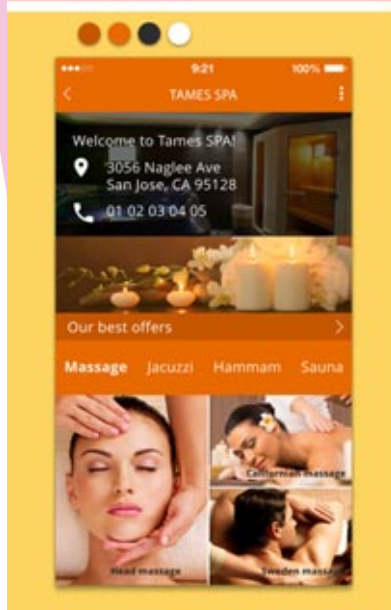
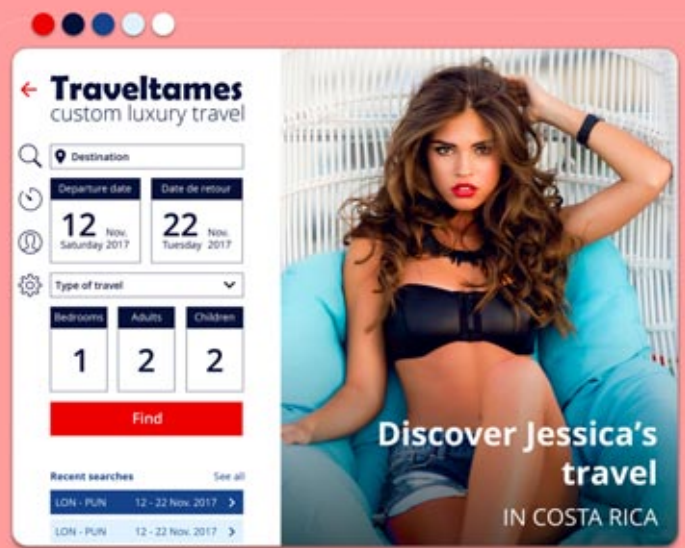
The Dashboard control adapts to touch-screen mobile operation: A long press allows to switch to "Modification" mode and to move the Widgets for example.

The end user can delete, move, and resize Widgets. A Widget is based on an Internal Window.

**Benefit provided by this new feature of version 22:**  
Drive from a mobile!



Dashboard control available on Mobile



**370** new feature W D W B W M

### NEW SKIN TEMPLATES

Version 22 of WINDEV Mobile offers 3 new templates freely usable and modifiable for your projects.

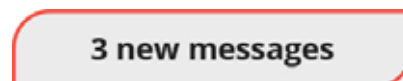
**Benefit provided by this new feature of version 22:**  
New looks.

**371** new feature W D W B W M

### STATIC AND IMAGE CONTROL: CUSTOM BORDER

In version 22, the frame of a label or an image can be customized:

- different thickness per side
- different color per side
- ...



A custom frame



**Benefit provided by this new feature of version 22:**  
Framing!

## 372 new feature W D W B W M

### MOBILE TABLE WITH BREAKS

Version 22 of WINDEV Mobile now supports tables with breaks. A break can be defined under the "7 tabs".

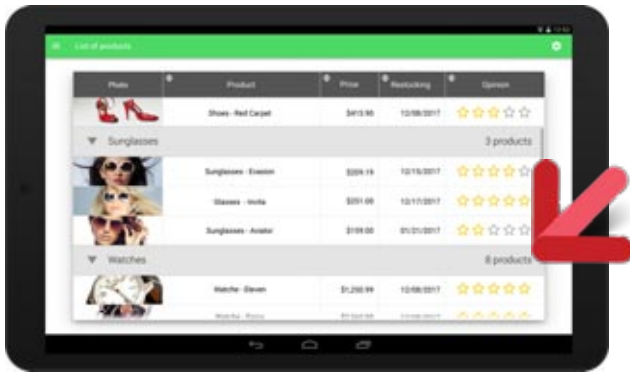


Table with breaks

**Benefit provided by this new feature of version 22:**  
Always more powerful tables ...

## 373 new feature W D W B W M

### LOOPER: ALWAYS VISIBLE BREAK

On mobile, a Looper break can be set in "Always Visible" mode: It will always be displayed at the top of the screen during a scroll.

**Benefit provided by this new feature of version 22:**  
End user comfort.

## OTHER COMMON NEW FEATURES

## 374 new feature W D W B W M

### 2 NEW PROPERTIES ON IMAGE CONTROLS: ..ZOOMWITHFINGER AND ..SCROLLWITHFINGER

The new properties `..ZoomWithFinger` and `..ScrollWithFinger` (synonym: `..Scroll` for compatibility with WINDEV) allow you to enable and disable the zoom and scroll functionality with your finger.

This allows, for example, the user to switch to "drawing" mode on an area (instead of scrolling).

**Benefit provided by this new feature of version 22:**  
Activation by programming.

## 375 new features W D W B W M

### INTERNAL WINDOW ARRANGEMENT

The layouts are a fundamental concept of mobile development. The layout concept creates a single application that will behave differently depending on the size of the screen.

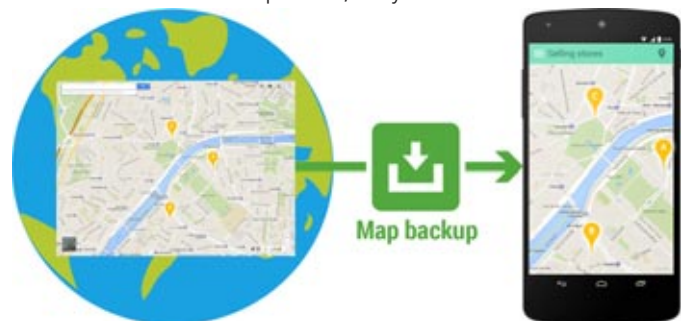
Version 22 of WINDEV Mobile also creates layouts on internal windows, which are widely used on mobile.

**Benefit provided by this new feature of version 22:**  
One window, one code, multiple views

## 376 new feature W D W B W M

### SAVE VIA PROGRAMMING THE MAP DISPLAY

A geographic map displayed on the screen with the `Map` control can be saved using the new WLanguage function `MapGetImage`. If a trace or markers are present, they will also be saved.



**Benefit provided by this new feature of version 22:**  
Create map printouts by programming.

## 377 new feature W D W B W M

### IS MY APP RUNNING ON A PHONE OR A TABLET?

The new WLanguage function `ScreenType` lets you know what kind of hardware the application is running on: tablet, phone, watch, PC, other?

Depending on the result, the application can adapt its behavior.

**Benefit provided by this new feature of version 22:**  
Phone or tablet?

## 378 new features W D W B W M

### "7-TAB": POTENTIAL DIFFERENCES IN THE PLATFORM

Some features may be available on one platform and not on another.

For example the "main menu" attribute is supported by Android, but not by iOS.

The 7-tab window indicates that there is a difference between the systems by a blue background, and indicates these differences via a detailed tooltip.

Continues page 60...

# PREDEFINED MOBILE WINDOWS

379 new feature WD WB WM

## PRESET WINDOWS

When creating a new mobile window version 22 systematically proposes a set of windows ready to use, such as:

- login
- window for items
- sliding menu
- guided tour
- ...
- parameters
- set menu
- window with tabs
- about

You create your windows from templates.

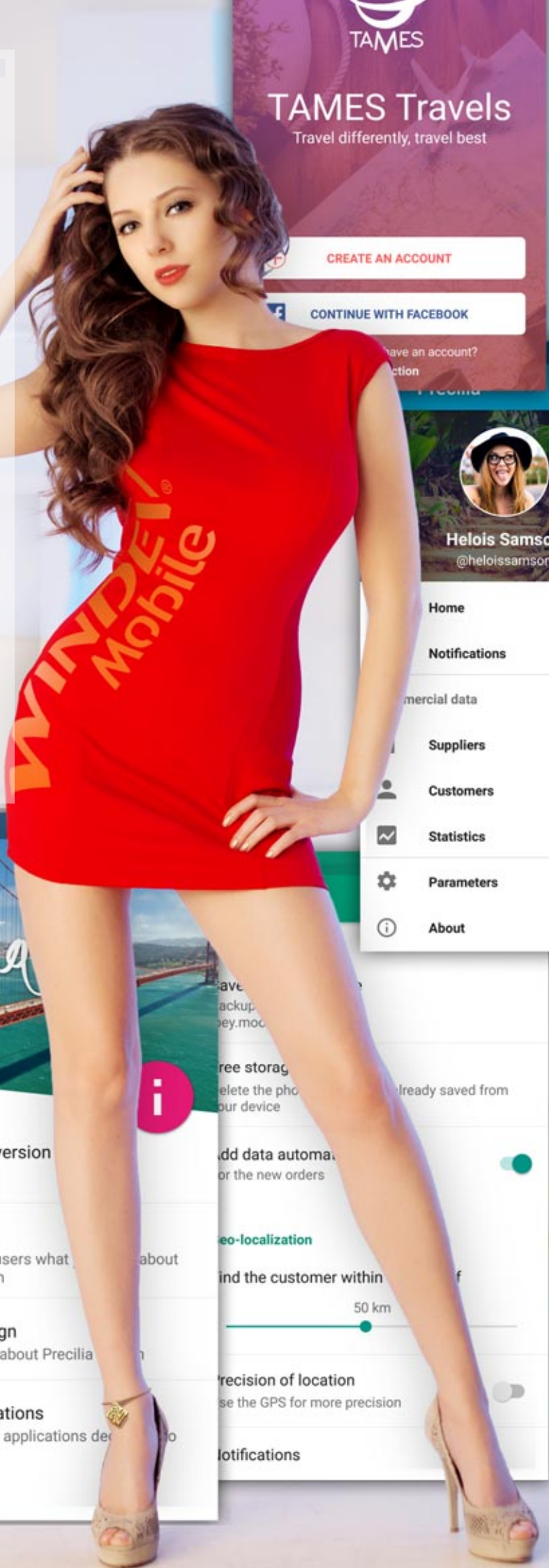
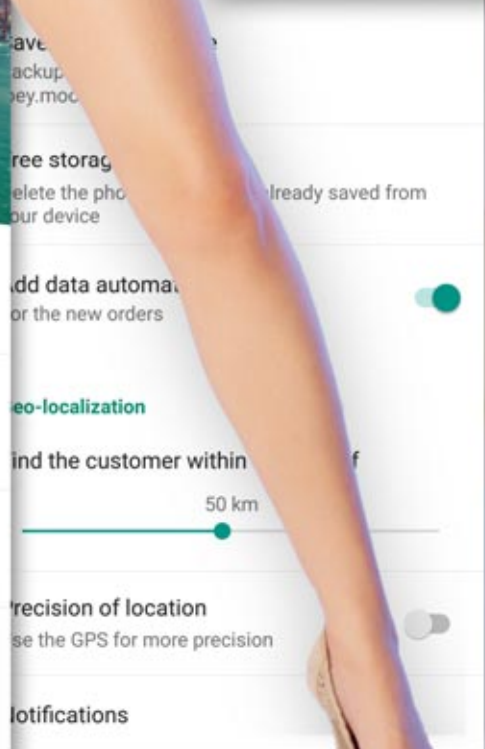
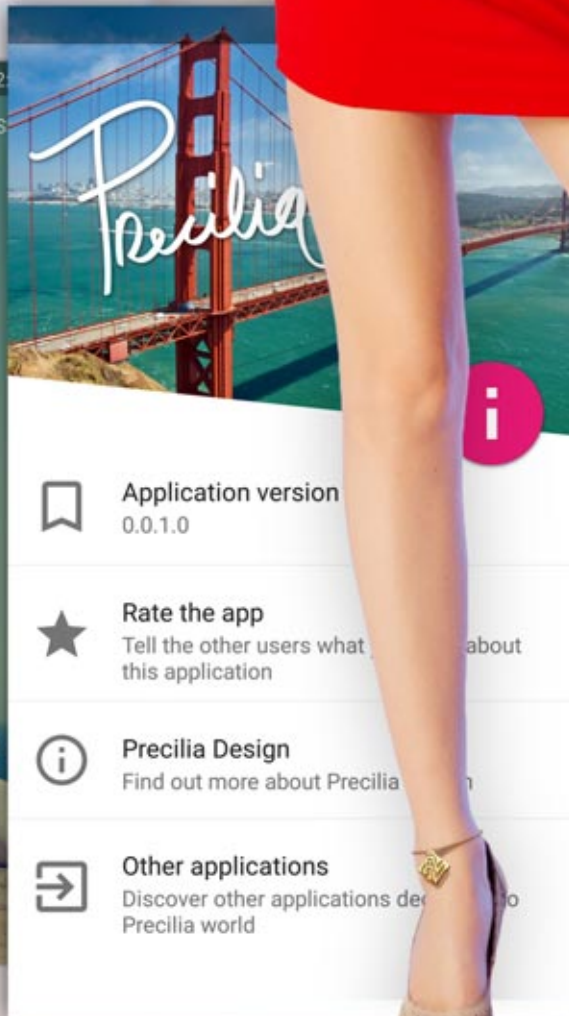
**Benefit provided by this new feature of version 22:**  
Time saving when creating windows

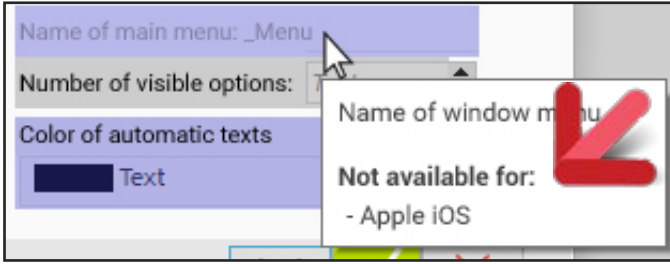
380 new feature WD WB WM

## PRESET WINDOW: CUSTOMIZABLE

A predefined window is fully editable and customizable: interface, code...

**Benefit provided by this new feature of version 22:**  
No limitations.





*In iOS, Apple does not allow you to have a main menu ...*

**Benefit provided by this new feature of version 22:**  
*Cross-platform development is facilitated*

## BLUETOOTH LE: HOW FAR FROM THE DEVICE AM I?

A new callback parameter called by the WLanguage function `BTLEListDevices` indicates the signal strength of the affected Bluetooth device.

This makes it possible to obtain the strength of the signal without connecting to the device, and this makes it possible to estimate the distance from the device.

An example of use is the display of information when one approaches an object (museum ...) or a specific item in a store (item on the shopping list for example).



*Here the device is 22 meters away from the phone..*

**Benefit provided by this new feature of version 22:**  
*Measure the distance*

## DECODING BAR CODES IN BATCHES

The new WLanguage functions `CameraStartDecoding` and `CameraStopDecoding` are used to manage bar code decoding in batches without having to reopen the scan window, for a set of packages for instance.

Scanning is much faster then.

**Benefit provided by this new feature of version 22:**  
*Faster manipulations for the end user*

## SEND ERROR REPORTS VIA EMAIL

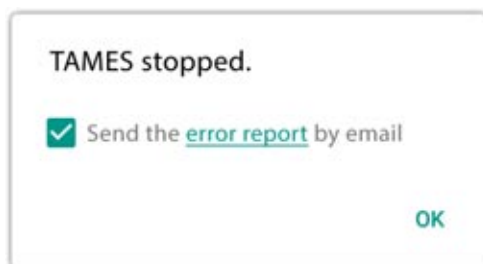
It may happen that the WLanguage security mechanism detects an unexpected condition: access to an out-of-bound index in an array, for example.

A window displays this error.

In version 22, the error display window offers to send the information to a pre-filled email address (address that manages the quality of the application).

The message sent contains the error message, stack, system version, hardware version, available memory, date and time, version of the application, a screenshot ...

This makes it easier to improve the quality of the deployed applications.



*If an error occurs, the end user can click OK to send the report to you!*

**Benefit provided by this new feature of version 22:**  
*You closely monitor the life of your deployed applications*

# 22: a version that puts you in a good mood!



# NATIVE IOS: IPHONE, IPAD

Remember once again that your existing WINDEV code, your windows, are compatible with the iPhone and iPad. Resize your windows, perform some changes, and that's it, in a few hours or in a few days, you get outstanding applications for iPhone and iPad.

Your teams do not have to learn a new language because after 20 years of constant innovation, WLanguage is a universal language: iOS, Windows, Linux, Android, Web, Mac, Windows 10 Mobile...

You've made the right choice!

iOS benefits from all the general new features in version 22, as well as the new features common to mobile environments: telemetry, simultaneous compilation, dashboard control, ...



**In addition to the new features common to mobiles, version 22 adds the following new features for iOS.**

**384** new feature WD WB WM

## SUPPORT FOR APPLE WATCH SERIES 2



An Apple watch allows you to run useful applications: Information about the current customer, display of the 3 closest stores offering the desired product, monthly sales overview, alert on a given number, display of a business objective ...

The version 22 of WINDEV Mobile allows you to create applications for the Apple Watch.

In general, apps for the Apple Watch are much simpler than the usual iPhone apps.

Over 250 WLanguage functions are already available in this version.

**Benefit provided by this new feature of version 22:**

Support for all the devices and system versions.

**385** new feature WD WB WM

## IOS 10

The new iOS 10 version is supported by WINDEV Mobile 22.

**Benefit provided by this new feature of version 22:**

Support for all versions of iOS.

**386** new feature WD WB WM

## IPHONE 7 AND 7 PLUS

The new iPhone 7 and 7+ are supported by WINDEV Mobile 22.

**Benefit provided by this new feature of version 22:**

Support for all the devices and versions of iOS

**387** new feature WD WB WM

## APPLE PENCIL



# BAR CODE

**388** new feature WD WB WM

## DECODING BAR CODES: INTERLEAVED 2 OF 5

In addition to the bar codes already supported, the applications developed with WINDEV Mobile 22 also decode bar codes of the "interleaved 2 of 5" type.

This type of bar code is used, for example, for packages of products that are identified by another type of bar code: No risk of mixing reading!

**Benefit provided by this new feature of version 21:**

An additional bar code



Some Apple tablets accept the use of the Apple pencil. The application developed with WINDEV Mobile 22 can recover a lot of information about the use of the stylus:

- pressure
- Tilt of the stylus
- Angle with respect to the axis of the tablet.

This information is useful, for example, for drawing applications.

**Benefit provided by this new feature of version 22:**  
*Increased precision*

## 389 new feature W D W B W M

### UNIQUE IDENTIFIER OF THE DEVICE



The WLanguage `SysIdentifier` function is used to retrieve a unique identifier from Apple hardware.

**Benefit provided by this new feature of version 22:**  
*Identify your mobile fleet*

## 390 new feature W D W B W M

### EDIT CONTROLS: AUTOMATIC DELETE OPTION

The "Auto Delete" option in "Entry in control" is now available for iOS.

**Benefit provided by this new feature of version 22:**  
*More user friendly data entry*

## 391 new feature W D W B W M

### REPORT AND NETWORK TYPE

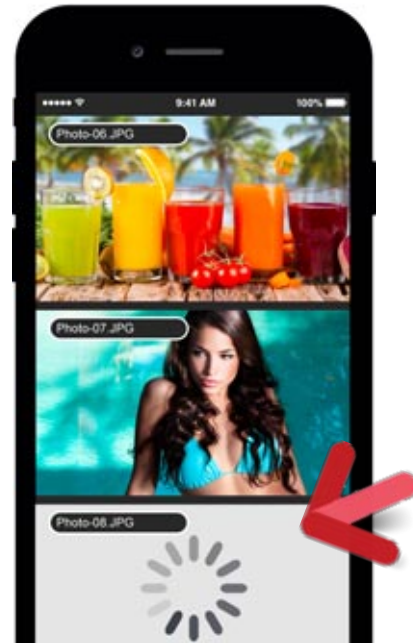
The `MobileNetworkStatus` and `MobileNetworkConnection-Info` functions are available on iOS.

Knowing the quality of the network makes it possible to decide whether to trigger certain processes: synchronization, download...

**Benefit provided by this new feature of version 22:**  
*Offer or not some processes depending on the network.*

## 392 new feature W D W B W M

### FASTER LOOPER: IMAGES LOAD IN A BACKGROUND TASK



*Loading large images does not block the application*

A Looper control can use heavy-weight images. The loading time (Internet ...) of these images could penalize navigation.

In version 22, this loading is carried out in the background, without blocking the Looper. Your end users will appreciate!

**Benefit provided by this new feature of version 22:**  
*The application is never blocked*

## 393 new feature W D W B W M

### KEY WITH LINGUISTIC SORT ON UNICODE KEY

Applications that manipulate texts in non-Latin languages need linguistic sorting to sort, filter, and search for data. This is possible in version 22 of WINDEV Mobile.

**Benefit provided by this new feature of version 22:**  
*Sort in any language!*

## 394 new feature W D W B W M

### NEW IOS TYPES

Version 22 offers 4 new types for iOS and 106 new constants (see the list in the online help).

## 142 NEW WLANGUAGE FUNCTIONS SUPPORTED IN IOS

142 new WLanguage functions are being introduced for iOS in version 22:

CameraDisplay	CameraStop	CameraStopDecoding	CameraCapture
CameraRequestPermission	CameraStartDecoding	CameraStatus	CameraListParameter
CameraParameter	MapLicenseGgl	MapGetImage	StringSplit
LoadError	Decode	DisableAAF	EmailSeekFirst
Encode	SystemIntegerToInteger	GglGetStaticMap	grAxisPosition
grSeriesOpacity	grPointType	grSeriesPointType	grSeriesType
grSeriesLineType	HActivateServerTrigger	HAddScheduledOptimization	HAddScheduledBackup
HCancelBackup	HChangePassword	HLoadParameter	HCreateServerTrigger
HDisconnectClient	HDescribeServerTrigger	HDeactivateServerTrigger	HDeleteServerTrigger
HDuplicateDatabase	HRecordToJSON	HRecordToXML	HExecuteScheduledBackup
HExportJSON	HExportXML	HFTListWord	HManageTask
HHistoryModification	HImportJSON	HImportText	HImportXML
HInfoAnalysis	HInfoFile	HInfoDatabaseProperty	HInfoFileProperty
HInfoServerProperty	HInfoItem	HInfoBackup	HInfoTask
HJSONToRecord	HListStoredElement	HListFullTextIndex	HListLink
HListStopWord	HListScheduledOptimization	HListParameter	HListQueryParameter
HListCustomFolder	HListScheduledBackup	HListSynonym	HListTask
HListTrigger	HListServerTrigger	HServerMaintenance	HRefreshSet
HRefreshQuery	HModifyScheduledOptimization	HModifyDatabaseProperty	HModifyFileProperty
HModifyServerProperty	HModifyScheduledBackup	HModifyTask	HPriority
HPriorityClient	HResetClient	HResetGroup	HRetrieveItem
HRetrieveBackup	HRestoreBackup	HRplFilterProcedure	HBackup
HSaveParameter	HSecurity	HSimulateNetwork	HStatCalculate
HStatDate	HStatTime	HStatNbDuplicates	HStatNbRec
HStatNbRecRange	HSubstName	HDeleteSet	HDeleteLink
HDeleteScheduledOptimization	HDeleteParameter	HDeleteQuery	HDeleteBackup
HDeleteScheduledBackup	HDeleteTask	HTrack	HTrackStop
HSortView	HSortView		HToFile HToItem
HViewToFile	ReplicDeleteSubscription	MobileNetworkStatus	RéseauMobileInfoConnexion
SysIdentifier	DashDisplay	DashAddWidget	DashResizeWidget
DashLoadConfiguration	DashInitialConfiguration	DashMoveWidget	DashMode
DashCount	DashGetWidgetPosition	DashSaveConfiguration	DashDelete
DashDeleteAll	TelemetryEnable	TelemetryAddMeasure	TelemetryAddPassage
TelemetryDisable	TelemetryIsEnabled	TelemetryIdentifyUser	TelemetryConfigure
ScreenType	UUDecode	UUEncode	VideoStopDecoding
VideoRequestPermission	VideoStartDecoding		

## ANDROID



Developing in Android has never been as powerful as with WINDEV Mobile 22. You can take advantage of powerful new features that come in addition to all the ones you already have.

Android benefits both from the common new features of version 22, as well as the new features common to mobiles: telemetry, simultaneous compilation, dashboard control, ...



**In addition to the common new features, version 22 offers 277 new features for Android.**

### COMPILATION IN BACKGROUND TASK

Here's a new feature that will delight Android application developers: In version 22, it is no longer necessary to wait until the end of the native compilation of applications ("Gradle"). Compilation is done in the background, and the environment is available for any other task.

The end of the compilation is indicated on the screen. It should also be noted that the presence of a **Proxy** no longer impacts compilation.

**Benefit provided by this new feature of version 22:**  
You are no longer blocked during compilation

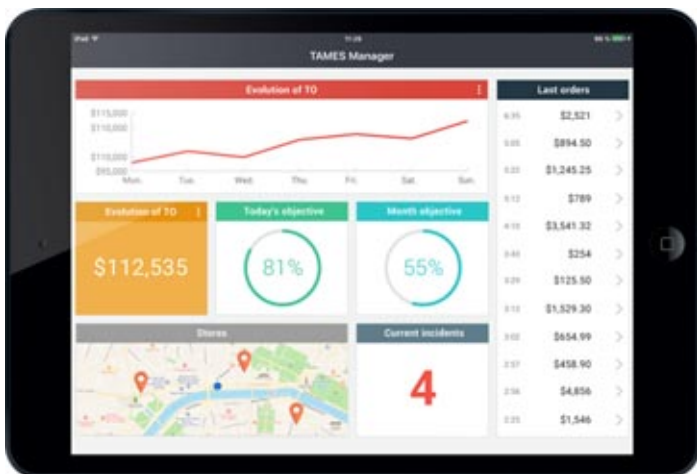
### EMAIL FUNCTIONS ON ANDROID



Another new feature expected under Android, the automatic management of emails: connection, send, receive...

The powerful **Email** family of functions is supported under Android in version 22.

The code existing on other systems (Windows, iOS, ...) is compatible.



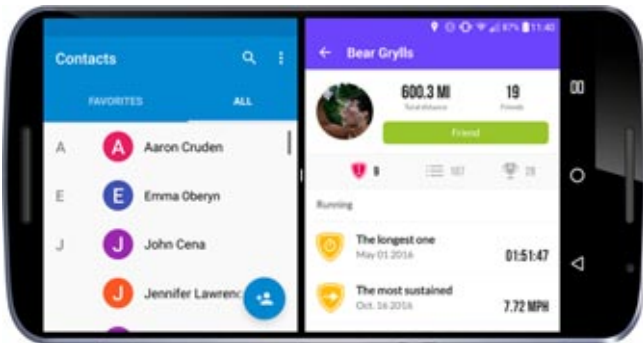
Send and receive emails automatically from your Android apps with WINDEV Mobile 22!

**Benefit provided by this new feature of version 22:**  
*A very powerful feature*

**539** new feature W D W B W M

**ANDROID 7: RESIZABLE WINDOWS**

Starting from version 7 of Android (released around September 2016), it is possible to simultaneously display windows from 2 different applications on the screen. This feature is available in WINDEV Mobile 22. Each application window created with WINDEV Mobile 22 adapts itself automatically to the available space thanks to the anchors and/or the layouts.

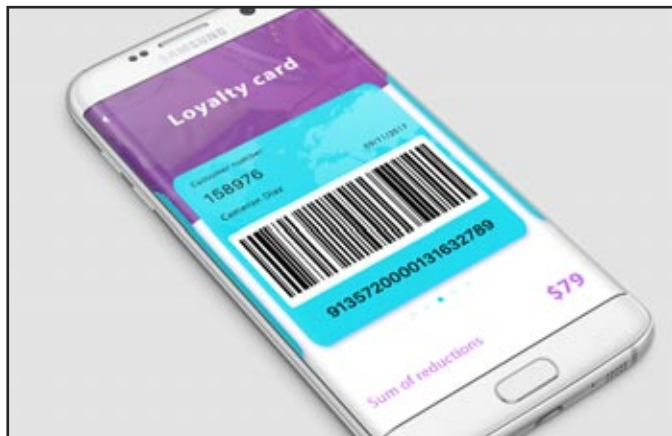


*2 different applications on the same screen*

**Benefit provided by this new feature of version 22:**  
*Share*

**540** new feature W D W B W M

**DISPLAY BAR CODES ON THE SCREEN**



*Display bar codes in your applications*

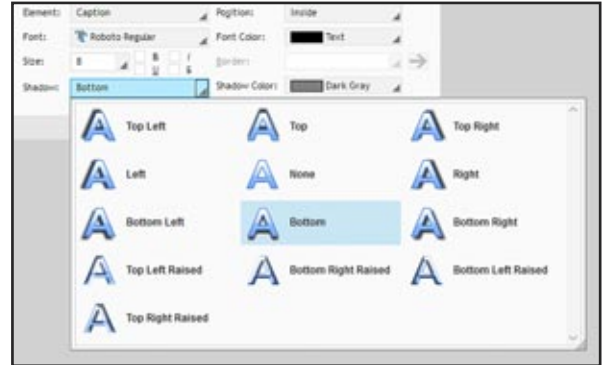
The bar code control is available on Android. This control enables you to display bar codes on the screen: reward card, cafeteria card, door opening...

**Benefit provided by this new feature of version 22:**  
*No need to print bar codes,*

**541** new feature W D W B W M

**STATIC CONTROL: SHADOW ON STATIC CONTROLS**

Static type controls now support shadows.



*Several types of shadows are offered*

**Benefit provided by this new feature of version 22:**  
*Watch your shadow!*

**542** new feature W D W B W M

**VARIANT: USEFUL FOR CONSUMING REST WEB SERVICES**

The `Variant` type is available on Android. It is very handy for handling unstructured and untyped data. The `JSONToVariant` function combined with the introduction of the `Variant` type allows for much simpler manipulation of JSON.

JSON appears as a native type in your applications!

**Benefit provided by this new feature of version 22:**  
*Interoperability.*

**543** new feature W D W B W M

**HTTPREQUEST TYPE**

The `HttpRequest` type increases the power of the `HttpRequest` function!

The `HttpRequest` type is also available on Android. It allows for example the management of: header end configuration, method, password, connection timeout, progress tracking by gauge and procedure, handling of cookies, `HttpResponse` type with the details, etc.

**Benefit provided by this new feature of version 22:**  
*The setting is more precise*

**544** new feature W D W B W M

**HTTSENDFORM: EVOLUTION**

The `HttpSendForm` function lets you send a request as a form. This very flexible query structure is commonly used. In version 22 the `head` and `patch` constants are supported.

**Benefit provided by this new feature of version 22:**  
*Simplifies code enormously*



## 545 new feature WD WB WM

### SECURE FTP FUNCTIONS: SFTP AND FTPS

In version 22, the FTP functions support the SFTP and FTPS secure protocols on Android.

**Benefit provided by this new feature of version 22:**  
*Increased security*

## 546 new feature WD WB WM

### EXERUN FUNCTION

In version 22, the `ExeRun` function is available on Android. This function lets you launch an application: photo collections, maps, calendar...

This function also makes it possible to launch a second application from an application, which is very useful for software suites composed of several applications: proposal, accounting...

**Benefit provided by this new feature of version 22:**  
*Ability to launch an application by programming*

## 547 new feature WD WB WM

### OOP: CLASS PROPERTY

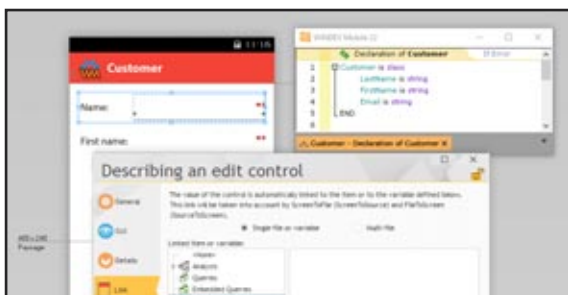
Class properties are supported in version 22 (`Setter` and `Getter` on class attributes).

**Benefit provided by this new feature of version 22:**  
*Useful in OOP*

## 548 new feature WD WB WM

### MEMORY BINDING

Memory binding is available on Android. The binding between a control and an attribute or a class property is automatic. The `WLanguage` `SourceToScreen` and `ScreenToSource` functions are available. It is also possible to link the contents of a table or a `Looper` to an array of instances.



**Benefit provided by this new feature of version 22:**  
*Automatic assignment from variables*

## 549 new feature WD WB WM

### PROCEDURE TYPE

The `Procedure` type is supported on Android. The handling of `CallBack` procedures, ... is made easier.

**Benefit provided by this new feature of version 22:**  
*Easy CallBack management.*

## 550 new feature WD WB WM

### [[ ]] OPERATOR ON BUFFER

The “double bracket” operator `[[ ]]` lets you read a given byte in a buffer.

This operator is now available on Android in version 22.

**Benefit provided by this new feature of version 22:**  
*By the byte!*

## 551 new feature WD WB WM

### HFSQL CLIENT/SERVER SECURITY: CONNECTION ENCRYPTION

In version 22, the connection to a HFSQL server can be encrypted (`..CryptMethod` on the `Connection` type).

**Benefit provided by this new feature of version 22:**  
*Better security.*

## 552 new feature WD WB WM

### HFSQL CLIENT/SERVER: NEW TIMESTAMP ITEM ON ANDROID

In version 22, you can now create “timestamp” type items in the data files.

Calculated items are supported.

**Benefit provided by this new feature of version 22:**  
*Always on time.*

## 553 new feature WD WB WM

### ANDROID EMBEDDED HFSQL 122 NEW FUNCTIONS

HFSQL on Android evolves in version 22 and supports 122 new functions.

See the entire list of functions in the online help.

**Benefit provided by this new feature of version 22:**  
*No limit.*

## 554 new feature WD WB WM

### DEBUGGING DEPLOYED APPLICATIONS: RETRIEVE TRACES, ASSERT AND NON-FATAL ERRORS

When an application is deployed from the Play Store, any application errors that occur at end users’ are made available to the application designer in the “log ADB”.

It is thus possible to recover errors, but also the Asserts and traces of all the hardware that run the application. The “log ADB” is also accessible on each phone without going through the store.

**Benefit provided by this new feature of version 22:**  
*Debug your deployed applications!*

## 555 new feature W D W B W M

### DEBUGGING: DBG FAMILY OF FUNCTIONS

In version 22, to facilitate debugging on Android, the `dbg` family of functions is supported.

**Benefit provided by this new feature of version 22:**  
*An additional debugging tool.*

## 556 new feature W D W B W M

### INTEGRATION OF .SO AND .AAR LIB

`.so` and `.aar` are native binary libraries on Android (equivalent to DDL).

In version 22, it becomes possible to integrate these libraries directly into the package.

**Benefit provided by this new feature of version 22:**  
*Integration of third-party modules.*

## 557 new feature W D W B W M

### ASSET DIRECTORY

An Asset directory contains resources specific to an application: images, text...

An SDK may require files in the Asset directory. In version 22 it is possible to directly integrate files present in the Asset directory.

**Benefit provided by this new feature of version 22:**  
*Integration of third-party resources*

## 558 new feature W D W B W M

### AUTHORIZATION MANAGEMENT

Starting with version 6 of Android, an application may request authorization (“use GPS”) only on the first use of the feature by the user.

Previously, these requests were to be made in “batch” during the installation.

WINDEV Mobile 22 supports this mode of authorization request.

**Benefit provided by this new feature of version 22:**  
*Up to date user interactions.*

## 559 new feature W D W B W M

### VARIOUS NEW ANDROID FEATURES

- Chart binding from a table column
- Setting the color of the system tray

**Benefit provided by this new feature of version 22:**  
*New features for Android.*



## NEW CONSTANTS AND NEW TYPES IN WLANGUAGE FOR ANDROID

Version 22 offers 18 new types for Android and 219 new constants (please see the complete list in the online help).

## 253 NEW WLANGUAGE FUNCTIONS SUPPORTED ON ANDROID

253 new WLanguage functions are being introduced for Android in version 22:

AddLine	ArcTan2	AuthIdentify	BufferToInteger
BufferToReal	CameraDisplay	CameraStop	CameraStopDecoding
CameraCapture	CameraRequestPermission	CameraStartDecoding	CameraStatus
CameraGenerateThumbnail	CameraListParameter	CameraParameter	MapGetImage
StringSplit	StringToTime	ControlToSource	SeekByProcedure
SeekProcedure	dbgError	dbgOnError	dbgCheckDifferent
dbgCheckEqual	dbgCheckFalse	dbgCheckNotNull	dbgCheckNull
dbgCheckTrue	DecimalToSexagesimal	Move	MoveLine
DisableAAF	GetCountryList	SwapLine	ScreenToSource
EmailAddFolder	EmailChangeFolder	EmailChangeStatus	EmailChangeTimeOut
EmailLoadAttachment	EmailSeekFirst	EmailBuildSource	EmailCopy
EmailExpunge	EmailCurrentFolder	EmailSend	EmailSendMessage
EmailStatus	EmailCloseSession	EmailImportHTML	EmailImportSource
EmailProgressBar	EmailListFolder	EmailReadLast	EmailReadLastHeader
EmailReadMessageHeader	EmailReadPreviousHeader	EmailReadFirstHeader	EmailReadNextHeader
EmailReadMessage	EmailReadPrevious	EmailReadFirst	EmailReadNext
EmailGetTimeOut	EmailMsgError	EmailNbMessage	EmailStartSession
EmailStartIMAPSession	EmailStartPOP3Session	EmailStartSMTPSession	EmailGetIndicator
EmailGetAll	EmailSaveAttachment	EmailRemoveFolder	EmailDeleteMessage
EmailMessageLength	EmailCheckAddress	InPrelaunchedSessionMode	ExeGetPID
AAFDisable	fAddBuffer	fAddText	fFind
FTPDateTime	FTPFileExist	GgGetStaticMap	HActivateServerTrigger
HAddGroup	HAddUser	HCancelBackup	HChangePassword
HLoadParameter	HCompareItem	HCreateServerTrigger	HDisconnectClient
HDescribeServerTrigger	HDeactivateServerTrigger	HDeleteServerTrigger	HDuplicateDatabase
HRecordToJSON	HRecordToXML	HSendMessageToClient	HExecuteProcedure
HExportJSON	HExportXML	HFileExist	HFilterIncludedBetween
HEndNoDatabaseAccess	HFTListWord	HSetCache	HSetDuplicates
HSetIntegrity	HSetMemo	HSetServer	HImportJSON
HImportText	HInfoAnalysis	HInfoLock	HInfoDatabaseRights
HInfoFileRights	HInfoServerRights	HInfoViewRights	HInfoFile
HInfoGroup	HInfoDatabaseProperty	HInfoFileProperty	HInfoServerProperty
HInfoItem	HInfoBackup	HInfoServer	HInfoUser
HNoDatabaseAccess	HListDatabase	HListKey	HListStoredElement
HListFile	HListGroup	HListFullTextIndex	HListLink
HListStopWord	HListParameter	HListServer	HListSynonym
HListTask	HListServerTrigger	HListUser	HListConnectedUser
HServerMaintenance	HRefreshSet	HRefreshQuery	HModifyDatabaseRights
HModifyFileRights	HModifyServerRights	HModifyViewRights	HModifyGroup
HModifyDatabaseProperty	HModifyFileProperty	HModifyServerProperty	HModifyUser
HSetPosition	HPriority	HPriorityClient	HResetClient
HResetGroup	HResetUser	HRetrievItem	HRestoreBackup
HBackup	HSaveParameter	HSecurity	HSimulateNetwork
HStatCalculate	HStatDate	HStatTime	HStatNbDuplicates
HStatNbRec	HStatNbRecRange	HDeleteDatabase	HDeleteSet
HDeleteGroup	HDeleteParameter	HDeleteQuery	HDeleteBackup
HDeleteTask	HDeleteUser	HOnServerCall	HTMLToRGB
HTransactionIsolation	HTTPCookieWrite	HTTPCookieManage	HTTPCookieRead
HTTPCookieReset	HTTPCookieGet	HTTPCookieReplace	HTTPSend
HTTPSimulateNetwork	HToFile	HToItem	InsertLine
BankHolidayList	JSONToVariant	ExeRun	WordToArray

Mean	NationToName	NationToSubLanguage	FirstDayOfYear
PropertyExist	ReplicDeleteSubscription	RETSend	RGBToHTML
SexagesimalToDecimal	Sum	SourceToScreen	DeleteLine
ArrayAddLine	ArraySeekByProcedure	ArrayMove	ArrayMoveLine
ArraySwapLine	ArrayInsertLine	ArrayReverse	ArrayMix
ArrayDeleteLine	TableSetFocus	TableInputInProgress	DashDisplay
DashAddWidget	DashResizeWidget	DashLoadConfiguration	DashInitialConfiguration
DashMoveWidget	DashMode	DashCount	DashSaveConfiguration
DashDelete	DashDeleteAll	TelemetryEnable	TelemetryAddMeasure
TelemetryAddPassage	TelemetryDisable	TelemetryIsEnabled	TelemetryIdentifyUser
TelemetryConfigure	TraceBuild	ScreenType	URLExtractPath
VariantConvert	VariantToJSON	VideoStopDecoding	VideoRequestPermission
VideoStartDecoding			

## WINDOWS MOBILE AND CE

Windows Mobile, Windows CE and Windows Embedded are very popular in industrial settings. Version 22 of WINDEV Mobile benefits from the common new features of the environment.

### COMMON NEW FEATURES

WINDEV Mobile 22 for Windows Mobile and Windows Embedded benefit from the common new features in version 22.

### 14 NEW WLANGUAGE FUNCTIONS FOR WINDOWS MOBILE AND CE

14 new WLanguage functions have been introduced for Windows Mobile and Windows CE in version 22.

AuthIdentify	CameraDisplay	CameraStop	CameraCapture
CameraStatus	CameraListDriver	StringSplit	SystemIntegerToInteger
grPointType	grSeriesPointType	grSeriesType	grSeriesLineType
HRetrieveBackup	ReplicDeleteSubscription		

## UWP: WINDOWS 10 AND WINDOWS 10 MOBILE

### DEVELOP FOR WINDOWS 10 AND WINDOWS 10 MOBILE (UWP)

WINDEV Mobile 22 allows you to generate UWP applications that work on PCs, Smartphones and Tablets that evolve under Windows 10 or Windows 10 Mobile.

**Benefit provided by this new feature of version 22:**  
One code for all systems.



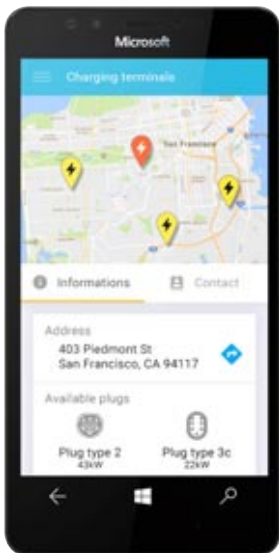
### COMPATIBILITY WITH ANDROID AND IOS (AND PC, AND LINUX, AND WEB)

An application developed with WINDEV Mobile 22 for Windows 10 Mobile is compatible with Android and iOS: just re-compile to get a native Android or native iOS app. In the same way, this application is compatible with all versions of Windows, with Linux and can be transformed into a website (of course you'll probably need to modify the windows and make them larger).

**Benefit provided by this new feature of version 22:**  
A portability with no match on the market.

### WINDOWS 10 MOBILE (UWP) CONTROLS

New native controls are available for Windows 10 Mobile:



- action bar (with hamburger button & sliding menus)
- multiline zone
- popup menu
- calendar.
- map
- tab

They are added to the controls already available for UWP:

- static
- button
- check box
- list
- image
- progress bar
- HTML control
- edit control
- chart
- radio button
- combo box
- loop
- slider
- internal window.

**Benefit provided by this new feature of version 22:**  
Increased support for Windows Mobile 10.

### WINDOWS STORE



Applications developed for Windows 10 Mobile can be deployed via the Microsoft Store.

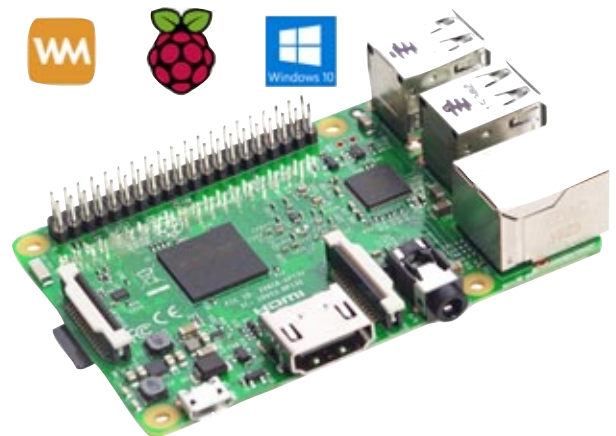
**Benefit provided by this new feature of version 22:**  
Deployment to stores

### HFSQL UWP

The common new features of HFSQL are available for Windows 10 Mobile (UWP): new SQL commands, forcing the query browsing key, application trigger, ...

**Benefit provided by this new feature of version 22:**  
Manage your data as always

### RASPBERRY PI: WITH WINDEV MOBILE 22 AS WELL!



Raspberry Pi can run Windows For IOT. WINDEV Mobile 22 makes it possible to compile applications for Windows IOT.

These applications therefore work on Raspberry Pi.

**Benefit provided by this new feature of version 22:**  
Develop for Raspberry Pi with WINDEV Mobile.

### 322 NEW WLANGUAGE FUNCTIONS SUPPORTED ON UWP

322 new functions for Windows 10 Mobile are available in version 22 (Only the families of functions are indicated here, see the complete list in the online help).

Character string management • Internal windows (IWxxx) management • Contact (Contactxxx) management • Telemetry (Telemetryxxx) management • Check Box (CheckBoxxxx) functions • Radio Button (RadioButtonxxx) functions • Chart (grxxx) management • HFSQL (hxxx) functions • Server trigger management (HxxxServer-Trigger) • HFSQL C/S backup management • HFSQL server management • Email management (emailxxx) • Drawing functions (dxxx) • Calendar functions (Calendarxxx) • Scheduler functions (Schedulerxxx) • Encoding functions • Holidays management SQL view management • iCalendar functions • Sensor management (Sensorxxx)



## WEBDEV 22: COMMON NEW FEATURES

## NEW SCROLLING BANNER CONTROL

**823** new feature WD WB WM

### 180 COMMON NEW FEATURES

WEBDEV benefits from version 22. common new features. WEBDEV 22 naturally benefits from the evolution of the development environment, such as the presence of the integrated image editor, evolutions of WLanguage, HFSQL, and compatibility with WINDEV and WINDEV Mobile.



**824** WB

### THE PRINCIPLE: THE SCROLLING BANNER CONTAINS SEVERAL PLANS

WEBDEV offers the new "scrolling banner" control in version 22

The scrolling banner control allows you to display successively several pieces of content, either automatically or following a user action.

This is not a simple scrolling image control, nor a linear looper! The banner can contain controls and processes.

The scroll bar allows you to display totally different contents and independent from one plane to another.

You often see a scrolling banner at the top of a site.





The banner changes plan on its own or on demand Plans can contain controls

The scrolling banner field automatically scrolls its plans as a slideshow, and the user can choose the plan to display using arrows or a smart ruler.

On a touch screen, a finger movement allows navigation. Each content is independent, and is edited in the form of a plan (see new features 883 to 890).

**Benefit provided by this new feature of version 22:**  
Scrolling content

## 825 new feature W D W B W M

### HOW TO CREATE SCROLLING BANNERS

In the WEBDEV 22 editor, simply create a scrolling banner control!

Each plan can be edited directly in WYSIWYG.

A plan contains some code and controls.

Each plan can accept any type of WEBDEV control: images, Rich Text Area (RTA), tables, form controls...

A banner plan can be considered like a mini page!

You can do what you want in the banner: simply display images, or execute heavier processes.

**Benefit provided by this new feature of version 22:**  
Rich banners

## 826 new feature W D W B W M

### HOW TO PROGRAM A SCROLLING BANNER

Each plan of the scrolling banner can be made visible or invisible with `..Visible`.

The `..Plane` property of the banner control lets you specify which banner plan to display.

It is also possible to set the timer between two changes of plane, to advance or to retrace the scroll, to suspend the timer, etc.

Interaction with the user is managed automatically or programmed (see below).

**Benefit provided by this new feature of version 22:**  
Very easy programming

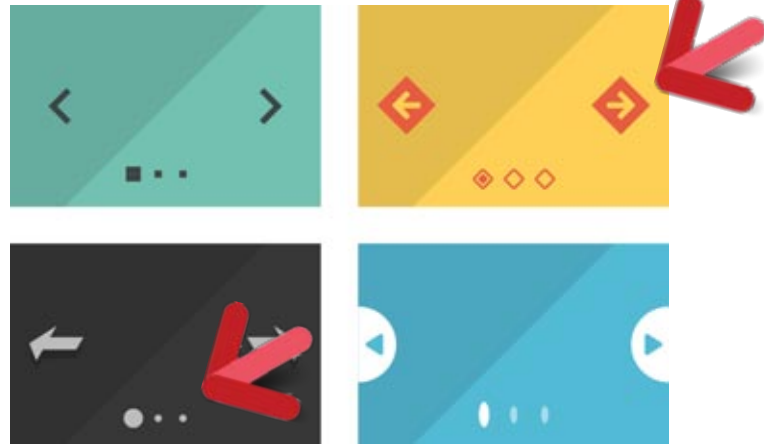
## 827 new feature W D W B W M

### PAGER OR ARROWS

By default, a customizable ruler is available for navigating between the plans.

This pager is presented as bullets displayed at the bottom of the area.

On each side of the image, discrete arrows are positioned to navigate.



4 examples of pagers and arrows

If necessary, it is possible not to display this pager or these arrows and to manage the actions of the user by programming.

**Benefit provided by this new feature of version 22:**  
An operating mode

## 828 new feature W D W B W M

### TRANSITION EFFECT IN THE BANNER

The scrolling banner offers different transition effects: fade, sweep, overlay, flip, fold, blur, ...

These effects can be applied automatically to each plan change.

**Benefit provided by this new feature of version 22:**  
A beautiful effect

# NEW UPLOAD CONTROL

829 new feature WD WB WM

## NEW HTML5 UPLOAD CONTROL

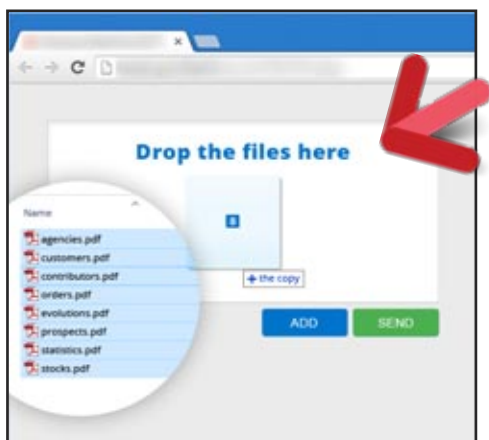
A site often needs to upload files.

The Upload control in version 22 is based on the HTML5 standard.

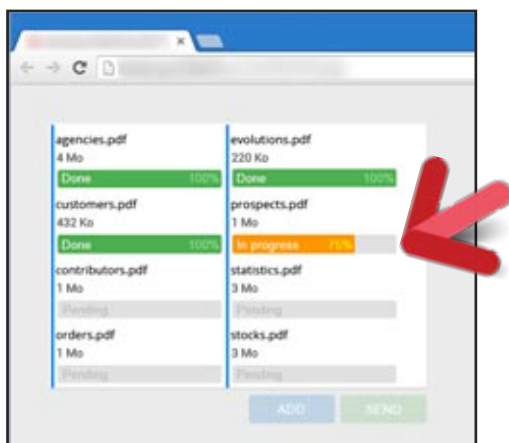
The new Upload control allows the asynchronous upload of one or more files.

The user selects the files to upload:

- either using the file picker of the browser or of the OS
- or directly by drag/drop of the files



Here the files to be uploaded are dragged to the upload area



Asynchronous upload in progress with a progress bar for each file

**Benefit provided by this new feature of version 22:**

Upload freely, even on mobile!

830 new feature WD WB WM

## PREDEFINED UPLOAD CONTROL TEMPLATES

When creating an Upload control, predefined controls are offered:

These templates support different use cases:

- single file
- multi files
- asynchronous multi files with progress bar
- ...

**Benefit provided by this new feature of version 22:**

Manage upload in one click!

# EVOLUTIONS ON CONTROLS

831 new feature WD WB WM

## TABLE COLUMN HEADER: RICH AND MULTILINE TEXT

In WEBDEV 22, headings in table columns can contain rich text and accept multi-line text.



A rich column header...

**Benefit provided by this new feature of version 22:**

Great header.

832 new feature WD WB WM

## TABLE: AUTOMATIC POSITIONING

In a table, you sometimes want to make sure that a line is visible on the display for the user.

The `TablePosition` function lets you automatically position the table on a given row, thanks to the new constant `taVisible`.

If the row is already visible, the table is not modified.

**Benefit provided by this new feature of version 22:**

Always more flexible layouts.

833 new feature WD WB WM

## MENU: RICH AND MULTI-LINE MENU OPTIONS

In version 22, the menu options can contain rich text and can occupy several lines.

**Benefit provided by this new feature of version 22:**

A menu à la carte.

834 new feature WD WB WM

## SCHEDULE: MULTI-LINE HEADER

Under WEBDEV 22, the column headings of the Scheduler control displayed in columns become multi-line.

**Benefit provided by this new feature of version 22:**  
Explicit headers

**835** new feature W D W B W M

**STYLES FOR APPOINTMENTS**

In version 22, it becomes possible to apply a style to appointments in scheduler and organizer controls. This allows you to adapt the scheduler or organizer control with the site's style guide, like "material design" for instance.

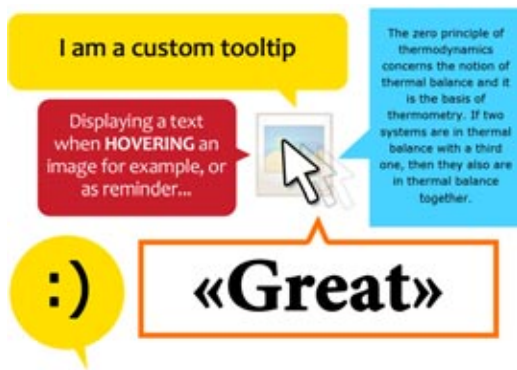


*Stylish appointments*

**Benefit provided by this new feature of version 22:**  
Stylish appointments

**836** new feature W D W B W M

**TOOLTIP CUSTOMIZABLE STYLE**



*Custom tooltips*

The aspect of the standard tooltip depends on the browser used by the user. Its style is often not aligned with the site's style guide. WEBDEV 22 makes it possible to create a custom style for the tooltips of your sites.

**Benefit provided by this new feature of version 22:**  
Make your sites sparkle ....

**ICONIC FONTS**

**837** new feature W D W B W M

**ICONIC FONT IN RICH TEXT**

WEBDEV 22 allows you to insert icons in rich texts for all controls: button label, edit control, rich text area, column header... When editing the text, simply use the `insert an icon op-`

`tion.`

In the wizard that comes up, choose an iconic font: the icon list is displayed.

Simply select the desired icon.

To change the size, just choose the correct font size.

These fonts being vectorial, the icon will always be clear!

To change the color, proceed like you would with a regular character.

Thanks to this new feature of version 22, it is easy to create icons of variable size and color.



*Examples of iconic fonts*



*This icon of a hand is a character from a font*

**Benefit provided by this new feature of version 22:**  
A character = 1 icon

**838** new feature W D W B W M

**USE ICONIC FONTS FORM ONLINE LIBRARIES**

A large number of iconic fonts are offered on special sites. It is thus easy to have adequate fonts.

**Benefit provided by this new feature of version 22:**  
Draw your inspiration from the iconic universe

**839** new feature W D W B W M

**INSERT ICONIC FONT IN A BUTTON OR A MENU**

In a button, the iconic font can replace the background image! (Especially in Material Design look).

To create a clickable icon, simply create a button control, and paste the iconic font into the label.

The iconic font can also be clickable in a text (hyperlink).



Create a button without graphics

**Benefit provided by this new feature of version 22:**  
Beautiful button easily

## AUTHENTICATION VIA SOCIAL NETWORKS

**840** new feature W D W B W M

### AUTHENTICATION WITH THE FACEBOOK, GOOGLE+, TWITTER OR LINKEDIN IDENTIFIERS



When you create a site that requests authentication (password), it is possible to use the user's already existing credentials: Facebook, Google+, Twitter or LinkedIn credentials. Note that your site will not know the user's credentials.

**Benefit provided by this new feature of version 22:**  
End users can connect faster.

## NEW CHART

**841** new feature W D W B W M

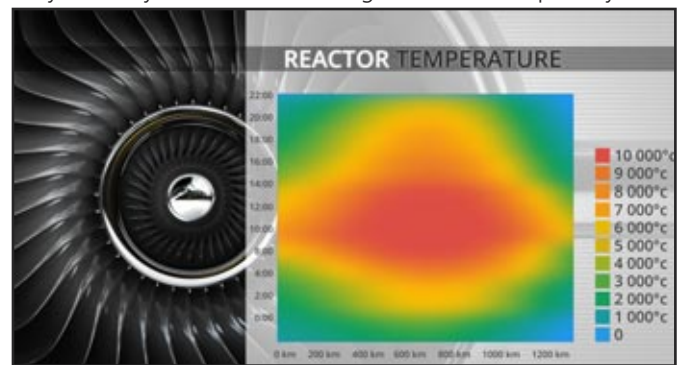
### HEATMAP CHART

The chart display engine of WEBDEV offers a new type of chart: the heatmap chart.

The heatmap chart lets you represent in a two dimensional space data that varies based on 3 criteria: 1 criterion is associated with X axis, 1 criterion is associated with the Y axis. The third criterion is represented by the color variation of the points in the chart, according to a color scale (from blue to red). This type of chart is particularly suitable for visualizing continuous variations.

Use example:

- Site attendance by date and time
- Variation of the revenues per month for the last 10 years
- Hydrometry of the soil according to the altitude per day ...



**Benefit provided by this new feature of version 22:**  
Modern charts.

## EFFECTS ON PAGE

**842** W D W B W M

### PARALLAX EFFECT

The effects of parallax are widely used in showcase sites, especially for sites with an artistic connotation or a strong graphic presence.

The parallax effect makes it possible to scroll the elements constituting the page at different speeds when the user moves the page's scroll bar.

This gives a dynamics specific to the whole site.

The effect can be applied to a back-

ground image, or to controls.

From the "7-tab" window it is possible to define the behavior of a control while moving the scroll bar of the page.

Predefined behaviors are offered and it is possible to manually adjust the parallax rate of the control.

**Benefit provided by this new feature of version 22:**

Modern animations.



When the user goes down the page (scrolls or slide with a finger): the image at the top goes up slowly. The bottom image goes up faster

### STEALTH PINNED MESSAGE

With WEBDEV, a control can be pinned inside the page. In version 22 a new type of pinning is introduced: the stealth pinned control.

This new mode is useful to pin menu controls, toolbars, page footers...

When the user scrolls a lot, the control is hidden.

As soon as the user slightly moves the scroll bar the other way, the control reappears pinned at the top or bottom of the browser.

This behavior frees up as much space as possible for the content underneath the pinned control.

This is especially useful for sites displaying text as the main content: articles, documentations...

**Benefit provided by this new feature of version 22:**

*A new pinned control mode*

### FLOATING LAYOUT: CELL WITH RELATIVE POSITIONING: ALIGN LEFT OR RIGHT

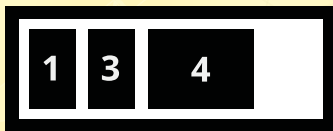
WEBDEV 22 allows you to define the direction of positioning in the cells with relative positioning (float).

In version 22, the alignment of cells with relative positioning can be defined on the left or on the right.

**Benefit provided by this new feature of version 22:**

*Switch side*

ALIGNMENT TO LEFT



*When a control is deleted, the other floating controls are repositioned according to the defined framing*

ALIGNMENT TO RIGHT



### CHANGE THE PAGE (OR CELL) BACKGROUND IMAGE BY PROGRAMMING

In version 22, it becomes possible to change the background image of a page or a cell by programming.

The new property `..BackgroundImage` allows you to change the image in browser code or in server code.

**Benefit provided by this new feature of version 22:**

*Customize via programming*

## BROWSER WLANGUAGE: WRITE BROWSER APPS

### THE EXPERT'S ADVICE

The current trend is to defer the maximum possible processing on the browser: The server is unloaded, there is less data transferred, so the user experience is much more fluid. WEBDEV 22 follows this strong trend.

### THE BROWSER CODE IN VERSION 22

The code of a website is separated between the Server code and the Browser code.

In version 22, WEBDEV significantly extends the possibilities of WLanguage in Browser mode.

It is thus possible to create many more processes that will run directly on the browser.

The site is more reactive then, faster, consumes less bandwidth, solicits the server less.

Thanks to these evolutions of version 22, WEBDEV brings you power on the browser side.

**Benefit provided by this new feature of version 22:**

*Browse without server*

### BROWSER: NEW CONTROL PROPERTIES

Many control properties are now accessible in browser code.

These properties allow you to act directly on controls without going through the server.

The availability of these properties in browser mode makes it possible to program the interface of a site directly in browser

code.

For example, it is possible to gray out or restore a control in browser code, to define the label of a button, to indicate the address of a link ...

List of the new properties:

BarVisible	MaxValue	MinValue	CalendarButton
Tooltip	ToolTipTitle	InitialContent	AnimationDuration
InputEnabled	State	InitialState	Grayed
Hint	Static	CaptionHTML	NumberColumn
FullName	Note	AlternativeText	TextWithoutFormat
Title	NoteTitle	Type	URL

DisplayedValue	InitialValue	Empty	Thumbnail
InitialVisible	XInitial YInitial		

**Benefit provided by this new feature of version 22:**  
It becomes possible to write Web browser applications.

## 848 to 870 new feature [WD](#) [WB](#) [WM](#)

### WLANGUAGE: NEW BROWSER FUNCTIONS

23 new WLanguage functions are being introduced in browser mode in WEBDEV version 22.

Decode	Deserialize	Encode	GglAnalyticsAddSocialNetworkAction
GglAnalyticsAddTiming	GglAnalyticsAddEvent	GglAnalyticsAddException	GglAnalyticsAddPage
JSONToVariant	REStExecute	Serialize	SocketChangeTransmissionMode
SocketClientInfo	SocketConnect	SocketListen	SocketWrite
SocketExist	SocketClose	URLDecode	URLEncode
UUDecode	UUEncode	VariantToJSON	

## 871 new feature [WD](#) [WB](#) [WM](#)

### BROWSER: EASILY MANAGE SUB-STRINGS [[ ]]

In order to manipulate the strings more easily in browser code, the [[ ]] operator is available for assignment.

```
MyString is string
MyString [[2 TO 5]] = "toto"
```

**Benefit provided by this new feature of version 22:**  
Easy sub-strings!

## 872 new feature [WD](#) [WB](#) [WM](#)

### BROWSER: PROCEDURE: RETURN OF MULTIPLE VALUES

In version 22, a procedure can return multiple values directly. There is no need to declare specific variables to interact with procedures.

The code is simpler, no need to create specific structures: array...  
`(x, y, z) = ReturnMyCoordinates()`  
`RETURN(x, y, z)`

**Benefit provided by this new feature of version 22:**  
Nothing to declare!

## 873 new feature [WD](#) [WB](#) [WM](#)

### BROWSER: PROCEDURE WITH A VARIABLE NUMBER OF PARAMETERS

It is possible to create procedures with a variable number of parameters.

This makes it possible to create processes independent of the number of values to be processed, such as summing up a set of invoices sent, the number of which is not known in advance. Another example is to change the attributes of a set of controls whose number is not known in advance.

The new `MyParameters` keyword allows you to manipulate these parameters.

New supported syntax:

```
MyParameters[n A] , MyParameters[A n]
MyParameters[n ON o]
```

```
MyParameters[n TO o]
MyParameters[*]
MyParameters[A, x]
MyParameters..Occurrence
```

**Benefit provided by this new feature of version 22:**  
Even when foggy you can see.

## 874 new feature [WD](#) [WB](#) [WM](#)

### ENUMERATION & COMBINATION: CONTROL THE POSSIBLE VALUES OF A VARIABLE

A `enumeration` type variable can only take one value among a set of predefined values.

A `combination` type variable can take one or more values among a set of predefined values.

These enumeration and combination types now exist in WLanguage Browser.

The use of these types eliminates some programming errors by providing a rigorous coding.

**Benefit provided by this new feature of version 22:**  
Avoid errors.

## 875 new feature [WD](#) [WB](#) [WM](#)

### VARIANT TYPE: MANIPULATE VARIABLES WITHOUT KNOWING THEIR TYPE

The `VARIANT` type allows you to manipulate any type of variable.

The use of this type allows you to write code to manipulate values without knowing their type in advance: string, integer, array...

This Variant type is useful for external exchanges: Web service, Web socket...

**Benefit provided by this new feature of version 22:**  
Manipulate values with your eyes closed.

## 876 new feature [WD](#) [WB](#) [WM](#)

### BROWSER: PROCEDURE: PASSING PARAMETER BY REFERENCE (ADDRESS)

In addition to passing parameters by value, you can also pass parameters to a procedure by reference (by address).

The benefit of passing parameters by reference is the ability to modify the original variable (or object).

Passing parameters by reference works on simple types and advanced types: array elements, control property, array row, [], object...

This parameter passing mode becomes the default mode.

**Benefit provided by this new feature of version 22:**  
Share your variables



## 877 new feature W D W B W M

### BROWSER: "LOCAL" KEYWORD

The `Local` keyword lets you copy the value of the parameter locally to the procedure.

**Benefit provided by this new feature of version 22:**  
*Isolate your variables*

## 878 new feature W D W B W M

### BROWSER: "DYNAMIC" KEYWORD ON VARIABLE DECLARATION

The `Dynamic` keyword lets you define a complex type variable that will be allocated later in the code.

**Benefit provided by this new feature of version 22:**  
*Managing an array of variable size*

## 879 new feature W D W B W M

### BROWSER: ASSIGN OPERATION <- AND <=

The `<-` and `<=` operators replace the `=` operator to specify the type of assign:

- the `<-` operator forces the referencing ( by address)
- the `<=` operator forces the copy of the value

**Benefit provided by this new feature of version 22:**  
*Address or value are forced*

## 880 new feature W D W B W M

### BROWSER: INTERNAL PROCEDURE

An internal procedure is a procedure whose code is defined within the process that will use it.

This procedure is known only locally.

This type of procedure is useful when the same code is called several times locally.

**Benefit provided by this new feature of version 22:**  
*The code is better structured.*

## 881 new feature W D W B W M

### BETTER SUPPORT OF THE WLANGUAGE BROWSER ERRORS

Before version 22, in execution of a site, WLanguage Browser programming errors could cause the display of a Javascript message (difficult to understand!).

In version 22, the errors displayed by the WLanguage Browser are always very clear, and make it possible to understand the error (to correct it more easily!).

**Benefit provided by this new feature of version 22:**  
*Clear errors*

# WLANGUAGE SERVER

## 882 new feature W D W B W M

### 40 NEW WLANGUAGE FUNCTIONS IN SERVER CODE

40 new WLanguage functions are introduced in server code in version 22.

AuthIdentify	StringSplit	Decode	Encode
SystemIntegerToInteger	FBSessionStatus	FBStopSession	FBStartSession
FBGetUserInformation	FBRequest	HDuplicateDatabase	HServerMaintenance
HRetrieveBackup	HTrack HTrackStop	MongoAdd	
MongoFind	MongoCreate	MongoCreateCollection	MongoExecuteCommand
MongoGridFS_SendFile	MongoGridFSFileInfo	MongoGridFSListFile	MongoGridFSGetFile
MongoGridFSDeleteFile	MongoInfo	MongoModifyAll	MongoModifyOne
MongoDeleteDatabase	MongoDeleteAll	MongoDeleteOne	PDFSign
ReplicDeleteSubscription	AppServerAddScheduledTask	AppServerRunScheduledTask	AppServerInfoScheduledTask
AppServerListScheduledTask	ServerAppliModifierTachePlanifiee	ServerAppliSupprimeTachePlanifiee	DashGetWidgetPosition

# PLANES: AN ENTIRE SITE IN A PAGE!

In version 22, WEBDEV offers the possibility of creating "planes" in the pages.

A plane is a set of controls of the page.

Each plane can be visible or not

The choice of the displayed plane is made by programming in WLanguage Browser or Server or Ajax.

The change of plane can be carried out from any control processing:

- click on a button
- Code of the page according to certain criteria ...

Thus the appearance and the content of the page evolve during the navigation without any return to the server.

This is a new site design method that is particularly suited to Web Applications (Single Page Application).

## THE EXPERT'S ADVICE

**A new way to architect sites is to do a maximum of processing in a single page to avoid loading pages. As the browser language is very rich, access to the server is reduced: a page is necessarily on the server, so every page change is penalizing.**

## 883 new feature W D W B W M

### CHANGE THE DISPLAY WITHOUT RETURNING TO THE SERVER

All the planes of a page are contained in the page.

The change of plane is done in browser code without requiring a return to the server to load a new page.

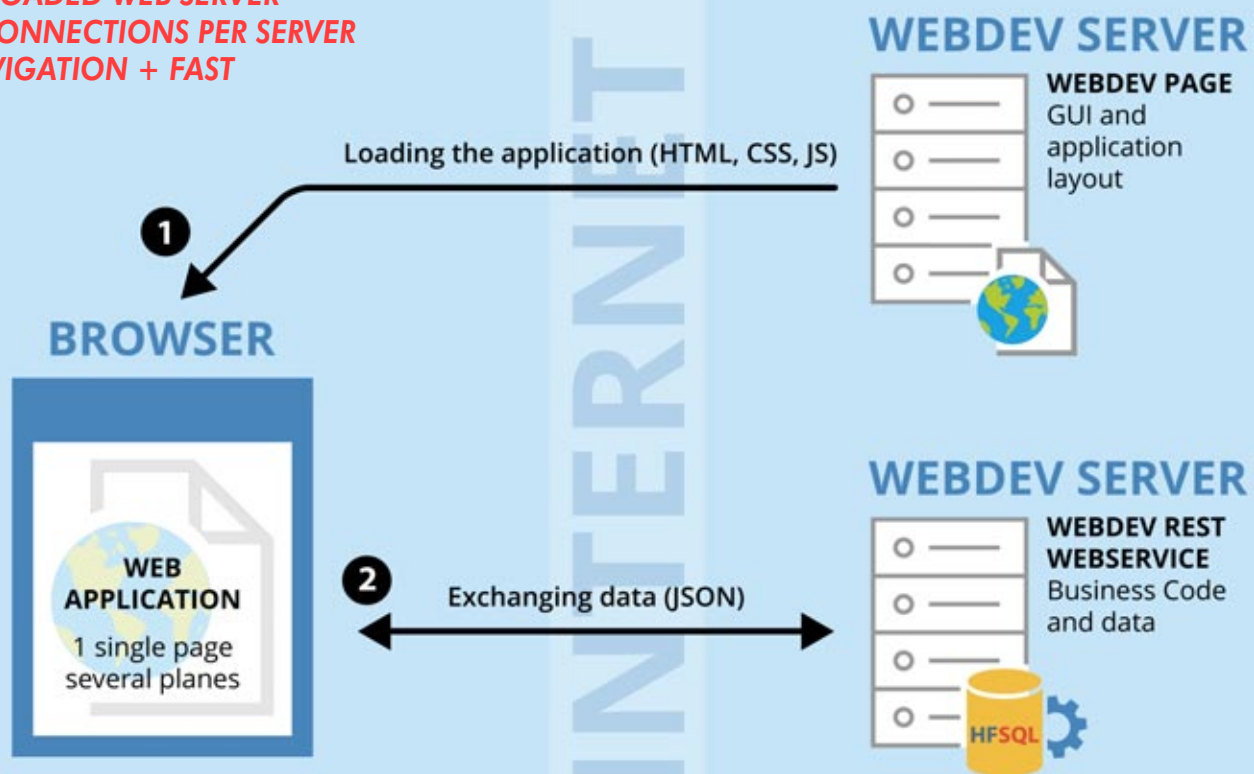
The user experience is thus much more fluid and fast.

The server returns only the minimum data.



# WEB APPLICATION IN A SINGLE PAGE

- UNLOADED WEB SERVER
- + CONNECTIONS PER SERVER
- NAVIGATION + FAST



See new features 898 to 904

The server no longer needs to return the “layout” of the page: HTML, images, CSS,...).

The server returns only the data requested by the page: quantity in stock, price, ...

**Benefit provided by this new feature of version 22:**

*Faster and more fluid navigation*

## 884 new feature W D W B W M

### HOW TO REFRESH DATA IN A PLANE?

The data displayed in a plane is initialized automatically when the page containing the plane is loaded.

To refresh the data of a previously displayed plane (such as a stock quantity), there are several methods:

- call to an Ajax process
- call to a web service (via a timer for instance)
- use a web socket.
- ...

See new feature 919

**Benefit provided by this new feature of version 22:**

*Refresh your planes*

## 885 new feature W D W B W M

### PLANES: PAGE OR LAYOUT AREA

A plane can be an entire page or part of a page (layout area). Several planes can be used simultaneously in the same page: banner plane, header plane...

A Web application can consist of a single page and a set of planes! This web application minimizes back and forth to the server.

**Benefit provided by this new feature of version 22:**

*An entire site in a single page*

## 886 new feature W D W B W M

### PLANES IN CONTAINER CONTROLS: CELL, POPUP...

Planes can be used in pages, as we've seen.

But planes are even more powerful!

Planes can be used with all the “container” type controls:

- Cell
- Popup
- Control template and supercontrol
- ...

In a Looper, it is for example possible to display on each line a different presentation according to the category of the product

(cap, bike, tshirt, ...).

**Benefit provided by this new feature of version 22:**  
*Planes everywhere*

**887** new feature W D W B W M

**EASY PROGRAMMING: ..PLANE**

Changing plane by programming is child's play. Simply use the `..Plane` property on the page, or the container control which contains planes.

Code example:

```
MyPage..Plane = 3
```

**Benefit provided by this new feature of version 22:**  
*Rantanplan.*

**888** new feature W D W B W M

**PROGRAMMING: NEW PROCESSES**

When plans are present on the page, 3 new "plan change" processes are active.

- An Ajax server process
  - A Browser process before the change of plane
  - A Browser process after the change of plane
- These processes are used to initialize or update the plane data.

**Benefit provided by this new feature of version 22:**  
*Easy planes*

**889** new feature W D W B W M

**VISUAL EFFECT ON PLANE CHANGE**

Each change of plane can be accompanied by a visual effect: You just need to specify it in the "7-tab" window. WEBDEV 22 offers many automatic effects:

- fade in
- swipe
- covering
- flip
- collapse
- blurry
- ...

A different effect can be specified for the forward and back change.

**Benefit provided by this new feature of version 22:**  
*Your planes are powerful*

**890** new feature W D W B W M

**DEFERRED PLANE LOADING**

All the planes of the page are not necessarily used immediately by the user.

Some planes may have heavy content to load (large table), which can slow down the first display of the page.

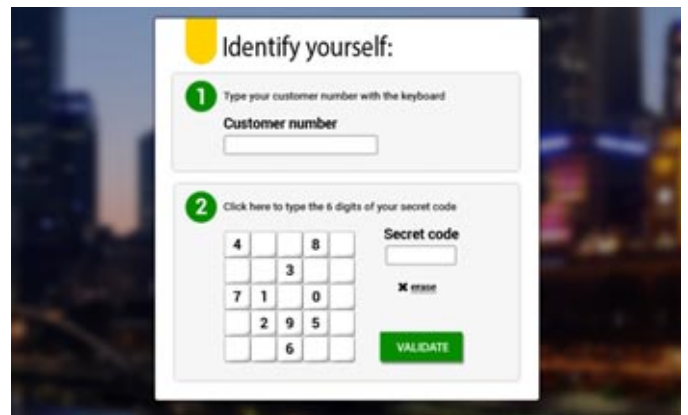
WEBDEV 22 offers an option to delay the loading of each plane on its first use.

**Benefit provided by this new feature of version 22:**  
*Optimize the first display of the site*

# OPENING: USE EXTERNAL RESOURCES: ANGULAR JS, SNIPPET BOOTSTRAP, JQUERY UI...

**891** W D W B W M

**OPENING: REUSE EXISTING RESOURCES FROM ANY TECHNOLOGY**



*An example of component*

Some web developers like to use external resources. A large number of reusable resources are available on the Internet: Bootstrap snippets, JQuery.UI components, Angular.JS components... Specialized sites offer resources, either free or for a fee. An enterprise can also have existing resources. With its new wizards, WEBDEV 22 makes it easy to integrate Bootstrap snippets, JQuery.UI components, and Angular.JS components into a page.

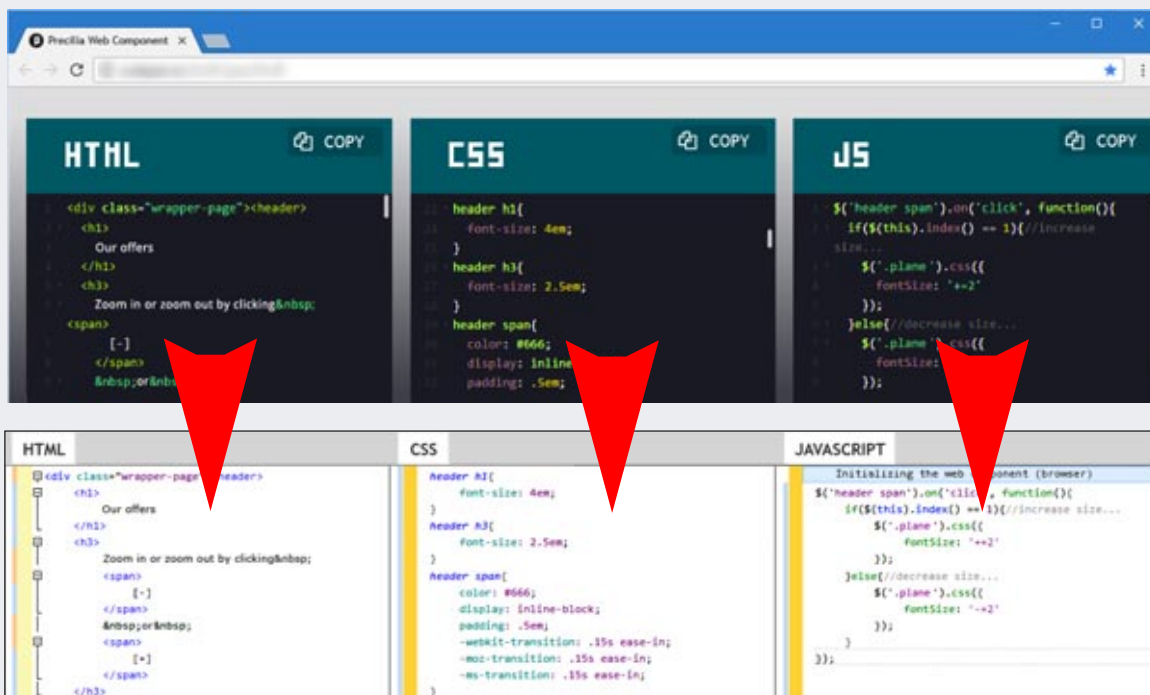
The external Web resources (component Angular JS, Snippet Bootstrap ...) are generally delivered in the form of three components:

- HTML code
- CSS code
- JavaScript code.

Dependency files may also be provided (images, ...). A framework must also be installed.



# THE INTEGRATION OF AN EXTERNAL COMPONENT IS DONE IN 5 QUICK STEPS



An external component is presented this way on a web site. Simply copy the provided code.

Note: The WEBDEV code editor can also use a black background.

## THE EXPERT'S ADVICE

- 1- Use the resources of the Web in your WEBDEV sites.
  - 2- Call WEBDEV resources from your Angular JS, Bootstrap and other pages.
- Enjoy the best of both worlds.

**Benefit provided by this new feature of version 22:**  
Benefit from existing resources

**892** W D W B W M

### STEP 1: USE THE NEW "EXTERNAL WEB COMPONENT" CONTROL

WEBDEV 22 offers a very simple method for integrating any external Web resource into a WEBDEV site. Simply use the new "Web component" control. This "Web component" control can occupy:

- either part of the page, to insert an external component
- or the entire page, to create a Web app based on external technologies.

**Benefit provided by this new feature of version 22:**  
You just need to create a control

**893** new feature W D W B W M

### STEP 2: INSERT THE EXTERNAL RESOURCE: HTML, CSS, JAVASCRIPT

External Web resources generally consist of three components:

- HTML code

- CSS code
- JavaScript code.

With WEBDEV 22, you simply copy and paste the HTML, CSS, JS code of the external resource directly into the respective panes of the "Web Component" control. Each of these pieces of code can be modified in its respective language from the WEBDEV environment. Syntactic coloring and indentation are present. The new properties `..CodeJS`, `..CodeCSS`, `..CodeHTML` of the "Web component" control also allow you to perform modifications using the WLanguage.

**Benefit provided by this new feature of version 22:**  
3 copy/paste and you're done!

**894** new feature W D W B W M

### STEP 3: INCLUDING A THIRD-PARTY FRAMEWORK

In most cases, the external resource uses a third-party framework for its operation: AngularJS v2, jQuery, jQuery UI, Bootstrap v3 and v4 framework,...

WEBDEV 22 offers a wizard to import and integrate a third party framework into the project. The third-party framework will be included in the installation of the WEBDEV 22 site.

**Benefit provided by this new feature of version 22:**  
Just select the framework to use



**STEP 4: POSITION THE RESOURCE IN THE PAGE**

The positioning of the external resource in the page is done very easily in WYSIWYG.

Just place the “Web Component” control as any WEBDEV control.

Anchors are available for the Web Component control.

If the external resource is a full page, simply extend the Web Component control to the entire WEBDEV page.

**Benefit provided by this new feature of version 22:**

*With WEBDEV 22, the positioning is visual.*

**STEP 5: DIALOG WITH THE EXTERNAL RESOURCE**

To interact with the external component, it is possible to initialize, read and write the JavaScript variables of the external resource in WLanguage!

In general, WLanguage procedures associated with the “Web Component” control are created for this purpose.

These procedures can be called directly from the code (HTML or JavaScript) of the external resource.

Example of a call to include in the JavaScript code of the external resource: `MyComponent..MyProcedureWL()`

The call can of course include parameters.

Thus, on an event internal to the component, for example `onclick` on a button, a WLanguage browser procedure written in WEBDEV can be executed.

Similarly, the JavaScript procedures of the external resource can be executed from a WLanguage process.

Therefore it is very easy to communicate.

**Benefit provided by this new feature of version 22:**

*The dialog between WEBDEV and the component is easy.*

**WLANGUAGE PROCESSES ON THE WEB COMPONENT CONTROL**

The “Web component” control has specific processes to make its programming easier:

- `onload process`
- `onsubmit process`
- `action process`
- `assign process of the ..Value property`
- `read process of the ..Value property`

These processes allow you to initialize the control, to execute a defined processing, to transmit data ...

**Benefit provided by this new feature of version 22:**

*Easy interaction.*

**CREATE REST WEB SERVICES CALL WEBDEV FROM ANGULAR JS,...****WEB SERVICE SOAP OR REST?**

The two most common methods for implementing Web services are Simple Object Access Protocol (SOAP) and REpresentational State Transfer (REST) architectures.

On the Internet, REST Web services are used today because they rely on the HTTP protocol.

They allow the server to return JSON (JavaScript Object Notation) which will be directly analyzed by the browser that runs JavaScript code.

Older versions of WEBDEV (and version 22) let you create SOAP Web services.

A new feature in version 22 is the easy creation of REST Web services.

**Benefit provided by this new feature of version 22:**

*Create any type of web services*

**A REST WEB SERVICE = A PROJECT OR A PROJECT CONFIGURATION**

With WEBDEV 22, creating a web service is easy. It can be a full project, or just a project configuration.

The advantage of project configuration is to share the business code between the site and the Web service within the same project.

**Benefit provided by this new feature of version 22:**

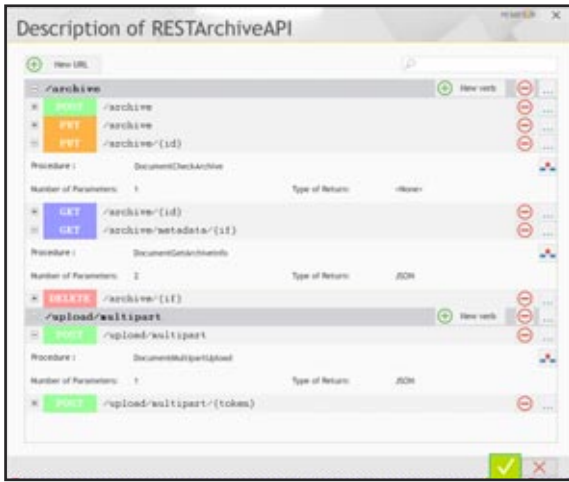
*Easy creation*

**A NEW EDITOR TO DEFINE THE REST WEB SERVICE INTERFACE**

The description of a REST Web service is very simple from the new Web services editor which is being introduced in version 22.

Just describe each of the entry points of the external interface of the Web service: method name, expected parameters, return value, as well as the type of query (GET, POST, PUT, DELETE, ...) It is also possible to specify a documentation note, as well as examples of the use of the entry point and a description of the format of the return value.

WEBDEV 22 generates the necessary procedures or classes.



The new REST Web service editor

**Benefit provided by this new feature of version 22:**  
Easy description of the Web service external interface

**901** new feature WD WB WM

**TEST PAGE AND DOCUMENTATION AGE OF THE WEB SERVICE**

WEBDEV 22 automatically generates test and documentation pages for the Web service. These pages are automatically deployed next to the Web service and are an indispensable tool to help developers who consume the Web service.

**Benefit provided by this new feature of version 22:**  
Documentation and automatic tests

**902** new feature WD WB WM

**DEPLOYMENT OF THE WEB SERVICE**

The deployment is done the same way as the deployment of a site. The Web service is hosted on a WEBDEV application server (pro-

prietary server or cloud based)  
All the usual site deployment tools are available.

**Benefit provided by this new feature of version 22:**  
Easy deployment

**903** new feature WD WB WM

**CONSUMPTION OF THE WEBSERVICE: FROM THE FRONT-END OF A WEBDEV SITE OR A THIRD-PARTY SITE**

From a site built with WEBDEV 22, the consumption of a REST Web service is done in browser code or in server code. The new **RESTExecute** function lets you call the Web service and retrieve the result.

When the result is in JSON format, the **JSONExecute** function calls the Web service and automatically interprets the result. A REST Web service created with WEBDEV 22 can also be consumed from a third-party site.

**Benefit provided by this new feature of version 22:**  
Consume with moderation

**904** new feature WD WB WM

**CONSUMPTION OF THE WEBSERVICE: FROM A WINDEV, WINDEV MOBILE OR THIRD-PARTY APPLICATION**

In WLanguage code, the consumption is done via a simple call to **RESTExecute**.

From third-party code the call is done with the HTTP request functions of the third-party language.

**Benefit provided by this new feature of version 22:**  
REST Web service accessible from anywhere



**WEBDEV 22, tranquility assured**



# JSON

**905** new feature W D W B W M

## SUPPORT OF CORS PROTOCOL: CALLING JSON ON A DIFFERENT SITE

The Cross-Origin Resource Sharing (CORS) protocol allows you to call a JSON service on a domain name that is different from the site being browsed, synchronously, or asynchronously. In version 22, the WLanguage function `JSONExecute` evolves, and respect the CORS protocol.

A use example is the use of a weather alert service directly from the page of a site.

**Benefit provided by this new feature of version 22:**  
*Openness to external services*

**906** new feature W D W B W M

## USING JSON IN BROWSER CODE

In version 22, new functions WLanguage Browser appear to manipulate JSON strings very easily (these functions already exist in Server code).

The `JSONToVariant` and `Deserialize` functions automatically decode a JSON string to assign it to variables in the WLanguage browser.

Conversely, `VariantToJSON` and `Serialize` in JSON format make it easy to build a JSON string from WLanguage variables.

**Benefit provided by this new feature of version 22:**  
*JSON and nobody answers*

# GOOGLE ANALYTICS: ANALYZE YOUR SITES' AUDIENCE

**907** new feature W D W B W M

## AUTOMATIC TRACKING OF THE SITE'S PAGES

Google Analytics is a very popular tool for measuring site traffic. Google Analytics allows you to measure the number of views for each page of the site, the loading time of each page, the navigation path, the loading time of the page resources (images), the bounce rate, the user (hardware, geographical location, language, browser ...), the origin of the navigation (original page, advertisement, ...), etc ...

Version 22 of WEBDEV automatically includes in your sites the trackers necessary for collecting Google Analytics statistics: you'll know everything about the activities of your users on your site!

**Benefit provided by this new feature of version 22:**  
*Analyze your sites' usage.*

**908** new feature W D W B W M

## NEW FAMILY OF WLANGUAGE FUNCTIONS TO TRACK SPECIFIC EVENTS

In addition to the general navigation statistics managed automatically by WEBDEV 22, it is possible to measure particular behaviors:

- Custom event: Click on command button, passage in a control,...
- Interaction with social network
- Custom timing: measure time spent on a process
- Exception in the programming: programming error
- Page view

**Benefit provided by this new feature of version 22:**  
*Monitor specific applications.*

**909** new feature W D W B W M

## CUSTOM EVENT (EVENT TRACKING)

Tracking a custom event allows you to measure the frequency of a specific action of the user: Such as clicking a button, downloading a file, clicking on an ad banner, launching a video, ... Simply call the `GglAnalyticsAddEvent` function in the concerned code.

**Benefit provided by this new feature of version 22:**  
*Monitor specific actions.*

**910** new feature W D W B W M

## INTERACTION WITH SOCIAL MEDIA

This tracker lets you monitor the number of clicks on a "social media button" included in the page: Like, Tweet,...

Simply call the `GglAnalyticsAddSocialNetworkAction` function in the concerned code.

You can specify as a parameter the concerned social media platform, the type of action (like, follow, tweet,...) the action's target...

**Benefit provided by this new feature of version 22:**  
*Follow interactions with social media*

**911** new feature W D W B W M

## USER TIMINGS

This tracker lets you get statistics on the time spent during processes or specific user actions: time spent displaying a list of products, time spent filling out a form, ...

Simply call the `GglAnalyticsAddTiming` WLanguage function in the concerned code.

**Benefit provided by this new feature of version 22:**  
*Measure time spent*



912 new feature W D W B W M

## TRACK THE POTENTIAL EXECUTION ERRORS (PAGE TRACKING)

This tracker enables you to measure the number of unexpected errors in the site's browser code.

Simply use the WLanguage `OnException` command, then call the `GglAnalyticsAjouteException` function when the exception is canceled.

**Benefit provided by this new feature of version 22:**  
*Catch errors*

913 new feature W D W B W M

## PAGE TRACKING

This type of custom tracker is useful to refine the views on complex pages: planes...

New WLanguage functions: `GglAnalyticsAddPage`

**Benefit provided by this new feature of version 22:**  
*Regular programming, completely customized.*

# RESPONSIVE WEB DESIGN: EVOLUTIONS

914 new feature W D W B W M

## MOBILE FIRST PUBLISHING

As you know, WEBDEV lets you build Responsive Web Design pages.

In version 22, the building of a Responsive page is based on the "Desktop" presentation, or the "Mobile" presentation.

In "Mobile First" mode, the Mobile page is built first, and is used as the base for creating larger pages.

In "Desktop First" mode, it is the PC page that is created first.

"The "Mobile First" mode is adapted to start a new Responsive site. The "Desktop First" mode makes it easy to transform an existing site into a Responsive mode site.

**Benefit provided by this new feature of version 22:**  
*The Responsive mode is getting richer*

915 new feature W D W B W M

## NEW PROCESS FOR CHANGING BLADE

New WLanguage process is being introduced for Responsive pages in WEBDEV 22. It is the new `Blade change` process in the page.

The code present in this process is called each time the page changes blade during navigation.

This is useful for managing special cases.

**Benefit provided by this new feature of version 22:**  
*More granular programming*

916 new feature W D W B W M

## VISUALIZATION OF POSITIONING CONFLICTS

Editing in Responsive Web Design mode allows you to move the controls according to the display slice. However, the moved controls must remain in a logical order relative to the reference slice.

Version 22 of WEBDEV visualizes location conflicts using color frames.

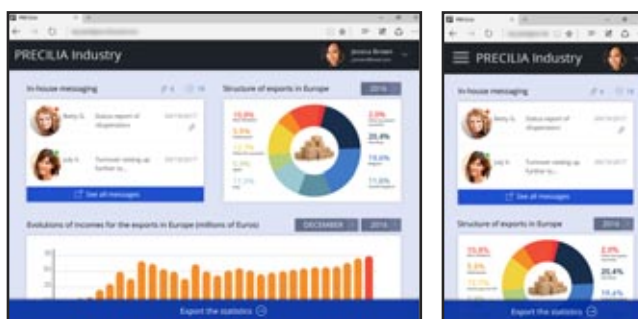
**Benefit provided by this new feature of version 22:**  
*The editor helps you with the page layout*

917 new feature W D W B W M

## DASHBOARD CONTROL: RESPONSIVE

In version 22 dashboard controls become Responsive.

It becomes possible to define the number and position of the Widgets per blade.



*The same dashboard on a tablet and a smartphone*

**Benefit provided by this new feature of version 22:**  
*This dashboard adapts to the equipment*

918 new feature W D W B W M

## 2 CONTROLS REMAIN AT A FIXED DISTANCE IN ALL CASES (ANCHORING SUPERPOSABLE CONTROLS TO THE PIXEL)

By default, in Responsive mode, the size and spacing between controls is proportional to the width of the page.

In version 22, it becomes possible to anchor the superposable controls in a fixed way: The space between the controls will not be changed when the page width is enlarged or reduced.

This allows you to keep groups of controls with a fixed presentation (search control and "search" button for example).

**Benefit provided by this new feature of version 22:**  
*New fixed layout*

# WEB SOCKET: PUSH SERVER

## THE EXPERT'S ADVICE

Web sockets allow a site to receive instant notifications. For example, a stock will update when it is changed in the database.

919 new feature WD WB WM

### RECEIVING NOTIFICATIONS FROM A SERVER (PUSH)

On the Internet, data exchanges with sites are based on the HTTP protocol. The web server sends information to the browser when this browser ask for it via a request (of HTTP type). It is sometimes necessary to send the data to the browser from the web server, without the browser requesting it. For example, to report a weather alert immediately. The use of Web sockets is the only way to notify the browser without it requesting it.

**Benefit provided by this new feature of version 22:**

*You've got a message*

920 new feature WD WB WM

### PRINCIPLE: LISTEN TO A SOCKET, AND CALL A CALLBACK PROCEDURE ACCORDING TO WHAT HAPPENS

WEBDEV 22 offers a new family of WLanguage browser functions: `Socket` functions.

This set of functions is used to manage the transmission of information via a Web socket.

The `SocketConnect` function lets you connect to the socket

server and open a communication channel.

The `SocketListen` function is used to listen asynchronously to the open socket, and to indicate which WLanguage code will be called when receiving a message.

The `SocketWrite` function allows it to send a notification to the server, for example to ask the server to recalculate statistics.

**Benefit provided by this new feature of version 22:**

*Your site is listening*

921 new feature WD WB WM

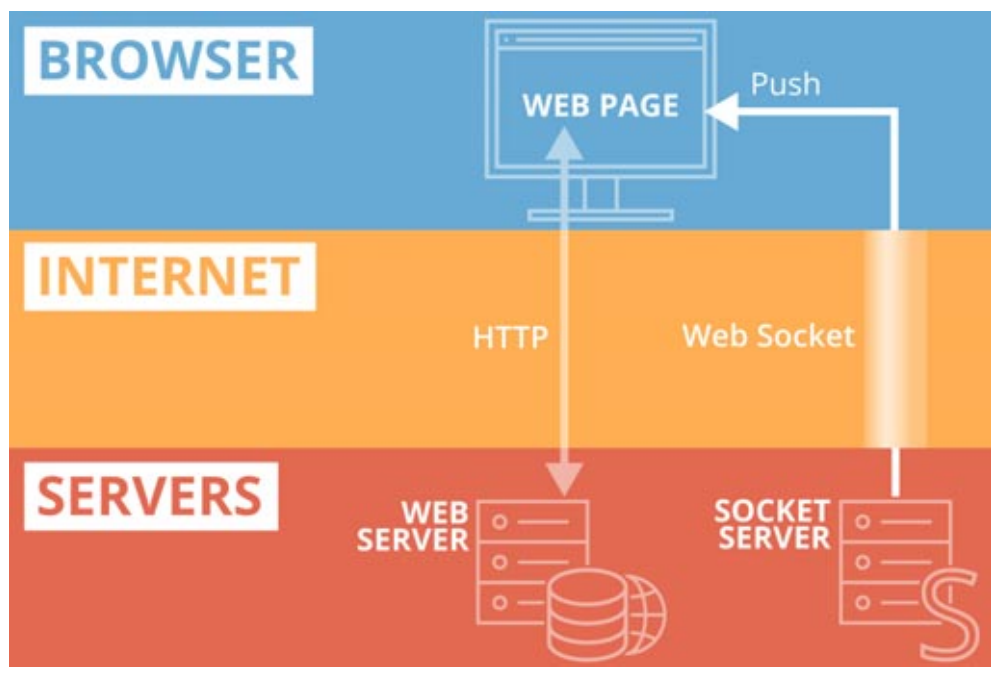
### USE EXAMPLES

The use of Web sockets allows to send ("push") data to a site: Display a weather or stock alert, create an instant chat, manage editing a document shared among several users in real time, ...

**Benefit provided by this new feature of version 22:**

*Trigger processes following notifications*

## THE ONLY WAY TO RECEIVE NOTIFICATIONS FROM A SERVER WITHOUT A TIMER (PUSH)



922 new feature WD WB WM

### SOCKET SERVER: CREATED IN WINDEV OR THIRD-PARTY SERVER

The Web sockets server can be written with WINDEV using the WLanguage functions of the `Socket` family.

This Web socket server can also be a third-party server.

The Web socket server can be hosted on a different machine from the Web server.

**Benefit provided by this new feature of version 22:**

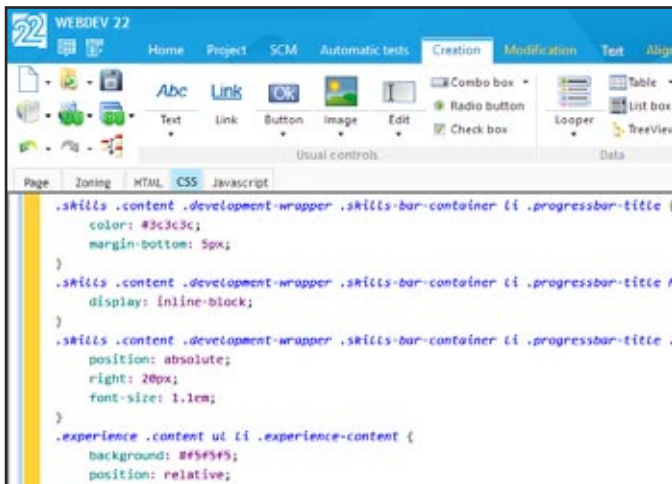
*All socket servers are supported*

# ENVIRONMENT

**923** new feature W D W B W M

## CSS EDITING: SYNTAX COLORING AND INDENTATION

In version 22, a new CSS code editor is being introduced. The new editor provides syntax highlighting, completion on CSS property names and automatic indentation.



The new CSS editor

**Benefit provided by this new feature of version 22:**  
Edit CSS in technicolor.

**924** new feature W D W B W M

## MOVING THE LAYOUT AREAS WITH THE MOUSE (ZONING)

In version 22, it becomes possible to visually move the layout areas in the WEBDEV editor.

The "block" construction of pages becomes much simpler!

**Benefit provided by this new feature of version 22:**  
Moving blocks with your mouse

**925** new feature W D W B W M

## NEW IMAGE AND ICON EDITOR

In version 22, a new editor is being introduced: the image and icon editor.

(see new feature 072)

**Benefit provided by this new feature of version 22:**  
Edit images without leaving the environment.

# APPLICATION RAD

In addition to the existing RAD: E-commerce site, CMS, real estate... 2 new Application RAD are being introduced.

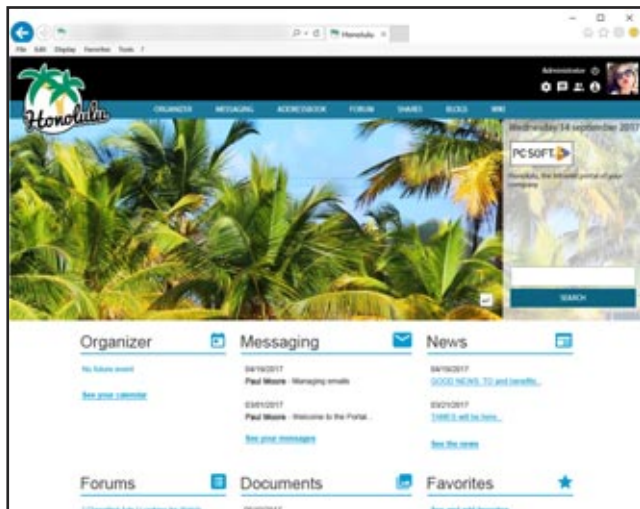
**926** new feature W D W B W M

## NEW RAD: ENTERPRISE COLLABORATION PORTAL (HONOLULU)

A new model of application RAD allows you to realize "in one click" a turnkey enterprise collaboration portal. The portal includes:



- Messaging
- Chat
- Schedule
- Favorite management
- ...
- Document sharing
- Forum
- News
- User management



**Benefit provided by this new feature of version 22:**  
New RAD templates

## 927 new feature W D W B W M

### NEW RAD: FAQ MANAGEMENT SITE

- A new "FAQ Management" RAD:
- Editing and publishing FAQ online
  - User account and access management
  - Search...

**Benefit provided by this new feature of version 22:**  
Back to basic with FAQ

## PHP



## 928 new feature W D W B W M

### PHP: BENEFIT FROM THE COMMON NEW FEATURES

As you know, WEBDEV can generate a PHP site. Most of the new features presented in WEBDEV as well as the common new features are available for PHP sites, including Web sockets.

**Benefit provided by this new feature of version 22:**  
Richer PHP sites.

## 929 new feature W D W B W M

### "FULL TEXT" SEARCH ON MYSQL

Sites generated in PHP use MySQL databases. In version 22, the "full text" search is managed by WEBDEV on these databases.

**Benefit provided by this new feature of version 22:**  
A more powerful search

## 930 new feature W D W B W M

### THE NEW PHP CONTROLS

The new controls available under WEBDEV are also available in PHP:

- plane
- scrolling banner
- upload control
- evolution on controls
- Web component
- ...

**Benefit provided by this new feature of version 22:**  
Use the new features in PHP.

## 931 to 952 new feature W D W B

### 22 NEW WLANGUAGE FUNCTIONS IN PHP

22 new WLanguage functions are being introduced for PHP in version 22.

ArcTan2	BufferToInteger	BufferToHexa	StringSplit
StringToTime	ControlToSource	DecimalToSexagesimal	LastDayOfWeek
LastDayOfMonth	GetCountryList	ExeGetPID	FTPDateTime
HexaToBuffer	NationToName	NationToSubLanguage	FirstDayOfYear
FirstDayOfWeek	FirstDayOfMonth	PropertyExist	RGBtoHTML
SexagesimalToDecimal	TraceBuild		

## LINUX

Reminder: a site developed using WEBDEV can be deployed on a Linux version of the WEBDEV application server.

## 953 new feature W D W B W M

### BENEFIT FROM COMMON NEW FEATURES IN LINUX

Sites created to be hosted on Linux servers benefit from the common new features of version 22.

**Benefit provided by this new feature of version 22:**  
Develop sites for Linux server

## 954 new feature W D W B W M

### NEW CONTROLS

The new controls of version 22 are supported by the Linux ap-

### STYLE BOOK: 2 NEW SKINS

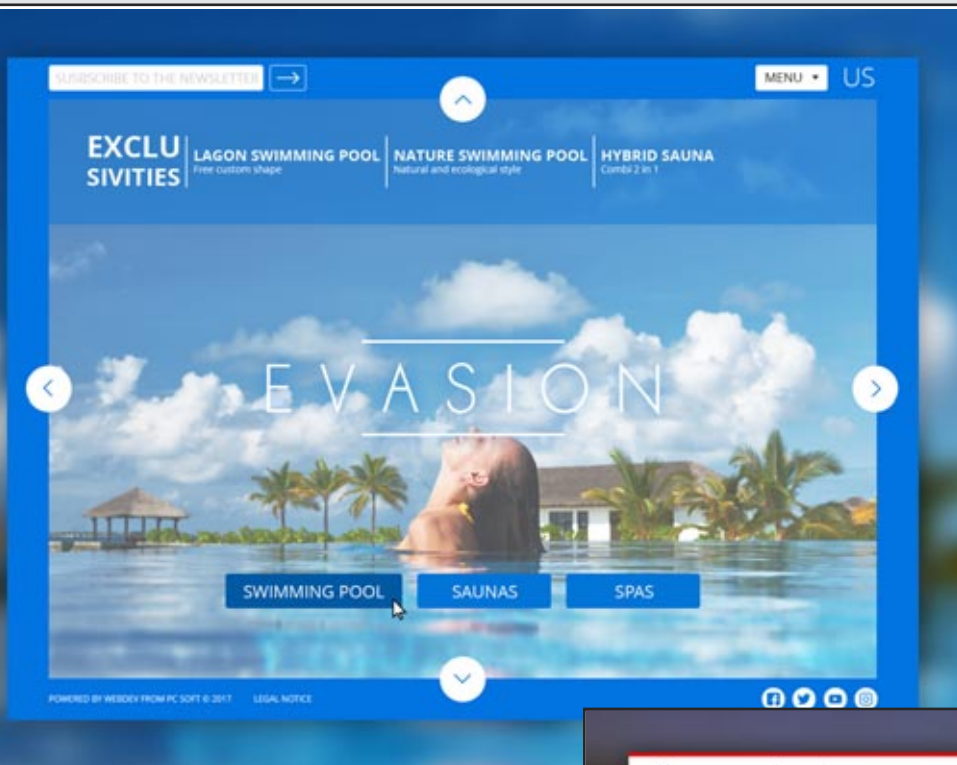
Two new skins have been introduced in WEBDEV 22:

- a BStrap skin
- a Lounge skin.

This adds new choices for possible style books that can be instantly used for your projects.

**Benefit provided by this new feature of version 22:**

*Additional style book offerings.*



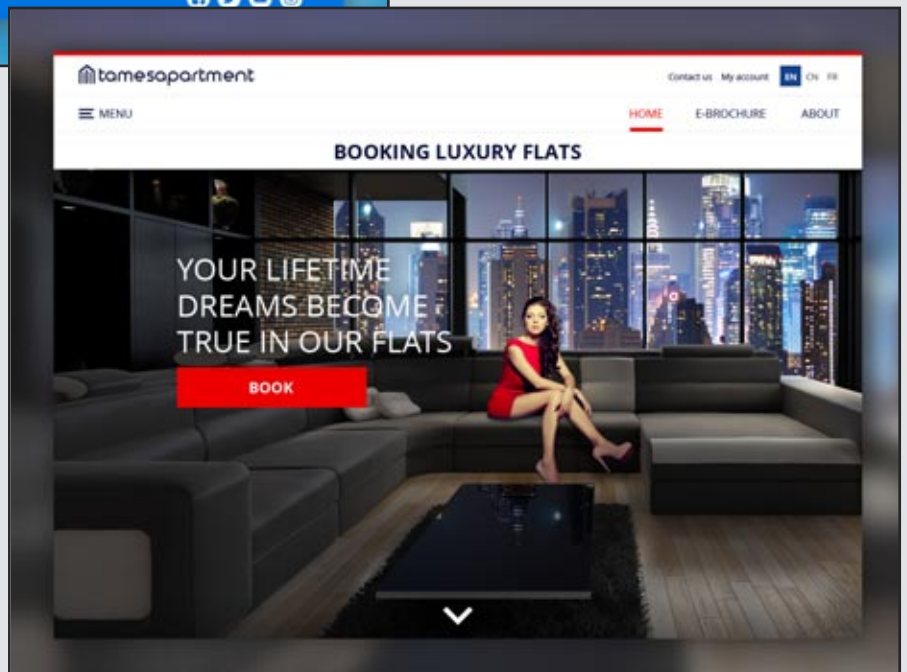
### NEW PRESENT PAGE TEMPLATES

3 new page templates are provided with WEBDEV 22 (in the Responsive standard):

- Portfolio
- Mobile application presentation
- Administration panel



**Benefit provided by this new feature of version 22:**  
*Always more page templates*



plication server.

**Benefit provided by this new feature of version 22:**  
*Use all the new features in Linux.*

### NEW FUNCTIONS IN LINUX

53 new WLanguage functions are being introduced in WEBDEV Linux in version 22.

StringSplit	Decode	EmailSeekFirst	Encode
SystemIntegerToInteger	grAxisPosition	grSeriesOpacity	grPointType

grSeriesPointType	grSeriesType	HCreateSubscriberReplica	HCreateMasterReplica
HCreateMoveableReplica	HDuplicateDatabase	HSetReplication	HServerMaintenance
HRecreateSubscriberReplica	HRetrieveBackup	HRplManageFile	HRplManageItem
HRplPass	HRplFilterProcedure	HTrack	HTrackStop
HSynchronizeReplica	MongoAdd	MongoFind	MongoCreate
MongoCreateCollection	MongoExecuteCommand	MongoGridFSFile	MongoGridFSFileInfo
MongoGridFSListFile	MongoGridFSGetFile	MongoGridFSDeleteFile	MongoInfo
MongoModifyAll	MongoModifyOne	MongoDeleteDatabase	MongoDeleteAll
MongoDeleteOne	ReplicInfo	ReplicInitialize	ReplicOpen
ReplicDeleteSubscription	RéplicSynchronise	SOAPAddHeader	SOAPGetResult
SOAPEncodeResult	SOAPErreur	SOAPRun	SOAPRunXML
SOAPPrepare			



# SAAS

958 new feature W D W B W M

## SAAS: FORGOTTEN PASSWORD

WEBDEV enables you to create SaaS applications automatically. In version 22, managing a forgotten password also becomes automatic.

**Benefit provided by this new feature of version 22:**  
Users can forget their password

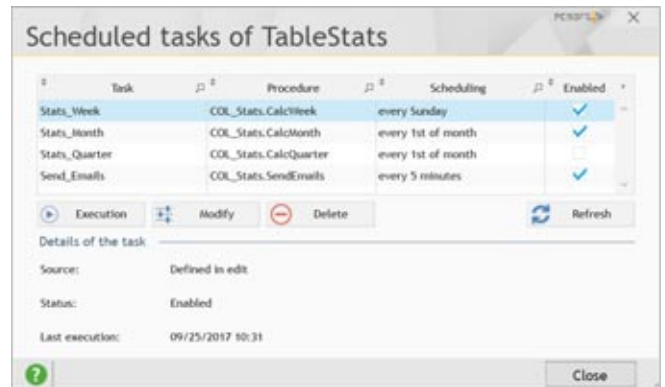
959 new feature W D W B W M

## SAAS: INTELLIGENT CAPTCHA

In version 22, the authentication on a SaaS site is improved by the appearance of a Captcha after 3 failures to input an identifier and password.



**Benefit provided by this new feature of version 22:**  
Protect your SaaS sites from bot attacks



**Benefit provided by this new feature of version 22:**  
WEBDEV is also a task scheduler.

# APPLICATION SERVER

960 new feature W D W B W M

## THE WEBDEV APPLICATION SERVER IS ALSO A SCHEDULED TASK SERVER

The WEBDEV application server is also a scheduled task server. In version 22, task scheduling can be done in 3 modes:

- from the environment
- by programming
- from the Application Server administrator (see new feature 963).

The new family of WLanguage `AppServer` functions allows you to fine-tune the execution of a procedure or a method: plan, delete, add, list ...

961 new feature W D W B W M

## IMMEDIATELY PERFORM A SCHEDULED TASK BY PROGRAMMING

In version 22, WEBDEV can execute a scheduled task on demand, by programming using the `AppServerRunScheduledTask` function.

**Benefit provided by this new feature of version 22:**  
Instant task execution.



**Benefit provided by this new feature of version 22:**  
Administer Rest services visually

## DEPLOYMENT

**965** new feature W D W B W M

### DEPLOYMENT OF REST WEB SERVICES: AUTOMATIC

Deploying a REST Web service is as simple as deploying a site ... There's nothing special to do!

**Benefit provided by this new feature of version 22:**  
Easy deployment

**966** new feature W D W B W M

### DIAGNOSTIC BEFORE INSTALLING AN UPDATE TO THE WEBDEV ENVIRONMENT

When installing a WEBDEV version 22 update, a set of checks is performed to verify that the system parameters are correct:

- Configuration of registry rights
- Automatic or manual import of existing WEBDEV accounts
- Checking the IIS server configuration
- Creating a Restore Point on the IIS Server
- ...

**Benefit provided by this new feature of version 22:**  
A serene update

**967** new feature W D W B W M

### ... AND MANY OTHER FEATURES

Version 22 also offers a large number of other interesting new features that you'll discover once you've ordered and received your product.

## MANAGEMENT

**962** new feature W D W B W M

### FASTER AUTOMATIC CONFIGURATION OF IIS

In cases where multiple sites are installed on an IIS server (several hundred sites on a single server, for example a shared server), automatic re-configuration of the IIS server could take some time. In version 22, this automatic re-configuration is now much faster.

Adding a site, deleting a site, changing site versions is now instant.

**Benefit provided by this new feature of version 22:**  
Shared IIS servers are faster to configure

**963** new feature W D W B W M

### EASILY ADMINISTER SCHEDULED TASKS

From the administrator of the WEBDEV application server (local or remote) of the deployed site, it becomes possible to administer the scheduled tasks.

**Benefit provided by this new feature of version 22:**  
Administer tasks visually

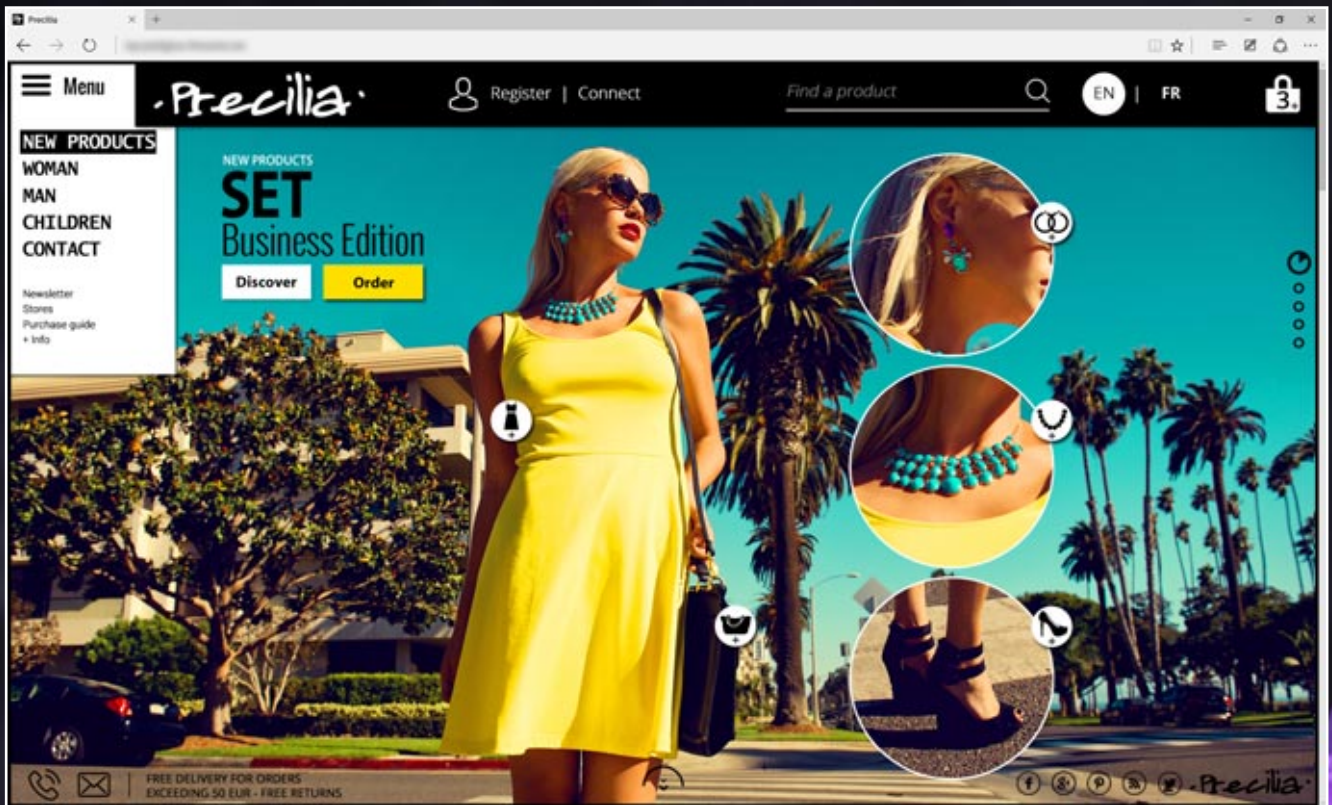
**964** new feature W D W B W M

### EASILY ADMINISTER THE REST WEB SERVICES

REST Web services created with WEBDEV or WINDEV are present in the WEBDEV Application Server Administrator.



The numbering of new features exceeds the number of 922 because some new features can be presented from different angles in different paragraphs



## TECHNOLOGY DOESN'T WAIT: ORDER YOUR COPY OF VERSION 22 TODAY

Order your copy today! Version 22 has been announced. New versions are being 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 ships, 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. The screen shots and the lists are given for information purposes only. Don't hesitate to contact us if you need any additional information or to get confirmation of a feature. All the trademarks mentioned in this publication are registered trademarks of their respective owners.

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